AIRLINE RESERVATION SYSTEM

INTRODUCTION:

Airline reservation systems were first introduced in the late 1950s as relatively simple standalone systems to control flight inventory, maintain flight schedules, seat assignments and aircraft loading. The modern airline reservation system is comprehensive suite of products to provide a system that assists with a variety of airline management tasks and service customer needs from the time of initial reservation through completion of the flight.

One of the most common modes of travel is traveling by air. Customers who wish to travel by air nowadays have a wide variety of airlines and a range of timings to choose from. Nowadays competition is so fierce between airlines that there are lot of discounts and a lot of luxuries given to customers that will give an edge to that particular airline. The World Wide Web has become tremendously popular over the last four years, and currently most of the airlines have made provision for online reservation of their flights. The Internet has become a major resource for people looking for making reservations online without the hassle of meeting travel agents. My Project intends to serve these purposes. It intends to check all the available airline databases and return a string of results, which can help them in their travel plans.

The objective of this project is allow the user to Login and create a new flight details. They can also search for the existing flight details and they can retrieve or delete the flight details. To modify any detail update functionality is available. Also they can reserve a ticket and the informations can be verified in Summary section. Contact Us form is available for the user to send their query. These operations can be performed through GUI(Graphical User Interface) and the informations are stored in MS-Access database.

2. SYSTEM REQUIREMENT:

HARDWARE:

PROCESSOR: PENTIUM IV 2.6 Ghz

RAM: 512MB RAM

MONITOR: 15” COLOR

HARD DISK: 250 GB

CD DRIVE : LG52X

KEYBOARD: STANDARD 102 KEYS

MOUSE: OPTICAL MOUSE

SOFTWARE:

FRONTEND: HTML, CSS, JAVASCRIPT

BACKEND: MS-ACCESS

OPERATING SYSTEM: WINDOWS 7

3. ABOUT THE SOFTWARE

3.1 FRONT END INFORMATION:

HTML

HTML stands for **H**yper**t**ext **M**arkup **L**anguage, and it is the most widely used language to write Web Pages.

Hypertext refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext.

As its name suggests, HTML is a **Markup Language** which means you use HTML to simply "mark-up" a text document with tags that tell a Web browser how to structure it to display.

Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers. Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.

HTML Tags

As told earlier, HTML is a markup language and makes use of various tags to format the content. These tags are enclosed within angle braces **<Tag Name>**. Except few tags, most of the tags have their corresponding closing tags. For example, **<html>** has its closing tag **</html>** and **<body>** tag has its closing tag **</body>** tag etc.

HTML Document Structure

A typical HTML document will have the following structure −

```
<html>
   <head>
   Document header related tags
  </head>
```

```
  <body>
    Document body related tags
  </body>
</html>
```

The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration tag is used by the web browser to understand the version of the HTML used in the document. Current version of HTML is 5 and it makes use of the following declaration −

```
<!DOCTYPE html>
```

There are many other declaration types which can be used in HTML document depending on what version of HTML is being used. We will see more details on this while discussing <!DOCTYPE...> tag along with other HTML tags.

Heading Tags

Any document starts with a heading. You can use different sizes for your headings. HTML also has six levels of headings, which use the elements **<h1>, <h2>, <h3>, <h4>, <h5>,** and **<h6>**. While displaying any heading, browser adds one line before and one line after that heading.

Line Break Tag

Whenever you use the **
** element, anything following it starts from the next line. This tag is an example of an **empty** element, where you do not need opening and closing tags, as there is nothing to go in between them.

The
 tag has a space between the characters **br** and the forward slash. If you omit this space, older browsers will have trouble rendering the line break, while if you miss the forward slash character and just use
 it is not valid in XHTML.

Centering Content

You can use ** ** tag to put any content in the center of the page or any table cell.

