Abstract

Airline reservation and ticketing in a commercial airline company is a project work aimed at creating a system that will enable traveler's book their flight by making reservations. As the world is turning into a global village with almost every aspect of human endavour getting computerized, the aviation industries management is looking forward to making available their flight reservations online.

This project research involves the design and implementation of an airline reservations aimed at overcoming the undesirable problem associated with the manual system. Here, we design a computer program that will

__ Replace the existing manual system.

__Enable travelers to make flight reservation

In this project, the implementation of the computerized system will be carried out using Php-Mysql.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Throughout commercial airline history, the timely movement of aircraft, passengers and cargo has required the even more timely movement of information. This was never truer than today, where information has become not just an operational tool, but a competitive weapon. To capitalize on this information, the technological revolution and the information society have brought us a dazzling set of capabilities. But, they have also brought us a bewildering array of options for services, costs, methods and products. Many managers find themselves faced with too much of a good thing, too many alternatives. But, airline today means business. Commerce and tourism are the engines of economic development in today's world. In Airline industry, Airlines, airports, and even governments are competing against each other for travel related income. Staying in front means making investments in enhanced customer service tools, improved management awareness, quicker access to operational information, etc.

All of the technology and service options, and the need to make rapid, well informed decisions, means that many organizations are finding it increasingly difficult, and expensive, to find and retain staff to meet the demands. The effective use of Airline Information System can help solve this problem.

Multi-database system for seat reservation and ticketing is a very powerful integrated computer-based system for managing the technical operations activities of an airline, or aircraft fleet operator. The system can be used worldwide by large and small companies operating many types of fixed and rotary-wing aircraft.

The software designed will be used to collect, store, and analyze information about seat reservation and ticketing within the industry.

1.2 Statement of the Problem

As aviation industry is expanding, a lot of airlines are coming up. The passengers need to book for their flight tickets. The manual method of going to their local offices to book for their flight ticket is becoming obsolete and tasking. Flight schedule information needs to be publicized to passengers. Hence the need for a wide range of publicity and enabling direct information passage to the centers.

1.3 Aims and Objectives of the Study

In developing an airline seat reservation system, we will always keep in mind to provide to the users the best usability, flexibility and security. Therefore, we need to make the user interface very flexible and understandable. Moreover, since the record updates is a database we need to

consider about security issues so that flight reservation information retrieval is not interrupted. The new system is designed to take care of the following:

- Create an online system for customers to view all domestic flights.
- Create an online system for customers to view domestic flight schedule and their flight rate.
- Enable online flight reservations.
- Give online access to passenger's suggestions or complaint on flight operations.
- Showcase flight maintenance information to customers
- Give passengers access to send their complaint about flight operations or services.
- Creates online news publication for flight operators accessible to customers.
- Makes available the number of flights operated by an airline.
- Maintain a robust database for flight information management

1.4 Purpose of the Study

The main purpose is to design and implement an airline seat reservation system. This system will also include flight schedule system and provides facilities for confirming flight tickets.

1.5 Significance of the Study

In view of the rapid development of computer technology in virtually all fields of operation and its use in relation to information management, it has become important to look into the development of an seat reservation system to meet up with demands of the present day society. Therefore, the reservation booking helps so that management can obtain data regarding the flight reservations at any time.

The project is aimed at designing, a new and better alternative system to help the organization to: -

(a) Produce available operational reports when needed.

(b) Safeguard data and information in the system.

(c) Reduced workload in the present system.

(d) Keep accurate record on flight reservations

(e) Reduce time wasted in data processing.

1.6 Scope of the Study

This project work will cover all aspect of flight reservation, confirmation of tickets, and flight schedule information. The project is a case study of Aero Airlines Nig Ltd.

1.7 Constraints and Limitations

During the design of this work, much finance was required and owing to the financial melt down globally, the research was limited by finance and hence concentrated on the available materials within the locality.

1.8 Assumptions

It is assumed that all the information gathered is correct and the design of the software was based on the data available.

1.9 Definition of Terms

FAAN – Federal Airport Authority of Nigeria

IATA – International Air Transport Association

ICAO – International Civil Aviation Organization

Black box – Black box in computer science is a unit whose internal structure is unknown but whose function is documented.

Black box testing - Black box testing is where the tester is presented with the specification of a component to be tested and uses this to derive the test cases. This has the advantage that the tester need no information about the code used in the component and need not understand its internal structure. This is also a disadvantage in that knowledge of the code can aid in devising tests which will thoroughly exercise the program.

MIS- Management Information System is the system that stores and retrieve information and data, process them, and present them to the management as information to be used in making decision.

MCS- Management Control system is a form of Information System used by the management of an organization to analyze each application of information system in terms of input, storage, processing and output.

Databases: A systematically arranged collection of computer data, structured so that it can be automatically retrieved or manipulated. It is also called databank.

Chapter Two

Literature Review

2.1 Overview of the Airline Industry

In most industrialized countries, the airline industry is a cooperation of public and private industries. For example, several countries have a space program under the command of the government, such as NASA (National Aeronautics and Space Administration) in the United States, ESA (European Space Agency) in Europe, the Canadian Space Agency in Canada, Indian Space Research Organisation in India, RKA in Russia, China National Space Administration in China, SUPARCO in Pakistan, Iranian Space Agency in Iran, and Korea Aerospace Research Institute(KARI) in South Korea.

Along with these public space programs, many companies produce technical tools and components such as spaceships and satellites. Some known companies involved in space programs include Boeing, EADS, Lockheed Martin, MacDonald Dettwiler and Northrop Grumman. These companies are also involved in other areas of aerospace such as the construction of aircraft. (Balisten R, 1996).

Scientific and technical information (STI) is a valuable resource that represents the results of large investments in research and development (R&D) and the expertise of a nation. NASA and its predecessor organizations have developed and managed the pre-eminent aerospace information system. We see information and information systems changing and becoming more international in scope. In Europe, consistent with joint

R&D programs and a view towards a united Europe, we have seen the emergence of a European Database concept. In addition, the development of aeronautics and astronautics in individual nations has also led to initiatives for national aerospace databases. Considering recent technological developments in information science and technology, as well as the reality of scarce resources in all nations, it is time to reconsider the mutually beneficial possibilities offered by cooperation and international resource sharing.

2.2 Airline Information Systems

Information systems do not have to be computerized, but with today's large, multinational corporations, computerization is a must for a business to be successful. However, information systems began with simple manual systems such as customer databases on index cards. As early as 1642, the French mathematician and philosopher Blaise Pascal invented the first mechanical adding machine so that figures could be added to provide information. Almost two hundred years later, Charles Babbage, a professor of mathematics at Cambridge University in England, wanted to make a machine that would compute mathematical tables. He attempted to build a computing machine during the 1880s. He failed because his ideas were beyond his technical capabilities, not because the idea was flawed. Babbage is often called the father of the computer. With the advent of the computer, management information systems became automated. (Laudon K C et al, 2009).

In the late 1890s, because of the efforts of Herman Hollerith, who created a punch-card system to tabulate the data for the 1890 census, it was possible to begin to provide data-processing equipment. The punch card developed by Hollerith was later used to form a company to provide data-processing equipment. This company evolved into International Business Machines (IBM). Mainframe computers were used for management information systems from the 1940s, 50s, 60s, and up until the 1970s. In the 1970s, personal computers were first built by hobbyists. Then Apple computer developed one of the first practical personal computers. In the early 1980s, IBM developed its PC, and since then, the personal computer industry has mush roomed. Almost every information system revolves around some kind of computer hardware and software.

Information systems are becoming more important, and IS personnel are more visible than in the 1960s and 1970s, when they were hidden away from the rest of the company and performed tasks behind closed doors. So remote were some IS personnel from the operations of the business that they did not even know what products their companies made. This has changed because the need for an effective information system is of primary concern to the business organization. Managers use IS operations for all phases of management, including planning, organizing, directing, and controlling. This research work is limited to Aerospace Information Systems.

Kenneth C. Laudon and Jane P. Laudon (2009), defined an information system as a set of interrelated components that collect or retrieve, process, store, and distribute information to support decision making and control in an organization. Information systems can also be used to analyze problems, visualize complex subjects, and create new products. Information systems

are transforming business and the visible results of this include the increased use of cell phones and wireless telecommunications devices, a massive shift toward online news and information, booming e-commerce and Internet advertising, and new federal security and accounting laws that address issues raised by the exponential growth of digital information. The Internet has also drastically reduced the costs of businesses operating on a global scale.

