COMPUTERISED AIRLINE TICKETING SYSTEM
[A CASE STUDY OF AERO CONTRACTORS NIG LTD LAGOS]

BY

NWABUEZE JESSICA NNENNA
PGD / MCS / 2001 / 2002 / 1095

DEPARTMENT OF MATHEMATICS / COMPUTER SCIENCE
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

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A PROJECT SUBMITTED TO THE
DEPARTMENT OF MATHEMATICS / COMPUTER SCIENCE
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE POSTGRADUATE DIPLOMA
IN COMPUTER SCIENCE

NOVEMBER 2004.

CERTIFICATION

This is to certify that this work is an original project carried out by NWABUEZE JESSICA NNENNA.

This project has been read and approved by the undersigned as meeting the requirements of the department of mathematics / computer science, Federal University of Technology, Minna.

Prince R. Badmus
Project Supervisor

Date

Mr. L. N. Ezeako
Head of Department

Date

External Examiner

Date

DEDICATION

This work is dedicated to God Almighty for his abundant grace and mercy throughout the period of this program.

ACKNOWLEDGEMENT

With Gratitude to Almighty God who in his infinite mercy, guidance, wisdom and endless care during my academic career at this point in the accomplishment so far, to God be the glory and honour.

Many people have contributed directly or indirectly to the success of this project. I would like to express my appreciation to them all.

I will forever remain indebted to my hardworking supervisor, Prince Badmus for his assistance, encouragement and time spent inspite of work pressure to supervise this project, his valuable corrections and comments make this work worth while.

I would like to express my grateful thanks and appreciation to all my friends that supported me in one way or the other in meeting my immediate goal, to them I say thanks and may God reward them accordingly.

My sincere thanks goes to my HOD, Coordinators and all the lecturers that took me in various courses. Thanking you for all your concern, knowledge imparted to us. May Almighty God bless you all and reward you accordingly.

My love goes to my dear parents Mr. & Mrs. I. N. Nwaogwugwu for their constant support and prayers throughout my academic period. I also give my gratitude to my brothers and sisters for their unending love and support.

Lastly my sincere love goes to my husband Barrister Aloysius who supported me morally and financially throughout the period in this my course.

ABSTRACT

Ticketing is the issuing of tickets to people wanting to travel to other places. Airline ticketing involves issuing of an airline ticketing to customers and reserving a seat for them on the Airline. Manual ticketing system has been working efficiently for many years but with some major setbacks in the aspect of accessing past records and files, show processing, communication between sub-stations and controlling people from making errors. All these contributed to the introduction of a computerized airline ticketing system which is achieved in this work.

This work is based on the development of an effective ticketing system for the management of Aero Contractors Nig Ltd. In view of this, the scope is centred on the selling of tickets to customers and identifying the potential areas of the ticketing system.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION:

Despite the exhaustive planning sessions, specifications process and talk of user satisfaction that usually accompany development efforts, airlines do not really want fundamental changes in their ticketing system, such as inputs and outputs of the system and the transactions being carried out, i.e. selling of tickets. What they really want is their old familiar process transformed into a new fashionable format which will make it easy to access, reducing the manual workload, making it more efficiency and achieving a lot within a short period of time.

Ticketing is the act of issuing tickets to intending customers wishing to travel. Manual systems of issuing tickets have worked efficiently for may years but with some major set backs in the aspects of low standard of services provided for customers, increased work load on the ticketing officers, slowness of job and inaccuracy etc. All these contributed to the introduction of a computerized ticketing system which is achieved in this work.

This work is based on the development of an effective airline ticketing system for the management of AERO Contractors Nig Ltd.

computerization of airline ticketing is considered appropriate because:

1. The explosive growth in the amount of data handled by the computers in this type of business.
2. the willingness of the organisation to plan ahead as regards to ticketing and control the unchecked.

These factors combined with today's concern over data security and unauthorized access to files contributed to the need for adequate support for the ticketing system.

1.2 HISTORY OF AERO CONTRACTORS NIG LTD

Aero Contractors Nig Ltd (ACN) is a subsidiary of Schreiner Aviation Group which Headquarters is in Holland. The company was established in 1959 but was incorporated in May 1960, incidentally it is the first Airline to operate in Nigeria which was before the Nigerian Airways.

The company is into Aviation Business. It has three branches, one in Lagos, Warri and Port Harcourt. The Lagos office is called the fixed wing while the Warri and Port Harcourt offices are called the Rotary wings. The company operates

fleet of Twin-Otters, Hs-125 (Jets) and Helicopters. The charter for oil companies and oil servicing companies is handled by them. The company also maintains and flies what is called third party aircraft [ie. Aircraft owned by private individuals but serviced and flown by [ACN]. It also operates what is called pool charter for the public on an 18 seater Twin-Otter from Lagos - Warri, Lagos - Port Harcourt axes.

During the provisions of the Nigerian enterprises promotion decree of 1972, the company was listed as scheduled III operation with Nigeria holding 40% of its equity. In 1976, the company also had to comply with the 1974 Nigerian Enterprises Promotion Degree which listed the company as a scheduled II operation with its Nigerian equity participation increased to 60%.

In the 1980's ACN had grown into one of schreiner's most important establishments. The fleet soon had piper Apaches, Nawujos and Dornier Do 28, De Havillard Canadian Twin-Otters from these early beginnings, they were able to win contracts to supply helicopters and provide air charter services to Nigerian Agip Oil Company. Elf Nig Ltd etc. the helicopter provided of shore and swampy area communication while the aeroplane provides the link between Warri, Port Harcourt and lagos. In addition, the company operates a fleet of air-craft

for the Nigerian National Petroleum Corporation [NNPC].

Currently, a large portion of ACN business is still with the oil industry. However, the increasing demand for transportation has lead ACN to serve other industries associated with oil and gas.

1.3 ORGANISATIONAL STRUCTURE OF AERO CONTRACTORS NIG. LTD. [ACN]

The company is organized into the following departments:

i. The Managing Director's office consist of the Managing Director, the Secretary and the office attendant. The Managing Director is in charge of all other departments and oversee the smooth running of the company.

ii. The Personnel Department is headed by the Personnel Manager who reports directly to the Managing Director. The Personnel Manager deals with recruitment, staff welfare, information and staff development.

iii. The Accounts Department is headed by the chief Accountant who reports to the Managing Director. He is in charge of staff salary, he makes payment and receive payment on behalf of the company and takes care of all monetary issue.

iv. The Technical Department is headed by Technical Manager who reports directly to the Managing Director. He oversees the maintenance and repair of aircrafts, cleaning and refueling of aircrafts and their likes. The department consists of Engineers, Quality control, personnel and peripheral staff such as Aircraft cleaners, Hanger cleaners and Aircraft refuellers.

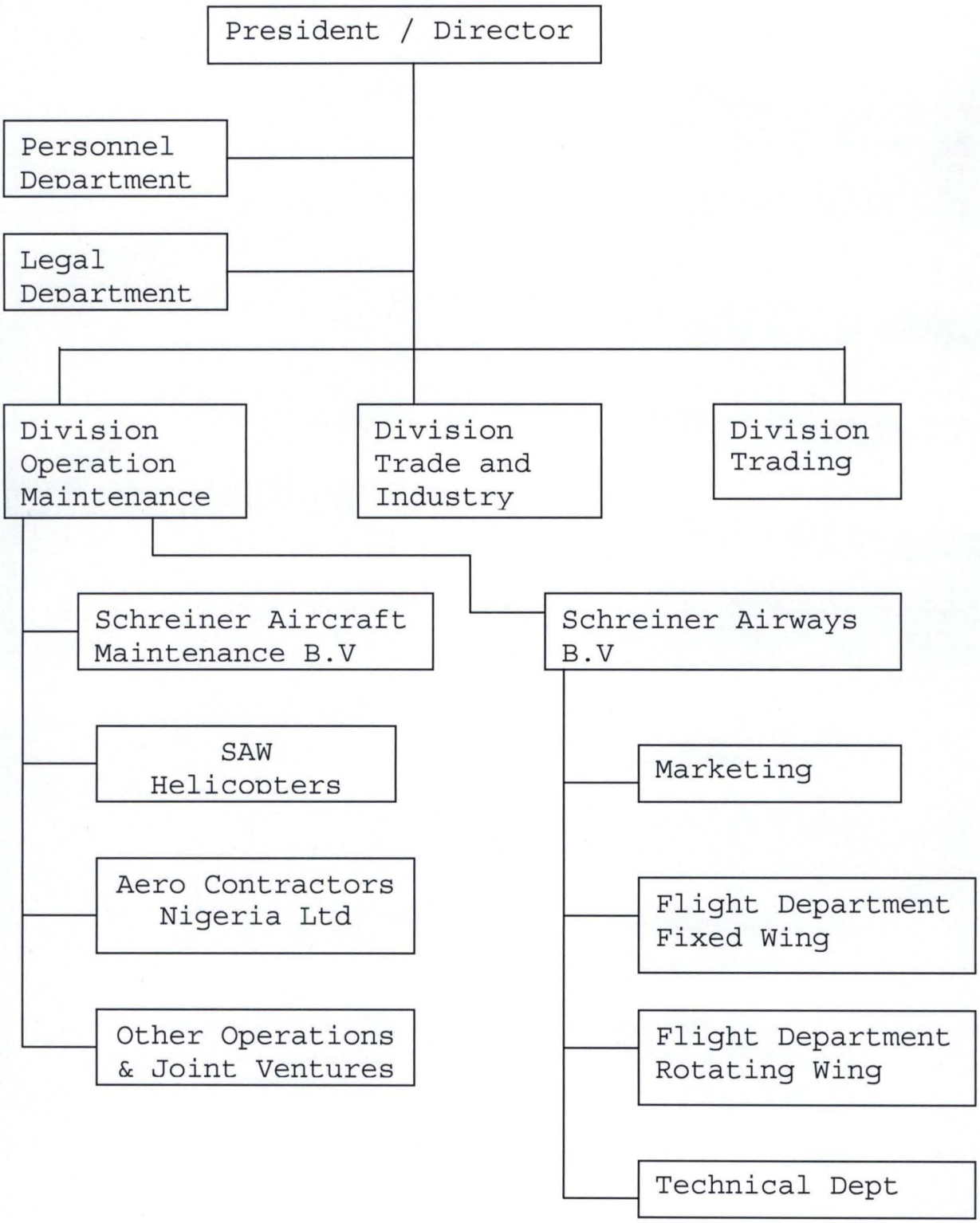
v. The Operation Department is headed by the Operations Manager who reports directly to the Managing Director. He oversees the operational duties of the company such as issuance of tickets to travelers, loading duties and off loading of passenger's luggage and their likes. The department consist of Pilots who fly the aircrafts and peripheral staff who carry out the above mentioned duties.

vi. The Based Services Department consist of drivers, dispatch riders, security guards, gardeners and the like.

ACN plans to avail itself of modern and scientific approach to Management so that it can take full advantage of its enhanced status and be more competitive.

Currently, the staff strength is about 400, both expatriate and nationals.

1.3.1 THE GROUP ORGANSISATIONAL CHART



1.4 OBJECTIVE OF THE STUDY

Most Airlines operating in Nigeria issue their tickets manually. The job is done slowly when there is a long queue of passengers waiting to buy tickets. In view of the above short comings, this project is aimed at improving the standard of services rendering to customers, thereby eliminating queue, reducing the work load on ticketing officers, providing a compact and integrated database record of the number of tickets bought ad the total amount made per month. Providing a fast and more accurate method of work.

1.5 SCOPE AND LIMITATIONS

The scope of this project centers only on airline ticketing this work will identify the potential areas of ticketing system such as ticket addition, ticket amendment, ticket deletion, ticket reports on monthly flight cost both local and international. However, there are some limitations which has affected the scope of this study. The work of a ticketing officer can never be completely replaced by a computer, since the work involves direct dealings with customers, passengers are often faced with problems of clarifying some vital issues in which it is only human beings that can

adequately answer all the questions and enquiries rather than computers.

The second limitation is time constraints. The time allocated is too short for the project of this magnitude especially when concerned with high technicality of the aviation industry. Difficulty in having access to some information which are considered vital to be released in the name of "trade secret".

1.6 APPROACH OF THE PROJECT

i. Interview: Interview is used as a method of gathering information and to gain understanding of the existing system. All the necessary information needed are generated.

ii. Written Documents: Manuals of the case study and documents were collected. They were critically examined and analysed.

iii. Data Analysis: This is done through the analysis of data collected from the organisation during the data analysis field names with more characters were abbreviated so as to fit into the system and database files were created.

iv. Design and Implementation: User friendliness is one of the major concern of computer systems. The design of the new system will be a menu driven system. This is to make the system as

easy to use as possible. In the implementation aspect, outputs were translated into logical structure.

