**Full Stack Development with MERN**

Project Title: [**Flight booking app**]

**TEAM MEMBERS:**

**1. Yamini.E** [ **TL**]

**2. Agnus.P** [ **front-end developer**]

**3. Sujitha.SV**  [**Back-end developer** ]

**4. Suji.H** [ **Quality assurance** ]

**INTRODUCTION:**

The Airline Reservations System (ARS) was one of the earliest changes to improve efficiency. ARS eventually evolved into the Computer Reservations System (CRS), and then into Global Distribution System (GDS). The airline industry created the first GDS in the 1960s as a way to keep track of flight schedules, availability, and prices. Although accused of being “dinosaurs” due to their use of legacy system technology, GDSs were actually among the first e-commerce companies in the world facilitating B-2-B electronic commerce as early as the mid-1970s, when SABRE (owned by American Airline) and Apollo (United) began installing their propriety internal reservations systems in travel agencies. Prior to this, travel agents spent an inordinate amount of time manually entering reservations. The airlines realized that by automating the reservation process for travel agents, they could make the travel agents more productive and essentially turn into an extension of the airline’s sales force. It is these original, legacy GDSs that today provide the backbone to the Internet travel distribution system.

There are currently four major GDS systems:

➢Amadeus

➢Sabre

➢Galileo

➢Worldspan

**Project Roles and Responsibilities:**

1. \*Project leader (me)\*: Overall project planning, coordination, and monitoring.
2. \*Front-end Developer\*: Responsible for designing and developing the user interface and user experience (UI/UX) of the web app.
3. \*Back-end Developer\*: Focuses on developing the server-side logic, database integration, and API connectivity for the web app.
4. \*Quality Assurance (QA) Engineer\*: Ensures the web app meets the required quality, functionality, and usability standards through testing and validation.

**Assigning Roles to Team Members**

Consider the strengths, skills, and interests of each team member when assigning roles:

1. **Team Member 1** : Front-end Developer

* Skills: HTML, CSS, JavaScript, UI/UX design
* Responsibilities: Design and develop the UI/UX, create prototypes, and implement front-end features

2. **Team Member 2**: Back-end Developer Skills: Server-side programming languages (e.g.,

Node.js, Python), database management, API integration

* Responsibilities: Develop server-side logic, integrate with databases, and create APIs for the web app

3. **Team Member 3**: Quality Assurance (QA) Engineer

* Skills: Testing frameworks, debugging, quality assurance methodologies
* Responsibilities: Develop test cases, execute testing, identify and report bugs, and validate fixes

4. **Team Member 4**: DevOps/Full-stack Developer

- Skills: Familiarity with both front-end and back-end development, DevOps tools (e.g., Jenkins, Docker)

# 2. Project Overview

**Purpose:**

Online Airlinereservation system is to allocatean optionto customersto book the tickets online andtocheckthetestimonyonline.Thissystemwillhelpcompanytodisposeoftheflighttickets online. Before the ARS people find many problems that the people come to the airport and save their seats and as well as inquire the time of flight from representative. To overcome these difficulties, the “Online Airline Reservation System” was introduced.

The purpose of the ARS is to eliminate the many difficulties/problems that occur to the people in the ARS and as well as make it easy for the customers that save the flights and they will be abletoutilize the projectto make their reservations modifyreserveseatandcancelthatreserved seat.

**Features:**

Description Airline Reservation System will hold flight schedules and its fare tariffs, passenger reservations and ticket records. It saves time as it allows online procedure as users no longer to wait in a queue to book the flights. It is automatically generated by the server. Admin is the main authority who can do addition, deletion, and modification of flights if required.

The project has been planned to be having the view of distributed architecture, with centralized storage of the database. The application for the storage of the data has been planned. Using the constructs of Database MySQL and all the user interfaces have been designed using the Microsoft Visual Studio 2010. The database connectivity is planned using the “SQL Connection” methodology. The standards of security and data protective mechanism have been given a big choice for proper usage.

The entire project has been developed keeping in view of the distributed client server computing technology, in mind. The specification has been normalized up to 2NF to eliminate all the anomalies that may arise due to the database transaction that are executed by the general users and the organizational administration. The user interfaces are browser specific to give distributed accessibility for the overall system. The internal database has been selected as Database MySQL.

The Airline Reservation System project is an implementation of a general Airline Ticketing website likeGoibibo, which helps the customers to search the availability and prices of various airline tickets, alongwith the different packages available with the reservations. This project also covers various features like online registration of the users, modifying the details of the website by the management staff or administrator of the website, by adding, deletingor modifying the customer details, flights or packages information. In general, this website would be designed to perform like any other airline ticketing website available online.

**Scope:**

Online Airline Reservation System providemany facilities to the customers that find many problems in the early systems for reserving their seats. This type of systems and software provide the facilities to the passengers and customers to see the flights and their allocated time as well as it will provide the facility to preserve the ticket or modify and cancel that particular reservation

**3. Architecture**

Frontend: Describe the frontend architecture using React.

Backend: Outline the backend architecture using Node.js and Express.js.

Database: Detail the database schema and interactions with MongoDB.

**Frontend Architecture: React**

The .NET Framework is a new computing platform that simplifies application

development in the highly distributed environment of the internet.

• The .NET framework is designed to fulfil the following objectives:

• To provide a consistent object-oriented programming environment whether object code

is stored and executed locally, executed locally but internet distributed, or executed

remotely.