2.3 The Evolution of Nigeria Airline Industry and its Importance to the Nigeria Economy

According to Ajulo (2002), a fracas resulting from a feud between the British and the colonial administration and the people of Kano city in 1925, forced the British Royal Air force (RAF) fighter to land on a polo ground in Kano. This was the first flight in Nigeria.

The mission of the crew was to carryout a surveillance of the riot, which broke out of protest by some Kano indigenes.

After the maiden flight, the RAF began yearly flight to Kano and Maiduguri from the Sudan, relying solely on available intelligence on navigational aids on the aircraft. However, commercial aviation did not start until imperial air lines started regular flight between UK and Nigeria in 1935.

The development of one of the infrastructure, aerodromes, was boosted with the advent of the Second World War. By 1940, all the airports planned for Nigeria has been completed by the colonial masters.

At the end of the Second World War, the RAF returned, but with much improved equipment, and a different mandate. Using aircraft chartered from

the British Overseas Airways Corporation, They operated passengers and mail services between Lagos, Port Harcout, Enugu and Jos.

This was in a limited capacity and restricted to government businesses. The RAF services also linked Nigeria to the British West African possessions. This was the beginning of air transportation in Nigeria (Mahouwu 1997). With the establishment of west African Airways Corporation (WAAC) on May 15th 1946 commercial air transportation became part of the reality of West African life. At the end of the war, the British overseas airways corporation (Nig) limited (BOAC) replaced the Imperial Airlines to serve the British West African colonies.

The West African airways corporation broke up in 1957 when Ghana gained independence and formed its own airline. Consequently the assets of WAAC were shared and Nigeria inherited some Aircraft and landed properties which were eventually transferred to the newly formed company called West African Airways Corporation (Nig) limited. The company was incorporated by the federal government in partnership with the British Overseas Airways Corporation and Elder Dempster limited on the 23rd August 1958, with the certificate of incorporation number 1740. In 1961, WAAC was re-registered and re-named Nigeria Airways limited (NAL) following Nigerians government acquisition of the combined interest of BOAC and Elder Dempster lines. This was borne out of the need to have a truly National flag carrier on the attainment of independence in October 1960. Airline operations were then carried out by Nigerian airways, which had the monopoly of operating scheduled passenger services, and a number of private companies that later operate carter services. Nigeria airways

limited being the national flag carrier, operated schedule passengers services on the routes whether they were profitable or not.

Considerable efforts were made to develop aeronautical infrastructure to support viable air transport operations. Prior to 1970, Nigeria could only boast of two international Airports. The Kano international Airport commissioned in 1956 was the best, followed by the refurbished Lagos airport.

However, the importance of air transportation to the Nigeria economy cannot be over emphasized. The air transport industry has helped in transforming the Nigerian economy by facilitating trade and commerce especially in the export of agricultural products in the 50s and 60s to the United Kingdom and the import of manufactured products from Europe and America. Also, as the air traffic grew there came with the boast in the oil sector, as all aircraft operating into Nigeria lifted aviation fuel. This trend is expected to continue.

Air transportation is an innovative, environmentally responsible industry that drives economic and social progress. It is essential for world business and tourism. Like it has done in Nigeria, aviation creates job and open market opportunities by attracting businesses to locations in the developed and developing world.

It moves product and services quickly over long distances enabling economic and social participation by outlying communities locally and internationally.

On the social angle, air transportation forms a unique global transport network linking people, countries and culture safely. It is increasingly accessible to a greater number of people who can now afford to travel by air for leisure and business purposes. To contain its environmental impact, there has been continuous improvement in fuel consumption, reducing noise and introducing new technologies that will facilitate the easy improvement of individual through air transport.

The Managing Director, Civil Aviation Authority of Uganda, Akandonda (2003), summarized the importance of air transportation to a country as follows:

- Promoting tourism industry.
- Promoting the export of perishable products.
- Providing speedy transportation of high value commodities (Imports and Export).
- Providing reliable communication links especially in States with difficult terrain.
- Providing National Defence Service.
- Providing mapping Services.
- Proving services in emergencies and relief situations such as earthquakes, flood, wars, etc.
- Proving an alternative gateway for the land lock states.
- Proving special community services such as spraying for agricultural public heath purposes.

Clearly, air transport is a dependable vehicle for economic, social and political development of a state (Fenema 2002).

Therefore, to achieve these economic benefits of air transport, people have to travel by air, which will involve the booking of an airline tickets either manually or online.

2.4 **Flight Seat Reservation**

Some aspect of seat allocation at events, such as aircraft flights, bus trips, boat trips, theatre performances or sporting events are currently managed in an ad hoc fashion, and a traveler or attendee, as the case may be, can experience significant discomfort if they are seated next to a physically large or disruptive neighbour in the adjacent seat. This situation is exacerbated if a number of such people are seated in close proximity to the traveler or attendee. Consequently, the physical and social characteristics of one's seating neighbours, and in particular the presence or absence of such neighbours, can make the difference between an enjoyable experience and a profoundly uncomfortable one.

It is desired, therefore, to provide a seat reservation process and system that alleviate one or more of the above difficulties, or at least provide a useful alternative to existing seat reservation processes and systems.

According to the present invention there is provided a seat reservation process, the process including the steps of: accepting reservation requests for

available seats for an event; offering to customers an option to book a seat having an empty seat adjacent thereto on payment of a premium or agreeing to pay a premium or other consideration; terminating the reservation of requests for seats at a predetermined time; determining, after said step of terminating the reservation of requests for seats, if there are empty seats for the event; and if there are empty seats available for the event, allocating seats having empty seats adjacent thereto to those customers who have paid or have agreed to pay said premium or other consideration.

Normally, the step of terminating the reservation of requests for seats occurs prior to the commencement of the event, but this need not always be the case.

The process may include the steps of making a conditional allocation of an empty seat and confirming allocation of empty seats after said step of terminating the reservation of requests for seats.

In the case where the seat reservation process is in relation to aircraft flights, the process may include the steps of analyzing available seats and the pattern of seat sales just prior to closure of the flight and making conditional allocation of empty seats based upon said analysis.

The process may include the steps of determining if there are sufficient empty seats available for those customers requesting them and confirming allocation of empty seats according to a predetermined priority or randomly.

The present invention also provides, in an airline seat reservation process, an empty seat allocation process which includes the steps of : allocating a first seat to a passenger for a flight; and allocating a second seat to the passenger adjacent to the first seat if the passenger provides or agrees to provide consideration for the allocation of said second seat.

Customers can continue to reserve seats and request empty seats until either the flight is full, or the flight closes.

After confirmation of the allocation of empty seats, the seat reservation system is preferably arranged to issue empty seat boarding passes to those passengers who have been successful in obtaining allocation of an empty seat. In accordance with the invention, it is preferred to provide the passenger who has obtained an allocated empty seat some form of evidence that the empty seat has been allocated to him. The main purpose for this would be some form of evidence available to the passenger having the empty seat that the empty seat has in fact been allocated to him or her. Otherwise, other passengers may try to take the benefit of the empty seat.

One way of providing tangible evidence of the allocation of the empty seat would be to issue a separate boarding pass in respect of the empty seat.

CHAPTER THREE

3.0 Overview of the Existing System

3.1 Research Methodology

Methodology is the part of any analysis or research that is used to find out what type of data is maintained, what fact to find and look for, how to find them and how to record them for usage. In order to achieve these, Structured System Analysis and Design Methodology (SSADM) were used. This is because; SSADM is an internationally accepted software engineering model mainly used in most result oriented analysis.

Structured System Analysis Design and Methodology (SSADM) involve different steps:

3.1.1 Problem Identification.

Here, the problems and weaknesses of the present system were identified.

3.1.2 Feasibility Study

The feasibility study is basically the test of the proposed system in the light of its workability, meeting user's requirements, effective use of resources and cost effectiveness.

3.1.3 System Analysis

It will help to identify the requirements and needs of the system and modeling these needs in terms of the processes carried out.

3.1.4 System Design

The design proceeds in two stages:

- Preliminary or general design
- Structure or detailed design

In the preliminary or general design, the features of the new system are specified. The costs of implementing these features and the benefits to be derived are estimated.

