COMPUTERISATION OF AIRLINES RESERVATION SYSTEM
(A CASE STUDY OF NIGERIA AIRWAYS)

BY

OKPEKU MATTHEW ABIODUN OJE
PGD/MCS/014/96

A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHS AND COMPUTER SCIENCE, SCHOOL OF SCIENCE AND SCIENCE EDUCATION, IN PARTIAL FULFILMENT FOR THE AWARD OF POST GRADUATE DIPLOMA IN COMPUTER SCIENCE AT THE FEDERAL UNIVERSITY OF TECHNOLOGY MINNA.

MARCH, 1998

CERTIFICATION PAGE

I hereby certify that the material used in this work "Computerisation of Airlines Reservation System" carried out by Okpeku Matthew Abiodun Oje have been read, supervised and accepted by me as a project work in fulfilment for the award of Post Graduate Diploma in Computer Science.

.....	.....
DR. YOMI AIYESIMI SUPERVISOR	DATE
.....	.....
PROF. ADEBOYE, K. R. HEAD OF DEPARTMENT	DATE
.....	.....
EXTERNAL EXAMINER	DATE

DEDICATION

This project is dedicated to my dear wife, Patricia and to my baby Lilian Onoseigbuan Okpeku.

ACKNOWLEDGEMENT

I offer special thanks to The Almighty God for his love an guidance throughout the period of my study and for enabling me t accomplish my ambition.

I wish to acknowledge the untiring efforts of Dr. Yomi, my project Supervisor, who made constructive criticisms of the projects and offered the most desired supports and suggestions. In like manner, my heart felt gratitude to Dr. Adeboye, Head of Department, and Prince Badmus, Programme Co-ordinator for their moral encouragement and other Lecturers of the Department.

Also, my sincere appreciation is extended to my Director Mr. O. B. Adams, Alhaji Idris Suleman, who gave me the opportunity to enjoy study-leave for my post-graduate programme.

In like manner and most deservedly, I send piles of gratitude to Mrs Patricia Okpeku and all my children for their down-to-earth encouragement tome on the need to study further and to read harder.

Finally, my thanks goes to Mr James Kaka, Innocent Aba, Robert Ejuaoje, Dipo and other course mates who had offered me their best in the course of my studies.

ABSTRACT

This study examines the development of an effective flight reservation system of an Airline. It identifies factors that enhance the development of flight reservation system in order to produce maximum efficiency and productivities. However, there are certain factors which serve as impediments to airlines reservation management. Such factors are equally given adequate coverage in this study. The study also covers the development of "DATABASE" for effective flight reservation system.

This study is based on the development of an effective flight reservation system for the management of the Nigeria Airways. The scope is centered on the reservation of seats for passengers and identifying the potential areas of light reservation.

This study also examines in detail, how the explosive growth in the amount of data handled by Nigeria Airways and the need to plan ahead can be effectively managed with the use of database. It equally shows how adequate data security and control can help to enhance flight reservation system in Nigeria Airways.

TABLE OF CONTENTS

CHAPTER ONE

INTRODUCTION

1.0 AIR TRANSPORT IN NIGERIA - AN OVERVIEW

Aviation is relatively young in Nigeria's transport system. Its history can be traced to the creation of Nigeria Airways in 1959 which replaced the West African Corporation.

In Nigeria, aviation is managed and controlled by Nigeria Airways Limited which has schedule domestic air services as well as schedule international air services to major Europe, Africa and North America countries.

Air transportation has so grown in importance that the number of airports and landing facilities have significantly increased. Nigeria Airways now has sixteen (16) air-fields, including eight (8) international airports in Lagos, Port Harcourt, Ilorin, Calabar, Kano, Sokoto, Maiduguri and Abuja in contrast to one only at independence.

1.1 THE NIGERIA AIRWAYS

The company was incorporated as West African Airways Corporation (WAAC) in 1945 to undertake operations which the British Royal Airforce left behind at the end of World War II.

The West Africa Airways Corporation (WAAC) was then managed by the West African Air Transport Authority which was a joint venture of Nigeria, Sierraleone, Gambia and Ghana.

When Ghana gained their independence in 1957, they pulled out to establish their own airline leaving Nigeria, British Overseas Airways Corporation (BOAC) and Elder Dempster line as the owner of what remained of WAAC.

On August 23rd, 1958, the Federal Government took over the business by purchasing the status of her partners; the BOAC and Elder Dempster lines. The name changed to Nigeria Airways Limited and the airline thus became 100% Nigeria owned.

The Management of Nigeria Airways has passed through many hands from the British to Nigerians, Dutch and back to Nigerians. With 35 years of operation, the total staff strength now stands at 4,500. Nigeria airways is an active member of AFRAA - African Airline Association and IATA - International Air Transport Association.

1.2 **OBJECTIVES OF NIGERIA AIRWAYS:**

The objectives of the airline is to operate schedule services for carriage of passengers, cargo, mails and any other related business in the most reliable, efficient and profitable manner on both domestic and international routes.

Apart from the commercial objectives, the company also has social defense, security and political responsibility for the government and people of Nigeria as the National carrier. For example giving backup services to the military authorities as transportation auxiliaries in a period of National emergency. This function makes it different from other

airlines.

Based on the above reason therefore, Nigeria Airways is duty-bound to operate the 19 airports in the country without considering the viability of such operation. As a result, the Federal Government offers its protection through domestic channels in international traffic negotiations, guarantees the airlines to source local foreign loans to purchase and maintain aircraft and related equipment.

1.3 FLIGHT RESERVATIONS

This is the process of booking for an intending passenger who wishes to travel in an aircraft from one place to another. This must be done in advance through an airline's travel agent or with the use of telephone to link the airline's centres for computerised airlines.

The reservation becomes effective only when the relevant ticket has been issued to the passenger concerned. In the interest of passengers, tickets should be obtained within the stipulated booking time of seat reservation. Otherwise, the airline may cancel reservation, thus releasing seat to other passengers. Passengers are requested to give their address and phone numbers so that they can be informed in good time in the event of any variations in schedules. Passengers who make reservations and do not present themselves for their flight are termed "NO SHOW". Their number varies from route to route. In order to minimise the effect of "NO SHOW" and to enable their seats to be used by passengers who otherwise

would not be able to travel on their chosen flight most airlines overbook services. By careful monitoring and control, they try their best to match the number of available seats to the number of passengers expected to be present for the flights. Most airlines make every effort to provide seats for which continued reservation has been made, no absolute guarantee of seat availability by the expression reservation, booking, status, okay and the timing attached to them.

Compensation schemes are operated for passengers with confirmation of reservation who are unjustifiably denied carriage because of non-availability of seats. Details of these schemes are available at check in.

The problem of over-booking or denied boarding compensation policy is often the responsibility of the customer relation manager of the airline. There is always a booking reference to enable the passengers and the airlines solve any related problems. There is also regulation time which includes departure time, checked-in time and time passengers can be accepted for travel following the necessary time to complete all formalities.

The problem of a passenger arriving late is the responsibility of the passenger and not that of the airline. There is No refund for a cancelled or transferred reservation (In some instance, the tariff would restrict or even prohibit the granting of any refund.

The success of any airline depends on the level of

reliability of the airline, customers' first hand information about flight schedules apart from many good in-flights services.

The project deals with airline reservation with Nigeria Airways as a case study. It is done with the aim of computerising the reservation system of the Nigeria airways which still processes part of its operations manually. It is therefore, hoped that this project would provide vital information, sets of interactions and computerised programmes or highly developed software which will enhance airline reservation system in Nigeria airways.

1.4 COMPUTER IN AVIATION INDUSTRY

The aviation industry uses different types of computers for the security of the airport, the passengers airlines and luggage. Computers are mostly used in aviation for security purposes. Example is the use of special-purpose scanners or cameras to scan passengers and their luggage. Computers are also used for meteorological research (weather forecasting). This enables the airport authorities to know when airline should not land, take off or favourable condition while airborne. It is mostly used as navigation and direction aid.

The recent airbus plane are fitted with super-computers that make it possible to do without co-pilots. This is because the computers can control aspects of the plane and can take plane safely to destination points if correctly programmed to do so. The space shuttle, for instance, is made

possible by computer equipment that are installed on-bound and the mission control stations around the world.

More importantly is the use of computers in airline reservation system. An airline in Nigeria with a centralised computer control system in any part of the country can communicate by satellite is a remote terminal with various capitals of the State where they have offices to up-date their booking reservation data and use such data to determine the number of seats available in a flight. The system can equally be implemented within and outside the country.

1.5 SCOPE AND LIMITATIONS

Although computers can be relevant or applied to the entire airline operational activities, for the purpose of this study, the scope is centered on the reservation of seats for customers. Among other things, the work will identify the potential areas of flight reservation which include flight schedule, flight cost and flights.

Some limitations encountered however, reduced the scope of the study. It was discovered during the course of study that the work of a reservation clerk can never be completely replaced by a computer, since it involves dealing directly with customers. Passengers are often faced with the problem of identifying some vital issues or enquiries as regards their reservation activities in which it is only human beings

(reservation clerk) rather than electronic machines (computers) that adequately answer all customers' questions and enquiries.

Secondly, as a result of time constraint and financial involvement, the study does not permit an in-dept analysis of some other important services rendered by the Nigeria Airways. Such services include departure/checked-in time, catering and health information services, profit per passenger etc. which are parts of the basic functions of any airline organisation.

1.6 SYSTEM OBJECTIVES

The principal objective of this study is to develop an effective reliable flight reservation system for the management of the Nigeria Airways organisation with the aim of:-

(a) providing services for customers;

(b) reducing work-load on reservation clerks;

(c) Providing faster, more accurate and detail information to the customer;

(d) Providing a compact and integrated database record of flights reservation for customers thereby improving customers' relationship with the airways.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 THE MANUAL METHOD OF FLIGHT RESERVATION

This is the process of making an advance booking for an intending passenger who wishes to travel by air.

Reservation becomes effective only when the relevant ticket has been issued to the passenger 45 minutes before departure time. Anybody with a reserved seat should be around before departure, else the seat is allocated to another person.

There are so many representations and codes in the input that are easily understood by the user until they have undergone a series of periodic staff training and courses. there is therefore, the need to develop a file that will contain past reservation records for future references. This is necessary because after departure, any reference to past reservation records can only be located manually in a file which makes processing of data difficult to access.

The need to have an automated record of proper statistics of customers becomes necessary. This will aid flight reservation operation, data retrieval, storage and maintenance of existing date.

The major set back in a manual reservation is that communication cannot be done between sub-stations. Reservations are often made for passengers without their showing up for them. The only way to maintain the current number of customers and possibly increase efficiency is to have an efficient and effective means of flight reservation.

2.2 AUTOMATIC FLIGHT RESERVATION

Man has over the years used machines to reduce the burden of manual labour. Today, we use computer to ease the problem of sorting, organising, storing, processing retrieving of data that brings about more efficient and improved productivity.

