ABSTRACT

The Airline Reservation System using Java is a comprehensive software application designed to streamline and enhance the airline booking process. This system offers a user-friendly interface and a multitude of features to cater to the complex needs of the aviation industry. It simplifies the task of booking flights, reserving seats, and managing passenger information, resulting in an improved overall customer experience. The system's core functionality includes real-time access to flight availability, pricing information, and secure payment processing. It also encompasses a robust database management system to efficiently store and retrieve crucial data.

One of the standout features of this project is its flexibility and scalability, making it a valuable tool for both small regional airlines and large international carriers. Airlines can easily expand their services, add new routes, and adapt to fluctuating market demands with this system. It also caters to multiple aspects of airline operations, including flight scheduling, seat allocation, and passenger data management, providing a holistic solution for carriers.

Security is a paramount concern in the airline industry, and this project addresses it by implementing advanced encryption techniques and access control mechanisms. This ensures the confidentiality and integrity of passenger data and payment information, protecting against potential security breaches.

Moreover, the project places great emphasis on passenger convenience by providing an intuitive and easy-to-navigate user interface. Passengers can effortlessly search for available flights, compare prices, and make reservations with minimal effort and time. This translates into increased customer satisfaction and loyalty, a critical factor in today's highly competitive aviation landscape.

The system also offers robust reporting and analytical capabilities, allowing airlines to make data-driven decisions. By analyzing flight performance, passenger preferences, and financial data, carriers can optimize their routes, pricing strategies, and overall operations, ultimately leading to better profitability and customer service.

In conclusion, the Airline Reservation System using Java is a sophisticated and feature-rich solution that not only simplifies the booking process but also assists airlines in managing their operations more efficiently. It has the potential to revolutionize the airline industry by improving customer service, increasing operational efficiency, and ensuring the security and privacy of sensitive data. With its adaptability and scalability, it is poised to become an indispensable asset for airlines striving to thrive in the dynamic and competitive aviation sector. This project is not only a reflection of the capabilities of Java but also a testament to the continuous evolution of technology in the airline industry, enhancing the travel experience for passengers worldwide.

Github Link :

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CHAPTER 1

INTRODUCTION

As long as they have an internet connection, users or customers of today's airlines can book a seat or a flight from anywhere in the globe. Customers now find it easier to travel by air because of technological innovation, which has made reservations and bookings for airlines just a click away.

Air travel is currently the fastest mode of transportation. These days, thousands of people swarm the airline sector in an attempt to reach their destination quickly. Customers typically use air travel to visit other states, countries, and continents because vehicles, trains, and other transportation equipment cannot cross the Atlantic or Pacific oceans.Display more content...

Due to the evaluation of the travel agent's ability to make direct reservations, the airline industry offered. An airline reservation system, often referred to as an ARS, is a critical component of the modern air travel industry, playing a pivotal role in facilitating the complex process of booking flights and managing passenger information. In an era where global travel has become an integral part of our lives, the efficiency and reliability of these systems are paramount.

The airline reservation system is the digital backbone of airlines, travel agencies, and passengers alike. It enables travelers to search for flights, compare fares, and book tickets, all from the convenience of their devices. Airlines rely on these systems to manage their flight schedules, seat availability, and passenger information, ensuring that flights operate smoothly and according to plan.

This introduction explores the significance of airline reservation systems, how they have evolved with technology, and their role in making air travel more accessible and efficient. From the early days of manual booking to the cutting-edge, real-time, online reservation platforms, these systems have reshaped the way we experience and access air travel, creating a seamless bridge between airlines and passengers. This article will delve into the history, components, and the underlying technology that powers airline reservation systems, as well as their impact on the travel industry and the future of air travel.

An airline reservation system is the digital nerve center of the aviation industry, playing a vital role in simplifying and streamlining the complex world of air travel. In today's interconnected world, where millions of people are constantly on the move, these systems have become indispensable, revolutionizing the way we plan, book, and experience flights.

From its humble beginnings as a manual booking process, where travelers had to rely on travel agents and paper tickets, airline reservation systems have evolved into sophisticated, real-time platforms that empower passengers to take control of their travel plans. These systems have fundamentally altered the dynamics of the airline industry, making it more accessible, convenient, and efficient.

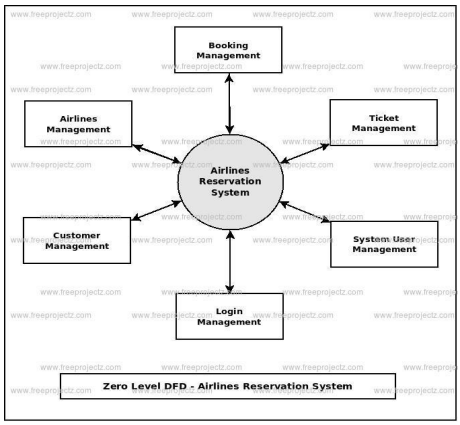
The backbone of an airline's operations, these systems serve as a hub for managing every aspect of flight bookings, from seat availability and pricing to passenger information and ticket

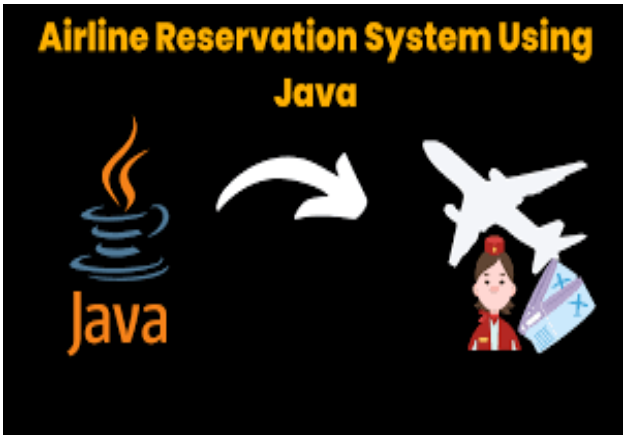
issuance. They ensure that flights are scheduled, routes are optimized, and passengers are accommodated with the utmost precision. Moreover, these systems enable airlines to remain competitive in a fast-paced industry where customer expectations are constantly evolving.

This introduction sets the stage to delve deeper into the fascinating world of airline reservation systems, exploring their history, architecture, functionality, and impact on the aviation industry. It also paves the way for a discussion on the critical role technology plays in the seamless operation of these systems and how they continue to shape the future of air travel. Whether you're a traveler seeking convenience or an aviation enthusiast interested in the inner workings of the airline industry, the airline reservation system is a topic of intrigue and significance.

In the airline industry, available seats are commonly referred to as inventory. The inventory of an airline is generally classified into service classes (e.g. economy, premium economy, business or first class) and any number of fare classes, to which different prices and booking conditions may apply. Fare classes are complicated and vary from airline to airline, often indicated by a one letter code. The meaning of these codes are not often known by the passenger, but conveys information to airline staff, for example they may indicate that a ticket was fully paid, or discounted or purchased through a loyalty scheme, etc. Some seats may not be available for open sale, but reserved for example for connecting flight or loyalty scheme passengers. Overbooking is also a common practice, and is an exception to inventory management principles. One of the core functions of inventory management is inventory control. Inventory control monitors how many seats are available in the different fare classes, and by opening and closing individual fare classes for sale.

A flight schedule management system forms the foundation of the inventory management system. Besides other functions, it is critical for ticket sales, crew member assignments, aircraft maintenance, airport coordination, and connections to partner airlines. The schedule system monitors what and when aircraft will be available on particular routes, and their internal configuration. Inventory data is imported and maintained from the schedule distribution system. Changes to aircraft availability would immediately impact the available seats of the fleet, as well as the seats which had been sold.





The price for each sold seat is determined by a combination of the fares and booking conditions

stored in the Fare Quote System,. In most cases, inventory control has a real time interface to an airline's yield management system to support a permanent optimization of the offered booking classes in response to changes in demand or pricing strategies of competitors.

Airline reservation systems incorporate airline schedules, fare tariffs, passenger reservations and ticket records. An airline's direct distribution works within their own reservation system, as well as pushing out information to the GDS. The second type of direct distribution channel are consumers who use the internet or mobile applications to make their own reservations. Travel agencies and other indirect distribution channels access the same GDS as those accessed by the airline reservation systems, and all messaging is transmitted by a standardized messaging system that functions on two types of messaging that transmit on SITA's high level network (HLN). These messaging types are called Type A [usually EDIFACT format] for real time interactive communication and Type B [TTY] for informational and booking type of messages. Message construction standards set by IATA and ICAO, are global, and apply to more than air transportation. Since airline reservation systems are business critical applications, and they are functionally quite complex, the operation of an in-house airline reservation system is relatively expensive.

Prior to deregulation[clarification needed], airlines owned their own reservation systems with travel agents subscribing to them. Today, the GDS are run by independent companies with airlines and travel agencies being major subscribers.

As of February 2009, there are only four major GDS providers in the market: Amadeus, Travelport (which operates the Apollo, Worldspan and Galileo systems), Sabre and Shares. There is one major Regional GDS, Abacus, serving the Asian market and a number of regional players serving single countries, including Travelsky (China), Infini and Axess (both Japan) and Topas (South Korea). Of these, Infini is hosted within the Sabre complex, Axess is in the process of moving into a partition within the Worldspan complex, and Topas agencies will be migrating into Amadeus.

Reservation systems may host "ticketless" airlines and "hybrid" airlines that use e-ticketing in addition to ticket-less to accommodate code-shares and interlines. In addition to these "standardized" GDS, some airlines have proprietary versions which they use to run their flight operations. A few examples are Delta's OSS and Deltamatic systems and EDS SHARES. SITA Reservations remains the largest neutral multi-host airline reservations system, with over 100 airlines currently managing inventory.

An airline reservation system is a powerful tool that allows airlines to sell their inventory, manage their schedules, and track their passengers. It is a vast database of information that includes flight schedules, fares, seat availability, and passenger reservations. Airline reservation systems also allow passengers to book their tickets online, track their flights, and make changes to their reservations.

These systems also help airlines to improve operational efficiency by optimizing seat utilization, flight scheduling, and resource allocation. By integrating real-time flight information, passenger preferences, and payment gateways, airline reservation systems create a seamless and convenient booking experience for travelers while empowering airlines to effectively manage their services.

1.1 WHAT IS AIRLINE RESERVATION SYSTEM

In airlines the online reservation system plays a vital role in the modern days. It makes booking the tickets for the journey easy with family and friends.In the reservation system there are some categories for the passengers for booking tickets.

A passenger service system (PSS) is a suite of software modules, supporting interactions between the carrier and its customers. Its key components are a central or airline reservation system (CRS), an inventory control system (ICS), and a departure control system (DCS.)

The PSS also comprises or integrates with a revenue management tool that analyzes historical data and sets pricing rules and an e-commerce platform (airline website) for flight and ancillary distribution. Some key players among PSSs are New Skies by Navitaire, Altea by Amadeus, and Avantik by Bravo Aero.

A central reservation system, also called an airline or computer reservation system, serves as storage for flight-related information like schedules, fares and rules for each booking class, passenger name records (PNRs), e-tickets, etc. It's also involved in managing booking requests and ticket issuing. Some airlines run their own CRS that may come as a part of the PSS. Yet, many carriers prefer to host and manage reservations on one of the GDSs.

In a broader sense, a CRS is a key technology of any travel organization that sells its inventory online, namely, hotels and airlines. It allows managers to control reservations across all distribution platforms.

A passenger name record (PNR) or booking file is a digital document that contains information about a traveler or group of travelers and their itinerary. Each PNR has a unique code called a booking reference or record locator. Thanks to this number, the file can be easily found in the CRS database. A traveler purchasing a flight gets the code via email and can use it to access flight details or check in online

The airways reservation system provides passengers with an online means of booking a flight ticket as well as cancellation of a previously booked ticket. A passenger can also reschedule a ticket as per convenience and look up if there are seats available in the questioned flight or not. The passengers can stay updated with the flight information. This provides a lot of ease to the passengers as well as the airlines.
Manual systems are more prone to error. Hence many a times they are unreliable. In cases of any changes in the flight schedule or cancellation of any flight, if the changes are not reciprocated to the passengers on time it causes a lot of inconvenience and this affects the reliability of the airlines as well. Any discrepancy may cause a lot of chaos and trouble to the airlines as well as passengers.

