SOFTWARE DESIGN AND DEVELOPMENT ON ROAD TRAFFIC ACCIDENTS

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CERTIFICATION

This project is certified to have been carried out by Agborie, B.A. PGD/MCS/2000/2001/995 as part of the requirement for the award of Postgraduate diploma in Computer Science in the Department of Mathematics and Computer Science, Federal University of Technology, Minna, Nigeria.

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ii

DEDICATION

This project work is dedicated to God Almighty for his sustaining grace upon my life and the inspiration granted unto me to be able to get through with the program.

I also dedicate this project to my parents, Mr. F.O. Agborie and Mrs. Daine Agborie and Chief W.T. Agborie for their encouragement.

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I am also grateful to all staff of the Department of Mathematics/Computer Science and especially the Head of the Department.

I appreciate the effort of all the lecturers in the department including Prince AbdulRasheed Badmus. May God in His infinite mercy be with every one of these and may His blessings be their portion. (Amen)

ABSTRACT

Software design and development on road traffic accident is a project to highlight the causes of road traffic accidents, its social and economic effects, the remedy or solutions on how to reduce the rate of accidents to the bearest minimum on our highways. A program is written in Microsoft Visual Fox Pro and Power Point to solve this problem.

TABLE OF CONTENT

CHAPTER ONE

GENERAL INTRODUCTION

CHAPTER TWO

LITERATURE REVIEW

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

CHAPTER FOUR

SYSTEM DEVELOPMENT AND IMPLEMENTATION

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

CHAPTER ONE

GENERAL INTRODUCTION

1.1 INTRODUCTION OVERVIEW

A computer is an electronic machine that is capable of processing data in a wide variety of ways with an extremely high degree of speed and accuracy. In addition, the versatility of the computer is enhanced by its ability to combine many simple operations into a single, integrated whole. A sequence of instructions that work together to allow the computer to solve a specific problem is called a program.

The computer system is divided into two major parts namely, the hardware components and the software components. The hardware is made up of the monitor, keyboard, mouse, system units, i.e. CPU; memory and disk drives.

A computer system software is one of the most interesting and important aspects in the studies and knowledge of computer. As a brand new car may not be of use to the owner without fuel so is computer without a software. Blood is the fluid that keeps a living system alive, so also software is a component that makes the computer as intelligent as we might have been hearing of. Computer software is a set of coded instructions/programs that tells the computer what to do and how to do it, so as to accomplish a specific task for the user. In order words, a software is the collective term for all the programs that runs the computer system.

Different kinds of software have been written to accomplish different kinds of task. Irrespective of the type of problem to be solved, we can classify the software into two basic groups i.e.:

a)   System software, which helps to manage the computer resources and provides suitable environment for running the application software. System software is made up of operating system, utilities or service programs and language translators.

b)   Application software/packages are pre-coded set of instructions or programs, which enable the user to solve a specific problem or perform a useful task, based on need or wants.

Computers have gained widespread importance in our society as problem solving tools. This can only be achieved by feeding the system with correct instructions (programs) that controls the operations of the machine for the performance of a given task. The advent of research and development makes the computer manufacturers to improve greatly on the systems,

by developing collections of programs known as software, which makes the computer easier in use to application.

Apart from mass produced ready-made packages, users can choose to produce their own custom-made or tailor-made program. Such software packages can be designed to solve the users problem i.e. problems of road traffic accidents using data base management system (DBMS), Windows MS FoxPro or formula translator (FORTRAN) programming.

1.2 HISTORIC BACKGROUND OF ROAD TRAFFIC ACCIDENTS

The major means of transportation in the olden days were animals, canoes and other related crude means and with which no accident of any significance was ever recorded. But with the advent of civilisation and technological advancement, the use of sophisticated means such as bicycles, motorcycles, motorcars becomes rampant and thus eventually resulting in accidents on our highways, hence safety was no longer assured.

Far too many lives have been wasted since the destruction, as road accidents cause a high proportion of seriously injured, paralysed, disfigured for life and many killed in the process.

Statistical records show that from 1985 to 1988, 105,342 accidents 89,006 injured persons and 33,096 dead persons were officially reported to the police in Nigeria. There were many more that were not reported. By statistical calculation, this figure shows a significant effect on the population. This inhuman accidents record has far reaching effect on family life, development and economic life of a country because hardly could one find a family that exists today within our Nigerian nation, which has not experienced the anguish of the sudden loss of a beloved one as a result of accident that could have been avoided on our motor ways.

Information must be known about accident cases and the nature of accident so as to help in making rightful decision. Such information is kept in files so as to facilitate retrieval for use and necessary actions.

1.3 FILE TECHNIQUES

A file may be defined as a collection of items of data organised into records in such a way that specific items of data or record can be retrieved and accommodated into the main storage when required for processing. A record is a group of related facts, treated as a unit representing a particular transaction. It is a collection of data items describing the same entity

type, grouped together to form a record. Records may include the causes of road traffic accidents, social and economic effects, solution or remedy to these problems, which might be kept in a file that is accessible by interrogation or by updating such records in DBMS.

1.3.1 FILE ORGANISATION

The way a file is organised depends on the way the file is to be processed. This is to enhance a proper and efficient way of storage, processing and retrieval of data or information with ease. This leads us to different types of file organisation such as:

a) Serial file organisation

b) Sequential file organisation

c) Random file organisation

d) Index sequential file organisation

1.4 DATABASE MANAGEMENT

Information and data are kept in a file, which is to be maintained and managed by DBMS. If we were to survey the software market today, we would find a large number of database systems available. A database system is said to have the following characteristics: it is a single collection of all data needed, it is well organised and structured for easy accessibility, duplication is minimised if not eliminated entirely. It allows the application program to access data easily and it provides a logical relationship, which exist between various records in the database.

A database is an organised, an integrated collection of data, while a database management system is a software package, which manages large and complex file structures. DBMS makes database available to a large number of users and the sharing of data/information can reduce the average cost of data access as well as avoiding duplicate.

1.5 OBJECTIVES

This project is aimed at designing a software to tackle the problem of road traffic accidents on our highways, having known the causes and the effects to the nation.

The computerised program will help in eradicating or reducing accidents to the bearest minimum by creating an awareness programs, ways of accessing offenders and suggest possible

3

areas to ensure control measures. This awareness programs could be propagated through computer aided learning and public enlightenment programs on TV, radio, satellite and even Internet where the general public would have access to read through. This would go a long way in educating the motorist on how to conduct themselves on the highways, which would help in reducing accidents to the bearest minimum.

1.6 SCOPE

The problem of road traffic accident has an adverse effect on families and the nation at large. This project is aimed at addressing the problem by proposing solutions that will help in reducing road traffic accidents, which are as follows:

Introducing a public enlightenment program in form of presentation packages that would educate the motorist and road users on the dangers of the road and how to avert it.

Statistical analysis of accident data nationwide can also be assessed to show the significant effect of accident to the nation and what factors are responsible for this accident. Researches would enable the enforcement agency to know which factors are more prevalent in which areas and this would enable proper enforcement and corrections to this problems. A possible solution is to create an awareness program for the general public since the bulk of the factors that causes accidents are human factors and others could be regulated by the humans. This program is to enhance communication between safety organisation and the road users in such a way that enforcement, awareness, rescue mission will be effective and this will save the lives and properties of the general public.

1.7 DEFINITION OF TERMS

1.7.1 MULTIPROGRAMMING: It is the mode of executing two or more computer programs by a single processor.

1.7.2 CPU UTILISATION: This is the average fraction of time during which the CPU is busy i.e. the time spent executing users program.

1.7.3 ROAD: A road is a track or way prepared for any of the following to use: pedestrian, cyclist, motor vehicle e.t.c. A road can be sub-classified into "Highways" which is a carriageway through which the public would have access. It leads into or out of a town.

Highways may either be a 'single' carriageway or a 'dual carriageway'. "Express way" is a carriageway with two sides running opposite to one another and any part of this carriageway not being single. Traffic is said to flow in one direction.

1.7.4 TRAFFIC: Traffic is the flow or movement of vehicles, passing to and fro on a road e.g. the traffic may be dense, that is high or congested and it may be sparse or low in volume.

1.7.5 ACCIDENT: It is an event happening by chance leading to a misfortune or misharp situtation.

1.7.6 ROAD TRAFFIC ACCIDENT (RTA): It is a misfortune, which may lead to an injury done to a person or loss of lives and property on our roads. This has led to a high waste of human resources.

AUTOMATION: This is the design and implementation of a computer based data processing system, which automatically enhances the speed and efficiency of data computation.

SYSTEM ANALYSIS: This is the method of determining how best to use computers with other resources to perform tasks, which meets the information needs of the motoring public users on code of conduct on our highways.

DESIGN: Is to work from the requirements specification to produce a system specification. The documents, which provides all the features of the system.

CHAPTER TWO
LITERATURE REVIEW
2.1 <u>OVERVIEW</u>

Hardly would you see any family that exists today within our Nigerian nation, which has not experienced the anguish of the sudden loss of a beloved one as a result of accidents that could have been avoided on our motorways.

It should be noted that safety is no other people's business; it concerns you first and foremost to take all necessary steps to prevent an accident. In general, safety concerns every person. In most cases it will only take you a minimum time to avoid consequences that could be regrettable for all i.e. (you, your family or your colleagues).

Accident statistics clearly show the predicament of a nation that had surrendered its talented and productive manpower to the pitiless road, and to the caprices of its users. Such a nation smells doom and hence this problem must be looked into with all seriousness so as to provide an effective solution to it.

Chief Olu Falae in his special message of December 18, 1989 on the highway code of conduct said, " The routine greeting of 'safe journey' if we are travelling is silently or loudly augmented by fervent prayers for a successful conclusion of this plunge into the unknown".

