COMPUTERISATION OF VALUATION PROCESS IN A QUANTITY SURVEYING FIRM

(TUBEE ASSOCIATES - A CASE STUDY)

BY

BASHIR ADEMOLA BUKOYE

PGD/MCS/97/276

A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHS/COMPUTER SCIENCE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF POST GRADUATE DIPLOMA IN COMPUTER SCIENCE

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CERTIFICATION

This project ***"COMPUTERISATION OF VALUATION PROCESS IN A QUANTITY SURVEYING FIRM"*** *written by Bashir Ademola Bukoye has been read and approved as meeting the requirement of the Department of maths/computer science of the Federal University of Technology Minna.*

....

Prince R. O Badmus *Date*

(Project supervisor)

....

DR. S. A. Reju *Date*

(Head of Department)

....

External Examiner *Date*

DEDICATION

This project work is dedicated to the upliftment of Quantity surveying

ACKNOWLEDGMENT

It is with a great sense of fulfilment and appreciation that I give praise to allah for inspiring me towards this achievement. Your spirit shall wax stronger in me.

I will be forever grateful to prince R .O . Badmus for his moral support. He has really been someone who could be leaned upon. I thank you for everything.

I will also like to recognise the various moral and educational contribution given by Prof. K. R. Adeboye. Thanks also goes to all the lecturers in the department as well as service lecturers from the computer center who has taken me in one course or the other during the program.

I own it a point of duty to thank my friends and foes alike for their acts while at Minna.

My sincere appreciation also goes to the following persons/organizations - Gimba & partners, Quantz associates, Mall. Ibrahim, Yahaya, Sadiz, Engr. O. I Ajayi, Sherifat, Abdullahi, Muyiwa, Pat and others who had assisted on this project.

ABSTRACT

The project work ***" Computerisation of valuation process in a Quantity surveying firm"*** *looks at the way of automating the valuation process as one of the numerous functions of a quantity surveyor in order to enhance efficiency*

It looks at the general procedures of carrying out valuation in an ideal organisation with a view of understanding what is obtainable in preparing a valuation and its inherent flaws and considering the various options available in changing over to a computerised system of valuation preparation

A program was developed using Dbase III with the necessary requirement and input specifications and went ahead to recommend certain step to be taken in order to make computerisation in a Q.S firm a less tedious task

The project work has not looked into the preparation of a bill of quantities which is a document on which valuation are based

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CHAPTER 1

1.00 PREAMBLE

Computer is changing the way human interacts, work and live. It is found in every home, office and even places of relaxation. It has a wide spread use because of its enormous reduction in cost couple with its increase in efficiency and consistency.

The Quantity Surveyor being part of the bigger world can not afford to be left behind in the race for computerisation hence the introduction of computer to the profession but this has not been fully implemented in all the practices.

There are many specialised packages developed by Software houses for specialised tasks such as Snape, Vector, Viscalc, Qcalc produced by SD Micros that runs on IBM compatible; Dbase produced by Shepherd and Stone, this runs on IBM XT, some of these packages are limited in their scope hence the need of this project to look at ways of computerising the valuation process.

This will assist in allowing the Quantity Surveyors to focus on other tasks such as design Engineering, life cycle costing, contractual interpretation and legal opinions etc.

1.01 *AIMS AND OBJECTIVES*

The aims and objectives of this project are:-

a) To look at ways of computerising the valuation process with a view to increasing the total efficiency of a Quantity Surveyor

b) To investigate into means of reducing overhead cost in relation to the provision of professional quantity surveying service

c) To improve the quality and rate of flow of information with a view of establishing a data base organisation.

1.02 *SCOPE AND LIMITATION OF THE PROJECT*

The project looks into ways of automating the preparation of valuation as one of the numerous services that can be rendered by a quantity surveyor. It covers the valuation process in detail right from when raw data are brought from the site up to the completion of the process. It does not include the preparation of a Bill of Quantities. That on its own is another area that can be looked into in the future due to lack of time, financial constraint and the need for adequate and free access to records.

1.03 *DEFINITION OF TERMS*

There are key terms, phrases that are peculiar to the process of valuation preparation. Below are definitions of these key terms.

1.031 *Bills of Quantities*

This is a standard contract document setting out the scope of works to

be executed by the Contractor in accordance to the contract drawings. It forms the basis of valuation of works on site.

1.032 ***Valuation***

This is the process of assessing the extent and value of work and materials on site as executed by the contractor.

1.033 ***Completion date***

This is the expected date of completion for the project as stated in the form of tender

1.034 ***Contract Sum***

It is the value of works to be executed, as spelt out in the bills of quantities by the main contractor and/or any Nominated Sub-contractor/supplier.

1.035 ***Valuation Sheet***

This is sheet immediately preceding the covering letter to the valuation documents. It is a summary of the valuation showing at a glance what is due to the contractor.

1.036 ***Architect***

He is the designer of the project and traditionally he is the head of the building team.

1.037 ***Quantity Surveyor (QS)***

He is the professional in charge of the financial probity of the contract. He prepares the valuation.

1.038 ***Main Contractor***

He is the contractor who is awarded the bulk of the contract. He is directly under contract with the client.

1.039 ***Nominated Sub-contractors***

They are also contractors but are nominated by the Architect to carry out some aspect of the contract in respect of pc sums.

1.040 ***Nominated Suppliers***

They are equally nominated by the Architect to supply materials to be fixed by the Main Contractor in respect of any PC sums.

CHAPTER 2

LITERATURE REVIEW

2.00 QUANTITY SURVEYING (A PERSPECTIVE)

A Quantity Surveyor is someone who, by virtue of his specialist training and experience has developed a knowledge of construction economics which enables him give expertise advice to his client and/or contractor on matters relating to costs in building works.

The Quantity Surveyor, most times looks upon himself not so much as an agent of his client but as the holder of the balances of justices between his client and the contractor. He is in a "Quasi-judicial" role in ensuring that all action taken in relation to the administration of the contract is fair to the parties involved in the contract where the Quantity Surveyor is employed as a consultant.

On the other hand, if one is employed as a contractor Quantity Surveyor, his loyalty and responsibility is totally to his employer though his actions will be guided by the terms of the contracts just as it applies to the consultant Quantity Surveyor.

In whatever organisation, a Quantity Surveyor's works , his attitude to carrying out his duties should be a completely professional one as spelt out in the code of professional conduct for Quantity Surveying practice in the country issue by the Nigerian Institute of Quantity Surveyors.

2.001 ***FUNCTIONS OF A QUANTITY SURVEYOR***

A Quantity Surveyor offers a wide variety of services to his client prominent among which are:- (comprehensive details can be found in the Conditions of Engagement and Consultancy services agreement for Quantity Surveying and project management services issued by the Institute of Quantity Surveyors).

a) *Preliminary and final budget estimate*
b) *Contract documentation*
c) *Pricing of Bills of Quantities*
d) *Contract Administration*
e) *Final Accounts*
f) *Facility Management*
g) *Project Management*
h) *Arbitration.*

2.002 ***PRELIMINARY AND FINAL BUDGET ESTIMATE***

The practicing Quantity Surveyor normally prepares the preliminary estimates based on the client's brief. He has to use his experience coupled with sketch drawings and information from the consultants to prepare the estimates which is a figure the client would have in mind as the cost of putting up his building. He also prepares cost checks of alternative design in order to arrive at a budget estimate.

2.003 ***CONTRACT DOCUMENTATION***

The Quantity Surveyor prepares bills of quantities; Schedule of rates or works, specification, Form of tender, Preliminaries, Conditions of contract necessary for obtaining tenders from contractors depending on the types of contract the client wishes to enter into. He may assist if invited in pre-qualification of contractors and advise on the contractors to be invited to tender and subsequently report on the tenders submitted for an award to be made.

2.004 ***PRICING OF BILL OF QUANTITIES***

The Q.S normally prices the bill of quantities, based on the current rates prevailing in the market to enable the employer decide on a suitable contractor to award the contract based on the tender report. He also uses this as a bases for comparing tenders.

2.005 ***CONTRACT ADMINISTRATION***

The Quantity Surveyor provides contract administration for the duration of the original contract period which includes;

2.0051 *Monthly supervision and inspection of works to ensure that the payment for works done are in accordance with works contract.*

2.0052 *The Q.S prepares valuations at agreed intervals which forms the basis of payments to the contractor under the terms and conditions of the contract.*

2.0053 *The Q.s prepares financial statements at agreed intervals for the client to have a clear picture of the financial position of the contract.*

2.0054 *The Q.S measures and reports on all variation orders.*

2.006 ***FINAL ACCOUNT***

The Quantity Surveyor prepares the project final accounts and settlement of claims based on the original contract sum taken into consideration all variation, fluctuations and other legitimate claims arising from the contract.

2.007 ***FACILITY MANAGEMENT***

This aspect is still in its embryonic stage in the country but it basically involves putting in place modalities for the proper maintenance of all installed facilities in the building.

2.008 ***PROJECT MANAGEMENT***

This involves the co-ordination of all the work of consultants in the projects and serving as a direct link between the employer and the consultants. It mainly deals with the supervision of all the consultant's and contractor's work to ensure that the client gets ultimate value for his monies worth.

2.009 ***ARBITRATION***

By virtue of his role in a building contract, he stands as a better arbitrator in resolving disputes between the contractor and the employer. He has a good and sound knowledge of the conditions of contract on which each contract is placed.

2.01 ***ORGANISATIONAL STRUCTURE OF THE PRACTICING FIRM (Tu-Bee Associates)***

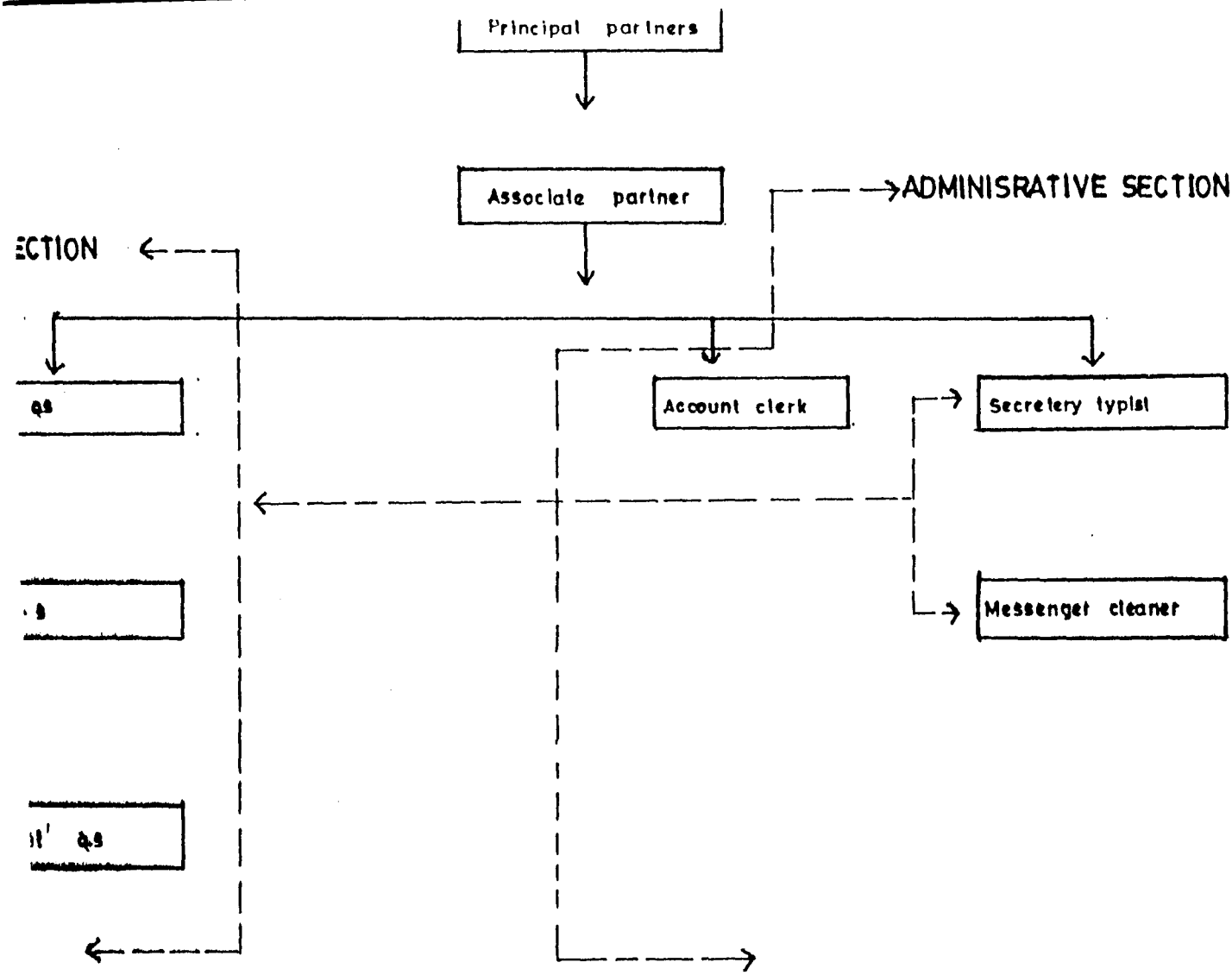
The firm "Tu-Bee Associates" is a fairly small firm incorporated in 1994.

It is divided into the Quantity Surveying section and the Administrative section reporting to the principal partner through the associate partner.

The Administrative section consist of the Accounts Clerk, Secretary/Typist and the Messenger/Cleaner.

The Quantity Surveying section consists of the Senior Quantity Surveyor, Quantity Surveyor and Assistant Quantity Surveyor. Their duties are normally carried out by teams under the overall control of a senior Quantity Surveyor for the full quantity surveying services or a single service for a particular project.

The firm operates on the basis of a resident Quantity Surveyor providing the visiting Quantity Surveyor with manual information for the preparation of the monthly valuation on the day of each site meeting. The senior Quantity Surveyor now brings the raw data to the office for processing viz-a-viz working up by the Quantity Surveyor and subsequent typing of the draft valuation.



ORGANOGRAM OF THE FIRM

2.011 *FUNCTION OF PROFESSIONAL STAFF IN THE FIRM*

From the organogram, the following are the professional staff:-

I) Principal Partner

ii) Associate Partner

iii) Senior Quantity Surveyor

iv) Quantity Surveyor

v) Assistant Quantity Surveyor

They perform the under listed functions.