CSS

Cascading **S**tyle **S**heets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs,variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

Advantages of CSS

- **CSS saves time** − You can write CSS once and then reuse same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.
- **Pages load faster** − If you are using CSS, you do not need to write HTML tag attributes every time. Just write one CSS rule of a tag and apply it to all the occurrences of that tag. So less code means faster download times.
- **Easy maintenance** − To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.
- **Superior styles to HTML** − CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
- **Multiple Device Compatibility** − Style sheets allow content to be optimized for more than one type of device. By using the same HTML document, different versions of a website can be presented for handheld devices such as PDAs and cell phones or for printing.
- **Global web standards** − Now HTML attributes are being deprecated and it is being recommended to use CSS. So its a good idea to start using CSS in all the HTML pages to make them compatible to future browsers.
- **Offline Browsing** − CSS can store web applications locally with the help of an offline catche.Using of this, we can view offline websites.The cache also ensures faster loading and better overall performance of the website.
- **Platform Independence** − The Script offer consistent platform independence and can support latest browsers as well.

Who Creates and Maintains CSS?

CSS was invented by **Håkon Wium Lie** on October 10, 1994 and maintained through a group of people within the W3C called the CSS Working Group. The CSS Working Group creates documents called **specifications**. When a specification has been discussed and officially ratified by W3C members, it becomes a recommendation. These ratified specifications are called recommendations because the W3C has no control over the actual implementation of the language. Independent companies and organizations create that software.

NOTE − The World Wide Web Consortium, or W3C is a group that makes recommendations about how the Internet works and how it should evolve.

CSS Versions

Cascading Style Sheets, level 1 (CSS1) was came out of W3C as a recommendation in December 1996. This version describes the CSS language as well as a simple visual formatting model for all the HTML tags.

CSS2 was became a W3C recommendation in May 1998 and builds on CSS1. This version adds support for media-specific style sheets e.g. printers and aural devices, downloadable fonts, element positioning and tables.

CSS3 was became a W3C recommendation in June 1999 and builds on older versions CSS. it has divided into documentations is called as Modules and here each module having new extension features defined in CSS2.

CSS3 Modules

CSS3 Modules are having old CSS specifications as well as extension features.

- Selectors
- Box Model
- Backgrounds and Borders
- Image Values and Replaced Content
- Text Effects
- 2D/3D Transformations
- Animations
- Multiple Column Layout

- User Interface

JAVASCRIPT

Javascript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

JavaScript was first known as **LiveScript,** but Netscape changed its name to JavaScript, possibly because of the excitement being generated by Java. JavaScript made its first appearance in Netscape 2.0 in 1995 with the name **LiveScript**. The general-purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers.

The ECMA-262 Specification defined a standard version of the core JavaScript language.

- JavaScript is a lightweight, interpreted programming language.
- Designed for creating network-centric applications.
- Complementary to and integrated with Java.
- Complementary to and integrated with HTML.
- Open and cross-platform

Client-side JavaScript

Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser. It means that a web page need not be a static HTML, but can include programs that interact with the user, control the browser, and dynamically create HTML content.

The JavaScript client-side mechanism provides many advantages over traditional CGI server-side scripts. For example, you might use JavaScript to check if the user has entered a valid e-mail address in a form field.

The JavaScript code is executed when the user submits the form, and only if all the entries are valid, they would be submitted to the Web Server. JavaScript can be used to trap user-initiated events such as button clicks, link navigation, and other actions that the user initiates explicitly or implicitly.

Advantages of JavaScript

The merits of using JavaScript are −

- **Less server interaction** − You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- **Immediate feedback to the visitors** − They don't have to wait for a page reload to see if they have forgotten to enter something.
- **Increased interactivity** − You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- **Richer interfaces** − You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

Limitations of JavaScript

We cannot treat JavaScript as a full-fledged programming language. It lacks the following important features −

- Client-side JavaScript does not allow the reading or writing of files. This has been kept for security reason.
- JavaScript cannot be used for networking applications because there is no such support available.
- JavaScript doesn't have any multithreading or multiprocessor capabilities.

Once again, JavaScript is a lightweight, interpreted programming language that allows you to build interactivity into otherwise static HTML pages.

JavaScript Development Tools

One of major strengths of JavaScript is that it does not require expensive development tools. You can start with a simple text editor such as Notepad. Since it is an interpreted language inside the context of a web browser, you don't even need to buy a compiler.

To make our life simpler, various vendors have come up with very nice JavaScript editing tools. Some of them are listed here −

Microsoft FrontPage − Microsoft has developed a popular HTML editor called FrontPage. FrontPage also provides web developers with a number of JavaScript tools to assist in the creation of interactive websites.