CHAPTER 2

LITERATURE REVIEW

2.1 OVERVIEW OF THE CASE STUDY

Modern airline ticketing is relatively new to Nigeria, as a result the degree of awareness is still very low. Like every other commercial activity, modern airline ticketing is not new to foreign airlines because computers are already being used to issue traveling tickets as well as make reservations for traveling. There is minimal government intervention in the practice of modern ticketing, hence there is absolute freedom of activity for airlines interested in the modern ticketing system.

2.2 AIRLINE TICKETING

People that travel by road, sea, train or air must be issued a ticket of some sort. A ticket is like a receipt but contains more information than an ordinary receipt. It contains passenger's name route (origin / designation) time of departure and arrival, carrier number, fare, seat number, date of issue and so on.

Airline ticketing is the process of issuing tickets to people who want to travel at that time or in advance. The ticket issued is a confirmation that

the person is traveling with the airline that issued the ticket and a seat reservation is made.

Tickets should be purchased within 24 hours or before the deadline specified often entitles the airline to cancel the reservation. Ticket can be "open" if the person is traveling at a later date or it can be "BOOKED" for traveling at a specified time. If the person misses his flight after booking, the airline may make a sub-charge on the ticket. The ticket when bought is not transferable and in most cases the airline does not guarantee a refund for cancelled reservation.

The major setback in a manual ticketing system are the low standard of services provided for customers, that is allowing the customers stand on the queue for a long time because of low processing of the ticket, too much work load on the ticketing officers because they write all the tickets with their hands particularly if there a long queue of customers, scattered records and files, slowness of the work and inaccuracy which can cause the airline to have less customers.

This project deals with airline ticketing system with a case study of Aero Contractors Nig. Ltd. It is done with the aim of computerizing the ticketing system of the company to improve customer's services and to reduce the workload on ticketing

officers as well as to provide a fast and accurate method of work. It will provide vital information for anyone interested in airline ticketing system.

2.3 COMPUTERS IN AVIATION INDUSTRY

The aviation industry uses different types of computers for the security of the airport, passengers, aeroplanes and luggage.

The computers are most importantly used in aviation for screening purpose. An example is the use of special purpose highly sophisticated screening scanners or cameras to scan passengers and their luggage looking for hard drugs, and ammunition or explosives hidden on passengers or their luggages. The computerized scanners or cameras immediately set-off a series of alarms if any of the above listed items is detected.

Computers in the aviation industry is also used for weather forecasting and other meteorological services. This enables the airport authority to know when a plane should land, take off or the general condition when airborne. It is most importantly used as navigation and direction aid. This entails directing and controlling the aeroplanes and pilots when airborne or on landing at the control tower.

The space shuttle and all space travel is made possible by variously computerized equipment that are installed on-bound and the mission control stations around the world. The latest airbus planes are fitted with supper computers that makes it almost impossible to have co-pilots attached to navigation pilot in the event of a trip. This is because the computers can take full charge of the navigation and control aspect of the plane and can take the plane safely to destination point if correctly programmed to do so with little help from the pilot.

Computers are also used in airline reservation issue ticketing system to make reservations and issue tickets to passengers.

2.4 DETAILED STUDY OF THE SYSTEM

A detailed investigation is the thorough investigation regarding the proposed project in terms of all the economic, technical and socio-cultural and environmental resources. The investigation study is a horizontal and vertical study into all the parameters affecting the project. Basically they study thoroughly the existing system, understanding all job routines involved the equipment used and personnel activities right from the passengers and clericals

through the supervisory and managerial cadre. The proposed system is also studied into details to know how it could be effectively integrated with the old system, that is how the new system will take up the operations performed by the old system and still have better production both in quality and quantity.

2.4.1 SEAT RESERVATION

When a ticket is issued or bought automatically, a seat reservation is made for that person. This discussion will be incomplete if we talk of ticketing system without mentioning seat reservation. The essence of having a seat reservation is to reserve a seat for intending passenger who has asked us to do so to enable him travel from one place to another.

In making a reservation, some basic data are requested from the intending passenger, such data includes, the name of the customer, the destination city i.e where the passenger is going. In most cases, the duration of the available date (from one date to another is stated on the quarterly time table)for example, of the airline, if the passenger is traveling by air. All these form part of the requirement for the purchase of a ticket. The reservation clerk

checks the file to ensure whether a flight is available or not on that route. If flight is available, the reservation is made and all relevant information is collected from the intending passenger otherwise the reservation clerk reports to the intending passenger that there is no flight.

Major airlines may overbook services because of some passengers who otherwise would not be able to travel on their chosen flight. This is done to make provisions for other passengers to use the reservation.

Each airline has its mainframe computers which make the reservation using realtime system of processing. The computers run under transaction processing operating systems. Each reservation is made and the flight records updated as the reservation is entered at the terminal.

2.4.2 THE NEED FOR A COMPUTERISED AIRLINE TICKETING SYSTEM

The need for developing an airline system for Aero Contractors Nig Ltd. is very essential because the proposed system aims at improving the current ticketing system operating there in term of output generation. There is need to computerize those activities that currently

performed manually thereby increasing the rate of output generation.

The main objectives of the proposed project is to develop an effective ticketing system for the management of Aero Contractors Nig Ltd. This system aims at improving the communication system of ticket storage, analysis and retrieval of ticket records and files and other vital information concerning ticketing at Aero Contractors Nig Ltd. by computerizing the airline ticketing system there is possibility of adequate statistics of the customers to the airline. It is the aim of the proposed system to cover all information concerning customer's ticket.

Finally, the system aims at keeping an up-to-date records of monthly international and local cost report and offers the opportunity for easy and direct access to ticket records and ticket files.

CHAPTER THREE

DESIGN METHODOLOGY

3.1 PROBLEM DEFINITION

Problem definition defines the problem of the existing system. The project bounds, project goals and objectives to overcome the problems.

As a result of the feasibility study carried out in AERO Contractors Nig Ltd. Lagos, the bounds for this project includes the computerization of airline ticketing system with emphasis on the computation of ticket addition, amendment and deletion as well as computerized reports on monthly international and local travel costs.

As regards to the parts included in this system, the following problems are the setbacks of the existing system.

SLOW PROCESSING: Using the manual system, the customers have to queue up for the ticket to be issued. Besides, the money has to be counted thereby slowing the processing.

NO ROOM FOR EDITING: Editing with the manual system requires filling in a fresh ticket especially when the mistakes are many. This waste time and cost because money is used to print tickets which is wasted due to mistakes.

In view of the above disadvantages, the new system is aimed at giving room for editing, deleting, accuracy and amendment. With the introduction of computerized counting machines.

3.2 SYSTEM DESIGN

This is the stage where various system models are designed which would be used as alternative for solving the problem of the existing system. At this stage various system alternatives are designed for replacing the old system. The main activities undertaken in this phase includes: input design, output design which can be further analysed as follows:

3.2.1 INPUT DESIGN:

Inputs to the system are made through an input media which is the keyboard. The inputs are made in the new ticketing menu. Some of the inputs used by the modules of the entire program are given below:

a. Ticket Addition
   i. TCKADD.PRG

b. Database Files
   i. PASS.DBF
   ii. TICREC.DBF
   iii. TICFILE.DBF

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

3.2.2 OUTPUT DESIGN

The final output from the system is a report. The system produces two different reports:

a. Monthly International Travel Cost Report: this produces the total amount of money made on International route for a specific month and year.

b. Monthly Local Travel Cost Report: This also produces the total amount of money made on local route in a specific month and year. The reports can be produced both on screen (I.e viewing it on the screen) and hard copy in a form of printed document. The number of passengers that travel within the month by route.

3.2.3 FILE DESIGN

Various files by the system are identified in terms of the length of retention and frequency of updating. In order to have a good ticketing system in place, the file design must be effective. The files used in this system includes:

i. Database file with extension .DBF

ii. Program files with extension .PRG

The system consists of a main program called the master program. There is a main menu routine consisting of other seven sub-menu's or routines.

They are:

i. Setup Menu
ii. New Ticketing Menu
iii. Amendment Menu
iv. Report Menu
v. Print the Report Menu
vi. Delete Report Menu
vii. Exit Menu.

SETUP MENU: The setup menu available is for the system control the security which includes creating, changing and deleting passwords as well as backing up of files and restoring backup files form disk.

NEW TICKETING MENU

This procedure allows the user to make new entries of purchased tickets into the system. The system will ask for the ticket number, if provided a ticket purchased entry screen will appear with some information for the user to fill. Such information include customers name and initials, route [original /final destination], fare, departure date, arrival date and etc. if the ticket is a complementary

tickets "COMP" is entered instead of a ticket number.

AMENDMENT MENU

This allows the user to make amendments to purchased tickets. The system will ask for ticket number that will be amended, if provided a ticket purchased amendment screen will appear and the ticket can be amended.

REPORTS MENU

This allows the user to check the system for the records of monthly international travel cost reports. The system will ask for the particular month and year for the required report.

PRINT THE REPORT MENU

This will also show the records of the monthly local cost reports.

DELETE STALE TICKET MENU

This procedure allows the user to delete stale tickets from the system. The system will ask for the ticket number to be deleted if provided, a ticket purchased deletion screen will appear and the stale ticket can be deleted.

EXIT MENU

This menu allows the user to exit from the ticketing system by deactivating the main menu,

release the menu and reset the environment and take the user to DOS prompt.

3.3 SYSTEM PROCESSING AND CONTROL

Programs provided for the system processing include ticket addition, amendment and deleting as well as reports on the monthly international and local travel costs. The only feature available for the system control is the security which includes creating, changing and deleting passwords.