I) PRINCIPAL PARTNER

a) Source for jobs

b) Delegates duties to the Associate Partner

c) Formulate general office policies

ii) ASSOCIATE PARTNER

a) Professional duties such as advice after tender evaluation, negotiations, preliminary estimates, cost planning etc.

b) Administrative duties such as recruitment, fee account, office control, allocation of job to Quantity Surveyors etc.

iii) SENIOR QUANTITY SURVEYOR

a) Responsible to the Associate Partner

b) *Administer the contract*

c) *Delegation of appropriate work to other Q.S*

iv) ***QUANTITY SURVEYOR***

a) *Any duties allocated by the Senior Q.S. which includes amongst others - taking off, vetting of claims etc.*

v) ***ASSISTANT Q.S***

a) *Any duties allocated to him under the supervision of the Quantity Surveyor.*

2.02 ***GENERAL PROCEDURE FOR VALUATION***

The valuation should be made as accurately and reasonably possible. The contractor is entitled under the JCT 80 form of contract to monthly valuation on a date that must have been stated in the appendix to the bill of quantities. This will assist the Architect in preparing his certificate for payment to the contractor by the client.

The best method of valuation is to value on each occasion the value of work done to date and materials on site on each occasion and deduct from it the previous month's value to arrive at the current value. This procedure allows any "under" or "over" valuations of either work completed or unfixed material on site on the last valuation date to be automatically canceled out. It is not advisable to value in isolation the value of works done for a month. This could lead to professional negligence.

Valuation are mostly carried out on a single column billing sheet with

provision for each page sub-total to be carried forward to a summary page and finally to the valuation page.

It basically consists of main contractor's work; variations; materials on/off site; nominated sub-contractor's work and/or suppliers.

These are totaled up and a retention of 10% deducted, up to the limit of 5% of the contract sum. Any fluctuation in labor and/or materials is then added to the total so arrived at. The value of builder's work, materials on/off site and/or fluctuations for the previous month is the deducted from the gross work to come to the net or current value of work and materials on site for the month.

VALUATION NR 8

Preliminaries	*A*
Main Contractor's Work	*B*
Variations	*C*
Nominated Sub-Contractors/Suppliers	*D*
Materials on site	*E*

Gross builder's work + materials on site	*(A+B+C+D+E)*
Less Retention	
10% of (A+B+C+D+E)	*F*

	(A+B+C+D+E) - F
Add Fluctuation	*G*

	(A+B+C+D+E - F) + G
Less	
Value of work upto and including valuation 7	*H*

Amount due	***(A+B+C+D+E - F) + G - H***
	==========

ILLUSTRATION OF GENERAL PROCEDURE FOR VALUATION.

2.03 *COMPONENTS OF VALUATION*

The components of a valuation would include among others the following:-

i) Preliminaries

ii) Main Contractor's Work

iii) Nominated Sub-contractor's Work

iv) Nominated Supplier

v) Variation

vi) Materials on/off site

vii) Fluctuation

viii) Retention

This list is not exhaustive but would always include any component of work that needs to be valued for payment to the contractor.

2.031 *PRELIMINARIES*

This deals with the valuation of works that can not be accurately apportioned to a particular section of work. It includes items like water for the works, telephone, security etc. There are various ways of assessing the value of prelims but for the purpose of this project the writer have decided to use the method of detailed breakdown of the prelims into initial, during and completion cost related items which could be adjusted for time overrun in the case of extension of time.

2.032 *MAIN CONTRACTORS'S WORK*

This deals with the actual builder's work carried out by the main

contractor based on the contract bills. It is value based on percentage completion for each work category. This bill of quantities is always divided into about nine work sections depending on the particular project.

2.033 ***NOMINATED SUB-CONTRACTOR WORK***

These are specialist work carried out by another contractor specially nominated by the Architect on behalf of the client. His works are valued on the same basis as the main contractor and paid through the main contractor in addition to the contractor's statutory 5% and 2½% for profit and attendance respectively.

2.034 ***NOMINATED SUPPLIER***

This deals with the value of materials supplied by a nominated supplier for specialist materials. It is valued and paid on the same basis as the nominated sub-contractor but the main contractor is contractually entitled to 5% of the value for materials as his profit.

2.035 ***VARIATION***

Variations are changes or modifications to the original scheme in as much as it does not change the initial scope of the project. They are valued based on the original rate in the Bills of Quantities for similar item of work or pro rata rates for disimilar item but executed under the same condition. They are adjusted in the final account which is beyond the scope of this work.

2.036 ***MATERIAL ON SITE***

This is the value of unfixed material on site. They are value based on

rate in the schedule of basic rates in the appendix to the bills of quantities. Materials could be off site, but it must be clearly marked as being dedicated to the project.

2.037 ***FLUCTUATION***

This is to accommodate any change in the price of materials and/or rate of labour between the tender date and the completion of the contract. It is a separate aspect of Quantity Surveying functions but for the purpose of this project it is assumed that this must had been previously prepared and approved by the client hence its inclusion in the valuation.

2.038 ***RETENTION***

The purpose of retaining part of the total value of work completed to date is to provide an incentive for the contractor to complete work as quickly as possible and to cushion the client to some extent against the effect a contractor defaulting on his contractual obligation. The retention percentage is normally 10%, except otherwise stated in the appendix to the Bills of Quantities, subject to a limit of 5% of the contract sum. Some items are not subject to retention such as:-

a) Fluctuation (Traditional)

b) Insurance etc.

Clause 30.2.2 of Joint contract tribunal 1980 (JCT '80) gives a detailed list of the exclusions.

The JCT also provides for the release of ½ of the total money retained as soon a certificate of practical completion has been issued and/or the employer has taken possession of any part of the work before practical completion.

The Architect, at his own discretion, may wish to release the whole of that part of the retention monies which relates to any nominated sub-contractor's work at any time before practical completion of the works as a whole.

CHAPTER 3

SYSTEM ANALYSIS AND DESIGN

3.01 INTRODUCTION

System analysis and design could be defined as the method of determining how best to use the computer with other resources to perform tasks which meets the information need of an organisation. It is similar to solving a problem.

The process involves the following established developmental stages:-

i) Problem definition
ii) Feasibility study
iii) System analysis
iv) System design
v) Acquisition and programming
vi) Implementation
vii) Maintenance

3.011 PROBLEM DEFINITION

This is to determine the nature and scope of the problem in order to accurately address the real issue otherwise the whole exercise would be futile. The use of personal interview, questionnaires would go a long way in seeking the user's opinion on the ways of enabling better and efficient performances.

3.012 ***FEASIBILITY STUDY***

This is the next stage after the problem has been properly defined. This is to determine if it is feasible to go ahead with the proposed exercise. It is infact a miniature system analysis and design. It examines all the available options open to the firm in relation to the cost/benefit to the firm in terms of the operational, technical and economic viability.

3.013 ***SYSTEM ANALYSIS***

This deals with the detail study of the existing system to actually determine why the problem occured, why was the present method adopted etc. spelling out the strength and weakness of the existing system. The existing system must be crticised against the principles of procedure such as purpose, economy, workflow, flexibility, etc. This is to produce a requirement specification.

3.014 ***SYSTEM DESIGN***

This deals with the design of the new system based on the objectives developed from the analysis of the old system using the system specification.

3.015 ***ACQUISITION/PROGRAMMING***

This is to select and purchase the desired hard/software for the system.

3.016 ***IMPLEMENTATION***

This involves the process of coding, testing and documentation of program in the system.

3.017 ***MAINTENANCE***

This includes whatever changes and enhancement needed to be made after implementation such as increasing the memory, inclusion of a CD drive etc. for better performance.

CASE STUDY OF TU-BEE ASSOCIATES

3.02 ***OVERVIEW OF EXISTING MANUAL SYSTEM***

The existing manual method of valuation preparation involves the use of many Quantity surveyors that could otherwise be assigned to other duties.

The procedure is as spelt out in chapter 2. It involves a minimum of three Quantity surveyors viz-a-viz the resident Q.S, Senior Q.S and the overall supervising Quantity surveyor and a typist.

The method gives room for errors in the preparation and corrections can be tediuos and time wasting.

There are a number of distinct stages to move through when a decision to computerise has been taken. The main stages that the firm have agreed upon are:-

i) Definition of needs and/or objectives

ii) Analysing of current system

iii) *Produce a model of the system*

iv) *Improve and develop the model*

v) *Produce system specification of the ideal system*

vi) *Survey of market for suitable computer solution*

vii) *Match computer solution to the specification*

viii) *Train users*

ix) *Implement computer solution*

x) *Monitor and maintain the computer system*

xi) *Plan future stategy.*

3.021 ***WHY CHANGE OVER BY THE FIRM***

(a) The need to provide a better, efficient and fast services to the client.

(b) The need to free other Quantity Surveyors to other professional duties

(C) The need to keep abreast with dynamic pace in the profession

(d) The need to have proper record system in the firm from the beginning.

3.022 ***INFORMATION FLOW***

This is from the resident Q.S to the office in form of raw datas that has to be processed manually before typing. This is very time consuming hence the decision of the Principal Partner to computerise.

In defining the needs of the organisation in relation to reasons for computing, this has been determined to range from improving quality and rate of flow of information to reducing the cost of offering professional services. This must be clearly defined. A statement of the

problem to be solved is usually good way of concentrating one's mind upon the agreed objectives.

They now went ahead to analyse the existing system, so that a clear picture could be produced to serve as a basis for the design of an appropriate solution. This will allow the analysis to focus upon the aspect of the system that needs to be improved and developed in line with the stated needs and objectives.

The strategy they adopted is the top-down system commencing with a coarse level of details that is refined until sufficient details can be modelled using the Yourdon - Demarco diagram.

The model of the existing information flow processes that has been produced by the analysis, provided the basis for the design of a technically feasible computer solution. The data flow diagram enables a functional specification to be produced for the solution. The aim of the design and specification stages is to define the ideal system solution.

Once this has been defined, a survey of the market for possible product should be carried out otherwise without a definition of the ideal system solution, the firm runs the risk of implementing something that is not the solution to the problem defined. A lot of factors would come into consideration in the choice of the system to be acquired prominent amongst which will be cost, capacity etc. The initial decision to buy a computer is often a subject of careful evaluation of the various products available in relation to the needs of the organisation.

The training of users and implementing of a solution are two important stages in the plan to computerise training is often giving a low priority especially where the cost of training can sometimes be expensive.

However, a failure to commit adequate resources at this stage will simply mean that the benefit perceived at the onset may not be realised. All computerisation project should be thought of as the means to an end and not and end in themselves.

It is equally important that the progress of any implemented computer solution is carefully monitored. An on-going strategy for computerisation should be able to ensure that the new system does not stagnate and put the organisation back into the position it was prior to computerisation.

3.03 ***CHANGEOVER PROCEDURES***

This is the act of connecting from an existing system to a new and better improved system. This could be achieved by any of the following types of changeovers:-

i) Direct changeover

ii) Parallel changeover

iii) Pilot changeover

iv) Stage changeover

3.031 ***DIRECT CHANGEOVER***

This method replaces the old system by the new one in one swift move. It is normally used when everybody concerned has confidence in the new system. All system tests and training should be comprehensive in order to prevent a costly system crash.

3.032 ***PARALLEL CHANGEOVER***

This is the act of changing over by using the old and the new systems at the same time and comparing results. It is good in the sense that old system is still operational until the new one is proved to be 100% reliable, but more costly to operate.

3.033 ***PILOT CHANGEOVER***

In this type of changeover, data from one or more previous period of the system is run on the new system to compare the existing result with the new system. It is like an extended system of the parallel method. It is a more practical form of changeover for organisational resources.

3.034 ***STAGED CHANGEOVER***

This is the act of changing over by a series of limited size direct changeover. The new system is introduced in bits and only when the selected bits is operating satisfactorily is the other part committed to the system.

From the foregoing procedures and taking into consideration the fact that the firm is a relatively young establishment, pilot changeover would be more ideal for the firm since they would have the opportunity of physically comparing the results of the previous periods.

3.04 ***BENEFIT OF CHANGEOVER***

The benefit that can be derived by the firm's decision to computerise can not be over emphasied but prominent among them are:-

- *the valuation process/preparation now becomes a small proportion of the Quantity Surveyor's work load*

- *the ability of the system to repeat a task many times over without loss of accuracy.*

3.05 ***COST BENEFIT ANALYSIS***

3.051 ***COSTS***

It is imperative at this stage for an estimate of the overall cost of the new system to be carried out in order to assist the management in taking a decision as to changing from the existing system.

Costs to be considered would include the developmental and operating costs.

DEVELOPMENTAL COSTS

-Purchase of 2nr. Pc @	*80,000.00*	*₦160,000.00*
-Purchase of 2nr. Printers @	*50,000.00*	*₦100,000.00*
-Purchase of scanner @	*70,000.00*	*₦70,000.00*
-U.P.S @	*35,000.00*	*₦35,000.00*
-Training of 3 operators 4wks @	*3,000.00*	*₦ 12,000.00*
-Installation cost		*₦ 50,000.00*
		427,000.00

OPERATING/RUNNING COSTS

-2nr. System analyst	
4wks @ 10,000.00	*₦ 80,000.00*
-Maintainance	*₦ 25,000.00*
-Consumables	*₦ 50,000.00*
-2nr. A/C (2.5 H.P)	*₦120,000.00*
	₦275,000.00

Developmental cost	*₦427,000.00*
Operating / Running cost	*275,000.00*
Grand total	*702,000.00*

3.052 ***BENEFITS***

There are a lot of benefits to be derived from automating any process. Prominent amongst which will include :

a *It brings about less time wastage in the performance of any task and can carry out the task repeated times without loss of accuracy.*

b *Improved and faster services can be guaranteed.*

c *There is a more effective use of the organisation resources.*

d *The introduction of computer system brings about a remarkable psychological change through such reasoning as " the computer says this is now impossible... we must now act accordingly".*

3.06 ***TESTING PROJECT FEASIBILITY***

This is to really see how possible it is for the changeover to be carried out. For a successful test the following have to be undertaken:

Operational feasibility test: *This is to determine how workable is the proposed system when developed and installed. It would involve looking at any anticipated operational constraints.*

Technical feasibility test: *This is carried out to determine if the proposed system can be established with existing equipment or otherwise.*

Economical feasibility test: *This is to determine how economical is the proposed system vis-a-vis the associated costs of development/operations and the tangible/ intangible benefit that can be derived from the proposed system.*

CHAPTER 4

4.00 PROGRAM DEVELOPMENT / SOFTWARE IMPLEMENTATION

When the programmmer gets down to the task of designing the actual processing and computation of data. Numerous problems are bound to come into focus, many of which are due to constraint imposed by the user or limitation in the hardware and software that makes up the system. In order to have a very good program, all these must be overcome through a very meticulous system design couple with series of tests with live data.