In the detailed design stage, the design of the system becomes more structured. Structure design is a blue print of a computer system solution to a given problem having the same components and inter-relationship among the same components as the original problem. Input, output and processing specifications are drawn up in detail. In the design stage, the programming language and the platform in which the new system will run are also decided.

There are several tools and techniques used for designing. These tools and techniques are:

- Flowchart
- Data flow diagram (DFDs)
- Data dictionary
- Structured English

- Decision table
- Decision tree

The new system, which is computerized, is designed to be very effective and very fast in data processing when compared with the existing system, which is ineffective.

3.1.5 Program Coding

The proposed system is designed using Php-Mysql for program coding.

3.1.6 Implementation

The new system is implemented on a platform that enables online flight reservation and printing of receipts.

3.1.7 Objective of SSADM

SSADM was developed with the following objectives

- Ensure that projects can successfully continue should a loss of staff occur without a damaging effect on the project
- Develop overall better quality systems
- Improve the way in which projects are controlled and managed
- Allow more effective use of experienced and inexperienced staff and their development

- Make it possible for projects to be supported by computer based tools e.g. computer-aided software engineering systems
- Improve communication between participants in a project so an effective framework is in place

3.1.8 Benefits of SSADM

Timelines: Theoretically, SSADM allows one to plan, manage and control a project well. These points are essential to deliver the product on time.

Usability: Within SSADM special emphasis is put on the analysis of user needs. Simultaneously, the systems model is developed and a comprehensive demand analysis is carried out. Both are tried to see if they are well suited to each other.

Respond to changes in the business environment: As in SSADM documentation of the project's progress is taken very seriously, issues like business objectives and business needs are considered while the project is being developed. This offers the possibility to tailor the planning of the project to the actual requirements of the business.

Effective use of skills: SSADM does not require very special skills and can easily be taught to the staff. Normally, common modeling and diagramming tools are used.

Better quality: SSADM reduces the error rate of information system by defining a certain quality level in the beginning and constantly checking the system.

Improvement of productivity: By encouraging on-time delivery, meeting business requirements, ensuring better quality, using human resources effectively as well as trying to avoid bureaucracy, SSADM improves the overall productivity of the specific project and the company.

Cuts costs: SSADM separates the logical and the physical systems design. So the system does not have to be implemented again with new hard -or software.

3.2 Method of Data Collection

3.2.1 Interview Method

This was done between the researcher and the staffs of Aero Airlines Nig Ltd. A questionnaire was presented to them in other to find out how they carry out their daily flight reservation and ticket confirmation. Reliable facts were got based on the questions posed to them by the researcher.

3.2.2 Reference to Written Text

Flight tickets were studied and a lot of information concerning the system in question was obtained. Some forms that are necessary and available were assessed. Also Internet down loads was made to obtain some text materials.

3.3 Analysis of the Existing System

In Nigeria today, most airline industry operators use manual or partially automated information systems. Facing fiercer market pressures brought by factors such as the development of low cost carriers and the globalization of civil aviation industry, the managers found that it is critical for them to lower their costs as much as possible so as to make them more competitive. Thus aerospace companies around the world, especially in Europe and America began to develop e-commerce models based on internet which could reduce their reliance upon traditional information systems herewith which is not the case in Nigeria.

The present manual and partially automated system used by airline operators in Nigeria are ineffective and the costs of running the business are very high. The system is such that the operators are over dependent on the manual processes.

In this manual system, a team of eight operators would sort through a rotating file with cards for every aircraft. When a transaction was completed, the operators would place a mark on the side of the card, and knew visually

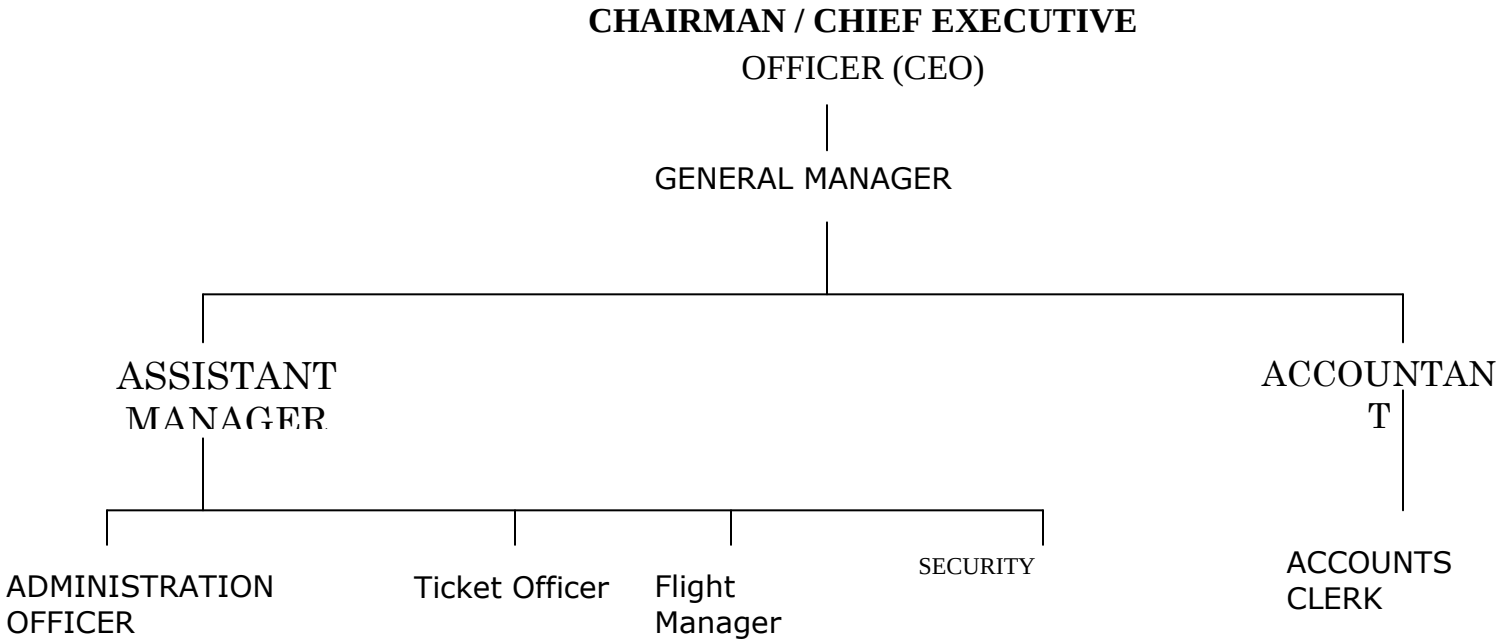
whether it was full. This part of the process was not all that slow, but the entire end-to-end task of looking for an aircract details and then writing up the report could take up to three hours in some cases, and 90 minutes on average. The system also had limited room to scale. It was limited to about eight operators because that was the maximum that could fit around the file, so in order to handle more queries the only solution was to add more layers of hierarchy to filter down requests into batches. The requested information is then removed from the inventory for that activity or event.

Using this system, a large number of operators could look up information simultaneously, so the managers could be told over the phone whether an informaton was available. On the downside, a staff member was still needed at each end of the phone line, and actually handling the transaction information still took considerable effort and filing. Something much more highly automated was needed if transaction was going to enter the jet age.

Most aerospace employees work as Service Agents and work at aerospace terminals. As a rule, assignments are rotated, with other employees serving behind the counter or at the boarding gate. They all use the same equipment and procedures. In addition, they issue receipts, by computer or by hand, collect payments, and make change. They must record all transactions and money exchanged and, at the end of the shift, prepares a daily report.

The inadequacies and inefficiencies of present aerospace information system are recognized and addressed through this study.

3.4 Organizational Structure



3.5 INPUT, PROCESS AND OUTPUT ANALYSIS

3.5.1 Input Analysis

The input to the system is the seat reservation form. This form is used for making flight reservations. It contains detail information of the passenger, airline, and flight time. This forms the input to the system.