CHAPTER FOUR

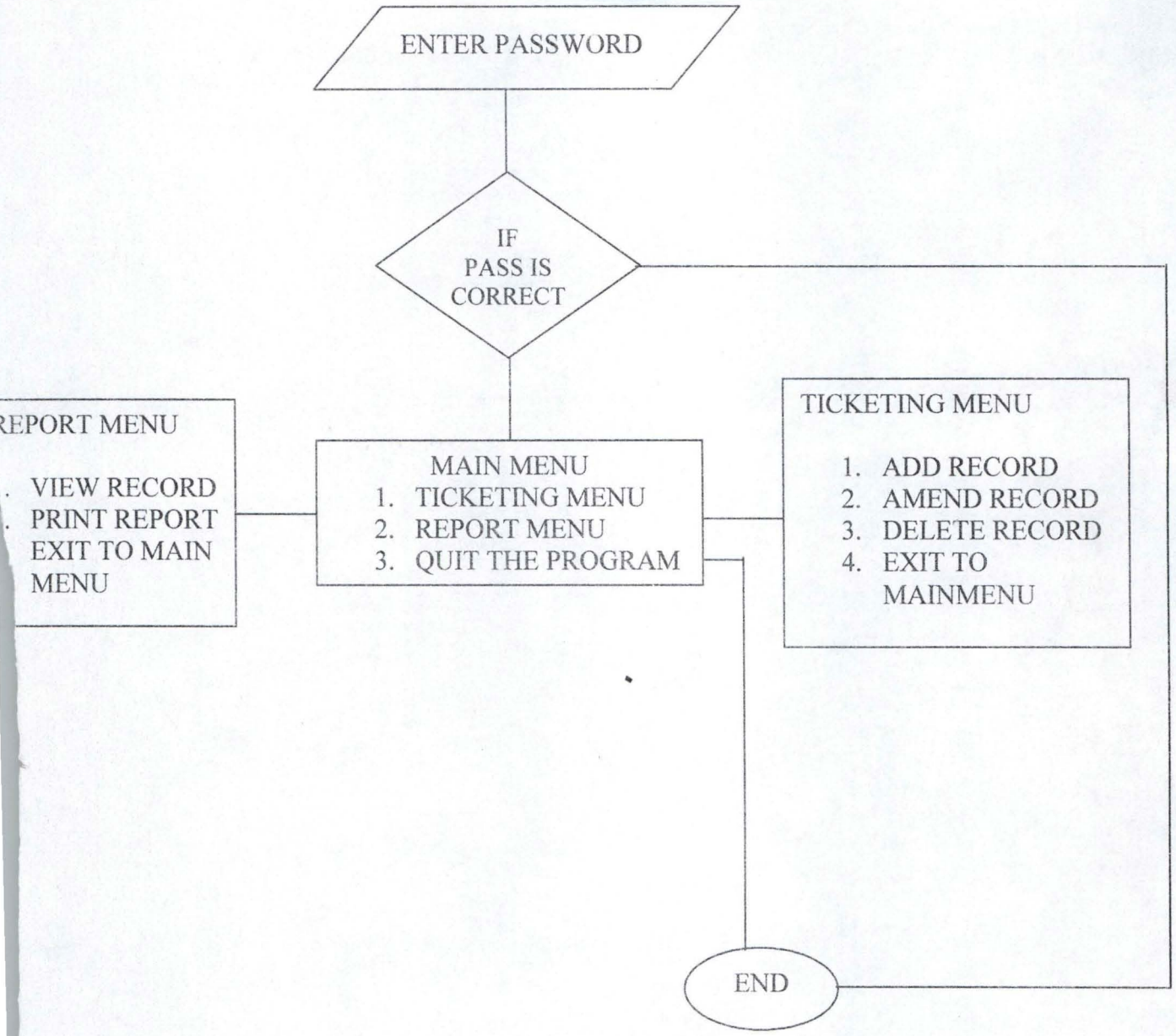
4.1 SYSTEMS ANALYSIS

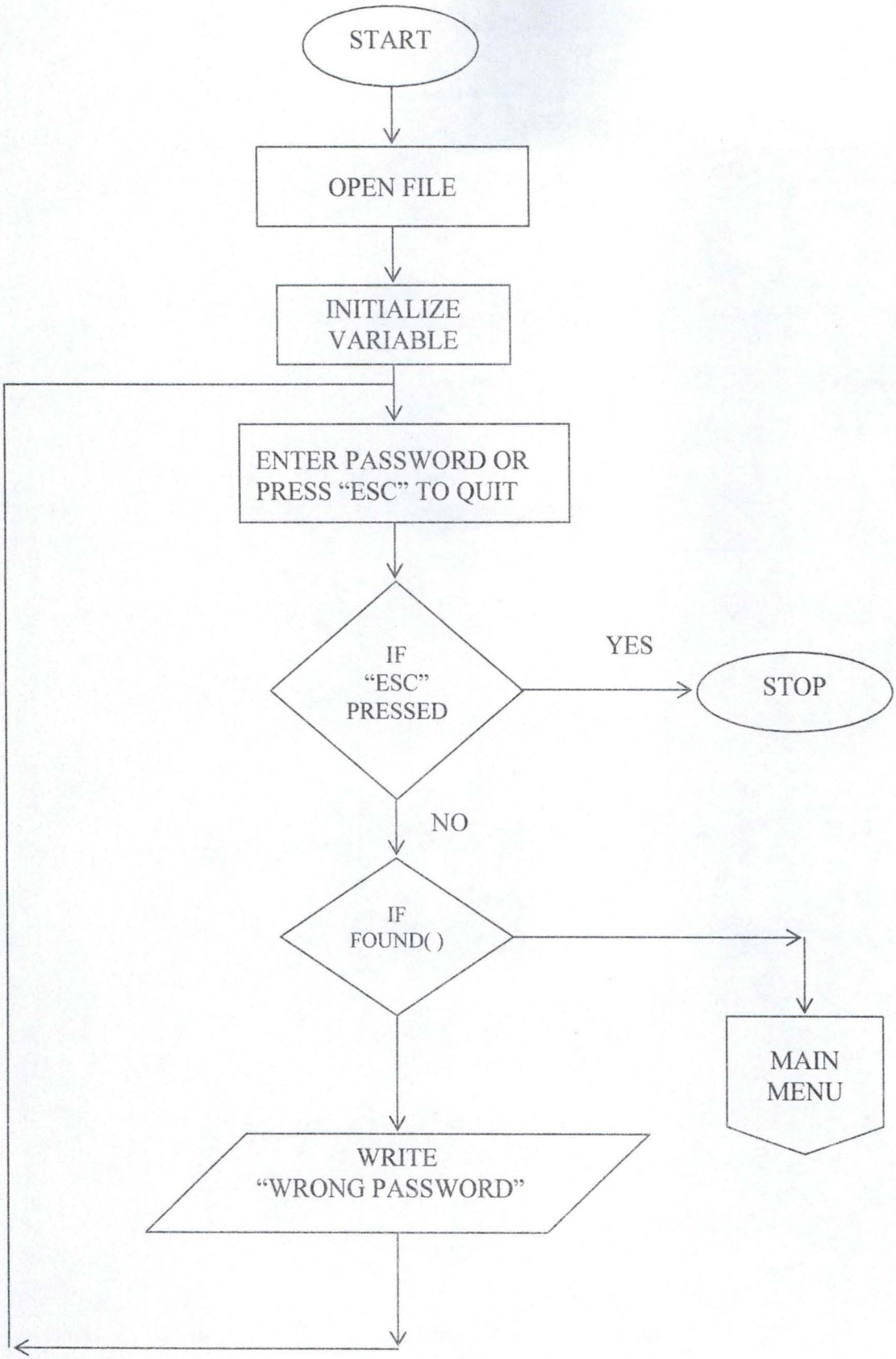
This is necessary to gain an understanding of the existing system. Thus, it analyses the facts gathered during feasibility study. In our bid to analyse the facts gathered and set way for the new system, the system flow chart for the new system is given below.

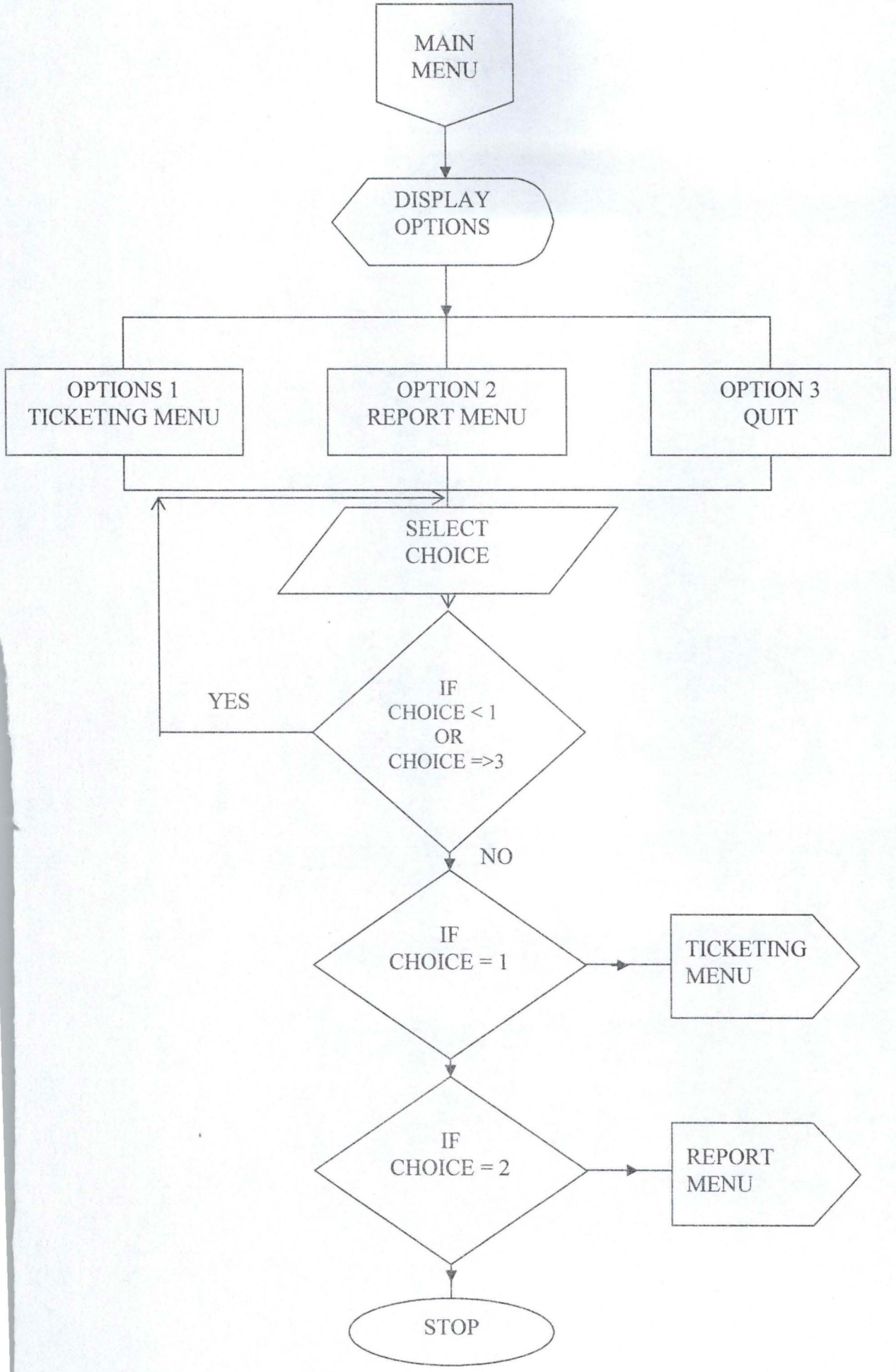
The setup menu provides security for the system control which includes creating, changing, and deleting passwords. This new ticketing menu involves the amendment of purchased tickets. The report menu contains the monthly records of local and international travel costs reports. The deletion of stale tickets is also included in this menu and finally the exit menu which allows the user to exit from the main menu.