Professor Wole Soyinka in his forward message of October 1, 1989 said that "Far too much time and far too many lives have been wasted since the distraction", as road accidents cause a high proportion of seriously injured, paralysed, disfigured for life and many killed in the process. This led to the formation of the first ever road safety corps in 1977, which was known then as Road Safety Corps of Oyo State. This organisation fulfilled its mission beyond all expectation, educated and transformed the driving habit of the so-called intractable Nigerian drivers to the extent of even beyond the boundaries of Oyo State.

Man causes most problems of the society. The vehicle is an invention of the human mind; as such any problem that followed it must therefore be subjected to control also by the human mind. Hence, in order to minimise carnage and bloodbath on our roads, we need to find a lasting solution to this problem. In the light of this, the Federal Government of Nigeria saw the significant drop in road accident statistics of Oyo State and within its neighbouring boundary states, hence it decided to establish the Federal Road Safety Commission in 1988, which was

backed up with enabling decree 45 of 1988 and was amended by decree 35 of 1992. This body is charged with the sole responsibility of:

1) Reducing accidents on our highways to the bearest minimum if not possible to eradiate this problem.

2) Ensure the safety of lives and properties of all road users.

3) Educating and transforming the driving habits of the Nigerian drivers.

4) Enlightening the public on road regulations through the use of the Highway Code as a code of conduct for human activities related to the open roads.

5) Carry out research and development on possible ways of handling these problems.

Research has brought about the development of computers as a problem solving tool and computers are required to give efficient and reliable services with minimum amount of human intervention. This requirement suggests that computers should monitor and control their own operations where possible. This is only possible with the aid of software developed to solve a particular problem.

2.2 SOFTWARE

These are programs concerned with the operation of the computer system. A computer program is a set of coded instructions that a computer follows step by step to accomplish a specific task. In general, computer software is a collection of computer programs. Different kinds of software are been written to accomplish different kinds of tasks.

Software is divided into two major groups

1)   System software

2)   Application software

2.2.1 SYSTEM SOFTWARE

The system softwares are programs written generally to help in managing the computer resources and also provide a suitable environment for running application software. System software comprises of:

A)   Operating system

Operating systems/control programs are the means by which computers monitor and control the execution of their own operations. Under many circumstances, there should exist at

7

least two programs within the main storage. One is supposed to be a control program and the other one may be an application program.

The control program monitors, aids and controls the application program. An operating system helps to control all program execution, management of computer memory by random access, controls the input/output signals, makes the computer more convenient to use and creates efficiency in operations.

FUNCTIONS OF OPERATING SYSTEM

1) Automatic scheduling and loading of job in order to provide for continuous processing.
2) Automatic control over selection and operation of input/output devices and file handling.
3) Automatic calling into main storage of programs and sub-routines as and when required.
4) Automatic passing of control from one job (program) to another under a system of priority when more than one application program occupies main storage.
5) Automatic provision of error correcting routines.
6) Furnishing of all records of all that happens during processing.
7) Automatic communication with the computer operator usually by means of the console.

TYPES OF OPERATING SYSTEMS

There are many types of operating system but the one of importance to this study are:

1) Simple batch systems – These are systems, which provide multiprogramming of batch programs but have few facilities for interactions or multi-access.

2) Multi-Access and Time Sharing System – are available for use on a variety of machines produced by different manufacturers.

3) Multiprogramming – Allows the execution of two or more programs by a single processor.

4) Single Tasking Operating System allows the performance of a single program at a time by a single user.

5) Multi-Tasking Operating System enables the running of several programs, tasks at the same time. The windows software developed by MS Corporation has the capability of this.

6) Multi-User Operating System or Network Communication allows different users to interact and exchange information.

8

B) UTILITIES AND SERVICE PROGRAMS

Utilities which are also called service programs are system programs which provides a useful service to the user of the computer by providing facilities for performing common tasks of routine nature. Some common types of utilities are:

1) Sort program: This is a program designed to arrange records into a predetermined sequence. Sorting is usually done by reference to a record key.

2) Editors: Editors are programs used at a terminal and provides facilities for the creation of amendment of programs. Editing may be done by the use of a series of commands or special edit command.

3) File copying: This is also known as media conversion. This program, which simply copies data from one medium to another.

4) File maintenance: This is a program designed to carry out the process of insertion/deletion of records in the file. It can also make amendments to the standing data contained in records.

C) TRANSLATORS

A translator is program, which converts statements written in one language into statements in another language. There are basically three types of translators:

1) ASSEMBLER: An assembler is a translator that translates symbolically/numerically represent instructions into machine-readable code.

2) COMPILER: A compiler is a translator which translates/compiles a high level language such as BASIC, FORTRAN, PASCAL, e.t.c at once and executes.

3) INTERPRETER: An interpreter is a translator, which translates a high level language one by one and executes.

D) DATABASE MANAGEMENT SYSTEMS (DBMS)

The database management system is a complex program, which constructs, expands and maintains the database. The database management system allocates storage to data, it maintains records so that any required data can be retrieved, and for any separate items of data in the base to be cross-referenced. DBMS can expand the base by adding new sets of records or new data to existing records.

The DBMS provides facilities for different types of file processing such as:

i)   Processing a complete file (serially or sequentially).

ii)   Processing a required record (selectively, sequentially or randomly).

iii)   Retrieve individual records

The database management system also has the function of providing security for the data in the base by:

I)   Protecting data against unauthorised access

II)   Safeguarding data against corruption

III)   Providing recovery and restart facilities after hardware or a software failure.

IV)   Making use of data dictionary language to describe data items or entity.

2.2.2 <u>APPLICATION SOFTWARE</u>

Programs are instructions written by the user in order to perform specific job for the user. Such programs are written in a variety of programming languages according to circumstances, which must follow a systematic pattern of writing this program.

For many applications, it is necessary to produce sets of programs which are used in conjunction with one another and which may also be used in conjunction with service programs such as sort utilities.

It is also necessary to compare available software before writing the application software. Such a comparison may be done by using a benchmark.

BENCHMARK: A benchmark is a standard program or assembly program used to evaluate hardware or software. A benchmark is used to test compatibility, access the performance of computers.

It is the application software or packages that most computer users have to work with virtually all the time because it enables users to directly request computers to perform specific or scientific task i.e. knowing the major causes of accidents in various routes, or accessing the nature of accidents or keeping up to date statistical records of accident cases and this gives results in most accurate and timely manner. The traffic light is also a software designed for decongesting traffic hold up and accident jams.

2.3 CAUSES OF ROAD TRAFFIC ACCIDENTS AND WAYS OUT

It is the road users that make the highways and roads very dangerous or unsafe. Everyday, hundreds of our fellow human beings are injured, paralysed, disfigured for life and many killed out rightly or die a slow, painful death. Anyone wanting to use the road must be fully aware of the hazards. There are many specific avoidable causes of road accidents, if only one will abide by the road regulations.

The major causes of road accidents are grouped into three categories as shown below.

2.3.1 HUMAN FACTORS

A) **PEDESTRIAN EFFECTS** – These are human beings, animals or any other object moving on its foot on the road and they may contribute to the causes of accidents in the following ways:

1) **MOVING WITHOUT KEEPING OFF ROAD**: - Pedestrians that move without caution, by not giving way to traffic are likely to be involved in an accident. They should make use of the walkway where available.

2) **TRAFFIC DRILL**: Most people do not look out before crossing the road and this may lead them to run into vehicles. Before you cross a road stop, look left, look right, and look left again. When the road is clear you can walk across as quickly as you can.

3) **WALKING IN THE NIGHT**: You can be more easily seen in the dark or in poor light if you put on a conspicuous dress like white or light coloured or reflective dress. This is important on roads without walkways.

4) **FACE ON-COMING TRAFFIC**: Always walk on the left hand side of the road by facing on-coming traffic and if you have children, walk between them and the traffic to avoid accident.

5) **CROSSING THE ROAD:** Know that where pedestrian crossing Central Island, traffic lights, subways, or footbridges are available, make use of them. Otherwise if you cross the road elsewhere, make sure you can see clearly both ways and that you can be seen.

6) **LEADING ANIMALS:** If you are leading animals along or across the road, serve caution to drivers before you allow your animals cross.

B)   CYCLIST EFFECTS – These are the riders of a two-wheel motoring, motorcycle e.t.c and the users of this are known as motorcyclists. Motorcyclists are faced with extra problems similar to those encountered by pedestrians and bicyclists. Motorcyclists are exposed and are less stable, they are smaller in size and are not usually seen by motorists. Even when they are seen, motorists find it difficult to judge how fast they are going and this may lead to collision or lone crashing.

While riding, the cyclist should adopt the following safety measures:

1)   Check cycle for good condition

2)   Ride with extra care

3)   Always hold on to the handle bar and keep your feet on the pedals.

4)   Do not carry anything, which may affect your balance.

5)   Use safety helmet and must be properly fastened so that it will not be knocked off your head when there is accident.

6)   Be confident and watchful.

C)   DRIVERS EFFECTS – A driver is any person who is able and qualified to mane and move a vehicle from one location to another. they contribute to the causes of accidents in many ways, which could have been avoided.

The driver causes accidents in the following ways:

1)   **OVER CONFIDENCE** – Some drivers feel that they are masters of the road/vehicle, while others feel they have been driving for so many years without any problem. This tend to create unnecessary overconfidence in them not knowing that the tyres, brakes and the engine can fail any time.

2)   **SPEED** – Over speeding can make a driver to lose control whenever there is problem. Some drivers often think that the faster they drive the more they impress themselves and others. It should be noted that accidents at high speed are more disastrous than accidents at low speeds. Anything may happen suddenly and it would be difficult for a driver at high speed to take effective control. Bear in mind that safe journey wins the race.

3)   **LACK OF CONCENTRATION** – Drivers often lose concentration because they do combine other activities such as talking, eating smoking e.t.c. with driving and this

may cause distraction. This is dangerous because it takes only a split second for disaster to strike. Always look with the eyes and see with your mind.