Macromedia Dreamweaver MX − Macromedia Dreamweaver MX is a very popular HTML and JavaScript editor in the professional web development crowd. It provides several handy prebuilt JavaScript components, integrates well with databases, and conforms to new standards such as XHTML and XML.

Macromedia HomeSite 5 − HomeSite 5 is a well-liked HTML and JavaScript editor from Macromedia that can be used to manage personal websites effectively.

Where is JavaScript Today ?

The ECMAScript Edition 5 standard will be the first update to be released in over four years. JavaScript 2.0 conforms to Edition 5 of the ECMAScript standard, and the difference between the two is extremely minor.

The specification for JavaScript 2.0 can be found on the following site: http://www.ecmascript.org/

Today, Netscape's JavaScript and Microsoft's JScript conform to the ECMAScript standard, although both the languages still support the features that are not a part of the standard.

Implementation:

JavaScript can be implemented using JavaScript statements that are placed within the **<script>... </script>.**

You can place the **<script>** tags, containing your JavaScript, anywhere within your web page, but it is normally recommended that you should keep it within the **<head>** tags.

The script tag takes two important attributes −

Language − This attribute specifies what scripting language you are using. Typically, its value will be javascript. Although recent versions of HTML (and XHTML, its successor) have phased out the use of this attribute.

Type − This attribute is what is now recommended to indicate the scripting language in use and its value should be set to "text/javascript".

3.2 BACKEND INFORMATION:

MS-ACCESS

Microsoft Access is a Database Management System (DBMS) from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and

softwaredevelopment tools. It is a member of the Microsoft Office suite of applications, included in the professional and higher editions.

Microsoft Access is just one part of Microsoft's overall data management product strategy. It stores data in its own format based on the Access Jet Database Engine. Like relational databases, Microsoft Access also allows you to link related information easily. For example, customer and order data. However, Access 2013 also complements other database products because it has several powerful connectivity features. It can also import or link directly to data stored in other applications and databases.

As its name implies, Access can work directly with data from other sources, including many popular PC database programs, with many SQL (Structured Query Language) databases on the desktop, on servers, on minicomputers, or on mainframes, and with data stored on Internet or intranet web servers.

Access can also understand and use a wide variety of other data formats, including many other database file structures. You can export data to and import data from word processing files, spreadsheets, or database files directly. Access can work with most popular databases that support the Open Database Connectivity (ODBC) standard, including SQL Server, Oracle, and DB2. Software developers can use Microsoft Access to develop application software.

Microsoft Access stores information which is called a database. To use MS Access, you will need to follow these four steps −

Database Creation − Create your Microsoft Access database and specify what kind of data you will be storing.

Data Input − After your database is created, the data of every business day can be entered into the Access database.

Query − This is a fancy term to basically describe the process of retrieving information from the database.

Report (optional) − Information from the database is organized in a nice presentation that can be printed in an Access Report.

4. PROJECT DESCRIPTION:

4.1 LIST OF MODULES:

- Login
- Add New flight details
- Search flight details
- Update flight details
- Delete flight details
- Reservation
- Summary
- Contact Us

4.2 MODULE EXPLANATIONS:

- **Login**

Users can login into the Airline reservation system using the existing credentials. For Security reasons password will not be visible to others. Username and Password are validated in this screen using the javascript function. function is directly invoked and executed in the same form. It also validates the empty field and not allowing to login. For invalid credentials and empty fields an alert appears and says login unsuccessful and not allowing to login. For Successful login the page navigates and shows the different menus.

- **Add New flight details**

  This module allows the user to add the new flight details in the database with the following details such as Flight Number,Flight Name,From,To and Base Fare. For each field the data type and field name is created in Database and it is called through javascript function in the Html code. When add function is executed, it opens the database connection and tests the connection. If the connection succeeded it stores the user input in the flight_details table which is created and connected with the form. Once the detail is added the record details updated in the database and the connection is closed.

- **Search flight details**

This module allows the user to search the existing/added flight details in the database with the following details such as Flight Number,Flight Name,From,To and Base Fare. For each field the data type and field name is created in Database and it is called through javascript function

in the Html code. When search function is executed, it opens the database connection and tests the connection. If the connection succeeded it search based on the user input in the flight_details table which is created and connected with the form. Then print the data based on the search input from the database and the connection is closed.