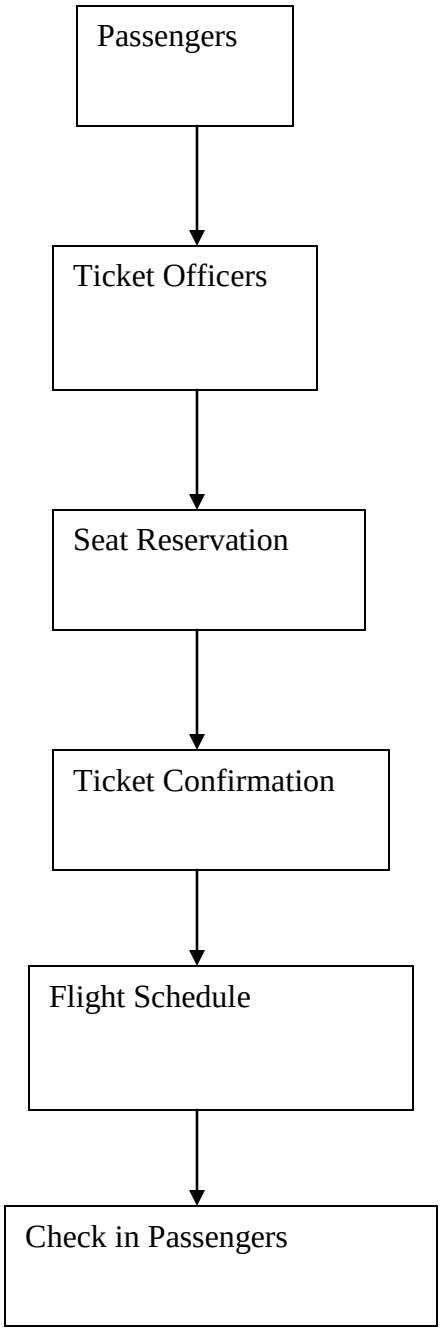
3.5.2 Process Analysis

The information gathered was processed into a more meaningful format for entry into the system. The forms filled by passengers are processed to enable them board the plane.

5.5.3 Output Analysis

The output from the system designed is generated from the system inputs. More of the output generated is on flight schedule, reservations and ticket confirmations.

3.6 Information Flow Diagram



3.7 Problems Of The Current System

Manual system of operation faces a lot of problems which includes:

- Delay in data processing.
- Complex reservation system.
- Errors in processing.
- Lost of Materials to fire incidents
- Insecurity of data

3.8 Justification For the New System

The new system will help to solve all the problems inherent in the existing system. The justification for the new system includes:

- Timely flight ticket booking
- Timely processing of the passengers flight ticket
- Error free processing of data
- It is inexpensive to administrators.
- Transactions are secured.

CHAPTER FOUR

SYSTEM DESIGN

4.1 Objective of Design

The objective of the new system is to design a system for domestic flight customer information management. The design will cover all aspect of flight scheduling and management system. The new system is designed to take care of the following:

- Create an online system for customers to view all domestic flights.
- Create an online system for customers to view domestic flight schedule and their flight rate.
- Enable online flight reservations.
- Give online access to passenger's suggestions or complaint on flight operations.
- Showcase flight maintenance information to customers
- Give passengers access to send their complaint about flight operations or services.
- Creates online news publication for flight operators accessible to customers.
- Makes available the number of flights operated by an airline.
- Maintain a robust database for flight information management

4.2 Input Specification and Design

The input specification and design in the new system is structured to allow users to fill forms and submit the data to the database. Bellow is some of the input forms designed in the new system for data capturing.

