AIRLINE PASSENGER SERVICE SYSTEM

(RESERVATION)

By

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Of

KUMARAGURU COLLEGE OF TECHNOLOGY

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BONAFIDE CERTIFICATE

Certified that this project report titled **"AIRLINE PASSENGER SERVICE SYSTEM-RESERVATION"**is the bonafide work of **"Mr.K.S.MAGESHWARAN"** (Registration Number: **71205621022**) who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Supervisor

Head of the Department

Submitted to Project and Viva Examination held on 01/07/2008

1/7/08
Internal Examiner

External Examiner

Keane
enabling transformation

June 6, 2008

TO WHOMSOEVER IT MAY CONCERN

This is to inform you that **K.S. Mageshwaran** has successfully completed his project assignment titled **Airline Passenger Service System – Reservation** as a part of **MCA** curriculum.

As a Project Trainee, he started this project on **December 17, 2007** and completed it on **June 6, 2008**.

Please note, as per the company's policies and practices, the company retains ownership of the intellectual property rights concerning work undertaken during projects and disclosure of the source code and any other relevant information or data out of the organization is strictly prohibited.

K.S. Mageshwaran designated, as project trainee will not be delivering the respective source code pertaining to his project.

Yours Sincerely,
FOR KEANE INTERNATIONAL (INDIA) PVT. LTD.

BHAVANI DEVAIAH
MANAGER – HUMAN RESOURCES

ABSTRACT

The project "**Airline Passenger Service System-Reservation**" is developed for the company **KEANE INTERNATIONAL PVT LTD,** Bangalore. The objective of this project is to provide airlines with the customer centric processing and to sell the items efficiently through multiple distribution channels.

The operational functions of this project are Reservation, Aircraft Scheduling, Inventory Management, Passenger Management, Seat and Space Management, Fare Maintenance and Ticketing.

Reservation deals with selling the items to the customer by interacting and retrieving the information from other modules. It also provides the facility to creating the profile for the customer and inquiring about the availability of the item. The reservation process is made faster and efficient by fetching the existing customer information.

Web Services is used for the communication with external airline which makes the system interoperable and flexible.

In this project, Customers are provided with the facility to purchase travel related items like hotel, car and tour along with the airline services to full fill their traveling needs at their desktop.

ACKNOWLEDGEMENT

First and foremost I thank God for his good will and blessings showered on me throughout the project. The success of this project needs cooperation and encouragement from different quarters. Words are inadequate to express my profound and deep sense of gratitude to those who helped me in bringing out this project successfully.

I wish to express my deep unfathomable feeling of gratitude and indebtedness to **Dr. Joseph V. Thanikal, Ph.D**, Principal – Kumaraguru College of Technology, Coimbatore for the successful completion of the project work.

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I would express heartfelt thanks to our internal guide **Mr.N.Jeyakanthan, M.C.A.,** Lecturer, Kumaraguru College of Technology as with out his best guidance it would not have been possible for me to successfully complete this project who also gave his innovative ideas at crucial times and tremendous encouragement.

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I would like to thank my parents and friends for their moral support to do the

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

APSS	Airline Passenger Service System.
HTML	Hyper Text Markup Language.
JSP	Java Server Pages.
PNR	Passenger Name Record.
POJO	Plain Old Java Object.
SQA	Software Quality Assurance.
WWW	World Wide Web.

CHAPTER 1
INTRODUCTION

1.1 ABOUT THE PROJECT

Airline Passenger Service System primarily focuses on servicing needs of the travelers. It is a next generation passenger service solution to replace legacy system.

Airline Passenger Service system handles ticketing functions, airline inventory management, and track passenger check-in, departures and arrivals. It targets at re-engineering business process to establish a customer centric solution.

Airline Passenger Service System is a suite of solutions that provides completely new approach for airline reservations and departure control. It is a well thought out architecture, built using industrial standard technology, meeting rigorous airline system performance requirements and delivering flexible applications for airline business.

This project has the following subsystem.

- Reservation.
- Agreements.
- Customers.
- Fares.
- Seats.
- Routings.
- Space.
- Re-Accommodation
- Ticketing.

Reservation

Reservation is an effective subsystem of Airline Passenger Service System to manage and maintain reservations for airline and other travel-related services. The objective of reservation is to increase productivity in the reservation arena. The Passenger Name Record (PNR) used in the traditional reservations is replaced by a system where current, future, historical information and customer experiences are accessible to the user.

Reservation is significantly enhanced by customer information for better definition of customer-relevant product and service offerings, including non-air products, for individualized service.

Reservation also offers the capability for linking to other service providers and partner reservation sites, offering links for services to be appended to current orders or links to permit new orders placed directly with the other service provider.

Reservation allows users to reserve products and services via links to an external company such as hotels and car rental agencies.

1.2 ABOUT THE COMPANY

Keane International Pvt Ltd is a global services firm that specializes in enabling transformation of its client's business and IT functions. The transformation partner of choice for clients across a broad array of industries, Keane is unique in its passion for building satisfying and enduring relationships with clients. Keane's solutions – are customized to address client's industry-specific challenges and drive improvements in business performance.

From application and business process outsourcing services to industry-specific

Keane's Vision

Build a globally respected and enduring business consulting and information technology institution that partners with clients to enable them to transform their businesses so that they get closer to realizing their vision and become a leader in their industry.

Keane's Mission

Help customers improve their company performance by providing world-class solutions via business and IT capabilities that leverage our globally integrated team of thought-provoking, passionate professionals.

Keane's Core Values

Customer Partnership

We approach every client with a view to build a professionally enduring relationship.

Integrity & Accountability

We have the intellectual honesty to refuse opportunities that we cannot fulfill to the satisfaction of our clients, but once we commit we stand accountable.

Result Orientation

We leverage technology and embrace innovation with a single-minded focus of delivering leadership results for our clients.

Flexibility

Care for the Individual

We value the cultural diversity of our employees, treat every individual with respect, and encourage all to realize their fullest potential.

Global Autonomy

We ensure global standards, while enabling local autonomy, to deliver high-quality, responsive, and personalized service.

CHAPTER 2
SYSTEM DEVELOPMENT

2.1 SYSTEM ANALYSIS

2.1.1 Existing System

Existing System was developed using legacy systems in which tickets had been reserved by the parent staff, permitted agents and external system communication takes place by means of queuing system.

Message queuing is a method of program-to-program communication. MQSeries is the middleware used for commercial messaging and queuing in the system.

- Messaging means that programs communicate with each other by sending data in messages and not by calling each other directly.

- Queuing means that programs communicate through queues. Programs communicating through queues need not be executed concurrently.

Drawback of Existing System

- Too hard to make changes.
- Not component Based model.
- Not a customer centric model.
- It depends on intermediate agencies for ticket sales.
- Message delivery is slow since it follows synchronized messaging.
- Does not follow modularized design

2.1.2 Proposed System

Proposed System replaces the existing system with the client/server architecture which makes the system flexible and customer-friendly. It also replaces the existing queuing system with web services to make the system more efficient and faster.

A web service is an application that accepts requests from other systems across the Internet or an Intranet, mediated by lightweight, vendor-neutral communications technologies. Web services provide a standard means of interoperating between different software applications, running on a variety of platforms and/or frameworks. It identifies those global elements of the global Web services network that are required in order to ensure interoperability between Web services.

- XML technologies. The use of XML standards is very important in the overall scheme of the web services universe. XML is a data format that represents data in a serialized form that can be transported over the network from one endpoint to another.

- Java technologies. The system use J2EE APIs to perform business and presentation logic, access XML documents, and perform XML operations. JAXB is the Java API used for XML binding (i.e.) for converting an XML document into a Java object and vice versa.

Features of proposed system

- The system is more flexible in which changes can be done easily.
- It is a web based system which makes web interaction easy.
- Maintain the customer related data in centralized database.
- Provide value added service for the customer.
- It gives link to other non air travel related services such as car, hotel, etc.

Advantage of Web Services

In existing system external airline make the reservation by sending message explicitly and it is processed manually by host airline administrator. The proposed system replace this process with web services where remote service is called to perform reservation and the response is provided to the external airline.

These smart web services will understand the context of each request and produce dynamic results based on each specific situation. The services will adapt their processes based on the user's identity, preferences, location, and reason for the request. Multiple services will be combined on the fly, collaborating to produce a unique, customized solution. The mechanics of this collaboration will be completely transparent to the customer, who will experience only the collective benefit delivered by the end result.

2.2 DEVELOPMENT ENVIRONMENT

2.2.1 Hardware requirements

Operating System	: Windows XP
Processor	: Intel Pentium IV, 2.79 GHz
RAM	: 2 GB
Hard disk capacity	: 80 GB

2.2.2 Software requirements

Platform	: Java - J2EE
Application Software	: Eclipse 3.1.1
Application Server	: BEA Web logic 9.2 .1
Middleware	: MQ Series 6.0.1
Backend RDBMS	: Oracle 9i
Development tool	: Toad

2.2.3 Software Description

Java

Java is not simply a programming language. Java is a complete implementation environment with a huge library to simplify the creation of applications. Java is designed specifically for the internet and the local area network, which has made it a favorable solution for the World Wide Web in general and e-commerce specifically.

The Java programming language is a high-level language that can be characterized by all of the following buzzwords:

- Simple
- Distributed
- Portable
- Secure
- Dynamic
- Object oriented
- Architecture neutral
- Robust
- High performance
- Multithreaded

J2EE

The J2EE platform, built on the Java programming language and Java technologies, is the application architecture that is best suited for an enterprise-distributed environment. The J2EE platform is a standard that brings the following benefits to IT organizations, application developers and product vendors.

J2EE Platform Benefits

With features designed to expedite the process of developing distributed applications, the J2EE platform offers several benefits:

- Simplified architecture and development.
- Freedom of choice in servers, tools and components.
- Integration with existing information systems.
- Scalability to meet demand variations.
- Flexibility security model.

Java Server Pages (JSP)

JSP technology provides a simplified, fast way to create dynamic web content. JSP technology enables rapid development of web-based applications that are server and platform-independent. The technology allows Java code and certain pre-defined actions to be embedded into static content JSPs are compiled into Java Servlets by a JSP compiler. A JSP compiler may generate a Servlet in Java code that is then compiled by the Java compiler, or it may generate byte code for the Servlet directly.

Java Servlet

Java Servlet is the one of the most important Java technologies. It is the simplest model to build a complete Java J2EE Web Application. Furthermore, even for complex J2EE Web Application that uses Struts, Spring, EJB and etc, they are still using Servlet for certain purposes such as Servlet Filter, Listener and etc. Servlets are modules of Java code that run in a server application to answer client requests. Servlets are not tied to a specific client-server protocol but they are most commonly used with HTTP and the word "Servlet" is often used in the meaning of "HTTP Servlet".

Eclipse

Eclipse is a platform that has been designed from the ground up for building integrated web and application development tooling. By design, the platform does not provide a great deal of end user functionality by itself. The value of the platform is what it encourages: rapid development of integrated features based on a plug-in model.

Eclipse provides a common User Interface (UI) model for working with tools. It is designed to run on multiple operating systems while providing robust integration with each underlying OS. Plug-ins can program to the Eclipse portable APIs and run unchanged on any of the supported operating systems.

BEA WebLogic

BEA Systems' WebLogic is a server software application that runs on a middle tier, between back-end databases and related applications and browser-based thin clients. WebLogic is a leading e-commerce online transaction processing (OLTP) platform,

MQSeries

MQSeries is an IBM software family whose components are used to tie together other software applications so that they can work together. This type of application is often known as business integration software or middleware. MQSeries consists of three products

- MQSeries Messaging, which provides the communication mechanism between applications on different platforms.
- MQSeries Integrator, which centralizes and applies business operations rules.
- MQSeries Workflow, which enables the capture, visualization, and automation of business processes.

The point of business integration is to connect different computer systems, diverse geographical locations, and dissimilar IT infrastructures so that a seamless operation can be run. IBM's MQSeries supplies communications between applications, or between users and a set of applications on dissimilar systems. An additional helpful feature is that its messaging scheme requires the application that receives the message to confirm receipt. If no confirmation materializes, the message is re-sent by the MQSeries.

Oracle 9i

The ORACLE or Oak Ridge Automatic Computer and Logical Engine, an early computer built by Oak Ridge National Laboratory, was based on the Institute for Advanced Study (IAS) architecture developed by John von Neumann.Oracle9*i* Database provides efficient, reliable, secure data management for high-end applications such as high-volume on-line transaction processing (OLTP) environments, query-intensive data warehouses, and demanding Internet applications.

PL/SQL

PL/SQL stands for Procedural Language/SQL. PL/SQL extends SQL by adding

made up of blocks, which can be nested within each other. Typically, each block performs a logical action in the program.

2.3 SYSTEM DESIGN

System engineers analyze and understand the business of the proposed system by studying the user requirements document. They Figure out possibilities and techniques by which the user requirements can be implemented. If any of the requirements are not feasible, the user is informed of the issue. A resolution is found and the user requirement document is edited accordingly.

2.3.1 Input Design

Input forms are designed to get customer details, product details, payment details etc. Various interactive screens have been designed with the necessary validation. Input designing involves determining the method of input and type of data entry. There are separate input forms to create/update/cancel reservation and customer profile

The forms are designed in such a manner that only when the user fills the mandatory fields he proceeds further. The details like date, city, country etc can be selected from the existing details rather entering manually makes the system user friendly.

2.3.2 Output Design

The reports are generated keeping in view the need of the user and designed with appropriate layout. Efficient, intelligible output design will improve the system relationship with the user and help in making decisions. The output is the most important and direct source of information to the user. Once the output requirements are determined, the system designer can decide, what to include in the system and how to structure it, so that the required output can be produced. Some of the output reports are passenger list, product list and customer list.

2.3.3 Architectural Design

This phase can also be called as high-level design. The baseline in selecting the architecture is that it should realize all which typically consists of the list of modules, brief functionality of each module, their interface relationships, dependencies, database tables, architecture diagrams, technology details etc. The integration testing design is carried out in this phase.

Layered Architecture:

APSS is built upon a layered architecture. The six logical layers are illustrated in the following diagram and described below.

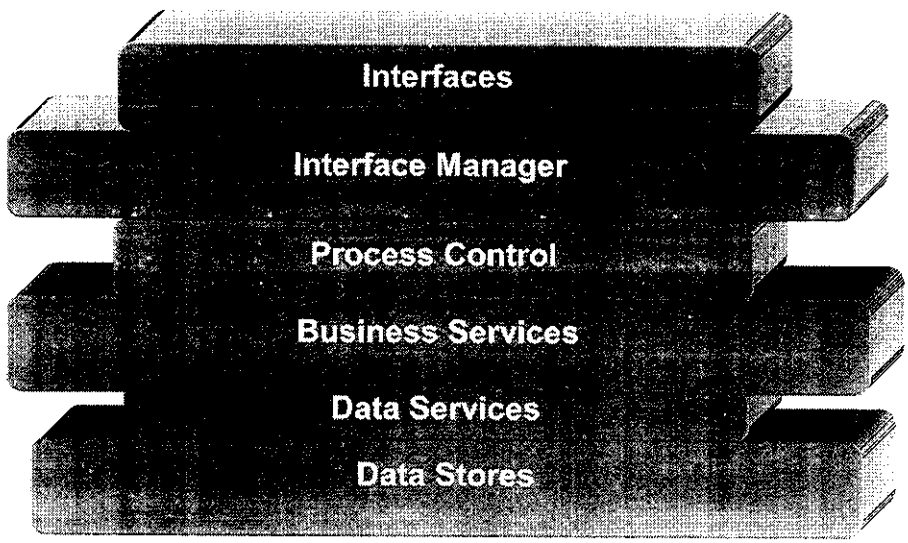

Figure: 2.1 Layered Architecture

Interfaces

The Interface layer is responsible for the specific rendering and presentation required for the channel. It is required only of channels that have to display some sort of for web (HTML) channel; it needs to generate HTML content that needs to be displayed in a browser.