• To provide a code-execution environment that minimizes software development and

versioning conflicts.

• To provide a code-execution environment that guarantees safe execution of code,

including code created by an unknown or semi-trusted third party.

• To provide a code-execution environment that eliminates the performance problems of

scripted or interpreted environments.

• To build all communication on industry standards to ensure that code based on the .NET.

The common language runtime is the foundation of the .NET Framework. The runtime as an

agent that manages code at execution time, providing core services such as memory

management, thread management, and remoting, Code that targets the runtime is known as

unmanaged code. The class library, the other main component of the .NET Framework, is a

comprehensive, object-oriented collection of reusable types that you can use to develop

application ranging from traditional command-line or graphical user interface (GUI)

application to application based on the latest innovations provided by ASP.NET, such has numerous strong programming features that make it endearing to multitude of programmers worldwide. Let us mention some of these

**Hardware Requirement:**

It’s a web-based project, so a robust hardware configuration is required.

The hardware requirements are

• • Processor:Pentium 4 and above

• • Motherboard :Intel core i3

• • RAM:256 to 768 MB

• • Hard Disk

2.5 GB for visual Studio.NET & 1 GB for

Microsoft SQL Server2005 and above

• • Network Card:Standard Ethernet Card for Networking

• • I/O Devices:Keyboard, mouse and Colour monitor

**Software Requirement:**

Following software are requirement for developing virtual examination system application:

* Operating System:Windows XP, 7, 8 etc.
* Platform:ASP.NET, C#, VB
* Environment:Visual Studio 2010
* Versioning Tools:IIS6.0
* RDBMS:SqlServer2008

**Features components:**

Flowchart used specifically for process.

1. A flowchart is defined as a pictorial representation describing a process being studied or even used to plan stages of a project. Flowchart tends to provide people with a common language or a reference point when dealing with a project or a process.

2. Four particular types or flowcharts have proven useful when dealing with a process

analysis: top-down flow chart, detailed flowchart, work

3. Flowchart and a development chart. Each of the different types of flow charts tends to

provide a different aspect to a process or a task.

4. Flowcharts provide an excellent form of documentation for a process, and quite often

are useful when examining now various steps in a process work together.

When dealing with a process flowchart, two separate stages of the process should be

considered: the finished product and the making of the product. In order to analyse the finished

pro duct or how to operate the process, flowcharts tend to use simple and easily recognizable

symbols. The basic flowchart symbols are used when analysing how to operate a process.

• Client Script and Client Frameworks

Reusable Components:

Faster System

➢Accuracy

➢Reliability

➢Informative

➢Reservations

**Backend Architecture:**

A database system is basically a computer-based record keeping system. We have chosen Sql server as Database System because it is easily available as it comes part of Sql suite. The Sql Server 2008 relational database engine supports the feature required to support demanding data processing environments. The database engine protects data integrity while minimizing the overhead of managing thousands of users concurrently modifying the ASP.NET is web application framework designed and developed by Microsoft. ASP.NET is open source and a subset of the .NET Framework and successor of the classic ASP (Active Server Pages). With version 1.0 of the .NET Framework, it was first released in January 2002. So a question comes to mind that which technology we were using before the year 2002 for developing web applications and services? Answer is Classic ASP. So before .NET and ASP.NET there was Classic ASP.

ASP.NET is built on the CLR (Common Language Runtime) which allows the programmers to execute its code using any .NET language (C#, VB etc.). It is specially designed to work with HTTP and for web developers to create dynamic web pages, web applications, web sites, and web services as it provides a good integration of HTML, CSS, and JavaScript.

.NET Framework is used to create a variety of applications and services like Console, Web, and Windows, etc. But ASP.NET is only used to create web applications and web services. That’s why we termed ASP.NET as a subset of the .NET Framework.

The following reasons make ASP.Net a widely used professional language

Key Components:

**End point:**

Imports System.Data.SqlClient

Public Class customerforgot

Inherits System.Web.UI.Page

Dim Conn As New SqlConnection()

Dim SqlStr As String

Private Sub Button1\_Click(sender As Object, e As System.EventArgs) Handles

Button1.Click

Dim message As String = "Password Reset Request has been Submitted"

Dim message1 As String = "Please enter valid Information"

Dim message2 As String = "Please Fill all the Fields"

Dim sb As New System.Text.StringBuilder()

Conn.ConnectionString = Application("ConnStr")

If TextBox1.Text = "" Or password.Text = "" Then

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message2)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

Else

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim Cmd1 As New SqlCommand("select \* from CustomerRegTab where uName='"

& TextBox1.Text & "'", Conn)

Dim DataReader1 As SqlDataReader = Cmd1.ExecuteReader()

If DataReader1.HasRows.ToString = True Then

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim Cmd2 As New SqlCommand("select \* from customerforgottab where

uName='" & TextBox1.Text & "'", Conn)

Dim DataReader2 As SqlDataReader = Cmd2.ExecuteReader()

If DataReader2.HasRows.ToString = True Then

Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim command As New SqlCommand("delete from customerforgottab where

uName ='" & TextBox1.Text & "'", Conn)

command.ExecuteNonQuery()

Conn.Close()

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

SqlStr = "insert into customerforgottab values("

SqlStr = SqlStr & "'" & TextBox1.Text & "','" & password.Text & "','N')"

Dim cmd As New SqlCommand(SqlStr, Conn)

cmd.ExecuteNonQuery()

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

If Conn.State = ConnectionState.Open Then Conn.Close()

Else

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Conn.Open()

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sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

If Conn.State = ConnectionState.Open Then Conn.Close()

End If

Else

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message1)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString()

End If

End If

End Sub

End Class

**Key Collections:**

* Faster System
* Accuracy
* Reliability
* Informative
* Reservations

**4.Set instruction:**

Product Functions

The website will allow access only to authorized users with specific roles (Administratormaintains the website, Company-Register the passengers, Passenger- Fills the details).