4) **TIREDNESS** – Many drivers drive a long distance without stretching their legs and improving their blood circulation to supply the brain adequately. This can cause fatigue, dizziness and oxygen depletion in the brain. Do not drive if your are not well, exhausted or tired from overwork. It is advisable to have ten minutes rest after every four to seven hours drive.

5) **DRINKING** – Alcohol can cause over confidence, poor judgement of vision and recklessness. If you must drink, don't drive and if you must drive, don't drink because drunk driving is dangerous and can cause accidents.

6) **DRUGS** – Many drivers are under the influence of drugs and this makes them to develop unnecessary confidence and reckless behaviour, especially while driving on the road. Any form of drug that could cause a change or uncomfortable body behaviour should be avoided.

7) **POOR VEHICLE CARE** – Drivers do not check their vehicle to ensure that they are in good working condition, most especially the commercial driver whom are always after money will want to manage their vehicle at all times. The owners of vehicle and the drivers should be observing morning drill every day so as to ensure that all the components, oil e.t.c are in good order. A good maintenance culture developed will help to protect the vehicle.

8) **LACK OF TRAINING** – Many so-called drivers have not attended any driving training course and many do not have a driver's licence as such they are not qualified to be on the wheel not to talk of moving the vehicle. Such drivers do not know anything about the code of conduct on the highways. They tend to constitute a problem on the road.

9) **WRONG PARKING** – Indiscriminate parking causes road obstructions and many cause accidents especially at night or at a sharp bend where the on-coming traffic does not see far. In a situation where the vehicle breaks down and cannot be moved off, then adequate warning signs to approaching vehicles should be placed.

10) **DANGEROUS OVERTAKING** – Overtaking by drivers at a point where they are not suppose to do so is dangerous and can lead to a very serious accident because the

driver may not see very well to confirm if it is safe to overtake or not. Overtake only on the left, unless traffic s moving in queues in all lanes and you have no choice but to keep moving forward where you are. Never move to a lane on your right to overtake and never use the hard shoulder for overtaking. There are lines in the centre of the road to separate traffic proceeding in both directions. Broken lines are used in areas where there are no restrictions on overtaking. In areas where there are restrictions on overtaking, a solid line is painted along the broken line. And where you find two solid lines or central unbroken line, this means you must not overtake at all.

11) **OVERLOADING** – Drivers tend to overload their vehicles with the intension of making more money, most especially commercial vehicles. Passengers stand a very high risk of severe injury or death in overloaded vehicles because at accidents the vehicle compresses and reduces in volume. This makes the pressure inside to increase, which may cause suffocation and accelerate death.

D)   PASSENGERS EFFECTS – A passenger is any other person inside a vehicle excluding the driver. They may be contributing to the cause of accidents in the following ways:

1) **DISTRACTION BY PASSENGERS** – Passengers often cause accidents by talking to drivers, showing them interesting things inside and outside the vehicle thereby distracting the driver from concentrating.

2) **ENCOURAGE DRIVERS** – Passengers sometimes encourage drivers to over speed, overtake or create unnecessary confidence on the driver and this may lead to accidents.

3) **I DON'T CARE ATTITUDE** – Passengers often show non-chalant attitude even when the driver of the vehicle they are travelling is misbehaving. They also exhibit I don't care attitude towards the vehicle they are boarding, they don't care whether the driver overloads or not. Passengers should be abreast with the road regulation and make necessary corrections or warning to drivers when they are going the wrong way.

2.3.2 ENVIRONMENTAL FACTORS

1) **RAIN** – During the rainy season, the road is normally wet and slippery, as such speed should be reduced. Driving becomes much more difficult and hazardous when visibility is blurred by the weather condition such as heavy rains, mist or fog. You need to slow down, keep a safe distance between the vehicles before you and be prepared to stop within your range of vision. Leave enough space between you and the vehicle in front so that you can stop safely if the vehicle in front slows down or stops suddenly. The safe rule is never to get closer than the overall stopping distance shown below.

Table 1: Stopping distance

Speed Km/h	Thinking distance m	Breaking distance M	Overall stopping distance (m)
20	5	5	10
40	10	12	22
60	16	30	46
80	22	50	72
100	27	65	92

Note: Stopping distance increases greatly with wet and slippery roads, poor brakes, bad tyres and fatigued drivers. Remember and apply the two seconds rule when it is wet.

2) **SUN INTENSITY** – The intensity of sun varies from one geographical region to another. The tyres are built to specification and in regions where the intensity is very high the roads tend to heat up and the tyres of a moving vehicle will tend to expand thereby making the tyres to become thinner in texture and this may lead to tyre burst and accidents. The sun also affects the road because in areas where the sun is very high, the road will contract and expand thereby leaving the road in an undulated shape, which does not give a smooth drive.

3) **FALLEN TREES** – Trees and other objects closer to the road may fall and block the road thereby causing road obstructions. This will distort the flow of traffic and

sometimes leads to accidents, as some drivers may not see it on time, most especially at night.

4) **WIND** – Wind can gradually erode the top surface or side of a road thereby making it to be narrow. Rain and wind will erode leaving it with dangerous potholes, gulleys, steeped paths e.t.c, which are main, causes of accidents on our highways. The government can only check this by constant maintenance of the roads.

5) **LAND TOPOGRAPHY** – The landscape nature of some areas makes such areas an accident prone areas because it may be difficult for two or more vehicles to pass such areas at a time and when they eventually meet it results to accidents i.e. a part of Mokwa – Lagos road where there is a steep at an angle.

2.3.3 <u>ENGINEERING FACTORS</u>

1. **NATURE OF ROADS** – Roads are constructed by engineering construction company and in most cases they construct roads to maximise profit not putting many factors into consideration, hence we have roads that do not stay long before wearing away. Sometimes we may have too many bends and potholes on the roads, which are death traps. The government, through Federal Ministry of Works should try as much as possible to give priority to road constructions and maintenance so as to avoid accidents on the way.

2. **POOR VEHICLE MAINTENANCE** – The vehicle is built to specification and need a periodical maintenance so as to stay longer in good condition but most drivers do not care of the vehicle. You need to keep your vehicle in good condition by visiting the mechanics from time to time. This is known as periodic maintenance per design or demands. Such repairs like monthly or certain mileage services of a vehicle or equipment, general engine overhaul, cleaning of the fuel tank and radiators. Also carry out a daily routine maintenance and checks done on the vehicles and equipment in serviceable condition at all times. It is absolutely necessary that the driver must check the following on daily basis:

a) Petrol level in the tank

b) Oil level in the engine

c) Water level in the radiator

d)   Tyre pressure and any damage to it.

e)   Lamp, horn, battery, wiper e.t.c

f)   After starting the engine, check battery charging and rate oil pressure gauge

g)   Check breaks

h)   Watch out for any unusual smell

The routine/preventive maintenance saves your vehicle from a total or sudden breakdown.

3.   **SEAT BELT** – Statistical analysis of road traffic accidents in Nigeria since independence shows that the chances that one will be injured in an accident in his lifetime is 1:3; and that he may be killed in an accident is 1:9. You should know that no matter how you drive, there is always a chance that you will be involved in an accident. You cannot predict when it may happen. The best protection inside the vehicle is the use of seat belts. Seat belts in your cars are fitted by the manufacturers, so make sure they are always used, even on short trips. In the event of accidents, seat belts properly used will reduce the severity of injuries by at least 50%.

4.   **ROAD SIGNS AND MARKING** – A thorough knowledge of traffic signs, signals road and pavement markings are compulsory for all road users, especially the drivers. Road signs and markings by authorised traffic officer are to ensure a smooth and safe traffic flow. You must know them and be able to recognise them. Traffic signs tell you about traffic regulations, special hazards and other road conditions.

4a.   **REGULATORY SIGNS** – Regulatory signs are mostly circular in shape. We have those with 'red circles' and are known as PROHIBITIVE SIGNS and those with 'blue circles' are mandatory signs.
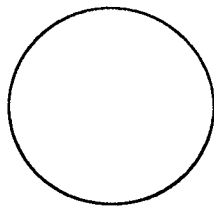
4b.   **INFORMATIVE SIGNS** – These are usually rectangular in shape and provides guidance information.

PROHIBITORY – Round signs with red background limit you to an instruction that must be followed i.e. STOP, maximum speed limit 80 e.t.c shows that you must obey the regulations.

MANDATORY – Are round signs with blue or green background and this ask you to carry on with an instruction.

INFORMATIVE SIGNS – Shows you an information ahead which may guide you.

TRAFFIC LIGHT SIGNALS – This is a software design to solve the problem of traffic congestion at junctions. Instead of using the manual traffic officers, the traffic light can be programmed and mounted in such a way that it will control the traffic flow congestion. Its mode of operation is with the three coloured round lights.

The RED means stop, wait behind the stop line. While RED and AMBER shown together means get ready to move but wait until the green sign shows up. Then the GREEN light tells you to go on if the way is clear. GREEN MAN LIGHT means pedestrian may go but the RED MAN means pedestrian should wait. A GREEN ARROW means that you may go in the direction shown by the arrows irrespective of other light that shows.

ROAD MARKINGS – This can be done by the construction company as at the time of construction, this gives information on how to drive on the highways. A straight solid line means no overtaking while a broken line means you can overtake if the road is clear.

5.   TYRE CONSTRUCTION – The tyres are made from synthesised rubber and are built to specification. The tyres are subject to expansion and contraction as the climatic condition may be and it is also subjected to wear and tear as it is being used. As such, the condition of the tyre will determine the safeties of a vehicle and there is need for the company to build tyres to meet the climatic and prevailing situation in different countries.