- **Update flight details**

This module allows the user to update the existing flight details in the database with the following details such as Flight Number,Flight Name,From,To and Base Fare. For each field the data type and field name is created in Database and it is called through javascript function in the Html code. When update function is executed, it opens the database connection and tests the connection. If the connection succeeded it modifies the database table based on the user input in the flight_details table which is created and connected with the form. Once the details are modified, the record details updated in the database and the connection is closed.

- **Delete flight details:**

This module allows the user to delete the flight details from the database based on the following details such as Flight Number,Flight Name,From,To and Base Fare. For each field the data type and field name is created in Database and it is called through javascript function in the Html code. When delete function is executed, it opens the database connection and tests the connection. If the connection succeeded it deletes the entire row data based on the user input in the flight_details table which is created and connected with the form. Once the detail are deleted from the database it should not be available further to retrieve from the database and the connection is closed.

- **Reservation**

This module helps the user to reserve the ticket using the following informations, such as Passport Number, Name,age,Email,Phone number, Flight number,Flight name,From,To,Departure,Return and Type includes one way and round. In this form all the fields are mandatory and field validations are added for Age,Phone number and Email. For Validation purpose built-in functions are added which is used to validate the format based on user input. For Age, javascript function is invoked to check empty,nan values and not more than 100 as well as not less than 1.

- **Summary**

In this module, it displays based on the reservation form. It allows to verify that the given input details are correct. It is displayed with two options back and ok. Back is to redirect to the previous page and ok is to reserve the ticket. From this page user can navigate contact-us section.

- **Contact Us**

This module is for sending the query from the user based on the application . This section includes name,email and message section with the submit button. This form is generated for the Submitting purpose only not for the response. From this form user can navigate back to the home page and Logout from the application.

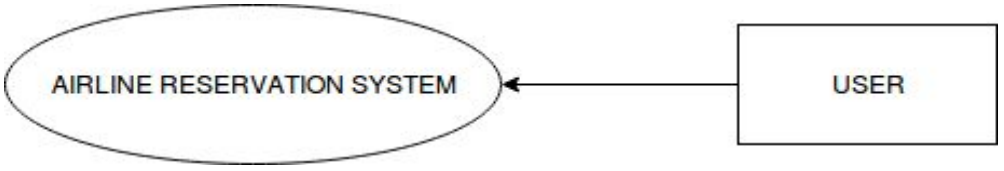
5. DATA FLOW DIAGRAMS:

As information moves through software, it is modified by a series of transformations. A Data Flow Diagram (DFD) is a graphical technique that depicts information flow and the transformations that are applied as data move from input to output.The Data Flow Diagram may be used to representation a system or software at any level of abstraction. In fact, DFDs may be used partitioned into levels that represent increasing information flow and functional detail. Therefore, the DFD provides a mechanism for functional modeling as information flow modeling.The Data Flow Diagram (DFD) serves two purposes:

1) To provide an indication of how data are transformed as they move through the system and 2) To depict the functions that transform the data flow.The DFD provides additional information that is used during the analysis of the information domain and serves as a basis for the modeling of function

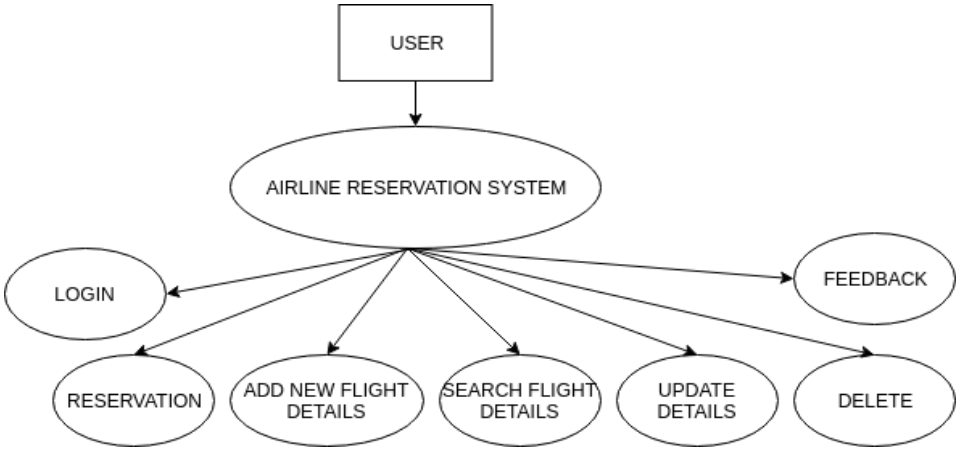
LEVEL 0:

A level 0 data flow diagram (DFD), also known as a context diagram, shows a data system as a whole and emphasizes the way it interacts with external entities. This DFD level 0 example shows how such a system might function within a typical retail business.



