



VOYAGER
travel services

By

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A Project Report Submitted in partial fulfillment
for the award of the degree of
Bachelor of Science (Computer Science) of
Bangalore University
Bangalore-29

March 2006

Table of Contents

<i>Chapter No.</i>	<i>Title</i>	<i>Page No.</i>
	Acknowledgements	iii
	Abstract	iv
	Abbreviation	v
1.	Introduction	1
1.1	Purpose of Document	1
1.2	Scope of Project	1
1.3	Software Used	1
1.4	Functionalities of Project	1
2.	Systems Analysis	2
2.1	Literature Survey	2
2.1.1	Current System	2
2.1.2	Limitation of existing system	3
2.1.3	Proposed System	5
2.1.4	Sources of information	6
2.2	Tools Survey	7
2.3	Feasibility Study	13
2.3.1	Cost Benefit/Analysis	13
2.3.2	Benefits	14
2.4	Hardware & Software Requirements	15
2.4.1	Min. Hardware Req.	15
2.4.2	Software Requirements	15
2.5	Data Flow Diagrams	16
2.5.1	Hierarchical Diagram	16
2.5.2	Overall System Diagram	16
2.5.3	Reservation System	17

2.5.4	Order Creation	18
2.5.5	Billing & Ticketing	19
2.5.6	Accounts	20
2.5.7	Online System	21
3.	System Design	22
3.1	Input design	22
3.1.1	Input Forms Design	24
3.2	Menu Design	33
3.3	Output Design	39
3.3.1	Report Design	42
3.4	Database Design	52
3.5	Data Validation Design	64
3.6	Database Normalization Design	68
3.7	Security Design	69
4.	Testing	70
4.1	Testing Fundamentals	70
4.1.1	Testing Fundamentals	71
4.1.2	Error, Fault & Failure	71
4.1.3	Top Down, Bottom-up	73
4.2	Test Cases	75
4.3	Test Report	88
5.	Screens	89
6.	Conclusion	99
7.	Bibliography	103

Acknowledgements

We, take this opportunity of acknowledging our indebtedness to our mentors from whom we have borrowed so profusely for the theoretical background of our study paper.

First of all, we thank God almighty for giving us this opportunity. We would like to thank our principal, **Rev. Fr.Thomas Chathampampil, CMI** and our Vice-Principal **Rev. Fr.Abraham Vettiyankal, CMI** for providing us with necessary facilities and requirements for the completion of the project. At this point we would like to express our heartfelt gratitude to **Mr. Vasu J.**, The Head of the Department of Computer Science for his support. We are deeply indebted to our project guide, **Mr. Hemant Kumar G.**, for his great patience, constant advice and help in completing the project work.

Also we would like to thank all our friends who have been a source of help, support and motivation. Last but not least we would like to thank all people who have directly or indirectly helped us throughout the course of our project.

Abstract

VOYAGER is a complete travel solutions package. This travel company software is completely automated and can be used effectively for the booking and cancellation of Flight, Train and Coach Tickets. Apart from this, one can store and edit the full details of any desired Airline or Coach company in its databases.

Employees are a significant part of any company. Thus all the details of each and every employee can be stored in this software and, thus efficient and error free payroll details can also be calculated. Details about every employee's attendance, leave taken, salary calculation will all be taken care of by this software package. With the presence of an excellent security system, there can be no misuse of the stored data and only authorized personnel will be allowed access to the confidential details of the company.

All information about the Incomes and Expenses made by the travel agency are stored in the database and hence profit-loss calculations can be made between given periods of time. Thus, maintaining the accounts of the company becomes easier.

The online section of this software is made using ASP technology. Any client can fill an online form with his ticket booking/cancellation queries. This form is stored in a database on the server. Our local software accesses the online database and transfers all the requests to the local database for processing. Viewing & querying of the updated flights schedules is also a feature of this system.

The essential inputs of this system are client details and airline/train/coach details.

The most important outputs are generation of reports for various purposes such as client report, company report, sales report, debtors report, profit and loss report and schedules and ticket generation of flight/train/coach.

There are many other salient features of this software. At the Administrator's level of access, a new user can be added or an existing one deleted. What level of access should be given to each user can also be decided here. As and when a user logs in, the user ID and time of login and logout is stored in a database in the system which can be accessed by the higher authorities either for salary calculations or security reasons.

A backup of all the details stored in the various databases in the software can be taken in cds or floppies and as and when required, it can be restored back to the system. This will help in preventing the loss of data due to any system failure.

Abbreviations

The following abbreviations have been used in the project report:-

- ASP – Active Server Pages
- PNR – Passenger Name Record
- P&L – Profit & Loss
- ODBC – Open Database Connectivity
- ADO - ActiveX Data Objects



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Certificate

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introduction



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1. Introduction

1.1. Purpose of the Document.

The purpose of this document is to get a clear understanding of the working of a Travel Services system. This includes the system's high level and low-level architecture, its database structures together with the relationships between tables and entities.

1.2. Scope of the Project.

Basically, this is an interface to be used by a full-fledged travel services agency. The online part of this project will cater to the needs of travelers. It will make travel arrangements for them, a more pleasurable activity.

1.3. Software Used.

Visual Basic 6.0 will be the Graphical User Interface (GUI) and the repository (backend) will be done using Microsoft Access.

1.4. Functionalities of the Project.

This software can be used by Tourism & Travel Agencies & the Interactive Website will be useful for any layman.

The functionalities available for Tourism & Travel Company will be: -

- a) Booking Flight, Train and Road transport tickets, both within the country and abroad, as the whole system is made online.
- b) Employee management of the travel agency staff can be done using the same software.
- c) Another added advantage of the project is that being online can attract more customers for the company.
- d) Accounting for the company is also part of the system.



systems analysis



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2. System Analysis

2.1 Literature Survey

2.1.1. The Current System

The study of the existing system has thrown on the light on various activities involved in the organization and has helped us in finding appropriate solutions. A travel agency deals with reservation and cancellation of flight, train and coach tickets. Though the reservation is done online, various other activities such as maintenance of client records, sales records, income, and profit and loss calculation are all done manually. All of this information is maintained separately in their respective log-books. After the sales or cancellation of a ticket is made, a receipt is made by writing on a pre-printed stationery receipt.

Very often the clients pay their ticket in installments. Thus, the amount left to be paid is recorded. A track of such clients is kept in a separate log-book and is referred to on a day to day basis by the employees until the full payment has been made.

Every transaction that involves money/credit is kept as record in the company. Every income or expense made is kept in the relative accounting books (cash book, ledger). There is a double sided cash book that holds data, on one side as income and the other side as expense as expense.

At the end of every month, an internal Profit & Loss a/c is made, according to a non-prudent concept. This is held by the company to monitor the income and expenses made.

At every financial year-end, these documents and the accounting books are sent to an auditor or consultant for the preparation of the final accounts of the company.

The list of employees working with the company is held in a book or register. The date the employee started work is stored. The name, surname, date of birth, address, telephone number are also kept in the records of the book.

2.1.2 Limitations of the existing system.

- *Clients Data*

When reservation is made, the company does not hold any details about the client as the reservation is done through the workstation. Only some very privileged clients' data are kept in the company. Thus, the company finds it difficult to contact the clients or to send them special offers. The company cannot get instant information about regular clients.

- *Sales of Tickets*

The company finds it difficult to keep all the clients' details about past sales of tickets. Sometimes there are long queues at the Cashier and it is not evident that the Cashier can record all those details in the right way. Most of the time, errors are left while making these records and even sometimes, the records are not made.

- *Credit*

The company cannot get instant information about the clients who have used credit or installments facilities. Reference should be made to the Accounting department to obtain that information, after searching through numerous documents.

- *Employees Data*

The directors cannot get updated and instant information about a particular employee. Usually a lot of phone calls, searches through directories and inquiries from third parties need to be done to get this information.

This information is also needed when payroll is made. This often causes delay in the preparation of accounts and taxes.

- *Organization*

At every month end, the company has to employ accounting clerks to classify and organize all the documents before they are sent for preparation of Balance Sheets and other accounts.

The company itself cannot keep track of all the income and expenses incurred during a working day. It has to wait for some days till all documents have been classified.

Usually in this task, a lot of human errors are left.

- *Data redundancy*

Very often the same data re-appears more than once in the different processes. For example, while producing different receipts of the same client, his name and other details should be entered in all those receipts.

This is tiresome and it also causes wastage of time.

- *Security of data*

All the employees gain easy access to the data held in the company. Employees can even change their basic salary purposely by just changing that data in the Log books. Thus the integrity of data is not protected.

- *Efficiency of the system*

In certain cases, the system proves to be inefficient. One such a case is the creation of reports and monitoring of performance

2.1.3 Proposed System

The main objective of the new system is to reduce the workload of the members of the staff. Another advantage offered by the new system will be more accuracy since it will involve less duplicated data entry.

The specific objectives of the new system are given below:

- *Saving time* - The new system will allow the users to perform their jobs much more quickly and without much effort.
- *Reduce duplication of data* - Duplicated data is very frequent in the manual system. Data that has been to be used several times will be stored only once. A database should be designed where tables, key fields and links will be used.
- *Security of data* – All the data held by the company is confidential and should be kept secure from being tampered with. A password and user level of access should be used to overcome this problem.
- *Eliminating errors* - Computerization of the system will eliminate errors that may occur in all the processes. Strict validations will be used so that the right input is obtained.
- *Output of up to date reports* - One of the facilities offered by the new system will be the output of reports showing the data meeting the user's requirement.

2.1.4 Sources of information.

A detailed study of the current system was carried out to find more about the actual system and also to find possible solutions for the problems that will be identified.

The investigation was carried out in 2 ways:

- By Observation
- By Interview
- By Questionnaires

Moreover, various travel agencies have been visited by our team members. Online booking agencies and booking softwares have been consulted to have a better understanding of the current workflow of such a system.

2.2 Tools Survey

The efficiency of a particular system does not fully depend on how we develop it, but also in choosing suitable and efficient tools to develop that system.

2.2.1. Front End Tools

The Front-end tools, which can be used by the project, are:

- Visual Basic 6.0
- C/C++
- ASP.NET
- HTML
- Java

2.2.2. Back End Tools

The Back end tools, which can be used by the project, are:

- Microsoft Access
- Oracle
- SQL

C or C++ was not chosen as it may have certain disadvantages regarding user interface. It needs hundreds of lines of code statement invoking with complex syntax to set up an application form.

In case of VC++, it is basically preferred for system side programming. You need to create a lot of objects for user interface, which is a tedious job.

Visual Basic is a very English like language. It is user friendly and icon oriented. VB supports any type of database.

Visual Basic has a highly useful toolbox that contains an array of essential controls. The toolbox is highly customized as any no of controls can be added to it. These extra controls called Custom Controls are available as Add-ins.

2.2.3. Overview of MS Access.

MS Access is a powerful multi-user DBMS developed by Microsoft Corporation. Databases like Access are used to store large quantities of information and automate respective tasks, such as maintaining an inventory and generating invoice. The information can be viewed, stored, manipulated, retrieved and printed in many ways. The database gives you the flexibility to obtain this data in multiple formats. If the information you need to store is fast and accurate, Access is probably the way to go.

Data in Access is organized in the form of tables. Within a table, records are arranged according to common reference value, known as primary key. The value in the key field is different for every record and thus it helps in uniquely identifying the records. A combination of two or more keys can also be used as primary keys. Such a key is known as Composite key. Database and Access have a default extension of .mob.

Access also maintains an index file for tables. An index is an internal table of values that Access maintains to store the order of the records. An index object thus provides efficient access to data. Database index works just like a book index. When you want to find a particular topic in a book, you turn to the index control to see the way data is accessed. However it does not duplicate the data itself. Nor does it change the sequence in which the data is stored in the table.

2.2.4. Features of MS Access.

- All the data is stored in one location i.e. when database is used, all the tables are stored in a single file and hence we need not deal with separate files but a single database file.
- It is possible to define relationships between tables, which are stored in the database.
- It is possible to define validations at the field as the tables that are stored in the database.
- It is possible to define validations at the fields as well as the table level. This ensures accuracy of data being stored.

2.2.5. Overview of Visual Basic.

For a long time, there were tools for developing Windows applications. Before Visual Basic was introduced in 1991, developing Windows applications was much harder than developing DOS applications. Steve Gibson in InfoWorld magazine quoted that Visual Basic is a “Stunning New Miracle” and will dramatically change the way people will feel about and use Microsoft Windows. The latest version of Visual Basic continues that tradition.

In particular, Visual Basic permits the addition of menus; toolboxes command buttons, option buttons, check boxes and scroll bars. Grids can be used to handle tabular data, communicate with other Windows Applications and Access databases. It is also possible to have multiple windows on a screen. These windows have full access to a clipboard and to the information in most other window application running under the windows.

Compared to the previous versions, Visual Basic is now ActiveX enabled. ActiveX is the Microsoft Technology with which they want to activate the Internet while still being able to see this technology in regular Windows Applications to make the work of an individual user of Windows more productive.

2.2.6. Features of Visual Basic.

Microsoft Visual Basic is the fastest and the easiest way to create applications for Microsoft Windows. Visual Basic provides you with a complete set of tools to simplify rapid application development.

The “Visual” part refers to the method used to create the graphical user interface (GUI) language, a language used by more programmers than any other language in the history of computing. Visual Basic has evolved from the original Basic language and now contains several hundred statements, functions and keywords, many of which relate directly to the Windows GUI. Beginners can create useful applications by learning just a few of the keywords, yet the power of the language allows professionals to accomplish anything that can be accomplished using any other Windows programming language.

The Visual Basic programming language is not unique to Visual Basic. The VB programming system, applications edition included in Microsoft Excel, Microsoft Access, and many other Windows applications use the same language. The Visual Basic Scripting Edition (VBS Script) is a widely used scripting language and a subset of the Visual Basic language.