4.01 CHOICE OF LANGUAGE

A program can be said to be a series of coded instructions for a computer to obey and represent a logical solution to a problem. This can be written using any of the known programming language such as the the low level or high level language. The high level language is most preferred because its syntax is close to English language.

Dbase3 plus has been chosen for the following reasons:

-The language makes use of near english like statement and mathematical signs which are easy to understand.

-Dbase 3 plus has the ability to store large volume of data and easy access to them when needed.

-It contains lots of mathmatical functions such as cos() tan () e.t.c which ease computation.

-It provides a flexible means of carrying out any task through the use of its control centre.

4.02 ***FEATURES OF THE LANGUAGE***

Dbase 3 plus has series of features that are peculiar to the program. Prominent amongst which are:

-It can be access through its interactive mode or its assistant. The interactive mode allows one to enter a command from the dot prompt thereby allowing for greater speed and flexibility. The assistant on its own allows user to work without memorizing any of the dbase command.

-It has a screen design facility that allows the cutomization of the input/output screen as well as checking and editing on inputting.

-Multiple data files can be linked to form larger database.

-It has a large area network operating mode whereby many users can access the same database.

-It required 25 kbytes of memory and two disc drives.

-It allows more than ten files to be active at any one time.

-Dbase 3 plus can be used for complex application.

4.03 ***INPUT SPECIFICATION***

Data are made available for proccessing through the input which is a medium through which data are supplied into a processing system. Various database files are created to store data for processing. Over twenty database files are created and would be too voluminous to draw the structure and form of the database file, however a list of some data entry screen attached as appendix 1.

A data validation check is also included in the input design to detect and correct errors when entering data. The files have been organised using the direct addressing method which automatically allocate storage space for each record in the database file with a specific storage address and each record is given a key using a specific data item within the record called the record key. This record key provides fast access to the record in the database so that processing can be fast. The various data to be inputted are as follows:

-Preliminaries

-Main contractor's work vis-a-vis

-substructure

-concrete work

-Block work

-Roofing

-Carpentry and Joinery

-Metal work

-Finishing

-Services

-Painting and Decorating

-Variation work

-Nominated subcontractor/ supplier

-Material on site

-Fluctuation

The various program files are as contained in the diskettes attached with the project work

4.04 ***OUTPUT SPECIFICATION***

The various reports to be generated would include amongst others the following:

-Nominated supplier

-Nominated subcontractor

-Net valuation

-Main contractor

-Preliminaries

There are four principal methods of outputting information for people to act upon vis-a-vis (a) printer (b) screen (c) micro film (d) synthetic speech. Item © &(d) would not be considered for this project work. Item(a) gives you a hard copy of the report. The choice of "a" or "b" would depend on if the output is either external or internal.

The Nominated subcontactors and Nominated supplier reports give information on the various subcontractors/suppliers vis-a-vis their names and amount paid to date.

The Net valuation gives a report on the amount due for payment to the contractor after all computation have been carried out in the input section.

The Main contractor's reports gives a summary of the various trade that makes up the bill of quantities.

The preliminaries gives the amount of preliminaries due to the contractor. This value is use in the Net valuation report.

4.05 ***REQUIREMENT SPECIFICATION***

In order for the system to function effectively the following hard/soft ware would be required. They are not in themselves exhaustive but if cost permit there are upgrade that could be installed.

4.051 ***HARDWARE REQUIREMENT***

a. *Pentium 200 mmx*
   32MB RAM
   2.1GB HDD
   3.5" FDD
   36XCD-ROM DRIVE
   Windows 98
   Office 97

b. *14" colour monitor*

c. *HP 6L Laserjet Printer*

d. *Epson LQ 2170 Printer*

e. *Scanner*

4.052 ***SOFTWARE REQUIREMENT***

a. *Dbase III Plus*

b. *Vector 2.0*

c. *Cato Professional*

4.06 ***STARTING/EXITING THE PROGRAM***

4.061 ***STARTING THE PROGRAM***

For the program to run it has to be loaded into the computer memory.

Below are the steps involved in starting the program "Poject valuation system"

- *At C: prompt, enter cd\ dbase 3*
- *Enter dBASE*
- *Press Esc key.*
- *Do V_ main*

The user will now have the main menu screen which comprises of four sub- program vis- a- vis the input;Report;Maintainace and information
The input consists of eight sub- programs of data that needs to be generated. Inorder to access any of the options, select any option between A and H.
The maintainace is for voiding all records, to serve as a backup of all data.
The report is used in generating either a hard or soft copy of the valuation.
The information is just to tell the user the current time and date and the option for quiting the screen.

4.062 ***QUIT/EXIT***

In quiting the program after all work had been satisfactorily completed the user will select option" q" from the main menu of project valuation system. This automatically closes all open database file and return the user to the dot prompt. At the dot prompt type "quit". This will then direct the dBASE processor to close all open database file and return to the disk operating system prompt. An output of the program is shown in appendix II for valuation number one, six and ten.

CHAPTER 5

CONCLUSION AND RECOMMENDATION.

5.01 SUMMARY

The project work has been able to look into Tu-bee associates with a view of automating the valuation process. It has been able to look at the existing manual system which has its own inherent flaw such as error and late preparation of valuation. The project work has therefore been able to developed a small program that can automate this process thereby bringing about faster services to their numerous clients.

5.02 CONCLUSION

Computers are everywhere this day, their small size has made them common and their computing power is mind boggling while their versatility is stunning.

It was observed during this project work that a lot of factor affects the attitude of people in computerizing part or all of their services. These factors are highlighted below:

A FEAR

People are afraid of change and hence afraid of losing their jobs. It is common misconception that computer leads to redundancy of staff. A lot of psychological barriers needs to be overcome. Even though the computer is a useful worktool, older workers fear failure to learn the new methods associated with the computer.

B **CAPITAL INTENSIVE**

Computerising is a capital intensive operation. The reason for this can not be far fetched. This is due mainly to the fact that the systems are imported hence the high cost and even softwares are on the high side. A RIPAC software for contract management cost about £4000 an equivalent of about ₦500,000.00.

C **APPROACH TO COMPUTERISING**

Firms lacks professional approach to the selection and purchase of their system reqirement. They tend to patronize non- professonal even though un-intentionally hence the need for a better awareness towards the purchase of the system hardware/software from reknown professionals. Do not delegate computer awareness, lead by example, infact, introduce a kind of policy of compensating computer inclined persons within the organization. Once you set the ball rolling, see it through and do not be tempted to abandon the procees.

5.03 **RECOMMENDATION**

Based on the conclusions, It is recommended that the following could be helpful to future work and the organization.

I **MASSIVE ENLIGHTEMENT**

There should be massive education to enlighten people as to the merits of computerising. This would include involvement ,education and sustained interest. In this situation if the quality of the Quantity surveyor

handling valuation preparation are involved from the begining of the procurement of the computer, they will picture the computer as a tool of help which would make things go smoothly and correctly.

ii ***COST***

In designing and choice of computer, attention should be on the final cost implication of such an act. Adequate attention must be given to choice of computer in terms of cost while at the same time not compromising the efficiency of the computer. Computer choice should be in line with the requirement specification of the firm.

iii ***TRAINING***

There should be constant in- service training to keep staff abreast of the latest development in the computer world. Time and money should be spent in training the staff on the operation of the computer. By touching and making it work people tend to find computer more of a challenge than a threat.

5.031 ***FURTHER DEVELOPMENT***

Once the system has been established and the firm can afford the cost, it is advisable for them to look into ways of been linked to the internet. This will make for faster access of information. They could also consider networking their various sites to reduce the amount of manhours wastage in traveling time.

Another development is to consider setting up a data base system

for the management of cost data which is very vital to the firm. This will also go a long way in automating the work of a Quantity surveyor.

APPENDIX 1

P R O J E C T V A L U A T I O N S Y S T E M

I N P U T

A. Valuation Slip
B. Preliminaries
C. Main Contractor's work
D. Variations
E. Nominated Sub Contracts
F. Nominated Suppliers
G. Materials On Site
H. Fluctuations

MAINTENANCE

I. Void Record
J. Help
Z. Backup

R E P O R T

K. Nominated Sub Contract
L. Nominated Suppliers
M. Net Valuation
N. Materials on Site
O. Main contractor
P. Preliminary

INFORMATION

SYSTEM DATE :18/05/88
SYSTEM TIME :20:21:26
QUIT(Press Q):

[Enter selection (A TO P, Z or press Q TO EXIT)][ ]

VALUATION SLIP:

APPENDIX II

Project Valuation Report

roject	:PTF CONTRACT		
ain contractor	:MESSRS SANI MANZO & SONS		
ommencement Date	:01/12/98	Completion Date	01/12/99
ontract Sum	:69448865.25	Projected Contract Sum:	69448865.25
aluation Number	:1	Date on site	01/01/99
ate of Issue	:08/01/99		

---

reliminaries	2172611.04	
ain Contrators Work	834867.55	
ariations	0.00	
ominated Sub-Contracors	0.00	
ominated Suppliers	0.00	
aterials on site	425000.00	
otal value of works & Materials on site	3432478.59	
ess Retention	343247.86	
	3089230.73	
nter Mobilisation Advance		27,000,000.00
A]dd or [L]ess mobilisation, A	30089230.73	

Enter Repayment		0.00
luctation	0.00	
let Valuations	30089230.73	
ess amount previously certify		0.00
otal Value:	30089230.73	
nd of Valuation		

Preliminary Bill Report

ion no :1 This report is produce on 31/08/00

	Initial	During	Completion
Foreman In Charge	99685.84	109377.52	0.00
Insurance	333000.00	360750.00	0.00
Drawing	0.00	16111.08	0.00
Levelling Instrument	99685.84	109377.52	0.00
Site Accomodation	100000.00	109717.86	0.00
Site Office	100000.00	109944.44	0.00
Water	200000.00	219097.22	0.00
Electricity	132915.00	145150.97	0.00
Watching & Lighting	85000.00	93625.00	0.00
Welfare and Safety	200000.00	217361.08	0.00
First Aid Box	100000.00	110416.67	0.00
Site Meeting	70000.00	145694.44	0.00
Progress Photograph	300000.00	326388.89	0.00
Scaffolding & Plant	0.00	694.44	0.00
Protection of Works	0.00	1388.89	0.00
Text and Sample	15.00	15.00	0.00
Hoarding & Fencing	0.00	0.00	0.00
Site Board	90000.00	97500.00	0.00
Clearing Rubbing	0.00	0.00	0.00

Press any key to Continue...

Main Contractor's Work
This report is produce on 31/08/00

Valution no :1

	Value
Substructure	834867.55
Concrete Work	0
Block work	0
Roofing	0
Carpentary & Joinery	0
Metalwork	0
Electrical Installation	0
Mechanical Installation	0
Furnishing	0
Glazings	0
Plating & Decoration	0
External Work	0
Total:	834867.55

Press any key to Return to Main Menu

Report on value of material on site for valuation:-1
Date of Report:-31/08/00

Materials	Quantity	Rate	Unit	Total
CEMENT	500.00	600.00	BAG	300000.00
SAND	50.00	2500.00	TRIP	125000.00
d Total:-				425000.00

s any key to Continue.....

P r o j e c t V a l u a t i o n R e p o r t

:oject	:PTF CONTRACT		
ain contractor	:MESSRS SANI MANZO & SONS		
ommencement Date	:01/12/98	Completion Date	01/12/99
ontract Sum	:69448865.25	Projected Contract Sum:	69448865.25
aluation Number	:6	Date on site	01/06/99
ate of Issue	:08/06/99		

---

eliminaries	6189002.60
ain Contrators Work	49950291.96
ariations	0.00
ominated Sub-Contracors	0.00
ominated Suppliers	0.00
aterials on site	3142900.00
otal value of works & Materials on site	59282194.56
ess Retention	5928219.46
	53353975.10
nter Mobilisation Advance	27,000,000.00
A]dd or [L]ess mobilisation, A	80353975.10

Inter Repayment	4,500,000.00

luctation	0.00
et Valuations	75853975.10
ess amount previously certify	36,908,326.47
otal Value:	38945648.63

End of Valuation

Preliminary Bill Report

ion no :6 This report is produce on 31/08/00

	Initial	During	Completion
Foreman In Charge	200000.00	325000.00	0.00
Insurance	150000.00	250000.00	0.00
Drawing	0.00	125000.00	0.00
Levelling Instrument	1.50	1.50	0.00
Site Accomodation	800000.00	929456.00	0.00
Site Office	824300.00	932300.00	0.00
Water	250000.00	437945.60	0.00
Electricity	135987.00	265293.50	0.00
Watching & Lighting	150000.00	159800.00	0.00
Welfare and Safety	200000.00	325000.00	0.00
First Aid Box	100000.00	225000.00	0.00
Site Meeting	70000.00	167500.00	0.00
Progress Photograph	500000.00	600000.00	0.00
Scaffolding & Plant	0.00	250000.00	0.00
Protection of Works	0.00	50000.00	0.00
Text and Sample	150000.00	300000.00	0.00
Hoarding & Fencing	803456.00	846706.00	0.00
Site Board	0.00	0.00	0.00
Clearing Rubbing	0.00	0.00	0.00

Press any key to Continue...

Main Contractor's Work
This report is produce on 31/08/00

Valution no :6

	Value
Substructure	7000000.00
Concrete Work	14113676.20
Block work	8000000.00
Roofing	900000.00
Carpentary & Joinery	179480.50
Metalwork	3529175.40
Electrical Installation	3811500.00
Mechanical Installation	12203433.36
Furnishing	213026.50
Glazings	0
Plating & Decoration	0
External Work	0
Total:	49950291.96

Press any key to Return to Main Menu

Report on value of material on site for valuation:-6
Date of Report:-31/08/00

Materials	Quantity	Rate	Unit	Total
CEMENT	1000.00	600.00	BAG	600000.00
SAND	70.00	2500.00	TRIP	175000.00
WINDOW FRAME	1000.00	500.00	NR	500000.00
FLUSH DOORS	150.00	5000.00	NR	750000.00
DIA FRAME	30.00	3930.00	NR	117900.00
20MM G.I PPE	1000.00	1000.00	LENGHT	1000000.00
d Total:-				3142900.00

s any key to Continue.....