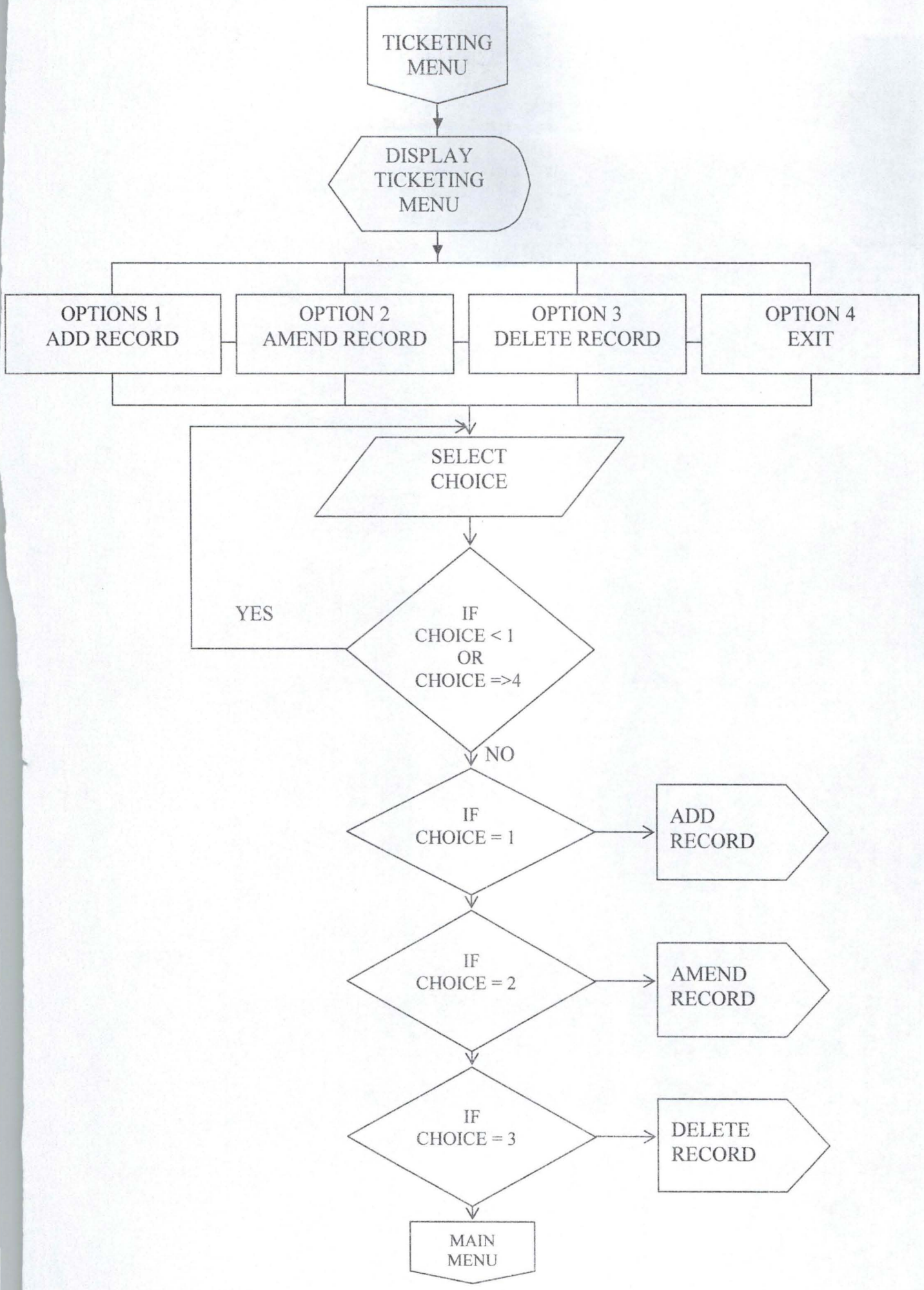
4.1.1 PROGRAM FLOWCHART

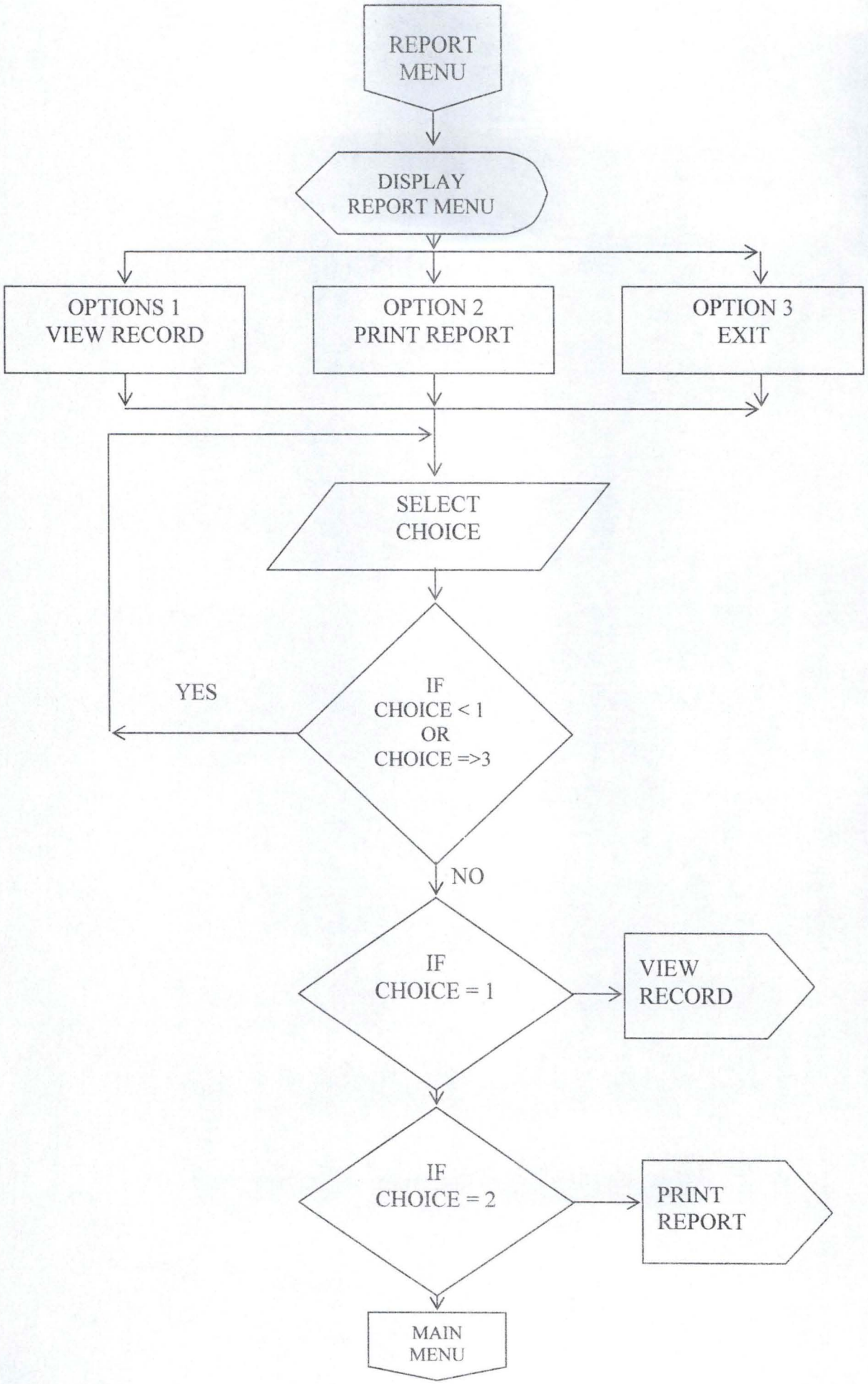
PROGRAM DESIGN CHART

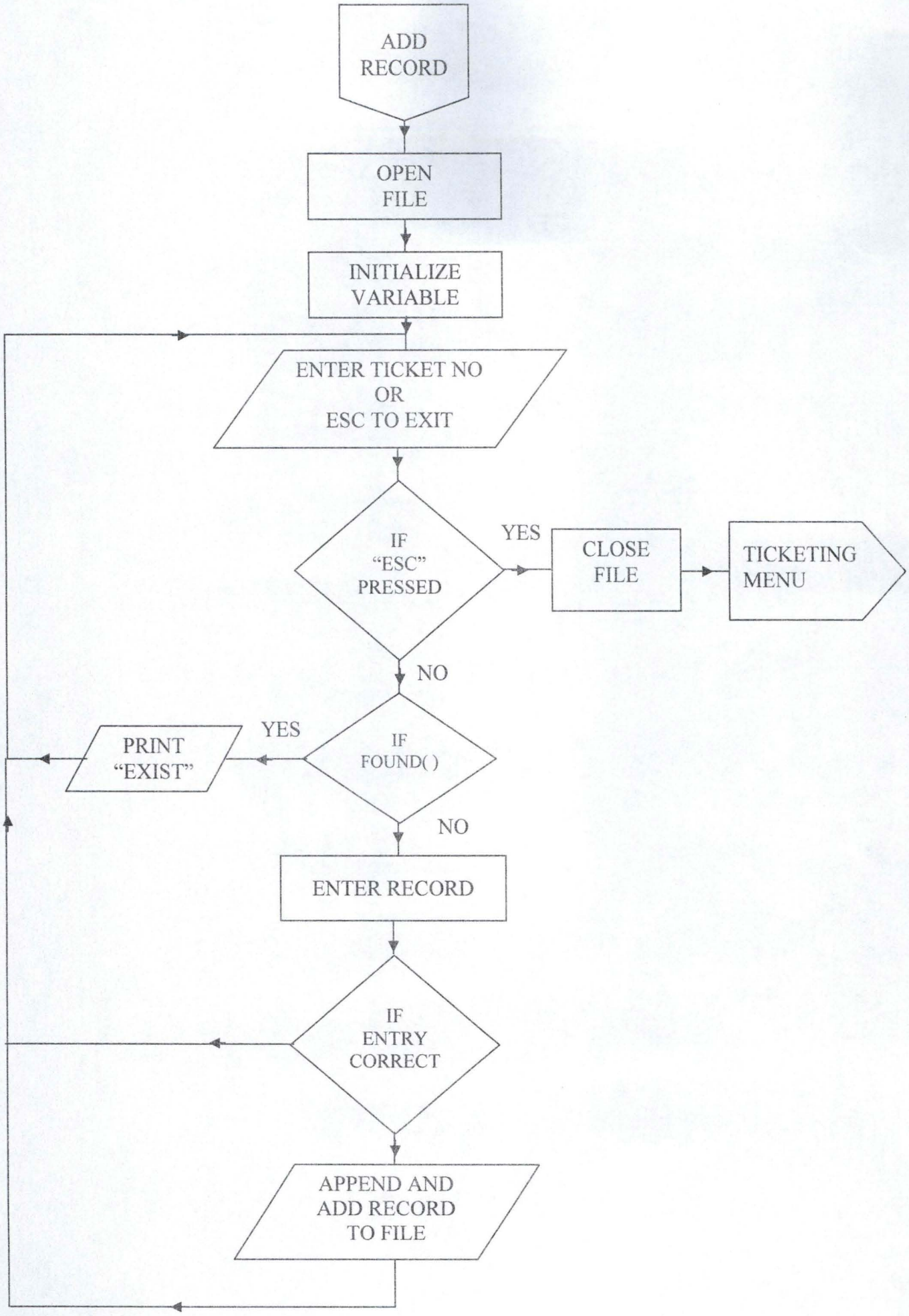


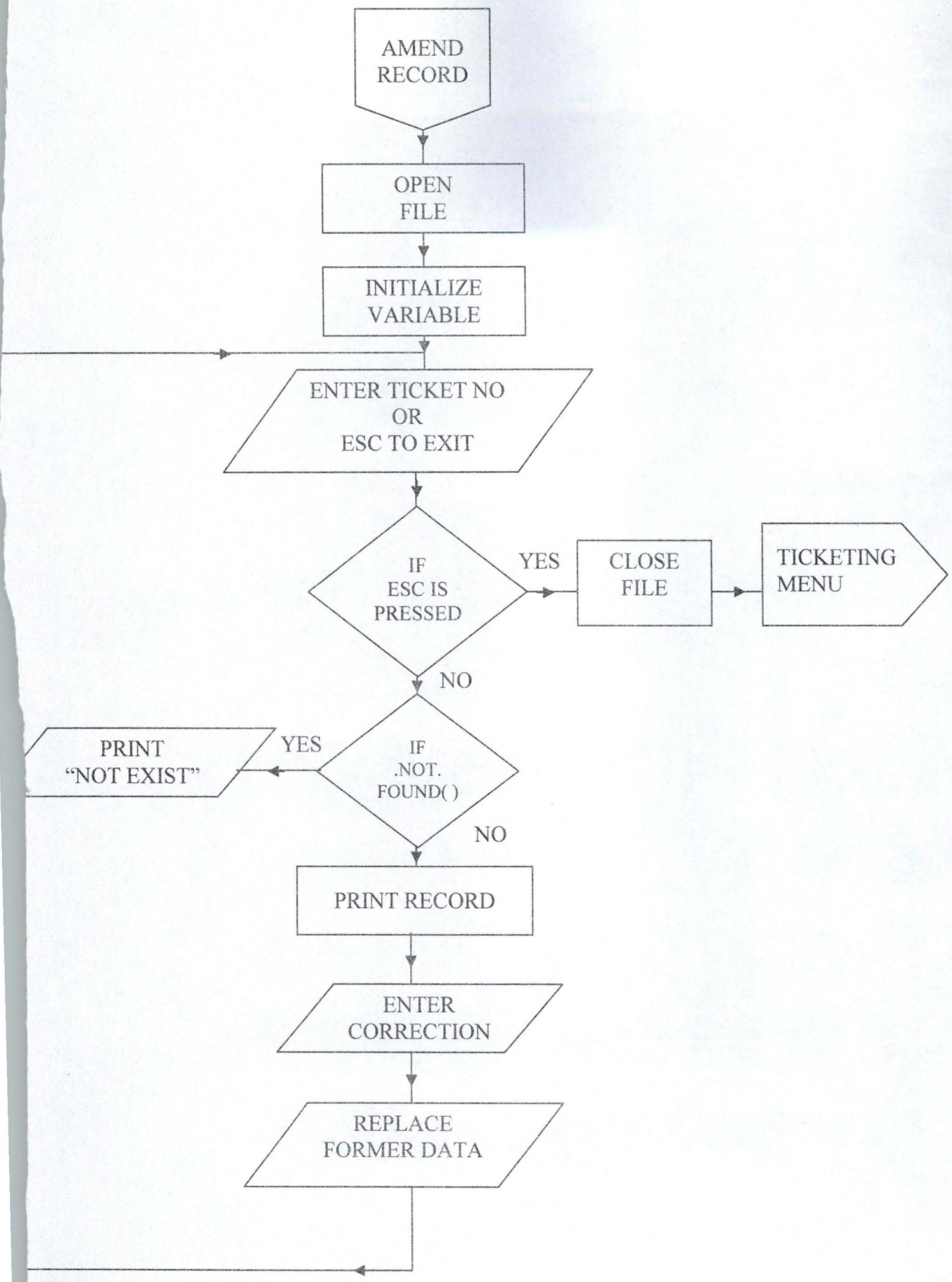

START
OPEN FILE
INITIALIZE VARIABLE
ENTER PASSWORD OR PRESS "ESC" TO QUIT
IF "ESC" PRESSED
YES
STOP
NO
IF FOUND( )
MAIN MENU
WRITE "WRONG PASSWORD"