2.4   EFFECTS OF ROAD TRAFFIC ACCIDENTS

The country suffers by losing its talented and productive manpower often in the prime of life. These affect the country in a number of ways as:

2.4.1 SOCIAL EFFECTS

a)   People may die

b)   Cars and materials may be destroyed

2.4.2 ECONOMIC EFFECTS

a)   Transport disorder cripples all activities

b)   Money may be lost

c)   External investors would be afraid because of economic instability

d)   De-population of the country

e)   Manpower and technological development would be slowed down.

Due to the effect of road accidents on families and relatives, therefore there is need for safety enlightenment in every sect and since the world is going computerised/the use of computer is becoming more popular as such there is need to design and develop a software that would enhance the reduction of accidents on our highways.

SUMMARY OF ROAD TRAFFIC ACCIDENT TREND IN NIGERIA: 1985 - 1988

State	Cases reported	Casualty rate (per 100 accidents	Fatality rate (per 100 accidents)	Causes		
				Human	Environmental	Engineering
Abuja	795	58	33			
Akwa-Ibom*	524	127	10			
Anambra	7,838	114	23			
Bauchi	3,910	50	45			
Bendel	9,665	110	26			
Benue	4,222	77	29			
Borno	3,850	74	40			
Cross River	4,762	79	27			
Gongola	3,402	75	33			
Imo	4,792	86	29			
Kaduna	7,458	83	37			
Kano	8,464	87	35			
Katsina**	339	52	66			
Kwara	3,174	79	37			
Lagos	12,349	168	18			
Niger	3,251	48	47			
Osun	6,106	80	33			
Ondo	3,949	85	28			
Oyo	6,576	75	34			
Plateau	3,496	99	34			
Rivers	3,303	115	20			
Sokoto	3,117	54	52			
Total	105,342	85	33			

Note:
* - Data for 1/1/88 – 31/12/88
** - Data for 1/6/88 – 31/12/88

From the table above, one would be able to deduce the following:

1) The areas that are more prone to accidents

2) What factors is more prevalent and in which state

3) The significant effect of accidents to the nation

4) One can show which of the factors contribute more to the causes of accidents and in which area.

5) What preventive measure is to be taken and in which area

6) Who is to rectify this problem, the individual, populace or government

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

System analysis and design is concerned usually with man-made systems involving inputs, processing and outputs to meet specification or needs of the user. A system can be regarded as a set of interacting elements responding to inputs to produce outputs. All systems have boundary that separates them from their environment.

SYSTEM BOUNDARY – This boundary defines the scope of activities. For example, the problems or road traffic accidents will involve the causes of road traffic accidents, the effect of road traffic accidents and the solutions to road traffic accidents and also implementing the solutions with basic road regulations so as to yield results. In order words, the boundary may delineate an area of responsibility.

3.1 . INTRODUCTION TO SYSTEM THEORY

INPUTS – These are the elements that are fed into the system for processing. This information would include the factors that cause road traffic accidents, social and economic effect and solutions to be followed.

PROCESS – This is a process of transforming the inputs into other forms of results. It is a way of analysing and manipulating the inputs to give a useful results or precaution to be taken.

OUTPUTS – These are the results that comes from the processing and would be fed back to the user via the console in the form of computer-aided learning using power point display.

FEEDBACK – It is a form of control measure for accessing current performance and makes adjustments to achieve its goals.

SYSTEM ANALYSIS – System analysis is a method of determining how best to use computers with other resources to perform tasks, which would meet the information, needs of an organisation.

System analysis is a specific way of solving problems unlike organisation and method, which is a general way of solving procedural problems.

In order to apply system theory on road traffic accidents, we need to know the factors responsible and the basic road regulations as a control measure.

3.2 PROBLEMS OF RTA AND SYSTEM INVESTIGATION

A system analysis on road traffic accidents would be understood better when proper data are collected on the causes of accidents, rate of accidents and types of vehicles involved before a solution is sought and the way out of the problem of RTA.

A good and reliable source of data or information would be collected from Federal Road Safety Commission, Vehicle Inspection Officers or Road Traffic Officers, The Nigerian Police, The general public, the drivers, and members of National Union of Road Transport Workers e.t.c and this could be done by employing various means of searching for information.

3.2.1 METHOD OF SEARCHING FOR INFORMATION

There are several methods of gathering information and whichever method adopted is to get detail information and data on:

a) Causes of Road Traffic Accidents

b) Effects of RTA

c) Basic road regulations and guides

d) Solutions to the problems of RTA

e) Implementation method

The following methods were adopted so as to gather reliable facts:

1) RECORD SEARCHING – Past records on road traffic accidents were collected and validated from FRSC, VIO and the Police. This is done to gather quantitative information on road traffic accidents. It has helped us to establish the causes, frequencies of occurrence, trends and to prove how much reliance on these data and information collected.

2) INTERVIEW – An interview strategy was also adopted so as to get more satisfactory information. This interview was conducted randomly among the drivers, members of NURTW, and the general public. This is to ascertain the objectives of the major causes of RTA, and the way out. It may be limited by some constraints and delimitations of the existing systems.

3) QUESTIONNAIRE – A form of questions were also designed and distributed for individuals to answer, which may provide uniform responses to standard questions. This

method has helped to yield useful results on the way out of the problem and method of implementation so as to reduce accidents to the barest minimum.

3.2.2 INVESTIGATION OF SYSTEM

USERS OF THE SYSTEM

1. Planning research and statistics units
2. The motorist
3. Road traffic organisations i.e. Police, FRSC, VIO, e.t.c.
4. The general public
5. Road transport organisation
6. Mass media
7. Information departments
8. Library units

3.2.3 PROBLEMS AND INADEQUACIES OF THE CURRENT SYSTEM

PROBLEMS

1. Inadequate public enlightenment
2. Lack of knowledge among motorist on road regulations.
3. Slow process of enforcement
4. Inability to track down all traffic offenders
5. Poor maintenance culture of our roads by the government.
6. Inability to access many criteria for an efficient work.
7. Lack of efficiency in the use of resources as lots of resources are been expended on paper work.
8. Lack of organised database – there is a poor file management system to access, retrieve and store. No data integrity, no data independence and the presence of a high degree of data redundancy and unnecessary duplication.
9. Inadequate safety and security of information
10. No decision support system or management information system leading to bad decisions, which can cause the loss of lives and properties.

3.2.4 SYSTEM REQUIREMENTS

To solve the problems and inadequacies enumerated above, the following system requirements have to be fulfilled.

1. There should be an established computerised database.

2. There should be a computer data dictionary, which holds the description of the components of data within the system established for monitoring and control of accidents.

3. The introduction of a computerised database management system-software with a range of facilities for monitoring and controlling the use of the database so as to ensure data integrity, data independence and the elimination of data redundancy.

4. The establishment of a computer aided learning process on road traffic accidents.

5. The introduction of this software into mass media and Internet to create easy accessibility.

6. The introduction of safety as a course of study in Nigerian schools.

7. There should be an effective and efficient monitoring on our roads so that the government would know what to do at the right time. This introduction of decision support system and management information system would enable the use of computer to generate information to support decision making relative to the road management. Project can be speedily and easily monitored by the system as software programs can be used to ensure an equitable distribution of projects across the country.

8. Improved speed in information processing.

9. Introduction of safety and security measures in the computerised information system.

FEASIBILITY OF THE STUDY

In view of the problems and requirements analysed, the project is technically feasible as virtually all the hardware requirements are on ground and the required software can be designed to be used with already existing software to yield results.

The operational feasibility would be possible and easy to operate since most of the factors are known even to the users and the general public as such this system is only to enhance the efficiency, speed of processing of an already practiced system.

3.3 SYSTEM ANALYSIS AND FEASIBLE SOLUTIONS TO THE PROPOSED SYSTEM

SYSTEM ANALYSIS: - The current system on road traffic accident is normally checked by a manual system that is using personnel to do every bit of job. Research and development has made it in such a way that agencies and voluntary organisations concerned are working hard to change the system to a faster and more reliable one.

Having known the problems and functionability of the current system, it will be more appropriate to build the new system to satisfy the following conditions:

1. Making the highway safe for motorists and other road users.
2. Educating the motorists and members of the public on the importance of discipline on the road by obeying basic road regulations.
3. Educating the drivers and other road users on the proper use of the highways.
4. All motorists and the general public should co-operate with bodies, agencies charged with road safety related duties in preventing accidents on the highways.
5. Road safety related organisations and voluntary organisations should undertake research on public opinions on road traffic accidents.
6. Research should be supported by government and other charity organisations so as to yield results.
7. The system would accommodate the issue of arresting offenders with ease.
8. Establishing a good communication between the public and road safety organisations or the police for quick response and actions where necessary.
9. To ensure publication of road regulations in newspapers and other mass media.

FEASIBLE SOLUTIONS TO THE PROPOSED SYSTEM

The design of the proposed system can take different dimensions to solve this problem. These are:

PUBLIC ENLIGHTENMENT PROGRAMS

A public enlightenment program would be designed to teach or educate the general public and motorist on the causes of road traffic accidents, effects to the nation and families, possible solutions and basic road regulations.

Public enlightenment is very important because virtually all the factors that causes accidents are human factors or factors that are regulated by humans and most of these could be avoided when there is sufficient public enlightenment on what to do at the right time.

This program can be introduced into Radio and Television programs and even on satellite programs. It can also be introduced into the Internet web site where everybody in the world can study it to gain such awareness.

COMPUTER AIDED LEARNING ON RTA

The program can be introduced as a software in the personal computer where users of computers can also learn a lot. It could even help in the exploration of other areas.

RADAR WATCH

A program designed on the causes of road accidents can be mounted on strategic locations in a city to monitor a stretch of distance and would be programmed to make arrest of any violator of these causes. An arrest would be made by specifying the offences, location, time and full description of vehicle with a photographic snap to show its number and other details.

This radar monitoring system would make personnel to be redundant since a single machine can do the work of so many people. The duties of the traffic personnel would only be to analyse and to trace the residence of the violator so that they can be served with his offences and charges. The problems and limitations of this is that we do not have a central data bank containing the names and address of Nigerian citizens. As such, tracing an offender would be difficult.