Whether your goal is to create a small utility for yourself or your work-group, a large enterprise-wide system, or even distributed applications spanning the globe via the Internet, Visual Basic is the tool you need.

- Data Access features allow you to create databases, front-end applications, and scalable server-side components for most popular database format, including Microsoft SQL server and other enterprise level databases.
- ActiveX™ technologies allow you to use the functionalities provided by other applications such as Microsoft Word, Microsoft Excel and other

Windows applications. You can even automate applications and objects created.

- Internet capabilities make it easy to provide access to its documents and applications across the Internet or Internet form within your application or to create Internet Server applications.

2.2.7. Advantages of Visual Basic.

Visual Basic has many advantages over other development languages. Some of the advantages are:

- It has a shorter learning curve and development than C/C++, Delphi and even Power Builder.
- It removes the complexities of Windows API from the program.
- It allows for Rapid Application Development.
- Excellent for business applications.
- Used by most of the Office Suite tools as their Macro language, with the rest to follow. Other companies as well are starting to support VBA in their products, such as CAD, Vision, SAP and many others.
- It allows you to create ActiveX controls.
- It allows you to use third-party controls and components, as well as your own.

- Supplies wizards to help you learn the language as well as to enhance your productivity with more difficult features of the language.
- It can integrate with Internet on both the Server and Client side.
- It can create ActiveX automation servers.
- It integrates with Microsoft Automation Servers.
- It can run servers either on the same machine or remotely on another computer. This allows for true distributed processing.
- Though JAVA is advantageous in many ways, the appropriate front-end tool for computerizing the system would be Visual Basic, since the user need not be a computer literate, therefore it is very important for the interface to be simple, easy to use, easy to learn attractive.

2.3 Feasibility Study

The purpose of a feasibility study is to investigate the project in depth in order to provide information about whether the recommended solution is worthwhile and cost effective. The study will show whether the project can proceed, shelved temporarily or simply dropped.

Two considerations are worthy of closer attention during this study. One is the Cost/Benefit analysis and the other is the Time factor feasibility.

2.3.1 Cost Benefit/Analysis

This analysis gives a brief idea of

- The cost which will be incurred in implementing the new system and
- The benefits that will result from it.

Basic costs include:

- Cost incurred in setting up the new system.
- Monthly Cost incurred in running the new system.

Intangible costs include all the costs that cannot be easily quantified in terms money. They may take the following form:-

- The telephone operators may produce a lower level of output than expected during the first month, thus causing delays and resulting in a loss of customer confidence.
- The equipment may not be as durable as expected. Depreciation is at a very high rate on the equipment.
- There may be problems brought about by hardware failure.

2.3.2 Benefits

The benefits are numerous, some of which can be identified and observed. These include:

- Availability of up-to-date information might contribute to efficient planning and proper decision-making.
- Work of the staff is less monotonous and the system is less error-prone,
- Greater customer satisfaction, arising from a more prompt service.
- Better management of transactions and monitoring of company's progress.

2.4 Hardware and Software Requirements.

2.4.1. Minimum Hardware Requirements.

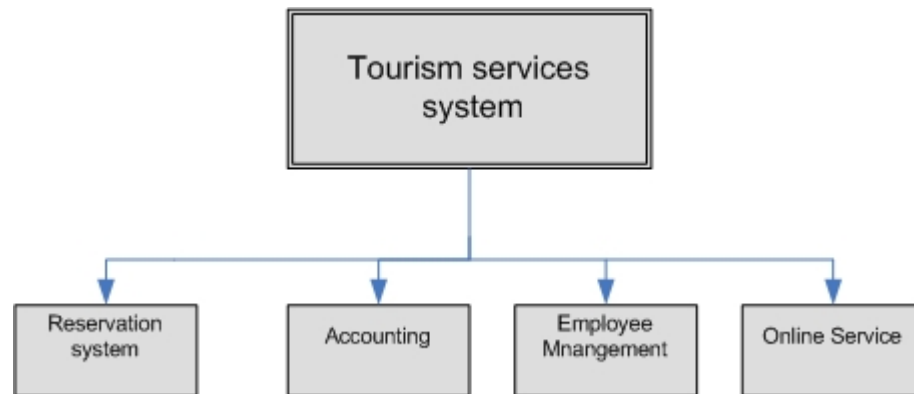
Mother board	Intel Pentium
Clock speed	500 MHz
RAM capacity	64 MB of SDRAM
Cache	512 kb
Hard Disk Capacity	20 GB
Graphics	SVGA graphics capable of 800 by 600 pixels or better
Pointing Device	A serial mouse compatible with the Windows environment
Printer	Laser printer
Backup Device	Zip Drives / Tapes / CD-RW

2.4.2. Software Requirements.

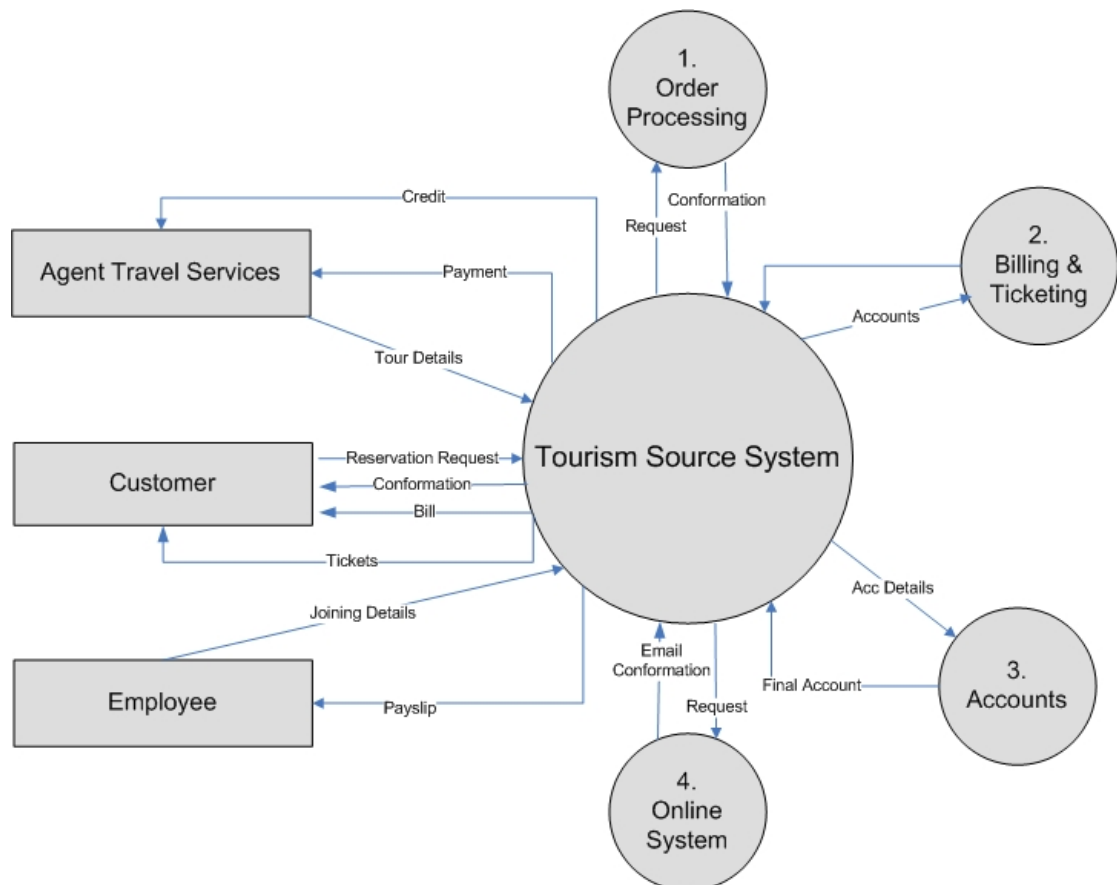
Front-End Tool	Visual Basic 6.0 Enterprise Edition
Back-End Tool	Microsoft Access XP
Operating System	Windows 2000/XP