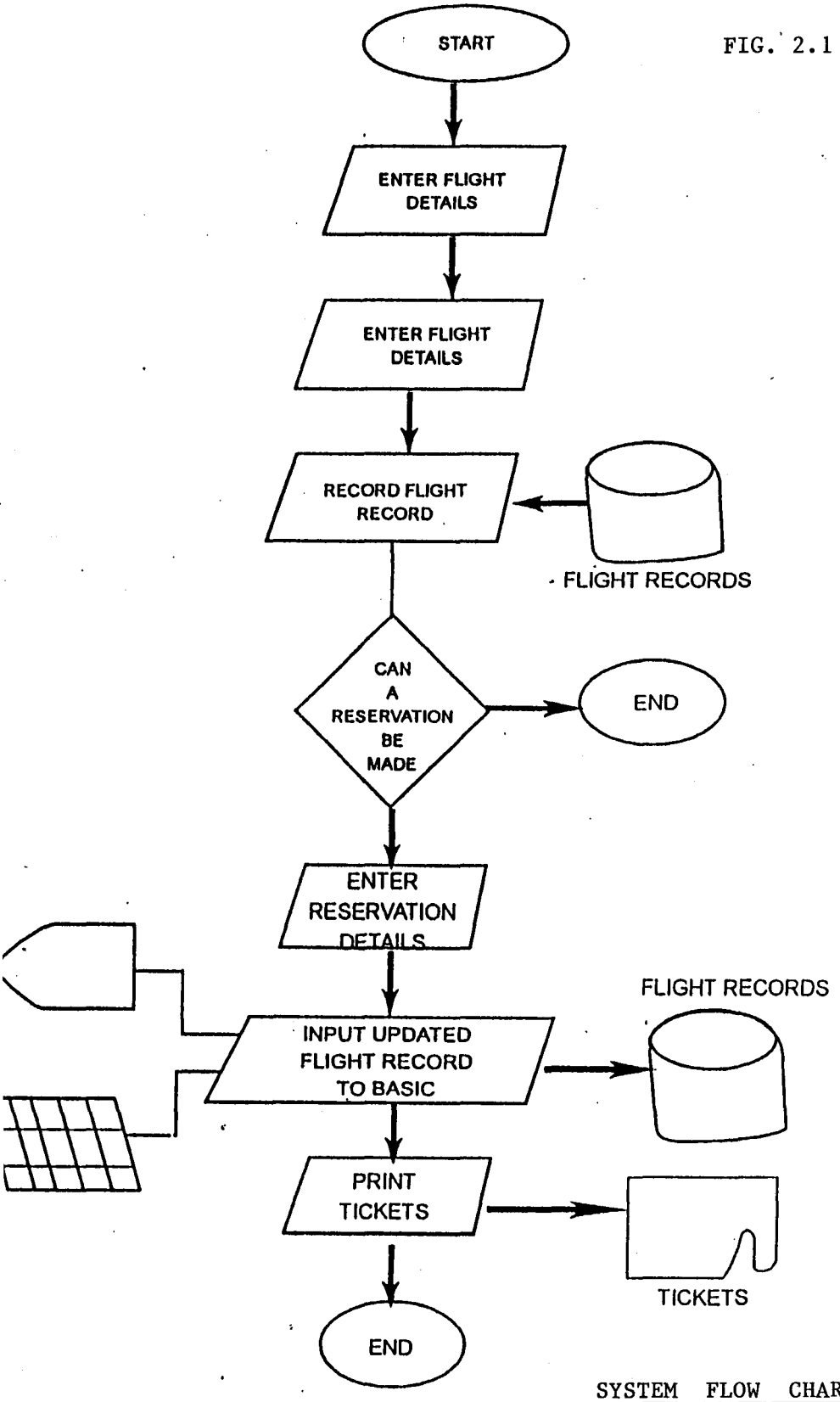
Airline reservation is an example of information system that reflects an up-to-date status. The moment a seat on any flight is filled or becomes unavailable, Airline agents communicate with a centralised computer via remote terminals to up-date the database. Apart from keeping tracks of flight reservation, departure and arrival time are closely monitored to facilitate the co-ordination of ground crew activities.

The system provides management's information need such as the number of passengers, miles flown, profit per passenger, percentage arrivals on time, average number of empty seat on each flight per day of the week. All information needed by

the intending passenger is provided by entering proper number via the key board. These information are either displayed on the screen or printed on the agent's terminals. As soon as a reservation number is entered into the system, transactions are "edited" by the computers to ensure that all necessary information have been included. Such information are customer's phone number, seat number, auto-rental, hotel reservations, ticketing arrangement, special meal and special facilities such as wheel chair etc. If there is no more available seat on a particular flight, the agent can request the computer to put the person on one of the waiting lists. Whenever there is any cancellation, computer automatically checks the list and notifies the proper boarding city of the passenger entitlement to the available space.

The figure below is a flow chart of Airways booking system.

FIG. 2.1



SYSTEM FLOW CHART

2.3 DETAILED STUDY OF THE SYSTEM

Detailed investigation of the system is the thorough study of the proposed project in terms of all the economic, technical and socio-cultural/environmental resources. The investigation study is a horizontal and vertical study into all parameters affecting the project. The study of the existing system makes it easier for one to understand the job routines involved, the equipment used and personnel activities from messengers through supervisory and managerial cadres. The proposed system is also studied in detail to show how it could effectively be integrated in the old system with the aim of providing better quality and more effectiveness in terms of output. The existing system in Nigeria Airways is called Nigeria Airways Business System (NABS) which also consists of airways reservation system.

NABS controls all activities of the Nigeria Airways ranging from flight schedule to airport information calendar. In this system, the various routes connecting all Nigeria Airways offices or network may be known. The benefits of various classes of Nigeria Airways are equally determined through the present system.

2.3.1 BOOKING SYSTEM

Booking is the process of confirming if the intending passenger can have a seat reserved for the purpose of making a particular flight from one place to the other.

In doing this, basic information are needed from

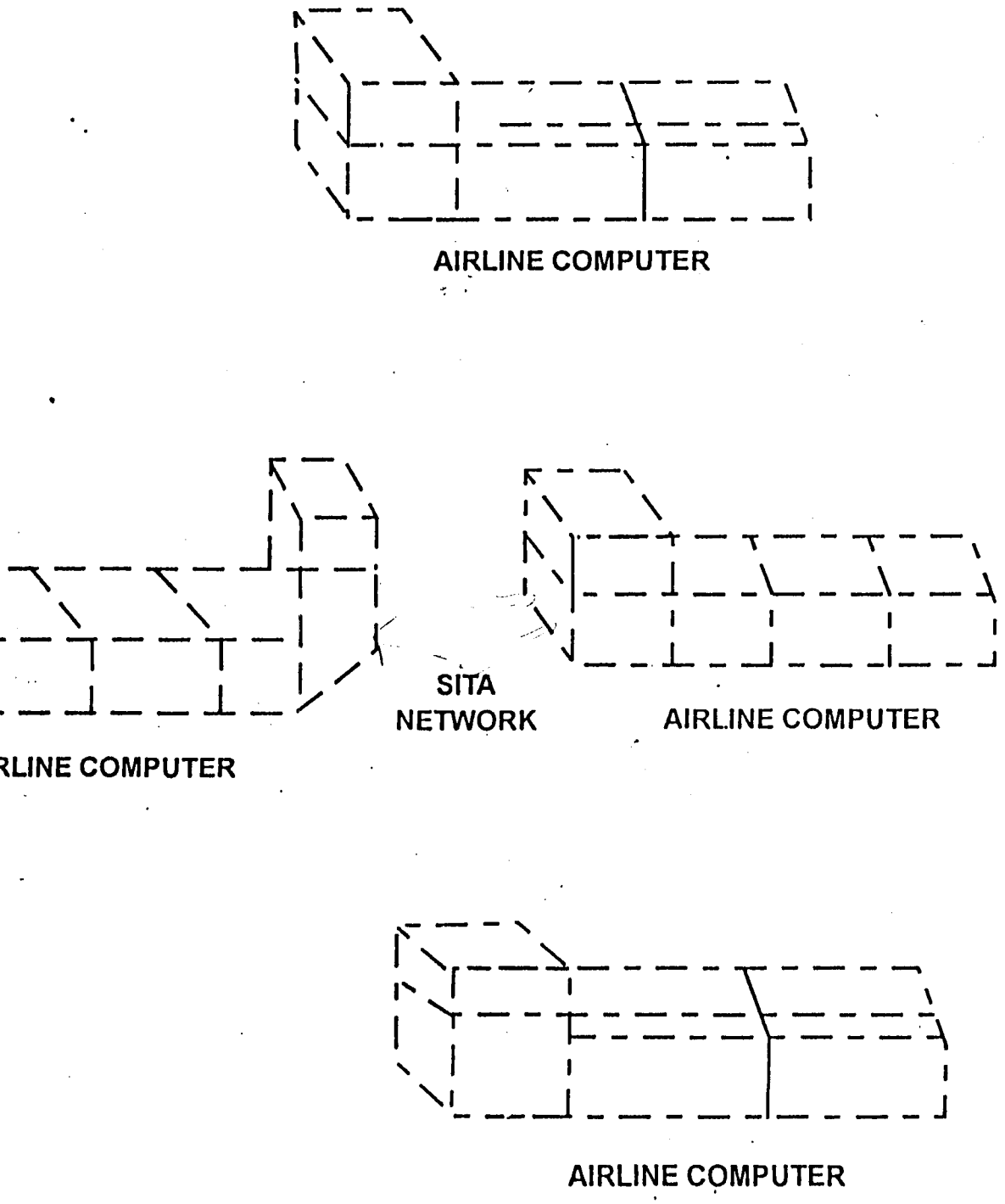
customers (passengers) such as name, departure city, destination, and in most cases the duration of the available data. Since airways changes these data on quarterly time table of the airline. These requirements form the conditions for purchasing a flight ticket.

The reservation clerk checks the file to ensure whether flight is available or not. If flight is available, reservation is make and all relevant information is collected from the intending passenger otherwise, the reservation gives a feedback to the customer that there is no available flight.

Most airlines may over-book services. This is done to have full utilization of seats at all times since some passengers will not be able to travel on their chosen flight.

Each airline has its own mainframe computers which make the reservation operation in-real time. These are connected via a worldwide communication network call SITA to airline offices or travel agents around the world as shown in the figure below:

FIG. 2.2
NETWORK SYSTEM



From the above diagram, the computer runs transaction processing operation system: Each reservation is made and the flight records updated as the reservation is entered at the terminal. A large number of bookings can be in process simultaneously.

2.3.2 REQUIREMENT OF THE TASK:

The purpose is to enable reservations to be made for flight from terminals anywhere in the world. The existing system should be able to handle thousands of flight, each carrying hundreds of passengers. Records must be updated in real-time, and system must be able to cope with hit-rate (peak period) of hundred of persons per second. The system varies from one airline to the other. Most airlines have the same interface to the data communication network.

2.3.3 CANCELLATION OF RESERVATION:

Airlines take punctuality as their watch word and therefore do not accept liability of any delay or cancellation of any flight and cannot guarantee making connection to other airlines. In the proposed system, a model cancel a reservation for customers if there is need to do so. Nigeria Airways does not guarantee refund for the cancellation or transfer of reservation. You can only be allowed fifty per cent worth of your money.

The process of cancelling reservation involves opening customer file for information relating to customer's reservation. If the needed information is not available, then

a report is produced. For this process to be completed, the programme that contains the programme schedule is accessed and displayed by the system for the number of seats to cancel, then the customer file is updated. Finally the system asks if the user wants to cancel another reservation. If the response is 'Yes' the process is repeated, if 'No', the program returns to the main menu for other activities.

2.4 NECESSITY OF FLIGHT RESERVATION SYSTEM:

The quest for developing a flight reservation system for Nigeria Airways is essential because the new system at improving the existing system's operation in terms of output generation (on timely basis).

The main objective of the proposed project therefore, is to develop an efficient and effective flight reservation system for the management of Nigeria Airways. The proposed system also aims at improving the communication system of flight reservation, storage, data analysis, retrieval of records and other relevant information of the Airways.

With the proposed system, the Airways will be capable of maintaining an up-to-date information about customer's record. The proposed system will also improve the procedure for file updating and maintenance of the system aimed at having reliable and efficient system.