Interface Manager

This layer contains the components to handle the interaction between channel specific presentation components and process components. The technology for the implementation of this layer is Servlets for the UI.

Process Controller

The Process Layer comprises many components required to control and execute any required business process. They provide an execution state engine for business processes.

The components contained in this tier

- are presentation channel independent,
- map to distinct business process,
- are implemented as stateless components,
- Are responsible for handling errors/exceptions from lower tiers.

Business Services

This layer contains reusable software components that contain the reusable business rules and logic. Shared or common business services should be written as framework services and not as business services. There will be no access to the Business Services from other layers apart from the Process Controllers.

Business services are characterized as follows:

- Contain core business logic,
- They provide a high degree of modularity and low dependencies,
- They are divided into application subsystems
- Access to services is based on well defined, standards based interfaces.

Data Store

This includes most RDBMS and non-relational data sources such as object databases and XML data. This layer is implemented in Oracle Database.

Layer	Implementation
Interfaces	HTML, JSPs
Interface Manager	Servlets
Process Controller	Controller EJBs
Business Services	POJOs, Helpers, Validators
Data Services	POJOs (Factory, Brokers, Factory Finders)
Data Store	Oracle

Layered Architecture

Data Services

The purpose of this layer is to separate business logic from persistence and hide the underlying storage mechanism from the business services. It contains the components to access and manage all system wide data. Data services must ultimately provide access to data either held in some persistent storage (databases, XML files) or in other systems.

2.3.4 DATA FLOW DIAGRAM DESIGN

A Data Flow Diagram is used to define the flow of the system and the resources such as information. It is the way of expressing system requirements in a graphical manner. It is also known as bubble chart. It consists of a series of bubbles joined by lines. The bubbles represent data transformation and the lines represent data flow in the system.

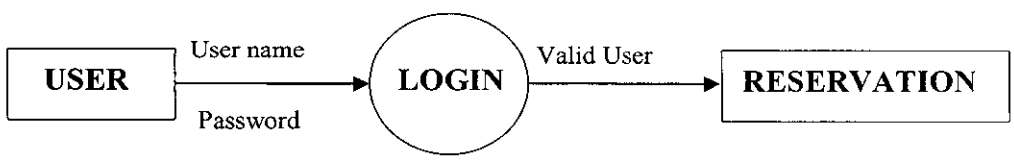

Figure 2.2 – Level 0 DFD for Login Process.

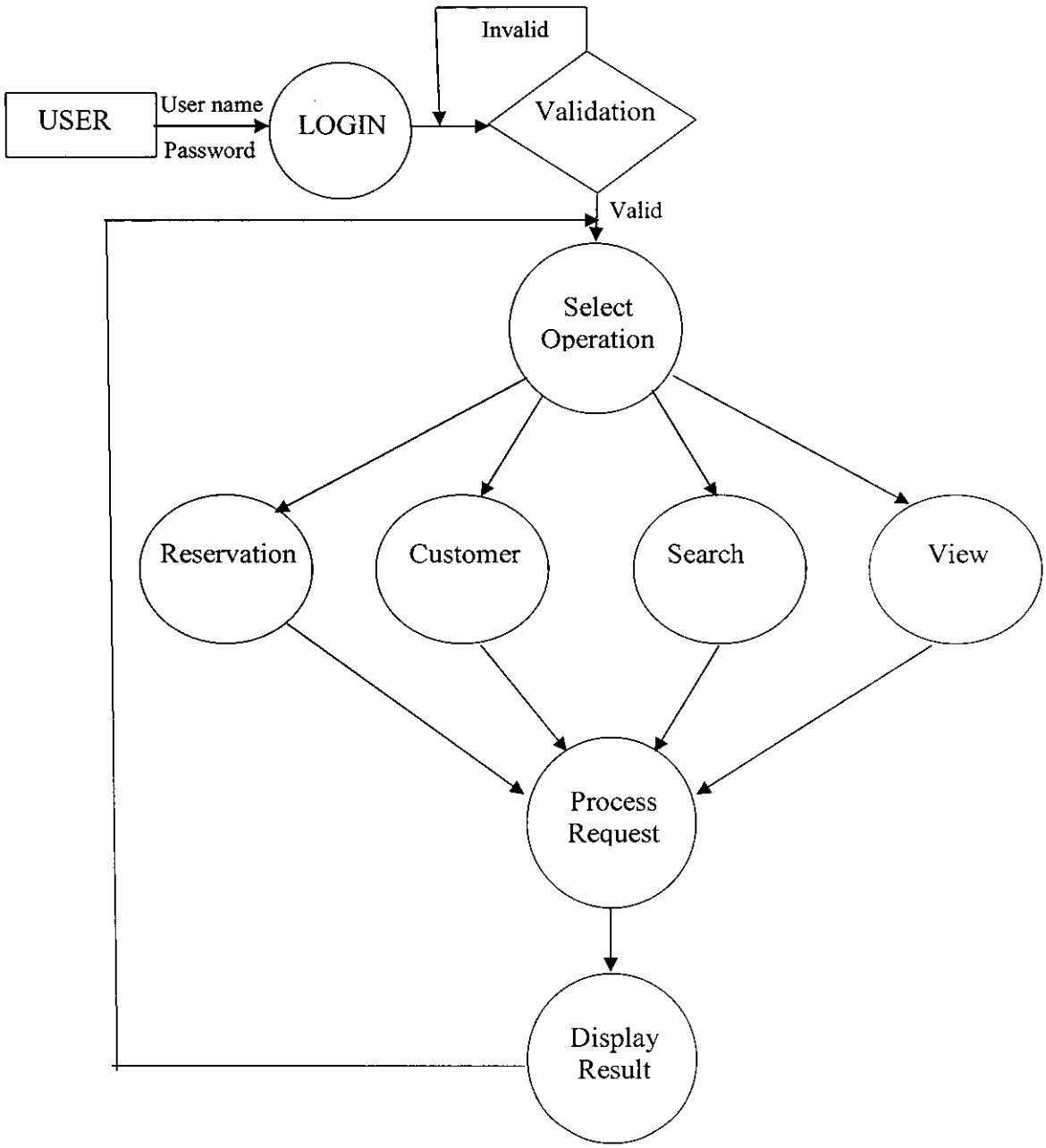

Figure 2.3 – Level 1 DFD for Reservation Process.

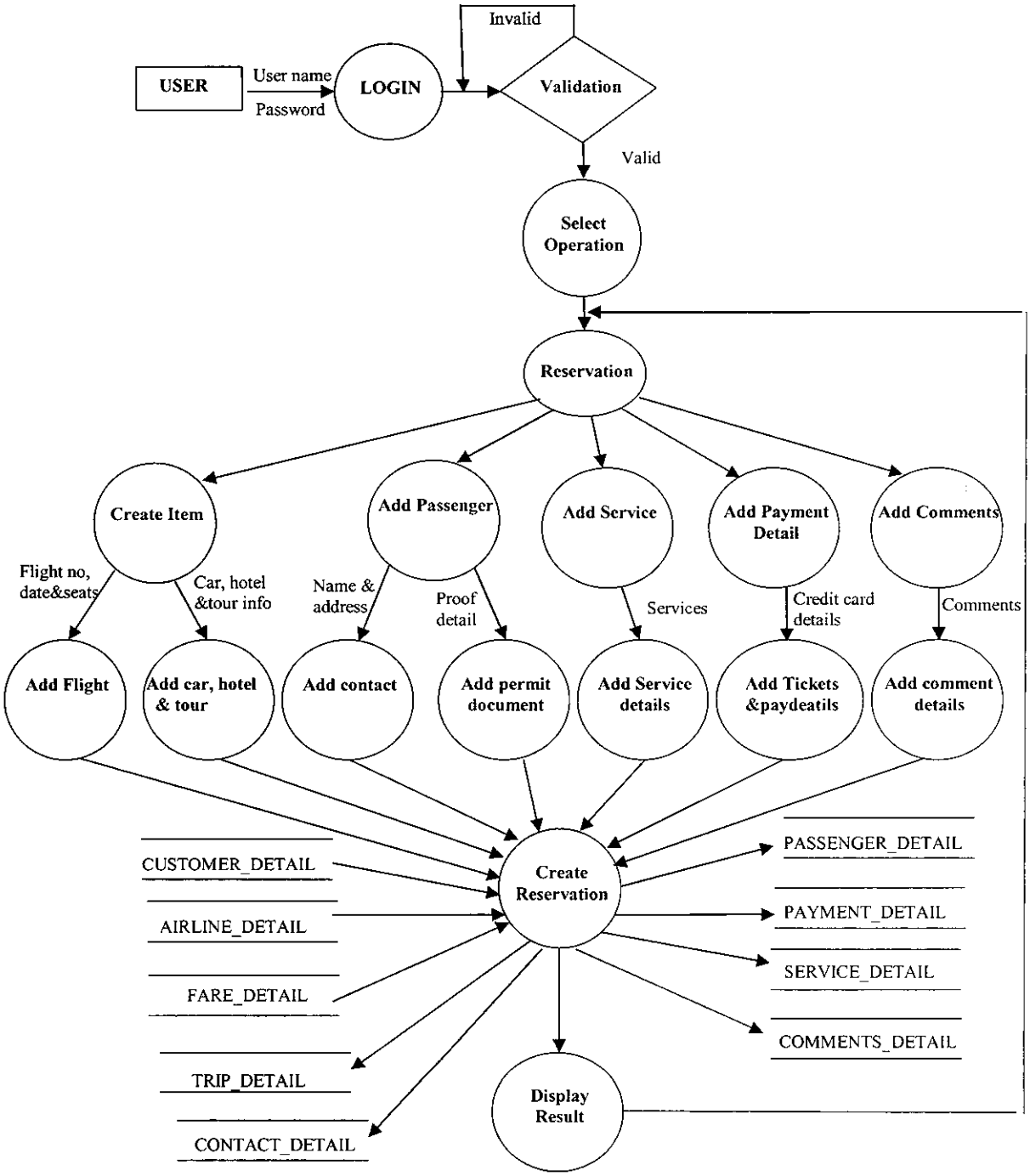

Figure 2.4 – Level 2 DFD for Creating Reservation Process.

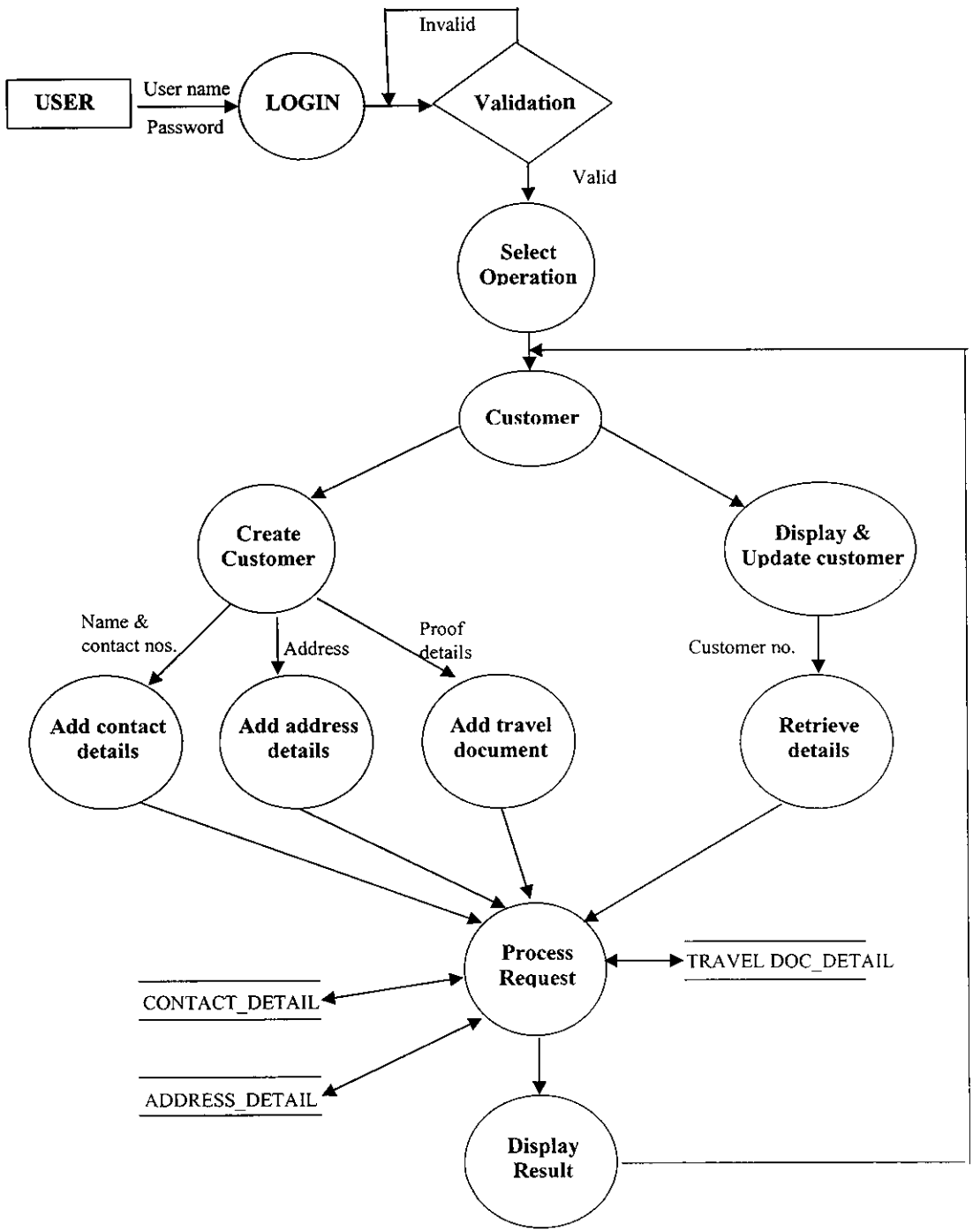

Figure 2.5 – Level 2 DFD for Customer Creation Process.