ROAD SAFETY EDUCATION

A program can be designed to teach road safety as a course of study in Nigerian schools and this would help to step up the results of research and development which would in-turn reduce the rate of accidents to the barest minimum.

Presently, there is a program tagged 'catch them young' introduced in primary schools which is to build the mind of Nigerian children towards the use of roads.

3.4 SYSTEM DESIGN FOR AN AUTOMATED AND COMPUTERISED SOLUTIONS

SYSTEM DESIGN

The system design is the phase of translating the system requirements into a blue print before it is transformed into physical reality. It involves the application of various techniques, principles and tools in defining the new system in such a way to facilitate easy and detailed development.

The design of a new system begins with the existing system as a point to give the headway. The design must address all aspects of the existing system, the modifications in respect to the problems and requirements of the system s elicited by the analyst. There are three major areas to be considered in system design:

1. Software considerations

2. Hardware considerations

3. Human considerations

It is usually advisable to begin the system design with the software considerations because the software required in a system must often determine the type of hardware to be utilised and the computer personnel can always be trained to use the software and hardware recommended. In this project, greater emphasis will be laid on software design and development because it is the bedrock of the new information system.

3.4.1 SOFTWARE DESIGN

The first and most important phase of software design is data design, which has great impact on the quality of the software due to its influence of data structure on the program structure.

A good software design should exhibit the following criteria:

1. The design should be based on information obtained during software requirements analysis.

2. It should solve the problems of the old system and adequately meet the requirements specified in the analysis.

3. There should be hierarchical organisation of data to establish control over the elements of the system.

28

4.   There should be a modular arrangement in the program to ensure that it is logically partitioned into elements with specific functions and sub-functions.

5.   The modules should possess independent functional characteristics.

Although the software takes into consideration the workflow and processing functions. During the early stages of design the most productive approach is to concentrate on the data analysis.

Data analysis should begin by structuring the data in terms of the fundamental entities in the system. For instance, the entities to be considered in this project would include causes of road traffic accidents such as human factors, environmental factors and the engineering factors and effects such as social and economic effects including basic road regulations and the solutions to the problem. All these play a role in the system. Each entity is distinct and is important in the design of the systems database.

3.4.2 DATABASE DESIGN

An important aspect of data analysis is the database design.

DATABASE – A database is a collection of data or entities, which are organised to ensure easy access, analysis and easy preparation and generation of reports.

The first phase of the design of a database is the establishment of a data dictionary, which is a collection of definitions that the data are in a database. It is often referred to as data about data.

The major aim of the data dictionary is to provide specific standardised nomenclature and description of the data used in the system such that all the users of the system use these terms uniformly. The importance of this is to provide information and eradicate confusion and disorder in the use of the same terms.

The dictionary contains definitions of each data item, the authorised users of the data, those authorised to alter data and the definitions of the physical location of items of data.

Database management system (DBMS) is a software through which the database is accessed. DBMS can be defined as a software package which manages large and complex file structures. DBMS makes database available to a large number of users and the sharing of data helps to reduce the average cost of data access as well as avoiding duplicate data. Users can only

29

access DBMS which will interpret the data requirements into accesses required and returns the results to the user in the form that the user requires.

METHOD OF ACCESSING DATA

As earlier mentioned, data may be accessed using the user-friendly query language on visual display units. Access may also be made via programs written in a conventional programming language.

The major entities identified in this project are as follows:

1. The causes of road traffic accidents

2. The effect to the nation and the society

3. Basic road regulations

4. Solution to the problem and the way out.

3.5 MERITS OF A SOFTWARE DESIGNED TO SOLVE ROAD TRAFFIC ACCIDENT PROBLEMS

There are so many advantages to the introduction of a software in solving the problem of RTA. They are as follows:

1) It increases the speed of implementing system

2) It helps to ease the access of files by programmers through programs

3) It improves the learning process so as to step-up public enlightenment on it.

4) It enables management view and fast decision to a problem.

5) It improves standard

CHAPTER FOUR

SYSTEM DEVELOPMENT AND IMPLEMENTATION

4.1 CHOICE OF SOFTWARE PACKAGES

Apart from mass produced ready-made packages, users can choose to produce their own custom-made or tailored-made programs. Applications in the form of either integrated packages or software suites may be developed.

INTEGRATED PACKAGES – Integrated packages are single programs or software that have abilities, different from software suites, which are merely groups of programs that work together. The integrated packages have the ability to combine different documents types i.e. word processor, graphics, and communications.

Its advantages are, single command structure and it makes learning quite easy.

SOFTWARE SUITES

. When the individual applications are simply combined, they are called software suites. An example of a software suite is Microsoft Office 2000, which combines the following individual application packages:

1) Word (word processing)
2) Excel (spread sheet)
3) Access (Database management)
4) Outlook (contact)
5) Outlook express (for electronic mail)
6) Power point (for presentation)

Other examples of software suite are Lotus suites e.t.c.

4.1.1 TYPES OF APPLICATION PACKAGES

In fact there are application packages for almost every conceivable task or operations. These can be grouped into five major broad classifications of application packages, which are:

1) Business application packages
2) Communication packages
3) Graphic packages
4) Utilities packages

5) Web publishing packages

It should be noted that the initial three popular packages – Word processor, spread sheet and database management software belongs to just one of these five classes i.e. business application software. The applications that we shall limit our study to in this project are: communication, graphics, utilities and web packages.

COMMUNICATIONS PACKAGES

S.No	Sub-group	Examples
1	Fax	Symantee Winfax
2	e-mail	Microsoft outlook express
3	Remote access	Travelling software haplink
4	Voice messaging	Novcom cognital

GRAPHIC PACKAGES

S.No	Sub-group	Examples
1	Computer Aided Design	Viagrafix DesignCAD Pro
2	Design/Animation	Micromedia Director, Macromedia FreeHand, Microsoft PhotoDraw
3	Desktop Publishing	Adobe Pagemaker, Microsoft Publisher, Quick xpresss
4	Image editor	Adobe photoshop
5	Mapping	Microsoft map point
6.	Video editor	Ulead media studio, Ulead video studio

UTILITY PACKAGES

S.No	Sub-group	Examples
1	Antivirus	Symantee Norton antivirus, Trend Micro Pc-cillin
2	Back up	Veritef software, Back-up Exec Desktop
3	Compression	Mijenix corp zip Magic
4	Disk management	Executive software, disk keeper, symantic Norton Ghost
5	Unistall	McAfee Software, Uninstaller Deluxe

WEB PACKAGES

S/No	Sub-groups	Examples
1	Authoring tools	Lotus, Fost site, Microsoft Front Page, Adobe Image Styler, Caere Page Web
2	Browser/Web Access	Microsoft Internet Explorer, Netcape Navigator
3	Web Development tools	Net object Fusion, Tetranet software Linkbot Pro

4.1.2 CHOICE

For the purpose and emphasis on the software design and development on road traffic accidents, the following software packages are recommended:

1.   Microsoft Windows 2000 (Operating System).

2.   Visual Fox Pro which is a software for which the application software for this project is developed.

3.   Microsoft Word 2000 as an application software, which the task of creating, redrafting and printing a document. This automated process allows you to generate an almost perfect work.

4.   Microsoft Excel 2000

5.   Power point

4.2   PROGRAMMING DETAILS

Why do we need to use Microsoft Visual Fox Pro or Power Point?

A Microcomputer can make any one worker more effective, the speed and efficiency of using a microcomputer are:

1.   Send messages to and receive messages from computer's workstations across the country.

2.   Access files and databases across the country through a network connection.

3.   Scroll through a list of incoming electronic messages, display each message and then transmit a reply to each message.

Communication means, "to share, deliver, send or convey information or data".

Electronic data transmission is simply known as electronic communication, and it is done by communication application software, which can be done by:

1. Data transmission – By sending words, numbers and symbols electronically.
2. Graphic transmission – By sending illustration or drawings.
3. Voice transmission – By sending voice messages e.g. by radio or telephone.
4. Video transmission – By using television to send information.

Power Point is a presentation package, which can be used to present the causes of road traffic accidents and the solutions in a form of learning aid.

Presentation graphics are essentially more powerful version of analytical graphics. Presentation graphics offers a greater variety of graphics, formats, type styles, type sizes and other features that are very useful in developing sophisticated slides, overhead transparencies and similar graphics for special displays, exhibiting advertisements and presentations.

Microsoft Visual Fox Pro is a database programming software, which possesses graphic user interface. It is database software that offers a host of features along the speed and ease that the end-user demands. Fox Pro package has power and speed of processing. The menu and command is completely simplified in this package. The important feature of Fox Pro is its inter-phase with Windows applications.

The reason for choosing Microsoft Visual Fox Pro in building this application includes the following:

1) Microsoft Visual Fox Pro is database application developed and the system requirement report of this project specifies the need for a well-established database to solve the problem of road traffic accidents.

2) The logic of software developed using Microsoft Visual Fox Pro are easily understood by users because it ensures that program codes are written in modular structure with each form, report, menu or screen having individual modules.

3) Microsoft Visual Fox Pro enables the development of applications with a graphic user interface, which is friendlier and enhances the ability of the user to understand the application better than any other application using a command user interface.

4) Microsoft Visual Fox Pro has a built-in data dictionary based on a data container, a table that has definitions for tables, persistent relationship between tables, and connections to remote data sources such as Microsoft SQL server and views both for local and remote data.

5) Microsoft Visual Fox Pro has a general field in the table structure of its database that can be used to call in files from other applications such as Microsoft Word, MS-Excel and graphics such as pictures, graphs and charts.

The above reasons made Microsoft Visual Fox Pro an obvious choice for the development of the application for this project.

The system analysis and design stage as we have mentioned in the last chapter helps us to know the problem and causes of road traffic accidents, its effects, and the solution to this problem. It also talked about the requirements and design of a new system to solve this problem.