Project Valuation Report

roject	:PTF CONTRACT		
ain contractor	:MESSRS SANI MANZO & SONS		
ommencement Date	:01/12/98	Completion Date	01/12/99
ontract Sum	:69448865.25	Projected Contract Sum:	69448865.25
aluation Number	:10	Date on site	01/09/99
ate of Issue	:08/09/99		

---

reliminaries	8361152.17
ain Contrators Work	124663820.32
ariations	0.00
ominated Sub-Contracors	0.00
ominated Suppliers	0.00
aterials on site	1718500.00
otal value of works & Materials on site	134743472.49
ess Retention	3472443.26
	131271029.23
nter Mobilisation Advance	27,000,000.00
A]dd or [L]ess mobilisation, A	158271029.23

Enter Repayment 22,500,000.00

Fluctation	0.00
Net Valuations	135771029.23
Less amount previously certify	47,175,804.61
Total Value:	88595224.62

End of Valuation

Preliminary Bill Report

.on no :10 This report is produce on 31/08/00

	Initial	During	Completion
Foreman In Charge	120000.00	370000.00	0.00
Insurance	450000.00	825000.00	0.00
Drawing	0.00	175000.00	0.00
Levelling Instrument	150000.00	395833.33	0.00
Site Accomodation	350000.00	766666.67	0.00
Site Office	350000.00	350458.33	0.00
Water	300000.00	1008333.33	0.00
Electricity	150000.00	400000.00	0.00
Watching & Lighting	100000.00	391666.67	0.00
Welfare and Safety	250000.00	487500.00	0.00
First Aid Box	100000.00	558333.33	0.00
Site Meeting	70000.00	361666.67	0.00
Progress Photograph	300000.00	715250.83	0.00
Scaffolding & Plant	0.00	125000.00	0.00
Protection of Works	0.00	155102.50	0.00
Text and Sample	165823.00	404407.17	0.00
Hoarding & Fencing	850100.00	870933.33	0.00
Site Board	0.00	0.00	0.00
Clearing Rubbing	0.00	0.00	0.00

Press any key to Continue...

Main Contractor's Work
This report is produce on 31/08/00

Valution no :10

	Value
Substructure	7000000.00
Concrete Work	23227352.40
Block work	10000000.00
Roofing	15000000.00
Carpentary & Joinery	14000000.00
Metalwork	15703438.32
Electrical Installation	8329200.00
Mechanical Installation	21102645.60
Furnishing	101184.00
Glazings	7200000.00
Plating & Decoration	0
External Work	3000000.00
Total:	124663820.32

Press any key to Return to Main Menu

Report on value of material on site for valuation:-10
Date of Report:-31/08/00

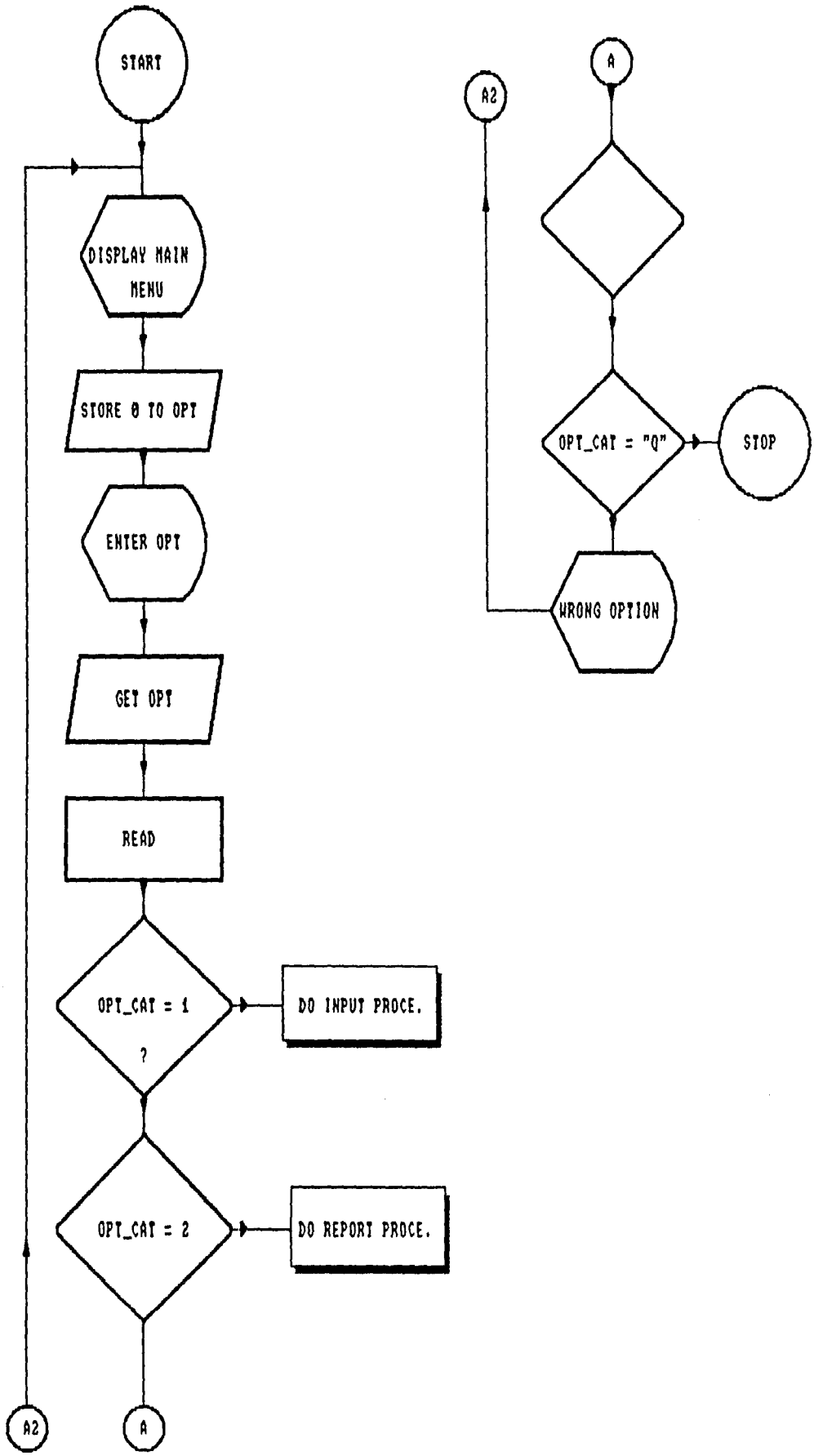
Materials	Quantity	Rate	Unit	Total
TERRAZZO	50.00	500.00	BAG	25000.00
CERAMIC TILE	100.00	15000.00	M2	1500000.00
EMULSION PAINT	50.00	900.00	GALLONS	45000.00
TEXCOTE PAINT	30.00	4950.00	DRUM	148500.00

d Total:- 1718500.00

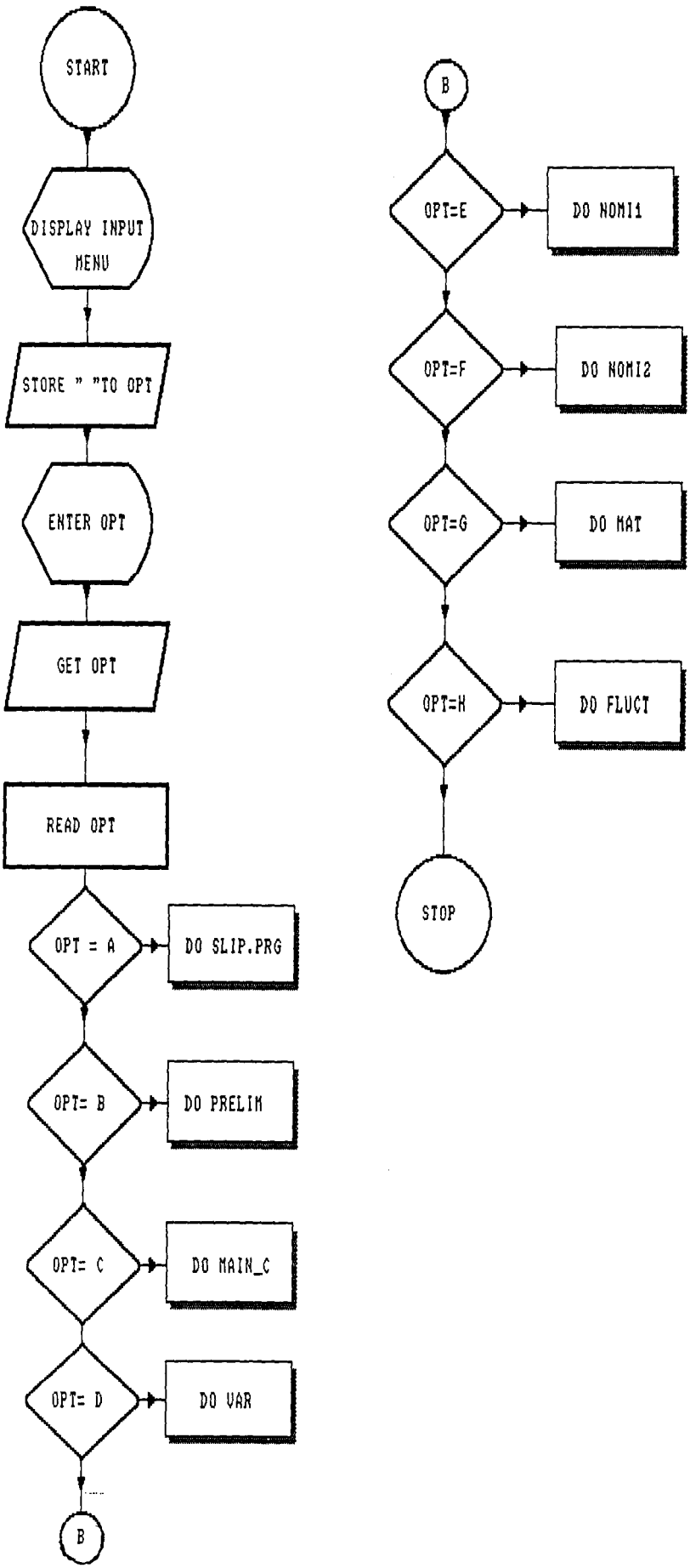
s any key to Continue.....

APPENDIX 3

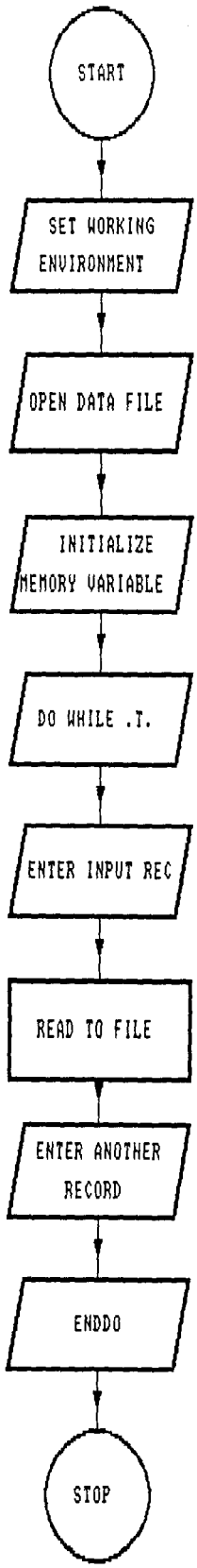
FLOW CHART FOR MAIN PROGRAM



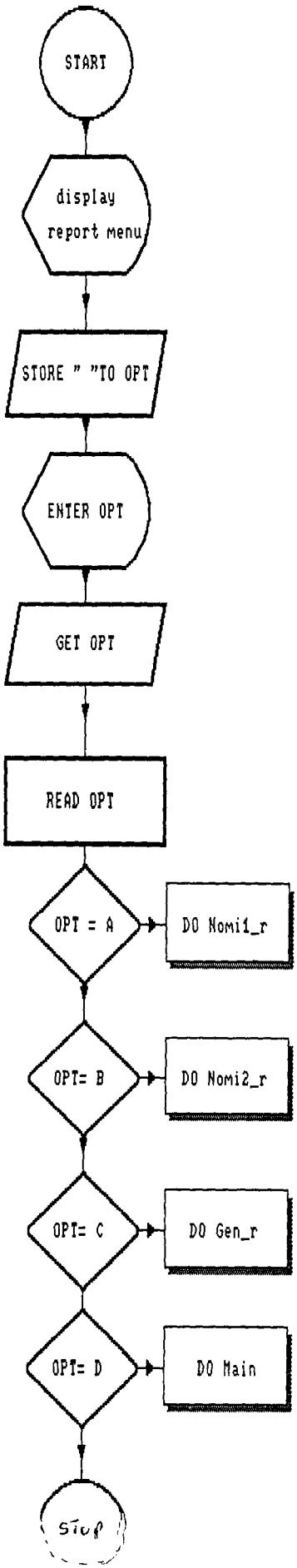
FLOW CHART FOR INPUT PROCEDURE.