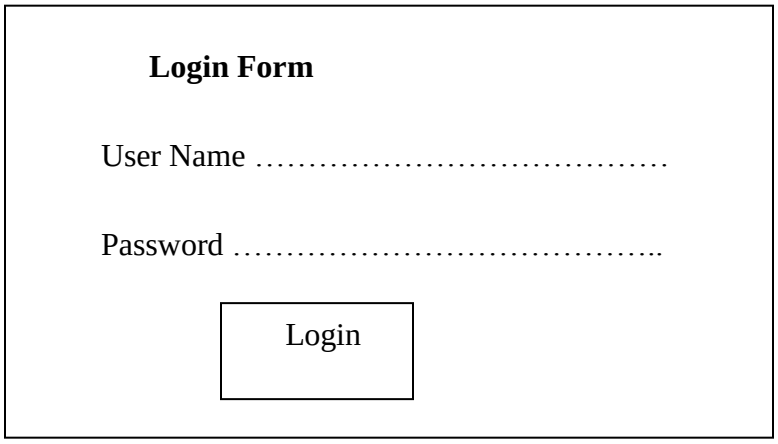


Fig 4.1 : Login Form

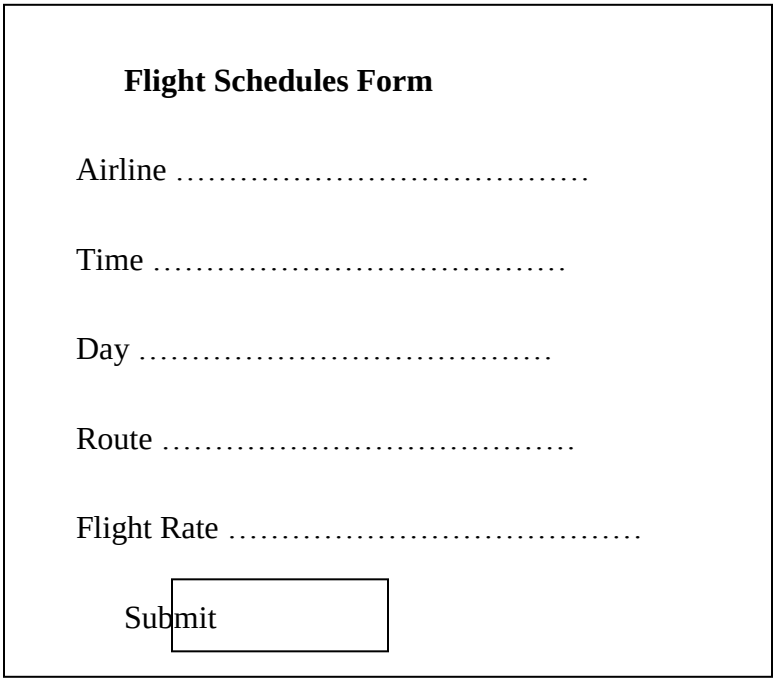


Fig 4.2: Flight Schedule

General Complaint Form

Airline ……

Complaint Type ……

Customer Name ……

Customer Address ……

Phone No ……

Email ……

Date ……

Time ……

Complaint ……

Submit

Fig 4.3: Customer complaint form

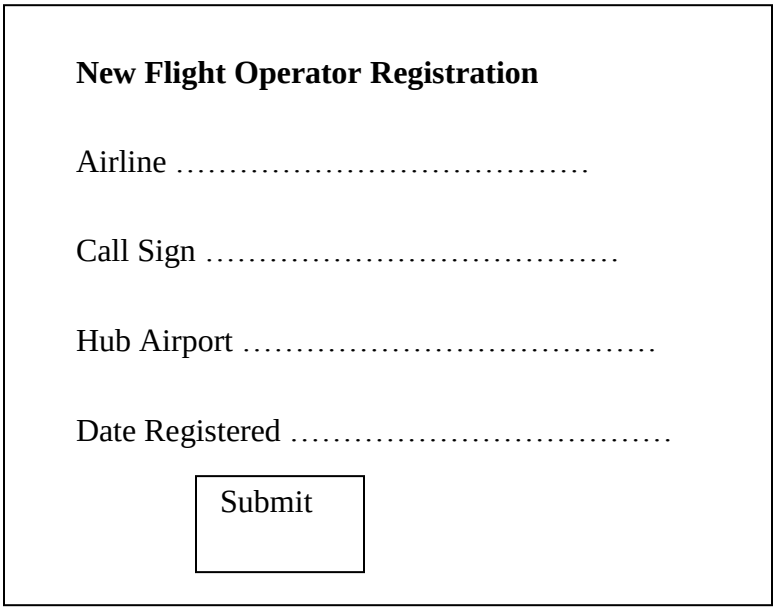


Fig 4.4: New flight operator registration Form

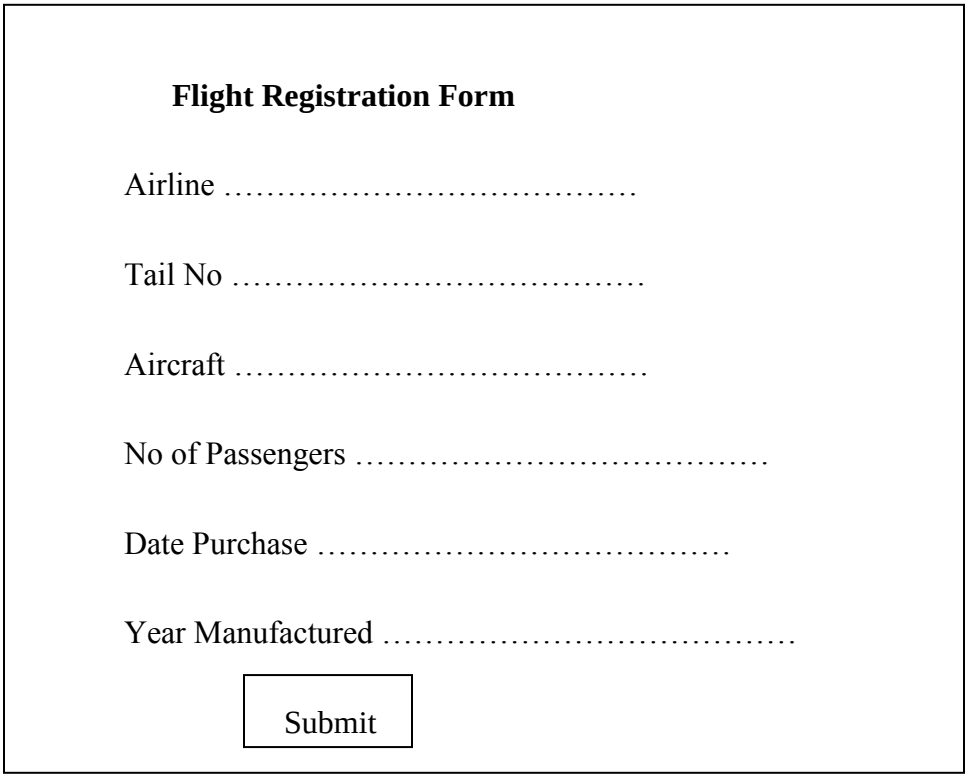


Fig 4.5: New Flight Registration Form

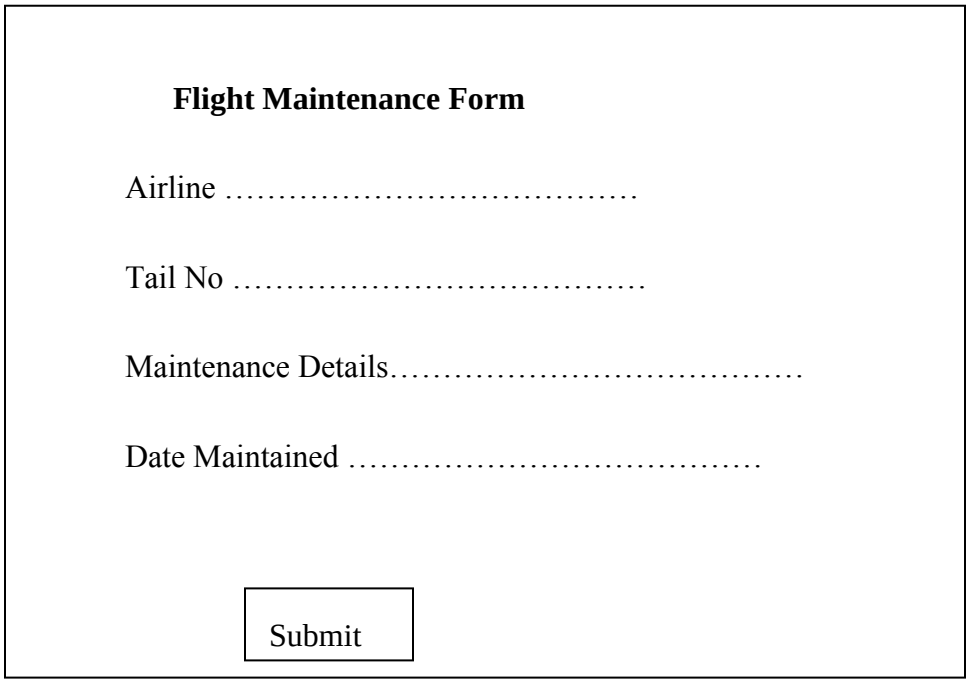


Fig 4.6: Flight Maintenance Form

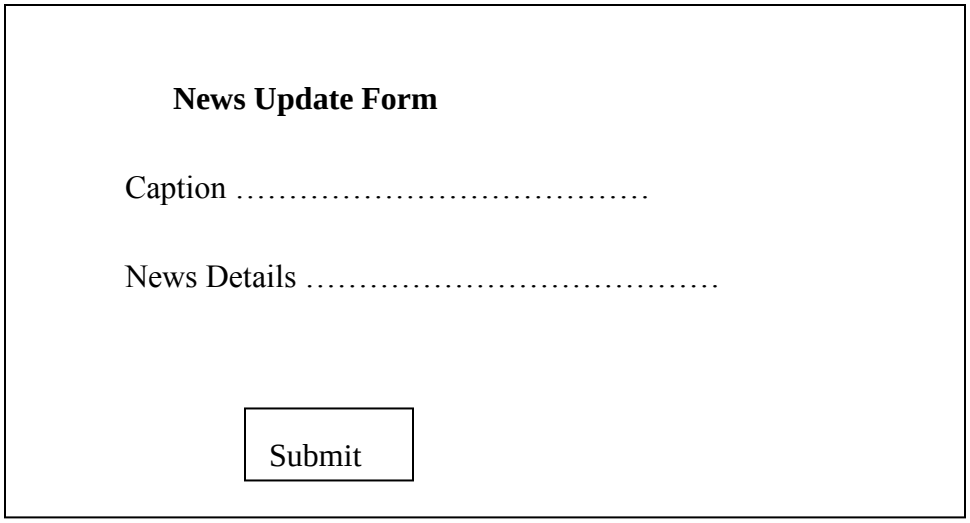


Fig 4.7: News Update Form

Flight Reservation Form

Name of Passenger----------

Ticket No ----------

Flight Class ----------

From ----------

To ----------

Departure Date ----------

Time ----------

Baggage ----------

Type ----------

Amount Paid ----------

Status ----------

Fig 4.7: Flight Reservations Form

4.3 Output Specification and Design

The website is created to enable information management by customers and flight administrators. The information is retrieved online form the database of flight. The reports are as follow.

Flight Schedule

Route	Date	Time	Rate

Fig 4.8: Flight schedule Report

No of Flight Report

Tail no	Aircraft	No of passengers	Date Purchased	Year Manufactured

Fig 4.9: Total No of Flight report

Flight Maintenance Report

Tail No	Maintenance Details	Date

Fig 4.10: Flight Maintenance Report

Customer Complaint Report

Airline	Name of customer	Email	Complaint Type	Complaint	Date

Fig 4.11: Customer complaint Report

Flight Reservation Report

Ticket No	Name of customer	Flight Time	From	To	Date

Fig 4.11: Flight Reservation Report

4.4**Database Design and Specifications**

MySql database was used in the design of the new system database. The structure of the tables in the database is as follows:

- admin_login
- airline
- complain
- Flight
- maint
- tablenews
- tbschedule
- Flight Reservations

Structure of admin_login Table

Field	Type	Null	Key
username	varchar(12)	NO	PRI
password	varchar(12)	YES	

Structure of airline Table

Field	Type	Null	Key
id	int(5)	NO	PRI
airline	varchar(70)	YES	
callsign	varchar(50)	YES	
hub	varchar(200)	YES	
date	date	YES	

Structure of complain Table

Field	Type	Null	Key
airline	varchar(40)	YES	
type	varchar(40)	YES	
customer_name	varchar(50)	YES	
address	varchar(100)	YES	
phone_no	varchar(30)	YES	
email	varchar(50)	YES	
datep	varchar(15)	YES	
date	date	YES	
time	time	YES	
period	varchar(3)	YES	
snum	int(5)	NO	PRI
remark	varchar(300)	YES	

Structure of Flight Table

Field	Type	Null	Key
airline	varchar(50)	YES	
tailno	varchar(20)	NO	PRI
craft	varchar(50)	YES	
persenger	int(6)	YES	
purchased	date	YES	
manufactured	int(6)	YES	

Structure of maintenance Table

Field	Type	Null	Key
airline	varchar(50)	YES	
tailno	varchar(20)	YES	
details	varchar(500)	YES	
date	date	YES	
snum	int(6)	NO	PRI