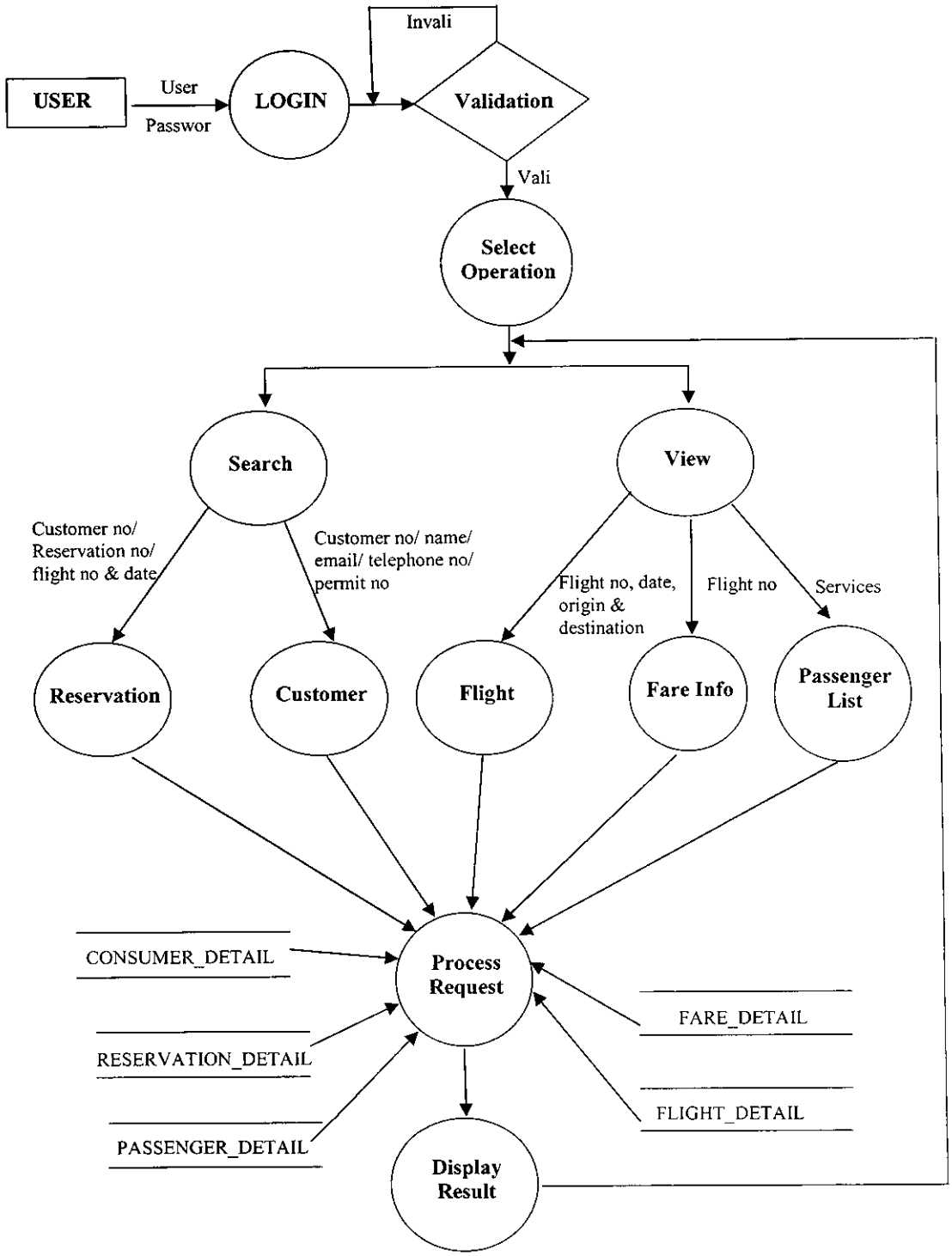

Figure 2.6 – Level 2 DFD for Retrieving Process.

2.3.5 USE CASE DIAGRAM

This section lists the use cases or scenarios from the use case model which depict significant, central functionality of the final system.

2.3.5.1 Use-Case: User View

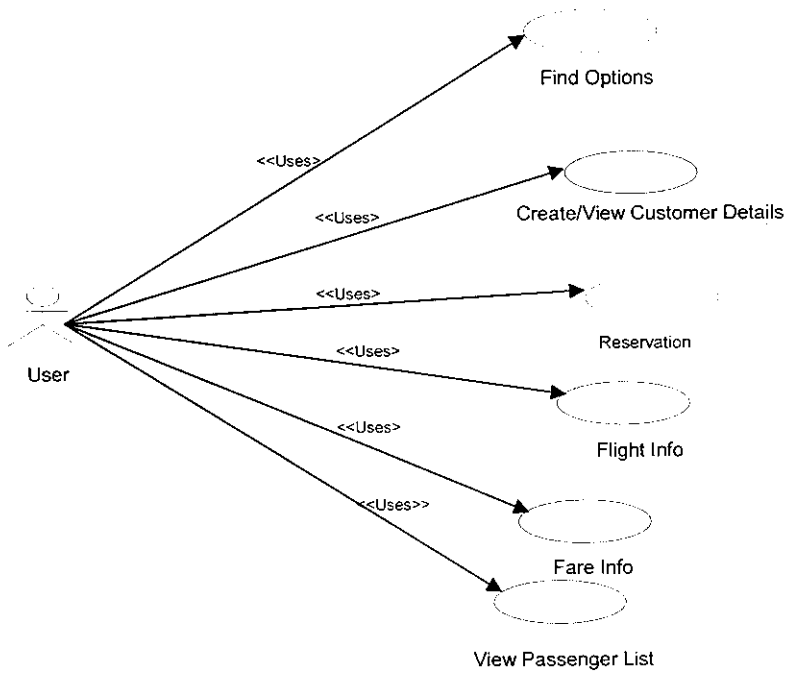

Figure 2.7 User View use-case.

Use case Name:	User view
Actors:	Travel Agent and Airline Office user.
Description:	The options provided for the Corresponding user will be displayed.
Preconditions:	Only actor's oriented details should be viewed.
Post conditions:	According to the user's selection the options should be displayed.
Normal Flow:	1. User selects the needed option. 2. System accepts the request and displays the selected options.
Alternative flow:	Nil.

2.3.5.2 Use-Case: Create Reservation

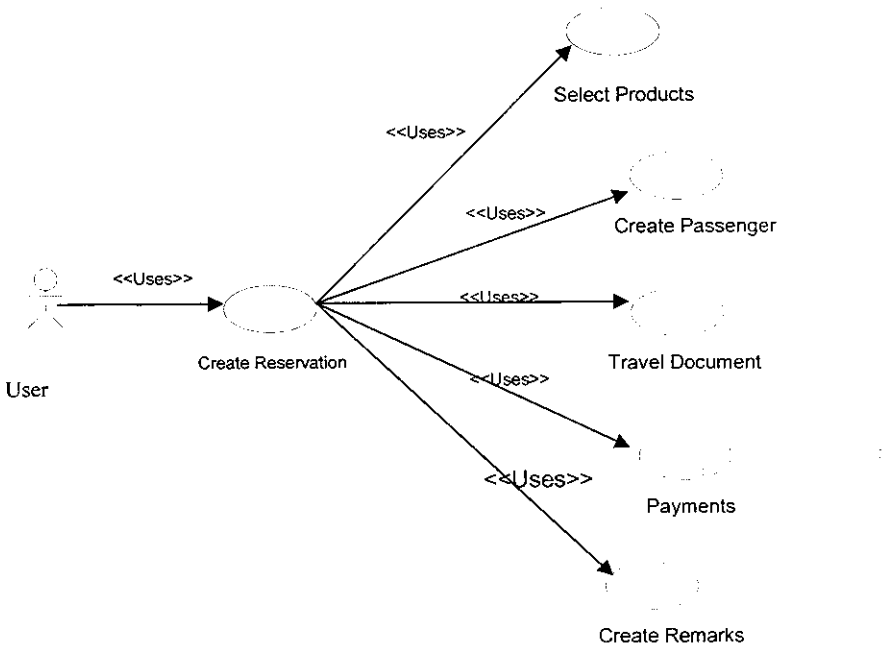

Figure 2.8 Create Reservation use-case.

Use case Name:	Create Reservation
Actors:	Travel Agent and Airline Office user.
Description:	Either Travel Agent or Airline Office user can enter this view by selecting the create reservation option.
Preconditions:	List of options to be made for reservation should be displayed.
Post conditions:	According to the User's selection the options should be displayed.
Normal Flow:	1. User selects the needed option. 2. System accepts the request and displays the selected options.
Alternative flow:	Nil

2.3.5.3 Use-Case: Select Products

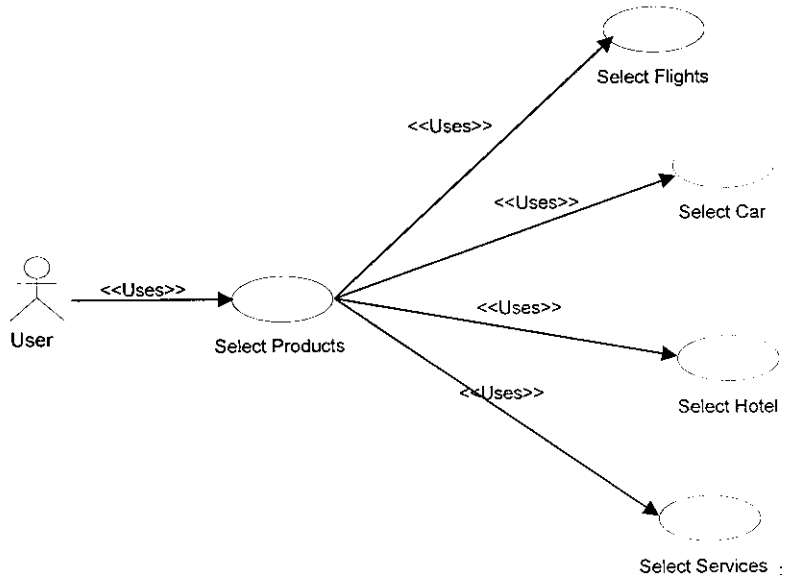

Figure 2.9 Select Products use-case.

Use case Name:	Select Products
Actors:	Travel Agent and Airline Office user
Description:	Either Travel Agent or Airline Office user can enter this view by selecting the products option in the create reservation view.
Preconditions:	List of products to be selected for reservation should be displayed.
Post conditions:	According to the User's selection the options to be entered for the corresponding product creation should be displayed.
Normal Flow:	1. User selects the product to be created. 2. System accepts the request and displays the product creation information to the user. 3. After the information entered by the user then the product will be created for the customer's current reservation.
Alternative flow:	If the user doesn't enter the valid data and if the product is not created then appropriate message should be displayed.

2.4 SYSTEM DEVELOPMENT

2.4.1 Introduction

System development is a series of operations performed to manipulate data to produce output from computer system. This aim at translating the design of the system produced during the design phase into code in user programming language. A modular approach is used for the development of the software.

The development phase for the project was created from the specifications created during the design phase. A principal activity of the development phase is coding and testing the computer program that make up the computer program component of the overall system. Other important activities include implementation, planning, equipment acquisition and system testing. The development phase concludes with the report and review.

2.4.2 Module Description

Reservation is a comprehensive subsystem of the Airline Passenger Service System, which deals with sales of product provided by airline and other travel related agencies. It also deals with creating profile for the customer and to retrieve the customer details based on selected criteria.

The objective of this module is to increase the productivity in the air travel industry by providing the customer centric service. Customer can view the availability of the products, reservation details and fare details for the concern trip. The list of passengers can be retrieved based on the service offered.

Modules:

- Search.

- Flight Information.
- Fare Information.
- Passenger List.

2.4.2.1 Search Module

The search process is more flexible and efficient; user can retrieve the details based on the selected criteria.

Functionality

- Customer.
- Reservation.
- Travel Agency.
- Corporate.
- Topics.
- Provided Services.

Customer profile

The profile of the particular customer can be selected by specifying any one of the following details of the customer.

- Unique customer number.
- Surname with date of birth and postal code.
- Unique Travel document number.
- E-mail address.
- Card Number.

After finding the customer information the details can be edited. The details that can be edited are as follows

- Contacts.
- Cards & Form of Payments.
- Travel Documents.
- Travel Associations.

Reservation

The reservation details can be retrieved by specifying the reservation number or the airline details that includes name of the customer, departure date and airline code.

After finding the reservation information those details can be edited. The processes that can be done are as follows.

- Cancel Reservation.
- Merge Reservation.
- Split Reservation.
- Request for fare quote.
- Create Template.
- Copy Reservation.
- Append Reservation Template.
- Purchase.

Travel Agency Profile

The profile of the particular Travel Agency can be selected by specifying any one of the following details of the travel agency.

- Unique travel agency number.
- Name and postal code.
- Phone number with country code.
- E-mail address.
- Card Number.

After finding the travel agency information the details can be edited. The details that can be edited are as follows

- Contacts.
- Travel preferences.
- Travel Associations.
- Affiliations.

Corporate Profile

The profile of the particular corporate customer can be selected by specifying any one of the following details of the corporate.

- Unique Corporate number.
- Name and postal code.
- Phone number with country code.
- E-mail address.
- Card Number.

After finding the corporate information the details can be edited. The details that can be edited are as follows

- Contacts.
- Cards & Form of Payments.
- Travel Associations.
- Travel policy.

Topics

The topics can be searched based on the keyword, topics name or the shortcuts. The information such as climate, geography about the concern airport location can be provided. The information can be deleted, updated according to the privilege of the user.

Provided Services

The service provided for the customer will be displayed according to the FROM and TO date.

2.4.2.2 Customer Module

The user can create the profile for the regular customer by specifying the details from which we can retrieve detail during reservation process making it simple and easier.

Functionality

- Generate Customer Profile.

Generate Customer Profile

The customer profile can be created by entering the mandatory field's first name surname and at least one phone number, address or e-mail. After creating the customer profile the following information can be entered.

- Contacts.
- Cards & Form of Payments.
- Travel Documents.
- Travel Associations.
- Lifestyles & preferences.
- Affiliations.

Customer Details

The customer details can be viewed here the details provided in this screen are personal information, contacts, templates, preferences, travel companions and frequent flyer information.

2.4.2.3 Reservation Module

The reservation can be done only by providing the minimum details as follows

- A product.
- A Passenger name.
- A Contact.
- A Ticketing Arrangement.

This module deals with selecting the products the customer wants to consume and placing the order for the same. In addition to the airline products, it also provides other travel related products from car rental companies, hotels and facilities. Reservation on a particular product can be updated or canceled at any time.

Functionality

- Select the product.
- Create/Select passenger details

- Add Services.
- Add comments

Select the Product

In this the customer can select the product they want to purchase by specifying the details required. The product includes both host airline product and the travel agency's product.

- Selecting Flight:

The user can give the origin, destination and date of travel and check for the availability of the airline. The availability can be searched by the following options

- Availability.
- Group Availability.
- Direct Flight Availability by Origin.
- Direct Flight Availability by Destination.
- Availability for Multiple Destinations.

The user can select the Airline for his convenience listed based on timing and airline. Then he can add Airline for reservation by specifying the date, class and the number of seats required.

- Selecting Car:

The user can hire cars by selecting/entering the Car Company, model, pickup date, drop off date and the number of cars required. The customer can add car needed for his reservation by selecting the preferences specified in his profile.