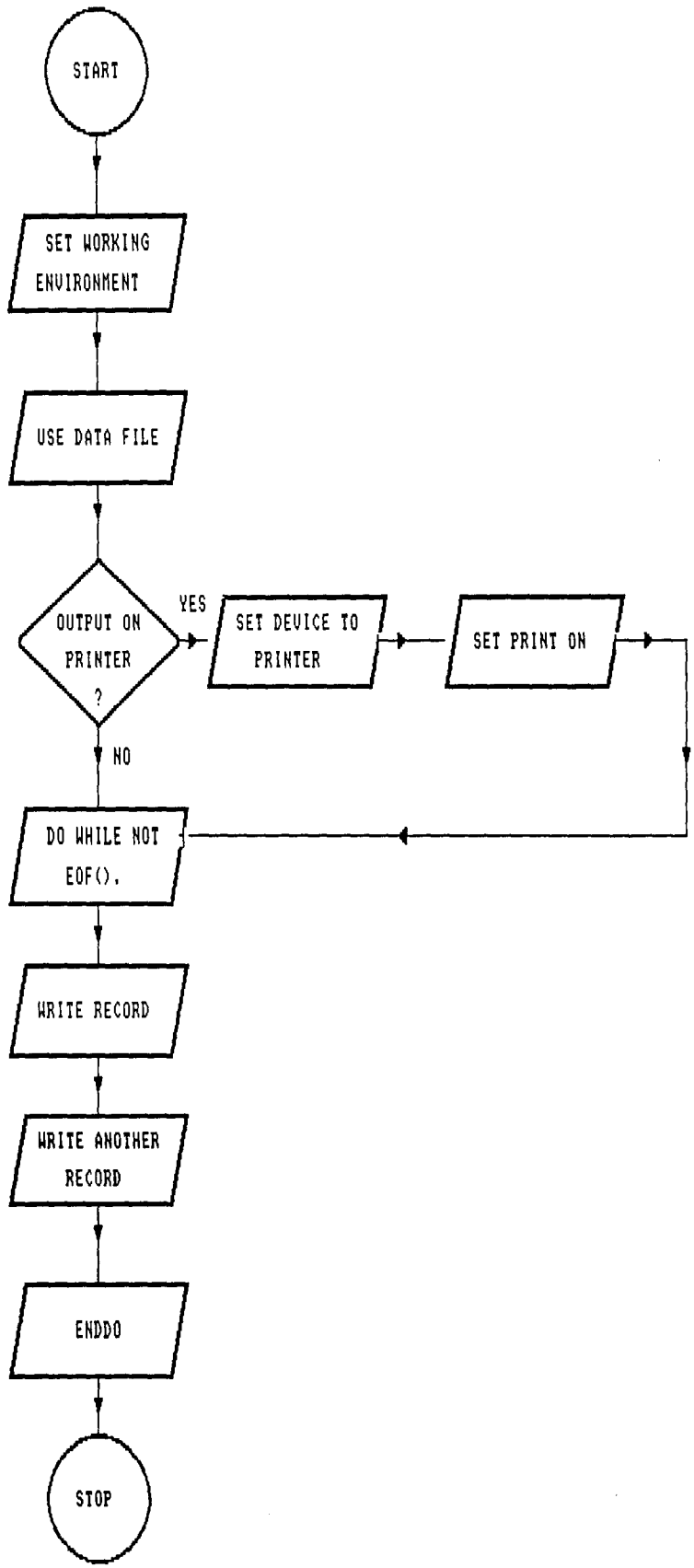
FLOW CHART FOR IMPUTING DATA.



FLOW CHART FOR REPORT PROCEDURE.



FLOW CHART FOR PRINTING REPORT.