At this stage of the project, software will be developed based on the design recommended to the system analysed.

The main element of a software design is data analysis. In Microsoft Visual Fox Pro data consists of databases, tables, indexes, queries, views and other relationships.

DEFINITION: - A database is a container for the data objects.

A table in Microsoft Visual Fox Pro unlike in most other database relationship software consists of rows of information (records) where each column of the data or information is a field.

Tables in Microsoft Visual Fox Pro may be bound to databases or may be free tables (not bound to any databases). In this application all the tables are attached to databases because of the advantages that the tables attached to databases have over free tables, these advantages are as follows:

1.   Provision made for long field names

2.   Validation rules for fields and records, which guides the user to input only data that are valid, such that invalid data are rejected by the application.

3.   Stored default values

4.   Triggers that call stored code when data is needed, deleted or modified.

5.   Persistent relationships between tables.

6.   Referential integrity rules.

The Microsoft Visual Fox Pro software has a project manager, which is the central interface for workshop with the application. It is a tool with which data and objects in a project can be organised.

The project manager helps to organise and manage files as one creates data fields, tables, queries, set up forms, reports and also to build applications.

DATA TYPES

Microsoft Visual Fox Pro has the following data types:

- ✓ Character: This data type is suitable for data that are alphanumeric text such as letters, numbers, spaces, symbols e.t.c. Character fields are usually used to store information such as addresses and numbers that are not used for mathematical calculations.
- ✓ Numeric: This data type is used to indicate magnitude – having values that contain digits and may include a sign and/or a decimal point. Numerical values may be integers or fractions.
- ✓ Float: Same as Numeric.
- ✓ Date: The date type is used for chronological data consisting of day, month and year.
- ✓ Date Time: Date time is used for chronological date consisting of month, year, day, hours, minutes and seconds.
- ✓ Double: The double data type is used instead of numeric for when data requires greater precision and accuracy.
- ✓ Integer: The integer field type is used for non-decimal numerical values.
- ✓ Memo: The memo field type is used to store blocks of data, the size of which depends on the data stored in them. The data for memo field are stored in a separate file with an extension. The field can be as large as the available disk space.
- ✓ General: This is used to store object linked embedded (OLE) objects. It can be used to reference a picture, word processing document or spread sheet created by another application. The size of the field is limited to the available disk space.

CREATING DATABASE AND TABLES

In Microsoft Visual Fox Pro, a table stores data in records and fields while a database is a set of tables related to each other through common fields.

THE TABLE DESIGNER

The table designer in Microsoft Visual Fox Pro is a visual tool for creating and maintaining the structure of tables. In creating a table, more detailed decision on data types, caption, values for field e.t.c are very much needed. Tables can be designed and created programmatically or interactively with the table designer through the project manager or the file menu.

Select/click on 'New' button to activate the table manager through the project manager. Choose 'New Table' option and a 'Create'. A window opens for one to insert the name of the table and then 'Save' it. After saving, the table designer automatically appears. It has three tabs such as 'Field', 'Indexes' and 'Table Tab'.

With a click on field → a window appears where the programmer can fill in the name of the field under the name column heading and the data type under the type column heading, the width of the field is also to be specified under the field column heading. Note that one needs to specify the maximum number of character spaces the application should make in respect to the filed. In the table designer, provision is made for index, if a field is to be indexed it will be indicated whether the index is in ascending or descending order. Provision is also made for one to indicate whether the field will accept null values or not (a null value is a value that is not equivalent to zero or a blank and yet has not explicitly assigned values).

Field captions can be entered into a table in the designer through the caption text box. These are alternative table names, which Visual Fox Pro uses to place field names in forms created using the form wizard grid controls, browse and edit windows.

Field captions are used for making short labels in substitute to long ones, it may also be used to make field names more descriptive and for data labels. Like field names captions can contain up to 128 characters.

Default values for fields can be entered into the table designer in the default value text box. This defines the value that Visual Fox Pro automatically enters into a field whenever a new record is added to a table, the default value can be edited if the value is not appropriate.

Validation rules are used to enforce business rules for data entry. There are field levels as well as record level validated rules, which are conditions that describe the field or record. The field level validation rule can be entered in the table designer, by a click on the field's tab and

entering the validation expression in the rule textbox. The error message is to be displayed if the rule is violated in entering the message in the textbox.

INSTALLING APPLICATION PACKAGES

Application packages used are to be stored in diskettes for distribution or on CD's, which is more universally accepted.

Usually, all that is required to install new software is to insert the CD from the manufacturer into the CD ROM of the computer and wait for the auto-run features to start. This is followed by some onscreen instructions.

Where the CD does not come with an auto-run feature, then installation should be done manually as follows:

1. Click the start button on the lower corner of the Taskbar

2. Click the Run menu item

3. Click the browse button to select drive in which installer CD is inserted.

4. Look out for the SETUP. EXE file and double-click on it.

5. Click on the OK button and then follow on-screen instructions until the installation is completed.

That is:

START → RUN → BROWSE → DRIVE → SETUP.EXE

In most cases, the computer has to be re-booted after installation, in order for the newly installed software to be recognised by the computer or to allow for proper installation. One indication of a proper installation is the appearance of ICONS (small graphical displays) for the newly installed software on the program menu of Windows.

4.3 ACCESSING MODE/SYSTEM TEST

RETRIEVING DATA

Data are stored in tables in order that data or information may be retrieved from them. Queries and views are invaluable tools used to extract such data or information in relational database management systems like Microsoft Visual Fox Pro.

Queries and views are used to answer such questions as:

1) How many factors can cause accidents.

2) How many factors can be regulated and controlled by man so as to avoid accidents.

3) What are the effects of accidents

4) How many factors can the government control?

5) What are the solutions to this problem?

Queries/views are also used to search for records that meet certain criteria, to order and group records as well s to create reports, tables and other output media.

In Visual Fox Pro queries/views can be created programmatically as well as using the query designer. The process of creating queries and views are almost the same either programmatically or by using the designer, as such describing the process of creating queries would also suffice for views.

Wizards can also be used to create tables, queries and views. However, in this project, restriction will be made to using programming language as well as the designers.

Microsoft Fox Pro actually has two programming languages, the X-base language that originated with Dbase II that grew and evolved into Visual Fox Pro and SQL (Structured Query Language).

The basic difference between queries and views is the end product; the query designer produces a query file, whereas the view designer stores the view description in the active database.

Data can be extracted from more than one Visual Fox Pro tables; it is not required that the table or tables be opened but the table name must be indicated in a form clause in the SQL SELECT COMMAND itself. However, it is required that the database in which the table is contained be either opened or included with the table name.

For example:

SELECT overtaking FROM Db accident! Human factor

From the above program code, overtaking is a field in the table name Human factors, which is contained in a database called Db accident, the ! sign shows that the table Human factors is not opened. The query output is usually specified by listing expressions separated by comma, e.g. the following expression displays five fields from the Human factor table.

SELECT HUMAN FACTORS, over speeding, overtaking, dangerous driving, over confidence, alcohol. FROM Db house! Human factors.

The query designer can be accessed through the project manager by selecting queries in the ALL or DATA tab and by clicking on New. The designer can also be created by the issuing the create query or modify query (view) command in the command windows.

The query design has several tabs, which includes fields, join, filter, order by group, by miscellaneous tabs.

The Field Tab – functions and is used to specify fields, functions and expressions. In these examples, fields were selected from two different tables, the driver's effect and passenger's effect.

The Join Tab is used to specify join expression matching records between two or more ables and views.

The Filter Tab is used to specify conditions for selecting conditions.

The Order By Tab is used to specify the fields or other expressions used to set the order the records retrieved in the query.

The Group By Tab is used to specify fields and other expressions that can be used to up records that have identical values, which as the effects.

The Miscellaneous Tab is used to eliminate duplicates from query results that have rds in which every field matches.

The Cross Tabular – Checkbox in this tab is used to serve results of queries to Microsoft hs, a report or label. The output displayed can be specified in the query menu by clicking on uery destination items.

After specifying the query destination, the query can be run by clicking on run query item ; query menu or on the toolbar or by using the keyboard keystrokes (Ctrl + E).

The operation described can be carried out programmatically via the following code ents.

T causes. Causes. Causes. Human factor, Driver's effects, passengers' effects, pedestrian

db accident! Human factor INNER JOIN db accident! Drivers' effects; INNER JOIN db

! drivers.

DATABASE DESIGNER

Pro has a database designer, which is a tool used for maintaining databases. It all tables in the database container and their relationships. The or add tables to the database, it is also used to define stored procedures.

4.4   ITS USEFULNESS

The Microsoft Visual Fox Pro application uses reports and tables to display and summarise data or information in a printed document.

The data source of a report may be a set of tables in the databases, a view or query. A report layout is used to define the format in which the report will be formatted.

A good report needs to be properly planned – the general layout has to be decided upon, there are several predefined layouts in Visual Fox Pro such as Column Type, Row Type, Label Type for proper arrangement. This makes it useful in its speed and efficiency, reliability in operations.

This system software gives a better service, faster communications, easier retrieving of information, and timely decision.

4.5   SOFTWARE DOCUMENTATION

The software is programmed in such a way that it decides what files will be needed to retain data for producing desired reports. It should incorporate all necessary control by checks on the system to determine if it is operating properly and to find minor inadequacies before embarking on system test.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 GENERAL EVALUATION

Our sense of mission today is that every man, woman and child in this nation would have a right to life and to a life in which all its faculties are intact; not a right to life as an amputee or handicapped.

Think, therefore the responsibility you bear and observe the following precautions:

1. Exercise care and patience on the road as your common sense directs you. As a motorist on the highway, always exercise care and patience so as to make our highways safe for you and other road users.

2. Always think ahead because there are other road users like pedestrians, drivers, passengers, cyclists and animals and all these groups have different behavioural character such as self-consciousness, which is the best protection.