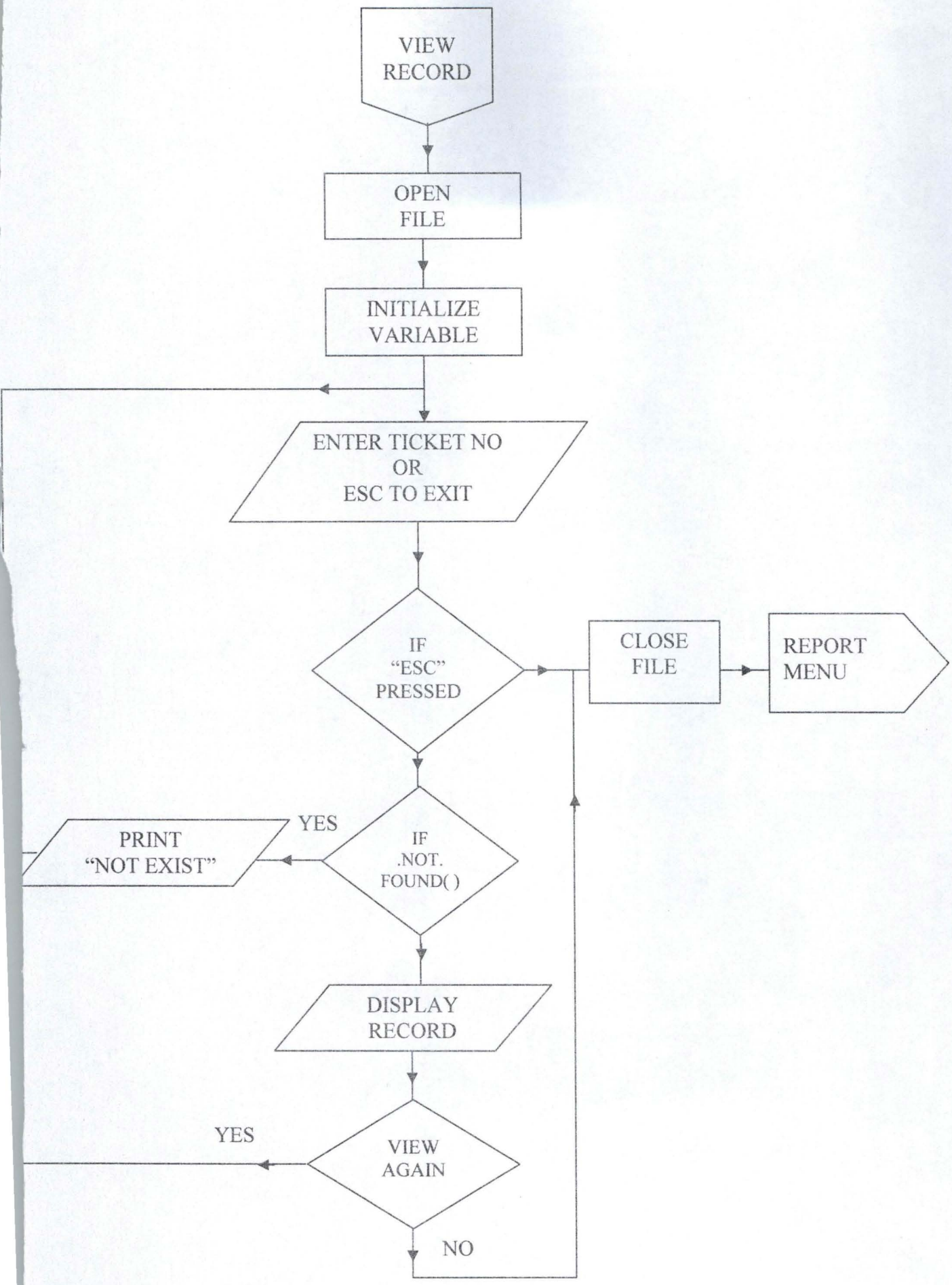

MAIN MENU
DISPLAY OPTIONS
OPTIONS 1 TICKETING MENU
OPTION 2 REPORT MENU
OPTION 3 QUIT
SELECT CHOICE
IF CHOICE < 1 OR CHOICE =>3
YES
NO
IF CHOICE = 1
TICKETING MENU
IF CHOICE = 2
REPORT MENU
STOP

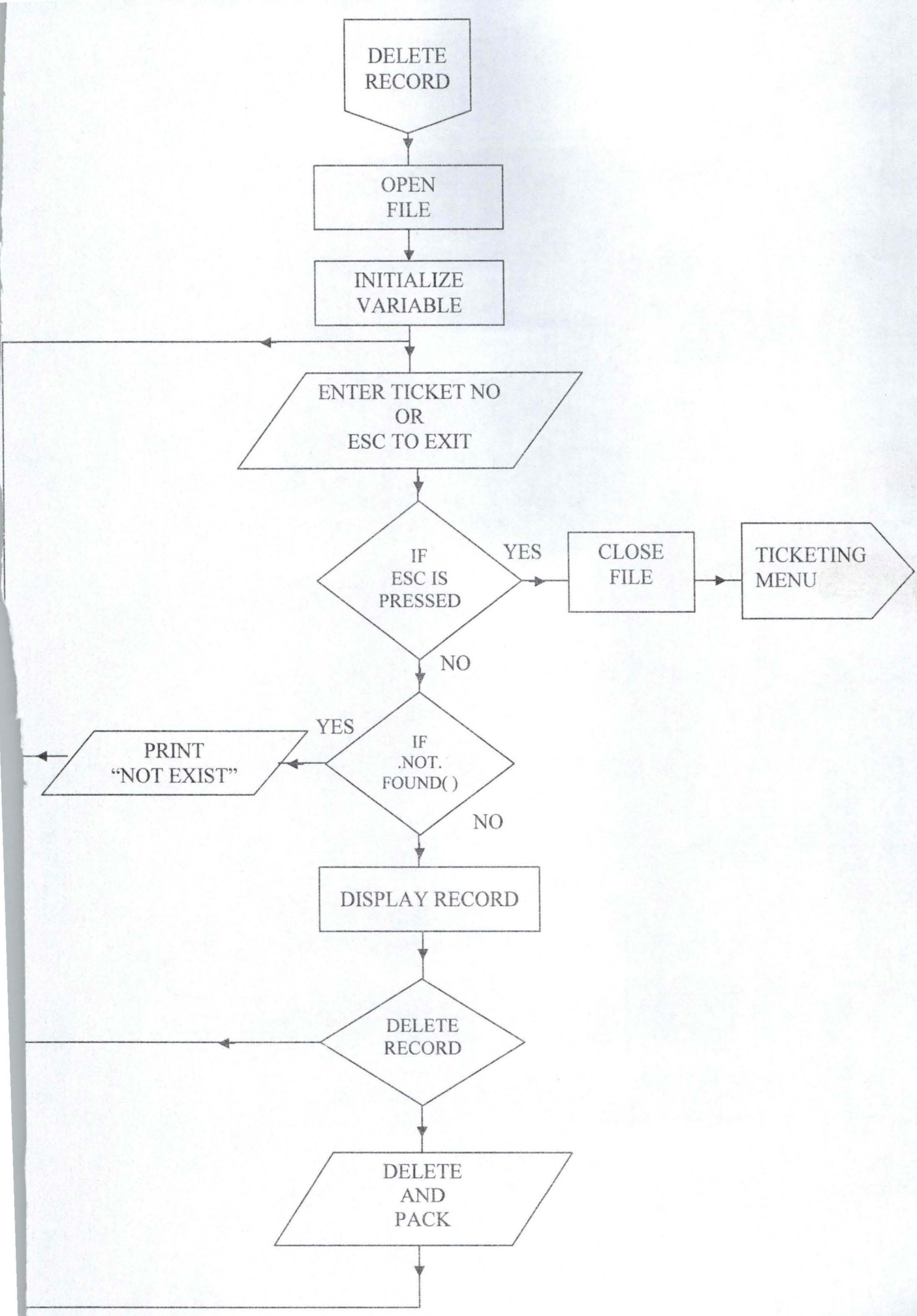

TICKETING MENU
DISPLAY TICKETING MENU
OPTIONS 1 ADD RECORD
OPTION 2 AMEND RECORD
OPTION 3 DELETE RECORD
OPTION 4 EXIT
SELECT CHOICE
YES
IF CHOICE < 1 OR CHOICE =>4
NO
IF CHOICE = 1
ADD RECORD
IF CHOICE = 2
AMEND RECORD
IF CHOICE = 3
DELETE RECORD
MAIN MENU

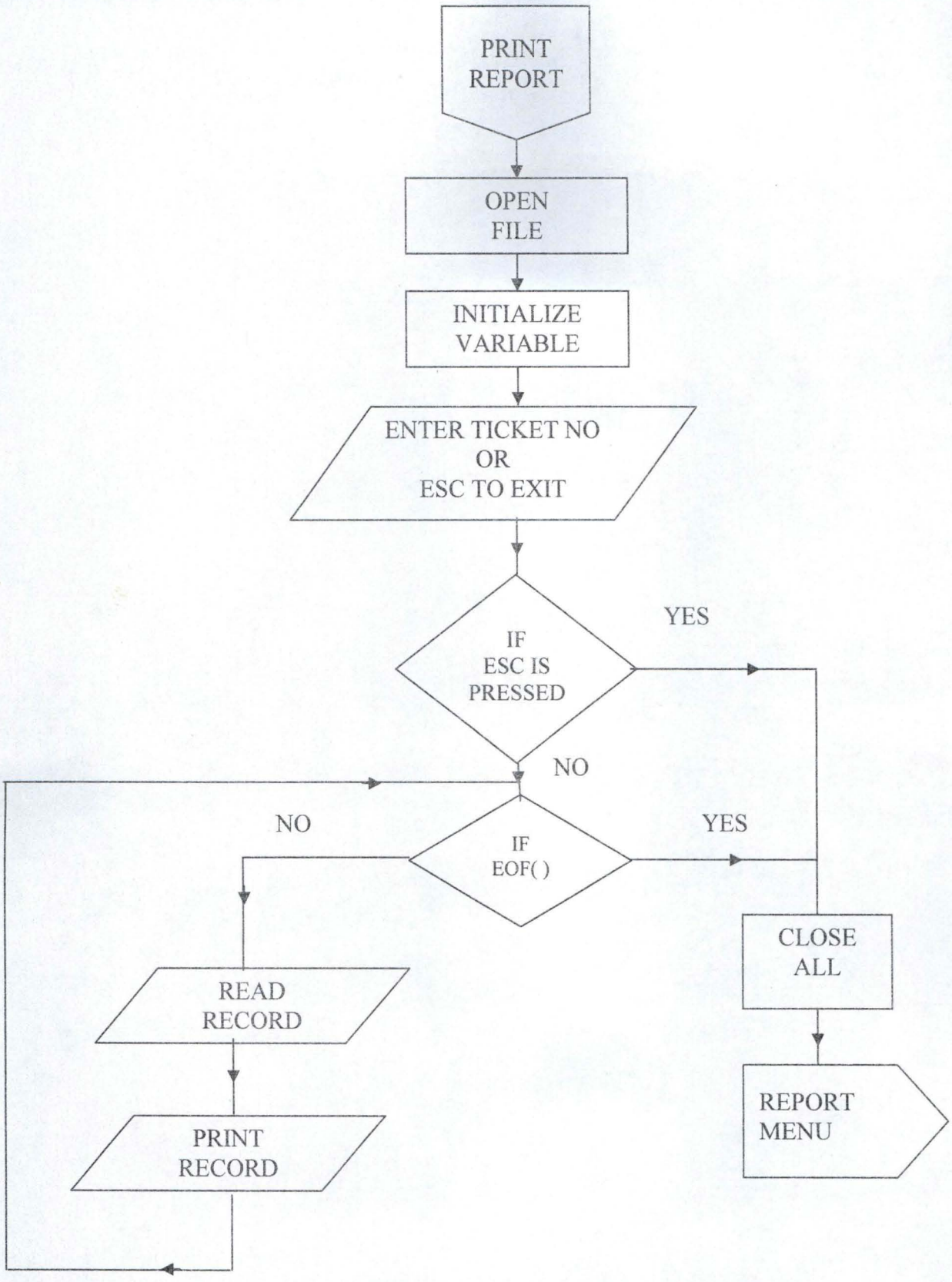

REPORT MENU
DISPLAY REPORT MENU
OPTIONS 1 VIEW RECORD
OPTION 2 PRINT REPORT
OPTION 3 EXIT
SELECT CHOICE
IF CHOICE < 1 OR CHOICE =>3
YES
NO
IF CHOICE = 1
VIEW RECORD
IF CHOICE = 2
PRINT REPORT
MAIN MENU


ADD RECORD
OPEN FILE
INITIALIZE VARIABLE
ENTER TICKET NO OR ESC TO EXIT
IF "ESC" PRESSED
YES
CLOSE FILE
TICKETING MENU
NO
IF FOUND( )
YES
PRINT "EXIST"
NO
ENTER RECORD
IF ENTRY CORRECT
APPEND AND ADD RECORD TO FILE


AMEND RECORD
OPEN FILE
INITIALIZE VARIABLE
ENTER TICKET NO OR ESC TO EXIT
IF ESC IS PRESSED
YES
CLOSE FILE
TICKETING MENU
NO
PRINT "NOT EXIST"
YES
IF .NOT. FOUND( )
NO
PRINT RECORD
ENTER CORRECTION
REPLACE FORMER DATA


VIEW RECORD
OPEN FILE
INITIALIZE VARIABLE
ENTER TICKET NO OR ESC TO EXIT
IF "ESC" PRESSED
CLOSE FILE
REPORT MENU
YES
PRINT "NOT EXIST"
IF .NOT. FOUND( )
DISPLAY RECORD
YES
VIEW AGAIN
NO


DELETE RECORD
OPEN FILE
INITIALIZE VARIABLE
ENTER TICKET NO OR ESC TO EXIT
IF ESC IS PRESSED
YES
CLOSE FILE
TICKETING MENU
NO
IF .NOT. FOUND( )
YES
PRINT "NOT EXIST"
NO
DISPLAY RECORD
DELETE RECORD
DELETE AND PACK


PRINT REPORT
OPEN FILE
INITIALIZE VARIABLE
ENTER TICKET NO OR ESC TO EXIT
IF ESC IS PRESSED
YES
NO
IF EOF( )
NO
YES
READ RECORD
PRINT RECORD
CLOSE ALL
REPORT MENU

4.1.2 DATAFLOW

PROGRAM

Setup {Create password for New Operator}
{Change password for existing operator}
{Delete password for unwanted operator}

New Ticketing {Staff Number Enter records 'Comp'}
{Title}
{Surname}
{First Name}

Amendment {Ticket Number [Amend Records]}

Reports {Print month and year for Monthly International Travel Cost Report}

Print the Reports {Print month and year for monthly Local Travel Cost Report}

Delete Stale Tickets {Ticket Number [Delete Records]}

Exit

4.2 TEST RUNNING

A computerized system developed without testing to ascertain its functionality is bound to fail at any given time. It is in view of the above opinion that we consider it necessary to give out the basic commands and logics used for repetitions, decision making, branching and operations carried out in the system. When the program encounters the loop command, program execution is transferred to the previous DO WHILE command. Decision making on the other hand is achieved by the IF.....THEN .....ELSE .....ENDIF - combination for single and double choices, and the DO CASE ...ENDCASE combination or multiple choices.