Structure of flight reservation Table

FIELD	TYPE	Key
Name	**varchar(50)**	
From	varchar(50)	
To	varchar(50)	
Class	varchar(50)	
Time	varchar(50)	
Amount	Single	
Status	varchar(50)	
Baggage	varchar(50)	
Form of Payment	varchar(50)	
Ticket No	varchar(50)	PRI
Date and Place of Issue	varchar(50)	
Type	varchar(50)	
Date	Date/Time	

Structure of tablenews Table

Field	**Type**	**Null**	**Key**
Heading	varchar(100)	YES	PRI
News	varchar(1000)	YES	

Structure of tbschedule Table

Field	Type	Null	Key
airline	varchar(50)	YES	
route	varchar(100)	YES	
day	varchar(50)	YES	
time	varchar(50)	YES	
rate	varchar(20)	YES	
snum	int(5)	NO	PRI

4.5 **Main Menu**

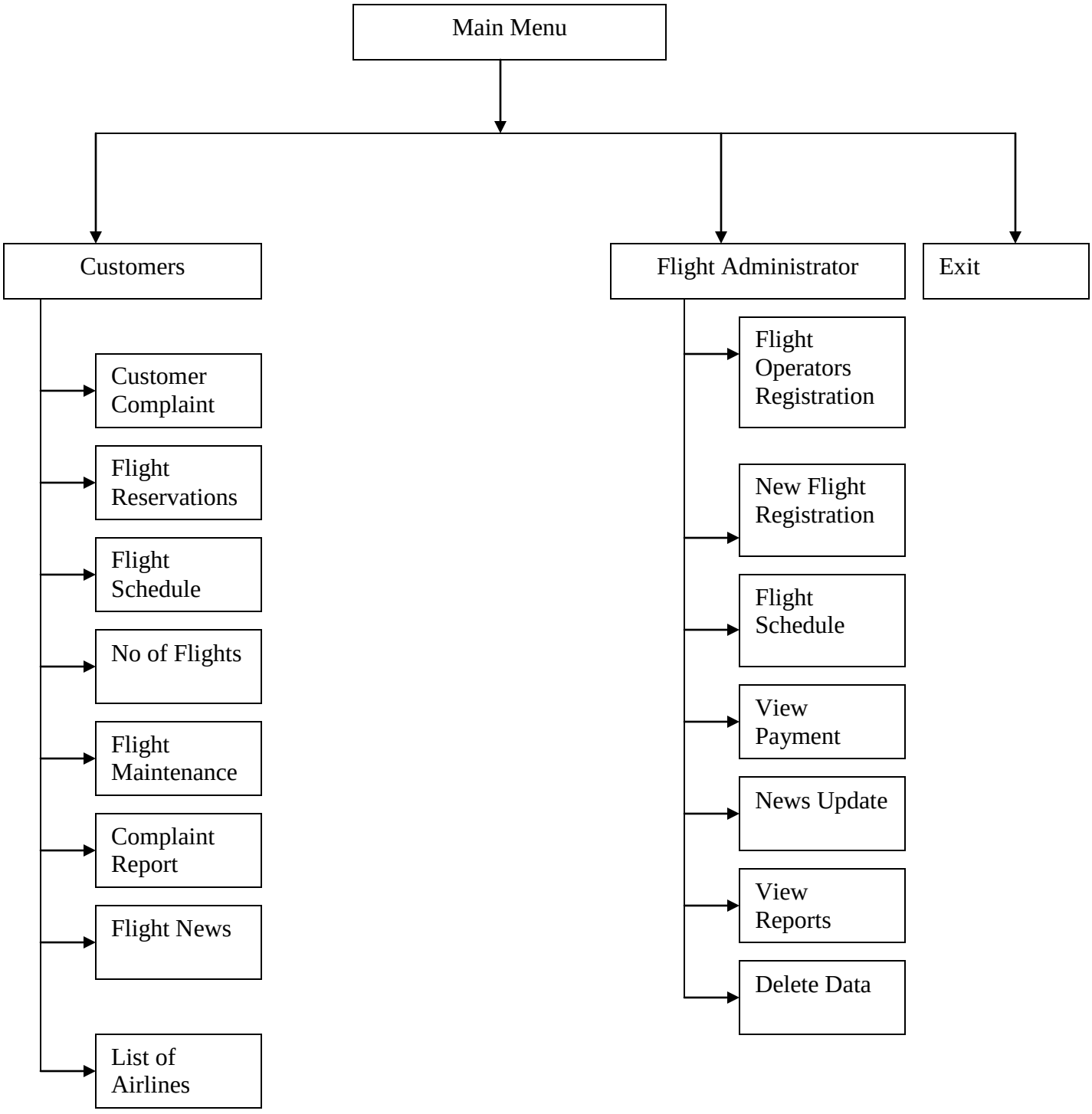


Fig 4.12: Main menu

4.6 Program Modules Specification

The program was designed using Top – Down Approach. It makes use of the fundamental program solving techniques. The software is structured in such a way that each subsystem is selected and executed independently. The task is divided into several modules, which come together to give the solution to the problem. The modules are as follows:

Complaint Module

The complaint module is designed to enable customers post any of their complaint against flight operators or services online. The complaint posted is accessible to all website visitors.

List of Airline Module

The module is designed to display flight operators online. This contains their name, call sign, hub airport.

Flight Schedule Module

Flight schedule module is designed to display flight schedule online. This allows you to select the airline and the system will display their flight schedule.

Flight Reservation Module

Flight reservation module is designed to allow passengers book for their flight ticket.

No of Flight Module

This module displays all the flight that belongs to a particular airline operator.

Maintenance Module

The maintenance module gives information on flight maintenance records. This helps the customers to know when the flight was last maintained.

Login Module

The login module is designed to check administrative password before allowing the user access to administrative functions.