- Selecting Hotel:

The user can book rooms in hotel by selecting/entering the hotel name location, check in date, checkout date, type of room and number of rooms required. The customer can add hotel needed for his reservation by selecting the preferences specified in his profile.

- Selecting Ground Service:

The user can add the service by specifying the type of the service, location, date and number of service.

- Selecting Tour:

The user can add the tour by specifying the tour type, start date, end date, number of service and location.

Create/Select Passenger details

The passenger details are added for that particular reservation or can be select from the existing customer profile. The details include the following

- Add passenger details

The user can add passenger name, type, Date of birth and other related details or select the detail from profile by giving the customer number.

- Add contact details

The user can add the contact number by specifying the location, city code, country code and the number or select the detail from profile by selecting the customer name.

- Add address details

The user can add the address details by specifying location, city, state, country and postal code or select the detail from profile by selecting the customer name.

- Add group details

The reservation can be done for a group as a whole. A group is created by specifying the group name and the size.

- Add document information

The travel document information is added by giving document type,

Add the Ticketing and payment details

The user can add the form of ticketing and payment details.

- Add Ticket detail

  The user can add the form of ticket, ticketing location and the date of receipt of ticket. The customer can add ticket arrangement needed for his reservation by selecting the preferences specified in his profile.

- Add payment detail

  The user can add the card type, card name and other detail for payment or select from profile by giving the customer number and name. The customer can add payment details needed for his reservation by selecting from his profile.

After select the reservation information those details can be edited. The processes that can be done are as follows

- Conclude Reservation.
- Ignore Reservation.
- Request for fare Quote.
- Purchase.
- Appending Booking Template.

Add Remarks

The user can select the topic for comment and specify his comments.

2.4.2.4 Flight Information

The information regarding the flight will be displayed according to the customer's request by specifying the airline number, date and destination.

2.4.2.5 Fare Information

The fare detail is viewed by specifying the origin, destination, departure date and the ticketing date.

2.4.2.6 Reservation Template

The template can be created by providing all the reservation details. It can be used for reservation in future if it matches with need of the customer. The template can also be appended.

2.4.2.7 Passenger List

The list of passenger in the flight or traveling through the corresponding airline can be displayed by using the following categories of search method

Functionality

- Multi-select.
- Meals Service.
- Boarding.
- Terminating.
- VIP.

The passenger list can be obtained according to the criteria provided by the user. This information will be used by the airline for providing service to the customer.

2.5 SYSTEM TESTING

Testing is a process of executing a program with the intention of finding an error. A good test case is one that has a high probability of finding an as-yet undiscovered error. During the development of a project, errors of various types can occur at any stage. At each phase, different techniques are used to detect the errors. However, some error such as those occur while collecting requirements and some design errors have also to be removed and the system tested for the successful working of any project

2.5.1 Verification and Validation:

Verification refers to the set of activities that ensure that system correctly implements a specific function. Validation refers to a different set of activities that ensure that the system that has been built is traceable to customer requirements. Verification and validation encompass a wide array of software quality assurance (SQA) activities that include formal reviews, quality and configuration audits, performance monitoring, simulation, feasibility study, documentation review, database review, algorithm analysis, development testing, qualification testing and installation testing.

ID:

All the ids are automatically generated to avoid unnecessary checking.

Numeric Field

The numeric fields must not contain any alphabets or special characters. This validation is checked.

Character Field

The character field must not contain any special characters. This validation is checked

2.5.2 Unit Testing

Unit testing focuses verification effort on the smallest unit of software unit of 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.

Test 1:

Procedure

The mandatory fields have to be filled before proceeding to next process.

Solution

The alert message has to be displayed to fill the mandatory details.

Test 2:

Procedure

The reservation process involves adding airline detail, passenger detail and the payment detail involving various operations.

Solution

This problem is solved by using session tracking.

Test 3:

Procedure

When a reservation is in progress and if a user tries to create a new reservation.

Solution

The prompt is made that the reservation is in progress and want to continue with the current reservation or the previous one.

2.5.3 Integration Testing:

Integration testing is a systematic technique for constructing the program structure while conducting tests 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. Modules are integrated by moving download through the control hierarchy, beginning with the main control module. Modules subordinate to the main control module. Modules subordinate to the main control module are incorporated into the structure in either a depth first or breadth first manner. As integration testing is conducted, the tester should identify critical modules.

User Acceptance testing

User acceptance of the system is a key factor for the success of any system. The system under consideration is tested for user acceptance by constantly keeping in touch with prospective system and user at the time of developing and making changes whenever required.

The acceptance testing will be covered as listed by the acceptance criteria mentioned below:

- Functionalities
- Interfaces
- Interfaces with other software
- Performance Criteria
- Development and testing criteria
- Testing automation
- Quality criteria

2.6 IMPLEMENTATION

Implementation means the process of converting a new or a revised system design into an operational one. It is the most crucial stage in achieving a new successful system and in giving confidence on the new system for the users that it will work efficiently and effectively. In this phase, we can build the components either from scratch or by composition. Given the architecture document from the design phase and requirement document from the analysis phase, we can build exactly what has been requested.

This phase deals with issues of quality, performance, baselines, libraries and debugging. The end deliverable is the product itself. There are three types of implementation:

1. Implementation of a computer system to replace a manual system
2. Implementation of new computer system to replace an existing one.
3. Implementation of a modified application to replace an existing one, using the same computer.

Implementation of "Airline Passenger Service System" comes under Third category. At the end of the specific period, the system performance and the reliability are tested. Implementation is the key stage in achieving a successful new system because it involves

2.7 FUTURE ENHANCEMENTS

It is necessary to keep up with changing user needs and the operational environment. Normally software fails because of improper cumulative maintenance, wear and tear. The system can be handled separately with out affecting other parts of the system. Thus, future enhancements are very easy in this system. Since the system is developed using modularized design, it can be upgraded without much modification. Web services is used for the communication with the external airline, it can also be used for other functionalities to make it more flexible and efficient.

CHAPTER 3
CONCLUSION

Working over the project, "Airline Passenger Service System-Reservation", has been a great experience with a lot of exposure to various evolving software trends. The project has been found to work effectively and efficiently. It clearly gives the client a competitive advantage tool that would help improve the business' financial bottom line.

The application is formulated by analyzing the requirements of the users in the company. Each and every module has undergone various test conditions. With a full stretch testing, it has been ensured that the system can enhance ideally without any bugs or crashes, which will make the end user more compatible with the project.

The application is designed as user friendly and all the options available are clear and self explanatory so that the user can understand the system easily.

APPENDIX 1

TABLE DESIGN

Table name : Customer Profile table

Description : This table contains all the details about the customer.

Fields	Data type	Description
CUST_ID	NUMBER(38,0)	The unique customer Identifier
CREDIT_NO	VARCHAR2(60)	Credit card number
TRIP_ID	CHAR(6)	The trip Id offer by passenger
PASS_TYPE	NUMBER(3,0)	The type of the Passport
PER_NAME	VARCHAR2(50)	Customer first name
LAST_NAME	VARCHAR2(80)	Customer last name
AGENCY_ID	VARCHAR2(80)	Agency identifier number
WEIGHT	NUMBER(38,0)	Weight of the customer in KG
GENDER	NUMBER(1,0)	Gender of the customer
EMAIL_ADD	VARCHAR2(20)	Communication address
WORK_PHONE	VARCHAR2(20)	Communication work phone no
HOME_PHONE	VARCHAR2(20)	Communication home phone no
STATUS_CODE	NUMBER(1,0)	Status of the passengers
DOB	DATE	Date of Birth of the passenger
FRE_FLYER	VARCHAR2(38)	Frequent flyer number

Table A 1.1 – Customer Profile Table.

Table name : Contact table.

Description : This table contains Contact Information About the passenger

Fields	Data type	Description
CONTACT_ID	NUMBER(35)	Contact Identification Number (Primary Key).
TRIP_ID	CHAR(6)	The trip identification number.
CUSTOMER_ID	NUMBER(35)	The customer identification number.
CONTACT_NAME	VARCHAR2(36)	Customer Name.
CONTACT_TYPE	NUMBER(35)	Type of contact (mobile, home phone).
COUNTRY_CODE	NUMBER(35)	Code of the country.
CITY_CODE	NUMBER(35)	Code of the city.
LOCAL_NUMBER	NUMBER(20)	Local Telephone Number.
INSTRUCTIONS	VARCHAR2(20)	Comments about the number.

Table A 1.2 – Contact table

Table name : Ticket Details table.

Description : This table contains information about the ticket information for the trip.

Fields	Data type	Description
TICKET_NO	NUMBER(38,0)	It gives the ticket's unique number
AIR_DESIGN	VARCHAR2(3)	Flights model will be denoted here
AIR_OFF	VARCHAR2(38)	Location of the airline office
AIR_CODE	VARCHAR2(100)	The unique code of the Airline
TICKET_DATE	DATE	Issue Date of the ticket
TICKET_TYPE	VARCHAR2(38)	The type of the ticket
TIME_LIMIT	DATE	Expiry date of the ticket
TRIP_ID	CHAR(6)	The trip which offers by customer
STATUS_CODE	VARCHAR2(38)	The unique code of the status

Table A 1.3 – Ticket Details table

Table name : SSR Details table

Description : This table is contains all the details about the Special Services requested by the customer for the corresponding trip.

Attribute	Type	Description
SSRID	NUMBER(38)	This field gives the id for the SSR.
SSRCODE	VARCHAR2(50)	This field gives the code like (VGSL) for the SSR.
CUSTOMERID	NUMBER(38)	This field gives the customer Id to which the SSR is needed.
TRIPID	CHAR(6)	This field gives the trip id for which the Customer is booked.
SSRFARE	NUMBER(8,2)	This field gives fare of the SSR.
SSRCURRENCY	VARCHAR2(20)	This field gives the type of the currency by which the fare is displayed.
FREETEXT	VARCHAR2(250)	This field gives the customer comments which give other details o the SSR.
CREATEPERIOD	NUMBER(3)	This field gives the time in which the fare is calculated.
UPDATEPERIOD	NUMBER(3	This field gives the time in which las update takes place.

Table A 1.4 – SSR Details Table.

Table name : Fare Details table

Description : This table is contains all the details about the fare that is calculated for the corresponding trip.

Attribute	Type	Description
TRIPID	CHAR(6)	This field gives the trip id for which the fare is calculated.
FAREID	NUMBER(38)	This field gives the fare id by which the fare is to be calculated.
CUSTOMERFAREID	NUMBER(38)	This field gives the fare calculated fo the customer at last.
CUSTOMERID	NUMBER(38)	This field gives the customer id to which the fare is calculated.
PASSENGERTYPE	VARCHAR2(10)	This field gives the type of the passenger.
BASEFAREAMOUNT	VARCHAR2(30)	This field gives the base fare amount for the trip.
FAREBASISCODES	VARCHAR2(50)	This field gives the fare code for the trip.
FARECALCULATION	VARCHAR2(240)	This field gives the fare calculation type for the fare.
SERVICECHARGE	NUMBER(8,2)	This field gives the service charge fo the fare.
FARESTATE	NUMBER(1)	This field gives the state from which the fare is calculated.
FROMCURRENCY	NUMBER(10)	This field gives the currency format from which the fare is calculated.
TOCURRENCY	NUMBER(10)	This gives the currency format to which the fare is to be changed.
FREETEXT	VARCHAR2(30)	This field for getting comments from the passenger about the fare details.
CREATEPERIOD	NUMBER(3)	This field gives the time in which the fare is calculated.
UPDATEPERIOD	NUMBER(3)	This field gives the time in which las update takes place.

Table A 1.5 – Fare Details Table.

Table name : Taxes & Charges table.

Description : This table is contains all the details about the taxes and charges for calculating the fare for the trip.

Attribute	Type	Description
TAXID	NUMBER(38)	This field gives the tax id by which the tax is calculated.
CUSTOMERFAREID	NUMBER(38)	This field gives the fare calculated fo the customer's trip.
TRIPID	CHAR(6)	This field gives the trip id for which the tax needs to be calculated.
TAXCODE	VARCHAR2(3)	This field gives the code for the tax.
TAXCURRENCY	VARCHAR2(10)	This field gives the currency type by which the tax is calculated.
CITYCODE	VARCHAR2(3)	This field gives the city code using which the tax is calculated.
CITYAMOUNT	VARCHAR2(38)	This field gives the tax amount for th city.
COUNTRYCODE	VARCHAR2(3)	This field gives the country code using which the tax is calculated.
TAXAMOUNT	VARCHAR2(38)	This field gives the tax amount for th customer's fare.
CREATEPERIOD	NUMBER(3)	This field gives the time in which the fare is calculated.
UPDATEPERIOD	NUMBER(3)	This field gives the time in which las update takes place.

Table A 1.6 – Taxes & Charges Table.

Table name : Travel Document table.

Description : This table is contains all the details about the travel document produced by the customer for the trip.

Fields	Data type	Description
DOC_ID	NUMBER(38,0)	The travel documents information
TRIP_ID	VARCHAR2(6)	The unique Trip identification number
DOC_TYPE	VARCHAR2(6)	The type of the document maintained
ISSUE_COUNTRY	VARCHAR2(6)	Issuing country of the trip documents
EXPIRY_DATE	DATE	Expiry date of the trip document
ISSUE_DATE	DATE	Issue date of the document
PLACE_ISSUE	VARCHAR2(35)	Issuing place of the trip document
DOC_SURNAME	VARCHAR2(35)	Document holder's surname
DOC_MIDDLE	VARCHAR2(35)	Document holder's middle name
NATIONALITY	VARCHAR2(35)	The nationality of the customer
DOB	DATE	Date of birth of the customer
BIRTH_COUNTRY	VARCHAR2(20)	Birth country of the customer
BIRTH_STATE	VARCHAR2(20)	Birth state of the customer
GENDER	CHAR(6)	Gender of the customer
PARENT_DOCID	NUMBER(38)	Parent document identification number

Table A 1.7 – Travel Document Table.

Table name : Seat Assignment table.

Description : This table is contains all the details about the seat assignment details given by the customer for the trip.

Fields	Data type	Description
SEAT_ID	NUMBER(38,0)	Seating Identification number
RESULT_STATUS	VARCHAR1(30)	The status of the trip
COMPART_DESC	CHAR(6)	Compartment details
ROW_DESC	NUMBER(3,0)	Row description
COLUMN_DESC	CHAR(6)	Column of the seat
ORIGIN	VARCHAR2(50)	The staring location of the trip
DESTINATION	VARCHAR2(80)	The ending location of the trip
SEAT_VALUE	NUMBER(3,0)	The cost of the ticket
TRIP_ID	CHAR(6)	The trip Identification number
SEGMENT_ID	NUMBER(38,0)	The segment identification
SEAT_PREF1	NUMBER(38,0)	The first preference of the seat
SEAT_PREF2	NUMBER(38,0)	The second preference of the seat
REQ_TYPE	NUMBER(4,0)	The needed seat preference
REQ_SEAT	NUMBER(1,0)	The seat required for the customer
SEAT_ATTR	NUMBER(38,0)	The attributes needed for the seat

Table A 1.8 – Seat Assignment Table.

Table name : Hotel Details table.