3. Many people are very arrogant; hence they drive recklessly on the way. They think they have immunity against road accidents. It should be noted that Road Accident Immunity Delusion Syndrome is far killing than the ailment that people dread so much (AIDS).

There is no immunity, diplomatic or otherwise against road accidents as such every road user must be aware and know how to use the road.

The only way to get most or all members of the public aware is through public enlightenment program, which would be designed and placed on mass media co-operations.

Since the establishment of Federal Road Safety Commission in 1988, it has achieved a lot of its objectives by saving lives and properties to a reasonable extent. Both the daily reportage and accident statistics clearly shows the significance of the effort put in so far by this organisation in checking and curbing mis-conduct on our highways and this has really made the road users to be more orderly thereby reducing accidents on our roads.

5.2 IMPLEMENTATION

The introduction of a software to solve the problem of road traffic accident will help in specialisation, simplification and standardisation of the solution. This would make it more

reliable because the general public would be aware of the dangers of the road and know how to avert it.

It will enhance faster communication, better services and timely decision for the police and FRSC when there are accidents. Once the system is tested and run, staff should be trained to be involved in the new system. All procedures must be explained to the people who will be using them.

The type of implementation must be made clear to the management and this would either be parallel, direct or pilot system.

5.3 <u>CONCLUSION AND RECOMMENDATIONS</u>

No individual or team, even an expert, can claim to have provided the definitive traffic code. However, we hope this modest beginning at obtaining a set of relevant safe operating procedures for road users will further contribute towards a safe road culture in Nigeria.

Research and development is a continuous process as such there is need to follow up on the new system after it has been in operation for some time and possibly a better design would be developed. There should be continuous control.

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MAJOR CAUSES OF ROAD ACCIDENTS

(1) HUMAN FACTORS
(1) ENVIRONMENTAL FACTORS
(2) ENGINEERING FACTORS

(1) HUMAN FACTORS
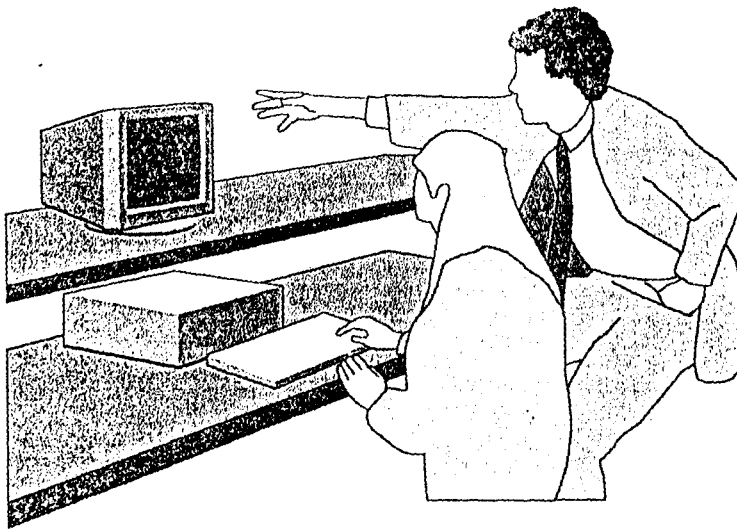
A) Pedestrians Effect

☞ Moving without keeping off road

☞ Not obeying traffic drills before crossing

☞ Walking at night without being conspicuous

☞ Crossing the road at a wrong position

☞ Leading animals without control

B. Cyclist Effect

☞ Riding without extra care
☞ Not putting cycle in good condition
☞ Carrying of overload
☞ Not using safety helmet
☞ Keeping of imbalance position

C. Drivers Effect
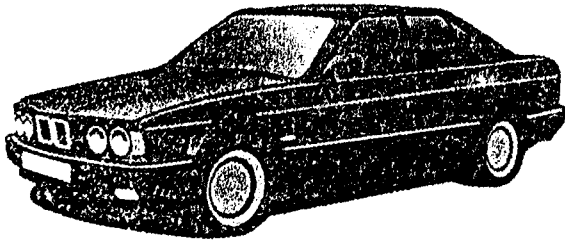
☞ Over confidence
☞ Over speeding
☞ Lack of concentration
☞ Tiredness
☞ Drunkenness
☞ Drug influence
☞ Poor vehicle care
☞ Lack of training
☞ Wrong parking
☞ Dangerous Overtaking
☞ Overloading