2.5 Data Flow Diagrams

2.5.1 Hierarchical Diagram

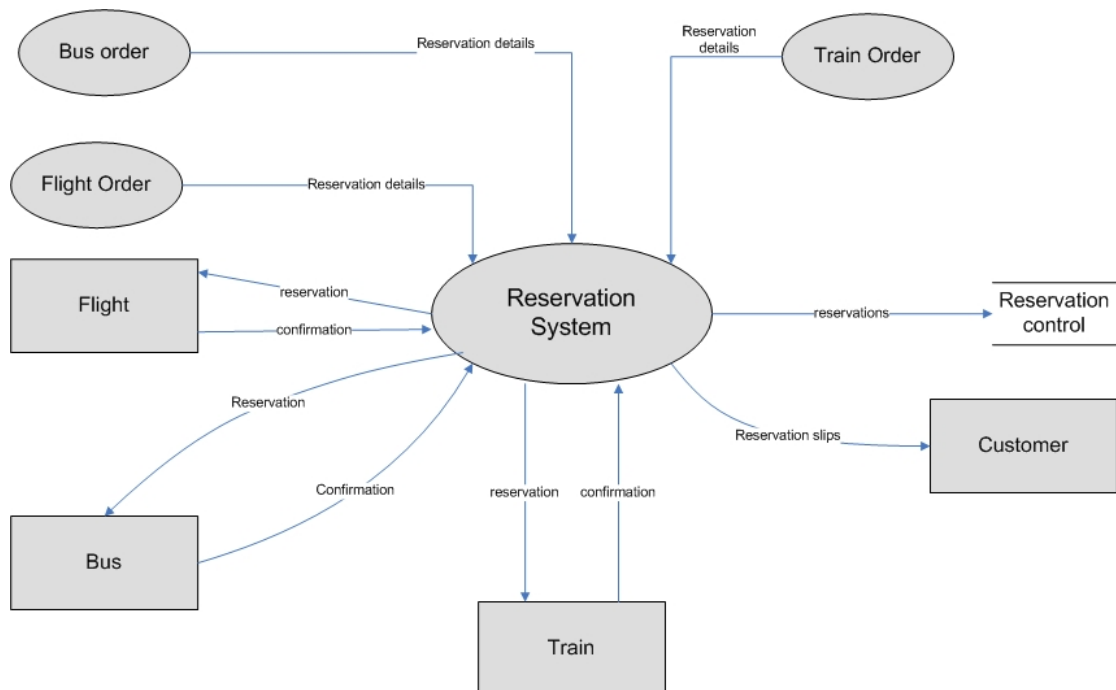


2.5.2 Overall System Diagram



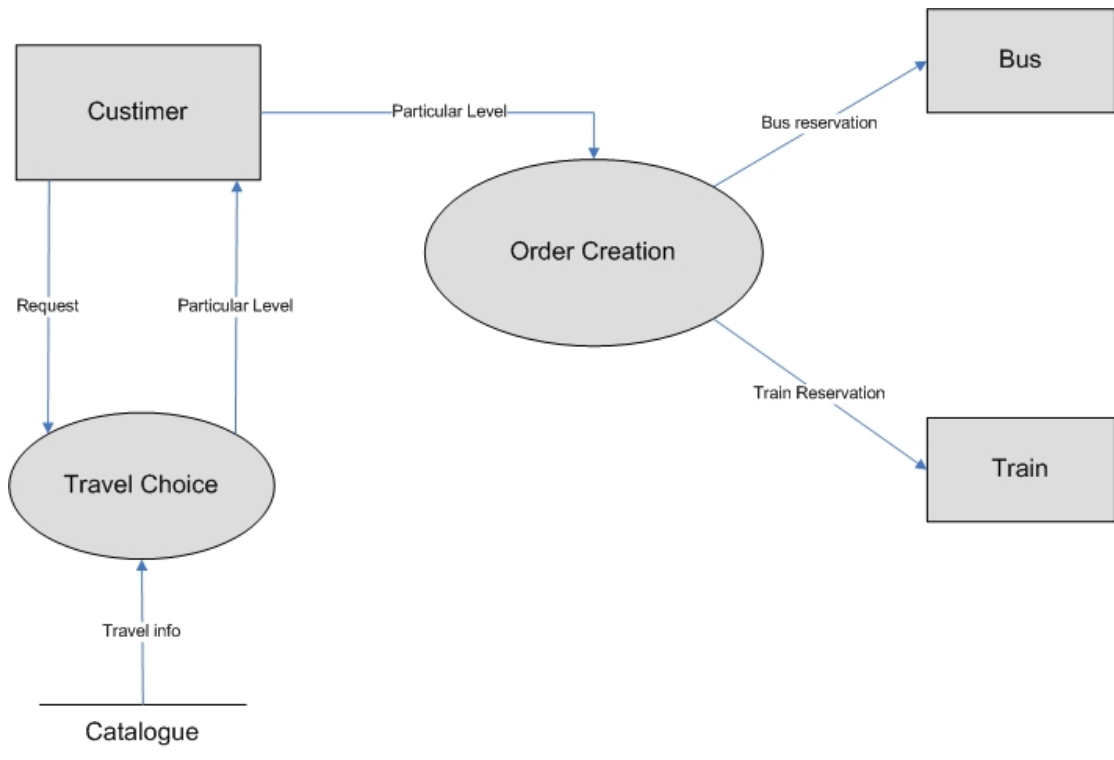
2.5.3 Reservation System

❖ Level 1

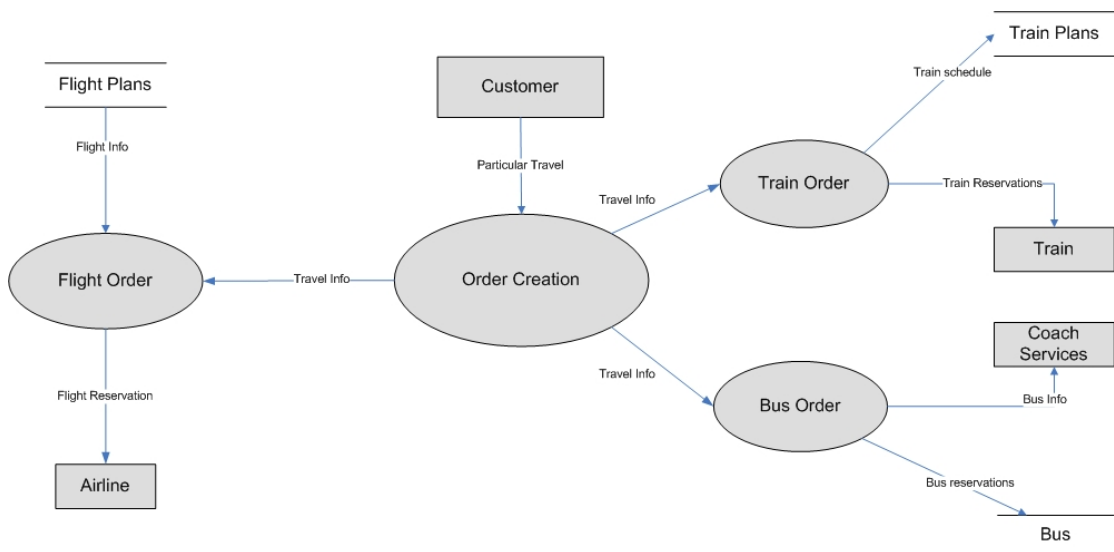


2.5.4 Order Creation

❖ Level 1

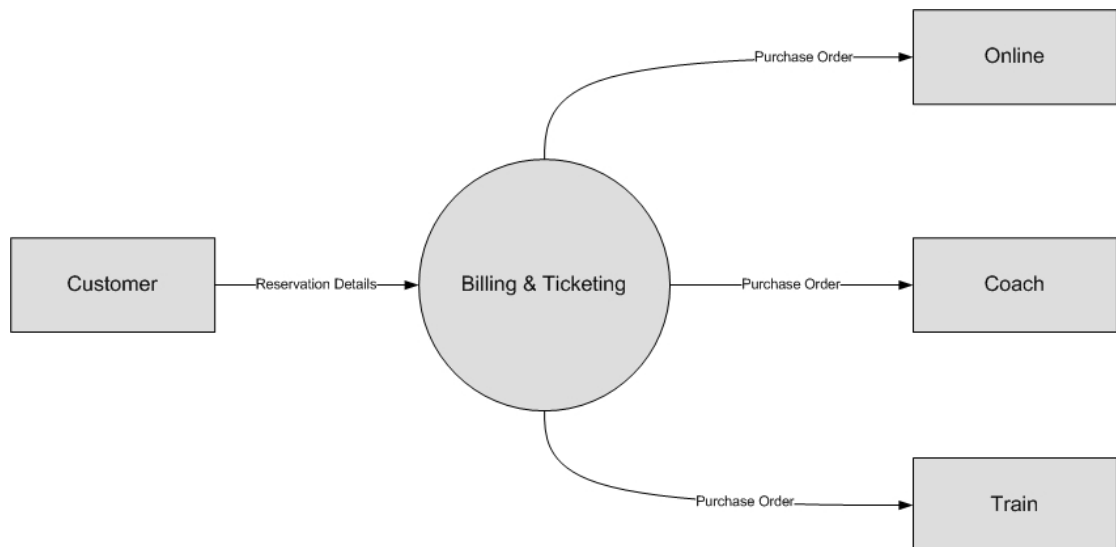


❖ Level 2

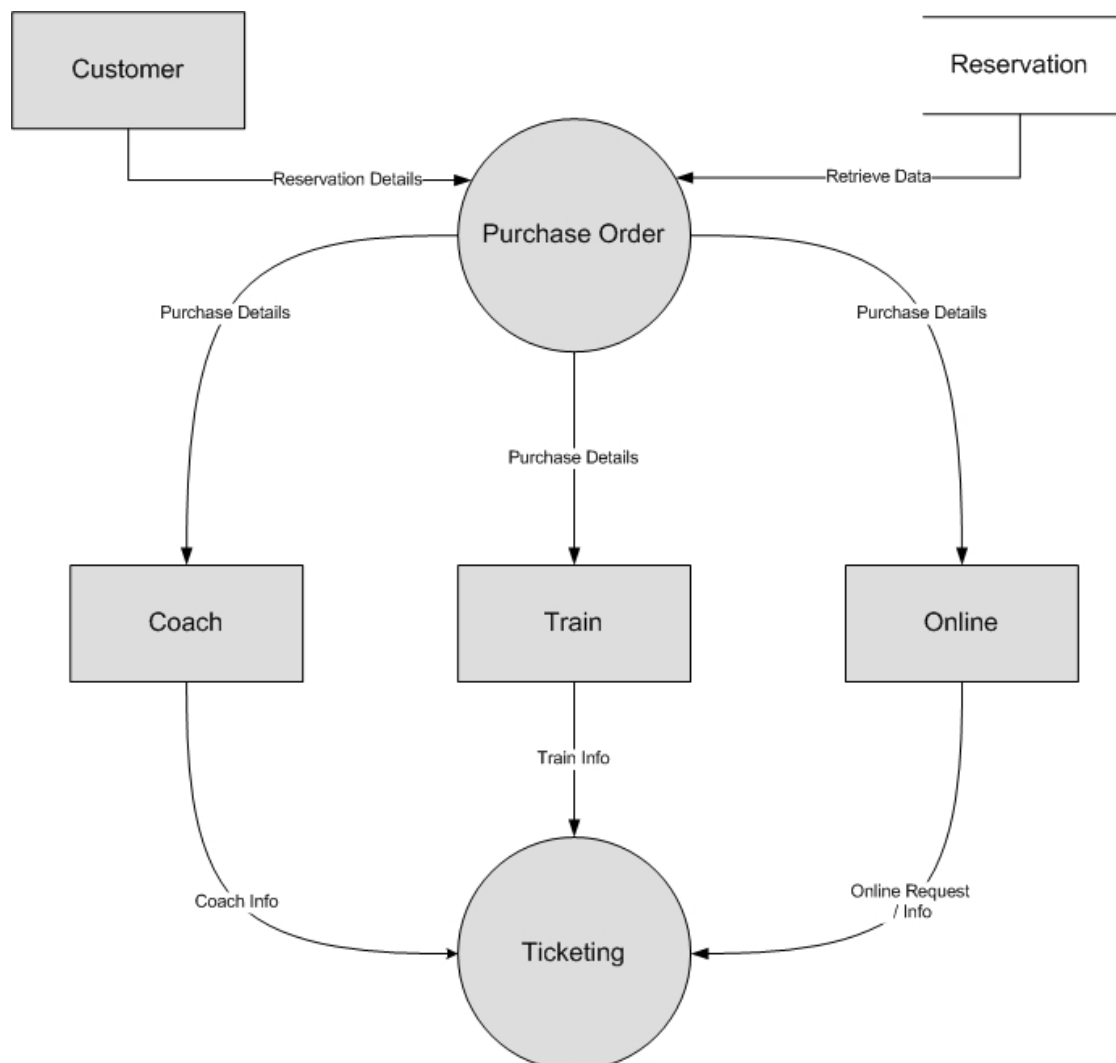


2.5.5 Billing & Ticketing

❖ Level 1

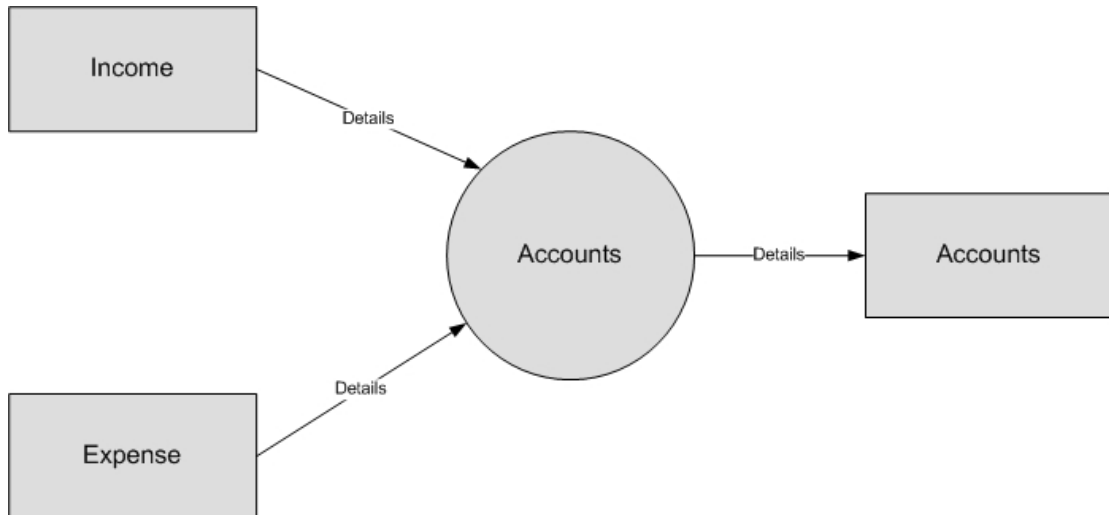


❖ Level 2

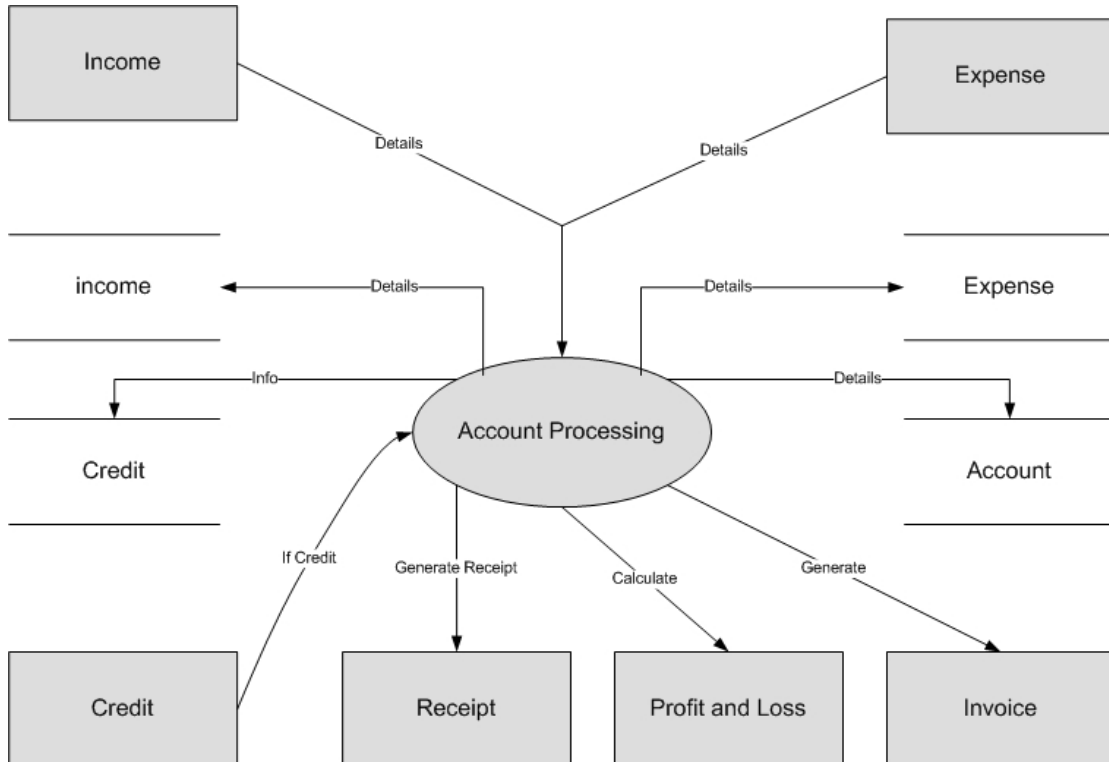


2.5.6 Accounts

❖ Level 1

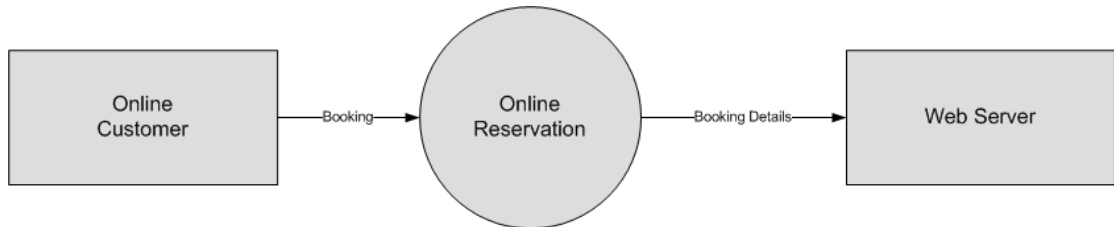


❖ Level 2

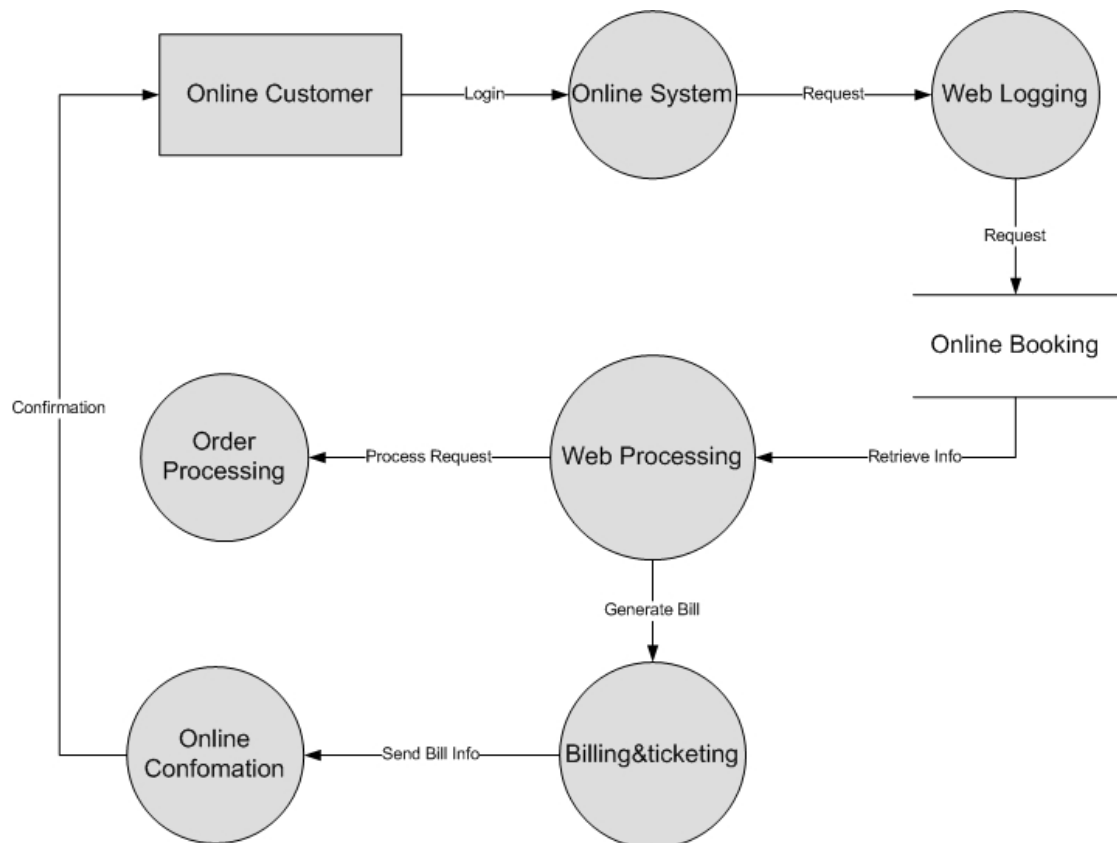


2.5.7 Online System

❖ Level 1



❖ Level 2





systems design



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3. System Design

3.1. Input Design

Input design is a part of the overall system design. The main goal of the design is to achieve easy data entry flawlessly. The input screen provides options for selecting the values from combo boxes, date-time picker etc., in order to prevent typographic errors. Validations are done for each and every data entered in the form in order to ensure data accuracy. The screens are designed in such a way that no necessary data is omitted. There are several validations have to be done during the data entry in order to ensure that the system works efficiently and provides accurate output.

The tools used are:-

- **LABEL:** It displays a text that the user cannot modify or interact with. The back style determines whether the control is transparent or not. Caption is the text displayed in the label.
- **TEXTBOX:** It is a control used to display message and enter text. The multi-line property is a Boolean property. It determines whether textbox can contain multiple lines or not.
- **COMMAND BUTTON:** It carries out the specified action when the user chooses it. The property style determines whether a button supports graphical or standard. If you want to set back color or picture to your command button the style should be graphical.
- **FRAME:** This control serves as a visual and functional container for controls. It is also used to group the screen objects.

- COMBO BOX: It contains a textbox and a list box. This allows the user to select an item from the dropdown List Box, or to type in a selection in the Textbox. Some of the important properties of combo box are:
- TIME CONTROL: It executes the timer events at specified intervals of time. The interval property of timer is specified in milliseconds.
- DATE-TIME PICKER: It provides a drop-down calendar to users, useful for date or time input.
- ADO: ActiveX data objects (ADO) are a technology to connect database. It is exposed to various controls and objects. Connecting and retrieving data through ADO data control is called binding. Unbound is a method to connect and retrieve data without the help of ADO data control.

3.1.1 Input Forms Design

3.1.1.1 Login

Login	
User Name:	<input type="text"/>
Access Level:	<input type="text"/>
Password:	<input type="text"/>
<input type="button" value="OK"/> <input type="button" value="CANCEL"/>	

3.1.1.2. Client

Client Details	
Title:	<input type="text"/>
Surname:	<input type="text"/>
Name:	<input type="text"/>
DOB:	<input type="text"/>
Sex:	<input type="text"/>
Street Address:	<input type="text"/>
City/Town:	<input type="text"/>
Country:	<input type="text"/>
Res. Phone:	<input type="text"/>
Off Phone:	<input type="text"/>
Mobile:	<input type="text"/>
Fax:	<input type="text"/>
Email:	<input type="text"/>
<input type="button" value="ADD"/> <input type="button" value="CANCEL"/>	

Client Preferences	
Food Type:	<input type="text"/>
Drinks Type:	<input type="text"/>
Travel Type:	<input type="text"/>
Freq Flyer:	<input type="text"/>
Special Seat:	<input type="text"/>