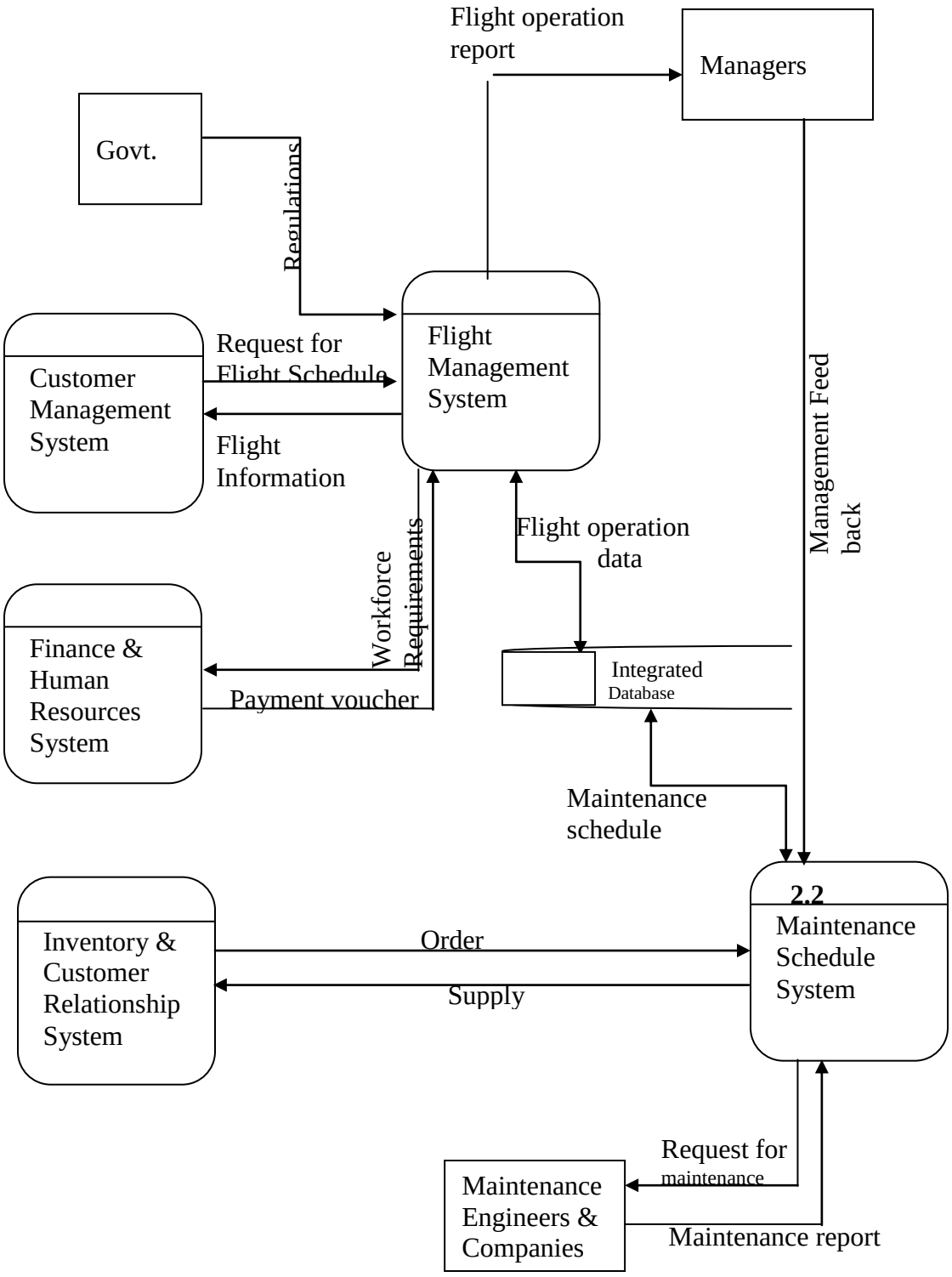
Admin Module

The admin uses this module to create airline information, flight information, flight scheduling, news update, flight maintenance, and maintain the database. This module can also enable administrator to view database reports.

Delete Module

This module is used to delete unwanted records from the database.

4.7 **Overall Data Flow Diagram**



4.8 Choice and Justification of Programming Language Used

So many programming languages were considered in the cause of designing this software. A lot of factors were put into consideration which includes online database access, data transmission via networks, database security, database retrieval online, multi user network access, online data capture, etc. The choice for PHP-MySql was made to enable us achieves the above set objectives. More over, PHP-MySql is very user friendly and enables the design of an interface that can be modified programmatically. Also MYSQL database is a robust database that can guarantee database integrity, database protection, and accommodate large database.

4.9 System Requirement

Computer system is made up of units that are put together to work as one in order to achieve a common goal. The requirements for the implementation of the new system are:

- The Hardware
- The Software

Software Requirement

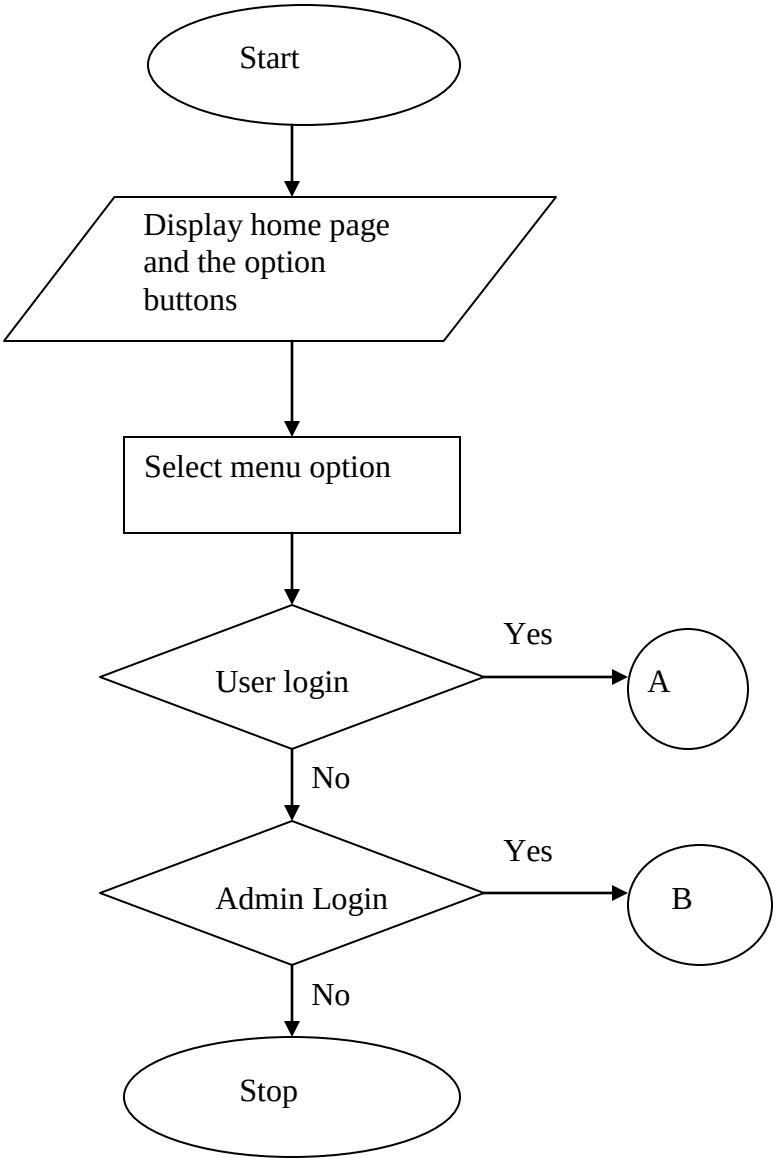
For the effective implementation of the new system, the following software has to be installed on the computer system.

- Windows Xp, Windows 2000 or Vista
- PHP-MySQL
- Dream Weaver
- Web Server
- Swish Max
- Fireworks