ANALYSIS OF CAUSES AND FACTORS AFFECTING ACCIDENTS ON NIGERIAN HIGHWAYS

Period

1985/1988   12/04/2002

STATE	CASES REPORTED	CASUALTY	FATALITY	HUMAN	ENVIRONMENT	ENGINEERING
ABUJA	795	58	33	344	142	309
AKWA-IBOM	524	127	10	277	24	223
ANAMBRA	7838	114	23	4966	1337	1535
BAUCHI	3910	50	45	2276	864	770
BENDEL	9665	110	26	5733	2385	1547
BENUE	4222	77	29	2760	1331	131
BORNO	3850	74	40	2811	1122	-83
CROSS RIVER	4762	79	27	2299	678	1785
GONGOLA	3402	75	33	1795	98	1509
IMO	4792	86	29	554	102	4136
KADUNA	7458	83	37	5386	755	1317
KANO	8464	87	35	5319	753	2392
KATSINA	339	52	66	112	67	160
KWARA	3174	79	37	3007	420	-253
LAGOS	12349	168	18	8620	1397	2332
NIGER	3251	48	47	3904	533	-1186
OGUN	6106	80	33	4108	608	1390
ONDO	3949	85	28	1693	422	1834
OYO	6576	75	34	2265	1867	2444
PLATEAU	3496	99	34	1494	559	1443
RIVERS	3303	115	20	2264	677	362
SOKOTO	3117	54	52	1654	987	476
TOTAL	105342	1875	736	63641	17128	2457

```
*      **************************************************************
*      *
*      * 08/05/2002,        ACCIDENTS.MPR          14:44:46
*      *
*      **************************************************************
*      *
*      * Author's Name
*      *
*      * Copyright (C) 2002 Company Name
*      * Address
*      * City,    Zip
*      *
*      * Description:
*      * This PROGRAM was automatically generated BY GENMENU.
*      *
*      **************************************************************


*      **************************************************************
*      *
*      *                    Menu Definition
*      *
*      **************************************************************
*

SET SYSMENU TO
SET SYSMENU AUTOMATIC

DEFINE PAD _msm_file OF _MSYSMENU PROMPT "\<File" COLOR
SCHEME 3 ;
     NEGOTIATE  LEFT, NONE ;
     KEY ALT+F, "" ;
     MESSAGE "Creates, opens, saves, prints files or quits Visual
FoxPro"
DEFINE PAD _msm_edit OF _MSYSMENU PROMPT "\<Edit" COLOR
SCHEME 3 ;
     NEGOTIATE  NONE, LEFT ;
     KEY ALT+E, "" ;
     MESSAGE "Edits text or current selection"
```

```
DEFINE PAD _0ny0vltj0 OF _MSYSMENU PROMPT "\<Form" COLOR
SCHEME 3 ;
     KEY ALT+F, ""
DEFINE PAD _0ny0vltj2 OF _MSYSMENU PROMPT "\<Report" COLOR
SCHEME 3 ;
     KEY ALT+R, ""
DEFINE PAD _0ny0vltj3 OF _MSYSMENU PROMPT "\<Utilities"
COLOR SCHEME 3 ;
     KEY ALT+U, ""
ON PAD _msm_file OF _MSYSMENU ACTIVATE POPUP _mfile
ON PAD _msm_edit OF _MSYSMENU ACTIVATE POPUP _medit
ON SELECTION PAD _0ny0vltj0 OF _MSYSMENU ;
     DO _0ny0vltja ;
     IN LOCFILE("..\..\ACCIDENTS\ACCIDENTS"
,"MPX;MPR|FXP;PRG" ,"WHERE is ACCIDENTS?")
ON SELECTION PAD _0ny0vltj2 OF _MSYSMENU ;
     DO _0ny0vltk2 ;
     IN LOCFILE("..\..\ACCIDENTS\ACCIDENTS"
,"MPX;MPR|FXP;PRG" ,"WHERE is ACCIDENTS?")
ON PAD _0ny0vltj3 OF _MSYSMENU ACTIVATE POPUP utilities


DEFINE POPUP _mfile MARGIN RELATIVE SHADOW COLOR
SCHEME 4
DEFINE BAR _mfi_new OF _mfile PROMPT "\<New..." ;
     KEY CTRL+N, "Ctrl+N" ;
     MESSAGE "Creates a new file"
DEFINE BAR _mfi_open OF _mfile PROMPT "\<Open..." ;
     KEY CTRL+O, "Ctrl+O" ;
     MESSAGE "Opens an existing file"
DEFINE BAR _mfi_close OF _mfile PROMPT "\<Close" ;
     MESSAGE "Closes the current file"
DEFINE BAR _mfi_clall OF _mfile PROMPT "Close All" ;
     MESSAGE "Closes all windows"
DEFINE BAR _mfi_sp100 OF _mfile PROMPT "\-"
DEFINE BAR _mfi_save OF _mfile PROMPT "\<Save" ;
     KEY CTRL+S, "Ctrl+S" ;
     MESSAGE "Saves changes to the current file"
DEFINE BAR _mfi_savas OF _mfile PROMPT "Save \<As..." ;
     MESSAGE "Saves changes to the current file with a new name"
```

```
DEFINE BAR _mfi_saveashtml OF _mfile PROMPT "Save As \<HTML..."
;
        MESSAGE "Saves the current file as HTML"
DEFINE BAR _mfi_revrt OF _mfile PROMPT "\<Revert" ;
        MESSAGE "Reverts the current file to the last saved version"
DEFINE BAR _mfi_sp200 OF _mfile PROMPT "\-"
DEFINE BAR _mfi_import OF _mfile PROMPT "\<Import..." ;
        MESSAGE "Imports a Visual FoxPro file or a file from another
application"
DEFINE BAR _mfi_export OF _mfile PROMPT "\<Export..." ;
        MESSAGE "Exports a Visual FoxPro file to another application's
file"
DEFINE BAR _mfi_sp300 OF _mfile PROMPT "\-"
DEFINE BAR _mfi_pgset OF _mfile PROMPT "Page Set\<up..." ;
        MESSAGE "Changes the page layout and printer settings"
DEFINE BAR _mfi_prevu OF _mfile PROMPT "Print Pre\<view" ;
        MESSAGE "Displays full pages as they will be printed"
DEFINE BAR _mfi_sysprint OF _mfile PROMPT "\<Print..." ;
      KEY CTRL+P, "Ctrl+P" ;
        MESSAGE "Prints a text file, report, label, contents of the Command
window, or contents of the Clipboard"
DEFINE BAR _mfi_send OF _mfile PROMPT "Sen\<d..." ;
        MESSAGE "Displays Mail window for sending e-mail"
DEFINE BAR _mfi_sp400 OF _mfile PROMPT "\-"
DEFINE BAR _mfi_quit OF _mfile PROMPT "E\<xit" ;
        MESSAGE "Quits Visual FoxPro"


DEFINE POPUP _medit MARGIN RELATIVE SHADOW COLOR
SCHEME 4
DEFINE BAR _med_undo OF _medit PROMPT "\<Undo" ;
      KEY CTRL+Z, "Ctrl+Z" ;
        MESSAGE "Undoes the last command or action"
DEFINE BAR _med_redo OF _medit PROMPT "Re\<do" ;
      KEY CTRL+R, "Ctrl+R" ;
        MESSAGE "Repeats the last command or action"
DEFINE BAR _med_sp100 OF _medit PROMPT "\-"
DEFINE BAR _med_cut OF _medit PROMPT "Cu\<t" ;
      KEY CTRL+X, "Ctrl+X" ;
        MESSAGE "Removes the selection and places it onto the Clipboard"
DEFINE BAR _med_copy OF _medit PROMPT "\<Copy" ;
```

```
        KEY CTRL+C, "Ctrl+C" ;
        MESSAGE "Copies the selection onto the Clipboard"
DEFINE BAR _med_paste OF _medit PROMPT "\<Paste" ;
        KEY CTRL+V, "Ctrl+V" ;
        MESSAGE "Pastes the contents of the Clipboard"
DEFINE BAR _med_pstlk OF _medit PROMPT "Paste \<Special..." ;
        MESSAGE "Pastes the Clipboard contents as a linked object,
embedded object, or other object type"
DEFINE BAR _med_clear OF _medit PROMPT "Cle\<ar" ;
        MESSAGE "Removes the selection and does not place it onto the
Clipboard"
DEFINE BAR _med_sp200 OF _medit PROMPT "\-"
DEFINE BAR _med_slcta OF _medit PROMPT "Se\<lect All" ;
        KEY CTRL+A, "Ctrl+A" ;
        MESSAGE "Selects all text or items in the current window"
DEFINE BAR _med_sp300 OF _medit PROMPT "\-"
DEFINE BAR _med_find OF _medit PROMPT "\<Find..." ;
        KEY CTRL+F, "Ctrl+F" ;
        MESSAGE "Searches for specified text"
DEFINE BAR _med_finda OF _medit PROMPT "Find A\<gain" ;
        KEY CTRL+G, "Ctrl+G" ;
        MESSAGE "Repeats the last search"
DEFINE BAR _med_repl OF _medit PROMPT "R\<eplace..." ;
        KEY CTRL+L, "Ctrl+L" ;
        MESSAGE "Replaces specified text with different text"
DEFINE BAR _med_sp400 OF _medit PROMPT "\-"
DEFINE BAR _med_insob OF _medit PROMPT "\<Insert Object..." ;
        MESSAGE "Embeds an object in a General field type"
DEFINE BAR _med_obj OF _medit PROMPT "\<Object..." ;
        MESSAGE "Edits the selected object"
DEFINE BAR _med_link OF _medit PROMPT "Lin\<ks..." ;
        MESSAGE "Opens linked files or changes links"
DEFINE BAR _med_sp500 OF _medit PROMPT "\-"
DEFINE BAR _med_pref OF _medit PROMPT "Prope\<rties..." ;
        MESSAGE "Set editor properties"

DEFINE POPUP utilities MARGIN RELATIVE SHADOW COLOR
SCHEME 4
DEFINE BAR 1 OF utilities PROMPT "\<BACKUP"
DEFINE BAR 2 OF utilities PROMPT "\<RESTORE"
```

```
N SELECTION BAR 1 OF utilities ;
    DO _0ny0vltle ;
    IN LOCFILE("..\..\ACCIDENTS\ACCIDENTS"
MPX;MPR|FXP;PRG" ,"WHERE is ACCIDENTS?")
N SELECTION BAR 2 OF utilities ;
    DO _0ny0vltlj ;
    IN LOCFILE("..\..\ACCIDENTS\ACCIDENTS"
MPX;MPR|FXP;PRG" ,"WHERE is ACCIDENTS?")


    ************************************************************
    *
    * _0NY0VLTJA  ON SELECTION PAD
    *
    * Procedure Origin:
    *
    * From Menu:  ACCIDENTS.MPR,          Record:  46
    * Called By:  ON SELECTION PAD
    * Prompt:    Form
    * Snippet:   1
    *
    ************************************************************
    *

PROCEDURE _0ny0vltja
DO FORM FRMCASUALTY


*    ************************************************************
*    *
*    * _0NY0VLTK2  ON SELECTION PAD
*    *
*    * Procedure Origin:
*    *
*    * From Menu:  ACCIDENTS.MPR,          Record:  47
*    * Called By:  ON SELECTION PAD
*    * Prompt:    Report
*    * Snippet:   2
*    *
*    ************************************************************
*    *
```

ROCEDURE _0ny0vltk2
EPORT FORM CASUALTY REVIEW

```
****************************************************************
*
* _0NY0VLTLE  ON SELECTION BAR 1 OF POPUP utilities
*
* Procedure Origin:
*
* From Menu:  ACCIDENTS.MPR,          Record:   50
* Called By:  ON SELECTION BAR 1 OF POPUP utilities
* Prompt:    BACKUP
* Snippet:   3
*
****************************************************************

PROCEDURE _0ny0vltle
ns = MESSAGEBOX("Are you sure you want to BACKUP your files?", 4
+ 32,"Warning")
F ans = 6
      MESSAGEBOX("Please insert a formatted Diskette into Floppy
Drive!", 0 + 48, "Warning")
      USE

      !COPY c:\ACCIDENTS\T*.* a:
      !COPY c:\ACCIDENTS\ACCIDENTS.* a:

      MESSAGEBOX("You have successfully BACKUP Files ....", 0 + 48,
Congratulations")

LSE
      MESSAGEBOX("Please, backup your files at the right time!", 0 + 48,
Varning")
NDIF

                                               **********************
      ****************************************************

      *
```

```
*       * _0NY0VLTLJ  ON SELECTION BAR 2 OF POPUP utilities
*       *
*       * Procedure Origin:
*       *
*       * From Menu:  ACCIDENTS.MPR,         Record:  51
*       * Called By:  ON SELECTION BAR 2 OF POPUP utilities
*       * Prompt:    RESTORE
*       * Snippet:   4
*       *
*       **********************************************************
.*
PROCEDURE _0ny0vltlj
ans = MESSAGEBOX("Are you sure you want to RESTORE files?", 4 +
32,"Warning!")
IF ans = 6
        MESSAGEBOX("Please insert the BACKUP Diskette into Floppy
Drive!", 0 + 48, "Warning!")
        USE
        SET DIRE TO a:
        SET PATH TO a:

        !COPY a:\T*.* c:\ans = MESSAGEBOX("Are you sure you want to
RESTORE files?", 4 + 32,"Warning!")
IF ans = 6
        MESSAGEBOX("Please insert the BACKUP Diskette into Floppy
Drive!", 0 + 48, "Warning!")
        USE
        SET DIRE TO a:
        SET PATH TO a:

        !COPY a:\T*.* c:\ans = MESSAGEBOX("Are you sure you want to
RESTORE files?", 4 + 32,"Warning!")
IF ans = 6
        MESSAGEBOX("Please insert the BACKUP Diskette into Floppy
Drive!", 0 + 48, "Warning!")
        USE
        SET DIRE TO a:
        SET PATH TO a:

        !COPY a:\T*.* c:\ACCIDENTS
```

```
!COPY a:\ACCIDENTS.* c:\ACCIDENTS

SET DIRE TO c:\ACCIDENTS
SET PATH TO c:\ACCIDENTS

MESSAGEBOX("You have successfully RESTORED data....", 0 +
48, "Congratulations!")
ELSE
MESSAGEBOX("You can always RESTORE your files from the
backup diskettes....", 0 + 48, "Take note!")

ENDIF

!COPY a:\ACCIDENTS.* c:\ ACCIDENTS

SET DIRE TO c:\ ACCIDENTS
SET PATH TO c:\ ACCIDENTS

MESSAGEBOX("You have successfully RESTORED data....", 0 +
48, "Congratulations!")
ELSE
MESSAGEBOX("You can always RESTORE your files from the
backup diskettes....", 0 + 48, "Take note!")

ENDIF

!COPY a:\ACADEMICRECORDS.* c:\ ACCIDENTS

SET DIRE TO c:\ ACCIDENTS
SET PATH TO c:\ ACCIDENTS

MESSAGEBOX("You have successfully RESTORED data....", 0 +
48, "Congratulations!")
ELSE
MESSAGEBOX("You can always RESTORE your files from the
backup diskettes....", 0 + 48, "Take note!")

ENDIF
```