The only command that makes it possible for branching is the DO command which is used to branch to subroutines and procedures. In addition, the coding of the system is done using the top-down (modular programming) approach which allows the whole problem to be broken into smaller ones, run both individually and collectively as well as making debugging easier with modules could be accessed individually.

4.3 SYSTEM AND DATA 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 and dummy terminals through which entries could be made into the ticketing system.

Preserving the integrity of data implies the safeguarding of the data from malicious or erroneous tampering and faulty equipment. The emphasis in integrity provisions is on preserving all of the data and changes to the data so that database can be reconstructed in case of partial or total destruction. This is made available in the developed system with provision of a backup system that helps in restoring damaged or lost data, the programs are also duplicated to ensure that there is maximum security.

System and Data Integration involves the testing of individual modules making sure that each is performing accordingly and joining them together to see if they can work as one.

4.4 DOCUMENTATION

The major importance of this system is to take care of ticketing system for Aero Contactor Nig Ltd. Apart from issuing tickets to customers, it generates vital information as well.

As regards to file attributes, it is only the ticket file and ticket record file that are randomly organized. The volume is fairly large and the frequency of use is very high. The volume of other files are relatively small and their frequency of use is fairly high.

4.4.1 FILING SYSTEM

The programming language used in coding the system is DBASE IV. Though not the only programming language that can be used for this type of application, it was chosen for the fact that it gives room for database definitions and management. The addition, amendment and deleting facilities are some of the features that encouraged the use of this package. Apart from the database definition feature which enables the user to create the structure of the database, the entry and modification features also give room for entering and modifying records. Other features include data sorting and searching which makes possible for rearranging and searching records respectively. The report generation feature enables the user to print records in a useful manner.

Major components of DBASE IV programming language are as follows:

DATABASE FILES: The database stores all transaction and master records of any system and the records could be accessed, used and updated as the need arises.

PROGRAM FILES: These are programs written to instruct the system on what to do at a particular time. They are executed when called by the DOCASE command. The list of database files used in this system are given below.

AIRWAY.DBF: This contains airline code, name and type.

PASS.DBF: This stores username and password for the security of the system. For access to be granted to any user, the system has to check if the user is existing in the database.

TICFILE.DBF: This is the ticket file for passengers. This forms the database for every passenger purchasing ticket for the first time from this airline.

TICREC.DBF: This is the ticket file for passengers. This forms the database for all passengers that have traveled with the airline.

TKDFYCIA.DBF: This is the report of International Airlines monthly travel costs.

TKDFYCLA.DBF: This is the report of Local Airlines monthly travel costs.

TKDFMCIA.DBF: This is file of International Airlines in Nigeria.

TKDFMCLA.DBF: This id file of Local Airlines in Nigeria.

TKDFMFCM.DBF: This is the file of non-naira tickets.

AAA.PRG: This is the program for the control center.

KHUN.PRG: This displays the welcome screen.

SSS.PRG: This is the main menu program.

TCKADD.PRG: This is used to add new records to the system.

TKAMD.DRG: This is used to amend the records to the system.

TCKDEL.PRG: This is used to delete stale records form the system.

BORDER.PRG: This designs the border of the screen of the system.

DDD.PRG: This is the program for the setup menu.

CREPAS.PRG: This creates a password for a user in the system in order to gain access to it.

CHAPAS.PRG: This helps the users to change their passwords.

DELPAS.PRG: This is used to delete or remove previously created passwords from the system.

4.5 USER DOCUMENTATION

The user documentation guides the user in using the new system. The computer system must be switched and allowed to display the DBASE IV dot prompt. The DO command is used to start the system. At first, the security control center

appears and ask for user password. If access is given to the system, the introductory aspect come up which introduces the system and then the main menu.

There are seven basic functions that can be performed on the screen, i.e Setup, Ticketing, Amendment Reports, Print the Delete Stale Tickets and exit. If the amendment menu is chosen at the main menu, the ticket purchased amendment screen comes into view and the user is allowed to enter the ticket number to be amended. If the Report menu is chosen, the ticket report printing screen for the monthly international travel cost comes into view and this allows the user to enter the required month and year of his choice. The exit menu if chosen, allows the user to exist from the system.

4.6 SYSTEM IMPLEMENTATION

System implementation is the final stage where the designed system is put into use. However, it includes the training of staff, the change over procedure from the old system to the new system, the methodology of running the new system and maintenance of the system.

In the new system, a ticket is issued by a ticket officer or clerk by entering the ticket number, passenger's name and initials, route (origin/destination) fare, status, carrier, amount of luggage, departure time, date of ticket issued, and other information on the computer and the computer prints all these information on the ticket. This makes it impossible to issue a customer two tickets because the system must record that the ticket is accepted if there is no reprint after 60 seconds.

The main activities under implementation are: writing and debugging all computer programs; creating master files; preparing documentation for data processing and user department; Acquiring all the necessary equipments, stationery; training data processing and user department staff to use the system; supervision of phasing in of the system part; Testing and providing of all parts of the system; Anticipation and handling of psychological reaction; and Adhering to time schedule.

In order to effectively implement the new system designed, there is need to have a good computer network in place in order to reduce the level of the airline ticketing system.

Various implementation methods exist but the one recommended for this system is a parallel run implementation in which both the old and the new systems are operated concurrently, for sometimes. The old system is used until the new system is proven to be satisfactory. When the new system is fully checked and okayed, the old system can be abandoned.

4.7 THE LANGUAGE USED

Dbase iv is the programming language used because of its user friendliness, its ability to perform modular programming, its menu driven facilities, its efficiency in manipulating files and its high level of data management and data security. Some of the importance of Dbase is as follows:

i. Flexibility: Since the data is stored in the dbase, the user should have a great deal of retrieval flexibility. It should be easy to link data from various files together.

ii. Reduction of Data Duplication: Since the data base will be used by multiple users, it must allow for the reformatting of the same master file for the various users so that there is a reduction of data duplication. This also increases the data integrity in the dbase.

iii. Data Independence: Since not every user will want to access the data in the same manner, there must be a high level of data independence.

iv. Processing of data: Two basic operations are performed when processing data. They are retrieval and maintenance data.

a. Retrieval of Data: This refers to reading data from files so that it can be used by the user for any purpose such as writing data on a line printer, displaying data on a visual Display Unit [VDU] screen or retrieving data for use in some type of computation.

b. Maintenance of Data: Maintenance of data refers to updating and changing the data in the master files. It includes three basic operations.

i. Adding new records

ii. Deleting obsolete existing records

iii. Modifying values stored in currently existing records.

SYSTEM DEVELOPMENT AND IMPLEMENTATION

This system development and implementation phase is generally the most complex segment in the process of creating a new segment.

The phase begins with an accepted conceptual design approach and perhaps even an agreement to acquire new hardware, software or application packages. It ends with a completely developed new system that has been thoroughly tested and prepared for implementation.

CHAPTER FIVE

FINDINGS

5.1 SUMMARY

Computerization in an organisation is carried out with the hope of eliminating or reducing to certain minimum level the application or use of manual method in carrying out its activities.

It is also done with the sole aim of improving the speed, accuracy and efficiency in collecting manipulation, storage, reporting and dissemination of data.

Total computerization of the entire airline services should be vigorously pursued and achieved at the shortest time possible. Indeed, with automation, reports can be generated in good time, thus enabling the staff particularly the management to take quick decision over their financial obligations.

5.2 PROBLEMS ENCOUNTERED

In all works of life, a lot of problems are encountered in the course of carrying out a project work like this. The major problem was the difficulty faced in having all the necessary computer facilities at my disposal. The time

limit was another limitation, getting the whole information needed at my disposal an going from one office to another interviewing different ticketing officers for information was another set back.

5.3 FINDINGS

The whole activities of airline operation is a very complex one in that different departments that are involved, such as personnel, accounts, technical, operations, just to mention but a few. I observed that Aero Contractors Nig Ltd engages in other activities as regards their various offices in Lagos, Warri and Port-Harcout as well as abroad. Since the company operates charter for oil companies and oil servicing companies, I feel there is great need for them to invest and improve more on their ticketing system so as to enhance their services to customers.

5.4 RECOMMENDATION

Having an effective and a reliable ticketing system in an airline orgainisation is very essential to enhance efficiency and good customer relationship in the airline business. Success to a very large extent depends on the level of patronage while patronage itself depends on the level of reliability of the airline.

If customers get prompt attention, level of patronage will definitely increase. Also it should be taken into consideration when a passenger has traveled with a particular airline up to a certain period of time should attract a free ticket or a discount as a compensation which will increase the moral of the passenger. And this can only be achieved by having an integrated database records of ticketing system which be accessed on-line.

5.5 SUGGESTION FOR FUTURE STUDY

As I have already said in the part of this project, the scope of this work actually centred on ticketing, that is, the issuance of tickets to customers, there is need to improve on this work and some other areas that were not discussed in details for future study. Such areas include on board services for customers, departure check-in activities, unaccompanied minors etc, all these are part of the basic functions of any airline organisation.

It is suggested that a future study on this work should include all the areas mentioned above in order to a more interesting and dynamic system in operation. Other areas that can be modified include the miles flown, average day of the week, reports on daily or weekly travel cost, etc.

5.6 CONCLUSION

There is no doubt that an overview of the whole project has achieved its aims and objectives. In conclusion, I believed that in order to effectively implement the new system, there is need to have a good computer network in-place. This need is justified because it increases the level of reliability of the ticketing system. A good network shows that tickets are issued on the basis of first come first serve. Better co-ordination of ticketing activities are the instant recording of entries into the system as they are generated and the output is equally instant.

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TICKET.DBF

NUM	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1.	PERGNAME	CHARACTER	30		N
2.	TIKET_NO.	CHARACTER	10		N
3.	AIRLINECORD	NUMERIC	3		N
4.	TCKROUTE	CHARACTER	28		N
5.	TICKET DATE	DATE	8		N
6.	DEPDATE	DATE	8		N
7.	ARDATE	DATE	8		N
8.	AMOUNT	NUMERIC	10	2	N
9.	REASON	CHARACTER	14		N
10.	ENTRYDATE	DATE	8		N
11.	USEDROUTE	CHARACTER	27		N
12.	REF STATUS	CHARACTER	8		N
13.	REF AMOUNT	NUMERIC	8	2	N
14.	REFAMARK	CHARACTER	18		N
15.	ORIGIN STATE	CHARACTER	12		N
16.	USER NAME	CHARACTER	30		N
17.	INV_NO.	CHARACTER	12		N
18.	INV_DATE	DATE	8		N
19.	DATE_SAW	DATE	8		N
20.	REPORTED	CHARACTER	1		N
21.	REF_REASON	CHARACTER	14		N
22.	REMARK	CHARACTER	18		N