CHAPTER THREE

SYSTEM ANALYSIS

3.1 OBJECTIVE OF THE SYSTEM:

The objective the new system is to develop a system that will treat data as an organizational resource and as an integrated whole. The new system is to allow data to be protected, organized separately from other sources. Specifically, the objectives of the proposed system are:

(i) To achieve data integration, that is information from several files is co-ordinate, accessed and operated upon as though it is in a single file.

(ii) To eliminate data redundancy which occurs when data cannot be arranged to suit all the application programs accessing them.

(iii) To ensure data independence: - Data independence is the protection of application programs from physical or logical storage of data. This helps to maintain the inequity of data.

(iv) To ensure that data are centrally controlled.

(v) To ensure that the system supports the organisation's performance.

(vi) To provide ease of usage and meet up with the expectation. It is also to provide logical design

elements, detail specification of new system, input, output file to meet system requirement.

(viii) Finally to meet users' requests on processing application procedure correctly, present proper form of information, getting result and to be seen as a reliable system.

3.2 ADVANTAGES OF THE PROPOSED SYSTEM:

(i) The proposed system will ease the ever increasing in-flow and out-flow of data and information both within the airline and outside the airline.

(ii) The system serves as a communication link between the airline and outside world (customers).

(iii) With the proposed system, the problem of delay in booking a reservation is reduced as fast and reliable system is put in place.

(iv) The proposed system will further help in efficient storage, filing and processing of data and information.

(v) Finally, it provides an efficient and reliable free flow of accurate data and information on timely basis. A database Management System (DBMS) is a software that constructs, expands and maintains the data contained in database. It provides the interface between the user and the data in such a way that it enables the user to record, organise select, summarise, extract, report on and otherwise management data contained in a data base.

ANALYSIS AND METHODOLOGY:

3.3 SYSTEM DESIGN:

The analysis of the present system is used at the beginning of systems design to develop objective for the proposed system. This may lead to various alternatives. Once this alternative has been selected, the next step is to work from system requirements to system specification.

3.3.1 SYSTEM SPECIFICATION:

System specification is the detailed documentation of the various methods, procedures and all other information that make the system work.

For this program to run effectively, it must have a minimum specificate of 386 DX2, 4Bb Ram, 250Mb hard disk and a Dbase IV installed.

3.3.2 PROGRAM SPECIFICATION:

(i) Input: This consists basically two modules, namely;

(a) The set-up module

(b) The reservation module

SET-UP MODULE:

The set-up module includes the flight cost and flight schedule routines. Inputs to the flight cost module are:

(i) Destination Code

(ii) Departure code

(iii) First Class

(iv) Business Class

(v) Economy Class

(vi) Student's debate.

Input to flight Reservation Module are:

(i) Customer Name

(ii) Customer Address

(iii) Departure City

(iv) Destination

(v) Telephone Number.

(vi) Seat Booked

(vii) Required Date.

OUTPUT REQUIREMENT

The required output from the new system includes:

(i) Requested Date

(ii) Departure Date

(iii) Destination City

(iv) Flight Type

(v) Departure time

(vi) Arrival Time

(vii) Seat booked

(viii) Cost.

In costing the proposed system, the size of the reservation system must be considered because the airline maintains quite a number of reservation offices, the cost of running these offices will be relatively high when considered along with other factors.

3.3.3 FLIGHT SCHEDULE/TABLE:

This is a table showing at a glance all the relevant

flight information about the passengers intending to travel. The basic information that can be read on the flight schedule are:

(a) Departure City: Where the flight is taking off from.

(b) Destination City: Where the flight is heading to.

(c) Days of Operation: Days of the week Monday through Sunday.

(d) Arrival Time: The time the aircraft lands at the destination city.

(e) Departure time: The time aircraft will take-off from departure city.

(f) Flight Type: The type of aircraft for the journey.

Other information such as hotel and car rental partners etc. may not be included in the flight schedule.

Below Are program Flow Charts.

FIG. 3.1

PROGRAMM FLOW CHART

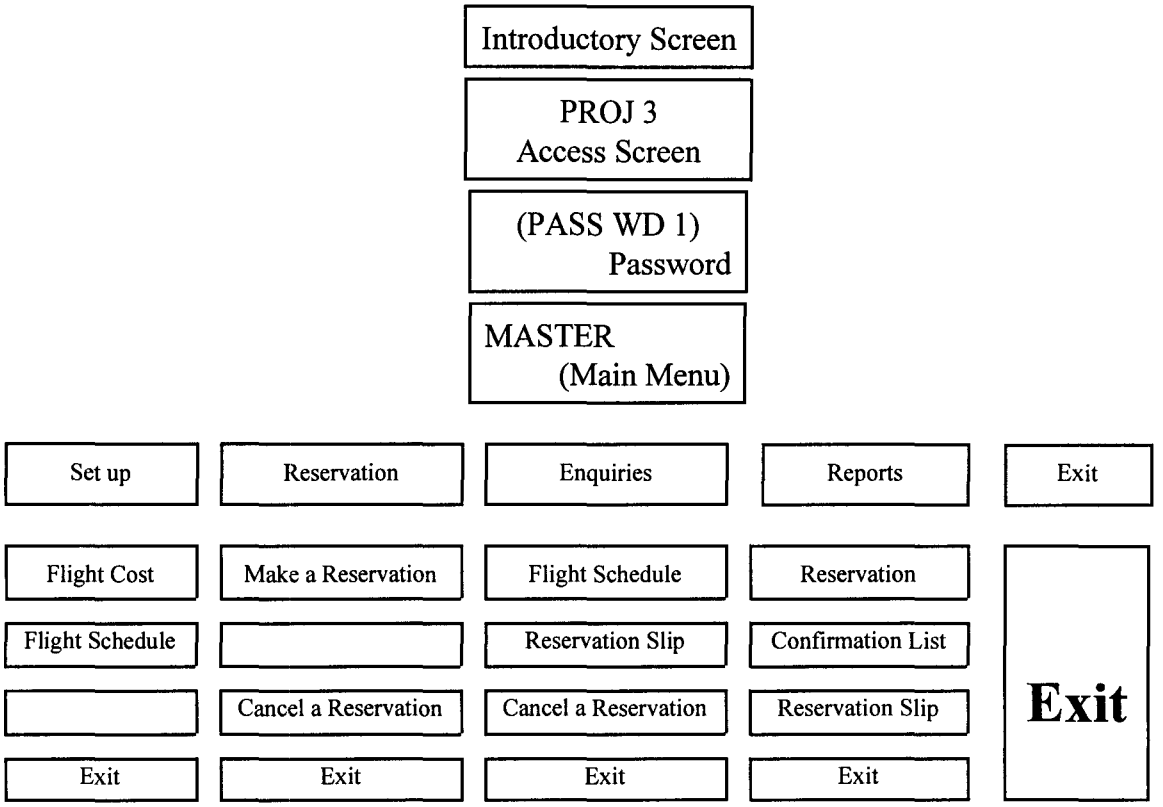
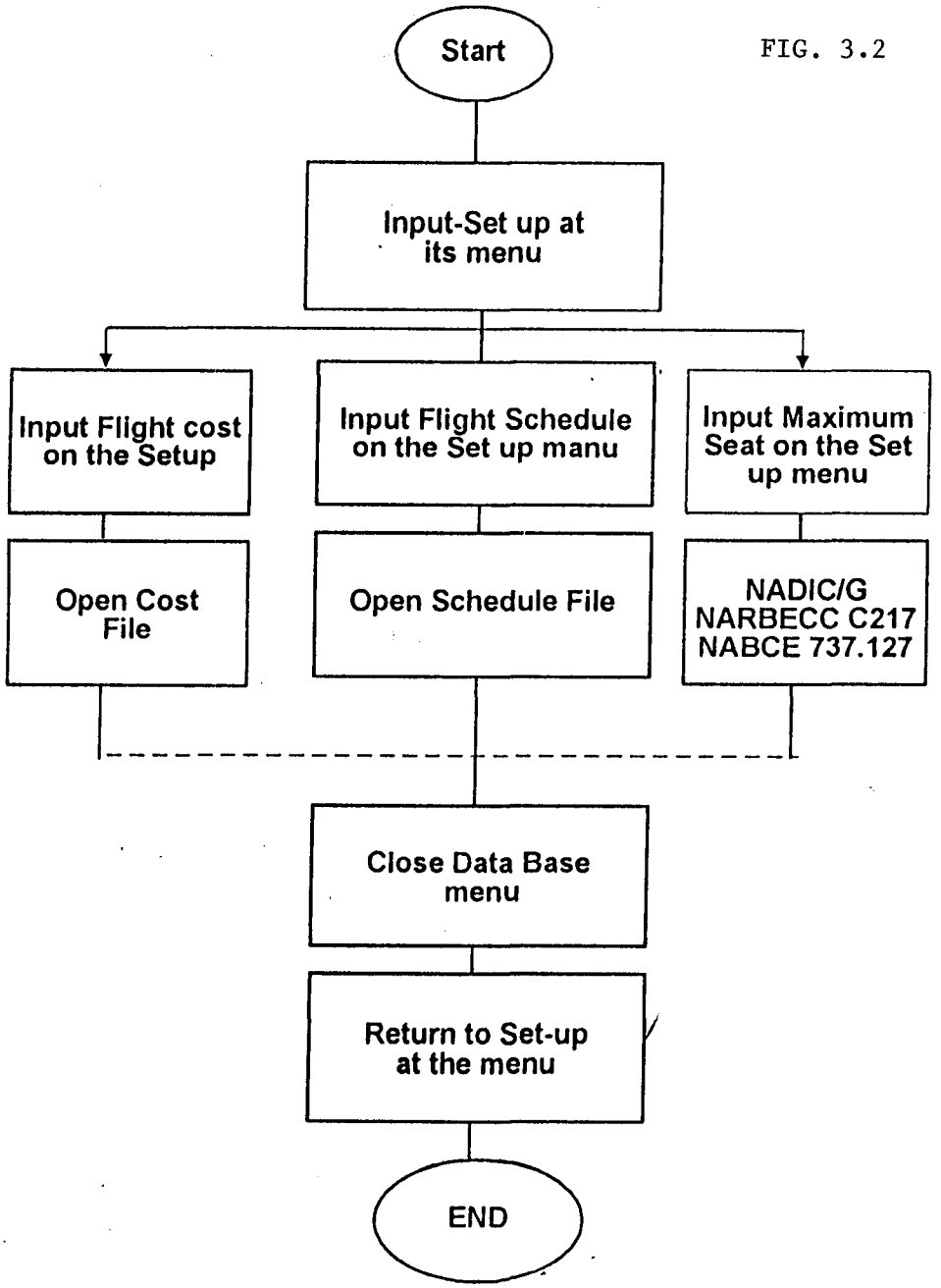
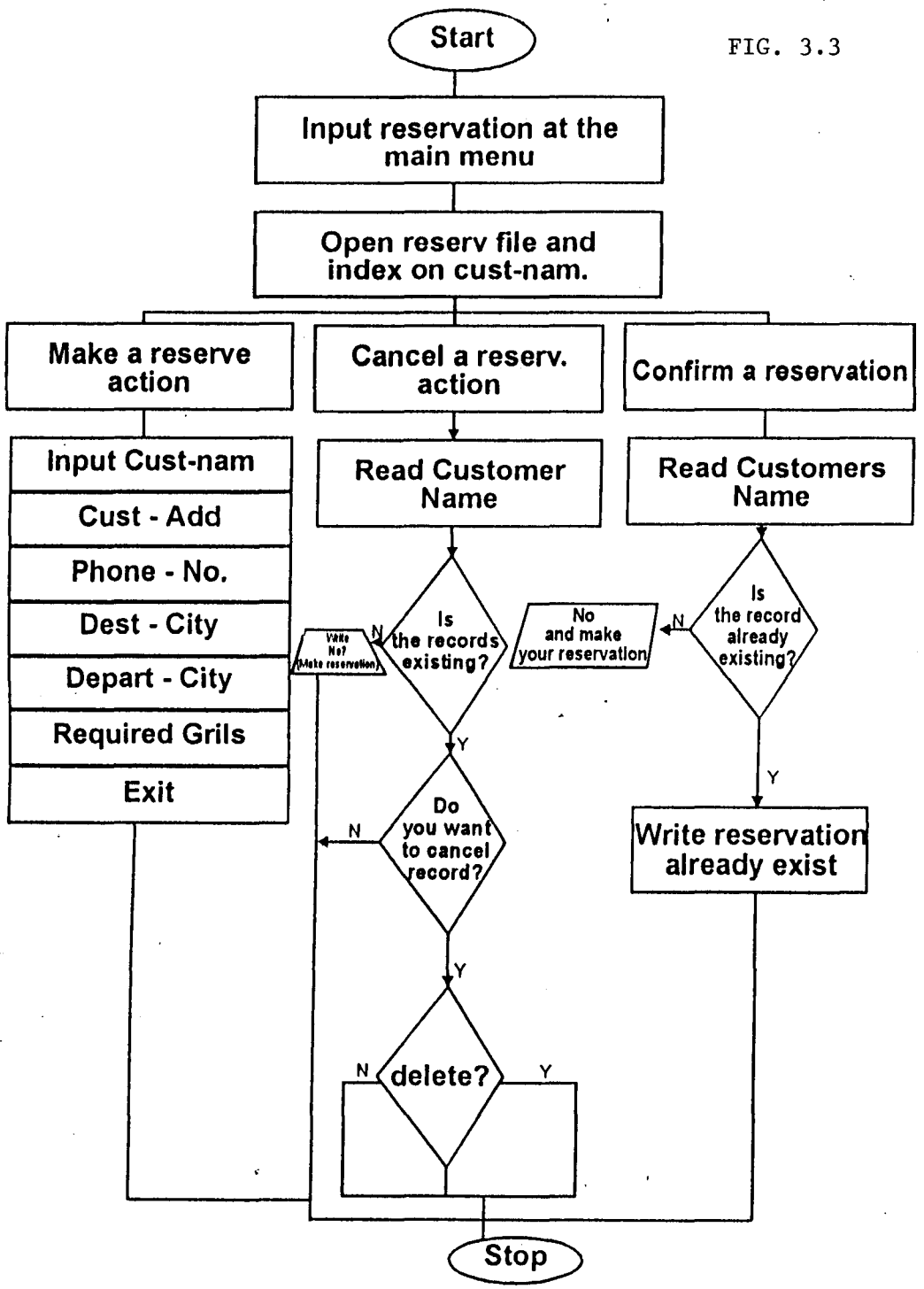