1.2 HISTORY OF AIRLINE

The earliest fixed wing airline in Europe was Aircraft Transport and Travel, formed by George Holt Thomas in 1916; via a series of takeovers and mergers, this company is an ancestor of modern-day British Airways. Using a fleet of former military Airco DH.4A biplanes that had been modified to carry two passengers in the fuselage, it operated relief flights between Folkestone and Ghent, Belgium. On July 15 , 1919, the company flew a proving flight across the English Channel, despite a lack of support from the British government. Flown by Lt. H Shaw in an Airco DH.9 between RAF Hendon and Paris – Le Bourget Airport, the flight took 2 hours and 30 minutes at £21 per passenger.

On August 25, 1919, the company used DH.16s to pioneer a regular service from Hounslow Heath Aerodrome to Paris's Le Bourget, the first regular international service in the world. The airline soon gained a reputation for reliability, despite problems with bad weather, and began to attract European competition. In November 1919, it won the first British civil airmail contract. Six Royal Air Force Airco DH.9A aircraft were lent to the company, to operate the airmail service between Hawkinge and Cologne. In 1920, they were returned to the Royal Air Force

Tony Jannus conducted the United States' first scheduled commercial airline flight on January 1, 1914 for the St. Petersburg-Tampa Airboat Line. The 23-minute flight traveled between St. . His passenger was a former mayor of St. Petersburg, who paid $400 for the privilege of sitting on a wooden bench in the open cockpit. The Airboat line operated for about four months, carrying more than 1,200 passengers who paid $5 each

For many years, flight reservation was an off-putting, difficult task. As air travel became a viable transportation option in the early 40s, thousands of people became ticket buyers. With the growing number of customers, carriers had to overcome numerous challenges to make booking fast, convenient, and operationally easy. Twenty years or so down the road in the 60s, the whole booking process could be accomplished in minutes – through a travel agent. Fast forward to today – and previously unimaginable – travelers enjoy fully automated ticket booking, reserving and paying for flights using smartphones.

Ticketing agents were operating with paper cards stored in a rotating tank, manually checking flight and seat availability, filling in passenger info by hand. The whole process was clumsy and slow, making it hard for carriers to process large volumes of bookings.
During the late 50s, this issue was partially solved by IBM's early computerized systems.. Both devices represented complicated mechanical computers that could show seat availability.

1.3 APPLICATION OF AIRLINE REGISTRATION

Creating an application for an airline reservation system is a complex and multi-faceted project. Below, I'll provide you with a high-level outline of what an application for an airline reservation system might involve. You can use this as a basis to create a project proposal or plan for your airline reservation system application:

The Airline Reservation System Application aims to provide a user-friendly and efficient platform for customers to search, book, and manage airline reservations. The system will also offer airlines and administrators the ability to manage flight schedules, seat availability, and customer bookings. The primary objective is to streamline the reservation process for both passengers and airlines, reducing manual workload and improving customer experience.

1.User Registration and Authentication. User registration with profile management.Secure authentication system with password reset and recovery.

2.Flight Search and Booking,search for flights based on various criteria (e.g., origin, destination, date, class).Display available flights and fare details. Reserve and book flights, including the selection of seats.Payment processing for bookings.

3. User Profile Management, view and update personal information. Manage past and upcoming reservations. Store and manage payment information securely.

4. Admin Panel ,time and schedule for the airline is telecasted by the admin at airport and manage the runtime of the flight and issues happens at the critical situation in the flight.

5. Seat Selection,interactive seat maps for passengers to select preferred seats. Based on the passenger they have to book the tickets. There are two different categories for the passenger for traveling in the airline.

6. Notification and Confirmation.The notification of ticket booking is sent to the respective passenger and confirmation emails and SMS notifications for bookings. Notify users of any changes to their flights.The Airline Reservation System Application is a significant project that aims to improve the booking process for both passengers and airlines. By implementing a user-friendly interface, robust security measures, and efficient flight management, the system will contribute to a seamless and enjoyable booking experience for travelers while streamlining operations for airlines.

The purpose of the present Airline Reservation system is to allow customer to interact that gives some basic information such as all flight information, availability of accommodation in flights, ticket booking, class type like luxury/ super luxury/ special/ AC/ non AC.

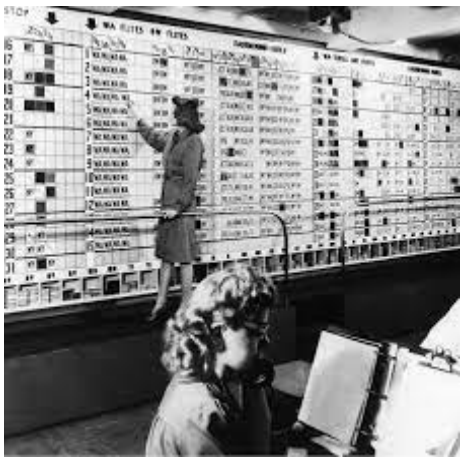
Online reservation is a good level of security so it takes care of the user's safety concerns as well. Passengers can access the whole list of all the flights available on different routes with their timings and fare both for economy and business classes. One can compare the best deals for them and book a flight accordingly. When the passengers enter all the details the software helps them to find all available flights and also information if there are seats available on that particular flight. The manual work is thus reduced and the chances of errors are reduced to minimum.

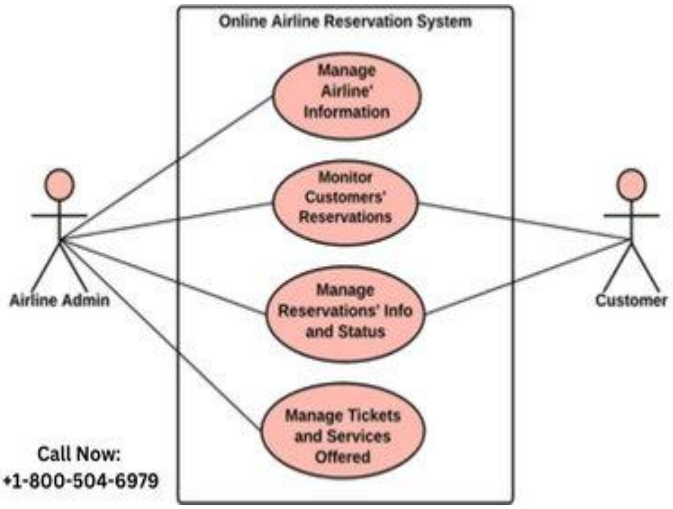
1.4 DIFFICULTIES IN AIRLINE RESERVATION SYSTEM

An Airline Reservation system is very important because it has the strong ability to reduce errors that might have occurred when using a manual system of reservation and helps speed up the boarding process. Overland Airways has an existing Airline Reservation System, but this paper analyzed the problems of the existing system.

The problems are: inability of passengers to select their preferred seat(s) from the reservation system, No option of passengers printing their boarding pass from the existing system, non-notification of passengers of flight cancellation or delays and passengers don't have access to aircraft maintenance report to ease the fears associated with air travel and its disasters.

The following programming languages were used: PHP, JavaScript, HTML and CSS for designing the interface of the system, and SQL for the database. The designed airline system was tested with 50 passengers.





Airlines face several challenges when developing and maintaining their reservation system. Some of these challenges include:

Cost: Developing and maintaining a reservation system can be costly, particularly for smaller airlines that may not have the resources to invest in the technology required to support a modern reservation system.

Compatibility: Ensuring compatibility between the reservation system and other airline systems, such as flight operations and revenue management, can be a challenge. Integrating different systems can be complicated, and incompatible systems can lead to data errors and operational inefficiencies.

Security: Reservation systems hold a large amount of sensitive customer data, including personal information, payment details, and travel itineraries. Airlines need to ensure that their reservation systems are secure and protected from data breaches or cyber-attacks.

Scalability: As airlines grow and expand their operations, their reservation system needs to be

scalable and able to handle increased demandIntegration with third-party providers: Many airlines rely on third-party providers for ancillary services, such as car rentals and hotels. Integrating these services with the reservation system can be a challenge, and poor integration can lead to a poor customer experience.
Overall, developing and maintaining a reservation system is a complex and challenging task that requires ongoing investment and attention to ensure that it meets the needs of the airline and its customers.

1.5 METHODOLOGIES

The methodology employed in our airline reservation project is a comprehensive and systematic approach designed to ensure the successful development and deployment of a user-friendly and efficient airline reservation system. We initiated the project by defining clear objectives, scope, and requirements while identifying key stakeholders to establish a dedicated project team.
In the subsequent phase of system design, we meticulously planned the system architecture, developed wireframes, and prototypes, and emphasized user experience (UX) design for an intuitive interface.
The development phase saw the implementation of both frontend and backend components, including user registration and authentication systems, flight search, booking, payment processing, an admin dashboard, and payment gateway integrations.The deployment phase included the selection of a hosting platform, a successful launch, and setting up monitoring and error tracking mechanisms for performance optimization and robust data backup strategies. Ongoing support, user training, and continuous improvement, guided by user feedback and industry requirements, ensure that our airline reservation system remains a reliable and cutting-edge solution for passengers and airline administrators alike.

1.5.1 Analysis:

The analysis model is a concise, precise abstraction of what the desired system must do, not how it will be done. Our database design ensured data integrity, security, and performance while catering to the complex data structures required for flight schedules, reservations, and user profiles. Ongoing support, user training, and continuous improvement, guided by user feedback and industry requirements, ensure that our airline reservation system remains a reliable and cutting-edge solution for passengers and airline administrators alike.

1.5.2 Object Model:

The object model describes the static structure of the objects in a
system and their relationships. The object model contains object diagrams.
The object model describes the structure of objects in a system. Their identity, their relationships to other objects, Their attributes, and their operations. The object model provides the essential framework into which the dynamic and functional models can be placed.
Our goal in constructing an object model is to capture those concepts from the real world that are important to an application. The object model is represented graphically with object diagrams containing object classes. Classes are arranged into hierarchies sharing common structure and behavior and are associated with other classes. Classes define the attribute values carried by each object instance and the operations which each object performs or undergoes.

1.5.3 Implementation:

The object classes and relationships developed during object design
are finally translated into a particular programming language, database, or hardware implementation.The crucial phase of requirements gathering involved in-depth research, interviews, and surveys to document functional and non-functional requirements, prioritizing them to guide the development process.

TOOLS AND TECHNOLOGIES

Language : JAVA

Airline Reservation System main aim is to provide the online ticket & seat reservation of National and International Flights and also give us the information about flight departures. In this JAVA Major project mainly we are going to concentrate on ticket booking function, this function will take the user inputs like their requirements (flight name, flight source & destination, Number of seats, Seat numbers), after entering all of his/her requirements in this application, it can check at backend & provide us the total information about flights. When we open the first page of this project we can find the basic information (basic fair & discounts) about today flight timings.

Java is a popular programming language that has been used in various aspects of the airline industry for developing software and systems. Here are some common areas where Java is used in airline systemsJava is often used to create reservation and booking systems for airlines. These systems handle customer interactions, seat reservations, and ticket bookings. Java is employed in the development of software for managing flight schedules, crew assignments, and tracking flight statuses. Java's ability to handle complex calculations and data processing makes it suitable for these tasks.

Baggage handling systems at airports use Java to control and automate the movement of passenger luggage. These systems need to be highly reliable and responsive.Java can also be used in air traffic control systems, particularly for building user interfaces, data visualization, and communication with other systems.Many airlines offer in-flight entertainment to passengers. Java can be used to create the software running on entertainment screens, including games, movies, and interactive content. Airline crew scheduling, including pilots and flight attendants, can be complex and needs to adhere to strict regulations. Java can be used to create systems that efficiently schedule and manage crew members. Many airlines use Java in self-service check-in kiosks at airports. Java applications can be used to provide a user-friendly interface for passengers to check in, print boarding passes, and select seats.