Appendix iv

```
* Program Name...: V_menu.prg
* Purpose.....: Main menu for Valuation System.
* Note:.....: Developed for

* Program Memo 1
* Set working environment

SET ESCAPE ON
SET TALK OFF
SET DATE BRIT
SET SCORE OFF
SET STATUS OFF
SET COLOR TO W+/B+
SET BELL OFF
* Set up the working File

* Initialize memory variable

 store ctod ( "  /  /  " ) to Mdate


* Program memo 2
* Defines Menu boarders

Do while .T.
 CLEAR
 @ 1,10 TO 3,65 double
 @ 2,15 SAY "P R O J E C T  V A L U A T I O N  S Y S T E M"
 @ 4,1 TO 24,78 DOUBLE
 @ 5,5 TO 7,20 DOUBLE
 @ 6, 7 SAY "I N P U T"
 @ 8,7 SAY "A. Valuation Slip"
 @ 9,7 SAY "B. Preliminaries"
 @ 10,7 SAY "C. Main Contract's work"
 @ 11,7 SAY "D. Variations"
 @ 12,7 SAY "E. Nominated Sub-Contracts"
 @ 13,7 SAY "F. Nominated Suppliers"
 @ 14,7 SAY "G. Materials On Site"
 @ 15,7 SAY "H. Fluctuations"
 @ 16,5 TO 18,20 DOUBLE
 @ 17,7 SAY "MAINTENANCE"
 @ 19,7 SAY "I. Void Record"
 @ 20,7 SAY "J. Help"
 @ 21,7 say "Z. Backup"
 @ 5,50 TO 7,65 DOUBLE
 @ 6,52 SAY "R E P O R T"
 @ 8,51 SAY "K. Nomimated Sub-Contract"
 @ 9,51 SAY "L. Nominated Suppliers"
 @ 10,51 SAY "M. Net Valuation"
 @ 11,51 SAY "N. Materials on Site  "
 @ 12,51 say "O. Main contractors"
 @ 13,51 say "P. Preliminary"
 @ 15,50 TO 17,65 DOUBLE
 @ 16,52 SAY "INFORMATION"
 @ 18,53 say "SYSTEM DATE  :"+DTOC(DATE())
 @ 19,53 say "SYSTEM TIME  :"+TIME()
 @ 20,53 say "QUIT(Press Q):"
 @ 23,10 SAY "[Enter selection (A TO P, Z or press Q TO EXIT)][ ]"
 store space(1) to answer
 @ 23, 59 get answer pict "!"
 READ
 DO CASE
  CASE ANSWER = "A"
          DO Slip.prg
  CASE ANSWER = "B"
          DO prelim.prg
  CASE ANSWER = "C"
          DO Main_c.prg
```

```
   CASE ANSWER = "D"
            DO Var.prg
   CASE ANSWER = "E"
            DO Nomi1.prg
   CASE ANSWER = "F"
            DO Nomi2.prg
   CASE ANSWER = "G"
            DO  M_site.prg
   CASE ANSWER = "H"
            DO FLC.prg
   CASE ANSWER = "I"
            DO Void.prg
   CASE ANSWER = "J"
            DO Helpo
   CASE ANSWER = "K"
            DO R_nomi1
   CASE ANSWER = "L"
            DO R_nomi2
   CASE ANSWER = "M"
            DO general_p
   CASE ANSWER = "N"
            DO Mat_R
   CASE ANSWER = "O"
            DO Main_R
   CASE ANSWER = "P"
            DO PRE_R
   CASE ANSWER = "Z"
            DO BACK
   CASE ANSWER = "Q"
            CLEAR
            RETURN
OTHERWISE
   CLEAR
   @ 12,10 SAY "INVALID OPTION, VALID OPTION IS (A-N,Q)"
   WAIT SPACE(10) + "PRESS ANY KEY TO CONTINUE"
   LOOP
ENDCASE
ENDDO
```

```
* Program Name.....: Slip.prg
* Purpose.....: To registered a NEW project.
* Note.....: Develop for

* Set working environment

SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET CONFIRM ON
SET SCORE OFF
SET STATUS OFF

* Set up database file that we will use
* to store registered project

* Declaring memory variable

DO WHILE .T.

CLEAR
Store space(40) to pro
Store space(25) to con

store ctod ("  /  /  ") to mdate1,mdate2,mdate4,mdate3
store 0 to c_sum,p_con,v_no,m
CLEAR
@ 1,25 to 3,60
@ 4,2 to 23,78 double
@ 2,28 say "V A L U A T I O N   S L I P:"
@ 5,20 say "Enter Valuation Number[0 to Exit]:-" get v_no pict "999"
read
Use SLIP.DBF
locate for vv_no = v_no
if found()
clear
@ 12,7 say "The Valuation number already exist"
wait space(7) + "Press any key to continue....."
loop
endif
if v_no = 0
clear
return
endif
@ 7,20 say "Enter Month of Valuation:-" get m pict "999"
@ 9,5 SAY "Project            :" get pro
@ 11,5 say "Main Contractor    :" get con
@ 13,5 say "Commencement Date  :" get mdate1 pict "99/99/99"
@ 13,44 say "Date on site      :" get mdate3 pict "99/99/99"
@ 15,5 say "Completation Date  :" get mdate2 pict "99/99/99"
@ 17,5 say "Contract Sum       :" get c_sum pict ;
  "999,999,999,999.99"
@ 15,44 say "Date of Issue     :" get mdate4 pict "99/99/99"
READ

* Verify if data entered is correct

store space(1) to repl
@ 22,22 say "Is the above data entry correct [Y/N]"  get repl ;
                pict "!"
READ

IF repl = "N" .or. repl = "n"
   clear
   loop
ENDIF
```

```
APPEND BLANK
REPLACE CONTRACT WITH CON,PROJECT WITH PRO
REPLACE DATE1 WITH MDATE1,DATE2 WITH MDATE2
REPLACE DATE3 WITH MDATE3,DATE4 WITH MDATE4
REPLACE CC_SUM WITH C_SUM,PP_SUM WITH P_CON
REPLACE VV_NO WITH V_NO
  close all
  clear
@ 9,5 SAY "If you are ready to Enter Other valuation data,"
@ 10,5 SAY "select appropriate option in the MAIN MENU    "
wait space(5) + "Press any key to Continue..... "
return
Enddo
```

```
* Program Name.....: back_R.PRG
* Purpose.....: To Generate backup file for
*                databse records
* Note.....: Called from v_main

* Memo 1
* Setting working environment.
CLOSE ALL
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
 mval = " "
 @ 10,10 TO 12,50 DOUBLE
 @ 11,13 SAY "Backup all DBF to A:[Y/N] " get mval pict "!"
 read
 if upper(mval) = "N"
   clear
   return
 endif

@14,10 say "Insert Diskette in drive A:, Press Enter when ready"
wait " "
run copy slip.dbf a:
run copy pre.dbf a:
run copy sub.dbf a:
run copy con1.dbf a:
run copy block.dbf a:
run copy roof.dbf a:
run copy cap.dbf a:
run copy metal.dbf a:
run copy elect.dbf a:
run copy mech.dbf a:
run copy fur.dbf a:
run copy glaz.dbf a:
run copy plate.dbf a:
run copy ext.dbf a:
run copy msite.dbf a:
run copy var.dbf a:
run copy nomi1.dbf a:
run copy nomi2.dbf a:
run copy flc.dbf a:
@ 19,2 say " "
@ 20,5 say "Backup sucessful, press ny key to continue..."
wait " "
return
```

```
* Program Name:... cap.prg
* Purpose:..... Allow the user's to enter data
*              relating to capentary work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use cap
  locate for m_cap = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "C a p e n t a r y  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,58 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,8,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,78
 row = 7
 loop
endif
append blank
replace m_cap with msub
replace month with mmonth
replace t_cap with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:... elect.prg
* Purpose:..... Allow the user's to enter data
*              relating to electrical work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use elect
  locate for elect= msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "E l e c t r i c a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,69 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
* Program Name:... fur.prg
* Purpose:..... Allow the user's to enter data
*              relating to furnishing work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use fur
  locate for fur = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "F u r n i s h i n g  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,45 say "% of work done"
 @ 6, 62 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,45 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,58 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace fur with msub
replace month with mmonth
replace t_fur with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:... glaz.prg
* Purpose:..... Allow the user's to enter data
*              relating to glazing work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use glaz
  locate for glaz = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "G l a z i n g W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,45 say "% of work done"
 @ 6, 62 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,45 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,58 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace glaz with msub
replace month with mmonth
replace t_glaz with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:..... Helpo.prg
* Purpose:..... Teach the user's the BASIC on
* ..... how to USE the package
* Note:..... Developed by.


* Set working environment

  SET TALK OFF
  SET STATUS OFF
  SET SCORE OFF
  SET ESCAPE ON


@ 1,19 say "H E L P  I N F O R M A T I O N  M E N U"

* Type in the help information
opt = " "
TEXT

    This PACKAGE is titled PROJECT VALUATION SYSTEM. It is develop
    with simple logic and provide efficient and easy way of valueing
    architectural project.

    The whole package is divided into Four(4) menu viz:-

      1.  The input Menu
      2.  The Maintenance Menu
      3.  The Report Menu and
      4.  The information Menu

    Each of the menu above will be briefly analyse to assist you in
    using the PACKAGE
    To get HELP on any of the menu select option(1-4),or X to exit"
endtext
do while .t.
@ 20,5 say "Enter Option: :"
@ 20,19 get opt
read
do case opt
   case opt = "1"
      clear
      do inpo
   case opt = "2"
       clear
      do may
   case opt = "3"
      do ree
   case opt = "4"
      do info
   case UPPER(opt) = "X"
      return
otherwise
@19,5 say "Invalid option, Select from 1-4,or X"
wait space(5) + "Press any key to continue"
@19,5 say "                                    "
loop
endcase
enddo


clear
text

    1. The INPUT MENU
       ~~~~~~~~~~~~~~~
```

```
      The objectives of a data processing system is to derived
      an output that will be useful for decision making.
      But OUTPUT in itself can not be generated until some data
      has been entered into the system.
      The INPUT MENU of this program therefore provide you a way
      of getting your data into the data processing system.
      Various data to be imputed are display in the first menu
      of the control program. To imput any of the data set you
      will have to choose appropriate option represented by the
      alpabetical character attached to it. For example to input
      your data on PRELIMINARIES, you will select option B from
      the control menu and the preliminary bill will be displayed
      for your data entry. Note that selecting option Q will
      terminate the program.
endtext
@23,5 say ""
wait
@2,0 clear to 24,79
@1,0 say ""
text
      1.1 The input design.
        ----------------
      This program apply data validation check to the procedure
      of imputing data. For example you are asked to confirm any
      time you enter data relating to any of the input data set
      if the data is correct or not. If I enter variation data
      now for example. It will display a message:-
      "Is this correct [Y/N" waiting for me to enter appropriate
      option. If Y is selected, the data is considered valid and
      saved into the appropriate Database, but if otherwise, the
      user will be prompted to re-entered data.  But before you
      can even be allowed to entered data, you will be required
      to enter the project valuation number of the record you
      wish to enter. This is use as a record key to search the
      database file in which records of project at hand is stored
      to confirm if project slip has been entered or not.
      If you enter a valuation number that can not be found
      that will an error, a message will be displayed to tell
      you that valuation number does not exist
endtext
@22,5 say ""
wait space(5) + "Press any key to return to help menu"
clear
do helpo
```

```
* Program Name:... M_site.prg
* Purpose:..... Allow the user's to enter data
*              relating to Material on site.
* Note:.....Called fron v_main

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable
  CLOSE ALL
  store 0 to sn
  store 7 to row
  store space(15) to name
  store space(10) to unit
  store 0 to qty,rate,valu
  store 0 to tot
  store 0 to msite,mmonth

* Check if project has been registered

do while .t.
 store 0 to mvalnum
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msite pict "999"
 read
 SELECT 1
 USE SLIP.DBF
 locate for vv_no = msite
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  SELECT 2
  use msite
  locate for m_site = msite
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif

* IF RECORD HAS BEEN ENTERED

 clear
 @ 2,1 to 24,79
 @ 1,20 SAY "MATERIAL ON SITE DATA"
 @ 5,2 say "No"
 @ 5,6 say "[Enter DONE to exit]"
 @ 6,6 say "Materials"
 @ 6,23 say "Quantity"
 @ 6,40 say "Unit"
 @ 6,52 say "Rate"
 @ 6,67 say "Total"
 sn = sn + 1
```

```
 row = row + 1
 Do while .t.
  @ row,2 say ltrim(str(sn))
  @ row,6 get name
  read
 * Test exit condition
  If upper(name) = "DONE"
   @row+6,10 say "Total:"
   @row+6,67 say ltrim(str(tot,16,2))
   wait space(10) + "Press any key to continue...."
   clear
   return
  Endif
  @ row,23 get qty pict "99,999,999.99"
  @ row,40 get unit
  @ row,52 get rate pict "99,999,999.99"
  read
  ans = " "
  @ row+1,33 say "Correct [Y/N]" get ans
  read
  if upper(ans) = "N"
    loop
  endif
  @ row+1,33 say space(30)
  valu = ( qty * rate )
  tot =  (tot + valu)
  @ row,67 say ltrim(str(valu,16,2))
  sn = sn + 1
  row = row + 2
  if row > 17
   @ 7,2 CLEAR TO 23,79
   row = 7
  endif
  APPEND BLANK
  replace m_site with msite
  replace T_SITE WITH valu
  replace Nsite with NAME
  replace qt with qty
  replace rool with rate
  replace un with unit
  name = space(15)
  unit = space(10)
  store 0 to valu,qty,rate
  loop
enddo
```

```
* Program Name.....: MAIN_R.PRG
* Purpose..........: Generate report on main contract's work
* Note.............: Called from v_main

* Memo 1
* Setting working environment.
CLOSE ALL
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET SCORE OFF
SET STATU OFF
store 0 to tot1
do while .t.
 set color to gr+/b+
 clear
 mval = 0
 @ 10,10 TO 12,50 DOUBLE
 @ 11,13 SAY "Enter Valuation Number  :-" get mval pict "999"
 read
 USE slip
 locate for vv_no = mval
 if .not. found()
  @ 17,10 say "Valuation number does not exist"
  @ 18,10 say "Press any key to continue....."
  wait space(10) + " "
  close databases
  return
 endif
 clear
 @ 1,20 SAY "Main Contractor's Work"
 @ 2,20 say "This report is produce on "+dtoc(date())
 @ 3,5 say "Valution no :"+ltrim(str(mval))
 @ 4,50 say "Value"
 @ 5,5 say repl("-",55)
 @ 6,5 say "Substructure"
 @ 7,5 say "Concrete Work"
 @ 8,5 say "Block work"
 @ 9,5 say "Roofing"
 @ 10,5 say "Carpentary & Joinery"
 @ 11,5 say "Metalwork"
 @ 12,5 say "Electrical Installation"
 @ 13,5 say "Mechanical Installation"
 @ 14,5 say "Furnishing"
 @ 15,5 say "Glazings"
 @ 16,5 say "Plating & Decoration"
 @ 17,5 say "External Work"
 store 0 to int6,int7,int8,int9,int10,int11,int12,int13
 store 0 to int14,int15,int16,int17
 l = 6
use sub
do while .not. eof()
  if m_sub<> mval
    skip
    loop
  endif
  int6 = int6 + t_sub
  skip
  loop
enddo
@ l,50 say int6
close databases
use con1
do while .not. eof()
 if m_con <> mval
```

```
        skip
        loop
      endif
      int7 = int7 + t_con
      skip
      loop
    enddo
    @ l+1,50 say int7
    close databases
    use block
    do while .not. eof()
     if m_block <> mval
       skip
       loop
     endif
     int8 = int8 + t_block
     skip
     loop
    enddo
    @ l+2,50 say int8
    close database
    use roof
    do while .not. eof()
     if roof <> mval
       skip
       loop
     endif
     int9 = int9 + t_roof
     skip
     loop
   enddo
   @ l+3,50 say int9
   close databases
   use cap
   do while .not. eof()
     if m_cap <> mval
       skip
       loop
     endif
     int10 = int10 + t_cap
     skip
     loop
  enddo
  @ l+4,50 say int10
  close databases
  use metal
  do while .not. eof()
    if metal <> mval
       skip
       loop
    endif
    int11 = int11 + t_metal
    skip
    loop
  enddo
  @ l+5,50 say int11
  close databases
  use elect
  do while .not. eof()
    if elect <> mval
       skip
       loop
    endif
    int12 = int12 + t_elect
    skip
    loop
enddo
@ l+6,50 say int12
```

```
   close databases
   use mech
   do while .not. eof()
     if mech <> mval
       skip
       loop
     endif
     int13 = int13 + t_mech
     skip
     loop
   enddo
   @ l+7,50 say int13
   close databases
   use fur
   do while .not. eof()
     if fur <> mval
       skip
       loop
     endif
     int14 = int14 + t_fur
     skip
     loop
  enddo
  @ l+8,50 say int14
  close databases
  use glaz
  do while .not. eof()
    if glaz <> mval
      skip
      loop
    endif
    int15 = int15 + t_glaz
    skip
    loop
 enddo
 @ l+9,50 say int15
 close databases
 use plate
 do while .not. eof()
   if plate <> mval
     skip
     loop
   endif
   int16 = int16 + t_plate
   skip
   loop
 enddo
 @ l+10,50 say int16
 close databases
 use ext
 do while .not. eof()
   if ext <> mval
     skip
     loop
   endif
   int17 = int17 + t_ext
   skip
   loop
enddo
@ l+11,50 say int17
close databases
int19 = int6+int7+int8+int9+int10+int11+int12+int13+int14+;
int15+int16+int17
@ l+12,5 say repl("-",60)
@ l+13,5 say "Total:"
@ l+14,5 say repl("-",60)
@ l+13,50 say int19
@ l+15,5 say "Press any key to Return to Main Menu"
```

```
wait space(5)
close all
return


set talk off
clear
text
   2. MAINTENANCE
      ************
      Maintenance Menu provides you with three option,

        * How to Void record
        * About Help
        * How to Make Backup
     2.1 To void record.
        **************
        It is good to void all the record in the databases
        file before the program will be used for project.
        To do this you will select void record option
        from the control program. Then the system authomatically
        void all the record in every database file, and
        the system is ready for another project
        if this is not done there may be error in the process
        of using unvoid database file for a new project.
     2.2 Copying databases.
        ******************
        There will be a warning to you that before you void your
        databases, you need to make a BACKUP of the
        file using the option the maintenance menu.
endtext
@22,5 say " "
wait space(5) + "Press any key to continue....."
clear
@ 2,0 say " "
text

     2.2 Help
        ****
        This provides you help on how to use the application.
        Most especially, the BASIC about the VALUATION SYSTEM
        Press J from main menu to get help.
     2.3 Backup
        ******
        The system also provides you with the facility
        to make backup of you record in database file. Infact
        you need to make backup of your database before you
        void them so that you can have their record for future
        use. To make backup of your record, you will select
        option Z from the control program, make sure that the
        message the floppy disk(3.5) is inseted to drive A:
        and press enter key. You can label the disk to be able
        to know the project records it contains.


endtext
@22,5 SAY " "
wait space(5) + "Press any key to continue...."
clear
@2,0 say " "
text

    Know this
    =========
    You can make use of your record stored in the database file
    any other time you want to use them in the VALUATION SYSTEM
    to do this you need to copy them back into the directory in
    which your programs are install (for both the (.PRG) and
```

```
    (.DBF) must be in the same directory before the program
    can work).
endtext
@22,5 say " "
wait space(5) + "Press any key to return to help menu"
do helpo
```

```
* Program Name:... metal.prg
* Purpose:..... Allow the user's to enter data
*              relating to metal work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use metal
  locate for metal = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "M e t a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
  return
```

```
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,79
 row = 7
 loop
endif
append blank
replace metal with msub
replace month with mmonth
replace t_metal with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:... metal.prg
* Purpose:..... Allow the user's to enter data
*              relating to metal work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use metal
  locate for metal = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "M e t a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,79
 row = 7
 loop
endif
append blank
replace metal with msub
replace month with mmonth
replace t_metal with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name.....: Nomi2.prg
* Purpose.....: Allow for Nominated sub contract
*                data entery
* Note.....: called form v_main

* Memo 1

* Setting working environment.
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET SCORE OFF
SET STATU OFF

* Initialize memory variable
store 0 to mnomi,mmonth

* Check if valuation slip has been entered
do while .t.
 clear
 @ 10,10 TO 15,50 DOUBLE
 @ 12,12 SAY "Enter Valuation Number:-" get mnomi pict "999"
 @ 14,12 say "Month of Valuation    :-" get mmonth pict "99"
 read
 USE SLIP.DBF
 locate for vv_no = mnomi
 if .not. found()
  @ 16,10 say "This is not right, you have not entered data into"
  @ 17,10 say "Valuation slip for this Valuations"
  @ 18,10 say "Please do that now "
  wait space(10) + " "
  close databases
  return
 endif

* If data already exist
  use nomi2.dbf
  locate for nomi_num = mnomi
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
clear
 @ 2,5 to 24,79
 @ 1,20 SAY "Nominated Sub Contract Data"
* Initialize memory variable
   name=space(15)
   store 0 to sn
   store 6 to row
   store 0 to valu1,tot

   sn = sn + 1

* display heading 2

   @ 5,7 say "No"
   @ 5,14 say "Name[Enter DONE to exit]"
   @ 5,41 say "Value"

   row = row + 1

* Declare a logical variable to test loop condition
```

```
Do while .t.

    @ row,7 say ltrim(str(sn))
    @ row,14 get NAME pict "@!"
    read
    If name = "DONE" .OR. name = "done"
      @ row+2,10 say "Total: "
      @ row+2,41 say ltrim(str(tot,14,2))
      wait space(10)+ "Press any key to continue...."
      clear
      return
    Endif
    @ row,41 get valu1 pict "999,999,999,999.99"
    read
    ans = " "
    @ row,62 say "Correct [Y/N]" get ans
    read
    if upper(ans) = "N"
      loop
    endif
    tot = ( tot + valu1 )
    sn = sn + 1
    row = row + 2
    if row > 17
      @ 7,7 CLEAR TO 23,60
      row = 7
    endif
    APPEND BLANK
    replace NOMI_NUM with MNOMI
    replace T_NOMI with valu1
    replace MONTH with MMONTH
    replace NOMIN with NAME
    replace e_nomi with tot
    name = space(15)
    store 0 to valu1
    loop
    endif
CLOSE ALL
CLEAR
RETURN
enddo


* Program Name.....: PRE_R.prg
* Purpose.....: Generate report on prelimnaries
* Note.....: Developed for

* Memo 1
* Setting working environment.
CLOSE ALL
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET SCORE OFF
SET STATU OFF
store 0 to tot1,tot2,tot3,tot4
do while .t.
 set color to gr+/b
 clear
 mpre = 0
 @ 10,10 TO 12,50 DOUBLE
 @ 11,13 SAY "Enter Valuation Number  :-" get mpre pict "999"
 read
 USE slip
 locate for vv_no = mpre
 if .not. found()
```

```
 @ 17,10 say "Match Record not found"
 @ 18,10 say "Press any key to continue....."
 wait space(10) + " "
 close databases
 return
endif
clear
@ 1,20 SAY "Preliminary  Bill  Report"
@ 2,20 say "This report is produce on "+dtoc(date())
@ 2,0 say "Valution no :"+ltrim(str(mpre))
@ 3,35 say "Initial"
@ 3,47 say "During"
@ 3,59 say "Completion"
@ 4,2 say " A. Foreman In Charge       "
@ 5,2 say " B. Insurance              "
@ 6,2 say " C. Drawing                "
@ 7,2 say " D. Levelling Instrument    "
@ 8,2 say " E. Site Accomodation       "
@ 9,2 say " F. Site Office            "
@ 10,2 say " G. Water                 "
@ 11,2 say " H. Electricity           "
@ 12,2 say " I. Watching & Lighting    "
@ 13,2 say " J. Welfare and Safety     "
@ 14,2 say " K. First Aid Box          "
@ 15,2 say " L. Site Meeting           "
@ 16,2 say " M. Progress Photograph    "
@ 17,2 say " N. Scaffolding & Plant    "
@ 18,2 say " O. Protection of Works    "
@ 19,2 say " P. Text and Sample        "
@ 20,2 say " Q. Hoarding & Fencing     "
@ 21,2 say " R. Site Board             "
@ 22,2 say " S. Clearing Rubbing       "
*@ 23,2 say " Total    "
use pre
l = 4
go top
do while .not. eof()
  if pre <> mpre
    skip
    loop
  endif
  @ l,28 say mint
  @ l,42 say mdur
  @ l,58 say mcomp
  tot1 = (tot1 + mint)
 tot2 = (tot2 + mdur)
  tot3 = (tot3 + mcomp)
  l = l + 1
  skip
  loop
enddo
*tot4 = tot1 + tot2 + tot3
*@ 23,58 say tot4
wait space(5) + "Press any key to Continue..."
return
enddo



clear
text

   1. The REPORT MENU
      ~~~~~~~~~~~~~~
      This helps you produce both SOFT and HARD copy of info-
      rmation. Various data supplied into the system
      are processed, and the result of the processed that are
      either displayed on the screen or printer.  To generate
```

any report of your choice, select appropriate option
from the control menu program. The system prompt
you to entered the project valuation number, and the out
put of the processesd data display on screen or printer.
The NET VALUATION REPORT is the sub program instruction
that produce detailed result of the whole project work.