FIG. 3.2



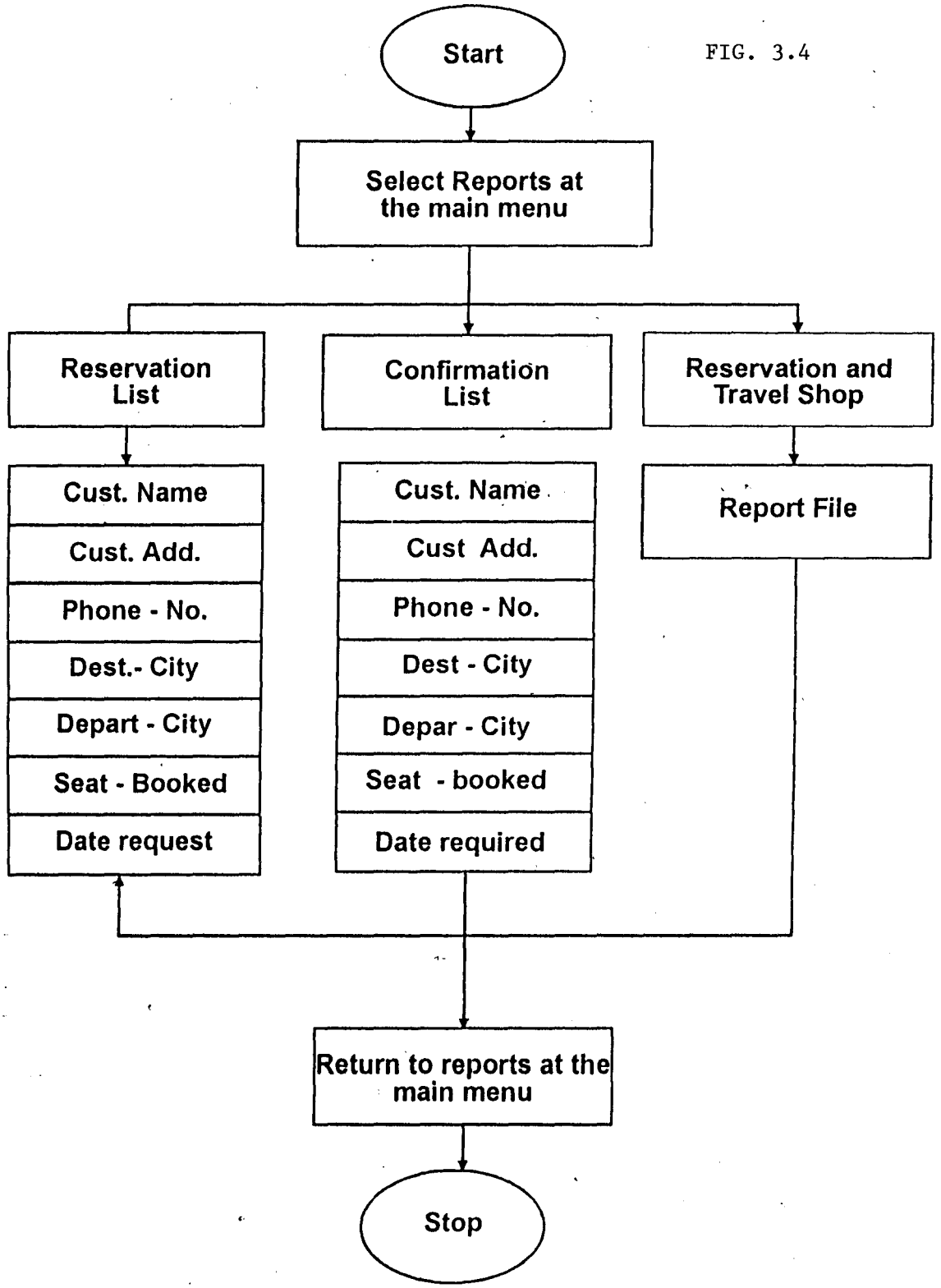
SET-UP FLOW CHART

FIG. 3.3



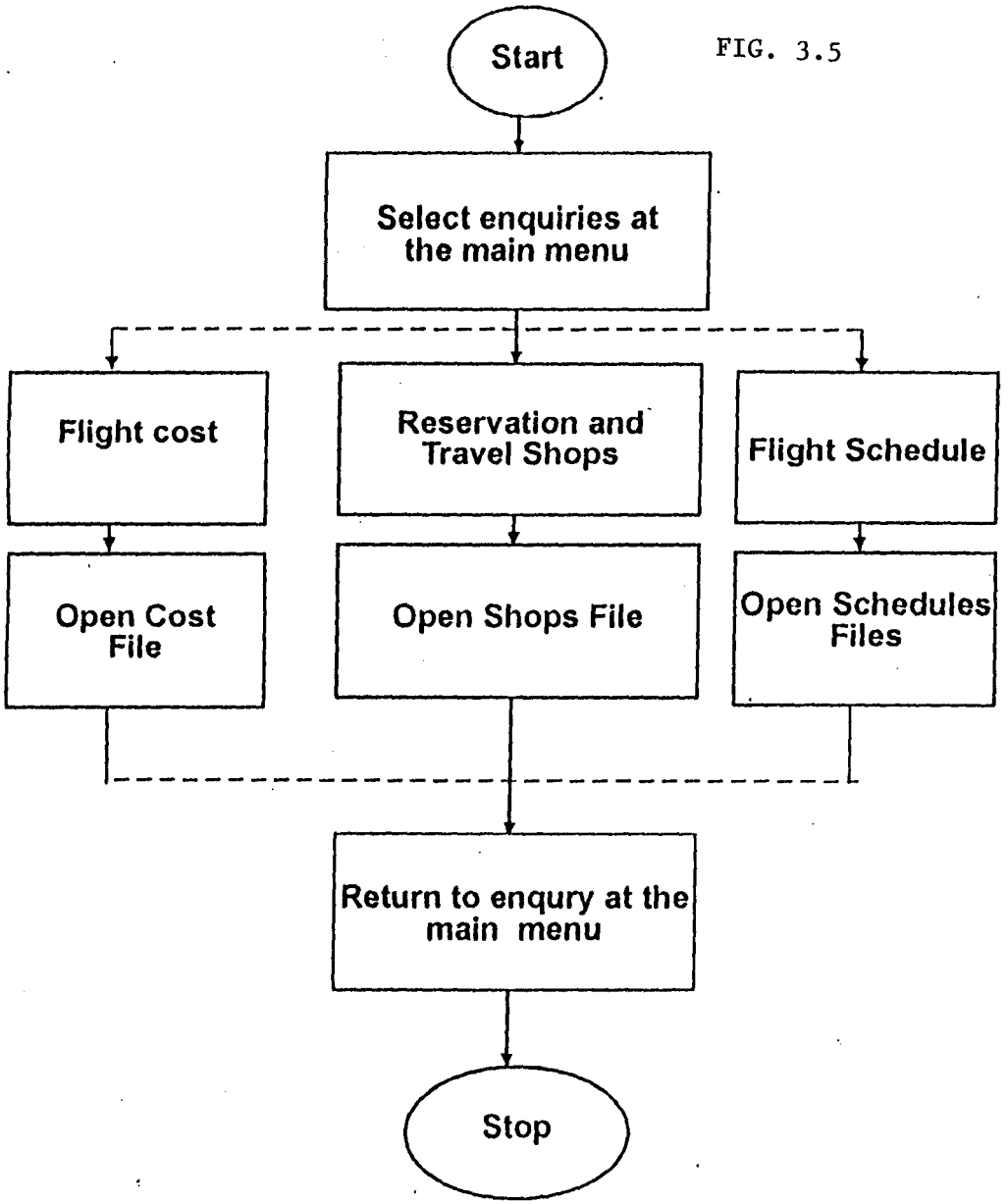
RESERVATION FLOW CHART

FIG. 3.4



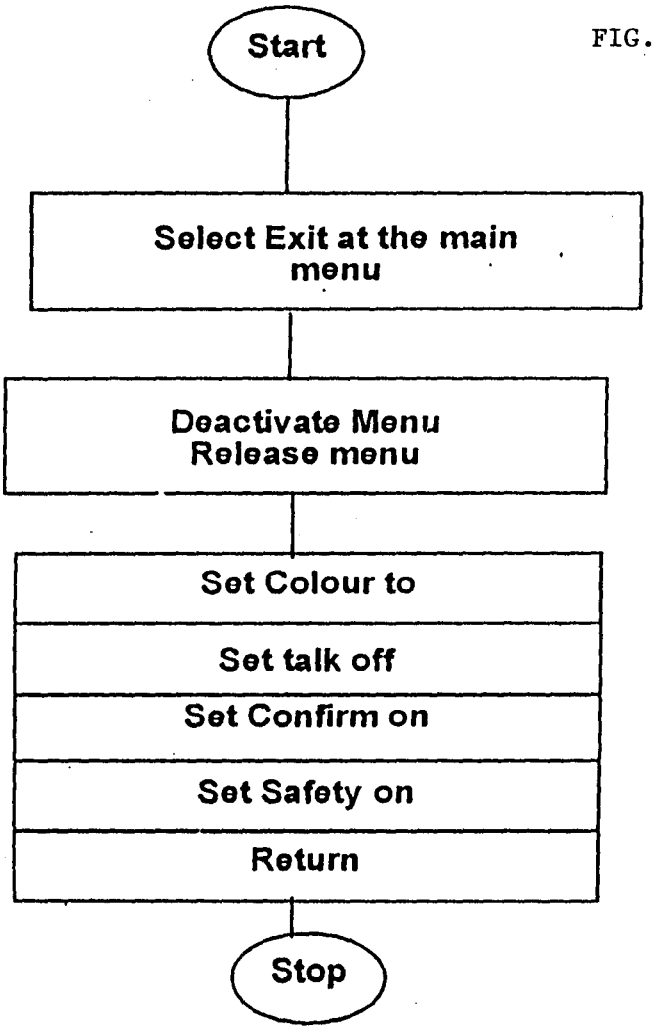
REPORT FLOW CHART

FIG. 3.5



ENQUIRIES FLOW CHART

FIG. 3.6



ENQUIRIES FLOW CHART

3.4. SYSTEM DESIGN

In system design, various models are designed which will serve as alternative for solving the management information need. The main activities under this design are input design, output design and file design which can further be analysed as follows:-