Java is commonly used for building web-based applications and websites for airlines. This includes online booking systems, customer portals, and managing loyalty programs.Airlines often offer mobile apps for passengers to check flight status, make bookings, and access other services. Java can be used for developing Android applications.Java is used in the airline industry to process and analyze large volumes of data, such as passenger information, fuel consumption, and maintenance records.E-ticketing and e-commerce systems rely on Java to facilitate secure online transactions and electronic ticket issuance. Airlines require systems to manage their fleet's maintenance and inventory of spare parts. Java can be used to create software for tracking maintenance schedules and managing parts inventory.

Java's platform independence and its extensive libraries make it a versatile choice for building various airline systems. Additionally, its robustness and ability to handle concurrent operations are important in the aviation industry where safety and reliability are paramount.

Front End : Visual Basic (VB)

The Airline Reservation System is developed using VB.NET. Here, the system has 2 types of Login; User and Admin, from the user's login he/she can check ticket status, seat availability, Reservation and cancel the ticket. Admin has all the controls of the system, he/she can add airline details such as schedule, aircraft, sector, flights and has control over deleting flights that are not necessary. This system helps the user to directly access the system online to book tickets. The administrator and user can both enter the system using their respective login details. It is easy to operate and understood by the users.

Visual Basic (VB), especially VB.NET, could be used in various aspects of an airline system for software development, including both front-end and back-end applications. Here are some areas within an airline system where VB.NET or Visual Basic may be applied:VB.NET can be used to develop user interfaces for airline reservation and booking systems. These systems allow customers to search for flights, select seats, and make reservations.VB.NET can be employed to create user interfaces for self-service check-in kiosks at airports. Passengers can check in, print boarding passes, and select seats through these kiosks. VB.NET can be used to develop software interfaces for baggage handling systems that manage the routing and tracking of passenger luggage within an airport. For crew scheduling and management applications, VB.NET can be used to create interfaces for scheduling airline crew members, such as pilots and flight attendants. VB.NET may be used to design the software interfaces for in-flight entertainment systems, including the user interfaces for movies, games, and other entertainment options on passenger screens. VB.NET can be used to create administrative tools for airline staff to manage flight schedules, crew assignments, and maintenance tasks. Airline systems often include CRM tools for managing customer data and interactions. VB.NET can be used for building customer database applications and interfaces.

VB.NET can be employed for creating reporting and analytics tools to track and analyze various aspects of airline operations, such as passenger data, revenue, and flight statistics.VB.NET can be used in the development of e-ticketing and e-commerce systems for securely processing online transactions and issuing electronic tickets.While Visual Basic .NET is often associated with desktop applications, it can also be used to develop web applications and portals for airlines, including online booking systems and customer self-service portals.

It's important to note that VB.NET is often used for building the user interfaces (front-end) of airline applications, while the back-end logic and data processing may be handled by other technologies and databases. The choice of technology depends on various factors such as the airline's specific requirements, existing systems, and the skills of the development team. Additionally, the aviation industry typically has stringent safety and regulatory requirements, so all software used must meet high standards for reliability and security. Its reservation management tool helps you to keep updated information and providing your customers a cutting edge technology for their journey session. It’s the system, which will have different persons who

can access this system right from the operation managers, clients, travelling agents.Visual Basic (VB) is a programming language that has been used in the development of various software applications, including airline reservation systems. VB provides a user-friendly interface and robust tools for creating Windows-based applications, making it suitable for designing reservation and ticketing systems that require graphical user interfaces and data processing.

Back end language : MY SQL

MySQL is a popular open-source relational database management system (RDBMS) that can be used in various aspects of an airline reservation system. Here are some key areas within an airline reservation system where MySQL may be applied

MySQL can be used to store critical data related to flight schedules, seat availability, passenger information, and reservation details. It provides a structured and efficient way to manage large datasets. MySQL can be used to maintain real-time flight availability information, allowing customers to search for available flights, check seat availability, and make bookings. MySQL databases can store passenger reservations, including passenger details, seat assignments, payment information, and booking history. MySQL can be used to store user account information, such as customer profiles and login credentials for passengers and airline staff.

MySQL databases can store passenger profiles, including personal information, frequent flyer details, and travel preferences. MySQL databases can manage pricing and fare information for different flights, classes, and special offers. Real-time flight status and updates, such as delays, cancellations, and gate changes, can be stored in MySQL databases and made available to passengers. MySQL can be used to maintain information about passenger baggage, including tracking, routing, and matching with passenger reservations. MySQL can be used to store data related to crew scheduling, such as crew rosters, assignments, and availability. MySQL can store historical data for reporting and analytics purposes, enabling airlines to analyze various aspects of their operations, including passenger demographics, revenue, and operational efficiency

Airlines use MySQL to manage inventory, ensuring that the correct number of seats and services are available for each flight. MySQL can support online booking and payment systems, handling secure transactions and payment records. MySQL can store passenger check-in data and facilitate the boarding process. MySQL can be used to store and manage electronic ticket (e-ticket) information. MySQL databases can store customer interactions, allowing airlines to manage customer relationships and offer personalized services.

MySQL is chosen for these tasks because of its reliability, scalability, and performance. It can efficiently handle concurrent requests and provide the necessary data consistency and integrity, which is crucial in the airline industry. Additionally, MySQL being an open-source solution is often preferred for its cost-effectiveness. Airlines may use MySQL directly or as part of a broader technology stack that includes web servers, application servers, and other components to build a comprehensive airline reservation system. It's the system which having appropriate distribution channel by which, organization can expand their business region. There are lot more features has been added to make an effective airline management system and some of these are: web based internet booking system, proper authentication and validation to use correct data and eliminate the costly searching process. The implementation of Java in an airline reservation system facilitates efficient data management, user-friendly interfaces, and secure transactions. It

enables real-time booking, ticketing, and flight information retrieval, enhancing the overall passenger experience.

CHAPTER 2

LITERATURE REVIEW

A literature review for an airline reservation system in Java reveals a wealth of research and development efforts aimed at enhancing the efficiency, reliability, and user-friendliness of these systems. Researchers and software developers have focused on several key aspects:

User Interface Design: Many studies emphasize the importance of creating an intuitive and user-friendly interface. Java's Swing and JavaFX libraries have been explored for this purpose, offering a range of customizable components.

Database Management: Efficient data storage and retrieval are critical. Java's JDBC is widely used to connect reservation systems to databases like MySQL and Oracle, ensuring robust data management.

Concurrency and Scalability: Researchers have tackled the challenges of handling multiple users and concurrent transactions. Java's multithreading capabilities are essential in ensuring the system's responsiveness. Security: Security is a paramount concern in airline reservation systems due to the sensitive nature of passenger information and payment data. Researchers have explored Java's security features to protect against cyber threats.

Integration with External Systems: Interfacing with airlines, payment gateways, and global distribution systems is vital. Java's adaptability allows for seamless integration with various APIs and services. Performance Optimization: Various studies have focused on optimizing system performance through code profiling, database indexing, and caching techniques. Mobile Applications: With the rise of mobile technology, many researchers have explored creating mobile applications using Java for ticket booking and flight tracking.

Artificial Intelligence: Some studies have integrated AI and machine learning into reservation systems to improve recommendation engines, pricing strategies, and demand forecasting. Blockchain: The use of blockchain technology for secure and transparent transactions has been a subject of interest, with Java-based solutions in development. Cloud Computing: Leveraging Java for cloud-based solutions has been explored to ensure scalability and cost-effectiveness.

The literature underscores Java's adaptability and versatility in the development of airline reservation systems, with a strong emphasis on user experience, data management, security, performance, and the integration of emerging technologies. These insights inform the ongoing evolution of Java-based solutions in the aviation industry.

The focus of this study is to show and evaluate how the web services can efficiently be utilized for online airline reservation systems by utilizing the finite automata state machine. A finite automaton is a straightforward machine that has a finite numeral state which could be either an accepting state or rejecting state.

CHAPTER 3

PROPOSED SYSTEM

3.1 IMPLEMENTATION

Using the distributed technology we can handle these problems easily. In general a distributed process means that a program in execution makes use of resources in other machine. The two technologies for distributed processing available are J2EE and .NET . In the “Airline reservation system” J2EE is used for managing distributed systems. So that even if the Airline system has lot of branches and they are located at different places , we can handle the management of service and guarantee. The proposed system for the problem is “Airline reservation system” , a web based system that allows online reservations. The system is divided into three layers namely presentation layer , business layer and data layer. The presentation layer is at the client side. At server side , business layer and data layer reside. The system requires a server side technology for its implementation. J2EE platform is chosen for implementing the system. At the server side Servlet plays the role for the business layer and JDBC for the data layer.

A literature review for an airline reservation system in Java reveals a wealth of research and development efforts aimed at enhancing the efficiency, reliability, and user-friendliness of these systems. Researchers and software developers have focused on several key aspects. user Interface design, many studies emphasize the importance of creating an intuitive and user-friendly interface. Java's Swing and JavaFX libraries have been explored for this purpose, offering a range of customizable components. database management, efficient data storage and retrieval are critical. Java's JDBC is widely used to connect reservation systems to databases like MySQL and Oracle, ensuring robust data management.

Concurrency and scalability researchers have tackled the challenges of handling multiple users and concurrent transactions. Java's multithreading capabilities are essential in ensuring the system's responsiveness. Security: Security is a paramount concern in airline reservation systems due to the sensitive nature of passenger information and payment data. Researchers have explored Java's security features to protect against cyber threats. Integration with external systems interfacing with airlines, payment gateways, and global distribution systems is vital. Java's adaptability allows for seamless integration with various APIs and services.

Performance optimization various studies have focused on optimizing system performance through code profiling, database indexing, and caching techniques. With the rise of mobile technology, many researchers have explored creating mobile applications using Java for ticket booking and flight tracking. Artificial Intelligence: Some studies have integrated AI and machine learning into reservation systems to improve recommendation engines, pricing strategies, and demand forecasting. Blockchain: The use of blockchain technology for secure and transparent transactions has been a subject of interest, with Java-based solutions in development.

Cloud Computing: Leveraging Java for cloud-based solutions has been explored to ensure scalability and cost-effectiveness. In summary, the literature underscores Java's adaptability and versatility in the development of airline reservation systems, with a strong emphasis on user

experience, data management, security, performance, and the integration of emerging technologies. These insights inform the ongoing evolution of Java-based solutions in the aviation industry.

3.2 PROPOSED TECHNIQUE

The groundwork is laid by selecting a dependable programming language, like Python or Java, which guarantees maintainability, flexibility, and security. Whether accessed through web-based interfaces or desktop apps that use Java Swing, the system's user interface is designed with the needs of the user in mind, providing a responsive and intuitive experience. The proposed technique for developing a Java-based airline reservation system incorporates a variety of advanced methodologies and technologies to ensure the system's efficiency, reliability, and user-friendliness. Here's a comprehensive overview.

In Java framework selection we will choose a robust Java framework such as Spring, JavaServer Faces (JSF), or Play Framework to facilitate efficient development and maintenance of microservices architecture implementing a microservices architecture to enhance scalability, maintainability, and fault tolerance. Responsive web design utilizing java for creating a responsive web interface, ensuring a consistent user experience across various devices. Database management integrating java database connectivity (JDBC) or object-relational mapping (ORM) tools like hibernate to efficiently manage and interact with the database. Security measures implementing strong security measures such as OAuth for user authentication, SSL for secure data transmission, and role-based access control to safeguard sensitive passenger data.

Concurrency control leveraging Java's multithreading capabilities to handle concurrent user requests and transactions effectively. asynchronous processing using java message service (JMS) or similar technologies to manage asynchronous tasks like email notifications and flight updates. Caching Mechanisms: Employing caching frameworks like Ehcache or Redis to optimize system performance and reduce database load. Continuous Integration/Continuous Deployment (CI/CD): Implementing CI/CD pipelines to automate testing, deployment, and updates. Monitoring and Logging: Using tools like Log4j, Logback, and application performance monitoring systems to track system performance and troubleshoot issues.