Smoking:	<input type="checkbox"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.3. Sales

Ticket Sales	
Client Id:	<input type="text"/>
Surname:	<input type="text"/>
Name:	<input type="text"/>
Ticket No:	<input type="text"/>
Booking Ref:	<input type="text"/>
Routes:	<input type="text"/>
Initial Fares:	<input type="text"/>
Tax:	<input type="text"/>
Discount:	<input type="text"/>
Total:	<input type="text"/>
Amount Paid:	<input type="text"/>
Payment Mode:	<input type="text"/>
Amount Due:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.4. Payment.

Payment	
Client Id:	<input type="text"/>
Surname:	<input type="text"/>
Name:	<input type="text"/>
Sales Id:	<input type="text"/>
Ticket Ref:	<input type="text"/>
Routes:	<input type="text"/>
Amount Due:	<input type="text"/>
Amount Paid:	<input type="text"/>
Payment Mode:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.5. Airline

Airlines	
Airline Name:	<input type="text"/>
Contact:	<input type="text"/>
Telephone1:	<input type="text"/>
Telephone2:	<input type="text"/>
Fax:	<input type="text"/>
Email Id:	<input type="text"/>
Webpage Url:	<input type="text"/>
Address:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.6. Coach

Coach	
Coach Name:	<input type="text"/>
Contact:	<input type="text"/>
Telephone1:	<input type="text"/>
Telephone2:	<input type="text"/>
Fax:	<input type="text"/>
Email Id:	<input type="text"/>
Webpage Url:	<input type="text"/>
Address:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.7. New Coach Ticket

Coach Ticket	
Surname:	<input type="text"/>
Name:	<input type="text"/>
Telephone No:	<input type="text"/>
Coach Id:	<input type="text"/>
Name:	<input type="text"/>
Ticket No.:	<input type="text"/>
Booking Ref.:	<input type="text"/>
Date:	<input type="text"/>
From:	<input type="text"/>
To:	<input type="text"/>
Dep. Time:	<input type="text"/>
Boarding:	<input type="text"/>
Fare:	<input type="text"/>
Tax:	<input type="text"/>
Discount:	<input type="text"/>
Total:	<input type="text"/>
<input type="button" value="ADD"/> <input type="button" value="CANCEL"/>	

3.1.1.8. Ticket Cancellation.

Ticket Cancellation		
Bill Date:		<input type="text"/>
Bill Time:		<input type="text"/>
Ticket No.:		<input type="text"/>
Booking Ref.:		<input type="text"/>
Date:		<input type="text"/>
From:		<input type="text"/>
To:		<input type="text"/>
Total:		<input type="text"/>
Cancel	Rs.	<input type="text"/>
Refund	Rs.	<input type="text"/>
		<input type="button" value="PROCEED"/> <input type="button" value="CANCEL"/>

3.1.1.9. Train Ticket.

Train Ticket	
Ticket No:	<input type="text"/>
Pnr No:	<input type="text"/> <input type="text"/>
Train No.:	<input type="text"/>
Name:	<input type="text"/>
Class.:	<input type="text"/>
Date:	<input type="text"/>
From:	<input type="text"/>
To:	<input type="text"/>
Dep. Time:	<input type="text"/>
Fare:	<input type="text"/>
Commission:	<input type="text"/>
Total:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

3.1.1.10 New User

Add a New User	
Enter the basic information of a new user	
User Name:	<input type="text"/>
Full Name:	<input type="text"/>
Description:	<input type="text"/>
Password:	<input type="password"/>
Confirm Password:	<input type="password"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

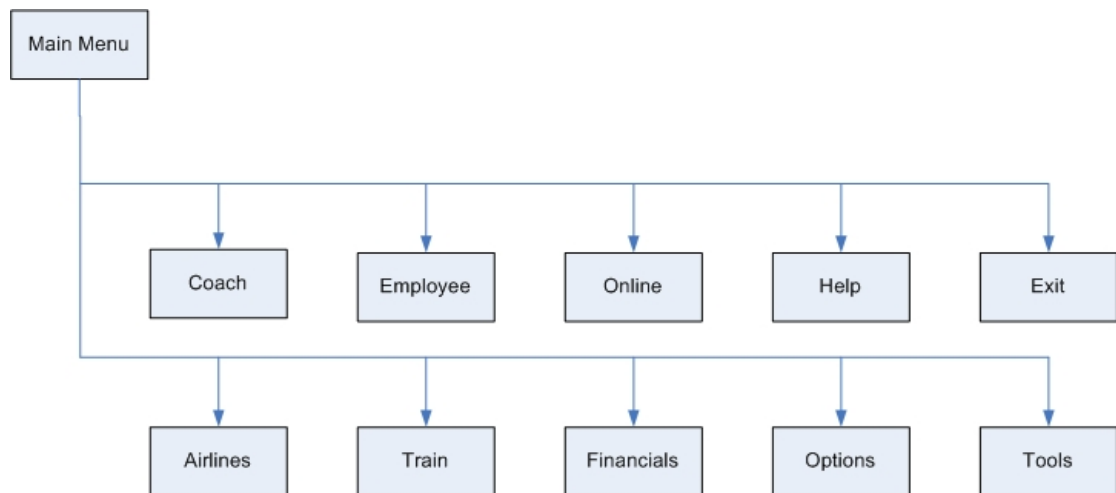
3.1.1.11 Company Info

Company Information	
COMPANY INFORMATION	
Name:	<input type="text"/>
Address:	<input type="text"/>
Telephone:	<input type="text"/>
	<input type="text"/>
Fax:	<input type="text"/>
<div><input type="button" value="ADD"/> <input type="button" value="CANCEL"/></div>	

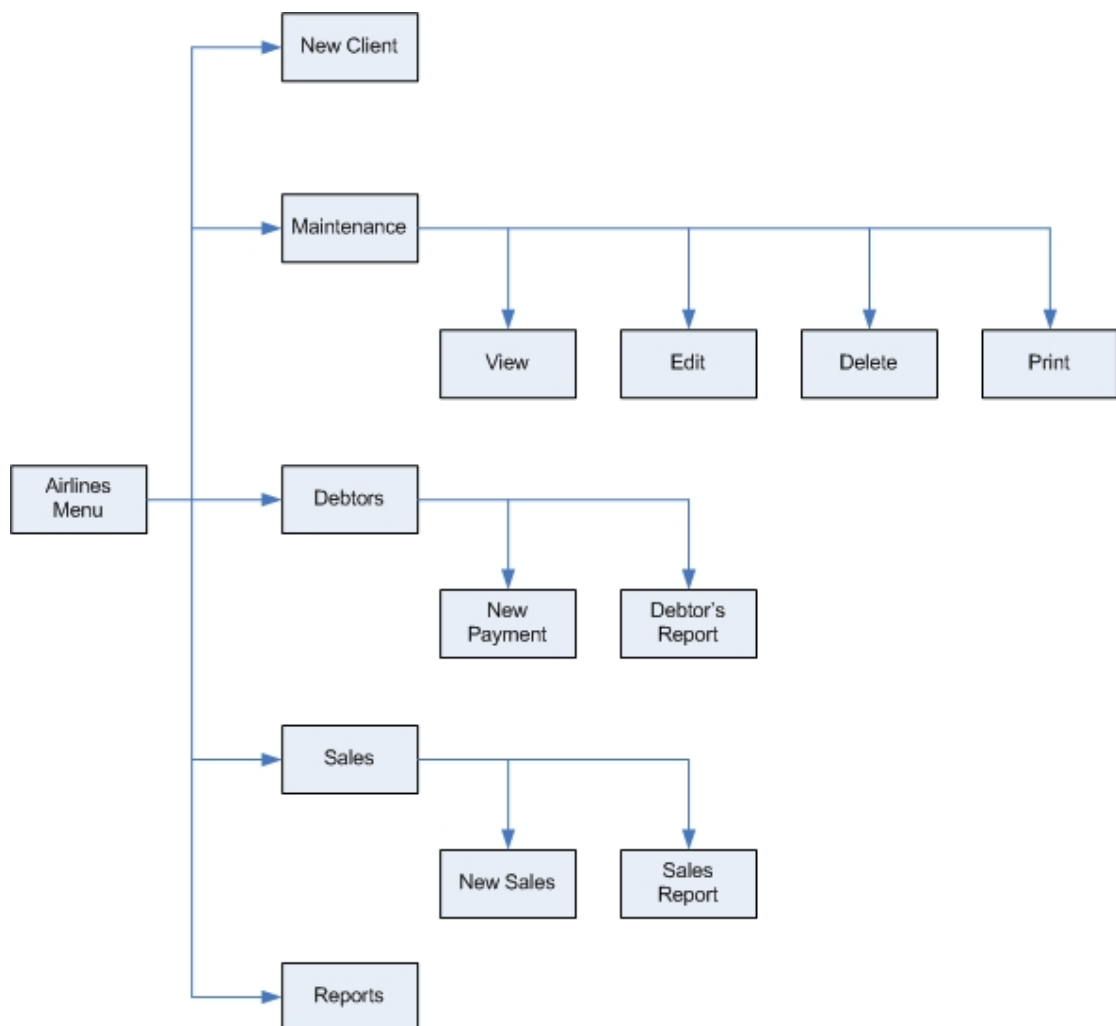
3.2 Menu Design

The following charts give the design of menus. Top-down design has been used to illustrate the use of modules.