3.4.1 INPUT DESIGN

The only way entries can be made into the system is through the set-up and reservation routine. If booking is possible on a particular flight, the name of the passenger and ticket reference are entered.

In making entries into the set-up routine using flight cost, the following information are supplied:- seat booked, departure city, destination city.

For the reservation routine, the following information are supplied:- Customer's name, customer's address, destination city, departure city, phone number, class of seat booked and requested date of travel.

The input used by the modules of the entire programme are given below with Reserve as the main record key.

(a) RESERVE: This is sub-programme that takes the following inputs:-

(i) Customer's name, customer's address, phone number, destination city, departure city and requested date.

(b) COST F1

(i) Seat booked

(ii) Departure city

(iii) Destination city

(c) CONFIRM

(i) Customer's name

(d) CANCEL - R

(i) Customer's name

Entries can only be made into the system through the modules stated above.

The following do not use modules:

1. BBB Display the welcome screen.
2. Project 3. Display the introduction screen.
3. Password: The password gives security to the programme. The user will be asked if he/she has access to the program and the option (Y/N) displays. If N(No) is chosen, the user is taken back to dbase assist. If Y(Yes) is selected, the user is asked to type his/her valid code. If the code entered is correct, then the user gains access to t he program. If an invalid code is entered, the user is taken back to dos prompt.
4. DDD: The main programme
5. Master: Where modules are linked.
6. Reserve: Where reservation can be made.
7. Confirm: Where confirmation of reservation is possible.
8. Cancel-R: Where a reservation can be cancelled.
9. Schedule: Carries the flight schedules for the days of the week.

10. Stops: Display the various Nigerian Airways travel stops.
11. Res-List: Browses the reservation list.
12. Confm-List:Browses the confirmation list.
13. Cost F1: Generates the flight cost for various Nigerian Airways destinations and classes.

3.4.2 OUTPUT

The output of the new system is passengers list for each flight. This can be printed, written by hand or display the reservation and confirmation list of customers.

3.4.3 FILE DESIGN

Files used by the system are identified in terms of length of reservation, the frequency of up-dating. Main menu routine consists of five sub-menu:

(1) The set-up routine
(2) The reservation routine
(3) Enquiries routine
(4) Report routine
(5) Exit routine

(1) SET-UP ROUTINE

This is the procedure that allows the user to enter the flight cost, flight schedule and maximum number of seat available in the new system. Once flight cost is supplied, the user is given a list of options - 1st class, 2nd class, Business, Economy class or student 's rebate. If a particular choice is made, the user is

asked to state the destination and departure cities respectively. At the end of this process, the system generates the required cost automatically.

(2) RESERVATION ROUTINE

In this procedure, the user is allowed to either make reservation, cancel a reservation or confirm a reservation for a customer. This is made possible by selecting any of the options at the reservation sub-menu. If reservation option is made, the user is asked to write the new address, phone number, departure city, destination city and the required date of travel of the intending passenger.

On the other hand, confirmation options take care of confirmation table where the user is requested to supply the name. If the reservation is made earlier, a message is displayed - "Reservation already exists". If no reservation is made before, the message becomes "Go and make your reservation". With this system, double reservation is not possible because once a reservation is already in existence, the user will be denied access.

The cancel option also asks the user to enter name of the customer. If there is such name, the user is informed that such reservation exists. The user is asked if he wants to cancel this reservation. If the response is Yes, reservation is cancelled. If No, reservation remains valid.

(3) ENQUIRIES ROUTINE

This procedure allows the user to make enquiries on

either flight cost, schedule, travel stops and reservation. If flight cost is selected, the cost is generated, so too is schedule where time-table is displayed.

On the other hand, if the reservation and stop option is chosen, then the user will be viewing the different Nigeria Airways reservation and travel stops where reservation can be made in Nigeria.

(4) REPORT ROUTINE

This permits the user to check the reservation list, confirmation list, flight schedule and to know various Nigeria Airways reservation and travel stops.

(5) EXIT ROUTINE

This option allows the user to exit the reservation system. The main menu releases the menu and reset the environment. This is done by selecting the exit option at the main menu.

CHAPTER FOUR

SOFTWARE DESIGN AND IMPLEMENTATION

The purpose of the design stage is to work from the requirement specification to produce a system specification. In this chapter, we also have the implementation stage which involves coding, testing and documenting programs.

4.1 TESTING AND INTEGRATION:

Preserving the integrity of data implies safe-guarding of data from malicious or erroneous tampering, faulty equipment, unreliable software etc. The emphasis in integrity provisions is on preserving data/information and changes to the data. This is made available in the developed system with provision of a back-up system that helps in restoring damaged or lost data, the program is also duplicated to have the maximum security.

Data security concerns the protection of database against unauthorised access. Protection of data requires; identifying and authenticating users whenever they access the dbase. This is done by entering a code that is recognised by the system. Authenticating the user means verifying that the user is

actually the person who is allowed to use the identification code. This authentication consists of specifying passwords that are supposedly known only to authorized users. In addition to user authorization, the system applies access control on the operations of the user. In this way, a user can be restricted to accessing that part of the program and using those language operations for which the user has been granted authorization.

4.2 **SYSTEM INTEGRATION:**

The composition of the system in terms of hardware and software is such that a main system is put in place with large memory for the main office which suppose to serve as a server to other terminals or dum terminals as the case may be, through which entries could be made into the reservation system at the various offices. Another aspect is the involvement of personnel such as reservation clerks, situation controller or manager etc.

4.3 **IMPLEMENTATION:**

System implementation may be considered as the final stage in the design of the new system. In this stage, the new system is put into use. It however, includes: Training of staff, the change over procedure from old system to new system. The methods of running the new system and maintenance of the system.

In the new system, reservation is made through a reservation clerk by entering a passenger name, address, phone

number, destination and departure cities. Once the required input data are supplied, the system automatically creates a space for the intending passenger in the aircraft. In attempt to make double reservation, he is denied access.

THE MAIN ACTIVITIES UNDER IMPLEMENTATION:

(a) Writing and debugging the programs.

(b) Creating master file.

(c) Preparing documentation for data and users department.

(d) Acquiring the necessary stationery.

(e) Training data processing and user department staff.

(f) Testing the program with both artificial and real live data.

(g) Anticipating and controlling of psychological reaction.

(h) Adhering to time schedule.

There are various implementation methods. The one recommended for this system is a parallel run implementation in which both the old and the new systems are operated concurrently, for a period until the new system has been proven efficient and reliable.

4.4 DOCUMENTATION:

The major significance of this system is to take care of reservation exercise for the Nigeria Airways. It is equally designed to generate vital information such as making enquiries by customers. The system also maintains a library of general information and cost as well as flight schedules.

The reservation model consists three basic transactions

namely:

(a) making a reservation;

(b) Cancelling of a reservation;

(c) Confirmation of a reservation.

FILE ATTRIBUTES:

Only the reservation file is randomly organized. This is because the volume is large and the frequency of use is very high. Other files are sequentially organized since they are relatively small and their frequency of use are fairly high.

FILE NO	FILE DESCRIPTION	FIELD NAME	FIELD TYPE	FIELD WIDTH
1	Main Menu	Customer's name	Character	25
2	Set up	Address	"	40
3	Reservation	Phone No.	"	10
4	Enquiries	Departure city	"	10
5	Reports	Destination city	"	10
		Date	Date	8

4.4.1 **USER DOCUMENTATION:**

The user documentation guides the user in using the new system. The computer system must be booted on and allowed to display welcome message. The master program is loaded and a screen is displayed after the introductory system requesting for the valid code in order to have access to the program. The following are five basic functions that can be performed by the new system:- setup, Reservation, Enquiries, Reports and Exit. If the reservation option is chosen at the main menu, the reservation sub-menu comes into view and it allows the user to make, cancel, or confirm a reservation by highlighting the appropriate option. If the enquiry menu is chosen at the main menu, the enquiry menu is activated and allows user to know the flight schedule, travel stops and flight cost in Nigeria by choosing the appropriate option.

If the report option is selected from the main menu, the report menu is activated and it allows the user to have access to the reports by choosing the appropriate code.

If exit option is chosen at the main menu, the exit option allows the user to exit to the dot prompt.

CHAPTER FIVE

5.1 LIMITATION OF THE STUDY:

This study like any other survey, encountered a number of problems. The major problem was the difficulty in available of the necessary computer facilities. This problem reduced or tended to discouraged the design of the software.

Another problem was the time limit given for the completion of the project and as a result of this, the area of coverage as reduced. Getting the relevant record was another problem as no appropriate record were readily available. This problem was compounded with secrecy - that is keeping data Nigeria Airways termed "Top secret".

Finally, the research faced financial problem as the project required investigation or airways agents scattered over the country.

5.2 FINDINGS:

It is discovered during the course of the study that the operation of Airlines is a complex one. This is because of the departments that are so technical such as aircraft maintenance and the need to satisfy customers which is the ultimate goal of the organisation. It was also discovered

that though Nigeria Airways is not profit ventures because of competition, it need to be standardized in order to stand the trend of competition. Nigeria Airways are involved in various activities ranging from providing social defence, security and political responsibility for government and people of Nigeria to commercial objectives. The study revealed that because of the nature of their activities, Nigeria Airways is scattered all over Nigeria and the world. Based on the wideness of area of coverage, there is no proper record keeping. Manual method of data processing is still being used in most shops where Nigeria Airways agents operation. Where computers are available either the hardwares are obsolete or the softwares are no longer capable of handling ever increasing data, thus delaying information required by the customers and organisation. There is therefore, the need to put in place efficient and reliable network system of communication for free-flow of information.

5.3 **RECOMMENDATION:**

Having an effective and reliable computerized reservation system on an airline organization is very essential to enhance efficiency and good customer relationship. Just like any other business, the success, to a very large extent, depends on the level of reliability of the airline. A situation where a unique and timely information is relayed to customers at the appropriate time will greatly increase the level of patronage. This can only be achieved by having an integrated database

records of flight reservation in place.