AI and Machine Learning Integration: Exploring AI for personalized recommendations and machine learning for demand forecasting and pricing optimization. Blockchain Technology: Employing blockchain for secure and transparent ticketing, loyalty programs, and data immutability. Cloud Computing: Leveraging cloud platforms like AWS, Azure, or Google Cloud to ensure scalability and cost-effectiveness. Mobile App Development: Creating native mobile applications using Java for Android and iOS to provide a seamless booking experience. Multi-Lingual Support: Building language localization and translation features to cater to a global audience. Feedback Mechanism: Implementing a feedback system to gather user input for continuous improvement. Data Analytics and Reporting: Utilizing Java-based analytics tools for gaining insights into passenger behavior, optimizing pricing, and generating reports. Environmental Responsibility: Integrating features to highlight eco-friendly travel options and carbon footprint information.

Compliance and Regulations: Ensuring adherence to aviation regulations, data protection laws,

and security standards, with regular audits for compliance. This proposed technique leverages the power and versatility of Java to develop a modern airline reservation system that is not only robust and secure but also capable of adapting to the ever-evolving demands of the travel industry, ultimately enhancing the passenger experience and streamlining airline operations.

3.3 TESTING

3.3.1 Black Box Testing

Unit testing unit testing focuses on verifying the effort on the smallest unit of the software design. The complexity of the test is limited by constrained scopes. Integration testing the objectives of the Integration Testing is to take all forms and build a project structure that has been dictated by design. 3.Validation testing after the integration testing system is completely assembled as a package, interfacing errors have been uncovered and the final series of the software test, the validation test begins validation succeeds. Performance testing is designed to test the runtime performance of the software within the context of the integrated system. Performance testing occurs throughout the steps in the testing process. Output Testing After performance and validation testing the next test is the input output testing of the proposed system. Since no system would be termed useful until it does produce the requested output in the specified format

Testers would evaluate the system's responsiveness, user interface design, and error handling mechanisms. They would also assess the security features to ensure that sensitive passenger data is adequately protected. By conducting black box testing, the team can identify and rectify any issues in the system's user interface, functionality, and data processing without needing to delve into the code.

Overall, black box testing is a critical step in ensuring that an airline reservation system in Java operates seamlessly, providing users with a reliable and efficient platform for booking and managing their travel plans while maintaining data security and privacy.

3.3.2 White Box Testing

In addition to finding problems with the code, white box testing looks for possible security flaws like SQL injection or cross-site scripting. It assesses the system's ability to manage edge cases and exceptions, guaranteeing robustness in a range of circumstances. In the end, white box testing supports other testing techniques like security and black box testing to offer a thorough assessment of the banking management system, assisting financial institutions in providing a dependable and safe environment for their clients.

For an airline reservation system in Java, the black box testing process would encompass a variety of scenarios, including booking flights, canceling reservations, and managing passenger information. Testers would verify that the system correctly handles diverse inputs, such as different departure and arrival locations, various dates, and the number of passengers. Additionally, it's essential to assess the system's ability to handle edge cases and error conditions, like overbooked flights or invalid user inputs.

In this context, black box testing focuses on evaluating the system's functionality without needing knowledge of its internal code or architecture. It ensures that the system performs as expected from a user's perspective, taking into account various inputs, scenarios, and possible use

cases. This kind of testing, sometimes referred to as structural testing, looks at the data flows, algorithms, and underlying architecture of the system to make sure it operates properly, quickly, and securely.Software developers and quality assurance specialists thoroughly examine the system's codebase during white box testing.

CHAPTER 4

SYSTEM REQUIREMENTS

4.1 SOFTWARE REQUIREMENTS

Frontend : VB

Backend : MySQL

Language : Java

IDE used : Eclipse IDE

4.2 HARDWARE REQUIREMENTS

Requires a 64-bit processor and operating system

OS : Windows 7 or higher

Processor : Intel i5 3.5GHz

Memory : 4GB RAM

Storage : 15 GB available space

4.3 LANGUAGES USED

Java is a widely chosen language for developing airline reservation systems due to its numerous advantages. Firstly, Java is platform-independent, which means that the code can run on any platform with a Java Virtual Machine (JVM), making it an excellent choice for airline reservation systems that need to work on various operating systems. This reduces development efforts and ensures that the system remains accessible to a broad user base. Additionally, Java is renowned for its strong security features. Airlines handle sensitive passenger information, including personal and payment details, and Java's robust security mechanisms help protect this data from unauthorized access and cyber threats. Java's security model includes features like sandboxing and controlled access to system resources, which are crucial in securing user data. Java's object-oriented nature simplifies the development process by allowing modular and reusable code. Airline reservation systems consist of various components, such as user interfaces, booking engines, and payment processing modules. Java's object-oriented paradigm enables developers to create, maintain, and extend these components efficiently.

Another key benefit is Java's rich set of libraries and frameworks. Java boasts an extensive ecosystem of libraries that can be leveraged to expedite development. This saves time and reduces the need for creating every function from scratch. Java's vast community also ensures ample online resources and support for resolving issues and staying updated with industry best practices. Java's multithreading capabilities facilitate concurrent processing, which is vital in airline reservation systems. These systems often experience high traffic with multiple users

searching for flights, making reservations, and processing payments simultaneously. Java's multithreading capabilities allow the system to handle such concurrency effectively. Scalability is crucial for airline reservation systems to accommodate growing user numbers and changing requirements. Java's scalability allows the system to evolve and handle increased load without significant architectural changes. The language's modularity and flexibility make it easier to expand the system's features or adapt to new airline policies and industry regulations.

Furthermore, Java offers robust exception handling, which is crucial in critical systems like airline reservations. It allows developers to identify and manage errors effectively, ensuring that any issues do not lead to system crashes or data corruption. Java's exception handling also enhances the system's fault tolerance. Java's automatic memory management through garbage collection contributes to system stability by preventing memory leaks, a common issue in long-running applications. This ensures that the reservation system remains responsive and reliable for users. Java's documentation and standardized coding practices make it easier to maintain and update the reservation system over time. It also aids collaboration among development teams by offering a clear structure and conventions that facilitate code review and debugging.

In conclusion, Java is a preferred language for developing airline reservation systems because of its platform-independence, strong security features, object-oriented paradigm, vast libraries, multithreading capabilities, scalability, exceptional exception handling, memory management, and standardized coding practices. These features ensure that the system operates efficiently, securely, and reliably while enabling seamless updates and enhancements to meet the dynamic demands of the airline industry. Ultimately, Java's versatility and reliability make it a top choice for building airline reservation systems that deliver a positive user experience and robust performance.

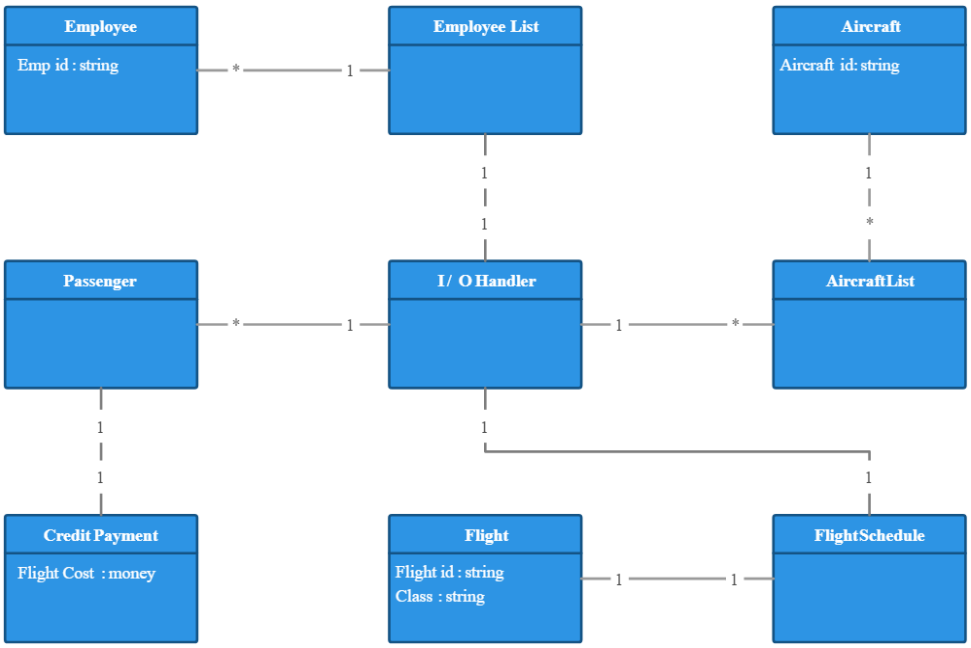
Cloud DNS: This is GCP’s highly available and scalable Domain Name System. It translates user-friendly domain names (like www.myflights.com) into IP addresses that machines can understand. When a user makes a request to the website, it is first received by Cloud DNS.

Cloud Load Balancing: After Cloud DNS resolves the domain to an IP address, the request is passed to Cloud Load Balancing. This service automatically distributes incoming user traffic across multiple targets (in this case, services within the GKE Cluster), ensuring the application has high availability and fault tolerance.