Following are the System Functions:

Passenger role: On the register form, passenger should enter all their detail such as their name,

passport number, Email and contact number.

Administration role: The system administrator must be able to: add, update and modify flights

and view the customer details

User Characteristics:

End Users

• All specific knowledge or skills are required from the feeder.

• Educational level: Users should be comfortable with the English language.

• Experience: Users should have prior information regarding the online booking.

• Skills: Users should have basic knowledge and should be comfortable.

Administrator:

Administrator must be capable to manage user rights. This system will not take care of any

virus problem, which might occur either on the Client or the server system. Avoiding the use

of pirated software and ensuring that floppies and other removable media are scanned for

viruses before use could minimize the possibility of viral infection.

Constraints:

The Information of all users, subjects and allocations must be stored in a database that is

accessible by every connected system. MySQL used for database.

➢ Users may access from any system connected to the online database.

➢ Users must have their correct usernames and passwords to enter into their accounts

# 5. Folder Structure

Client: Describe the structure of the React frontend.

Server: Explain the organization of the Node.js backend.

**React Frontend Folder Structure :**

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management, thread management, and remoting, Code that targets the runtime is known as

unmanaged code. The class library, the other main component of the .NET Framework, is a

comprehensive, object-oriented collection of reusable types that you can use to develop

application ranging from traditional command-line or graphical user interface (GUI)

application to application based on the latest innovations provided by ASP.NET,

**Sql Backend Folder Structure :**

database system is basically a computer-based record keeping system. We have chosen Sql

server as Database System because it is easily available as it comes part of Sql suite.

The Sql Server 2008 relational database engine supports the feature required to support

demanding data processing environments. The database engine protects data integrity while

minimizing the overhead of managing thousands of users concurrently modifying.

Imports System.Data.SqlClient

Public Class CustPayment

Inherits System.Web.UI.Page

Dim Conn As New SqlConnection()

Dim SqlStr As String

Protected Sub Page\_Load(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Me.Load

TextBox1.Text = Application("totAmt")

End sub

Protected Sub Button1\_Click(sender As Object, e As EventArgs) Handles Button1.Click

Dim message As String = "Please Fill all the Fields"

Dim sb As New System.Text.StringBuilder()

If DropDownList1.Text = "--Select--" Or TextBox3.Text = "" Then

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

Else

Application("email1") = TextBox3.Text

Conn.ConnectionString = Application("ConnStr")

Conn.Open()

SqlStr = "Update ticketbookingtab set PType='" & DropDownList1.Text &

"',PaymentDetails='" & TextBox3.Text & "' where RefNo=" & Application("tbVar") & ""

Dim Cmd1 As New SqlCommand(SqlStr, Conn)

Cmd1.ExecuteNonQuery()

Conn.Close()

Response.Redirect("CustPaymentgateway.aspx")

End If

End Sub

End class

**6.Running the Application :**

The main objective of the Project on Airlines Reservation System is to manage the details of

Airlines Tickets, Bookings, Customers, Booking Counter. It manages all the information about

Airlines Tickets, Vendors, Booking Counter, and Airlines Tickets. The project is totally built

at administrative end and thus only the administrator is guaranteed the access. The purpose of

the project is to build an application program to reduce the manual work for managing the

Airlines Tickets, Flights, Vendors, and Bookings. It tracks all the details about the Bookings,

Customers, and Booking Counter.

SOFTWARE DEVELOPMENT

• Microsoft

• Sun Microsystems

• CISCO

• Novel

• Oracle

SCOPE OF THE PROJECT

It may help collecting perfect management in details. In a very short time, the collection will

be obvious, simple and sensible. It will help a person to know the management of passed year

perfectly and vividly. It also helps in current all works relative to Airline Reservation System.

It will be also reduced the cost of collecting the management & collection produce will go on

smoothly.

Our project aims at Business process automation, i.e. we have tried to computerize various

processes of Airlines Reservation System.

➢ In computer system the person has to fill the various forms & number of copies of the

forms can be easily generated at a time.

➢ In computer system, it is not necessary to create the manifest but we can directly print it,

which saves our time.

➢ To assist the staff in capturing the effort spent on their respective working areas.

➢ To utilize resources in an efficient manner by increasing their productivity through

automation.

➢ The system generates types of information that can be used for various purposes.

➢ It satisfies the user requirement

➢ Be easy to understand by the user and operator

➢ Be easy to operate

➢ Have a good user interface

**Approach**

Using system approach to develop information system which is known as system development

life cycle. It is a step-by-step process SDLC refers to a methodology for developing systems.

It provides a consistent framework of tasks and needed to develop systems. The SDLC methodology may be condensed to include only those activities appropriate for a particular project, whether the system is automated or manual, whether it is a new system, or an

enhancement to existing systems. The SDLC methodology tracks a project from an idea developed by the user, through a feasibility study, system analysis and design. programming, Pilot-testing, implementation and post-implementation analysis.