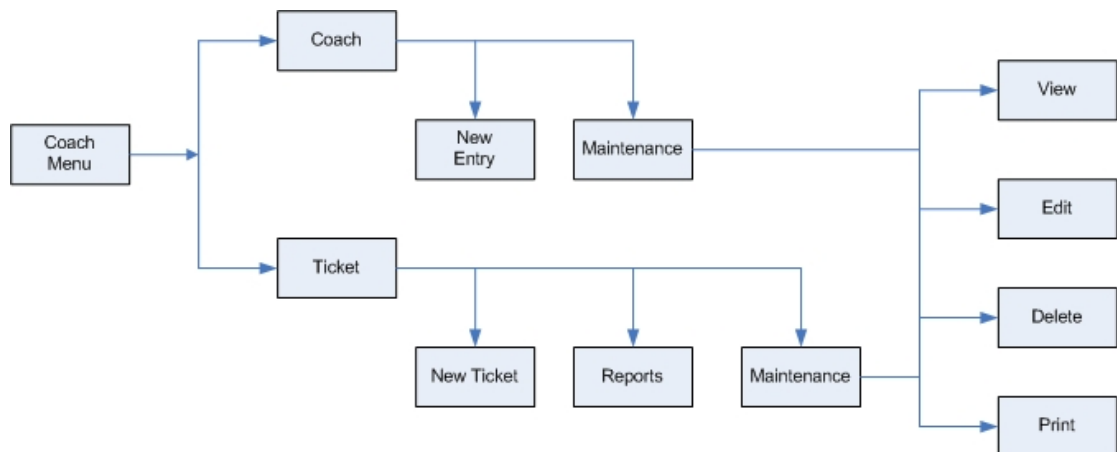
3.2.1 Main Menu



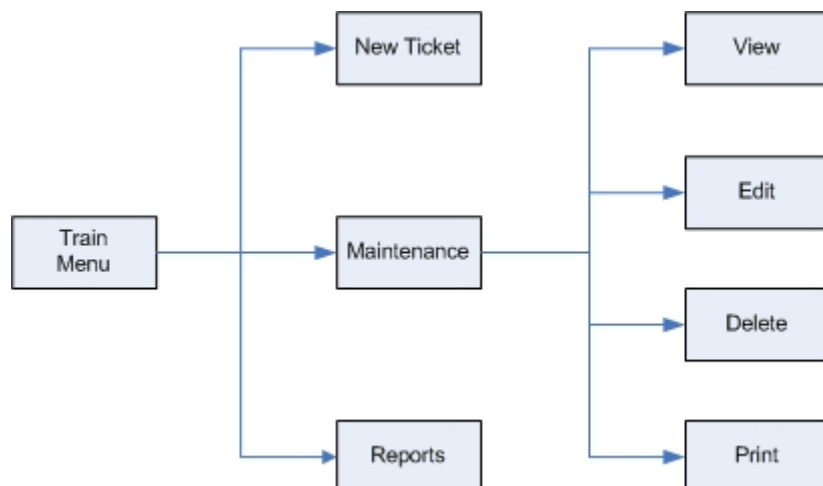
3.2.2 Airlines Menu



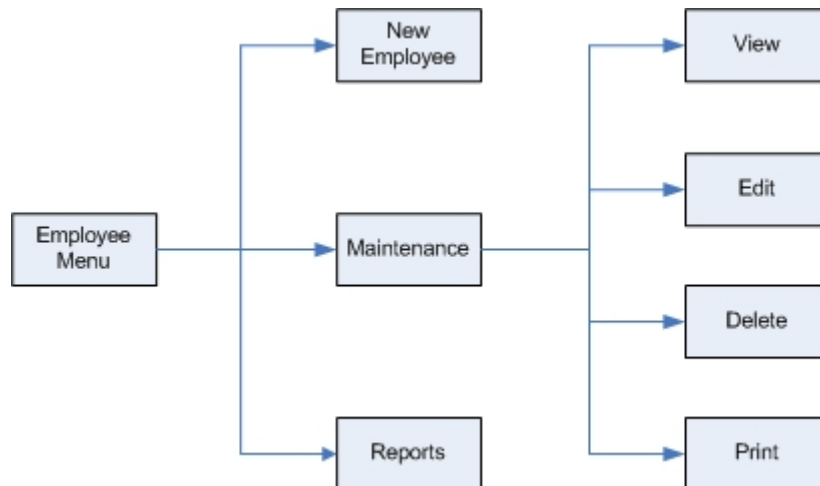
3.2.3 Coach Menu



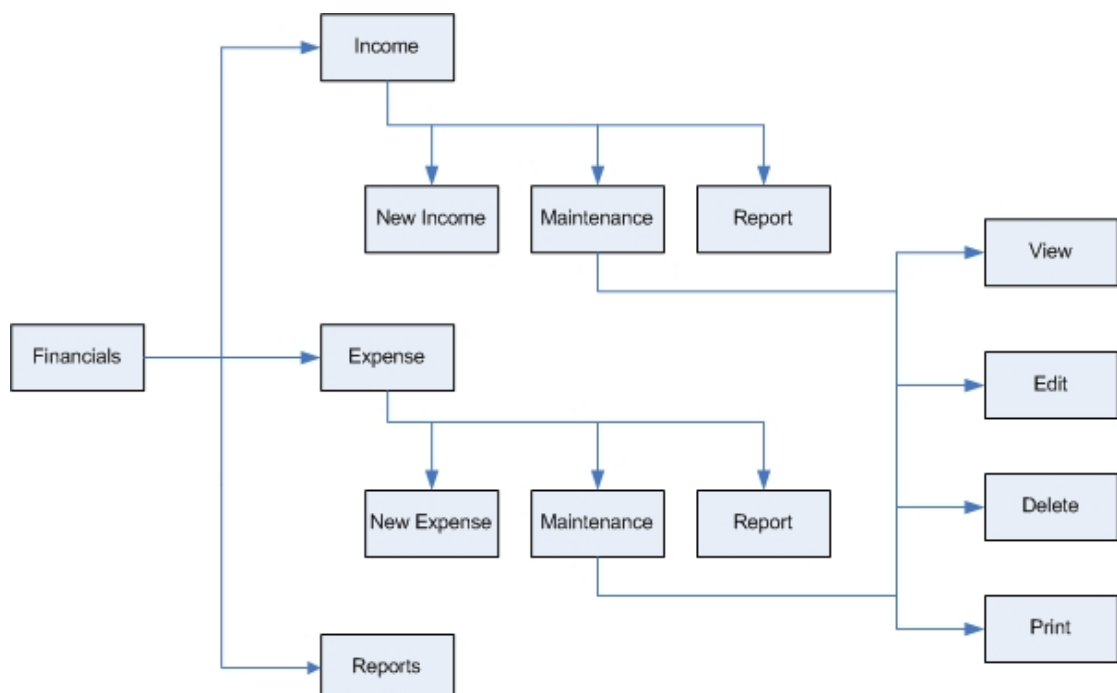
3.2.4 Train Menu



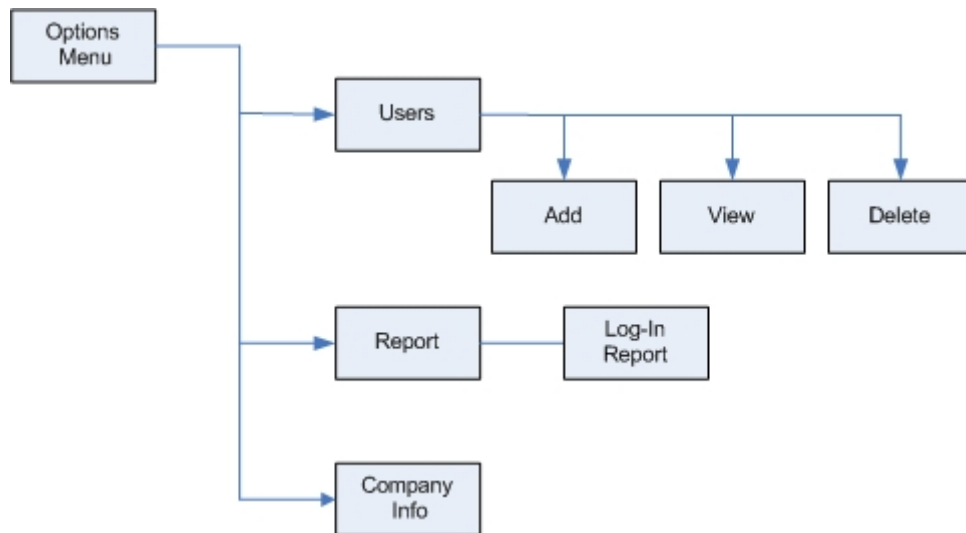
3.2.5 Employee Menu



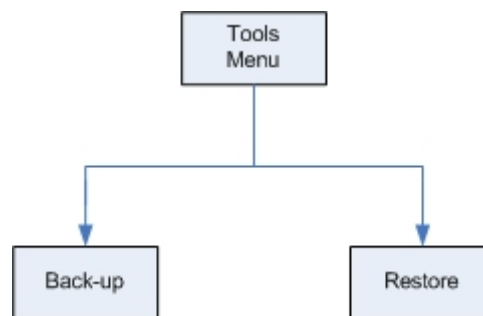
3.2.6 Financials Menu



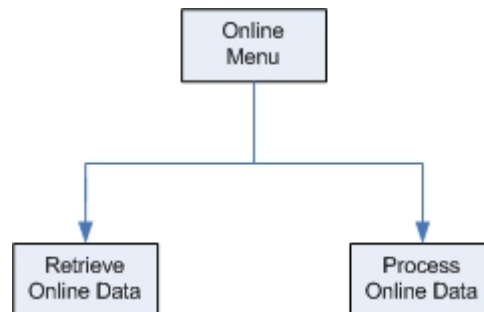
3.2.7 Options Menu



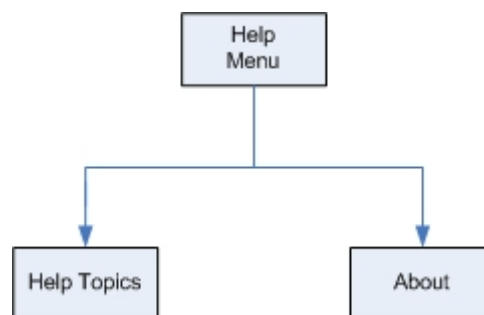
3.2.8 Tools Menu



3.2.9 Online System Menu



3.2.10 Help Menu



3.3 Output Design

Outputs are the direct source of information to the user. They provide consolidated and permanent copy of records, which helps in decision making. Output is information delivered to the users through the information system. Without quality output, the entire system may appear to be unnecessary that users will avoid using it. Users generally merit the system analysis work closely with the user through an interactive process, until the result is considered to be satisfactory. Therefore an effective output design is an important feature of design specification.

The various outputs have been designed in such a way that they represent the same format to the administrator and the user. Since useful output is essential for gaining acceptance of the system, the system analyst should try and achieve the following objectives, which are useful for designing acceptable outputs.

- Design output to serve the intended purpose.
- Design output to serve the user.
- Deliver the appropriate quantity of output.
- Assure that output is where it is needed.
- Provide output on time.

The Various Outputs\Reports generated in this System are:

All Clients Report
Client's Name Report
Specific Client Report
Airlines ID Report
Airlines Name Report
Airlines Specific Report
Coach ID Report
Coach Name Report
Coach Specific Report
Coach Ticket Report
Debtors Report
Flight Fare Report
Flight Schedule Report
Payment Invoice
Sales Invoice
Sales Report
Schedules to Report
Schedules from Report
Ticket Cancel Report
Ticket Sales Report
Income/Expense Report
Profit & Loss Report
User Login Report
Employee ID Report
Employee Name Report
Employee Specific Report

The tools used for developing reports are the following:-

- DATA ENVIRONMENT

The data environment enables to build encapsulated access to the database for easy access in the Visual Basic program. The data environment designer provides an interactive environment for creating data access interfaces for the application. At design time, the programmer can set property values for connection and command objects and execute different commands. The programmer can also drag data environment objects on to forms or reports to create data-bound controls. The data environment designer provides an interactive environment for creating programmatic run-time data access.

- DATA REPORT DESIGNER

One of the new designers available in Visual Basic 6.0 is the Data Report Designer. Data Reports have several components which are not available for normal forms. There are headers that display only at the top of the report or on the top of the page and there are footers that display only at the bottom of each page. The detail section is where the fields to be reported for each row in the record set are built.

3.3.1 Report Design

Client Report

Client No.	Title	Surname	Names	Address	Tel.No.	Checked
.....	
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Sales Report

<u>Date</u>	<u>SalesID</u>	<u>ClientID</u>	<u>Ticket No</u>	<u>Booking</u>	<u>Route</u>	<u>Sales Price</u>
.....
.....
.....
.....
.....
.....

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Airlines Report

<u>ID</u>	<u>Name</u>	<u>Contact Person</u>	<u>Tel.No.</u>	<u>Fax</u>	<u>Checked</u>
.....	
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Schedules Report

FlightNo	Destination	Departure	Arrival	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Economy	Executive
.....
.....
.....
.....
.....
.....

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Coach Report

<u>ID</u>	<u>Name</u>	<u>Branch</u>	<u>Contact Person</u>	<u>Tel.No.</u>	<u>Fax</u>	<u>Checked</u>
.....	
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>
.....	<input type="checkbox"/>

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Ticket Sales Report

<u>Date</u>	<u>Ticket No & Ref</u>	<u>Coach</u>	<u>Client</u>	<u>Journey</u>	<u>Sales Price</u>
.....
.....
.....
.....
.....
.....