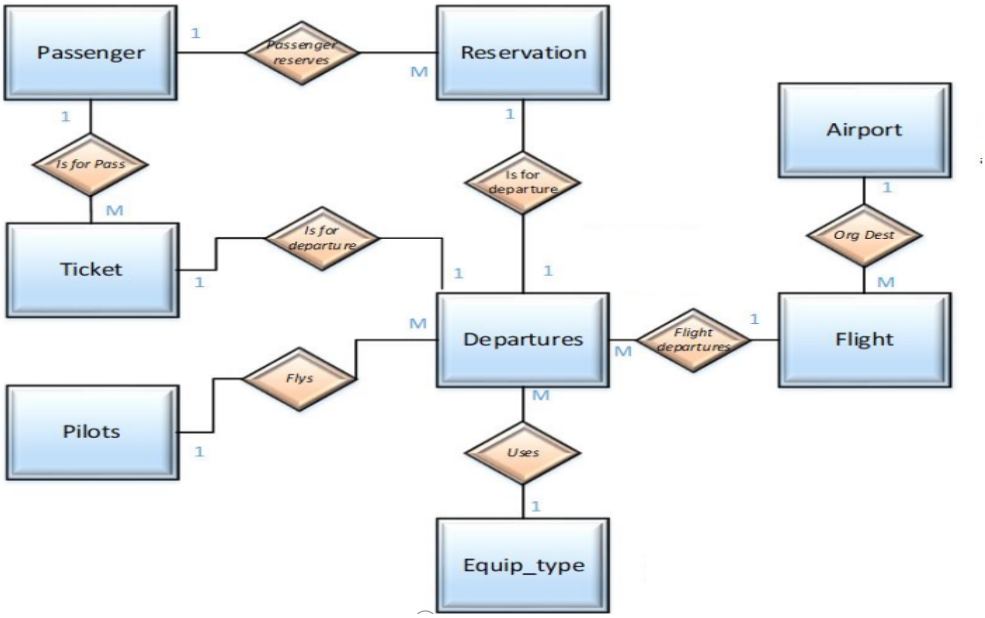
CHAPTER 5

SYSTEM DESIGN

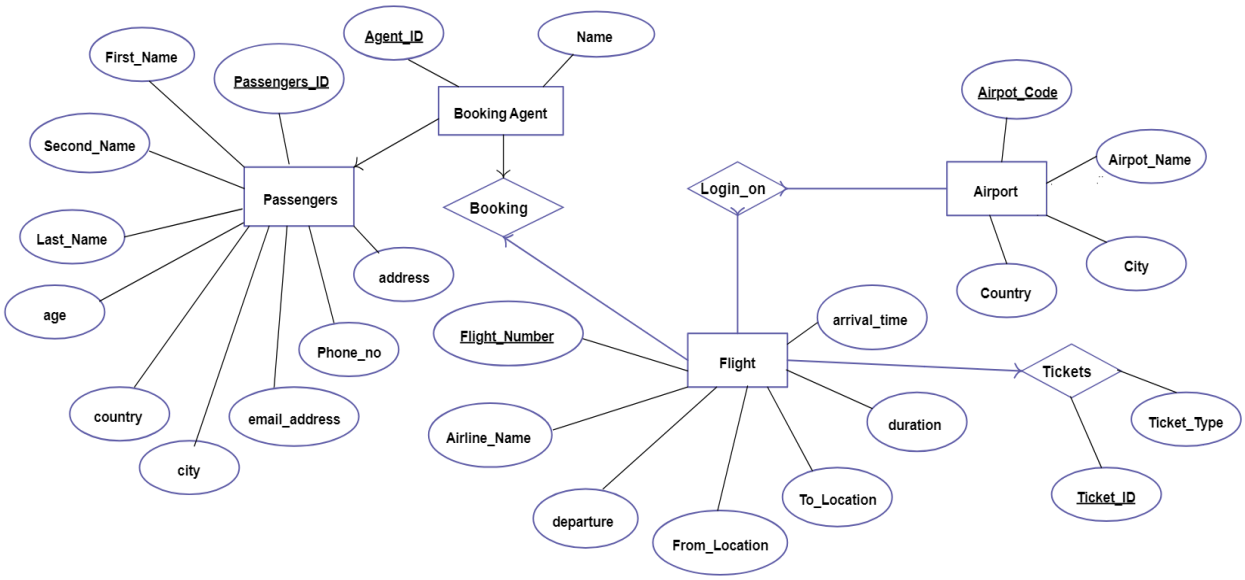
5.1 ARCHITECTURAL DIAGRAM



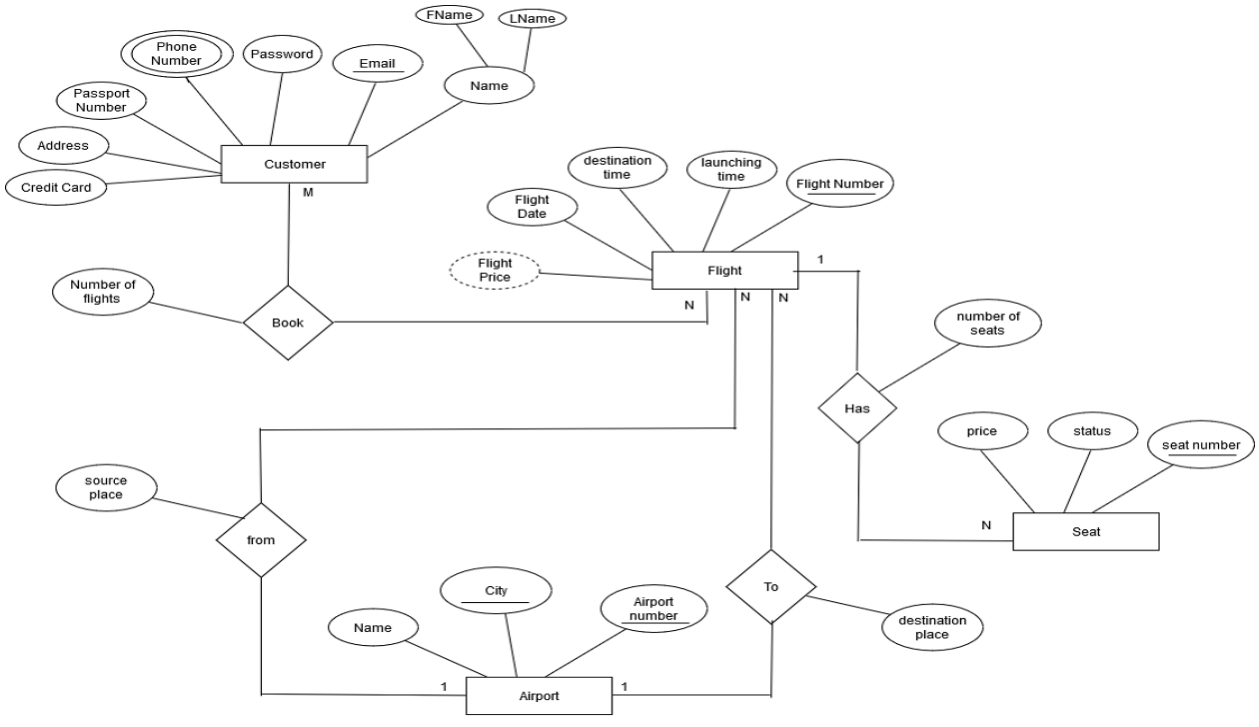
5.2 BLOCK DIAGRAM



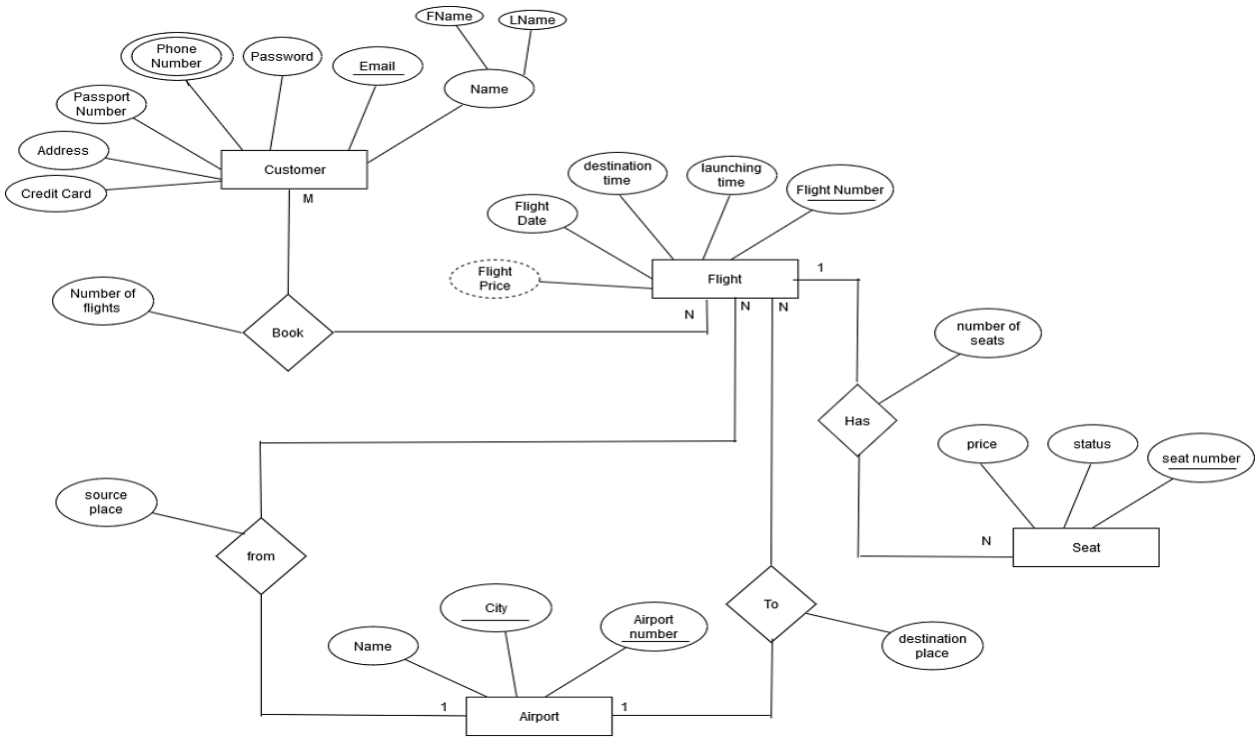
5.3 ER DIAGRAM 1



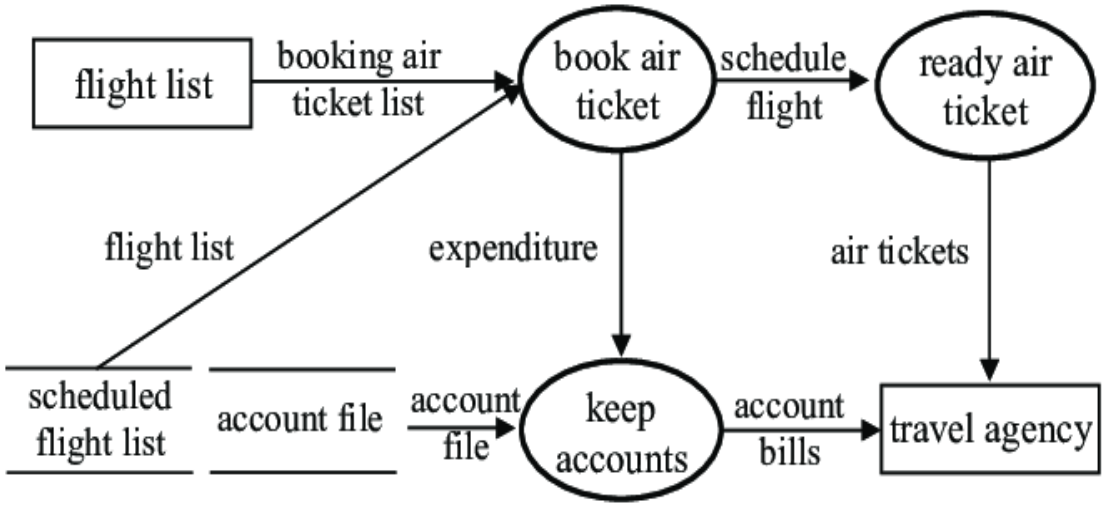
5.4 ER DIAGRAM 2



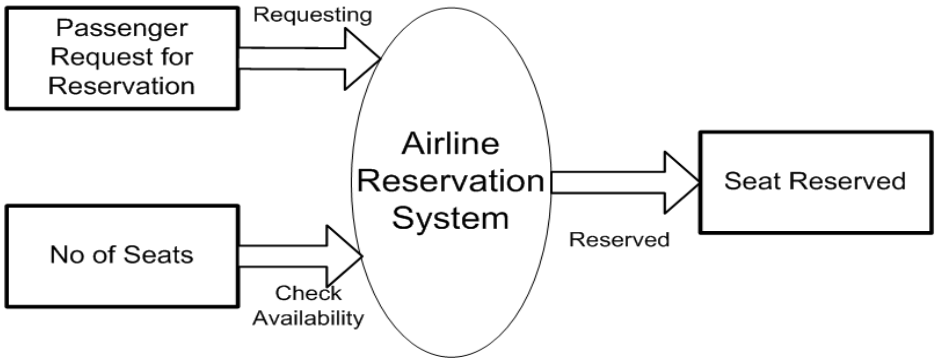
5.5 ER DIAGRAM 3



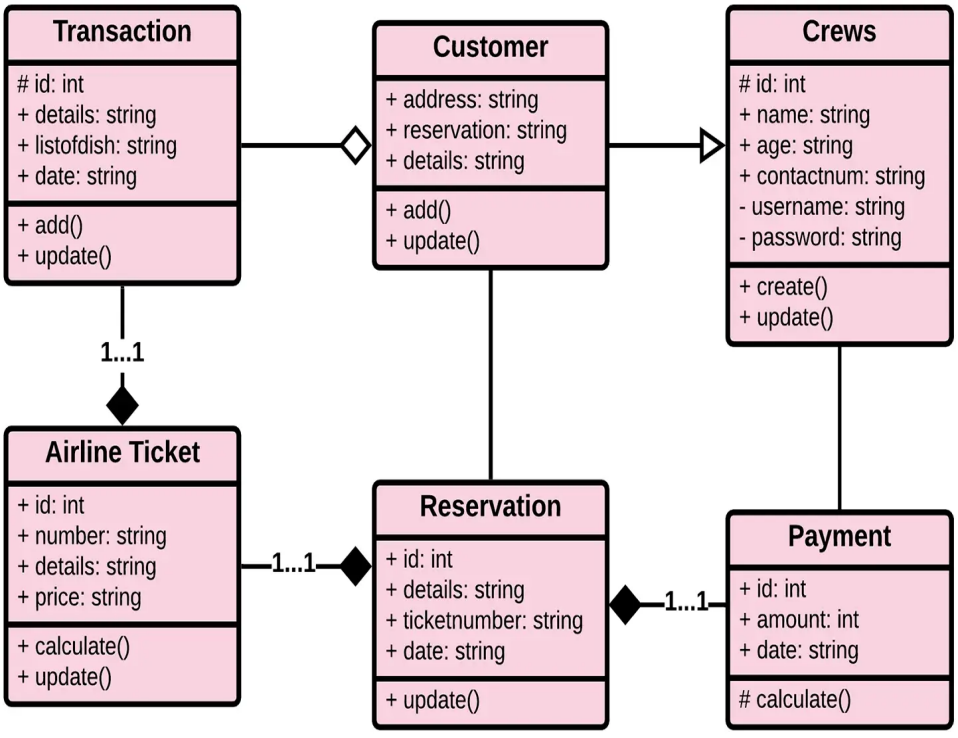
5.6 DATA FLOW DIAGRAM 1



5.7 DATA FLOW DIAGRAM 2