Documentation developed during the project development is used in the future when the system

is reassessed for its continuation, modification or deletion. System Development Life Cycle is

a conceptual model used in project management that describes the states involved in an

information system development project from an initial feasibility study through maintenance

of the completed application. Various SDLC methodologies have been developed to guide the

processes involved including the waterfall model, joint application development (JAD), the

fountain model and the spiral model. Documentation is crucial regardless of the type of model

chosen or devised for any application, and is usually done in parallel with the development

process. Some methods work better for specific types of projects, but in final analysis the most

important factor for the success of the project may be how closely particular plan was followed

The software development life cycle (SDLC) is the entire process of formal, logical steps

taken to develop a software product. The phases of SDLC can vary somewhat but generally

include the following

Phase 1: Study and Analysis Phase

In this phase the data, facts and figures will be gathered by checking various documents related

to system. It also covers interviews of the persons who belong to the system. The problems in

the current system will be identified and necessary improvements will be recommended. Thus

a new system, as a solution will be proposed.

Phase 2: Design Phase

The design of a system produces the details that state how a system will meet the requirements

identified during system analysis. In this phase, the detailed specifications for the new system

will be formulated. They will describe its features such as the outputs, inputs, files and

databases, and procedures all in a manner that meets project requirements.

Following the analysis of the existing system, the next step is to develop the Information

System Architecture and Enterprise Data Model (EDM) that will describe effectively the

existing system. The conceptual model will lead to the development of an Enhanced Entity

Relationship Diagram. This will be followed by the development of relational model that

describes the tables (or relations) that can be suitably implemented in any modern relational

DBMS software like SQL

Phase 3: Coding and Implementation Phase

The activity following logical design, which produces program software, files and a working

system, will be carried out. This process will be initiated by first identifying the key factors

responsible for the layout of the software. Then many suggestions received at a previous stage

are analysed and categorized according to their nature. Then the solutions of these problems

will be designed and developed.

The physical model will cover all the physical file organization issues leading to the actual

relations that will be implemented on to the system. The Query Implementation will

demonstrate the various queries that will be executed on the relations created during design

phase. This will be followed by the development of user interfaces and their connectivity with

the database.

Phase 4: Testing

Till now the database design, user interface design and implementation are complete. The

system now is tested for its functionality, validity and performance. In order to test the system,

a wide variety of tests are conducted to make sure that the system matches the entire identified

user requirements and constraints. This chapter focuses on testing the developed systems using

different test strategies in order to verify its correctness and user acceptance.

Testing is a process of executing a program with the intent of finding an error. A good test case

is one that has a high probability of finding an as yet undiscovered error. A successful test is

one that uncovers an as yet undiscovered error.

**7. API Documentation**

**API documentation for the flight booking app**

Analysis collects a great deal of unstructured data through interviews, questionnaires, on-site

observations, and procedural manuals and like. It is required to organize and convert the data

through system flowcharts, data flow diagrams, structured English, decision tables and the like

which support future development of the system.

The Data flow diagrams and various processing logic techniques show how, where, and when

data are used or changed in an information system, but these techniques do not show the

definition, structure and relationships within the data.

It is a way to focus on functions rather than the physical implementation. This is analogous to

the architect’s blueprint as a starting point for system design. The design is a solution, a “how

to” approach, compared to analysis, a “what is” orientation.

System design is a highly creative process. This system design process is also referred as data

modeling. The most common formatted used the E-R notation explains the characteristics and

structure of data independent of how the data may be stored in computer memories.

The process of system design can be divided into three stages. They are:

➢ Structure design (already discussed)

➢ Database design

➢ Interface design

As we know that system design is a solution to “How to approach to the creation of new

system”. It provides the understudying and procedural details necessary for implementing the

system. The steps involved during system design were as follow: -

1. LOGICAL AND PHYSICAL DESIGN

The current physical system was thoroughly reviewed from point of view how the data flow,

what are file contents, its volumes and frequency etc.

After this input, output specifications security & control specification were prepared. It was

also decided that how physical information will flow through the system and a physical design

2. OUTPUT DESIGN:

The format of outputs is designed in such a way that it is simple to read and interpret in the

present output we have clearly labeled title it contains date and time and all the fields are

clearly mentioned (labeled).

3. INPUT DESIGN

Input should be as simple as possible. It is design to reduce possibility of incorrect data being

enter and the need of system user are considered with this view of mind several human factor

is evaluated.

4. SCREEN DESIGN

The screen design for inputting the inputs were also panned as the format of inputs. The

preparation of the environment needed to build the system, the testing of the system, and the

migration and preparation of the data that will ultimately be used by the system are equally

important. In addition to designing the technical solution, System Design is the time to initiate

**8. Authentication :**

**Authentication and Authorization in the Flight booking app Application**

AIRLINE TICKET BOOKING SYSTEM Project includes the following modules:

1) User Login and Registration

2) Administration

3) Ticket Booking

4) Database design

1) User Login & Registration

User module is related with the users of the Airlines Ticket

**Authentication Process**

1) User Login & Registration

User module is related with the users of the Airlines Ticket Booking system. There are Two

types of users of the system, users who wants to book the ticket, admin of the system.

• A user can register oneself with the site and avail the facilities provided by the site.

• A user can register oneself under different membership types.

• User can ask queries.

• A registered user will login into the system.

• A session of the registered user will be maintained

• After logging into the system, a user can view his/her profile.