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Sales Invoice

SalesID:

ClientID:

Surname :

Name:

Ticket Ref .No:

Booking Ref:

Routes:

Date :

Initial Fare:

Tax:

Discount:

Total Cost:

Payment Receipt

Payment ID:

Payment Mode:

Amount Paid:

Amount Due:

Flight Schedules & Fares

Flight Details

From:..... Destination:.....

Flight No:.....

Departure:..... Arrival:.....

Fare Details

Executive:..... Economy:.....

Availability

Mon: Tue: Wed: Thu: Fri: Sat: Sun:

Employee Report

ID	Surname	Name	Tel.No.	Address	Department
.....
.....
.....
.....
.....
.....
.....

*****End of Report*****

Report Summary:

Total no. of records:

Date & Time:

No of pages:

Profit & Loss Mini Statement

Period: From:..... To:.....

Total Income:

Total Expenses:

Profit/Loss:

*****End of Report*****

Report Summary:

Total no. of records:

3.4 Database Design

The database contains the following tables:-

tblAirlines
tblClient
tblClient_Pref
tblCoach
tblCoach_Ticket
tblCompany
tblEmployees
tblExpense
tblflights
tblRequests
tblIncome
tblPayment
tblProfit
tblSales
tblTicket_cancel
tblTrain
tblTrain_people
tblTrain_temp
tblUser
tblUserLog

The design of the tables is shown below:-

3.4.1. Airline Table

FIELD	DATA TYPE	DESCRIPTION
AirlinesID	AutoNumber	ID assigned to the Airline
Name	Text	Name of the Airline
Contact	Text	Name of the Contact person in the Airline
Tel_1	Text	Contact Number of the Airline company
Tel_2	Text	Contact Number of the Airline company
Fax	Text	Fax Number of the Airline company
Email	Text	Email address of the Airline company
webpage	Text	Website of the Airline company
Postal_add	Text	Postal Address of the airline office

3.4.2. Client Table

FIELD NAME	DATA TYPE	DESCRIPTION
ClientID	AutoNumber	ID assigned to the Client
Title	Text	Addressing Title of the Client
Surname	Text	Surname of the Client
Name	Text	Name of the Client
DOB	Date/Time	Date of Birth of the Client
Address1	Text	Postal Address of the Client
Address2	Text	Postal Address of the Client
Address3	Text	Postal Address of the Client
Tel_Home	Text	Residence Phone Number of the Client
Tel_Office	Text	Office Phone Number of the Client
Tel_Mobile	Text	Mobile Number of the Client
Fax	Text	Fax Number of the Client
Email	Text	Email address of the Client
Sex	Text	Gender of the Client

3.4.3. Client Preferences Table

FIELD NAME	DATA TYPE	DESCRIPTION
ClientID	AutoNumber	ID assigned to the Client
Food	Text	Type of Food preferred by the Client
Drinks	Text	Type of Drinks preferred by the Client
Smoking	Yes/No	Smoker or not
Special_seat	Text	Specification of seat if any
Travel_Type	Text	Class in which the Client prefers to travel
Frequent_Flyer	Text	If the Client is a Frequent flyer

3.4.4. Coach Table

FIELD NAME	DATA TYPE	DESCRIPTION
CoachID	AutoNumber	ID assigned to the Client
Name	Text	Name of the Coach Company
Branch	Text	Branch office of the Coach Company
Contact	Text	Name of Contact person in the office
Tel1	Text	Office Phone Number of the Coach Company
Tel2	Text	Office Phone Number of the Coach Company
Tel3	Text	Office Phone Number of the Coach Company
Fax	Text	Fax Number of the Coach Company
Address	Text	Postal Address of the Coach Company
Email	Text	Email address of the Coach Company
URL	Text	Official Web-page of the Coach Company

3.4.5. Coach Ticket Table

FIELD NAME	DATA TYPE	DESCRIPTION
Ticket_no	AutoNumber	Ticket Number
Bill_date	Date/Time	Date of billing
Bill_time	Date/Time	Time of billing
Surname	Text	Surname of the Passenger
Name	Text	Name of the Passenger
Tel	Text	Telephone number of the Passenger
Coach_ID	Number	Coach ID
Booking_ref	Text	Booking Reference Number
Journey_date	Date/Time	Date of Journey
From	Text	Starting Place
To	Text	Final Destination
Report_time	Text	Reporting time for the Passenger
Dep_time	Text	Departure time of the Bus
Boarding	Text	Boarding Place
Fare	Currency	Actual fare of the Ticket
Tax	Currency	Tax amount
Discount	Currency	Discount
Total	Currency	Total amount to be paid by the Client
Cancel	Yes/No	Select if the Ticket needs to be cancelled or not

3.4.6. Company Table

FIELD NAME	DATA TYPE	DESCRIPTION
ID	AutoNumber	ID assigned to the Company
Name	Text	Addressing Title of the Company
Address	Text	Postal Address of the Company
Tel1	Text	Telephone Number of the Client
Tel2	Text	Telephone Number of the Client
Fax	Text	Fax Number of the Client

3.4.7. Employee Table

FIELD NAME	DATA TYPE	DESCRIPTION
EmployeeID	AutoNumber	ID assigned to the Employee
Surname	Text	Surname of the Employee
Name	Text	Name of the Employee
DOB	Date/Time	Date of Birth of the Employee
Address1	Text	Postal Address of the Employee
Address2	Text	Postal Address of the Employee
Phone	Text	Residence Phone No. of the Employee
Sex	Text	Gender of the Employee
Social_Security	Text	Social Security Number of the Employee
Allowed_absences	Text	Fax Number of the Employee
Department	Text	Department in which the Employee works in the Company
Mobile	Text	Mobile Number of the Employee
Basic	Currency	Basic Salary of the Employee

3.4.8. Expense Table

FIELD NAME	DATA TYPE	DESCRIPTION
ID	AutoNumber	ID assigned to the Expenditure
Description	Text	Mode of Expense
Amount	Currency	Amount Spent
Date	Date/Time	Date on which the Expenditure was made

3.4.9. Flights Table

FIELD NAME	DATA TYPE	DESCRIPTION
ID	AutoNumber	Flight ID
From	Yes/No	Choose one option
Destination	Text	Final Destination
Flight_no	Text	Chosen Flight's number
Departure	Date/Time	Time of Departure
Arrival	Date/Time	Time of Arrival
Fare_exe	Currency	Fare of the Executive Class ticket
Fare_eco	Currency	Fare of the Economy Class ticket
Day_Available	Text	Day of availability of Flight

3.4.10. Income Table

FIELD NAME	DATA TYPE	DESCRIPTION
ID	AutoNumber	ID assigned to the Income
Description	Text	Mode of Income
Amount	Currency	Amount Spent
Date	Date/Time	Date on which the Income was received

3.4.11. Payment Table

FIELD NAME	DATA TYPE	DESCRIPTION
PaymentID	AutoNumber	Payment ID
SalesID	Number	Sales ID
Amt_Paid	Currency	Amount Paid
Payment_Mode	Text	Mode of Payment
Date	Date/Time	Date on which the payment was made

3.4.12. Profit Table

FIELD NAME	DATA TYPE	DESCRIPTION
ID	AutoNumber	ID assigned to the Profit/Loss
Income	Currency	Total Income Received
Expense	Currency	Total Amount Spent
Profit_Loss	Boolean	Profit / Loss
P_L	Currency	Profit / Loss Amount
From	Date/Time	From Date
To	Date/Time	To Date

3.4.13. Ticket Cancel Table

FIELD NAME	DATA TYPE	DESCRIPTION
Cancel ID	AutoNumber	Cancel ID
Ticket_No	Text	Ticket Number
Charge	Text	Ticket Cost
Refund	Text	Refund Amount after cancellation charges
Reason	Date/Time	Reason for Cancellation

3.4.14. Sales Table

FIELD NAME	DATA TYPE	DESCRIPTION
SalesID	AutoNumber	Sales ID
ClientID	Number	Client ID
Ticket_Ref	Text	Ticket Reference Number
Booking_Ref	Text	Booking Reference Number
Route	Text	Route the Client is taking
Initial_Fare	Currency	Actual fare of the Ticket
Tax	Currency	Tax amount
Discount	Currency	% of Discount
Total	Currency	Total amount to be paid by the Client
Date	Date/Time	Date of Sale of Ticket
Amt_Due	Currency	Balance to be paid by the Client

3.4.15. User Table

FIELD NAME	DATA TYPE	DESCRIPTION
UserName	Text	User Name of the User
Password	Text	Password of the User
usrLevel	Text	Access Level of the User
FullName	Text	Full Name of the User
Description	Text	Details of the User

3.4.16. User Log Table

FIELD NAME	DATA TYPE	DESCRIPTION
UserName	Text	User Name of the User
usrLogin	Date/Time	Time of Login
Logoff	Date/Time	Time of Logout
DateIn	Date/Time	Date of Login

3.5 Data Validation Design

Data will be validated where necessary. There will be different types of validations.

There will be automatic and manual validation in this system. Some of the validation checks will be:

- Presence Check

Procedure to check that all vital data are present when an input is done.

- Character Count

Procedure to check that the length of the input is correct. This is used when fixed length characters are used.

- Type Check / Format check

This check the correctness of the format, for example for date input has the following format: dd/mm/yyyy.

- Range Check

This ensures that certain fields lie in certain range, for example Date of Birth cannot be a date greater than the current date.

- File Lookup

This checks if files\records are already present. This is usually a detection for duplicate input.

The details of the validations are given below:

3.5.1 Clients

1. The compulsory fields that should be present are Surname, Names, Date of birth, address.
2. The date should be a valid one. The format of date is dd/mm/yyyy. This format will be validated by the system.
3. Numeric fields like telephone numbers will also be validated for numeric characters.
4. Duplicate entry will also be checked.

3.5.2 Airlines/Coach/Train

1. The following fields should be present: Contact name, telephone, fax, postal address.
2. Duplicate checks will also be made to avoid unnecessary duplication of data
3. Format checking will be performed on telephone numbers, and fax numbers for numeric characters only.

3.5.3 Employees

1. Duplicate checking is made to ensure that one record per employee is held.
2. Presence of compulsory fields like Surname, Name, Address, Basic Salary, and Social Security Number, are checked.
3. Numeric validation is made on fields like telephone numbers, number of allowed absences and basic salary.
4. The social security has the following format: A#####, that is it consists of one alphabetical character and seven numeric characters. The format of this field will be present.
5. Date validation will also be performed. The format of the date is dd/mm/yyyy.

3.5.4 Accounts

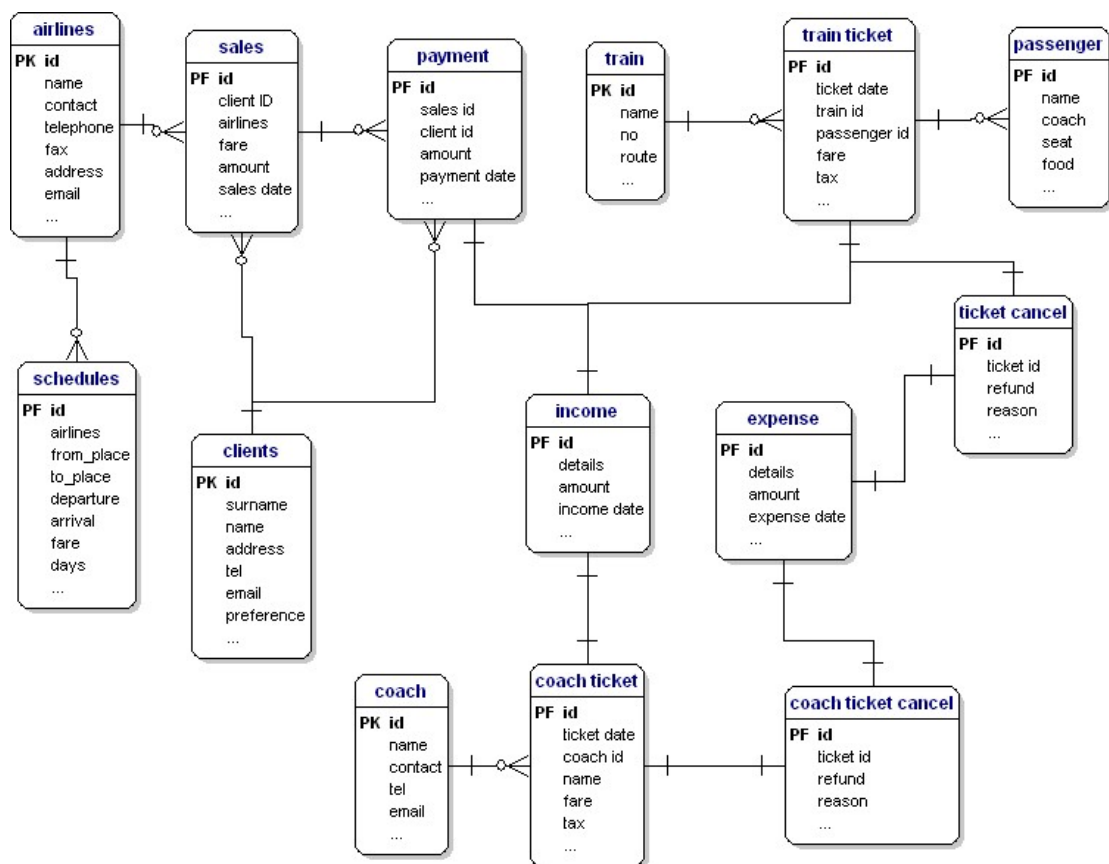
1. Presence check is performed on all fields.
2. The amount is validated through a numeric format checking.
3. Date is also validated to the format dd/mmm/yyyy

3.5.5 Sales

1. The ID should be present in the file.
2. The fields that should be compulsorily present are: ID, Surname, Name, Ticket Number, Booking reference, Routes, Fare, Tax, Discounts, and amount paid.
3. The ticket number format. The format check will be performed.
4. Length checking is performed on booking reference and ticket number.
5. Numeric format should be present at the following fields: ticket number, initial fare, and amount paid.
6. Range of the discount offered is checked. More than 10 % discount is not allowed.
7. The amount paid cannot exceed the fare of the ticket.