5.8 DATA FLOW DIAGRAM 3

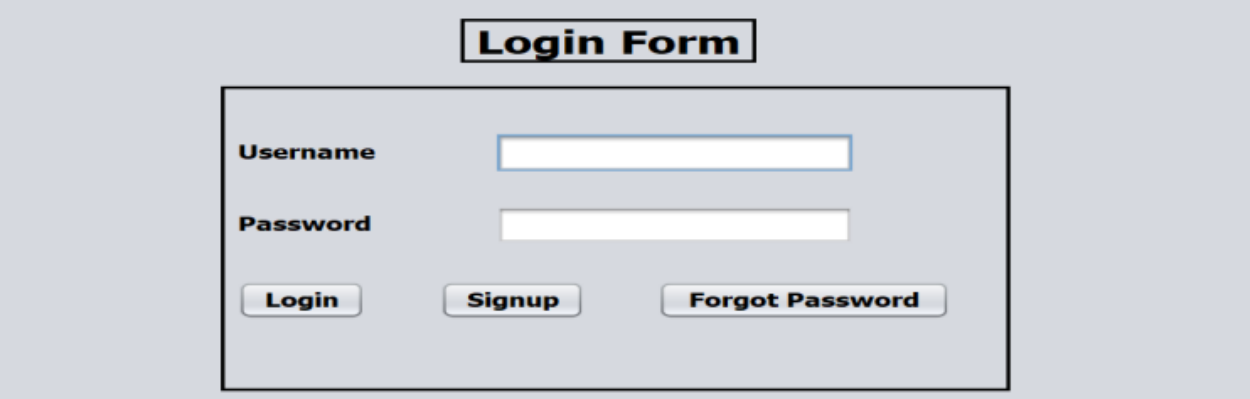


CHAPTER 6

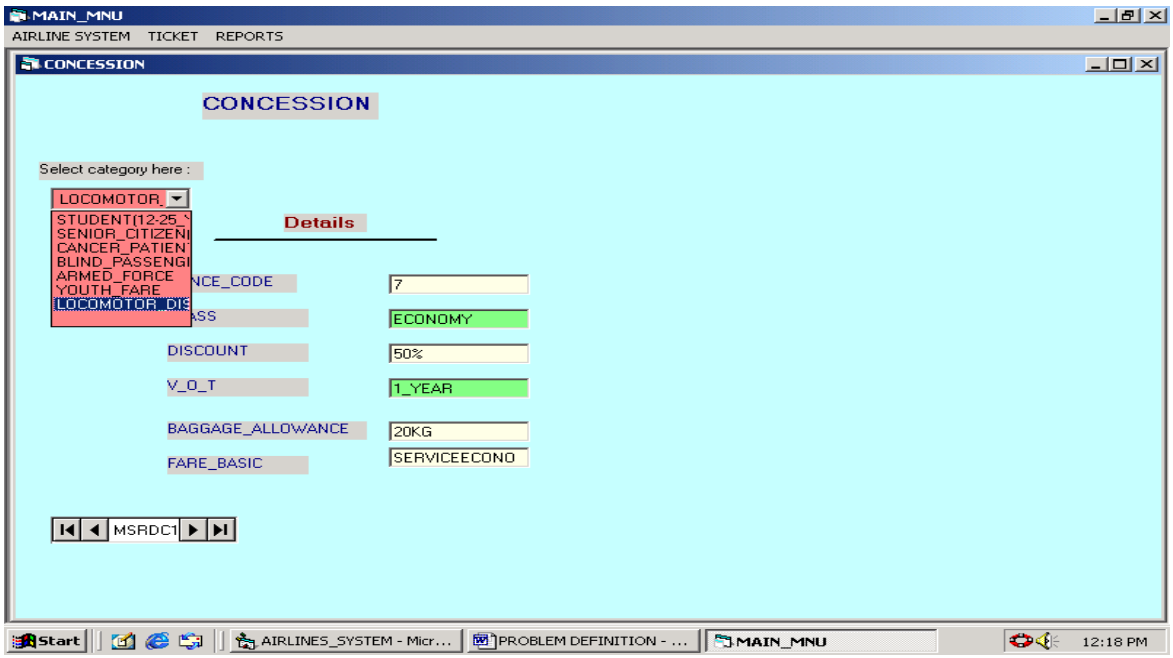
RESULTS

This project allows users to view flight details and to reserve, view and cancel tickets by logging in or registering with a new account and reporting any issue if required. Admin is provided with rights to see flight details, reservations, user contacts and some functions like adding flights and collecting reports given by users