• A registered user can view all the flights available.

• A registered user can search for a particular flight.

• A registered user can change his/her personal details.

• A registered user can book tickets for selected flight/route.

• A registered user can cancel the tickets that are booked.

2) Administrator

• Administrator can log into the site. He/she will have complete control and access to

each part of the site.

• Admin module relates to administrative tasks.

• It also deals with admin login.

• The admin can view all the information related to site after logging in.

• He can add new flight, new routes.

• He can grant and revoke privileges to certain users of site

3) Ticket Booking

• A registered ID user who wants to book ticket applies for the ticket.

• He/she can book ticket as per his/her wish.

• A registered ID user can select various routes/flight and their destination based on their

requirements.

• Their ticket price will be calculated and displayed to them.

• These details will be stored in the database

4) Database Design and Report Generation

• This module is related with identification of tables that is to be used in the project.

• The project leader with software designers will be responsible for identification of

Tables, their attributes and relationship amongst them.

Any project is developed for getting the desired output from the system. It is very important

for the user to enter accurate information so as to get accurate output. To help this, this system

is bringing designed to how many fields. This is not only made it easier for user to use the

system but also reduce the mistakes made by them.

Reports are the most important output of any system. This help is not only in the monitoring

the day-to-day activities in terms of transactions, user login, results etc. but also create MIS

reports and help for creating future plans.

These reports are created by the administrator use with the user, ticket booking table, ticket

cancelation table. These reports give the description of the user results after booking the online

flight tickets.

**9. User Interface**

System analysis:

Systems Development can generally be thought of as having two major components:

❖ Systems Analysis

❖ Systems Design.

Systems Design is the process of planning a new business system one to replace or complement

an existing system. But before that planning can be done. we must thoroughly understand the

old system and determine how computers can best be used (if at all) to make operation more

effective. Systems analysis. then. is the process of gathering and interpreting facts, diagnosing

problems. and using the information to recommend improvements to the system.

3.1. Feasibility Study

Preliminary investigation examines project feasibility. The likelihood the system will be useful

to the organization. The main objective of the feasibility study is to test the Technical,

Operational and Economical feasibility for adding new modules and debugging old running

system. All system is feasible if they are unlimited resources and infinite time.

There are aspects in the feasibility study portion of the preliminary investigation:

❖ Technical Feasibility

❖ Operation Feasibility

❖ Economic Feasibility

3.1.1. Technical Feasibility

The technical issue usually raised during the feasibility stage of the investigation includes the

following:

➢ Does the necessary technology exist to do what is suggested?

➢ Does the proposed equipment have the technical capacity to hold the data required to

use the new system?

➢ Will the proposed system provide adequate response to inquiries, regardless of the

number or location of users?

➢ Can the system be upgraded if developed?

➢ Are there technical guarantees of accuracy, reliability, ease of access and data security

Earlier no system existed to cater to the needs of ‘Secure Infrastructure Implementation

System’. The current system developed is technically feasible. It is a web based user interface

for audit workflow at NIC-CSD. Thus, it provides an easy access to the users.

The database’s purpose is to create, establish and maintain a workflow among various entities

to facilitate all concerned users in their various capacities or roles. Permission to the users

would be granted based on the roles specified. Therefore, it provides the technical guarantee of

accuracy, reliability and security.

The software and hardware requirements for the development of this project are not many and

are already available in-house at NIC or are available as free as open source. The work for the

project is done with the current equipment and existing software technology. Necessary

bandwidth exists for providing a fast feedback to the users irrespective of the number of users

using the Software.

Operation Feasibility

Proposed projects are beneficial only if they can be turned out into information system. That

will meet the organization’s operating requirements. Operational feasibility aspects of the

project are to be taken as an important part of the project implementation. Some of the

important issues raised are to test the operational feasibility of a project includes the following:

➢ Is there sufficient support for the management from the users?

➢ Will the system be used and work properly if it is being developed and implemented?

➢ Will there be any resistance from the user that will undermine the possible application

benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the

management issues and user requirements have been taken into consideration. So, there is no

question of resistance from the users that can undermine the possible application benefits.

Economic Feasibility:

A system can be developed technically and that will be used if installed must still be a good

investment for the organization. In the economic feasibility, the development cost in creating

the system is evaluated against the ultimate benefit derived from the new

**10. Testing**

**Testing Strategy for Flight booking app**

TESTING

Till now the database design, user interface design and implementation are complete. The

system now is tested for its functionality, validity and performance.

In order to test the system, a wide variety of tests are conducted to make sure that the system

matches the entire identified user requirements and constraints. This chapter focuses on testing

the developed systems using different test strategies in order to verify its correctness and user

acceptance.

Testing is a process of executing a program with the intent of finding an error. A good test case

is one that has a high probability of finding an as yet undiscovered error. A successful test is

one that uncovers an as yet undiscovered error.

The development of software systems involves a series of production activities where

opportunities for injection of human fallibility are enormous. Errors may begin to occur at the

very inception of the process where the objectives may be enormously or imperfectly specified,

as well as in later design and development stages. Because of human inability to perform and

communicate with perfection, software development is accompanied by a quality assurance

activity.

Software testing is a critical element of software quality assurance and represents the ultimate

review of specification, design, and coding. And it needs to be done in almost every phase of

product development life cycle not just before a product is handed to a customer.