Description : This table contains all the details about the hotel specified by the customer for the trip.

Fields	Data type	Description
HOTEL_ID	NUMBER(38,0)	Hotel identification number
ROOM_RATE	VARCHAR2(60)	The amount of the room.
ROOM_TYPE	VARCHAR2(60)	The type of the room.
CHECK_IN_DATE	DATE	Date of the check-in.
CHECK_OUT_DATE	DATE	Date of the check-out
TRIP_ID	CHAR(6)	The trip identification number
NUMBER_BEDS	VARCHAR2(80)	Number of beds required
BED_TYPE	NUMBER(38,0)	Type of the bed allotted for the customer
NUMBER_ADULTS	NUMBER(38,0)	Number of adults
NUMBER_CHILDREN	NUMBER(38,0)	Number of children
NUMBER_ROOMS	NUMBER(38,0)	Number of rooms allotted
HOTEL_CODE	VARCHAR2(20)	Code of the hotel
EXTRA_BED	VARCHAR2(60)	Extra bed information
MEAL	VARCHAR2(60)	Information about meals
CLASS_HOTEL	VARCHAR2(60)	Class type of the hotel
CUST_ADDR	VARCHAR2(60)	Address of the hotel
HOTEL_LOCATION	VARCHAR2(60)	Location of the hotel
HOTEL_NAME	VARCHAR2(60)	Name of the hotel

Table A 1.9 – Hotel Details Table

Table name : Car Details table.

Description : This table contains all the details about the Car specified by the customer for the trip.

Fields	Data type	Description
CARRENTAL_ID	NUMBER(35)	Car hires identification Number (Primary Key).
TRIP_ID	CHAR(6)	The trip identification Number
CUSTOMER_ID	NUMBER(35)	Customer identification Number
CUSTOMER_ADDRESS	VARCHAR2(35)	Customer Address
CARD_NUMBER	VARCHAR2(35)	Customer credit card Number
CARCOMPANY_NAME	VARCHAR2(35)	Name of the car company
CAR_TYPE	VARCHAR2(35)	Type of the car used for journey
PICKUP_DATE	DATE	Date of picking up the car
DROPOFF_DATE	DATE	Date of dropping the car
PICKUP_LOCATION	VARCHAR2(35)	Pickup Location
DROPOFF_LOCATION	VARCHAR2(35)	Dropping Location
NO_OF_CARS	NUMBER(2)	Number of cars used for journey
RATE_CODE	VARCHAR2(35)	Rate Code

Table A 1.10 – Car Details Table

APPENDIX 2

SCREEN SHOTS

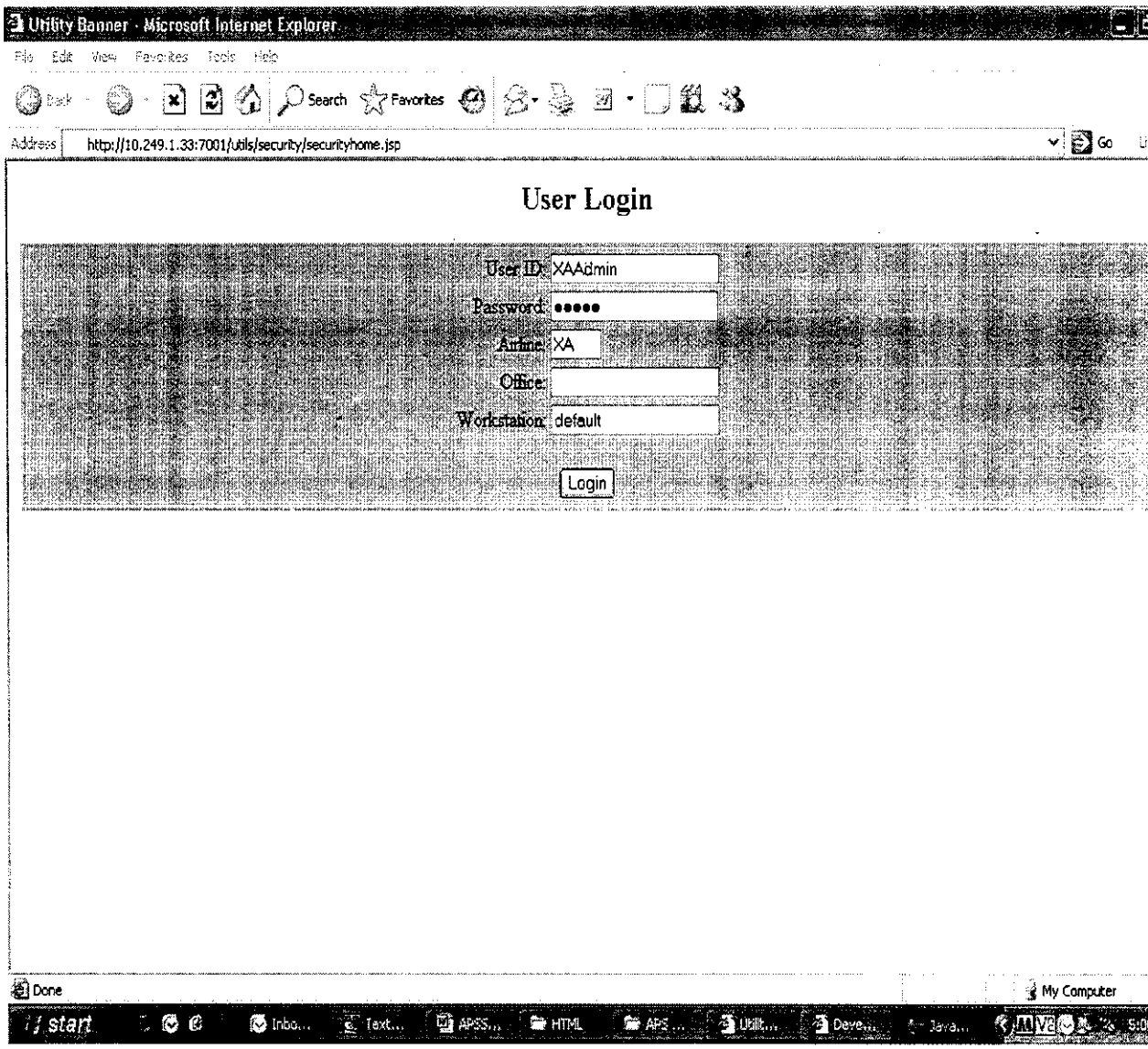

Figure A 2.1 Login Screen.

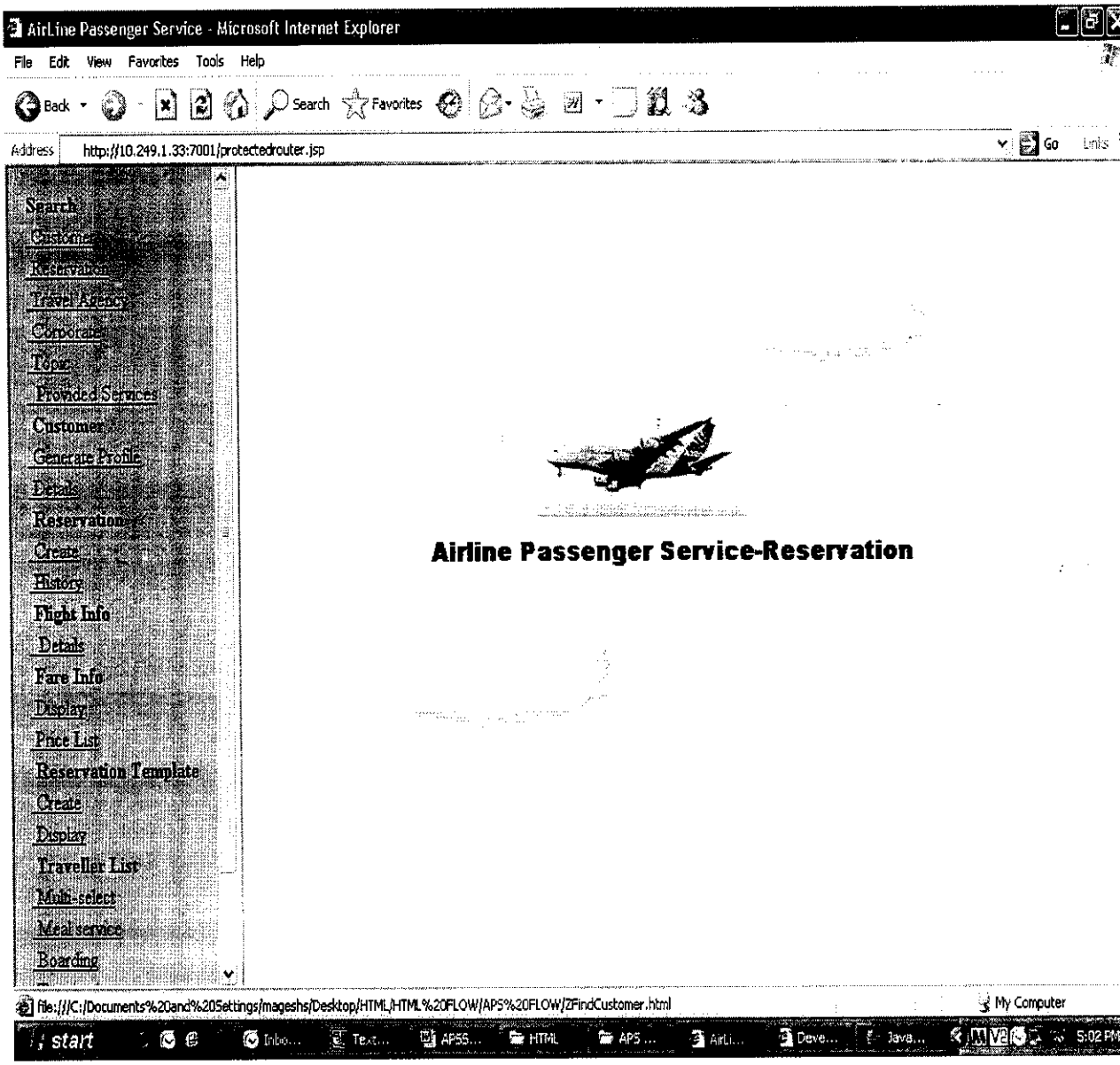

Figure A 2.2 Home Page Screen.

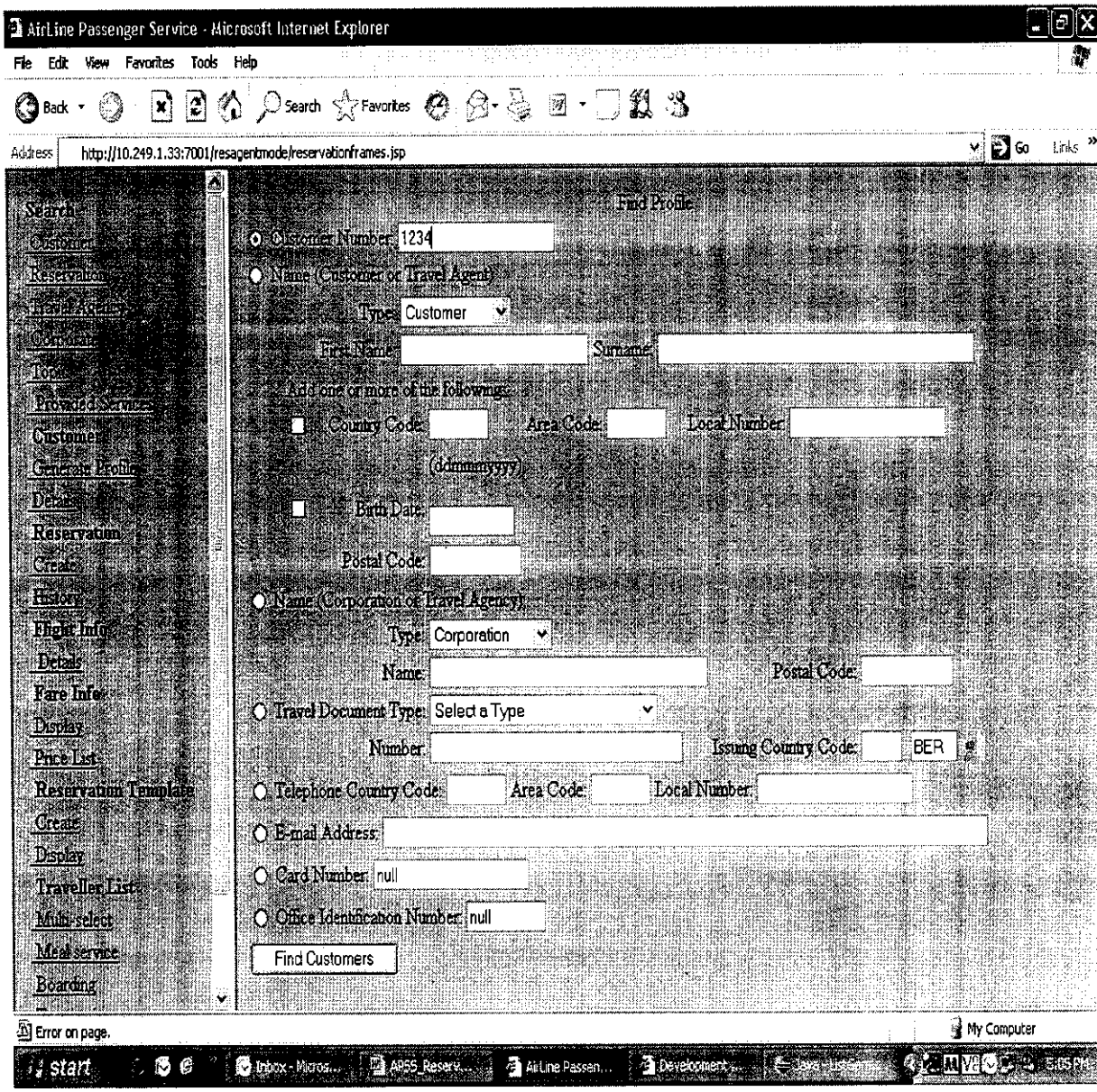

Figure A 2.3 Find Profile Screen.