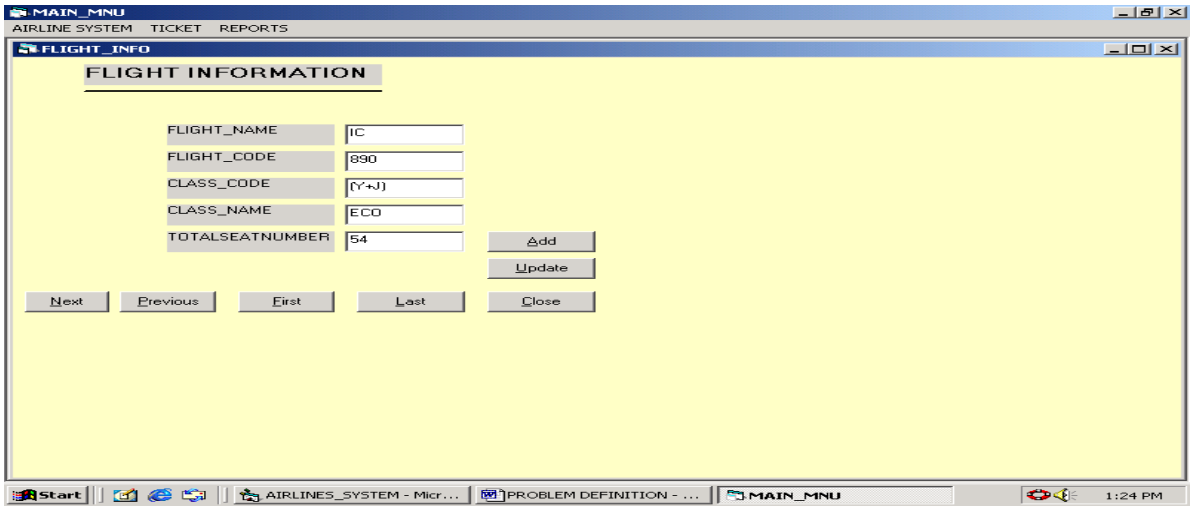
LOGIN FORM



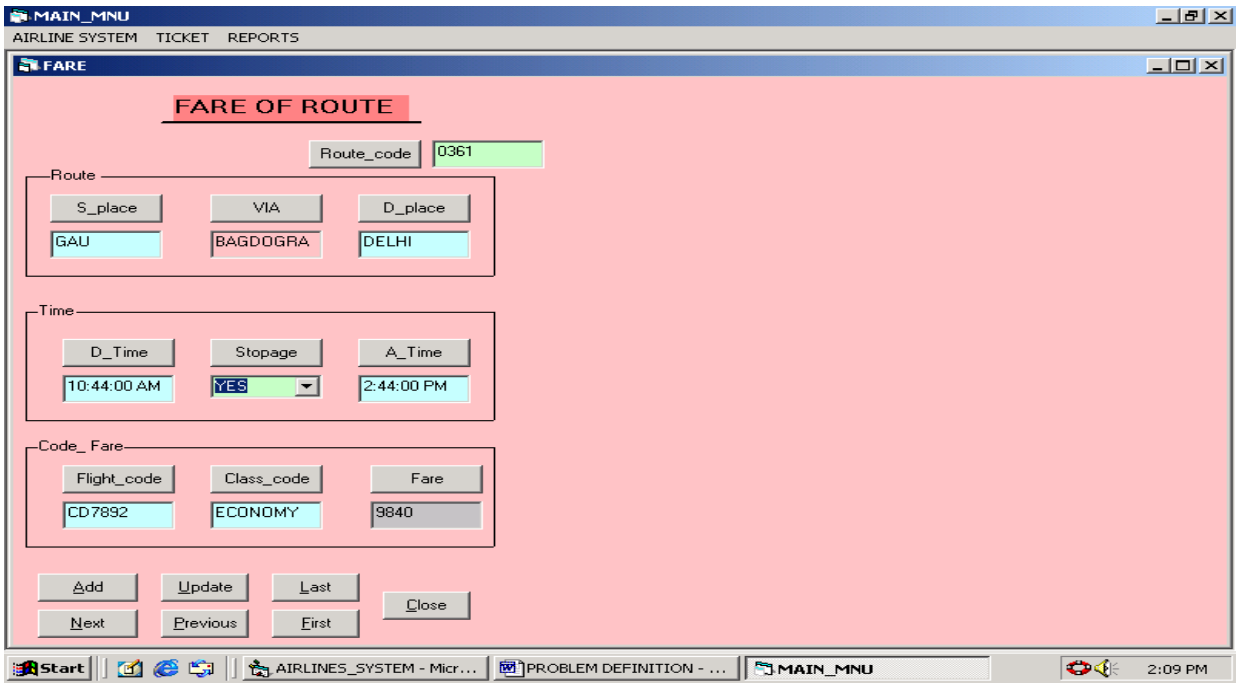
6.1 LOGIN DETAILS



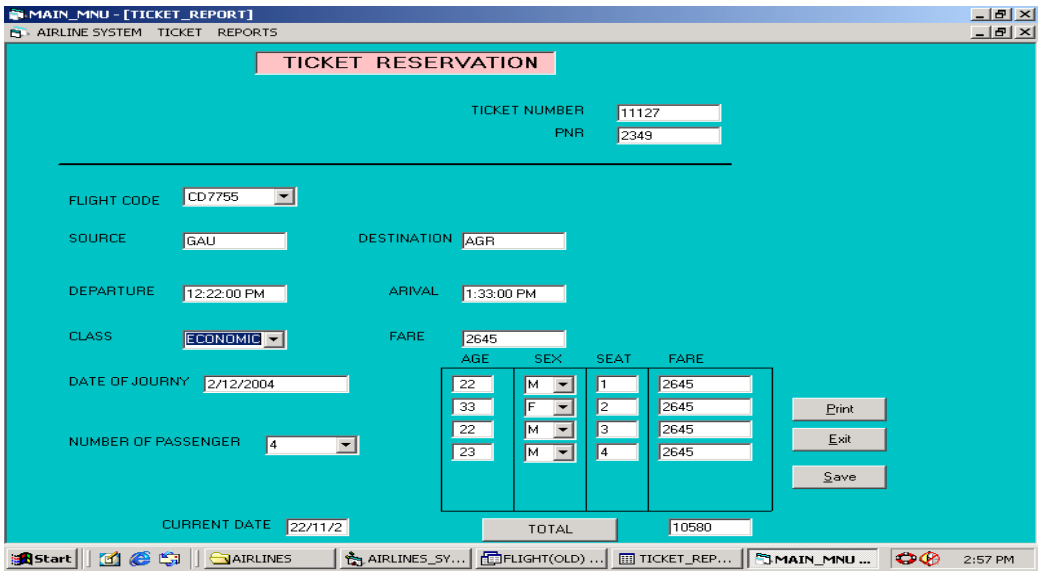
6.2 FORM OF FLIGHT INFORMATION



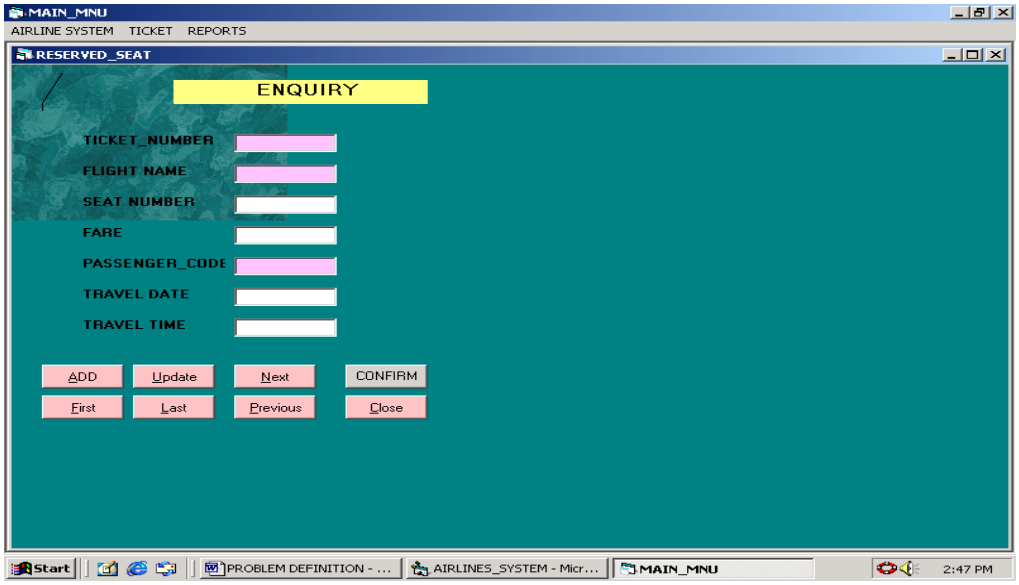
6.3FORM OF THE ROUTE BASIS FARE.



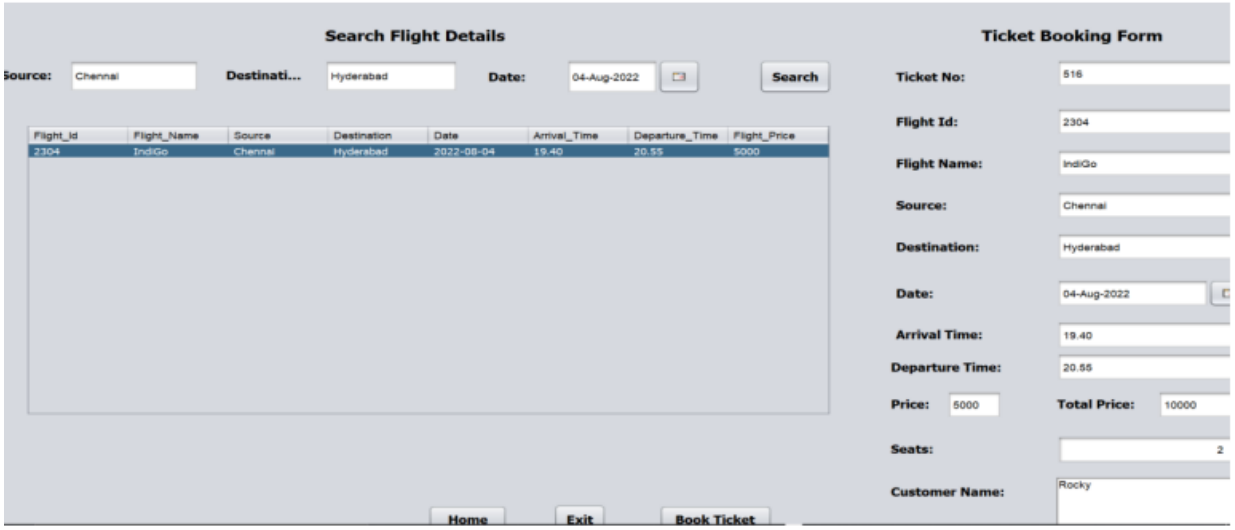
6.4 FORM OF RESERVATION.



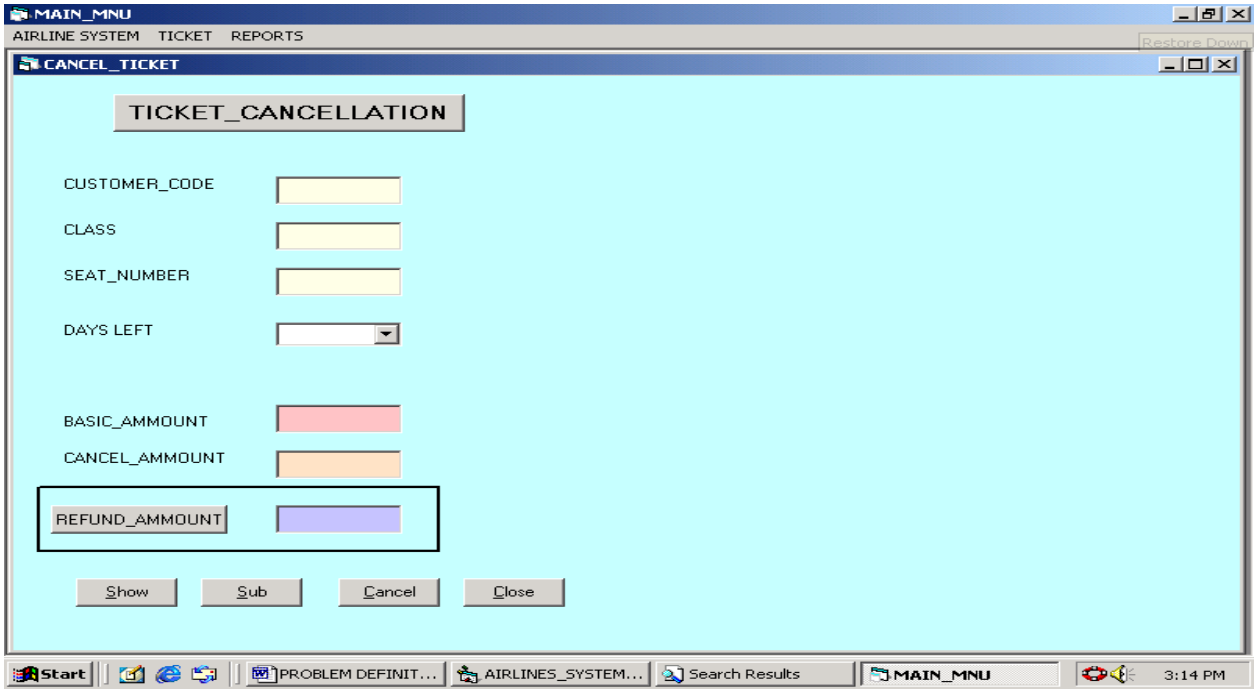
6.5 FORM FOR ENQUIRY



6.6 PAYMENT FORM



6.7 CANCELLATION FORM



CHAPTER 7

CONCLUSION

The software package “Airline Reservation System” provides convenient online uploading the report from executives and viewing that report by the managing director in an online fashion. To input the data in a highly validated manner and generate the different reports, this involves a complex process that was being done in a 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. The actual problem has been observed with keen interest and it has been defined and analyzed in such a way that it never causes choice to the user. More ever the limitation that has been prevailing in the existing system had been overcome to suit the need of the user

The Airline Reservation System project developed in Java is a comprehensive and efficient solution that addresses the complex and dynamic needs of the airline industry. This project has successfully streamlined the entire process of flight booking, seat reservation, and passenger management, ultimately enhancing the overall customer experience. The system's key features include a user-friendly interface, real-time availability and pricing information, secure payment processing, and robust database management.

One of the project's significant advantages is its adaptability and scalability, making it suitable for small, regional airlines as well as large international carriers. It allows airlines to easily expand their services and adapt to the ever-changing demands of the market.

CHAPTER 8

FUTURE SCOPE

The future scope for the Airline Reservation System using Java is broad and exciting. As the aviation industry evolves, this system can adapt to meet the changing needs of passengers and airlines, staying at the forefront of technology, security, and customer experience. It will be essential to continuously innovate and keep pace with emerging technologies and industry trends to remain competitive and relevant in the dynamic world of air travel.

As technology continues to evolve and the travel industry undergoes transformations, there are several areas where this system can expand and adapt to meet the changing needs of airlines and passengers.The future will see a stronger focus on personalization. The system can leverage machine learning and AI to understand passenger preferences, making travel bookings even more tailored to individual needs. The proliferation of smartphones and wearable devices opens doors for seamless booking and check-in processes via dedicated apps, integrating with features like mobile boarding passes and notifications.

Embracing biometric technologies for identity verification can expedite airport security processes and simplify check-in, enhancing both security and convenience for passengersImplementing blockchain technology can further enhance security and transparency in transactions and passenger data management.In line with the growing focus on eco-friendly travel, future systems can incorporate features to allow passengers to select flights based on their environmental impact, promoting greener choices.

Implementing VR and AR can provide passengers with immersive previews of their flight experience, enabling them to choose seats or services with more confidence. Allowing passengers to provide feedback and rate their travel experiences can help airlines continuously improve their services. Integrating AI and machine learning algorithms can empower the system to predict passenger behavior, optimize pricing, and offer personalized recommendations. AI-powered chatbots and virtual assistants can also improve customer support by providing real-time assistance and information. The implementation of blockchain can revolutionize security and transparency in airline transactions. It has the potential to enhance payment processing, ensure the integrity of passenger data, and reduce the risk of fraudulent activities, fostering trust within the system.

Dedicated mobile applications for passengers and airline staff can significantly enhance the user experience. Mobile apps can provide features such as streamlined booking, mobile boarding passes, real-time flight updates, and in-flight services, making the entire travel process more convenient. Tailoring services to individual passenger preferences and travel history can boost customer loyalty. The system can offer personalized recommendations for seat upgrades, ancillary services, and loyalty program benefits, ultimately leading to higher customer satisfaction and repeat business. With a growing focus on sustainability and environmental responsibility, the system can incorporate features for passengers to choose eco-friendly options and carbon offset programs when booking flights. Airlines can also optimize routes and fuel consumption for greener travel.

CHAPTER 9

REFERENCES

[1] Winston, Clifford, "The Evolution of the Airline Industry", Brookings Institution Press, 1995. ISBN 0-8157-5843-X. Cf. p. 61–62, Computer Reservation Systems.

[2] "Unisys Launches Suite of AirCore® Passenger Service Solutions".

[3] Wardell, David J, "Airline Reservation Systems", 1991. Research paper.

[4] "Passenger Reservations". IBS Software. Retrieved 2021-07-30.

[5] GmbH, finanzen net. "IBS Software Inks Multi-Year Contract With Jin Air". markets.businessinsider.com. Retrieved 2021-07-30.

[6] "StackPath". www.aviationpros.com. Retrieved 2021-07-30.

[7] "Italian start-up EGO Airways deploys IBS Software product" @businessline. Retrieved 2021-07-30.

[8] "Magnetronic Reservisor". American Airlines C.R. Smith Museum Retrieved 3 August 2014.