The following are some attributes of a good test:

• A good test has a high probability of finding an error. To achieve this goal, the tester

must understand the software and attempt to develop a mental picture of how the

software may fail. Ideally the classes of failure are probed.

• A good test is not redundant: testing time and resources are limited. There is no point

in conducting the test that has the same purpose as another test. Every test should have

a different purpose.

• A good test should be best of breed. In a group of tests that have a similar intent time

and resource limitations may militate for the execution of only

a subset of these tests. In such cases the tester that has the highest likelihood of

uncovering a whole class of errors should be used.

A good test should be neither too simple nor too complex: although it is sometimes

possible to combine a series of tests into one test case, the possible side effects

associated with this approach may mask errors. In general, each test should be executed

separately.

TYPES OF TESTING

1. Unit Testing

Unit testing focuses verification effort on the smallest unit software design- the module. Using

the procedural design description as a guide, important control paths are tested to uncover

errors within the boundary of the module. The module interface is tested to ensure that

information properly flows into and out of the program unit under test. The local data structure

is examined to ensure that data stored temporarily maintains its integrity during all steps in

algorithmic execution.

Boundary conditions are tested to ensure that the module operates properly at boundaries

established to limit or restrict processing. All independent paths (bases paths) through the

control structure are exercised to ensure that all elements in a module have been executed at

least once. And finally all error -handling paths are tested. Application interface of our system

was unit tested at all levels of implementation, right from start of code writing, to integrating

the code with other modules. Every module was tested fully to check its syntax and logical

correctness. Error handling was implemented into relevant modules so that the code doesn't

crash on errors.

2. Integration Testing

Integration testing is a systematic technique for constructing the program structures, while

conducting test to uncover errors associated with interfacing, the objective is to take unit tested

modules and build a program structure that has been dictated by design User interface of IAdmit was developed in modules. All of them were joined together to make the complete

running application. While integrating these modules, integration testing was performed on

them to verify that they meet all interfacing requirements and that they pass relevant

information among themselves. In the end the complete program structure

3. Validation Testing

At the culmination of integration testing software is completely assembled as a package:

interfacing errors have been uncovered and corrected and a final series of software tests -—

Validation Testing may begin. Validation can be defined in many ways, but a simple definition

is that validation succeeds when software functions in a manner that can be reasonably

expected by the customer. Software validation is achieved through a series of Black Box tests

that demonstrate conformity with requirements.

4. Alpha Testing

It is virtually impossible for a software developer to foresee how the customer will really use

a program. When custom software is built for one customer a series of acceptance tests are

conducted to enable the customer to validate all requirements. A customer conducts the alpha

test at the developer site. The software is used in a natural setting with the developer "looking

over the shoulder" of the user and recording errors and usage problem

5. Beta Testing

The Beta test is conducted at one or more customer sites by the end user of the software.

Unlike alpha testing the developer is generally not present. Therefore, the beta test is a live

application of the software in an environment that cannot be controlled by the developer. The

customer records all problems that are encountered during beta testing and reports these to

the developer at regular intervals. As a result of problems reported during beta test the

software developer makes modification and then prepares for the release of software product

to the entire customer base. Beta testing of our system is not performed as the product is not

yet fully developed and has not been installed at the user site as it still is in the development

phase. Beta testing will be performed when the software is deployed at the user's site.

6. System Testing

Ultimately software is incorporated with other system elements (new hardware, information)

and a series of system, integration and validation tests are conducted. It is actually a series of

different tests whose primary purpose is to fully exercise the computer-based system.

Although each test has a different purpose all work to verify that all system elements have

been properly integrated and perform allocated functions. System testing of this system was

performed at the development lab of this system by integrating the functional systems to

imitate the actual work environment.

7. Security Testing

Security Testing attempts to verify protection mechanism built into a system will in fact

protect it from improper penetration. Security is provided for each user by giving them login

name and password. Security testing was done, as any other anonymous user can't log

Phase 2: Design Phase

The design of a system produces the details that state how a system will meet the requirements

identified during system analysis. In this phase, the detailed specifications for the new system

will be formulated. They will describe its features such as the outputs, inputs, files and

databases, and procedures all in a manner that meets project requirements.

Following the analysis of the existing system, the next step is to develop the Information

System Architecture and Enterprise Data Model (EDM) that will describe effectively the

existing system. The conceptual model will lead to the development of an Enhanced Entity

Relationship Diagram. This will be followed by the development of relational model that

describes the tables (or relations) that can be suitably implemented in any modern relational

DBMS software like SQL

Phase 3: Coding and Implementation Phase

The activity following logical design, which produces program software, files and a working

system, will be carried out. This process will be initiated by first identifying the key factors

responsible for the layout of the software. Then many suggestions received at a previous stage

are analysed and categorized according to their nature. Then the solutions of these problems

will be designed and developed.

The physical model will cover all the physical file organization issues leading to the actual

relations that will be implemented on to the system. The Query Implementation will

demonstrate the various queries that will be executed on the relations created during design

phase. This will be followed by the development of user interfaces and their connectivity with

the database.

Phase 4: Testing

Till now the database design, user interface design and implementation are complete. The

system now is tested for its functionality, validity and performance. In order to test the system,

a wide variety of tests are conducted to make sure that the system matches the entire identified

user requirements and constraints. This chapter focuses on testing the developed systems using

different test strategies in order to verify its correctness and user acceptance.