2. Printing Information on Screen.

If you are not prompted "Sent Output to Printer[Y/N]"
then you can print the information on screen by
using the print screen SysRq key on the keyboard.

```
endtext
@22,5 say ""
wait space(5) + "Press any key to return to help menu"
clear
do helpo
```

```
* Program Name:... roof.prg
* Purpose:..... Allow the user's to enter data
*              relating to roofing work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to mcon,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get mcon pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = mcon
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use roof
  locate for roof = mcon
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "R o o f i n g  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,58 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,78
 row = 7
 loop
endif
append blank
replace roof with mcon
replace month with mmonth
replace t_roof with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:... block.prg
* Purpose:..... Allow the user's to enter data
*              relating to block work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use block
  locate for m_block = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
* @ 2,5 to 24,79
 @ 1,20 SAY "B l o c k  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:=>"
  @row+6,58 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace m_block with msub
replace month with mmonth
replace t_block with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name:... con1.prg
* Purpose:..... Allow the user's to enter data
*              relating to concreate work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to mcon,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get mcon pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = mcon
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use con1
  locate for m_con = mcon
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,79
 @ 1,20 SAY "C o n c r e a t e  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 69 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:=>"
  @row+6,58 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
wait space(5) + "This screen is full, press any key to continue"
clear
@5,5 SAY "Enter Repayment"
store 0 to ad2
@5,60 get ad2 pict "999,999,999,999.99"
read
store 0 to ada
ada = int22 - ad2
use flc
do while .not. eof()
  if flc <> mval
    skip
    loop
  endif
  int23 = int23 + t_flc
  skip
  loop
enddo
close databases
@ 10,5 say "Fluctation"
@ 10,60 say ltrim(str(int23,14,2))
@ 11,5 say "Net Valuations"
int24 = int23 + ada
@ 11,60 say ltrim(str(int24,14,2))
@ 12,5 say "Less amount previously certify"
@ 12,60 get int25 PICT "999,999,999,999.99"
read
int26 = int24 - int25
@ 13,5 say "Total Value:"
@ 13,60 say ltrim(str(int26,14,2))
wait space(5) + "End of Valuation"
do v_main
```

```
* Program Name:... con1.prg
* Purpose:..... Allow the user's to enter data
*              relating to concreate work on site.
* Note:..... Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to mcon,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get mcon pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = mcon
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use con1
  locate for m_con = mcon
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,79
 @ 1,20 SAY "C o n c r e a t e  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 69 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:=>"
  @row+6,58 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,69 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,7 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace m_con with mcon
replace month with mmonth
replace t_con with tot
store 0 to rate,amm
name = space(15)
loop
enddo
***********************************************
* Cut.prg
***********************************************

@ 12,60 say ltrim(str(int19,14,2))
int20 = (int18 + int19)
@ 17,57 say repl ("-",22)
@ 18,5 say "Total value of works & Materials on site"
@ 18,60 say ltrim(str(int20,18,2))
@ 19,5 SAY "Less Retention"
 store 0 to A,A2,INT21,INT22,INT23,INT24,INT25,yoyo,yoyo2
 A = ((10/100) * INT20)
 USE SLIP
 LOCATE FOR VV_NO = MVAL
 A2 = ((10/100) * CC_SUM)
 IF A > A2
    A = ((5/100) * CC_SUM)
    CLOSE DATABASES
 ENDIF
INT21 = (INT20 - A)
@ 19,60 say ltrim(str(A,14,2))
@ 20,60 SAY LTRIM(STR(INT21,14,2))
@ 21,5 SAY "Enter Mobilisation Advance"
STORE 0 TO B
@ 21,60 get b pict "999,999,999,999.99"
read
store space(1) to addo
do while .not. addo$"AaLl"
addo = " "
@ 22,5 say "[A]dd or [L]ess mobilisation," get addo pict "!"
   read
enddo
if UPPER(ADDO) = "A"
   int22 = (int21 + b)
else
   int22 = (int21 - b)
endif
@ 22,60 SAY ltrim(str(int22,14,2))
```

```
* Program Name:... ext.prg
* Purpose:..... Allow the user's to enter data
*              relating to EXTERNAL work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use ext
  locate for ext = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "E x t e r n a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,45 say "% of work done"
 @ 6, 62 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
* Program Name:... ext.prg
* Purpose:..... Allow the user's to enter data
*              relating to EXTERNAL work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use ext
  locate for ext = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "E x t e r n a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,45 say "% of work done"
 @ 6, 62 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
* Program Name.....: Fun.prg
* Purpose.....: Allow for Flunctation data entery
* Note.....: Developed for

* Memo 1
* Setting working environment.

SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL ON
SET SCORE OFF
SET STATU OFF
use try.dbf
@ 1,15 SAY "F l u c t a t i o n D a t a  E n t e r y"
@ 3,25 say "F L U C T A T I O N S :"
store 0 to sn
store 6 to row
sn = sn + 1
@ 5,1 say "No"
@ 5,10 say "Name"
@ 5,40 say "Value"
store space(15) to name1
store space(15) to name2
Store space(15) to name3
store 0 to valu1,valu2,valu3,tot
row = row + 1
do while sn < 4
  @ row,1 say ltrim(str(sn))
  sn = sn + 1
  row = row + 2
enddo
line = 7
store space(1) to response
store space(1) to savee
do while .t.
   @ line,10 SAY "Flunctation No 1"
   @ line,40 get valu1
   @ line+2,10 say "Flunctation No 2"
   @ line+2,40 get valu2
   @ line+4,10 say "Flunctation No 3"
   @ line+4,40 get valu3
   read
   tot = (valu1 + valu2 + valu3)
   @ line+6,40 say "==================="
   @ line+7,10 say "Total:="
   @ line+7,40 say tot
   @ line+8,40 say "==================="
   @ line+10,20 say "Above entry correct [Y/N]" get response
   read
   if response = "N" .or. response = "n"
     line = 7
     loop
   endif
```

```
 * program Name.....: General_p.prg
close all
SET BELL OFF
SET TALK OFF
SET ESCAPE ON
PUBLIC INT20,int2,int23,int19,int18
store 0 to int20,int2,pop,tpre
store 0 to int,dur,comp,int2,int3,int4,int5,int6
store 0 to int7,int8,int9,int10,int11,int12,int13,bas
store 0 to int14,int15,int16,int17,int18,int19,int23
do while .t.
 clear
 set color to gr+/b+
 store 0 to mval,q3,q,q2
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get mval pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = mval
 if .not. found()
  @ 17,10 say "Match record is not found for project slip."
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
clear
select 1
use slip
store cc_sum to bas
@ 1,15 say "P r o j e c t  V a l u a t i o n  R e p o r t"
@ 3,5 say "Project           :" + project
@ 4,5 say "Main contractor   :" + contract
@ 5,5 say  "Commencement Date  :"
@ 5,25 say date1
@ 5,40 say  "Completion Date       :"
@ 5,62 say date2
@ 6,5 say  "Contract Sum       :" +ltrim(str(cc_sum,14,2))
@ 6,40 say "Projected Contract Sum:"
select 2
use var
go top
do while .not. eof()
 if val_num <> mval
  skip
  loop
 endif
 int2 = int2 + mtot
 skip
 loop
enddo
@ 13,60 say ltrim(str(int2,14,2))
select 3
use flc
do while .not. eof()
   if flc <> mval
      skip
      loop
   endif
   int23 = int23 + t_flc
   skip
   loop
enddo
pop = (bas + int2 + int23)
@ 6,65 say ltrim(str(pop,14,2))
close all
use slip
```

```
locate for vv_no = mval
@ 7,5 say  "Valuation Number   :" +ltrim(str(vv_no,3,0))
@ 7,40 say "Date on site         :"
@ 7,62 say date3
@ 8,5 say "Date of Issue      :"
@ 8,25 say date4
@ 9,0 say repl ("-",79)
*@ 10,59 say "=N="
*@ 10,70 say " K "
@ 11,5 say "Preliminaries                    "
@ 12,5 say "Main Contrators Work                    "
@ 13,5 say "Variations                    "
@ 14,5 say "Nominated Sub-Contracors                    "
@ 15,5 say "Nominated Suppliers                    "
@ 16,5 say "Materials on site                    "
close databases
use pre
go top
do while .not. eof()
  if pre <> mval
    skip
    loop
  endif
  tpre = tpre + tot
  skip
  loop
enddo
@ 11,60 say ltrim(str(tpre,14,2))
close databases
use nomi1
go top
do while .not. eof()
 if nomi_num <> mval
  skip
  loop
 endif
 int3 = int3 + t_nomi
 skip
 loop
enddo
@ 14,60 SAY ltrim(str(int3,14,2))
close databases
use nomi2
go top
do while .not. eof()
 if nomi_num <> mval
  skip
  loop
 endif
 int4 = int4 + t_nomi
 skip
 loop
enddo
@ 15,60 SAY ltrim(str(int4,14,2))
close databases
use msite
go top
do while .not. eof()
 if m_site <> mval
  skip
  loop
 endif
 int5 = int5 + t_site
 skip
 loop
enddo
@ 16,60 SAY ltrim(str(int5,18,2))
close databases
```

```
use sub
do while .not. eof()
 if m_sub<> mval
  skip
  loop
 endif
 int6 = int6 + t_sub
 skip
 loop
enddo
close databases
use con1
do while .not. eof()
 if m_con <> mval
  skip
  loop
 endif
 int7 = int7 + t_con
 skip
 loop
enddo
close databases
use block
do while .not. eof()
 if m_block <> mval
  skip
  loop
 endif
 int8 = int8 + t_block
 skip
 loop
enddo
close database
use roof
do while .not. eof()
 if roof <> mval
  skip
  loop
 endif
 int9 = int9 + t_roof
 skip
 loop
enddo
close databases
use cap
do while .not. eof()
  if m_cap <> mval
   skip
   loop
  endif
  int10 = int10 + t_cap
  skip
  loop
enddo
close databases
use metal
do while .not. eof()
  if metal <> mval
    skip
    loop
  endif
  int11 = int11 + t_metal
  skip
  loop
enddo
close databases
use elect
do while .not. eof()
```

```
  if elect <> mval
    skip
    loop
  endif
  int12 = int12 + t_elect
  skip
  loop
enddo
close databases
use mech
do while .not. eof()
  if mech <> mval
   skip
   loop
  endif
  int13 = int13 + t_mech
  skip
  loop
enddo
close databases
use fur
do while .not. eof()
  if fur <> mval
    skip
    loop
  endif
  int14 = int14 + t_fur
  skip
  loop
enddo
close databases
use glaz
do while .not. eof()
  if glaz <> mval
   skip
   loop
  endif
  int15 = int15 + t_glaz
  skip
  loop
enddo
close databases
use plate
do while .not. eof()
  if plate <> mval
    skip
    loop
  endif
  int16 = int16 + t_plate
  skip
  loop
enddo
close databases
use ext
do while .not. eof()
  if ext <> mval
    skip
    loop
  endif
  int17 = int17 + t_ext
  skip
  loop
enddo
close databases
int18 = tpre+int2+int3+int4+int5
int19 = int6+int7+int8+int9+int10+int11+int12+int13+int14+;
int15+int16+int17
close all
```

```
do cut
enddo


*************************************************************
* INPO.PRG
*************************************************************
clear
text

   1. The INFORMATION MENU
      ~~~~~~~~~~~~~~~~~~~~~
      This provides you brief information on the current
      system DATE and TIME and as well as the option that
      allows you to quit programming. If data and time
      displayed on the screen are invalid. Follow the below
      step to change it.

      Procedure to change system time and date.
      ****************************************

      1. To change Time.
      ******************
      At the dot prompt, type

      Run TIME and press enter key
      the system display the current time(12:30:56)
      and prompt you to enter new time, if the one dis-
      played is incorrect.
endtext
@22,5 say " "
wait space(5) + "Press any key to continue....."
clear
text
      You therefore follows the above order to entered new
      time e.g if new time is 7:29, you will type
      7:29:40, the last interger is the current seconds.

      2. To change system Date.
      *************************
      You start also from the dot prompt. At the dot prompt
      type:- run date as below

      >. RUN DATE.
      the system response aznd display the current system date
      on the screen, IF the date displayed is not correct, you
      will be asked to entered new date, follow this sequence
      to change system date. i.e (mm-dd-yy) e.g
      type 05-25-99. This means change date to 25th of MAY
      1999.
endtext
@22,5 say ""
wait space(5) + "Press any key to return to help menu"
clear
do helpo
```

```
  Program Name.....: Main_c.prg
' Purpose.....: Allows you to enter main contractor's
'                work data
* Author
* Note.....

* Set working environment
SET BELL OFF
SET TALK OFF
SET DATE BRITI
SET ESCAPE ON

* draw main contractor's work menu
do while .t.
clear
@ 1,00 to 3,79 double
@ 3,00 to 20,79 double
@ 2,28 say "MAIN CONTRACTOR'S WORK"
@ 5,28 SAY "-0-  Exit to Main Menu "
@ 6,28 say "-A-  Substructure      "
@ 7,28 say "-B-  Concrete Work     "
@ 8,28 say "-C-  Block work        "
@ 9,28 say "-D-  Roofing           "
@ 10,28 say "-E-  Carpentary & Joinery"
@ 11,28 say "-F-  Metalwork        "
@ 12,28 say "-G-  Electrical Installation"
@ 13,28 say "-H-  Mechanical Installation"
@ 14,28 say "-I-  Furnishing             "
@ 15,28 say "-J-  Glazings"
@ 16,28 say "-K-  Painting & Decorating"
@ 17,28 say "-L-  External Works"
store space(1) to opt
@ 19,28 say "Select: :"
@ 19,35 get opt pict "!"
read
do case opt
case opt = "0"
   clear
   return
case opt = "A"
    clear
    do sub
case opt = "B"
    clear
    do con1
case opt = "C"
    clear
    do block
case opt = "D"
    clear
    do roof
case opt = "E"
    clear
    do cap
case opt= "F"
    clear