[9] The Magnetronic Reservisor, introduced in 1952, was the first electronic reservations system in the airline industry.

[10] The ineluctable middlemen". The Economist. 25 August 2012. Retrieved 29 August 2012.

[11] Hitachi and Japanese National Railways MARS-1, Information Processing Society of Japan.

[12] Early Computers: Brief History, Information Processing Society of Japan.

[13] R. Blair Smith, OH 34. Oral history interview by Robina Mapstone, May 1980.

[14] Strauss, Michael (2010), Value Creation in Travel Distribution.

[15] "American Airlines - Direct Connect". Directconnect.aa.com. Archived from the original on 2012-08-31. Retrieved 2012-11-08.

[16] "InteliSys amelia RES". Ch-aviation. Retrieved 4 November 2020.

[17] Pilling, Mark, "Airline reservations systems: can IT deliver?", 2008. News Article.

[18] "Sabre The First Online Reservation System". IBM. Retrieved 16 April 2020.

CHAPTER 10
APPENDIX

Coding for Reservation

```
Option Explicit
Dim adors As Recordset
Dim adors1 As Recordset
Dim ADORS2 As Recordset
Private Sub Combo1_Click()
If Val(Combo1.Text) = 1 Then
Text3(1).Visible = False
Text3(2).Visible = False
Text3(3).Visible = False
Text3(4).Visible = False
Text3(5).Visible = False
Text3(0).Visible = True
Combo3(1).Visible = False
Combo3(2).Visible = False
Combo3(3).Visible = False
Combo3(4).Visible = False
Combo3(5).Visible = False
Combo3(0).Visible = True
Text4(1).Visible = False
Text4(2).Visible = False
Text4(3).Visible = False
Text4(4).Visible = False
Text4(5).Visible = False
Text4(0).Visible = True
Text6(1).Visible = False
```

```
Text6(2).Visible = False
Text6(3).Visible = False
Text6(4).Visible = False
Text6(5).Visible = False
Text6(0).Visible = True
End If
If Val(Combo1.Text) = 2 Then
Text3(1).Visible = True
Text3(2).Visible = False
Text3(3).Visible = False
Text3(4).Visible = False
Text3(5).Visible = False
Text3(0).Visible = True
Combo3(1).Visible = True
Combo3(2).Visible = False
Combo3(3).Visible = False
Combo3(4).Visible = False
Combo3(5).Visible = False
Combo3(0).Visible = True
Text4(1).Visible = True
Text4(2).Visible = False
Text4(3).Visible = False
Text4(4).Visible = False
Text4(5).Visible = False
Text4(0).Visible = True
Text6(1).Visible = True
Text6(2).Visible = False
Text6(3).Visible = False
Text6(4).Visible = False
Text6(5).Visible = False
Text6(0).Visible = True
```

```
End If
If Val(Combo1.Text) = 3 Then
Text3(1).Visible = True
Text3(2).Visible = True
Text3(3).Visible = False
Text3(4).Visible = False
Text3(5).Visible = False
Text3(0).Visible = True
Combo3(1).Visible = True
Combo3(2).Visible = True
Combo3(3).Visible = False
Combo3(4).Visible = False
Combo3(5).Visible = False
Combo3(0).Visible = True
Text4(1).Visible = True
Text4(2).Visible = True
Text4(3).Visible = False
Text4(4).Visible = False
Text4(5).Visible = False
Text4(0).Visible = True
Text6(1).Visible = True
Text6(2).Visible = True
Text6(3).Visible = False
Text6(4).Visible = False
Text6(5).Visible = False
Text6(0).Visible = True
End If
If Val(Combo1.Text) = 4 Then
Text3(1).Visible = True
Text3(2).Visible = True
Text3(3).Visible = True
```

```
Text3(4).Visible = False
Text3(5).Visible = False
Text3(0).Visible = True
Combo3(1).Visible = True
Combo3(2).Visible = True
Combo3(3).Visible = True
Combo3(4).Visible = False
Combo3(5).Visible = False
Combo3(0).Visible = True
Text4(1).Visible = True
Text4(2).Visible = True
Text4(3).Visible = True
Text4(4).Visible = False
Text4(5).Visible = False
Text4(0).Visible = True
Text6(1).Visible = True
Text6(2).Visible = True
Text6(3).Visible = True
Text6(4).Visible = False
Text6(5).Visible = False
Text6(0).Visible = True
End If
If Val(Combo1.Text) = 5 Then
Text3(1).Visible = True
Text3(2).Visible = True
Text3(3).Visible = True
Text3(4).Visible = True
Text3(5).Visible = False
Text3(0).Visible = True
Combo3(1).Visible = True
Combo3(2).Visible = True
```

```
Combo3(3).Visible = True
Combo3(4).Visible = True
Combo3(5).Visible = False
Combo3(0).Visible = True
Text4(1).Visible = True
Text4(2).Visible = True
Text4(3).Visible = True
Text4(4).Visible = True
Text4(5).Visible = False
Text4(0).Visible = True
Text6(1).Visible = True
Text6(2).Visible = True
Text6(3).Visible = True
Text6(4).Visible = True
Text6(5).Visible = False
Text6(0).Visible = True
End If
If Val(Combo1.Text) = 6 Then
Text3(1).Visible = True
Text3(2).Visible = True
Text3(3).Visible = True
Text3(4).Visible = True
Text3(5).Visible = True
Text3(0).Visible = True
Combo3(1).Visible = True
Combo3(2).Visible = True
Combo3(3).Visible = True
Combo3(4).Visible = True
Combo3(5).Visible = True
Combo3(0).Visible = True
Text4(1).Visible = True
```

```
Text4(2).Visible = True
Text4(3).Visible = True
Text4(4).Visible = True
Text4(5).Visible = True
Text4(0).Visible = True
Text6(1).Visible = True
Text6(2).Visible = True
Text6(3).Visible = True
Text6(4).Visible = True
Text6(5).Visible = True
Text6(0).Visible = True
End If
End Sub
Private Sub Combo3_Click(Index As Integer)
Dim ADORS2 As ADODB.Recordset
Dim var2 As Integer
Dim var3 As Integer
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set ADORS2 = New ADODB.Recordset
Adodc1.RecordSource = "select * from fixed where f_code ='" &
RTrim(LTrim(DBCombo1.Text)) & "' and tdate = '" & RTrim(LTrim(Text8.Text)) & "'"
Adodc1.Refresh
ADORS2.Open "select * from fixed", db, adOpenStatic, adLockOptimistic
var2 = ADORS2.Fields!t_res_eco_seat
Text6(Index).Text = var2 + 1
End Sub
Private Sub Command1_Click()
Text2.Text = Val(Text4(0).Text) + Val(Text4(1).Text) + Val(Text4(2).Text) + Val(Text4(3).Text)
+ Val(Text4(4).Text) + Val(Text4(5).Text)
```

```
End Sub
Private Sub DBCombo1_Change()
On Error Resume Next
MSRDC 1.Result Set.Bookmark = DBCombo1.SelectedItem
End Sub
Private Sub DBCombo1_Click(Area As Integer)
On Error Resume Next
MSRDC1.Resultset.Bookmark = DBCombo1.SelectedItem
End Sub
Private Sub Form_Load()
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set adors = New Recordset
ADORS2.Open "select
ticket_no,pnr,flight_id,source,destination,t_date,d_time,a_time,fare1,fare2,fare3,fare4,fare5,far
e6,class,age1,sex1,seat1,age1,sex1,seat1,age2,sex2,seat2,age3,sex3,seat3,age4,sex4,seat4,age5,
sex5,seat5,age6,sex6,seat6,passenger from ticket_report", db, adOpenStatic, adLockOptimistic
Dim otext As TextBox
For Each otext In Me.Text1
Set otext.DataSource = adors
Next
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set adors = New Recordset
Set adors1 = New Recordset
Set ADORS2 = New Recordset
adors1.Open "select max(TICKET_NO)from ticket_report", db, adOpenStatic,
adLockOptimistic
ADORS2.Open "select max(pnr) from ticket_report", db, adOpenStatic, adLockOptimistic
var1 = adors1.Fields(0)
var2 = ADORS2.Fields(0)
```

```
Text1(0) = var1 + 1
Text1(17) = var2 + 1
adors.Open "select * FROM FARE", db, adOpenStatic, adLockOptimistic
Set Text1(1).DataSource = adors
Set Text1(2).DataSource = adors
Set Text1(3).DataSource = adors
Set Text1(4).DataSource = adors
End Sub
Private Sub PRINT_Click()
Ticket_report.Print
End Sub
Private Sub save_Click()
adors.UpdateBatch adAffectAllChapters
End Sub
Text3_LostFocus(Index As Integer)
Dim temp As Double
If Val(Text3(Index).Text) > 60 Then
temp = (5 * Val(Text5.Text) / 100)
MsgBox (temp)
Text4(Index).Text = temp
Else
temp = Val(Text5.Text)
End If
Text4(Index).Text = temp
End Sub
```

Coding for Cancellation

```
Option Explicit
Dim adors As Recordset
Private Sub CANCEL_Click()
```

```
Dim SQL As String
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
SQL = "DELETE FROM TICKET_REPORT WHERE PNR='" & txtfields(0).Text & "'"
db.Execute SQL
End Sub
Private Sub Command3_Click()
Unload Me
End Sub
Private Sub Form_Load()
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set adors = New Recordset
adors.Open "select
CUST_CODE,CLASS,SEAT_NO,DAYS_LEFT,HOURS_LEFT,BASIC_AMMOUNT,CANC
EL_AMMOUNT FROM REFUND_AMMOUNT", db, adOpenStatic, adLockOptimistic
Dim otext As TextBox
For Each otext In Me.txtfields
Set otext.DataSource = adors
Next
End Sub
Private Sub SHOW_Click()
Dim ADORS2 As Recordset
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set ADORS2 = New Recordset
ADORS2.Open "select * from TICKET_REPORT WHERE PNR = ' " & txtfields(0).Text & " '
", db, adOpenStatic, adLockOptimistic
```

```
'txtfields(0) = (ADORS2.Fields(1))
txtfields(1) = (ADORS2.Fields(8))
txtfields(2) = (ADORS2.Fields(7))
txt_basic_ammount.Text = (ADORS2.Fields(9))
End Sub
Private Sub txtfields_LostFocus(Index As Integer)
Dim db As Connection
If Index = 0 Then
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set adors = New Recordset
adors.Open "select
CUST_CODE,CLASS,SEAT_NO,DAYS_LEFT,HOURS_LEFT,BASIC_AMMOUNT,CANC
EL_AMMOUNT FROM REFUND_AMMOUNT where cust_code = ('" & txtfields(0).Text &
"')", db, adOpenStatic, adLockOptimistic
Dim otext As TextBox
For Each otext In Me.txtfields
Set otext.DataSource = adors
Next
End If
End Sub
Private Sub txtsub_Click()
txtresult(7).Text = Val(txt_basic_ammount.Text) - Val(txt_cancel_ammount(6).Text)
End Sub
```

Coding for Enquiry

```
Option Explicit
Dim adors As Recordset
Private Sub add_Click(Index As Integer)
With adors
.AddNew
End With
```

```
End Sub
Private Sub cl_Click(Index As Integer)
Unload Me
End Sub
Private Sub CONFIRM_Click()
Dim ADORS2 As Recordset
Dim db As Connection
Set db = New Connection
db.Open "Provider=MSDASQL.1;Persist Security Info=False;Data Source=NATH"
Set ADORS2 = New Recordset
ADORS2.Open "select * from TICKET_REPORT WHERE TICKET_NO ='" &
txtfields(7).Text & "'", db, adOpenStatic, adLockOptimistic
txtfields(4) = (ADORS2.Fields(1))
txtfields(1) = (ADORS2.Fields(2))
txtfields(2) = (ADORS2.Fields(9))
txtfields(3) = (ADORS2.Fields(7))
txtfields(5) = (ADORS2.Fields(5))
txtfields(6) = (ADORS2.Fields(6))
End Sub
```