PASSWORD.DBF

NUM	FIELDNAME	FIELDTYPE	WIDTH	DEC	INDEX
1	USERNAME	CHARACTER	30		N
2	PASS	CHARACTER	5		N

ARCORD.DBF

NUM	FIELDNAME	FIELDTYPE	WIDTH	DEC	INDEX
1	AIRLINECODE	CHARACTER	3		N
2	AIRLINE	CHARACTER	25		N

```
* * * PROGRAM PASSWORD * * *
* * * AUTHOR N. JESSICA * * *
        SET CONSOLE OFF
        SET SCORE BOARD OFF
        SET STATUS OFF
        SET HEADING OFF
        SET CENTURY ON
        USE PASSWORD
        STORE SPACE (S) TO PASSNO
@ 4, 10 TO 21, 68 Double color BG+
@ 6, 30 SAY "THIS SYSTEM" COLOR BG+/B
@ 8, 29 SAY "IS DESIGNED" COLOR BG+/B
@ 10, 33 SAY "BY" COLOR BG+/B
@ 13, 20 SAY "NWABUEZE JESSICA" COLOR BG+/B
@ 15, 15 SAY "DEPARTMENT OF MATHS / COMPUTER SC." COLOR BG+/B
@ 17, 15 SAY "FEDERAL UNIVERSITY OF TECHNOLOGY MINNA" COLOR BG+/B
@ 22, 15 SAY "PRESS ANY KEY TO CONTINUE" COLOR BG+B
        X = Inkey (0)
        CLEAR
        DO WHILE .T.
@ 10, 19 TO 12, 63 DOUBLE COLOR BG+
        SET COLOR TO BG+/B, N
@ 11, 21 SAY, "ENTER PASSWORD OR ESC KEY TO QUIT"
@ 11, 57 GET PASSno pict "!!!!!!!"
        READ
        SET COLOR TO
        IF lastkey () =27
        CLOSE ALL
        CLEAR
        QUIT
        ENDIF
        Locate for pass = passno
```

```
        IF FOUND ()
        Clear
        EXIT
        ENDIF
@ 11, 21 CLEAR TO 11, 62
     ?? CHR (7)
@ 11, 21 SAY "WRONG PASSWORD" COLOR BG+/B
@ 21, 10 SAY, "PRESS ANY KEY TO TRY AGAIN"
        CLEAR
        ENDIF
        CLOSE ALL
        DO MAINMENU
        RETURN
* * * PROGRAM MAIN MENU * * *
* * * AUTHOR N.  JESSICA * * *
        SET SCORE BOARD OFF
        SET HEADING OFF
        SET STATUS OFF
        SET CLOCK TO 7, 57
        SET HOUR TO 12
        SET CONSOLE OFF
        DO WHILE. T.
        Choice=0
@ 4, 20 TO 21, 68 double color BG+
@ 6, 26 SAY "NIGERIAN AIRSACE COMPUTERIZATION" COLOR W+|BG
@ 8, 58 SAY "DATE" COLOR G+
@ 8, 58 SAY "DATE () COLOR G+
@ 16, 21 SAY REPLICATE ("*", 46) COLOR W+
@ 12, 35 SAY "MAINMENU" COLOR W+* / RB
@ 14, 32 SAY "1. TICKETING MENU" COLOR W+/ BG
@ 16, 32 SAY "2. REPORT MENU" COLOR W+ /BG
@ 18, 32 SAY "3. QUIT THE PROGRAM" COLOR W+/| BG
```

```
@ 19, 25 SAY "ENTER CHOICE" COLOR W+/| BG
@ 19, 48 SAY "GET CHOICE PICT "@Z9";
        Range 1, 3;
        VALID CHOICE > = 1. AND. CHOICE < =4
        ERROR "CHOICE MUST BE BETWEEN 1 - 3";
        MESSAGE "ENTER CHOICE"
        READ
@ 19, 25 CLEAR TO 19, 56
        SET MESSAGE TO
        IF CHOICE= 1
@ 12, 30 CLEAR TO 20, 60
        DO TICKPRO
        ENDIF
        IF CHOICE = 2
@ 12, 30 CLEAR TO 20, 60
        DO REPT PRO
        ENDIF
        IF CHOICE = 3
        CLOSE ALL
        QUIT
        ENDIF
        ENDDO
        RETURN
* * * PROGRAM TICKPRO * * *
* * * AUTHOR N. JESSICA * * *
        DO WHILE. T.
        STORE O TO CHOICE
@ 12, 30 SAY, "TICKETING MENU" COLOR W+/RB
@ 14, 25 SAY "1 .ADD NEW RECORD" COLOR W+/BG
@ 15, 25 SAY "2. AMEND RECORD" COLOR W+/ BG
@ 16, 25 SAY "3. DELETE RECORD" COLOR W+/BG
@ 18, 25 SAY "4 .EXIT TO MAINMENU" COLOR W+/BG
```

```
@ 20, 25 SAY "ENTER CHOICE " COLOR W+/BG
@ 20, 40 SAY "GET CHOICE PICT "@ Z9"
        Range 1, 4;
        Valid CHOICE > = 1. AND. CHOICE < =4;
        ERROR "CHOICE MUST BE BETWEEN 1 - 4;
        MESSAGE "ENTER CHOICE"
        READ
        IF CHOICE = 1
@ 4, 20 CLEAR TO 21, 68
        DO TICKADD
        ENDIF
        IF CHOICE = 2
@ 4, 20 CLEAR TO 21, 68
        DO TICKAME
        ENDIF
        IF CHOICE = 3
@ 4, 20 CLEAR TO 21, 68
        DO TICKDEL
        ENDIF
        IF CHOICE = 4
        EXIT
        ENDIF
        ENDDO
        CLEAR
        CLOSE ALL
        RETURN
* * * PROGRAM REPORT * * *
* * * AUTHOR N. JESSICA * * *
        DO WHILE .T.
        STORE O TO CHOICE
@ 12, 30 SAY "REPORT MENU" W+ /RB
@ 14, 25 SAY "1.VIEW RECORD" COLOR W+/BG
```

```
@ 15, 25 SAY "2.PRINT RECORD" COLOR W+/BG
@ 16, 25 SAY "3. EXIT TO MAINMENU" COLOR W+/BG
@ 19, 25 CLEAR TO 19, 30
@ 20, 25 SAY "ENTER CHOICE" COLOR W+/BG
@ 20, 40 GET CHOICE PICT "@ Z9";
        RANGE 1, 3;
        VALID CHOICE > = 1. AND. CHOICE < =3;
        ERROR "CHOICE MUST BE BETWEEN 1- 3";
        MESSAGE "ENTER CHOICE";
        READ
        SET MESSAGE TO
        IF CHOICE = 1
@ 4, 20 CLEAR TO 21, 68
        DO VIEPPO
        END IF
        IF CHOICE = 2
@ 4, 20 CLEAR TO 21, 68
        DO PREPRO
        ENDIF
        IF CHOICE = 3
        EXIT
        ENDIF
        ENDDO
        CLEAR
        CLOSE ALL
        RETURN
* * *AUTHOR JESSICA N. * * *
        CLEAR
SET SCORE BOARD OFF
SET SAFETY OFF
SET ESCAPE ON
SET STATUS OFF
```

```
SET HEADING OFF
SET CENTURY ON
        USE TICKET
        INDEN ON TICKET_NO TO TIC. NDX
        CLEAR
        DO WHILE. T.
STORE SPACE (40) To Mpergname, Ticket_No, Niktrout Reason,
STORE SPACE (40) TO musedroute, mretamark, moriginstate,
STORE SPACE (40) to musensame, mino_no, mreported, mref_reasonmre, mchoice
STORE O TO mairtinecode, mamount, mretamount,
STORE C TO D (" /   /  ") TO mticketDate, mDepdate, mardate, mentryDate, m1no_Date;
        mDate_saw
@ 1, 5 to 22, 68 Double
@ 3, 27 SAY "ENTER RECORDS" COLOR W+/BG
@ 4, 26 SAY "AIRLINE RECORD" COLOR W+/BG
@ 6, 25 TO 8, 40 DOUBLE COLOR G+
@ 9, 10 SAY "ADD RECORD "COLOR W+*/ BG
@ 9, 10 SAY "ENTER TICKET NO....ESC TO EXIT" COLOR BG+/B
@  9, 42  GET  M TICKET_NO  PICT  "@ Z9999999999' ;
MESSAGE  "ENTER  TICKET  NO"
        READ
        SET MESSAGE TO
        Mlast key =lastkey()
         1F Lastkey() =27
        Clear
        Exit
        Endif
        Seek mTicket_No
        If Found( )
        ?? CHR(7)
@ 10, 10 SAY "THIS TICKET ALREADY USED"
@ 12, 12 SAY "PRESS ANY KEY TO CONTINUE"
```

```
        X = INKEY(0)
        CLEAR
        LOOP
        ENDIF
* * * ENTER RECORDS NOW * * *
@ 9, 10 CLEAR TO 10, 67
@ 9, 6 SAY "TICKET NUMBER" COLOR BG+/B
@ 9, 15 SAY mticket_no Pict "99999999999" color w+
@ 10, 6 SAY "PASSENGERS NAME" COLOR BG+/B
@ 10, 20 SAY GET mpergname Pict "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" color /w+
@ 10, 52 SAY "TICKET DATE" COLOR /W+
@ 10, 64 SAY GET mTicketDate Pict "99/99/9999" color /w+
@ 11, 6 say "TICKET ROUTE" COLOR /W+
@ 11, 19 GET mTckroute Pict "!!!!!!!!!!!!!!!!!!!!!!!!" color /w+
@ 11, 40 SAY "AIR LINE CODE" COLOR/ W+
@ 11, 50 GET Mairlinecode PICT "999" color /w+
@12, 6 say "DEPARTURE date" color /w+
@ 12, 15 GET mdepdate PICT "99/99/9999" color / w+
@ 12, 22 SAY "ARIVAL DATE" Color/W+
@ 12, 35 GET MARDATE PICT "99/ 99/ 9999" Color /Wt
@ 13, 6 SAY "AMOUNT" COLOR /W+
@ 13, 13 GET MAMOUNT PICT "999999999" COLOR /W+
@ 13, 40 SAY "INVOICE NUMBER" COLOR / W+
@ 13, 55 GET MINV_ NO PICT "9999999999" COLOR/ W+
@ 14, 6 SAY "INVOICE DATE" COLOR/ W+
@ 14, 18 GET MINV_DATE PICT "99/ 99/ 9999" COLOR / W+
@ 14, 40 SAY "USED ROUTE" COLOR/ W+
@ 14, 50 GET MUSED ROUTE PICT "!!!!!!!!!!!!!!!!!!!!!!" COLOR | W+
@ 15, 6 SAY "USER NAME PICT" COLOR |W+
@ 15, 15 GET MUSERNAME PICT "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" COLOR|W+
@ 15, 50 SAY "REFERENCE STATUS " COLOR|W+
@ 15, 65 GET MRESTATUS PICT "99999999" COLOR|W+
```

```
@ 16, 6 SAY "REFERENCE REASON" COLOR|W+
@ 16, 63 GET MREF_ REASON PICT "!!!!!!!!!!!!!!" COLOR|W+
@ 17, 6 SAY "STATE OF ORIGIN" COLOR|W+
@ 17, 20 GET MORIGINSTATE PICT "!!!!!!!!!!!!" COLOR|W+
@ 21, 29 SAY "IS ENTRY CORRECT (Y/|N)" COLOR BG+|B
@ 21, 5 GET MCHOICE PICT "@!AX";
        VALID MCHOICE = "Y". OR. MCHOICE = "N";
        ERROR "CHOICE MUST BE Y OR N"
        READ
        IF MCHOICE = "N"
        CLEAR
        LOOP
        ENDIF
        APPEND BLANK
REPLACE TICKET_ NO WITH  MTICKET_ NO
REPACE PERGNAME WITH MPERGNAME
REPLACE TICKETDATE WITH MTICKETDATE
REPLACE TCKROUTE WITH MTCKROUTE
REPLACE AIRLINECODE WITH MAIRLINECODE
REPLACE DEPDATE WITH INDEPDATE
REPLACEARODATE WITH MARVDATE
REPLACE AMOUNT WITH MAMOUNT
REPLACE INV_ NO WITH MINV_ NO
REPLACE INV_ DATE WITH MINV_ DATE
REPLACE USEDROUTE WITH MUSEDROUTE
REPLACE USERNAME WITH MUSERNAME
REPLACE REFSTATUS WITH MREFSTATUS
REPLACE REF_REASON WITH MREF_REASON
REPLACE ORIGINSTATE WITH MORIGINSTATE
        CLEAR
        LOOP
        ENDIF
```

```
        CLEAR
        CLOSE ALL
        @ 10, 20 TO 22, 68 DOUBLE
        RETURN
 * * * PROGRAM * * *
 * * * AUTHOR N. JESSICA * * *
        CLEAR
SET SCOREBOARD OFF
SET SAFETY OFF
SET ESCAPE ON
SET STATUS OFF
SET HEADING OFF
SET CENTURY ON
        USE TICKET
SET INDEX TO TICK.NDX
        CLEAR
        DO WHILE .T.
        STORE SPACE(2) TO mchoice
        STORE 0 TO MTICK_NO
@ 1, 5 TO 22, 68 DOUBLE
@ 3, 27 SAY "AMEND RECORD" COLOR W+/BG
@ 6, 25 TO 8, 40 DOUBLE COLOR G+
@ 7, 27 SAY "TICKET RECORD" COLOR W+*/BG
@ 9, 10 SAY "ENTER TICKET NUMBER ……ESC TO EXIT" COLOR BG+/B
@ 9, 42 GET MTICK_NO PICT "@Z999999999999";