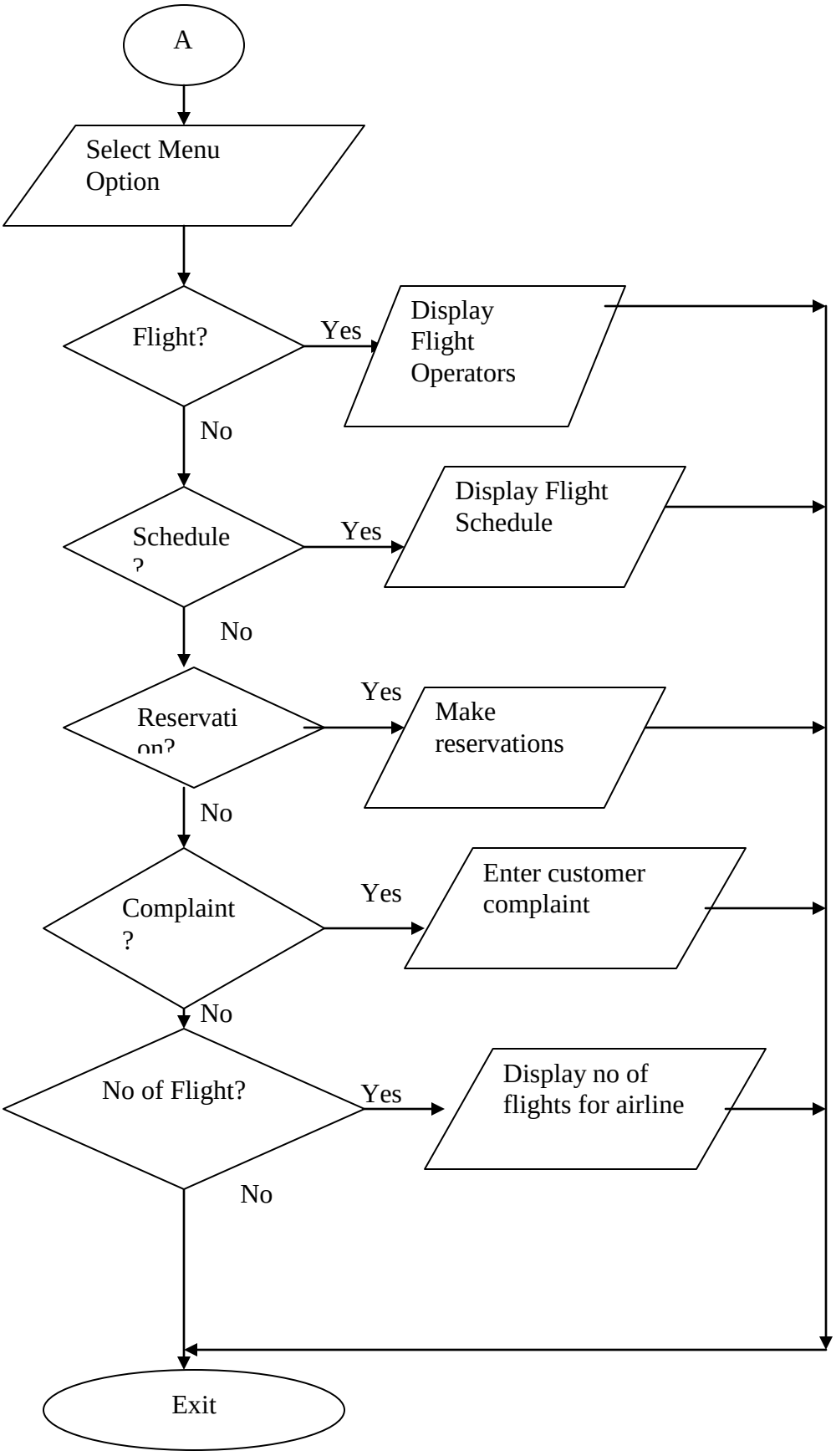
Hardware Requirement

- Pentium VI and Above
- 256 MB Ram and above
- 40GB HD
- Printer

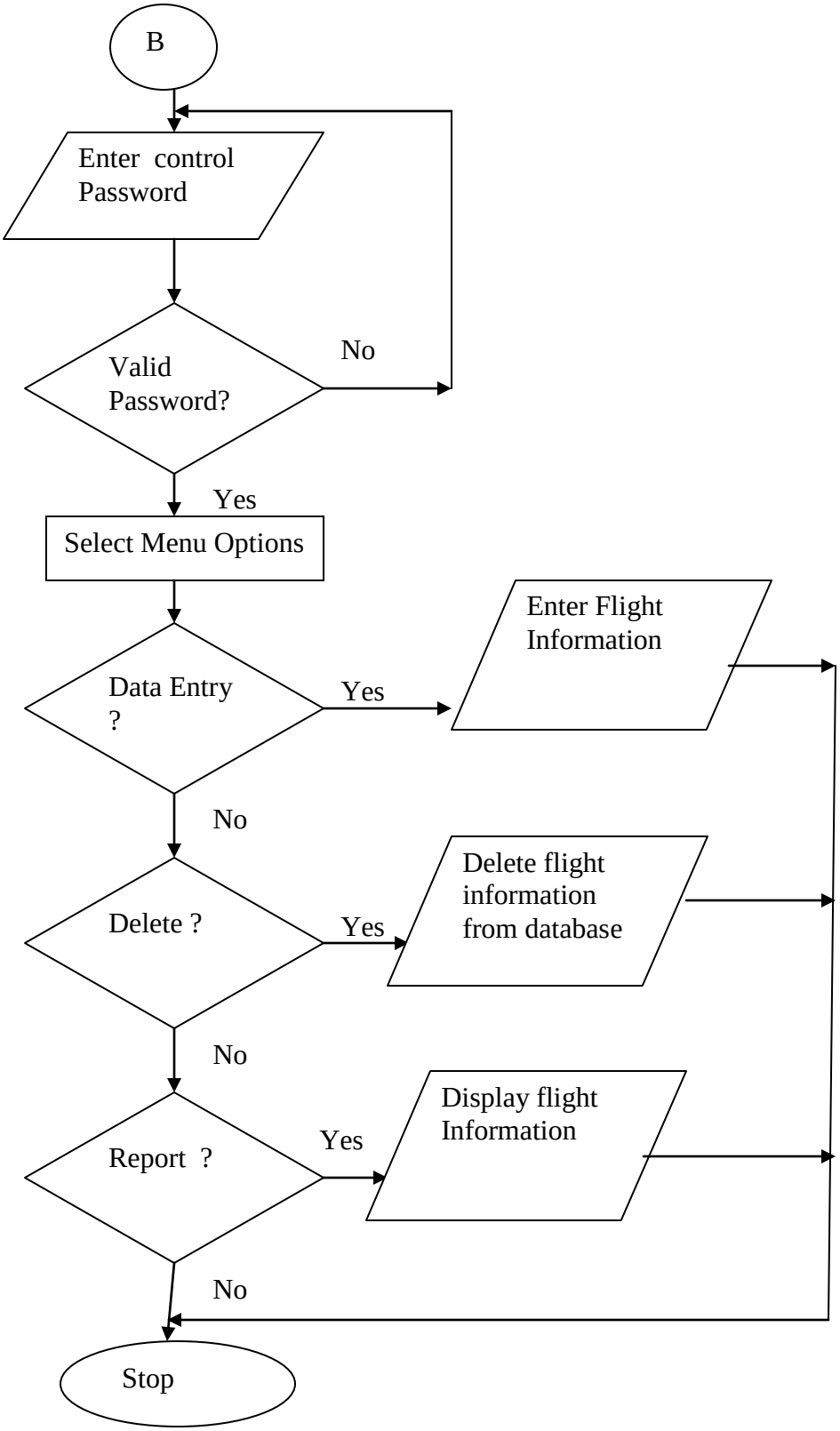
4.10 **Program Flowchart**



Customers Module Flowchart



Admin flowchart



4.11 Change Over Procedure

Although there are numerous change over methods, the one recommended for this system is a parallel run implementation in which both the old and new system are operated concurrently for a period of time until the new system is certified okay. Below is the different change over procedures:

- **Parallel Approach** – In this approach, old and new system are operated side by side until the new one has shown that it is reliable. This approach is low risk. If the new system fails, the organisation can just switch to the old system to keep going. This method, however, is expensive as it keeps people and equipment active to manage the two systems.
- **Pilot Approach** – This approach involves the trial of the new system in only one part of the organisation. Once the system is working out smoothly in that part, focus is then shifted to other parts of the organisation.

  Phased Change Over Approach – This approach is similar to the parallel approach except that initially, only a portion of the current data is run in parallel on the new system for instance, that pertaining to one department or unit only. During the following weeks, more sections are transferred onto the new system. In each case, the old system runs in

parallel for one processing cycle only. Thus, the old system is phased out as the new system builds up.

4.11.1 Training and Retraining of Staff

For the new system to function effectively and efficiently, educating and training of staff is necessary. Training is conducted for the staff selected to do the job of keying in data and running of the system. The members of staff selected, are trained for a period of time on how to manipulate and operate the system so as to be acquainted with the computer and the system designed. The staff members are also given procedural manuals to assist them in operating the system.

They are also educated on how to safeguard files in the system to avoid unauthorized user from gaining access to the system files.

4.11.2 File Conversion

File conversion is a major part of the system development and involves fact-finding, data capturing, clerical procedure design, form design and even program specification. It is an often-expensive part of the systems implementation and usually means the conversion of existing manual records into a medium used by the computer. This itself, may involve the

transcription of records, or part of them, onto specially designed forms before they are keyed onto the appropriate computer medium. Once the file has been created, extensive checking for accuracy is essential; otherwise considerable problems may arise when the system becomes operational.

4.11.3 Maintenance Details

To ensure safety of the software, the following maintenance procedures are recommended.

1. Provision of Uninterrupted Power Supply (UPS) to avoid power failures
2. Installation of Anti Virus in the system
3. Provision of Air conditioner in the environment.

CHAPTER FIVE

SUMMARY, RECOMMENDATION AND CONCLUSIONS

5.1 Summary

According to the present invention there is provided a seat reservation process, the process including the steps of : accepting reservation requests for available seats for an event; offering to customers an option to book a seat having an empty seat adjacent thereto on payment of a premium or agreeing to pay a premium or other consideration; terminating the reservation of requests for seats at a predetermined time; determining, after said step of terminating the reservation of requests for seats, if there are empty seats for the event; and if there are empty seats available for the event, allocating seats having empty seats adjacent thereto to those customers who have paid or have agreed to pay said premium or other consideration.

Normally, the step of terminating the reservation of requests for seats occurs prior to the commencement of the event, but this need not always be the case.

The process may include the steps of making a conditional allocation of an empty seat and confirming allocation of empty seats after said step of terminating the reservation of requests for seats.

5.2 **Recommendations**

The following recommendations are made:

That this system be implemented by Aero airline to enable them go into seat reservation system.

Also schools should expose students to some more relevant programming languages like Visual Basic so as to enable them carryout their projects on their own.

Libraries should be well equipped to simplify the work for students especially during the research phase.

5.3 **Conclusions**

The project work has exposed a lot of information relating to the activities of aviation industries with respect to flight reservation and booking. Also it has been observed that with the trend in technology, most businesses are computerized and with the computerization of the process for flight ticket reservations, the customers can easily make their air seat reservations.

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