5.4 SUGGESTION FOR FUTURE STUDY:

The scope of this project is centered on seat reservation for customers and enquiries. There may be need to improve on this work and other related area not covered by this study for future study. Such areas include; on Board services to customers, Departure/check-in procedures, Aircraft seating plans, unaccompanied Minors. These are also the basic functions of any airline organization. It is suggested that a future study should cover the above mentioned area for detail study.

Also the following areas can be modified to have efficient and dynamic system in operation: Miles flown, profit per passenger on a particular flight, average arrival time, average number of empty seats on each flight for each day of the week.

5.5 CONCLUSION:

It is not an under-statement to say that the project has achieved its aim and objectives. In conclusion, I strongly believe that in order to efficiently and effectively implement the new system, a good computer network should be in place. This need is justified because it increases the level of reliability of the reservation system. A good and standard network ensures orderliness such as first come, first served. Better co-ordination of reservation activities is achieved and instant recording of entries into the system as well as good record keeping are equally put in place.

REFERENCES

1. Asforn N. 1980 Airport Operations, Williams Publication Lagos.
2. Barry M. S. 1981: Airport Management, Oxford Publication Ldt. Lagos.
3. Femi O. 1990: Nigeria Airlines (the new chapter) Periscoping the changing places, Abiola Press Ltd, Ikeja, Lagos.
4. Horn C. E & Poirot, J. L. 1981: Computer Literacy' Sterling _ Swift Publication. Company, Texas.
5. Hunt R. & Shell 1989: Computers & Common Sense, Prentic Hall Internation Pvt. Ltd. India.
6. Kozar K. A. 1989: Humanized Information Systems Analysis and Design, MiGraw-Hall, Texas.
7. Papacostas C. S. 1987: Fundamentals of Transportation Engineering, Prentice Hall International, London.
8. Radlow J. 1986: Computers and the Information Society, McGraw-Hall, U.S.A.
9. Rajaraman D. & Rajaraman V. 1986, Computer Primary Rev. Edition, Mohan M. Pekha Printers, London.
10. Ralph M. S. 1986: Computer in Today's World, Irwin Series Information & Decision Science, Colorado.
11. Spencer D. D. 1977: Introduction to information processing, C. Merill Publication, Colombus.
12. Tsichristzis D. C. 1977,: Database Management Systems, Academic Press, New York.

```
* INTRO-PROGRAM
MOPT=OPT
SOTRE SPACE(1) TO OPTS
@ 1, 16 SAY" WELCOME TO "
@ 2, 10 SAY "NIGERIA AIRWAYS RESERVATION SYSTEM"
@ 3, 10 SAY "PROGRAM DESOGNED BY M. A OKPEKU
@ 4, 16 SAY " NO.PGD/MCS/014/96
@ 6, 16 SAY " SUBMITTED TO"
@ 8, 10 SAY " THE DEPARTMENT OF MATHS & COMPUTER SCIENCE"
@ 10, 10 SAY "SSSC
@ 12, 10 SAY "FED. UNIV OF TECH MINNA"
@ 14, 10 SAY "IN PARTIAL FULFMENT FPR THE AWARD OF PGD IN COMPUTER
SCIENCE
@ 16, 10 SAY "1997"
@ 28, 10 SAY " ARE YOU ALLOWED
@ 20, 10 GET OPT
READ
IF OPT$ = "Y"
DO PASSWD
ELSE
QUIT
ENDIF
RETURN
```

PASSWORD. M3

```
SET TALK OFF
CLEAR
STORE SPACE (20) TO B
@ 10, 18 SAY" ENTER VALID CODE-"
@ 10, 30 GET B
   READ
   USE MATH
   LOCATE FOR NAME = B
   DO MASTER
   ELSE
   @ 10, 17 SAY " INVALID CODE: ACCESS DENIED"
   WAIT
   QUIT
   CLOSE DATABASE
   ENDIF
```

```
*******MASTER.PRG***********
Clear
Set talk off
Set status off
Set scoreboard off
set color to n
Set color to R/B
@4,16 say        "=======W====E====L====C====O====M====E===="
@8,16 SAY       " ================T====O=================="
@12,16 SAY       "==============A  . R  . S================"
Set color to gr+*/b
@24,12 say "AIRLINE   RESERVATION  SYSTEM"
Set color to gr+/b
WAIT
Clear All
clear
Set talk off
Set status off
Set scoreboard off
Set date brit
Set safety off
Set confirm on
Set bell off
P = 18
SET COLOR TO R*
@2,p SAY "AIRLINE RESERVATION SYSTEM"
@4,24 SAY "NIGERIA  AIRWAYS"
@4,74 say "DATE......"
T = 4
DO WHILE T<=23
@T,2 SAY REPLICATE(CHR(11),3)
T = T+1
ENDDO
DD = DATE()
TT = TIME()
I = 4
DO WHILE I<=23
@I,1 SAY REPLICATE(CHR(11),3)
@I,1 SAY REPLICATE(CHR(10),3)
I=I+1
ENDDO
W = 4
DO WHILE W<=22
@W,75 SAY CHR(11)
@W,75 SAY REPLICATE(CHR(10),3)
W = W+1
ENDDO
T = 22
DO WHILE T<=24
@T,1 SAY REPLICATE(CHR(10),5)
@T,1 SAY REPLICATE(CHR(11),5)
T = T+1
ENDDO
Set color to R/G
@4,1 SAY TT
Set color to r/g
@4,71 say DD
Set color to R
@3,1 to 3,78
************
X = 22
```

```
DO WHILE X<=24
@X,1 SAY REPLICATE(CHR(1),5)
@X,1 SAY REPLICATE(CHR(5),5)
X=X+1
ENDDO
SET COLOR TO R/G
@5,29 SAY "****MENU****"
@7,20 TO 17,49 DOUBLE
J=22
SET COLOR TO R/G
@8,J SAY "1"
SET COLOR TO
SET COLOR TO R/G
@10,J SAY "2"
SET COLOR TO
SET COLOR TO R/G
@12,J SAY "3"
SET COLOR TO
SET COLOR TO R/G
@14,J SAY "4"
SET COLOR TO
SET COLOR TO R/G
@16,J SAY "5"
SET COLOR TO
M=28
@5,M SAY "MAIN MENU"
@6,M SAY "==========="
@8,25 SAY "SETUP...."
@10,25 SAY "RESERVE......."
@12,25 SAY "ENQUIRS........."
@14,25 SAY "REPORTS..........."
@16,25 SAY "QUIT THE SYSTEM"
WAIT
CH = " "
@18,20 SAY "ENTER YOUR CHOICE" GET CH PICT "9"
READ
DO CASE
CASE CH = "1"
CLEAR
DO SETUP
CASE CH = "2"
CLEAR
DO RESERVE1
CASE CH = "3"
CLEAR
DO ENQUIRS1
CASE CH = "4"
CLEAR
DO REPORTS
CASE CH = "5"
CLOSE DATABASE
SET COLOR TO GR+/B
QUIT
ENDCASE
WAIT
RETURN
```

```
*******procedure*******
 *******PROGRAM: SETUP MENU.PRG*****
 ***DISPLAY SET UP SUBMENU*****
 SET COLOR TO GR+/B
 SET TALK OFF
 SET ECHO OFF
 STORE " " TO CHOICE
 ?
 ?
 ?
 @6,21 SAY "++++++++++++++++++++++++++++++++++++++++"
 @8,21 SAY  "++++++++++SETUP SUBMENU+++++++++++++++++"
 @10,21 SAY "++++++++++++++++++++++++++++++++++++++++"
 @12,21 SAY    "TASK CODE                  TASK"

 @14,21 SAY    "  [F]                 FLIGHT  COST"

 @16,21 SAY    "  [S]                FLIGHT SCHEDULE"

 @18,21 SAY    "  [M]                MAXIMUM SEAT"

 @20,21 SAY    "  [Q]                QUIT, BACK TO MAIN MENU"
 ?
 ?
 ?
 @0,20 TO 20,66 PANEL COLOR RB
 ?
 ?
 WAIT   "ENTER YOUR CHOICE (KEY IN TASK CODE)" TO CHOICE
 ?
 DO CASE
 CASE UPPER (CHOICE) = "F"
 DO COSTFL
 CASE UPPER (CHOICE) = "S"
 DO SCHEDUL
 CASE UPPER (CHOICE) = "M"
 DO MAX-SEAT
 CASE UPPRE (CHOICE) = "Q"
 SET COLOR TO GR+/B
 ENDCASE
 RETURN
```

```
***************RESERVATION.PRG************************
CLOSE DATABASE
USE
CLEA
*CLOSE INDEX
SET TALK OFF
*SET STATUS OFF
SET BELL OFF
SET CLOCK ON
SET SAFETY OFF
*SET COLOR TO W/B
*SELECT CASE
*SELECT 1
USE RESERVE
*INDEX ON CUSNAM TO RESERVE
CLEAR
CHOICE = SPACE(1)
@ 2, 3 SAY 'DO YOU WANT TO CHECK WHETHER YOUR RESERVATION EXIT ALREADY
(Y/N) ?'
@ 2, 67 GET CHOICE
READ
MCUSNAM = SPACE(30)
IF CHOICE = 'Y'
CLEA
@ 3,5 SAY 'WHAT IS THE NAME ?'
@ 3,22 GET MCUSNAM
READ
ENDIF
LOCATE FOR MCUSNAM = CUSNAM
IF FOUND()
@ 9,25 SAY CUSNAM
@ 11, 25 SAY PHONUM
@ 13, 25 SAY DEPCIT
@ 15, 25 SAY DESCIT
@ 17, 25 SAY REQDATE
@ 19, 25 SAY CUSADD
WAIT "PLEASE DO NOT MAKE DOUBLE RESERVATION"
ELSE
@ 11,25 SAY 'THERE IS NO SUCH RESERVATION'
              WAIT                  'PRESS ANY KEY TO CONTINUE'
ENDIF
*ENDIF
*CLEA
CHOICE = SPACE(1)
@ 13,10 SAY 'DO YOU WANT TO MAKE A NEW RESERVATION'
@ 13,50 GET CHOICE
READ
CLEA
IF CHOICE = 'Y'
DO WHILE .T.
@ 2, 2 TO 21, 78
STORE SPACE(30) TO MCUSNAM
STORE SPACE(40) TO MCUSADD
STORE SPACE(10) TO MPHONUM
MDEPCIT = SPACE(8)
MDESCIT = SPACE(8)
MSTBOOK = SPACE(4)
MREQDATE =CTOD(" / / ")
MOPTION = " "
SET COLOR TO W/B+
? "NIGEIRA AIRWAYS COMPUTERISED SYSTEM MINNA ZONNAL OFFICE"
```

```
*SET COLOR TO GR+*/B
@ 5, 6  SAY "1   CUSTOMER NAME"
@ 7, 6  SAY "2   CUSTOMER ADDRESS"
@ 9, 6  SAY "3   PHONE NO"
@ 11, 6 SAY "4   DEPARTURE CITY"
@ 13, 6 SAY "5   DESTINATION CITY"
@ 15, 6 SAY "6   SEAT BOOKED"
@ 17, 6 SAY "7   REQUIRED DATE"
?
@ 5, 24 GET MCUSNAM
@ 7, 24 GET MCUSADD
@ 9, 24 GET MPHONUM
@ 11,24 GET MDEPCIT
@ 13,24 GET MDESCIT
@ 15,24 GET MSTBOOK
@ 17,24 GET MREQDATE
READ
APPEND BLANK
REPLACE CUSNAM WITH MCUSNAM
REPLACE CUSADD WITH MCUSADD
REPLACE PHONUM WITH MPHONUM
REPLACE DEPCIT WITH MDEPCIT
REPLACE STBOOK WITH MSTBOOK
REPLACE REQDATE WITH MREQDATE
CLEA
CHOICE = SPACE(1)
@ 13,10 SAY 'ANY NEW RESERVATION (Y/N)?'
@ 13,50 GET CHOICE
READ
IF CHOICE = 'Y'
CLEA
LOOP
ELSE
EXIT
CLEA
ENDIF
ENDDO
ENDIF
RETURN
```

```
*********PROGRM:ENQUIRE MENU.PRG***********
**********DISPLAY ENQUIRE SUB-MENU**********
SET TALK OFF
SET ECHO OFF
STORE " " TO CHOICE
?
?  "================================="
?  "========ENQUIRIE SUB-MENU======="
?  "================================="
?
?
?
?       "TASK CODE       TASK"
?
?       "[I]             FLIGHT SCHEDULE"
?
?       "[S]             RESERVATION & TRAVEL SHOPS"
?
?       "[C]             CONFIRM A RESERVATION"
?
?       "[Q]             QUIT"
?
?
WAIT
  @ 23,10 SAY "ENTER YOUR CHOICE"
  @ 23,28 GET CHOICE PICT '!'
  READ
DO CASE
     CASE UPPER (CHOICE) = "I"
     DO SCHEDUL
     CASE UPPER (CHOICE) = "S"
     DO RESERVE1
     CASE UPPER (CHOICE) = "C"
     DO CONFIRM
     CASE UPPER (CHOICE) = "Q"
     QUIT
    ENDCASE
    *SET COLOR TO GR
     RETURN
```