Testing is a process of executing a program with the intent of finding an error. A good test case

is one that has a high probability of finding an as yet undiscovered error. A successful test is

one that uncovers an as yet undiscovered error.

**11. Coding:**

**1.LANDING PAGE:**

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"

"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd"

<html xmlns="http://www.w3.org/1999/xhtml">

<head runat="server">

<title>Flight Ticket Booking</title>

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/fontawesome/4.7.0/css/font-awesome.min.css" />

</head>

<body>

<form id="form1" runat="server">

<header id="header">

<a href="#" class="logo"><i class="fa fa-plane" aria-hidden="true"></i>Flyplane</a>

<ul>

<li><a href="https://www.instagram.com/rnsfgc\_official/?utm\_medium=copy\_link"><i

class="fa fa-instagram" aria-hidden="true"></i></a></li>

<li><a href="https://www.facebook.com/RNS-First-Grade-College-

110661297327959"><i class="fa fa-facebook" aria-hidden="true"></i></a></li>

<li><a href="https://twitter.com/RNSFGC\_Blore"><i class="fa fa-twitter" ariahidden="true"></i></a></li>

<li><a href="https://rnsfgc.edu.in/"><i class="fa fa-globe" ariahidden="true"></i></a></li>

</ul>

</header>

<section>

<h2 id="text"><span>It's Time For New</span><br/>Adventure</h2>

<img src="images/plane.png" id="plane"/>

<img src="images/city.png" id="city"/>

<a href="mainpage.aspx" id="btn">Explore</a>

<img src="images/rocks.png" id="rocks"/>

</section>

<div class="sec">

<h2>Discover The World</h2>

<img src="images/seclogo.png" alt=""/>

</div>

<script src="https://cdnjs.cloudflare.com/ajax/libs/gsap/3.7.1/gsap.min.js"></script>

<script

src="https://cdnjs.cloudflare.com/ajax/libs/gsap/3.7.1/ScrollTrigger.min.js"></script>

<script>

gsap.to("#text", {

scrollTrigger : {

scrub : 1

},

y : -100,

});

gsap.to("#plane", {

scrollTrigger : {

scrub : 1

},

y : -50,

});

gsap.to("#plane", {

scrollTrigger : {

scrub : 1

},

x : 200,

});

gsap.to("#btn", {

scrollTrigger : {

scrub : 1

},

y : 200,

});

gsap.to("#rocks", {

scrollTrigger : {

scrub : 1

},

y : 50,

});

</script>

</form>

</body>

</html>

**2. LANDING PAGE**

Public Class mainpage

Inherits System.Web.UI.Page

Protected Sub Page\_Load(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Me.Load

Panel3.Visible = False

End Sub

Private Sub Button1\_Click(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Button1.Click

If (Panel3.Visible = False) Then

Panel3.Visible = True

ElseIf (Panel3.Visible = True) Then

Panel3.Visible = False

End If

End Sub

Private Sub Button2\_Click(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Button2.Click

Button1.Text = "Customer Login"

End Sub

Private Sub Button3\_Click(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Button3.Click

Button1.Text = "Admin Login"

End Sub

Private Sub Button4\_Click(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Button4.Click

Dim message As String = "Please Select User Type"

Dim sb As New System.Text.StringBuilder()

If (Button1.Text = "Select User Name") Then

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

ElseIf (Button1.Text = "Customer Login") Then

Response.Redirect("customerlogin.aspx")

ElseIf (Button1.Text = "Admin Login") Then

Response.Redirect("adminlogin.aspx")

End If

End Sub

End Class

**3. CUSTOMER LOGIN PAGE**

Imports System.Data.SqlClient

Public Class customerlogin

Inherits System.Web.UI.Page

Dim Conn As New SqlConnection()

Dim SqlStr As String

Protected Sub Page\_Load(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Me.Load

End Sub

Private Sub Button1\_Click(sender As Object, e As System.EventArgs) Handles

Button1.Click

Dim message As String = "Please Enter Correct Username and Password/Your signup

request has not been processed yet"

Dim sb As New System.Text.StringBuilder()

Conn.ConnectionString = Application("ConnStr")

Conn.Open()

Dim Cmd1 As New SqlCommand("select \* from CustomerRegTab where uName='" &

TextBox1.Text & "' and pWord = '" & password.Text & "'and Approved = 'Y'", Conn)

Dim DataReader1 As SqlDataReader = Cmd1.ExecuteReader()

If DataReader1.HasRows.ToString = True Then

Application("uName") = TextBox1.Text

Response.Redirect("customermainpage.aspx")

Else

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

End If

Conn.Close()

End Sub

End Class

4. ADMIN LOGIN PAGE

Imports System.Data.SqlClient

Public Class adminlogin;

Inherits System.Web.UI.Page

Dim Conn As New SqlConnection()

Dim SqlStr As String

Protected Sub Page\_Load(ByVal sender As Object, ByVal e As System.EventArgs)

Handles Me.Load

End Sub

Private Sub Button1\_Click(sender As Object, e As System.EventArgs) Handles

Button1.Click

Dim message As String = "Please Enter Correct Username and Password"

Dim sb As New System.Text.StringBuilder()

Conn.ConnectionString = Application("ConnStr")

Conn.Open()

Dim Cmd1 As New SqlCommand("select \* from AdminLoginTab where uName='" &

TextBox1.Text & "' and pWord = '" & password.Text & "'", Conn)

Dim DataReader1 As SqlDataReader = Cmd1.ExecuteReader()