3.6 Database Normalization Design

The diagram below illustrates the relationships between the tables and the normalization concepts used.



3.7 Security Design

The system will be one which will be fully secured. The system will be password-protected. There will also be different user-level of access. For example, a simple counter operator will not be able to modify the salary details. The directors and managers will have a different user-level of access than the secretaries.

The system contains personal data of clients and employees. Thus, it is desirable to prevent unauthorized access to the system.

Backup Strategy

Backup is the process of making duplicate copies of the database and related data.

During the use of the system, the data held may be inadvertently be deleted or destroyed, usually by instant power cuts.

There fore, it is vital that regular backup is made to prevent loss of data. Backup of the database will be performed using the command line functions of VB. The data can be compressed and spanned over several floppy disks or zip drives or optical medium. Recovery of backup data can be performed at any time.



4. TESTING

4.1 Testing in brief.

In a software development project, errors can be injected at any stage during development. For each phase, there are techniques for detecting and eliminating errors that originate in that phase. However, no technique is perfect, and it is expected that some of the errors of the earlier phase will finally manifest themselves in the code. This is particularly true because no executable code exists. Ultimately, these remaining errors will be reflected in the code. Hence the code developed during the coding activity is likely to have some requirement errors and design errors, in addition to errors introduced during coding activity. Because code is frequently the only product that can be executed and whose actual behavior can be observed, testing is the phase where the errors remaining from all the previous phases must be detected. Hence, testing plays a very critical role for quality assurance and for ensuring the reliability of software.

During testing, the program to be tested is executed with a set of test cases, and the output of the program for the test cases is evaluated to determine if the program is performing as expected. Due to its approach, dynamic testing can only ascertain the presence of errors in the program. The exact nature of errors is not usually decided by testing. Testing forms the first step in determining the errors in the program. Clearly, the success of testing in revealing errors in programs depends critically on the test cases.

Testing a large system is a complex activity, and like any other complex activity it has to be broken into smaller activities. Due to this, for a project, incremental testing is generally performed, in which components and

subsystems of the system are testing separately before integrating them to form the system testing. This form of testing, though necessary to ensure quality for a large system, it introduces new issues of how to select components for testing and how to combine them to form subsystems and system. In other words, integration of the various components of the system is an important issue that the testing phase has to deal with. For this, this reason is sometime called “integration and testing”.

The two basic approaches to the testing are:

- ◆ Black box testing or functional testing.
- ◆ White box testing or structural testing.

4.1.1. Testing Fundamentals.

In this section we will first define some of the terms that are commonly used while discussing testing. Then we shall discuss some basic issues relating to how testing can proceed, the need for oracles for testing, the importance of the psychology of the tester and some desirable properties for the criteria used for testing. Once these are discussed, we will proceed with the issue of selection of test cases.

4.1.2. Error, Fault and Failure.

The term “Error” is used in two different ways. It refers to the discrepancy between a computed, observed or measured value and the true, specified or theoretically correct value. That is, error refers to the difference between the actual output of the software and the ideal. Error is also used to refer to

human action, those that result in software containing a defect or fault. This definition is quite general and encompasses all the phases.

“Fault” is a condition that causes a system to fail in performing its required function. A fault is the basic region for software malfunction and is synonymous with the commonly used term “Bug”. The term error is also often used to refer to defects. It should be noted that the only fault that software has are “Design faults”; there is no tear in software.

“Failure” is the inability of a system or component to perform a required function according to its specifications. A software failure occurs if the behavior of the software is different from the specified behavior. Failures may be caused due to functional or performance reasons. A failure is produced only when there is fault in the system. However, the presence of a fault does not guarantee a failure. In other words, faults have the potential to cause failure and their presence is a necessary but not a sufficient condition for a failure to occur.

There are some implications of these definitions. Presence of an error implies that a failure must have occurred, and the observance of a failure implies that a fault must be present in the system. However, the presence of a fault does not imply that a failure must occur. Whether a fault actually manifests itself in certain time duration depends on many factors. This means that if we observe the behavior of a system for some time duration and we do not observe any errors, we cannot say anything about the presence or absence of fault in the system. If on the other hand, we observe some failure in this duration, we can say that there are some faults in the system.

During the testing process, only failures are observed, by which the presence of fault is deduced. The actual faults are identified by separate activities, commonly referred to as “Debugging”. In other words, for identifying faults, after testing has revealed the presence of faults, the

expensive task of debugging has to be performed. This is one of the reason why testing is an expensive method for identification of faults, compared to methods that directly observe faults.

4.1.3. Top-Down and Bottom-Up Approaches.

In incremental testing, some parts of the system are first tested independently. Then these parts are combined to form a (sub) system, which is then tested independently. This combination can be done in two ways: either only the modules that have been tested independently are combined or some new untested modules are combined with modules. Both of these approaches required that the order in which modules are to be tested and integrated be planned before commencing testing.

In top-down strategy, we start by testing the top of hierarchy, and we incrementally add modules that it calls and then test the new combined system. This approach of testing requires stubs to be written. A stub is a dummy routine that simulates a model. In this approach, a module is tested before their subordinates have been coded. Stubs simulate the behavior of the subordinates.

The bottom-up approach starts from the bottom of the hierarchy. First the modules at the very bottom, which have no subordinates, are tested. At any stage of testing all the subordinate modules exist and have been tested earlier. To perform bottom-up testing, drivers are needed to setup the appropriate environment and invoke the module. It is the job of the driver to invoke the module under testing with different set of test cases.

Notice that both top-down and bottom-up approaches are incremental, starting with testing single modules and then adding untested modules to those that have been tested, until the whole system is tested. In the first

case, stubs must be written to perform testing, and in the other, driver needs to be written. Top-down testing is advantageous if major flaws occur towards the top of the hierarchy, while bottom-up is advantageous if major flaws occur towards the bottom. Often, writing the stubs can be more difficult than writing drivers, because one may need to know beforehand, the set of inputs for the module being simulated by the stubs and to determine proper responses for these inputs. In addition, as the stubs often simulate the behavior of a module over a limited domain, the choice of test cases for the super ordinate module is limited, and deciding test cases is often very difficult.

4.2 TEST CASES.

4.2.1. Login

FIELD	VALUE	ACTION
<i>USERNAME</i>	If Character	Accept
	If digit/special Character	Give error message
<i>PASSWORDS</i>	If Character	Accept
	If digit/special Character	Give error message

4.2.2. Add Client

FIELD	VALUE	ACTION
SURNAME	If Character	Accept
	If digit/special character	Give error message
NAME	If Character	Accept
	If digit/special character	Give error message
DATE OF BIRTH	If Character	Accept
	If digit/special character	Give error message
GENDER	Select (Male/Female)	Accept
	If not	Give error message
STREET ADDRESS	If entered	Accept
	If not	Give error message
TOWN/CITY/VILLAGE	If entered	Accept
	If not	Give error message
COUNTRY	If entered	Accept
	If not	Give error message
RESIDENCE PHONE	If digits	Accept
	If not	Give error message
OFFICE PHONE	If digits	Accept
	If not	Give error message
MOBILE PHONE	If digits	Accept
	If not	Give error message
FAX	If digits	Accept
	If not	Give error message

EMAIL	If entered	Accept
	If not	Give error message
TYPE OF FOOD	If entered	Accept
	If not	Give error message
TYPE OF DRINKS	If entered	Accept
	If not	Give error message
TRAVEL TYPE	If entered	Accept
	If not	Give error message
FREQUENT FLYER	If entered	Accept
	If not	Give error message
SPECIAL SEAT	If entered	Accept
	If not	No error message
SMOKING	If entered	Accept
	If not	Give error message

4.2.3. Modify Client

FIELD	VALUE	ACTION
SURNAME	If Character	Accept
	If digit/special character	Give error message
NAME	If Character	Accept
	If digit/special character	Give error message
DATE OF BIRTH	If Character	Accept
	If digit/special character	Give error message
GENDER	Select (Male/Female)	Accept
	If not	Give error message
STREET ADDRESS	If entered	Accept
	If not	Give error message
TOWN/CITY/VILLAGE	If entered	Accept
	If not	Give error message
COUNTRY	If entered	Accept
	If not	Give error message
RESIDENCE PHONE	If digits	Accept
	If not	Give error message
OFFICE PHONE	If digits	Accept
	If not	Give error message
MOBILE PHONE	If digits	Accept
	If not	Give error message
	If digits	Accept

FAX	If not	Give error message
EMAIL	If entered	Accept
	If not	Give error message
TYPE OF FOOD	If entered	Accept
	If not	Give error message
TYPE OF DRINKS	If entered	Accept
	If not	Give error message
TRAVEL TYPE	If entered	Accept
	If not	Give error message
FREQUENT FLYER	If entered	Accept
	If not	Give error message
SPECIAL SEAT	If entered	Accept
	If not	No error message
SMOKING	If entered	Accept
	If not	Give error message

4.2.4. New Sales.

FIELD	VALUE	ACTION
CLIENT ID	If Chosen from pickup	Accept
	If not	Give error message
SURNAME	If Character	Accept
	If digit/special character	Give error message
NAME	If Character	Accept
	If digit/special character	Give error message
TICKET NUMBER	If entered	Accept
	If not	Give error message
BOOKING REF	If entered	Accept
	If not	Give error message
ROUTES	If entered	Accept
	If not	Give error message
INITIAL FARE	If entered	Accept
	If digits	Give error message
TAX	If not	Accept
	If not	Give error message
DISCOUNT	If digits	Accept
	If not	Give error message
AMOUNT PAID	If digits	Accept
	If not	Give error message
PAYMENT MODE	If entered	Accept
	If not	Give error message

4.2.5. New Payment.

FIELD	VALUE	ACTION
CLIENT ID	If Chosen from pickup	Accept
	If not	Give error message
SURNAME	If Character	Accept
	If digit/special character	Give error message
NAME	If Character	Accept
	If digit/special character	Give error message
SALES ID	If chosen from pickup	<i>Accept</i>
	If not	Give error message
TICKET REF	If entered	Accept
	If not	Give error message
SALES DATE	If entered	Accept
	If not	Give error message
ROUTE	If entered	Accept
	If digits	Give error message
AMOUNT DUE	If entered	Accept
	If not	Give error message
AMOUNT PAID	If digits	Accept
	If not	Give error message
PAYMENT MODE	If entered	Accept
	If not	Give error message

4.2.6. New Airlines.

FIELD	VALUE	ACTION
NAME OF AIRLINE	If New in database	Accept
	Already exists	Give error message
CONTACT PERSON	If Character	Accept
	If digit/special character	Give error message
TELEPHONE	If Digits	Accept
	If not	Give error message
FAX	If entered	Accept
	If not	Give error message
EMAIL	If entered	Accept
	If not	Give error message
WEB-PAGE	If entered	Accept
	If digits	Give error message
POSTAL ADDRESS	If entered	Accept
	If not	Give error message

4.2.7. Modify Airlines

FIELD	VALUE	ACTION
AIRLINE ID	If Chosen from pickup	Accept
	If not	Give error message
NAME OF AIRLINE	If New in database	Accept
	Already exists	Give error message
CONTACT PERSON	If Character	Accept
	If digit/special character	Give error message
TELEPHONE	If Digits	Accept
	If not	Give error message
FAX	If entered	Accept
	If not	Give error message
EMAIL	If entered	Accept
	If not	Give error message
WEB-PAGE	If entered	Accept
	If digits	Give error message
POSTAL ADDRESS	If entered	Accept
	If not	Give error message

4.2.8. New Coach.

FIELD	VALUE	ACTION
NAME OF COACH COMPANY	If New in database	Accept
	Already exists	Give error message
BRANCH OFFICE	If Character	Accept
	If digit/special character	Give error message
CONTACT PERSON	If Character	Accept
	If digit/special character	Give error message
TELEPHONE	If Digits	Accept
	If not	Give error message
FAX	If entered	Accept
	If not	Give error message
EMAIL	If entered	Accept
	If not	Give error message
WEB-PAGE	If entered	Accept
	If digits	Give error message
POSTAL ADDRESS	If entered	Accept
	If not	Give error message

4.2.8. Modify Coach.

FIELD	VALUE	ACTION
NAME OF COACH COMPANY	If New in database	Accept
	Already exists	Give error message
CONTACT PERSON	If Character	Accept
	If digit/special character	Give error message
TELEPHONE	If Digits	Accept
	If not	Give error message
FAX	If entered	Accept
	If not	Give error message
EMAIL	If entered	Accept
	If not	Give error message
WEB-PAGE	If entered	Accept
	If digits	Give error message
POSTAL ADDRESS	If entered	Accept
	If not	Give error message

4.2.9. New Coach Ticket.

FIELD	VALUE	ACTION
SURNAME	If Character	Accept
	If digit/special character	Give error message
NAME	If Character	Accept
	If digit/special character	Give error message
TELEPHONE	If Digits	Accept
	If not	Give error message
COACH ID	If chosen from pickup	Accept
	If not	Give error message
COACH NAME	If Chosen from pickup	Accept
	If not	Give error message
BOOKING REF	If entered	Accept
	If not	Give error message
JOURNEY DATE	If Chosen	Accept
	If not	Give error message
FROM	If entered	Accept
	If not	Give error message
TO	If entered	Accept
	If not	Give error message
REPORTING TIME	If entered	Accept
	If not	Give error message
	If entered	Accept

DEPARTURE TIME	If not	Give error message
BOARDING PLACE	If entered	Accept
	If not	Give error message
FARE	If entered	Accept
	If not	Give error message
TAX	If entered	Accept
	If not	Give error message
DISCOUNT	If digits	Accept
	If not	Give error message
TOTAL	If Calculated	Accept
	If not	Give error message

4.3. Test Report

The start-up form is the login form for the User where the User Name is chosen from the drop-down list and Password has to be entered. The users have pre-defined Access Levels. All the login details are stored in a database and are verified from the database, every time someone tries to login. The User Name and Password can contain only characters. An error message is generated if numeric and special characters are entered. If the entered Password is wrong, an error message is generated.