        Massage "ENTER TICKET NUMBER";
        READ
        SET MESSAGE TO
        MlastKey = LastKey( )
        If LastKey( ) = 27
        Clear
        Exit
```

```
    Endif
* * * MADE CORRECTION HERE * * *
@ 9, 10 CLEAR TO 10, 67
@ 9, 6 SAY "TICKET NUMBER" COLOR BG+/B
@ 9, 15 GET TICKET_NO PICT "9999999999" COLOR W+
@ 9, 6 SAY "TICKET NUMBER" COLOR BG+/B
@ 9, 15 GET ticket_no Pict "99999999999" color w+
@ 10, 6 SAY "PASSENGERS NAME" COLOR BG+/B
@ 10, 20 SAY GET pergname Pict "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" color /w+
@ 10, 52 SAY "TICKET DATE" COLOR /W+
@ 10, 64 SAY GET TicketDate Pict "99/99/9999" color /w+
@ 11, 6 say "TICKET ROUTE" COLOR /W+
@ 11, 19 GET Tckroute Pict "!!!!!!!!!!!!!!!!!!!!!!!" color /w+
@ 11, 40 SAY "AIR LINE CODE" COLOR/ W+
@ 11, 50 GET airlinecode PICT "999" color /w+
@12, 6 say "DEPARTURE date" color /w+
@ 12, 15 GET depdate PICT "99/99/9999" color / w+
@ 12, 22 SAY "ARIVAL DATE" Color/W+
@ 12, 35 GET ARDATE PICT "99/ 99/ 9999" Color /Wt
@ 13, 6 SAY "AMOUNT" COLOR /W+
@ 13, 13 GET AMOUNT PICT "999999999" COLOR /W+
@ 13, 40 SAY "INVOICE NUMBER" COLOR / W+
@ 13, 55 GET INV- NO PICT "9999999999" COLOR/ W+
@ 14, 6 SAY "INVOICE DATE" COLOR/ W+
@ 14, 18 GET INV-DATE PICT "99/ 99/ 9999" COLOR / W+
@ 14, 40 SAY "USED ROUTE" COLOR/ W+
@ 14, 50 GET USED ROUTE PICT "!!!!!!!!!!!!!!!!!!!!!!" COLOR | W+
@ 15, 6 SAY "USER NAME PICT" COLOR |W+
@ 15, 15 GET  USERNAME PICT "!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!" COLOR|W+
@ 15, 50 SAY "REFERENCE STATUS " COLOR|W+
@ 15, 65 GET RESTATUS PICT "99999999" COLOR|W+
@ 16, 6 SAY "REFERENCE REASON" COLOR|W+
```

```
@ 16, 63 GET REF_ REASON PICT "!!!!!!!!!!!!!!!" COLOR|W+
@ 17, 6 SAY "STATE OF ORIGIN" COLOR|W+
@ 17, 20 GET ORIGINSTATE PICT "!!!!!!!!!!!!!" COLOR|W+
        READ
@ 23, 10 SAY "PRESS ANY KEY TO CONTINUE" COLOR BG+*/B
        X = INKEY(0)
        Clear
        Loop
        Enddo
        Clear
        Close All
        @ 10, 20 to 22, 68 Double
        RETURN
* * * PROGRAM * * *
* * * AUTHOR N. JESSICA * * *
      CLEAR
SET SCOREBOARD OFF
SET SAFETY OFF
SET ESCAPE ON
SET HEADING OFF
SET CENTURY ON
      USE TICKET
      SET INDEX TO TICK.NDX
      CLEAR
      DO WHILE .T.
      STORE SPACE(2) TO mchoice
      STORE 0 to no mtick-no
@ 1, 5 TO 22, 68 DOUBLE
@ 3, 27 SAY "DELETE RECORD" COLOR W+/BG
@ 6, 25 TO 8, 40 DOUBLE COLOR G+
@ 7, 27 SAY "TICKET RECORD" COLOR W+*/BG
@ 9, 10 SAY, "ENTER TICKET NUMBER.....ESC TO EXIT"
```

```
@ 9, 42 GET MTICK-NO PICT "@Z999999999999";
        Massage "ENTER TICKET NUMBER"
        READ
        SET MESSAGE TO
        MlastKey = LastKey( )
        If LastKey( ) = 27
        Clear
        Exit
        Endif
        Seek MTICK-NO
        If .NOT. FOUND( )
        ? ? CHR(7)
@ 10, 10 SAY, "THIS RECORD DOES NOT EXIST"
@ 12, 12 SAY, "PRESS ANY KEY TO CONTINUE"
            X = INKEY(0)
            Clear
            Loop
            Endif
@ 9, 10 CLEAR TO 10, 67
            DO SUBMENU
@ 23, 29 SAY "DELETE (Y/N)" COLOR BG+/B
@ 23, 51 GET mchoice pict "@! AX";
            VALID mchoice = "Y" .OR. mchoice = "N"
            ERROR "CHOICE MUST BE Y OR N"
            READ
            IF mchoice = "N"
            CLEAR
            Loop
            ENDIF
            DELETE
            CLEAR
            Loop
```

```
        ENDDO
        CLEAR
        @ 10, 10 SAY, "PLEASE WAIT I AM DELETING RECORDS"
        PACK
        CLOSE ALL
        @ 10, 20 TO 22, 68 Double
        RETURN
* * * PROGRAM VIEW * * *
* * * AUTHOR N. JESSICA * * *
      CLEAR
SET SCOREBOARD OFF
SET SAFETY OFF
SET ESCAPE ON
SET HEADING OFF
SET CENTURY ON
      USE TICKET
      SET INDEX TO TICK.NDX
      CLEAR
      DO WHILE .T.
      STORE SPACE(2) TO mchoice
      STORE 0 to no mtick-no
@ 1, 5 TO 22, 68 DOUBLE
@ 3, 27 SAY "VIEW RECORD" COLOR W+/BG
@ 6, 25 TO 8, 40 DOUBLE COLOR G+
@ 7, 27 SAY "TICKET RECORD" COLOR W+*/BG
@ 9, 10 SAY, "ENTER TICKET NUMBER……..ESC TO EXIT"
@ 9, 42 GET MTICK-NO PICT "@Z999999999999";
      Massage "ENTER TICKET NUMBER"
      READ
      SET MESSAGE TO
      MlastKey = LastKey( )
      If LastKey( ) = 27
```

```
        Clear
        Exit
        Endif
        Seek MTICK_NO
        If .NOT. FOUND( )
        ? ? CHR(7)
@ 10, 10 SAY, "THIS RECORD DOES NOT EXIST"
@ 12, 12 SAY, "PRESS ANY KEY TO CONTINUE"
            X = INKEY(0)
            Clear
            Loop
            Endif
@ 9, 10 CLEAR TO 10, 67
            DO SUBMENU
@ 23, 29 SAY "VIEW  (Y/N)" COLOR BG+/B
@ 23, 51 GET mchoice pict "@! AX";
            VALID mchoice = "Y" .OR. mchoice = "N"
            ERROR "CHOICE MUST BE Y OR N";
            READ
            IF mchoice = "N"
            CLEAR
            EXIT
            ENDIF
            CLEAR
            Loop
            ENDDO
            CLEAR
            CLOSE ALL
            @ 10, 20 TO 22, 68 Double
            RETURN
******PROGRAMM SUBMENU*********
*******AUTHOR JESSICA N.***********
```

```
SET SCOREBOARD OFF
 SET CONSOLE OFF
SET SAFETY ON
SET HEADING OFF
@ 9, 6 SAY “TICKET NUMBER” COLOR BG+/B
@ 9, 15 SAY TICKET_NO PICT “9999999999” COLOR W+
@ 10, 6 SAY “PASSENGERS NAME” COLOR BG+/B
@ 10, 20 SAY GET pergname Pict “!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!” color /w+
@ 10, 52 SAY “TICKET DATE” COLOR /W+
@ 10, 64 SAY TicketDate Pict "99/99/9999” color /w+
@ 11, 6 say “TICKET ROUTE” COLOR /W+
@ 11, 19 SAY Tckroute Pict “!!!!!!!!!!!!!!!!!!!!!!!” color /w+
@ 11, 40 SAY “AIR LINE CODE” COLOR/ W+
@ 11, 50 SAY airlinecode PICT “999” color /w+
@12, 6 say “DEPARTURE date” color /w+
@ 12, 15 SAY depdate PICT “99/99/9999” color / w+
@ 12, 22 SAY “ARIVAL DATE” Color/W+
@ 12, 35 SAY ARDATE PICT “99/ 99/ 9999” Color /Wt
@ 13, 6 SAY “AMOUNT” COLOR /W+
@ 13, 13 SAY AMOUNT PICT “999999999” COLOR /W+
@ 13, 40 SAY “INVOICE NUMBER” COLOR / W+
@ 13, 55 SAY INV_ NO PICT “9999999999” COLOR/ W+
@ 14, 6 SAY “INVOICE DATE” COLOR/ W+
@ 14, 18 SAY INV_DATE PICT “99/ 99/ 9999” COLOR / W+
@ 14, 40 SAY “USED ROUTE” COLOR/ W+
@ 14, 50 SAY USEDROUTE PICT “!!!!!!!!!!!!!!!!!!!!!” COLOR | W+
@ 15, 6 SAY “USER NAME PICT” COLOR /W+
@ 15, 15 SAY USERNAME PICT “!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!” COLOR|W+
@ 15, 50 SAY “REFERENCE STATUS ” COLOR/W+
@ 15, 65 SAY RESTATUS PICT “99999999” COLOR/W+
@ 16, 6 SAY “REFERENCE REASON” COLOR/W+
@ 16, 63 SAY REF_ REASON PICT “!!!!!!!!!!!!!!” COLOR/W+
```

```
@ 17, 6 SAY "STATE OF ORIGIN" COLOR/W+
@ 17, 20 SAY ORIGINSTATE PICT "!!!!!!!!!!!!" COLOR/W+
RETURN
* * *PROGRAM TO PRINT REPORT* * *
* * *AUTHOR JESSICA N. * * *
CLEAR
SET SCOREBOARD OFF
SET SAFETY OFF
SET ESCAPE ON
SET STATUS OFF
SET HEADING OFF
SET CENTURY ON
        JES = 60
        PCODE = SPACE (35)
        P PAGE = 0
        STORE REPLICATE ("*", 130) TO RULESTAR
        SELECT 1
        USE TICKET
        CLEAR
        SELECT 2
        USE ARCODE
        INDEX ON AIRLINE TO AR. NDX
        CLEAR
@ 4, 10 TO 20, 68 DOUBLE
@ 10, 12 SAY "ON PRINTER- - FIX PAPER" COLOUR W+/ BG
@ 16, 12 SAY "PRESS - - ESC TO EXIT OR ANY KEY TO
CONTINUE" COLOUR BG + / B
        Mlastkey = lastkey ( )
        IF lastkey( ) = 27
        CLEAR
        CLOSE ALL
        RETURN
```

```
        END 1F
        X = Inkey (0)
        @ 6, 12 CLEAR TO 17, 60
@ 8, 12 SAY "WAIT PRINTING IN PROGRESS "Color BG + / B
SAY DEVICE TO PRINTER
SAY PRINTER ON
* * * A PRINTING BEGIN * * *
DO WHILE .NOT. EOF()
NAP = Airline Code
        1F NAP = 0
        SKIP LOOP
        END IF
        IF JES > = 1
        PPAGE = PPAGE+ 1
@ JES + 1, 40 SAY "AIR LINES TICKETS REPORT"
@ JES + 2, 10 SAY "PAGE "
@ JES + 2, 14 SAY PPAGE
@ JES + 2, 42 SAY "DATE OF PRINTING "
@ JES + 2, 58 SAY DATE()
        ENDIF
        NAM = AIRLINECODE
        SELECT 2
        SEEK NAM
        IF FOUND()
        PCODE = AIRLINE
        ELSE
        PCODE = "NOT IN AIRLINECODE FILE"
        ENDIF
@ JES + 4, 5 SAY CODE
@ JES + 4, 15 SAY PCODE
@ JES + 5, 5   SAY "TICKET NUMBER"
@ JES + 5, 17 SAY "PASSENGERS NAME"
```

```
@ JES + 5, 37 SAY "TICKET ROUTE"
@ JES + 5, 65 SAY "TICKET DATE"
@ JES + 5, 75 SAY "ARIVAL DATE"
@ JES + 5, 90 SAY "DEPARTURE DATE"
@ JES +5, 110 SAY "REMARK"
      SELECT 1
@ JES + 9, 5 SAY TICKET – NO
@ JES + 9, 17 SAY LTRIM (PERGNAME)
@ JES + 9, 37 SAY LTRRIM (TCKROUTE)
@ JES + 9, 63 SAY TICKETDATE
@ JES + 9, 75 SAY ARAATE
@ JES + 9, 90 SAY AEPDATE
@ JES + 9 110 SAY REMARK
      SKIP
      END DO
      CHOSE  DATABASES
      CLOSE ALL
      SET PRINTER OFF
      SET DEVICE TO SCREEN
      EJECT
      CLEAR
      WAIT "PRESS ANY KEY  TO CONTINUE"
      CLEAR
      @ 10, 20 TO 21, 68 DOUBLE
      RETURN
```