    do metal
case opt = "G"
    clear
    do elect
case opt = "H"
    clear
    do mech
case opt = "I"
    clear
    do fur
case opt = "J"
```

```
    clear
    do glaz
case opt = "K"
    clear
    do plate
case opt = "L"
    clear
    do ext
otherwise
clear
set color to gr*/b+
@ 12,10 say "Invalid Selection, select from 0 to 12"
wait space(10) + "Press any key to continue....."
clear
loop
endcase
enddo
```

```
* Program Name.....: mat_r.prg
* purpose..........: To generate report for material on
*                    site
* Note.............: Called from v_main.prg
clear
set color to gr+/b
set escape on
set talk off
set status off
store 0 to mpre,t,one,two
 @ 10,10 TO 12,50 DOUBLE
 @ 11,11 SAY "Enter Valuation Number  :-" get mpre pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = mpre
 if .not. found()
  @ 16,10 say "Match record not found"
  @ 17,10 say "Press any key to continue..."
  wait space(10) + " "
  close databases
  return
 endif
clear
ans = space(1)
@ 12,10 to 14,60 double
@ 13,12 say "Send output to Printer [Y/N]" get ans pict "!"
read
  if upper(ans) = "Y"
    set printer on
    set device to printer
  endif
clear
@ 2,15 say "Report on value of material on site for valuation:-";
+ltrim(str(mpre,3,0))
@ 3,15 SAY "Date of Report:-" + dtoc(date())
@ 4,1 say repl ("*",70)
@ 5,2 say "No"
@ 5,6 say "Materials"
@ 5,23 say "Quantity"
@ 5,40 say "Rate"
@ 5,55 say "Unit"
@ 5,63 say "Total"
@ 6,1 say repl ("*",70)
use msite.dbf
go TOP
l = 8
s = 1
do while .not. eof()
   if m_site <>  mpre
      skip
      loop
   endif
  @ l,2 say ltrim(str(s))
  @ l,6 say nsite
  @ l,23 say ltrim(str(qt,14,2))
  @ l,40 say ltrim(str(rool,14,2))
  @ l,55 say un
  one = qt * rool
  two = two + one
  @ l,63 say ltrim(str(one,16,2))
    s = s + 1
    L = l + 1
    skip
    if l > 23
     @7,1 clear to 23,79
    endif
enddo
```

```
@ l+2,1 say repl ("-",75)
@ L+3,1 say "Grand Total:-"
@ l+3,63 say ltrim(str(two,16,2))
@ l+4,1 say repl ("-",75)
wait space(1) + "Press any key to Continue....."
set color to w+/b+
set printer off
set device to screen
return
```

```
* Program Name:... mech.prg
* Purpose:..... Allow the user's to enter data
*              relating to mechanical work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use mech
  locate for mech = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "M e c h a n i c a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
 return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,5 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace mech with msub
replace month with mmonth
replace t_mech with tot
store 0 to rate,amm
name = space(15)
loop
enddo



* Program Name:... mech.prg
* Purpose:..... Allow the user's to enter data
*              relating to mechanical work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
```

```
 endif
* Test If data already exist
  use mech
  locate for mech = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "M e c h a n i c a l  W o r k"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,49 say "% of work done"
 @ 6, 65 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
  return
 Endif
 @ row,33 get amm pict "99,999,999.99"
 @ row,49 get rate pict "999"
 read
 ans = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 read
 if upper(ans) = "N"
  loop
 endif
 @ row+1,33 say space(20)
valu = ( (rate/100) * amm )
tot = ( tot + valu )
@ row,65 say ltrim(str(valu,14,2))
sn = sn + 1
row = row + 2
if row > 15
 @ 7,5 CLEAR TO 20,75
 row = 7
 loop
endif
append blank
replace mech with msub
replace month with mmonth
replace t_mech with tot
store 0 to rate,amm
name = space(15)
loop
enddo
```

```
* Program Name.....: Nomi1.prg
* Purpose.....: Allow for Nominated sub contract
*                data entery
* Note.....: called form v_main

* Memo 1

* Setting working environment.
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET SCORE OFF
SET STATU OFF

* Initialize memory variable
store 0 to mnomi,mmonth

* Check if valuation slip has been entered
do while .t.
 clear
 @ 10,10 TO 15,50 DOUBLE
 @ 12,12 SAY "Enter Valuation Number:-" get mnomi pict "999"
 @ 14,12 say "Month of Valuation    :-" get mmonth pict "99"
 read
 USE SLIP.DBF
 locate for vv_no = mnomi
 if .not. found()
  @ 16,10 say "This is not right, you have not entered data into"
  @ 17,10 say "Valuation slip for this Valuations"
  @ 18,10 say "Please do that now "
  wait space(10) + " "
  close databases
  return
 endif
* If data already exist
  use nomi1.dbf
  locate for nomi_num = mnomi
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
 clear
 @ 2,5 to 24,79
 @ 1,20 SAY "Nominated Sub Contract Data"
* Initialize memory variable

   name=space(15)
   store 0 to sn
   store 6 to row
   store 0 to valu1,tot

   sn = sn + 1

* display heading 2

   @ 5,7 say "No"
   @ 5,14 say "Name[Enter DONE to exit]"
   @ 5,41 say "Value"

   row = row + 1

* Declare a logical variable to test loop condition
```

```
Do while .t.

    @ row,7 say ltrim(str(sn))
    @ row,14 get NAME pict "@!"
    read
    If name = "DONE" .OR. name = "done"
      @ row+2,10 say "Total: "
      @ row+2,41 say ltrim(str(tot,14,2))
      wait space(10)+ "Press any key to continue...."
      clear
      return
    Endif
    @ row,41 get valu1 pict "999,999,999,999.99"
    read
    ans = " "
    @ row,64 say "Correct [Y/N]" get ans
    read
    if upper(ans) = "N"
      loop
    endif
    tot = ( tot + valu1 )
    sn = sn + 1
    row = row + 2
    if row > 17
      @ 7,7 CLEAR TO 23,60
      row = 7
    endif
    line = 9
    USE NOMI1.DBF
    APPEND BLANK
    replace NOMI_NUM with MNOMI
    replace T_NOMI with valu1
    replace MONTH with MMONTH
    replace NOMIN with NAME
    replace e_nomi with tot
    name = space(15)
    store 0 to valu1
    loop
    endif
CLOSE ALL
CLEAR
RETURN
enddo
```

```
* Program Name:... plate.prg
* Purpose:..... Allow the user's to enter data
*              relating to PAINTING work on site.
* Note:.....Called from main_c.prg

* Set up the working environment.
SET SCOREBOARD OFF
SET STATUS OFF
SET TALK OFF
SET BELL OFF
SET DATE BRITISH
SET ESCAPE ON

* Initialize memory variable

  store 0 to sn
  store 7 to row
  store space(15) to name
  store 0 to amm,rate,valu
  store 0 to tot
  store 0 to msub,mmonth
do while .t.
 clear
 set color to gr+/b+
 @ 12,10 TO 14,50 DOUBLE
 @ 13,11 SAY "Enter Valuation Number:-" get msub pict "999"
 read
 USE SLIP.DBF
 locate for vv_no = msub
 if .not. found()
  @ 17,10 say "Match record not found"
  @ 18,10 say "Press any key to continue...."
  wait space(10) + " "
  close databases
  return
 endif
* Test If data already exist
  use plate
  locate for plate = msub
  if found()
   clear
   @ 12,10 say "Valuation number already exist"
   wait space(10) + "Press any key to continue..."
   clear
   loop
  endif
* IF RECORD HAS BEEN ENTERED
 clear
 @ 2,5 to 24,70
 @ 1,20 SAY "P l a t i n g  and  D e c o r a t i o n"
 @5,7 say "No"
 @ 5,14 say "[Enter DONE to exit]"
 @ 6,14 say "Description"
 @ 6,33 say "Amount"
 @ 6,45 say "% of work done"
 @ 6, 62 say "Result"
 sn = sn + 1
 row = row + 1
Do while .t.
 @ row,7 say ltrim(str(sn))
 @ row,14 get name
 read
 If upper(name) = "DONE"
  @row+6,10 say "Total:"
  @row+6,62 say ltrim(str(tot,14,2))
  wait space(10) + "Press any key to continue...."
  clear
```

```
   ırn
  ıdif
 ) row,33 get amm pict "99,999,999.99"
 ) row,45 get rate pict "999"
 ıad
 ns = " "
 @ row+1,33 say "Correct [Y/N]" get ans
 ead
  upper(ans) = "N"
 oop
 ndif
 @ row+1,33 say space(20)
 alu = ( (rate/100) * amm )
 ot = ( tot + valu )
 @ row,58 say ltrim(str(valu,14,2))
 n = sn + 1
 ow = row + 2
f row > 15
@ 7,7 CLEAR TO 20,75
row = 7
loop
endif
append blank
replace plate with msub
replace month with mmonth
replace t_plate with tot
store 0 to rate,amm
name = space(10)
loop
enddo
```

```
* Program Name.....: PRELIM.prg
* Purpose.....: Allow the users to enter data
*                relating to Preliminaries

* Memo 1
* Setting working environment.
CLOSE ALL
CLEAR
SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET SCORE OFF
SET STATU OFF
store 0 to mpre,int,mmonth,dur,mcont,comp,na
store 0 to tot1,tot2,tot3,tot4,ve,myv,myv2
* Check if record has beeb entered into valuation slip

do while .t.
 set color to gr+/b
 clear
 @ 10,10 TO 18,50 DOUBLE
 @ 12,13 SAY "Enter Valuation Number  :-" get mpre pict "999"
 @ 14,13 say "Enter Month of Valuation:-" get mmonth pict "99"
 @ 16,13 say "Enter Contract Duration :-" get mcont pict "99"
 read
 USE SLIP.DBF
 locate for vv_no = mpre
 if .not. found()
  @ 17,10 say "This is not right, you have not entered data into"
  @ 18,10 say "Valuation slip for this record you want to entered,"
  @ 19,10 say "Please do that now."
  wait space(10) + " "
  close databases
  return
 endif
* Test if valuation already exist
  use pre.dbf
  locate for pre = mpre
  if found()
    clear
    @ 12,15 say "Valuation number already exist"
    wait space(15) + "Press any key to continue..."
    clear
    loop
  endif
* If record has been entered

 clear
@ 1,24 SAY "P r e l i m i n a r y  B i l l"
@ 3,30 say "Initial"
@ 3,45 say "During"
@ 3,69 say "Result"
@ 3,55 say "Completion"
@ 4,2 say " A. Foreman In Charge       "
@ 5,2 say " B. Insurance              "
@ 6,2 say " C. Drawing                "
@ 7,2 say " D. Levelling Instrument    "
@ 8,2 say " E. Site Accomodation       "
@ 9,2 say " F. Site Office            "
@ 10,2 say " G. Water                 "
@ 11,2 say " H. Electricity           "
@ 12,2 say " I. Watching & Lighting    "
@ 13,2 say " J. Welfare and Safety     "
@ 14,2 say " K. First Aid Box         "
@ 15,2 say " L. Site Meeting          "
@ 16,2 say " M. Progress Photograph    "
@ 17,2 say " N. Scoffolding & Plant    "
```

```
@ 18,2 say " O. Protection of Works      "
@ 19,2 say " P. Text and Sample          "
@ 20,2 say " Q. Hoarding & Fencing       "
@ 21,2 say " R. Site Board               "
@ 22,2 say " S. Clearing Rubbing         "
@ 23,2 say " Total                       "
l = 4
do while l < 23
 @ l,30 get int pict "999,999.99"
 @ l,45 get dur pict "999,999.99"
 @ l,56 get comp pict "999,999.99"
   read
   ans = space(1)
   @ l+1,30 say "Is this correct" get ans pict "!"
   read
   if upper(ans) = "N"
      loop
   endif
  @ l+1,30 clear to l+1,79
 tot1 = ( tot1 + int)
 na = na + dur
 tot2 = (dur * (mmonth/mcont))
 ve = ve + tot2
 myv = int+comp+tot2
 myv2 = myv2 + myv
 @ l,69 say ltrim(str(myv,12,2))
 tot3 = ( tot3 + comp)
 append blank
 replace pre with mpre
 replace mint with int
 replace mcomp with comp
 replace mdur with myv
 l = l + 1
 store 0 to dur,int,comp,tot2,myv
enddo
@ 4,0 clear to 24,79
@ 5,2 say "Sub Total:-"
@ 5,30 say ltrim(str(tot1,14,2))
@ 5,45 say ltrim(str(na,14,2))
@ 5,69 say ltrim(str(myv2,14,2))
@ 5,55 say ltrim(str(tot3,14,2))
*@7,2 say "Grand Total="
*tot4 = (tot1 + myv2 + na + tot3)
*@ 7,16 say ltrim (str(tot4,14,2))
wait space(5) + "Press any key to continue..."
replace tot with MYV2
close databases
return
```

```
set printer off
set device to screen
return
```

```
* Program Name.....: Slip.prg
* Purpose.....: To registered a NEW project.
* Note.....: Develop for

* Set working environment

SET TALK OFF
SET ESCAPE ON
SET DATE BRIT
SET BELL OFF
SET CONFIRM ON
SET SCORE OFF
SET STATUS OFF

* Set up database file that we will use
* to store registered project

* Declaring memory variable

DO WHILE .T.

CLEAR
Store space(40) to pro
Store space(25) to con

store ctod ("  /  /  ") to mdate1,mdate2,mdate4,mdate3
store 0 to c_sum,p_con,v_no,m
CLEAR
@ 1,25 to 3,60
@ 4,2 to 23,78 double
@ 2,28 say "V A L U A T I O N   S L I P:"
@ 5,20 say "Enter Valuation Number[0 to Exit]:-" get v_no pict "999"
read
Use SLIP.DBF
locate for vv_no = v_no
if found()
clear
@ 12,7 say "The Valuation number already exist"
wait space(7) + "Press any key to continue....."
loop
endif
if v_no = 0
clear
return
endif
@ 7,20 say "Enter Month of Valuation:-" get m pict "999"
@ 9,5 SAY "Project            :" get pro
@ 11,5 say "Main Contractor   :" get con
@ 13,5 say "Commencement Date  :" get mdate1 pict "99/99/99"
@ 13,44 say "Date on site      :" get mdate3 pict "99/99/99"
@ 15,5 say "Completation Date  :" get mdate2 pict "99/99/99"
@ 17,5 say "Contract Sum       :" get c_sum pict ;
 "999,999,999,999.99"
@ 15,44 say "Date of Issue     :" get mdate4 pict "99/99/99"
READ

* Verify if data entered is correct

store space(1) to repl
@ 22,22 say "Is the above data entry correct [Y/N]"  get repl ;
              pict "!"
READ

IF repl = "N" .or. repl = "n"
  clear
  loop
ENDIF
APPEND BLANK
```

```
REPLACE CONTRACT WITH CON,PROJECT WITH PRO
REPLACE DATE1 WITH MDATE1,DATE2 WITH MDATE2
REPLACE DATE3 WITH MDATE3,DATE4 WITH MDATE4
REPLACE CC_SUM WITH C_SUM,PP_SUM WITH P_CON
REPLACE VV_NO WITH V_NO
  close all
  clear
@ 9,5 SAY "If you are ready to Enter Other valuation data,"
@ 10,5 SAY "select appropriate option in the MAIN MENU    "
wait space(5) + "Press any key to Continue..... "
return
Enddo
```

REFERENCES

1. *Alan. D. & et al (1987) Basic system analysis; Pitman publishing; London.*

2. *Ashton- Tate (1987) Learning and using Dbase III plus (unplublished)*

3. *Badmus .R.O (1998) Lectures notes on sytem analysis and design (Unpublished) Federal university of technology minna.*

4. *Kola.R. (1998) Lectures notes on Database management system (unpublished) Federal university of technology minna.*

5. *Nasir .E.(1990) Seminar paper on micro computer in quantity surveying (unpublished)*

6. *Ramus. W. (1981) Contract practice for quantity surveyors; Heineman ltd; London*

7. *Willis. A. J & et al (1980) Practice and procedure for the quantity surveyors; Granada plublishing ltd; New york*

ARTICLES

1. *Brian. A. (1986)* *Making experience count- Article in the " Chartered Quantity Surveyor" London (CQS)*

2. *Brian. A. (1987)* *Computerisation-Article in the CQS*

3. *Martin. J .(1991)* *Back to the future-Article in the CQS*

4. *Wilkins.M.A (1981)* *Computer and People-Article in the CQS*