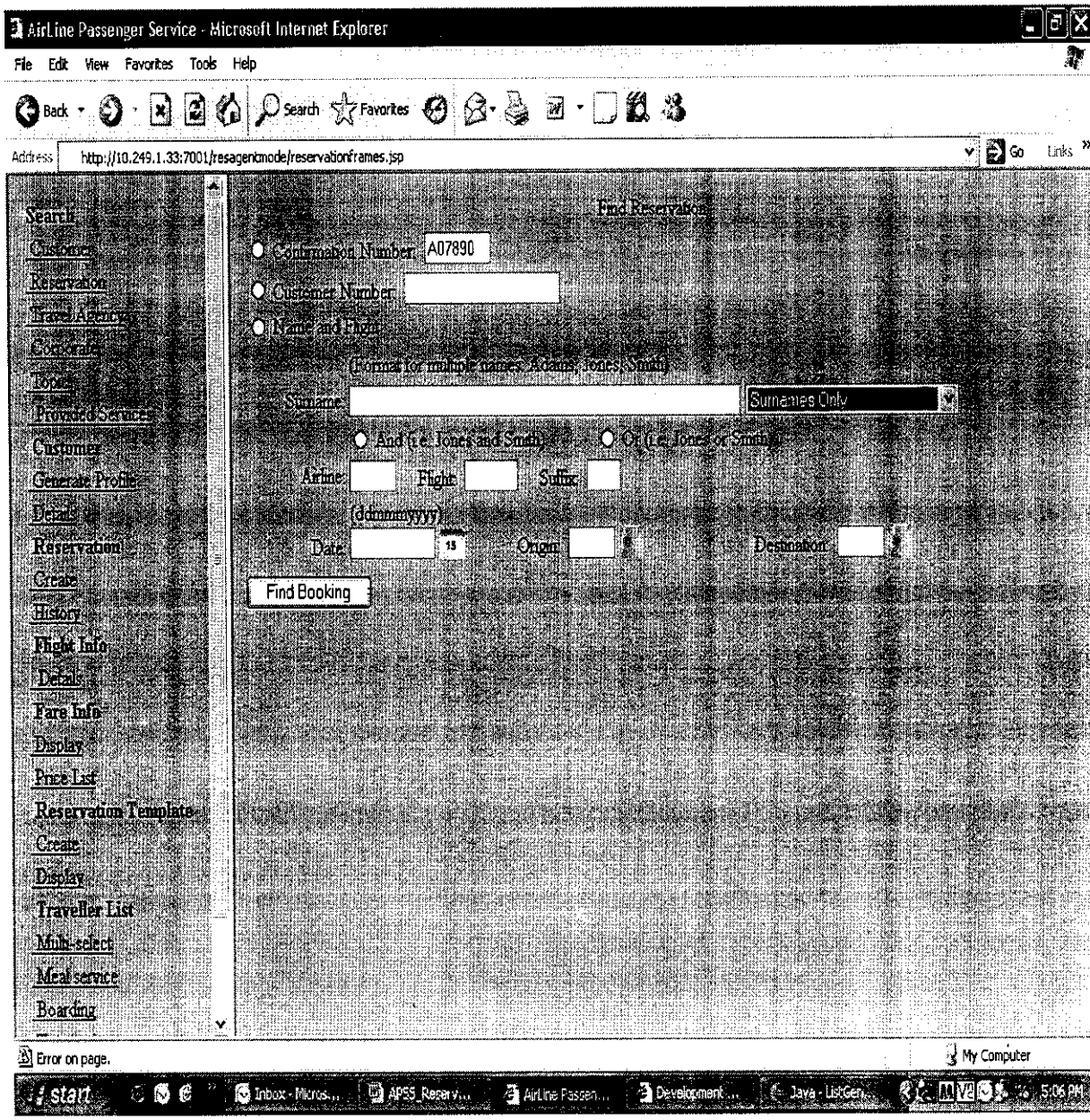

Figure A 2.4 Find Reservation Screen.

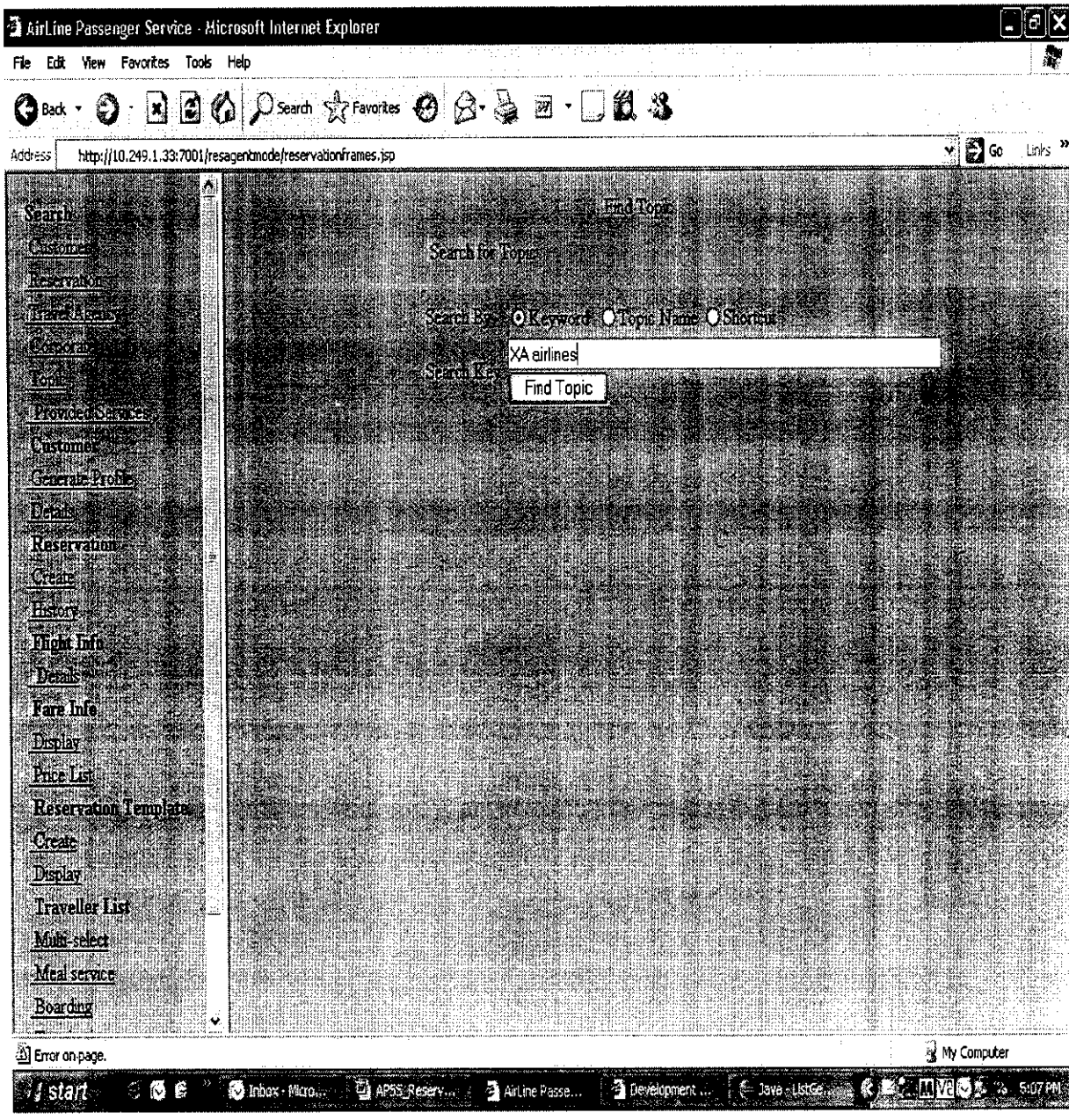

Figure A 2.5 Find Topics Screen.

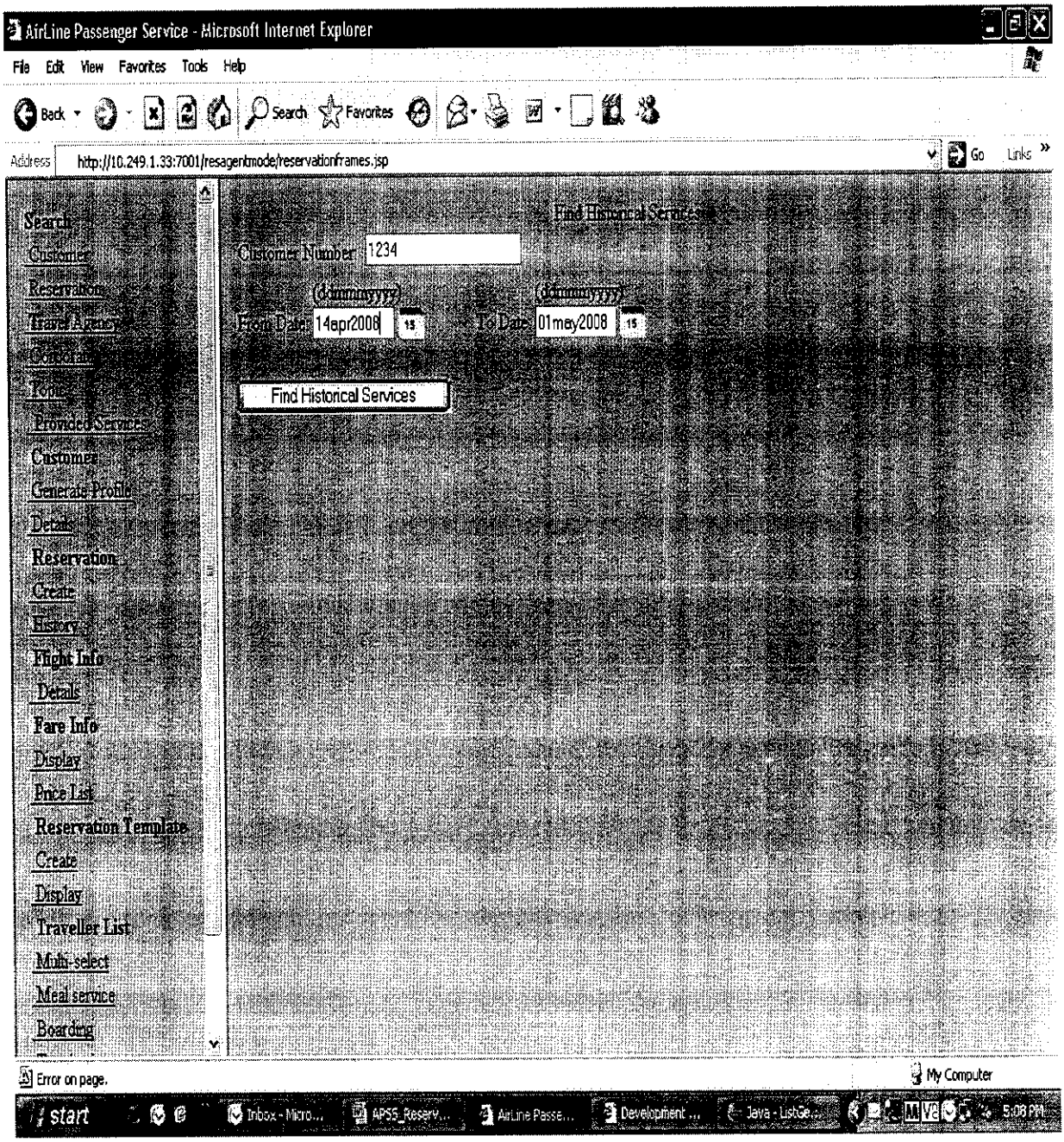

Figure A 2.6 Find Historical Services Screen.

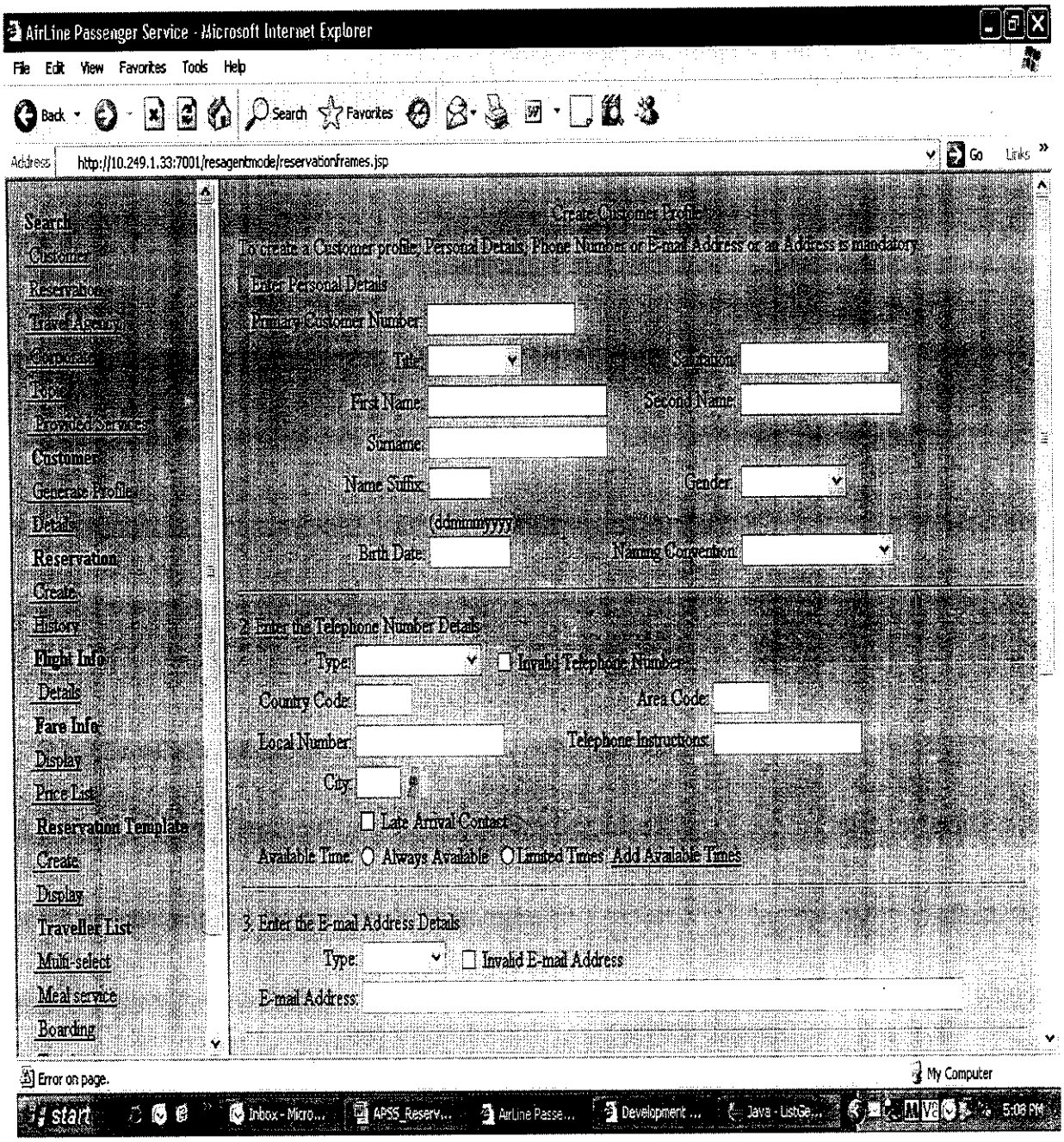

Figure A 2.7 Create Customer Profile Screen.