If DataReader1.HasRows.ToString = True Then

Application("aName") = TextBox1.Text

Response.Redirect("adminmainpage.aspx")

Else

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

End If

Conn.Close()

End Sub

End Class

5. ADMIN FORGOT PASSWORD PAGE

Imports System.Data.SqlClient

Public Class adminforgot

Inherits System.Web.UI.Page

Dim Conn As New SqlConnection()

Dim SqlStr As String

Protected Sub Button1\_Click(sender As Object, e As EventArgs) Handles Button1.Click

Dim message As String = "Password Reset Request has been Submitted"

Dim message1 As String = "Please enter valid Information"

Dim sb As New System.Text.StringBuilder()

Conn.ConnectionString = Application("ConnStr")

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim Cmd1 As New SqlCommand("select \* from AdminLoginTab where uName='" &

TextBox1.Text & "'", Conn)

Dim DataReader1 As SqlDataReader = Cmd1.ExecuteReader()

If DataReader1.HasRows.ToString = True Then

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim Cmd2 As New SqlCommand("select \* from adminforgottab where uName='" &

TextBox1.Text & "'", Conn)

Dim DataReader2 As SqlDataReader = Cmd2.ExecuteReader()

If DataReader2.HasRows.ToString = True Then

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

Dim command As New SqlCommand("delete from adminforgottab where uName

='" & TextBox1.Text & "'", Conn)

command.ExecuteNonQuery()

Conn.Close()

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

SqlStr = "insert into adminforgottab values("

SqlStr = SqlStr & "'" & TextBox1.Text & "','" & password.Text & "','N')"

Dim cmd As New SqlCommand(SqlStr, Conn)

cmd.ExecuteNonQuery()

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

If Conn.State = ConnectionState.Open Then Conn.Close()

Else

If Conn.State = ConnectionState.Open Then Conn.Close()

Conn.Open()

SqlStr = "insert into adminforgottab values("

SqlStr = SqlStr & "'" & TextBox1.Text & "','" & password.Text & "','N')"

Dim cmd As New SqlCommand(SqlStr, Conn)

cmd.ExecuteNonQuery()

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

If Conn.State = ConnectionState.Open Then Conn.Close()

End If

Else

sb.Append("<script type = 'text/javascript'>")

sb.Append("window.onload=function(){")

sb.Append("alert('")

sb.Append(message1)

sb.Append("')};")

sb.Append("</script>")

ClientScript.RegisterClientScriptBlock(Me.GetType(), "alert", sb.ToString())

End If

End Sub

End Class

**12. Modules:**

AIRLINE TICKET BOOKING SYSTEM Project includes the following modules:

1) User Login and Registration

2) Administration

3) Ticket Booking

4) Database design

1) User Login & Registration

User module is related with the users of the Airlines Ticket Booking system. There are Two

types of users of the system, users who wants to book the ticket, admin of the system.

• A user can register oneself with the site and avail the facilities provided by the site.

• A user can register oneself under different membership types.

• User can ask queries.

• A registered user will login into the system.

• A session of the registered user will be maintained

• After logging into the system, a user can view his/her profile.

• A registered user can view all the flights available.

• A registered user can search for a particular flight.

• A registered user can change his/her personal details.

• A registered user can book tickets for selected flight/route.

• A registered user can cancel the tickets that are booked.

2) Administrator

• Administrator can log into the site. He/she will have complete control and access to

each part of the site.

• Admin module relates to administrative tasks.

• It also deals with admin login.

• The admin can view all the information related to site after logging in.

• He can add new flight, new routes.

• He can grant and revoke privileges to certain users of site

3) Ticket Booking

• A registered ID user who wants to book ticket applies for the ticket.

• He/she can book ticket as per his/her wish.

• A registered ID user can select various routes/flight and their destination based on their

requirements.

• Their ticket price will be calculated and displayed to them.

• These details will be stored in the database

4) Database Design and Report Generation

• This module is related with identification of tables that is to be used in the project.

• The project leader with software designers will be responsible for identification of

Tables, their attributes and relationship amongst them.

Any project is developed for getting the desired output from the system. It is very important

for the user to enter accurate information so as to get accurate output. To help this, this system

is bringing designed to how many fields. This is not only made it easier for user to use the

system but also reduce the mistakes made by them.

Reports are the most important output of any system. This help is not only in the monitoring

the day-to-day activities in terms of transactions, user login, results etc. but also create MIS

reports and help for creating future plans.

These reports are created by the administrator use with the user, ticket booking table, ticket

cancelation table. These reports give the description of the user results after booking the online

flight booking.

**13. Future Enhancements**

Our future planning is to take this project towards an Android App and QR Code Scanning. So that a customer can easily contact to the Airlines and they are getting quick Services from Airlines.We also want in future to place in market so that customer can take more advantages and saves their important time. We are also finding and approaching to companies which are using this type of software.

➢ This system can be updated as online system.

➢ Multi-user Interface can be added to this system.

➢ As an Aviaries prepared for future growth it determines, it would replace open skill in airline.

**CONCLUSION:**

The software package “Airline Reservation System” provides convenient online uploading the report from executive and viewing that report by the managing director in an online fashion.

To input the data in a highly validated manner and generating the different reports, this involves

* complex process that was being done on based manner. This package is designed and developed in a compact manner, which is ready to meet the user’s specification and to serve them in an effective as well as in an enhanced manner.