□

```
**************COSTFL.PRG********************
SET TALK OFF
CLEAR
USE FLIGCOT
SET COLOR TO GR
@ 2, 32  SAY " FLIGHT COST"
@ 3, 43  SAY "============"
@ 5, 28  SAY "[A].........FIRST CLASS"
@ 7, 28  SAY "[B].........BUSINESS CLASS"
@ 9, 28  SAY "[C].........ECONOMY CLASS"
@ 11, 28 SAY "[D].........STUDENT'S REBATE"
?
?
CHOICE = " "
@ 15, 28 SAY " SELECT APPROPRIATE OPTION" GET CHOICE
READ
DO CASE
   CASE UPPER (CHOICE) = "A"
   MDEPCIT =SPACE(5)
   MDESCIT =SPACE(5)
   @ 12, 28 SAY " DEPARTURE CITY: " GET MDEPCIT
   READ
   @ 13, 28 SAY " DESTINATION CITY: " GET MDESCIT
   READ
   LOCATE FOR DEPECIT =UPPER(MDEPCIT) .AND. DESCIT=UPPER(MDESCIT)
   @ 18, 31 SAY "=N= + STR(FIRST_CLASS)"
   ?
   ?
   WAIT
   CASE UPPER (CHOICE) ="B"
   MDEPCIT =SPACE(5)
   MDESCIT =SPACE(5)
   @ 12, 28 SAY  "DEPARTURE CITY:" GET MDEPCIT
   READ
   @ 13, 28 SAY "DEPCIT =UPPER(MDEPCIT). AND. DESCIT=UPPER(MDESCIT)"
   @ 18, 31 SAY "=N= +STR(BUSNESS-CLASS)"
   ?
   ?
   WAIT
   CASE UPPER (CHOICE) = "C"
   MDEPCIT = SPACE (5)
   MDESCIT = SPACE (5)
   @ 12, 28 SAY "DEPARTURE CITY: " GET MDEPCIT
   READ
   @ 13, 28 SAY " DESTINATION CITY" GET MDESCIT
   LOCATE FOR DEPCIT = UPPER(MDEPCIT).AND. DESCIT=UPPER(MDESCIT)
   @ 18, 31 SAY "=N=" + STR(ECONMIC-CLASS)
   ?
   ?
   WAIT
   CASE UPPER (CHOIC) = "D"
   MDEPCIT = SPACE (5)
   MDESCIT = SPACE (5)
   @ 12, 28 SAY "DEPARTURE  CITY" GET MDEPCIT
   READ
   @ 13, 28 SAY "DESTINATION CITY" GET MDESCIT
   READ
   LOCATE FOR DEPCIT = UPPER(MDEPCIT).AND. DESCIT =UPPER(MDEESCIT)
   @ 18, 31 SAY "=N= + STR(STUDENT-REBATE)"
   ?
   ?
```

```
  **********CANCEL.PRG***********
  SET TALK OFF
  SET STATUS ON
*  SET SCOREBOARD OFF
  SET CLOCK ON
*  SET COLOR TO GR
  DO WHILE .T.
  MCUSNAM = SPACE(30)
  USE RESERVE
  OPTION= SPACE(1)
 * SET COLOR TO W/B
  @3,30 SAY "N I G E R I A N   A I R W A Y S"
  @5,30 SAY "COMPUTERISED  CANCELLATION SCREEN"
  @7,30 SAY "MINNA AIR PORT OFFICE"
 * SET COLOR TO RB/N
  CHOICE = ' '
  @ 8,4 SAY "DO YOU WANT TO MAKE A CANCELATION OF YOUR BOOKINGS ?"
  @ 8,60 GET CHOICE
  READ
  IF CHOICE = 'N'
  CLEA
  EXIT
  ENDIF
  IF CHOICE = 'Y'
  CLEA
  @ 10,4 SAY 'WHAT IS THE NAME ?'
  @ 10,23 GET MCUSNAM
  READ
  ENDIF
  LOCATE FOR CUSNAM=MCUSNAM
  IF FOUND ()
  CLEA
  @9,20 SAY 'RESERVATION ALREADY EXIT'
  @11,20 SAY 'DO YOU WANT TO CANCEL YOUR RESERVATION(Y/N)'
  @11,73 GET OPTION PICT '!'
  READ
  IF OPTION = 'Y'
  CLEA
  DELETE
  PACK
  ELSE
  CLEA
  ENDIF
  ELSE
  CLEA
  @9,20 SAY 'NO SUCH RESERVATION'
  ENDIF
  CH = ' '
  @ 10,20 SAY 'DO YOU WANT TO CANCEL ANOTHER RESERVATION (Y/N) ?'
  @ 10,75 GET CH PICT '!'
  READ
  IF CH = 'Y'
  CLEA
  LOOP
  ENDIF
  IF CH = 'N'
  EXIT
  ENDIF
  ENDDO
  RETURN
```

```
WAIT
CASE UPPER(CHOICE) = "E"
RETURN
ENDCASE
```

```
**********CONFIRM.PRG***********
SET TALK OFF
SET STATUS ON
*  SET SCOREBOARD OFF
SET CLOCK ON
*  SET COLOR TO GR
DO WHILE .T.
MCUSNAM = SPACE(30)
USE RESERVE
OPTION= SPACE(1)
* SET COLOR TO W/B
@3,30 SAY "N I G E R I A N   A I R W A Y S"
@5,30 SAY "COMPUTERISED  CONFIRMATION SCREEN"
@7,30 SAY "MINNA AIR PORT OFFICE"
* SET COLOR TO RB/N
CHOICE = ' '
@ 8,4 SAY "DO YOU WANT TO MAKE A CONFIRM IF YOUR BOOKINGS EXITS ?"
@ 8,60 GET CHOICE
READ
IF CHOICE = 'N'
CLEA
EXIT
ENDIF
IF CHOICE = 'Y'
CLEA
@ 10,4 SAY 'WHAT IS THE NAME ?'
@ 10,23 GET MCUSNAM
READ
ENDIF
LOCATE FOR CUSNAM=MCUSNAM
IF FOUND ()
CLEA
@ 5,5 TO 20,70 DOUBLE
@ 6,8 SAY 'RESERVATION ALREADY EXIT'
@ 7,8 TO 7,31 DOUBLE
@ 8,10 SAY CUSNAM
@ 10,10 SAY CUSADD
@ 12,10 SAY PHONUM
@ 14,10 SAY DESCIT
@ 16,10 SAY DEPCIT
@ 18,10 SAY REQDATE
@20,20 SAY 'DO YOU WANT TO CANCEL YOUR RESERVATION(Y/N)'
@20,73 GET OPTION PICT '!'
READ
IF OPTION = 'Y'
CLEA
DO CANCEL
ELSE
CLEA
ENDIF
ELSE
CLEA
@9,20 SAY 'NO SUCH RESERVATION'
ENDIF
ANS = ' '
@ 10,20 SAY 'DO YOU WANT TO MAKE A NEW RESERVATION (Y/N) ?'
@ 10,75 GET ANS
READ
IF ANS = 'Y'
CLEA
DO RESERV
```

```
ELSE
CLEA
ENDIF
CH = ' '
@ 10,20 SAY 'DO YOU WANT TO CONFIRM ANOTHER RESERVATION (Y/N) ?'
@ 10,75 GET CH PICT '!'
READ
IF CH = 'Y'
CLEA
LOOP
ENDIF
IF CH = 'N'
EXIT
ENDIF
CLEA
ENDDO
RETURN
```