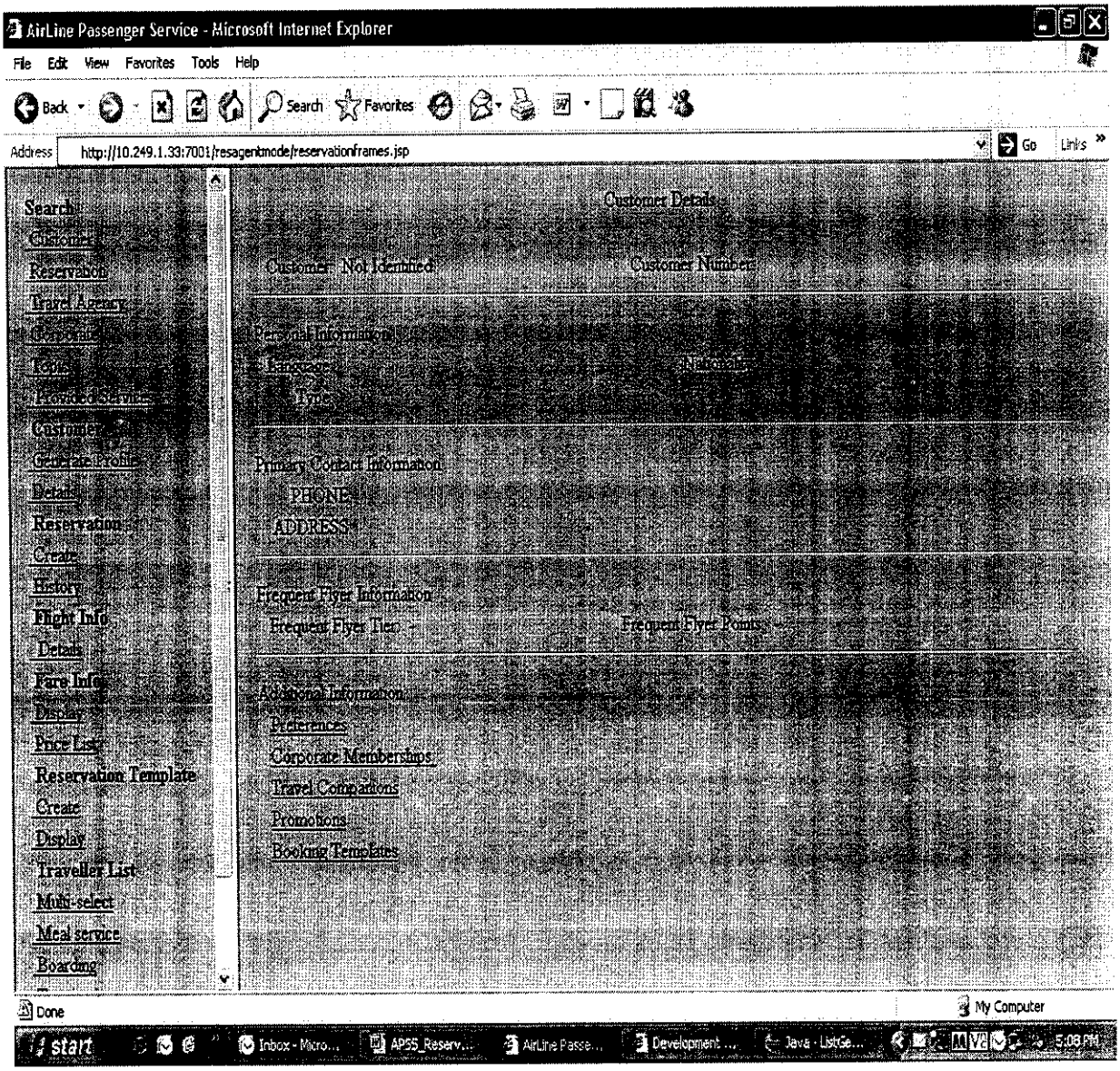

Figure A 2.8 Display Customer Details Screen.

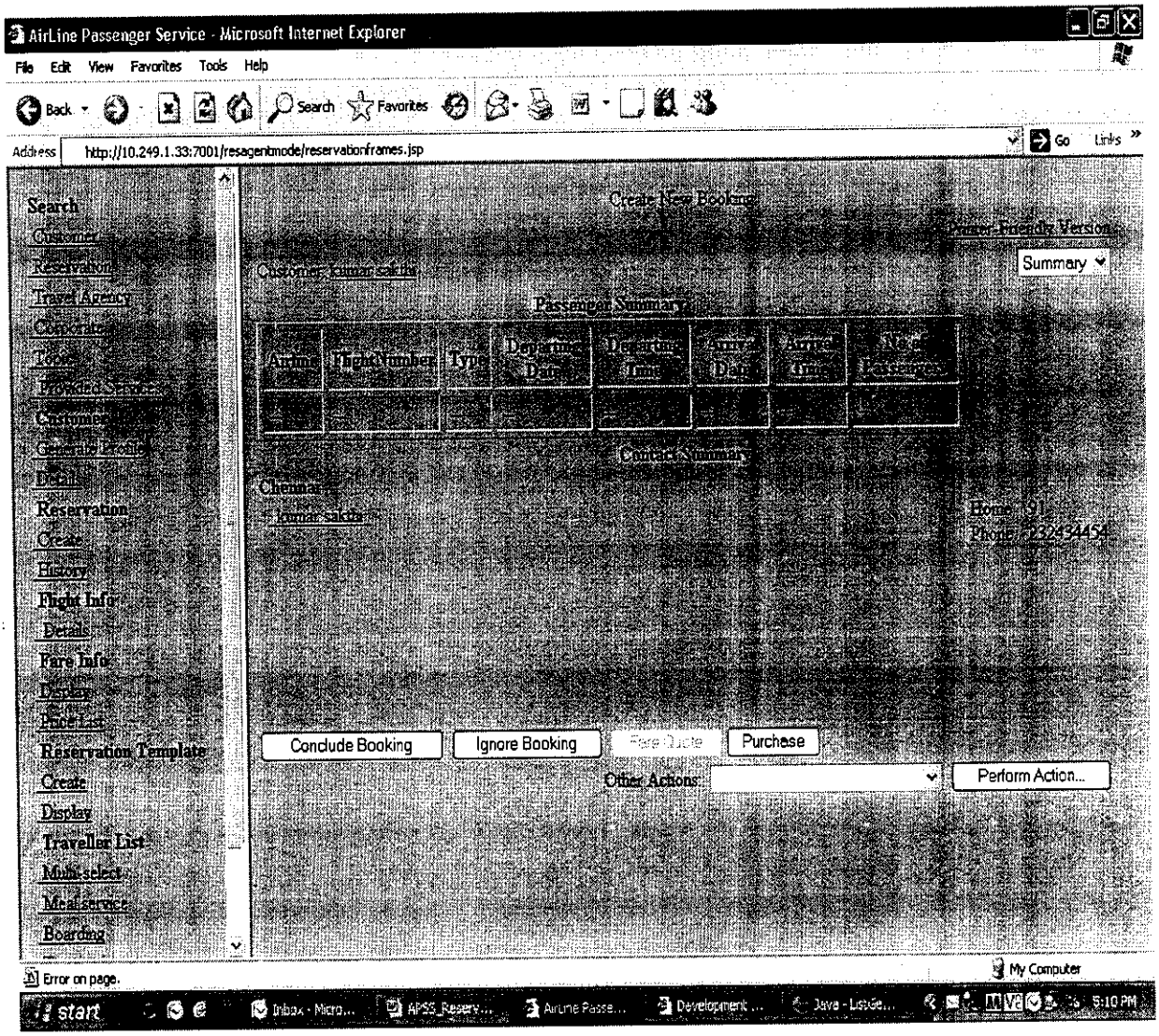

Figure A 2.9 Create Reservation Screen.

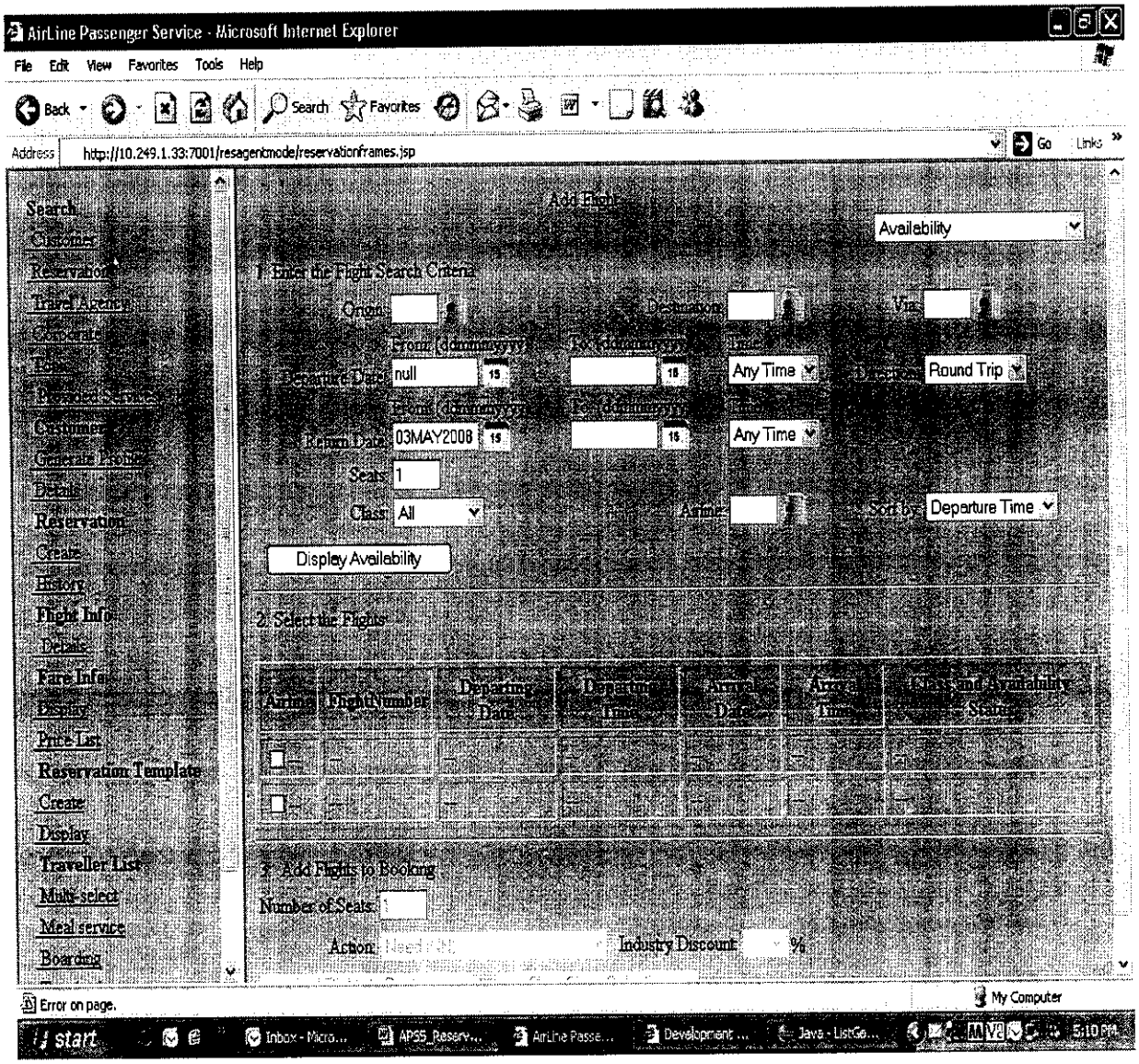

Figure A 2.10 Create Reservation Screen.

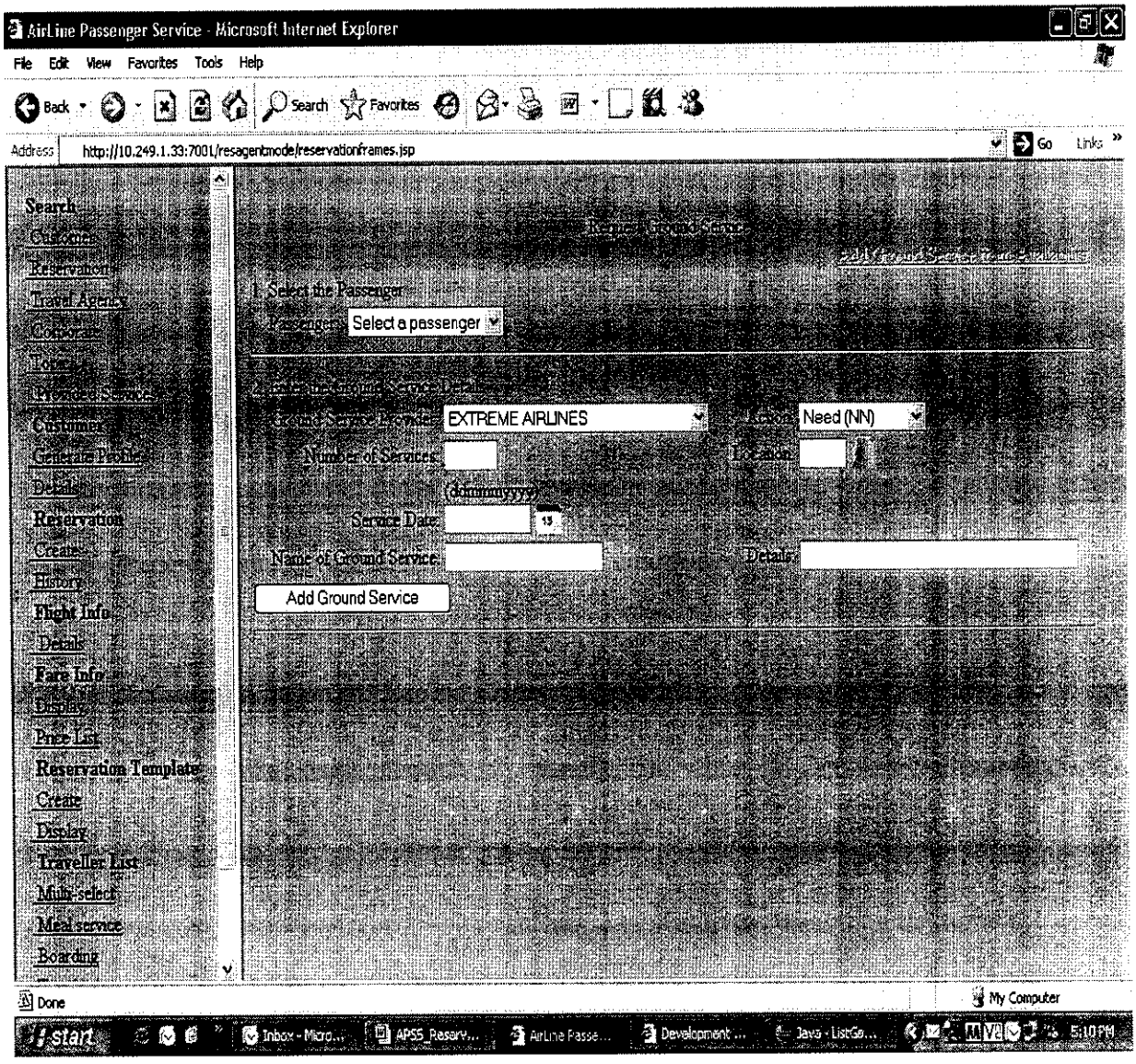

Figure A 2.11 Add Ground Services Screen.