After Login the main window is displayed. From the main window, you can choose one of the three specified platforms i.e. train, bus or flight. Each platform helps the user to book tickets; cancel tickets print reports, and other sales related tasks.

If you have chosen the airline platform, the Main Window of the Airlines Platform is displayed. The first form here is the New Client form. This is one of the basic forms of the company. It allows the user to add details of a new client which will be stored in a database. After all the fields are filled, the next button should be clicked for entering more details.

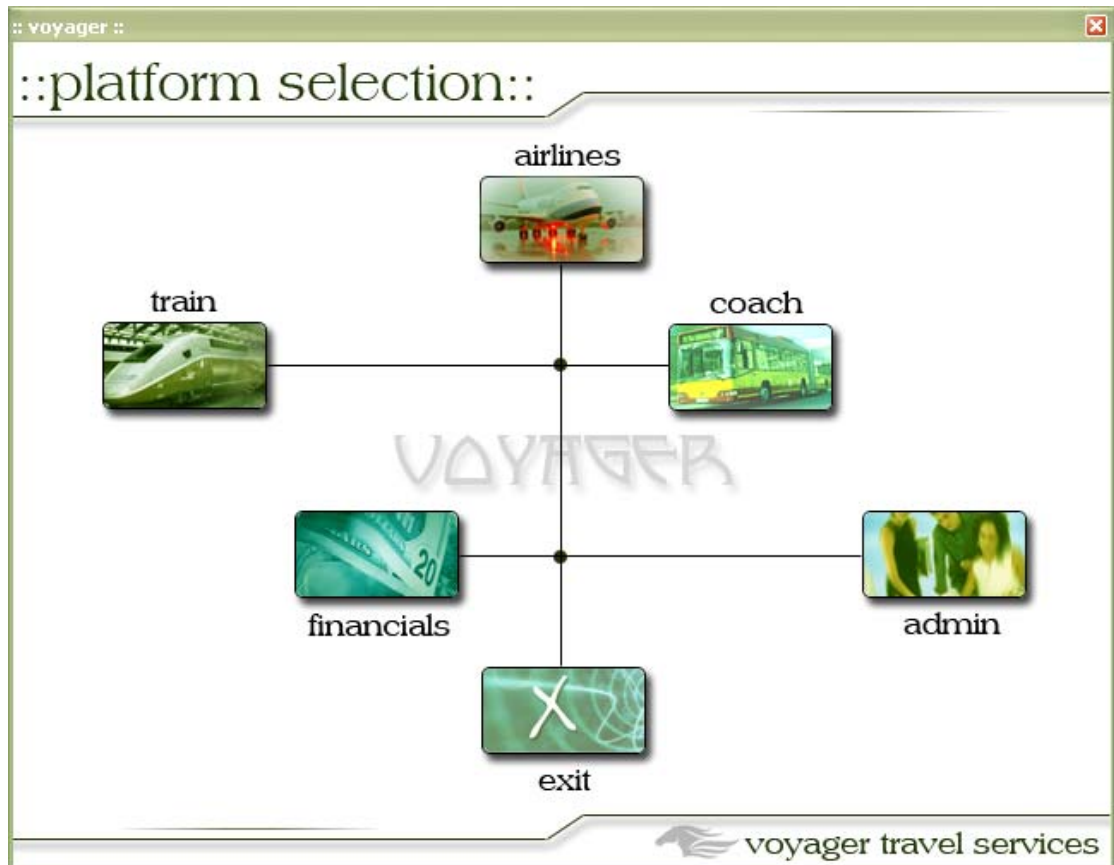


screens



voyager - travel services

Main Menu



Login Window



MDI Window



Sample Input Windows

Sale of Train Ticket...

new train ticket

voyager travel services

Booking Details		Journey Details	
Ticket No.:	<input type="text"/>	From:	<input type="text"/>
PNR No.:	<input type="text"/> - <input type="text"/>	To:	<input type="text"/>
		Date:	<input type="text" value="21 Dec 2005"/>
		Dep. Time:	<input type="text"/>
Train Details		Billing Details	
Train No.:	<input type="text"/>	Fare : Rs.	<input type="text"/>
Name:	<input type="text"/>	Commission	<input type="text"/>
Class:	<input type="text"/>	Total:	<input type="text"/> <input type="button" value="Σ"/>

Passenger Details

coach	Seat	Berth	Sex	Age	Food	Name

Enter the details of the Passenger...

passenger

Coach: Seat: Berth: Age: Sex: Food:

Name:

Add a new Client ...

new client
voyager travel services

Please enter the Client's details

Title:

Surname:

Name:

Date of Birth: (day/month/year)

Sex:

Street Address:

City/Town/Village:

Country:

Residence Phone:

Office Phone:

Mobile Phone:

Fax:

Email:

< Back Next > Cancel

Sale of Coach Ticket

new coach ticket
voyager travel services

Client Details

Surname: Name:

Telephone No:

Coach Details	Ticket Details
Coach ID: <input type="text" value="2"/>	Ticket Number: <input type="text" value="17"/>
Name: <input type="text" value="kpnx"/>	Booking Reference: <input type="text"/>
Journey Details	Billing Details
Date: <input type="text" value="21 Dec 2005"/>	Fare : Rs. <input type="text"/>
From: <input type="text"/> To: <input type="text"/>	Tax : <input type="text"/>
Report Time: <input type="text"/> Dep. Time: <input type="text"/>	Discount : <input type="text"/>
Boarding Place: <input type="text"/>	Total: <input type="text"/>

Add Cancel

Listing of airlines by AirlinesID



Airlines Display		
Airlines ID	Name	Contact
13	Air Mauritius	Polo
14	Air France	Mr. Richard
15	Emirates Airlines	Mr. Bokodiah

View Edit Delete Print Help Quit

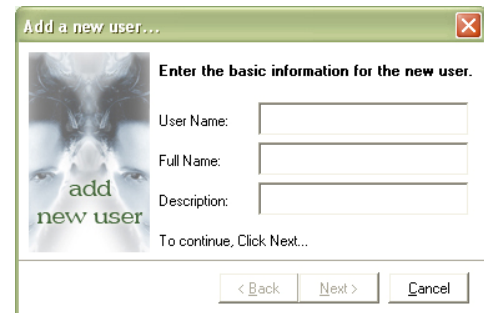
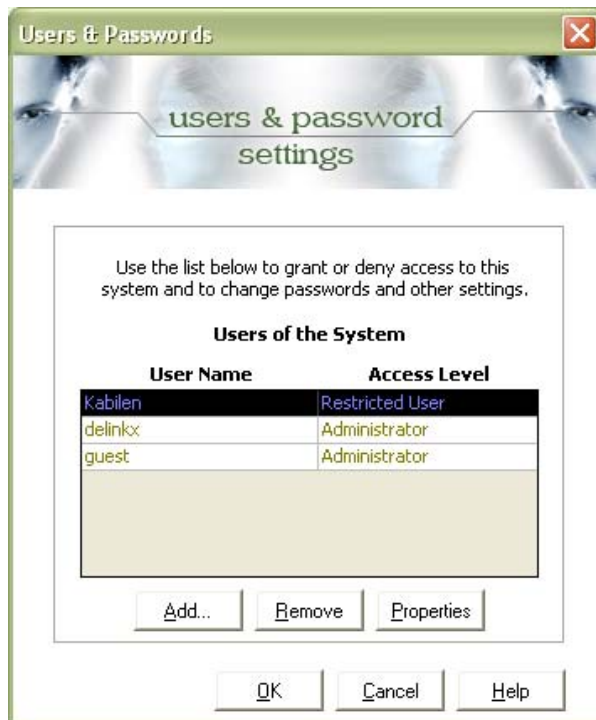
Profit & Loss Report



Please use the date picker to give the time interval for the report:

From: 21 Aug 2002 To: 21 Aug 2002

Print Preview Cancel



ASP Pages





TABLE: View Flight Schedules

☒ Exact phrase
 ☐ All words
 ☐ Any word

[Show all](#)

ID	From Bangalore	Destination (*)	Flight no. (*)	Departure	Arrival	Fare Eco	Fare Eco	mon (*)	tues (*)	wed (*)	thurs (*)	fri (*)	sat (*)	sun (*)
8	Yes	AHMEDABAD	IC-610	5:01:00 PM	8:15:00 PM	13576	9276	A	A	A	A	A	A	View
9	Yes	AHMEDABAD	S2-130	3:00:00 PM	8:00:00 PM	12971	8721	A	A	A	A	A	A	View
92	No	aaAHMEDABAD	S1-129	11:00:00 AM	2:30:00 PM	12971	8721	A	A	A	A	A	A	View
93	No	AHMEDABAD	IC 609	6:50:00 PM	10:00:00 PM	13576	9276	A	A	A	A	A	A	View

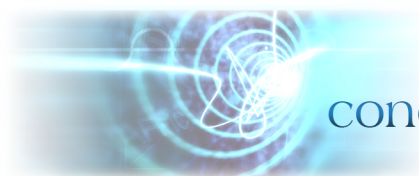
Page 1 of 1
 Records 1 to 4 of 4



[Back to List](#)

Please Enter the details of your request for the travel service

name	<input type="text"/>
surname	<input type="text"/>
address	<input type="text"/>
tel 1	<input type="text"/>
tel 2	<input type="text"/>
mobile	<input type="text"/>
fax	<input type="text"/>
email	<input type="text"/>
request	<input type="text"/>



conclusion



CONCLUSION

Appraisal

The system has been successfully implemented. It was installed in the office of the company and this was achieved easily with the collaboration of the directors and staff of the company. This has been done to the user's satisfaction.

After thorough testing and modifications made, as stated in the 'Discussion of Test results', the following points were noted about the system:

- ***Total time taken for enrolment procedures:***

The average time taken to fill a form is very little, and is saved as soon as filled-in with hardly any errors.

- ***Managing and updating files:***

Editing, deletion, viewing and printing of files has become very easy. Moreover, the records are classified in effective orders.

- ***Searching of records***

Searching of files has also become very easy. Indeed, the time taken to get specific information about a particular item is very little. The browse windows help to minimise any search errors.

- ***Duplication of data***

Duplication of data has been reduced to a minimum, meaning that once data is updated, it does not have to be done again.

- ***Client Management***

This has become a very easy task and results are produced instantaneously, without making the clients wait for long time before such processing takes place.

- ***Transaction Tracking***

All transactions are now tracked and can be obtained immediately for reference.

- ***Producing documents***

It is now simpler to generate or create custom reports. One does not have to go through many data items to produce such a document. On the other hand, the system performs this task automatically.

- ***Security***

There is now a good level of security of files in the new system, whereby not everybody can get access to it. The different user levels and passwords confirm the level of security.

- ***Expectations***

All problems identified earlier in the Systems Analysis phase has been solved by the new system. The objectives and aims have been met and the users are satisfied with the results.

Limitations

Although we designed and implemented the VOYAGER System to the best of our ability in the time available, there are a number of limitations in the system.

- We have assumed testing with small amount of real data, known to me and to the users. For this reason, there may be unforeseen problems that may occur with extremely large volumes of data. However I see no reason why such problems should occur.
- When Backup is made, the system uses the system command shell. Provisions for commands of Windows 95, 98, 2000, NT have been made. The backup has not been tested on the latest windows, Windows Server 2003. There may be different commands for its command shell, and in such a case the backup may fail.
- The debtors report is one, which consists of all debtors to the company. The productions of reports to different scopes, like time intervals, have been missed out from the system. And also, provision for bad debts have no been made.
- The schedules report is a full report showing all the timings as stored by the system. Provision for customised reports in this field has been omitted.

Scope for Expansion

The following aspects of the Voyager system could be improved or added:

- Password Encryption – To make the system more secured, password encryption could be used to mask the real ones. If someone manages to get access to the database, he can get the passwords. Thus encryption would solidify the security of the system.
- The help system may be improved to guide users for an error-free and effective use of the system. The help system may include index searching and interactive help, whereby the user presses the F1 key at any point and help is given according to what he/she is doing.
- The use of archiving could be used to improve the system and provide a “healthy” database to work with. Old data, which may not be used often, may be archived and kept as a separate database or as zip files on disks. This will improve the performance of the system.
- Receipts produced after a sale is made could be made to be sent automatically to the client, if not present on-site. This may be achieved by the use of email or fax. The system could be modified to assist this useful task.
- Updated schedules are found at the websites of the different airlines in a tabular form. Modifications may be made to the system to automatically search these tables and update the database accordingly.
- The financial section could be improved to produce professional accounting documents according to accounting principles, like cash flow statements, balance sheets, Profit and Loss account, among others.
- Auditing features could be added for the administrators to get an idea of what tasks each user has performed.
- More reports and validations could be performed to provide a virtually error-free system.

BIBLIOGRAPHY

Sources of information

The group visited different Travel Agencies in an attempt to learn the various processes involved in the system. The personnel in these centres were very co-operative and offered their help in this area. Given below are few of the Service centers visited by the us.

- Travel Bazaar, Bangalore
- Delinkx Travels, Mauritius
- Cox & Kings, Bangalore
-

For further study and to implement the project, the following books have been referred:

- Cornell Gary. Visual Basic 6 From Ground Up. Osborne/McGraw-Hill, 1998.
- Pressman Roger S. Software Engineering, A Practitioner's Approach. McGraw-Hill, 2001.

The sites referred are:

- www.advisor.com
- www.travelbazaar.com
- www.1asphost.com

All the sources of information mentioned above were of great help in making this project a success.