□

```
***************RESERVATION.PRG************************
CLOSE DATABASE
USE
CLEA
*CLOSE INDEX
SET TALK OFF
*SET STATUS OFF
SET BELL OFF
SET CLOCK ON
SET SAFETY OFF
*SET COLOR TO W/B
USE RESERVE
CLEAR
*CHOICE = SPACE(1)
*@ 13,10 SAY 'DO YOU WANT TO MAKE A NEW RESERVATION'
*@ 13,50 GET CHOICE
*READ
*CLEA
IF CHOICE = 'Y'
DO WHILE .T.
@ 2, 2 TO 21, 78
STORE SPACE(30) TO MCUSNAM
STORE SPACE(40) TO MCUSADD
STORE SPACE(10) TO MPHONUM
MDEPCIT = SPACE(8)
MDESCIT = SPACE(8)
MSTBOOK = SPACE(4)
MREQDATE =CTOD(" / / ")
MOPTION = " "
SET COLOR TO W/B+
? "NIGEIRA AIRWAYS COMPUTERISED SYSTEM MINNA ZONNAL OFFICE"
*SET COLOR TO GR+*/B
@ 5, 6  SAY "1   CUSTOMER NAME"
@ 7, 6  SAY "2   CUSTOMER ADDRESS"
@ 9, 6  SAY "3   PHONE NO"
@ 11, 6 SAY "4   DEPARTURE CITY"
@ 13, 6 SAY "5   DESTINATION CITY"
@ 15, 6 SAY "6   SEAT BOOKED"
@ 17, 6 SAY "7   REQUIRED DATE"
?
@ 5, 24 GET MCUSNAM
@ 7, 24 GET MCUSADD
@ 9, 24 GET MPHONUM
@ 11,24 GET MDEPCIT
@ 13,24 GET MDESCIT
@ 15,24 GET MSTBOOK
@ 17,24 GET MREQDATE
READ
APPEND BLANK
REPLACE CUSNAM WITH MCUSNAM
REPLACE CUSADD WITH MCUSADD
REPLACE PHONUM WITH MPHONUM
REPLACE DEPCIT WITH MDEPCIT
REPLACE STBOOK WITH MSTBOOK
REPLACE REQDATE WITH MREQDATE
CLEA
CHOICE = SPACE(1)
@ 13,10 SAY 'ANY NEW RESERVATION (Y/N)?'
@ 13,50 GET CHOICE
READ
IF CHOICE = 'Y'
```

```
CLEA
LOOP
ELSE
EXIT
CLEA
ENDIF
ENDDO
ENDIF
CLEA
RETURN
□
```

```
 ************SCHEDULE.PROG****************
SET TALK OFF
SET STATUS OFF
CLEAR
DO WHILE .T.
@ 2, 10 SAY  " NIGERIA AIRWAYS WEEKLY FLIGHT SCHEDULE"
@ 5, 10 SAY  " DAY CODE . DAY OF THIS WEEK"
@ 7, 10 SAY   "[1]         MONDAY"
@ 9, 10 SAY   "[2]         TUESDAY"
@ 11, 10 SAY  "[3]         WEDNESDAY"
@ 13,10 SAY   "[4]         THURSDAY"
@ 15, 10 SAY  "[5]         FRIDAY"
@ 17, 10 SAY  "[6]         SATURDAY"
@ 19, 10 SAY  "[7]         SUNDAY"
@ 21, 10 SAY  "[8]         EXIT"
WAIT
CHOICE = " "
@ 24, 20 SAY "ENTER YOUR CHOICE)"  GET CHOICE  PICT  '9'
READ
DO CASE
   CASE UPPER(CHOICE) = "1"
   DO MONDAY
   CASE UPPER(CHOICE) = "2"
   DO TUESDAY
   CASE UPPER(CHOICE) = "3"
   DO WEDSDAY
   CASE UPPER(CHOICE) = "4"
   DO THURDAY
   CASE UPPER(CHOICE) = "5"
   DO FRIDAY
   CASE UPPER(CHOICE)  = "6"
   DO SATURDAY
   CASE UPPER(CHOICE) = "7"
   DO SUNDAY
   CASE UPPER(CHOICE)  = "8"
   CLEA
   EXIT
   ENDCASE
   OPTION = " "
  @ 20, 15 SAY "DO YOU NEED MORE OPTION(Y/N) ? " GET OPTION
   READ
   CLEA
   IF OPTION = "Y"
   LOOP
   ENDIF
   IF OPTION = "N"
   EXIT
   ENDIF
   ENDDO
   RETURN
□
```

```
**********PROGRAM:SCHEDULE FOR MONDAY
SET TALK OFF
SET ECHO OFF
STORE " " TO CHOICE
CLEAR
*SET COLOR TO W/B+*
@2, 18 SAY " NIGERIA AIRWAYS"
@3, 10 SAY " FLIGHT SCHEDULE FOR MONDAY"
@4, 10 SAY "============================"
SET COLOR TO W/B+
@5, 2 SAY " FLIGHT TYPE   ARRIV TIME    DEPART    DEPAR CITY   DEST
CITY"
@6, 2 SAY "_____________    _________    _______   _________
          "
__________
SET COLOR TO W/R+
@ 7, 2 SAY "NABO737          0800         0830       LAGOS       ABUJA"
@ 8, 2 SAY "NAAB31O          0830         0900       LAGOS       KADUNA"
@ 9, 2 SAY "NADC10           0900         0930       ABUJA       KANO"
@ 10, 2 SAY "NAAB310         0915         0945       LAGOS       MAID"
@ 11, 2 SAY "NABO737         1OOO         1030       ABUJA       PHC"
@ 12, 2 SAY "NADC10          1145         1215       PHC         KANO"
@ 13, 2 SAY "NADC10          1315         1345       LAGOS       ABUJA"
@ 14, 2 SAY "NABO737         1515         1555       ABUJA       LAGOS"
@ 15, 2 SAY "NAAB310         1700         1730       LAGOS       ABUJA"
?
?
SET COLOR TO W/B+
WAIT
RETURN
```

```
PROCEDURE TUESDAY
************PROGRAM:FLIGHT SCHEDULE FOR TUESDAY
SET TALK OFF
CLEA
@5, 2 SAY "FLIGHT TYPE   ARRIV TIME  DEPAR TIME   DEPAR CITY  DEST CITY"
@6 , 2 SAY "-----------------------------------------------------"
*SET COLOR TO GR+*
@7, 2 SAY   "NAAB310     0800          0830       LAGOS       ABUJA"
@8, 2 SAY   "NADC10      0830          9000       ABUJA       KANO"
@9, 2 SAY   "NABO737     0915          0945       CALABA      LAGOS"
@10, 2 SAY  "NAAB310     1000          1015       LAGOS       JOS/KAD"
@11, 2 SAY  "NADC1O      1000          115        LAGOS       LAG/CAL"
@12, 2 SAY  "NAAB310     1145          1215       LAGOS       ABUJA"
@13, 2 SAY  "NADC10      1215          1245       LAGOS       ENUGU"
@14, 2 SAY  "NAAB310     1300          1330       PHC         LAGOS"
@15, 2 SAY  "NABO737     1330          1400       LAGOS       OWERRI"
@16, 2 SAY  "NABO737     1400          1430       KANO        LAGOS"
@17, 2 SAY  "NADC10      1545          1615       ABUJA       LAGOS"
WAIT
RETURN

*PROCEDURE WEDNESDAY
**********PROGRAM: FLIGHT SCHEDULE FOR WEDNESDAY
SET TALK OFF
SET ECHO OFF
SET COLOR TO R/B
@2, 18 SAY " NIGERIA AIRWAYS"
@3, 10 SAY "FLIGHT RESERVATION FOR WEDNESDAY"
@4, 10 SAY "--------------------------------"
SET COLOR TO W
@6, 2 SAY  "FLIGHT TYPE    ARRIV TIME    DEPAR TIME    DEPAR CITY   DEST
CITY"
@7, 2 SAY  "-----------------------------------------------------------
------"
SET COLOR TO GR+
@8, 2 SAY "NAAB310      0800           0830          LAGOS
ABUJA"
@9, 2 SAY "NADC10       0830           9000           LAGOS
MAID"
@10, 2 SAY "NABO737     0915           0945           CALABAR
LAGOS"
@11, 2 SAY "NAAB310     1000           1055           LAGOS
OWERRI"
@12, 2 SAY "NADC10      1000           1115           CALABA
LAG/ABUJA"
@13, 2 SAY "NAAB310     1145           1215           LAGOS
ABUJA"
@14, 2 SAY "NADC10      1215           1245           LAGOS
ENUGU"
@15, 2 SAY "NAAB310     1330           1400           PHC
ABUJA"
@16, 2 SAY "NABO737     1440           1500           KANO
LAGOS"
@18, 2 SAY "NADC10      1545           1615           ABUJA
LAGOS"
@19, 2 SAY "NAAB310     1630           1700           LAGOS
KANO"
WAIT
RETURN
□
```

```
*PROCEDURE THURSDAY
***************PROGRAM: SCHEDULE FOR THURSDAY***************
SET TALK OFF
CLEA
STORE  " " TO CHOICE
@2, 18 SAY " NIGERIA AIRWAYS"
@3, 10 SAY "FLIGHT SCHEDULE FOR THURSDAY"
@4, 10 SAY "============================"
*SET COLOR TO R
@6, 2 SAY "FLIGHT TYPE   ARRIV TIME   DEPAR TIME   DEPAR CITY    DEST
CITY"
@7, 2 SAY "-----------   ----------   ----------   ----------    -------
--"
SET COLOR TO W/N
@8, 2 SAY "NABO737       0800           08030       LAGOS         ABUJA"
@9, 2 SAY "NAAB310       0830           0900        LAGOS
KADUNA"
@10,2 SAY "NADC10        0900           0930        ABUJA         KANO"
@11, 2 SAY "NAAB310      0915           0945        LAGOS         MAID"
@12, 2 SAY "NAB0737      1000           1030        ABUJA         PHC"
@13, 2 SAY "NADC10       1145           1215        PHC           KANO"
@14, 2 SAY "NADC10       1315           1345        LAGOS         ABUJA"
@15, 2 SAY "NAB0737      1515           1555        ABUJA         LAGOS"
@16, 2 SAY "NAAB310      1700           1730        LAGOS         ABUJA"
SET COLOR TO W/B+
WAIT
RETURN

*PROCEDURE FRIDAY
***********PROGRAM: SCHEDULE FOR FRIDAY
SET TALK OFF
STORE " " TO CHOICE
CLEAR
@ 2 , 18 SAY "NIGERIA AIRWAYS"
@ 3, 10  SAY "FLIGHT SCHEDULE FOR FRIDAY"
@ 4, 10  SAY "==========================="
@ 6, 2  SAY " FLIGHT TYPE    ARRIV TIME    DEPAR TIME   DEPAR CITY
DEST CIT"
@ 7, 2  SAY "============    ==========    ==========   ==========
========"
SET COLOR TO RW
@ 8, 2 SAY "NABO737             0800         0830        LAGOS
ABUJA"
@ 9, 2 SAY "NAAB310             0830         0900        LAGOS
KADUNA"
@ 10, 2 SAY "NADC10             0900         0930        ABUJA
KANO"
@ 11, 2 SAY "NAAB310            0915         0945        LAGOS
MAID"
@ 12, 2 SAY "NAB0737            1000         1030        ABUJA
PHC"
@ 13, 2 SAY "NADC10             1145         1215        PHC
KANO"
@ 14, 2 SAY "NADC10             1315         1345        LAGOS
ABUJA"
@ 15, 2 SAY "NAAB310            1700         1730        LAGOS
ABUJA"
SET COLO TO W/B+
WAIT
RETURN
□
```

```
*PROCEDURE SATURDAY
**********PROGRAM: FLIGHT SCHEDULE FOR SATURDAY
SET TALK OFF
CLEAR
@ 2, 18 SAY "NIGERIA AIRWAYS"
@ 3, 10 SAY "FLIGHT SCHEDULE FOR SATURDAY"
@ 3, 10 SAY "============================="
@ 6, 2 SAY " FLIGHT TYPE   ARRIV TIME   DEPAR TIME   DEPAR CITY   DEST
CITY"
@ 7, 2 SAY "============   ==========   ==========   ==========
=========="
@ 10, 2 SAY "NAAB310         0800         0910          LAGOS      ABUJA"
@ 11, 2 SAY "NADC10          0830         0900          LAGOS      MAID"
@ 12, 2 SAY "NAB0737         0915         0945          CALABAR    LAGOS"
@ 13, 2 SAY "NAAB310         1000         1055          LAGOS
OWERRI"
@ 14, 2 SAY "NADC10          1445         1520          LAGOS      JOS"
@ 15, 2 SAY "NAAB310         1145         1215          ABUJA      KANO"
@ 16, 2 SAY "NADC10          1215         1250          LAGOS      ENUGU"
@ 17, 2 SAY "NAAB310         1300         1340          PHC        LAGOS"
@ 18, 2 SAY "NAB0738         1435         1505           KANO      LAGOS"
SET COLO TO W/B+
WAIT
RETURN

PROCEDURE   SUNDAY
***********PROGRAM: FLIGHT SCHEDULE FOR SUNDAY******************
SET TALK OFF
CLEAR
SET COLOR TO BR+
@ 2, 18 SAY " FLIGHT SCHEDULE FOR SUNDAY"
@ 3, 10 SAY "============================"
@ 4, 10 SAY "NIGERIA AIRWAYS"
@ 6, 2 SAY "FLIGHT TYPE   ARRIV TIME    DEPAR TIME    DEPAR CITY    DEST
CITY"
@ 8, 2 SAY " ==========  ==========    ==========    ==========
=========="
@ 10, 2 SAY "NAAB310      0800          0910            LAGOS
ABUJA"
@ 11, 2 SAY "NADC10       0830          0900            LAGOS
MAID"
@ 12, 2 SAY "NABO737      0915          0945            CALABA
LAGOS"
@ 13, 2 SAY "NAB310       1000          1055            LAGOS
OWERRI"
@ 14, 2 SAY "NADC10       1445          1520            LAGOS
ABUJA"
 SET COLO TO W/B+
  WAIT
  RETURN
```