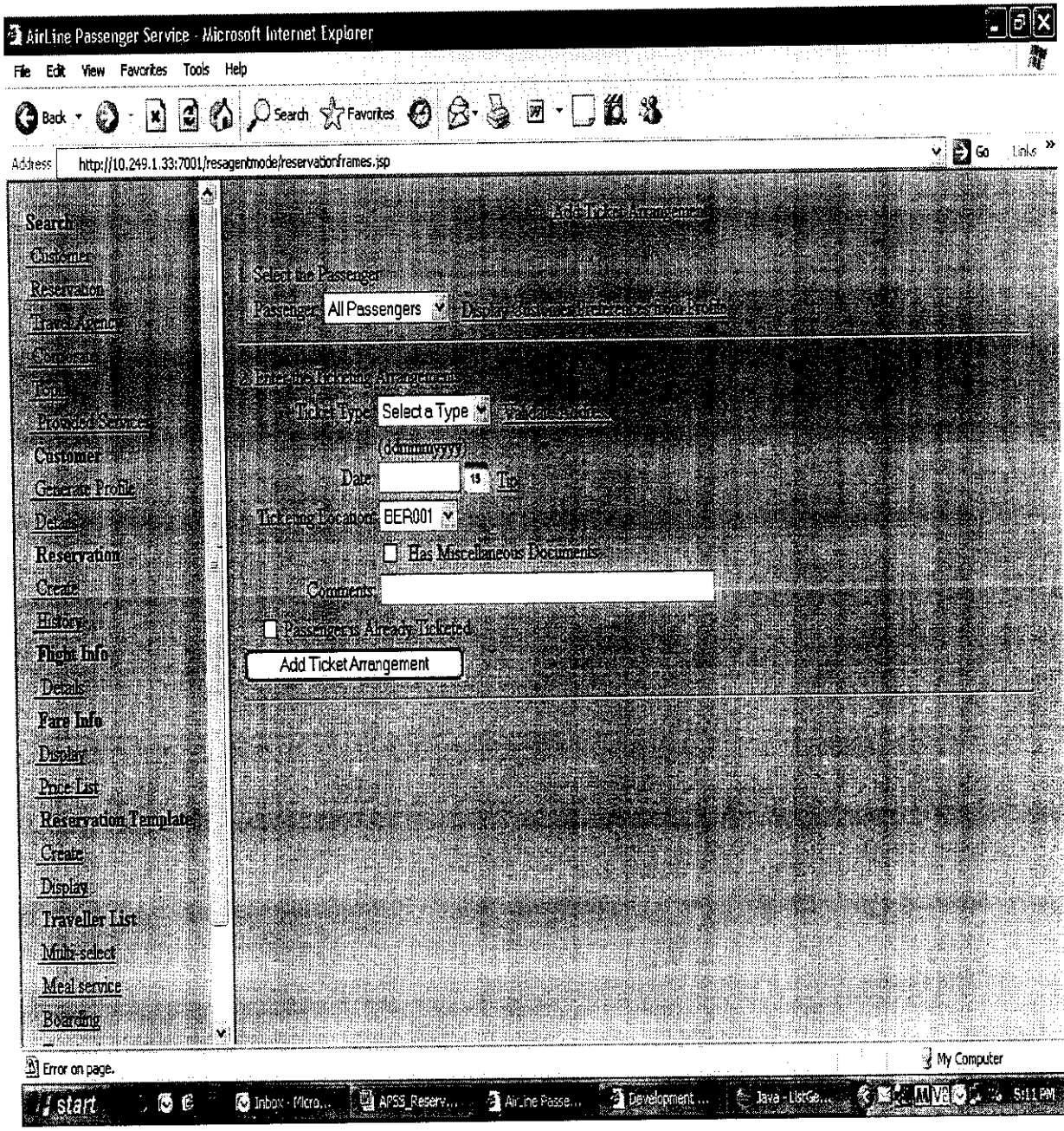

Figure A 2.12 Add Ticket Arrangement Screen.

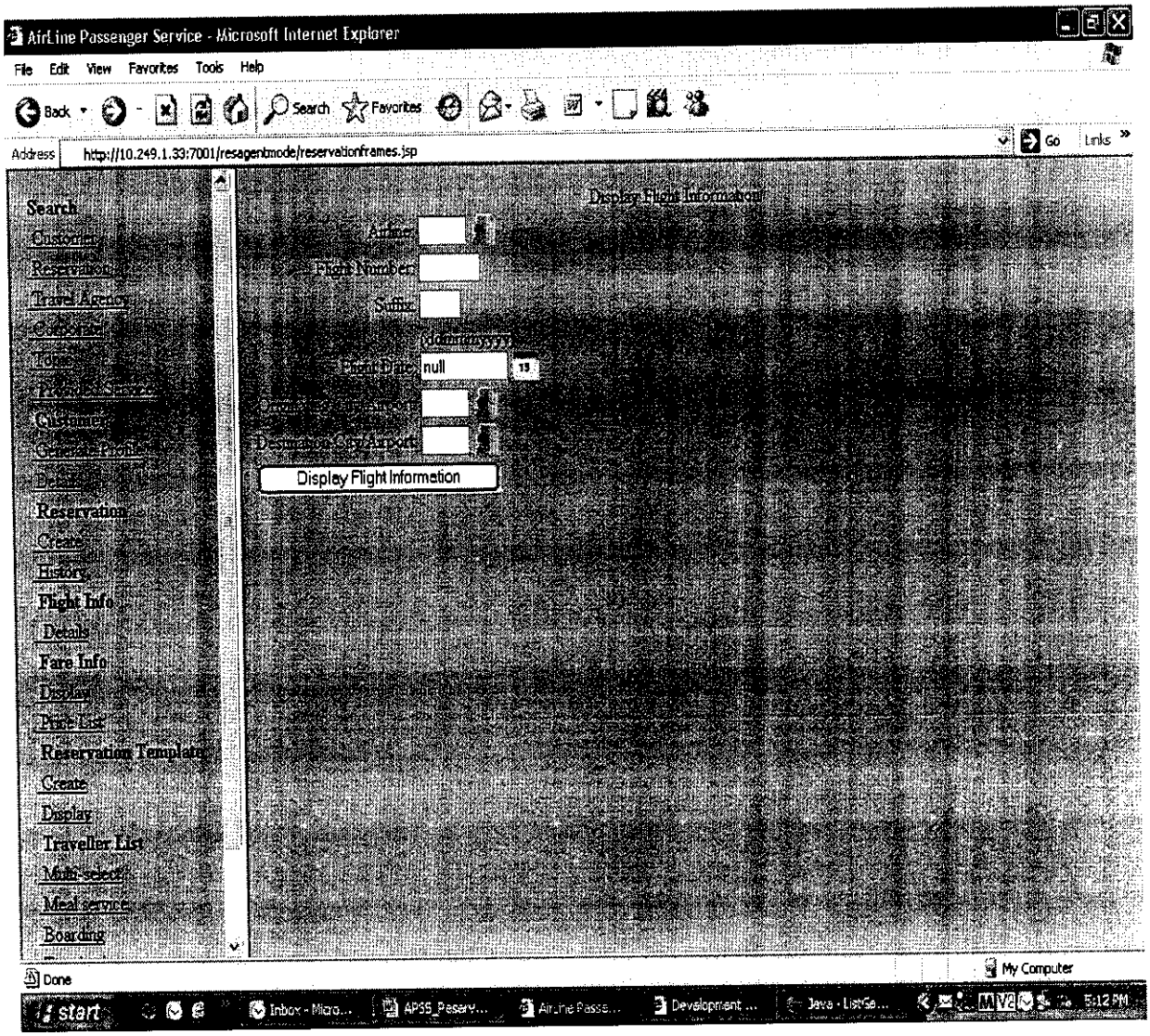

Figure A 2.13 Display Flight Information Screen.

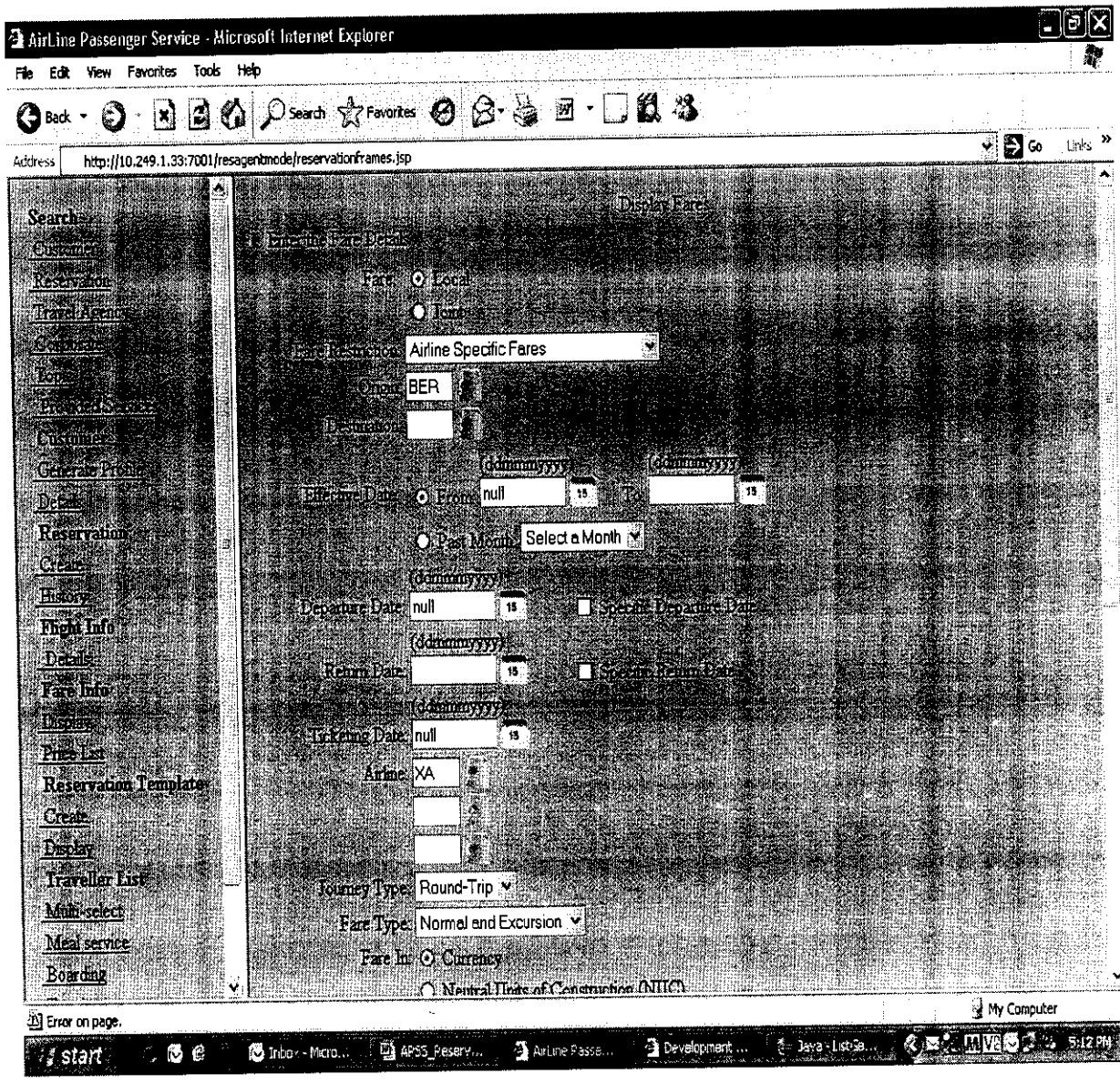

Figure A 2.14 Display Fares Screen.

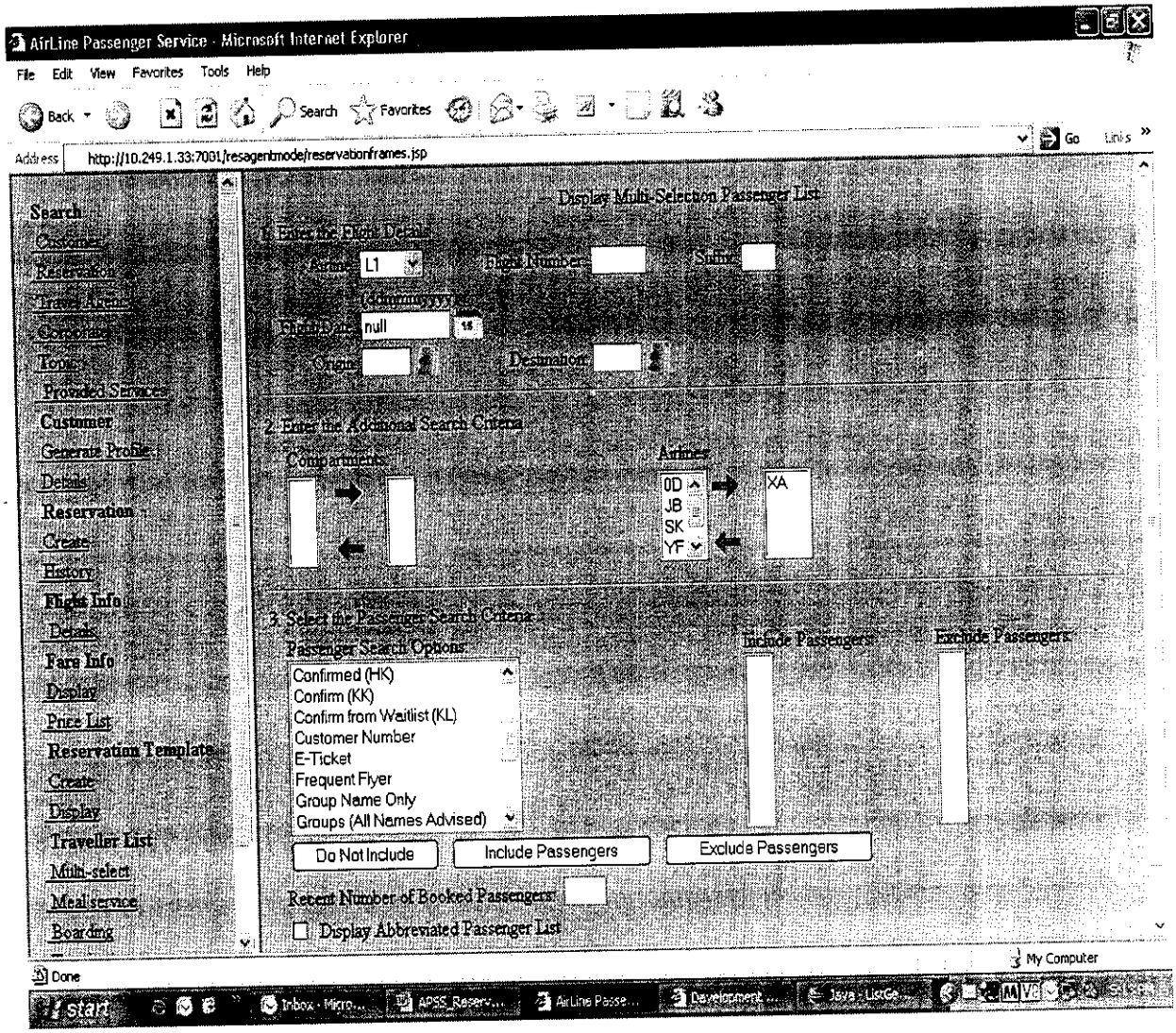

Figure A 2.15 Display Passenger List Screen.

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