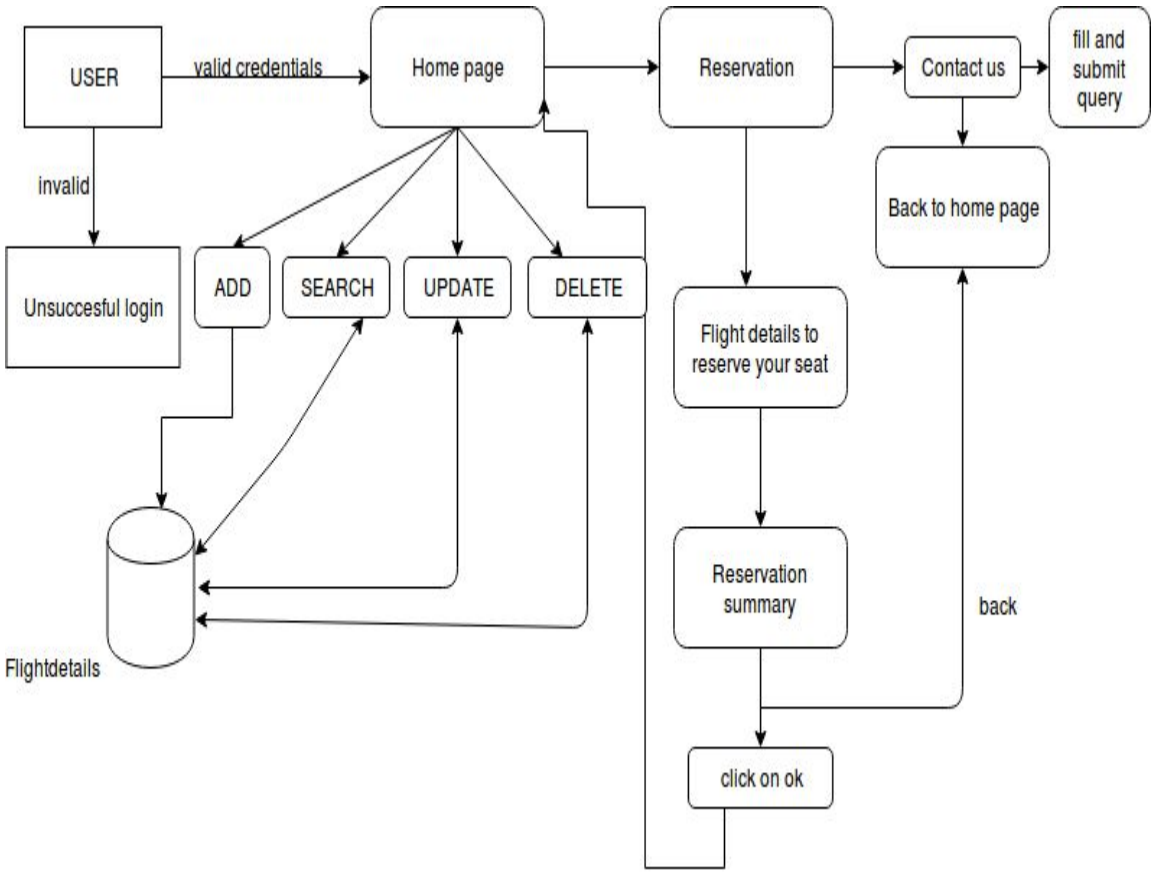
LEVEL 1:

A level 1 data flow diagram (DFD) is more detailed than a level 0 DFD but not as detailed as a level 2 DFD. It breaks down the main processes in to subprocesses that can then be analyzed and improved on a more intimate level.

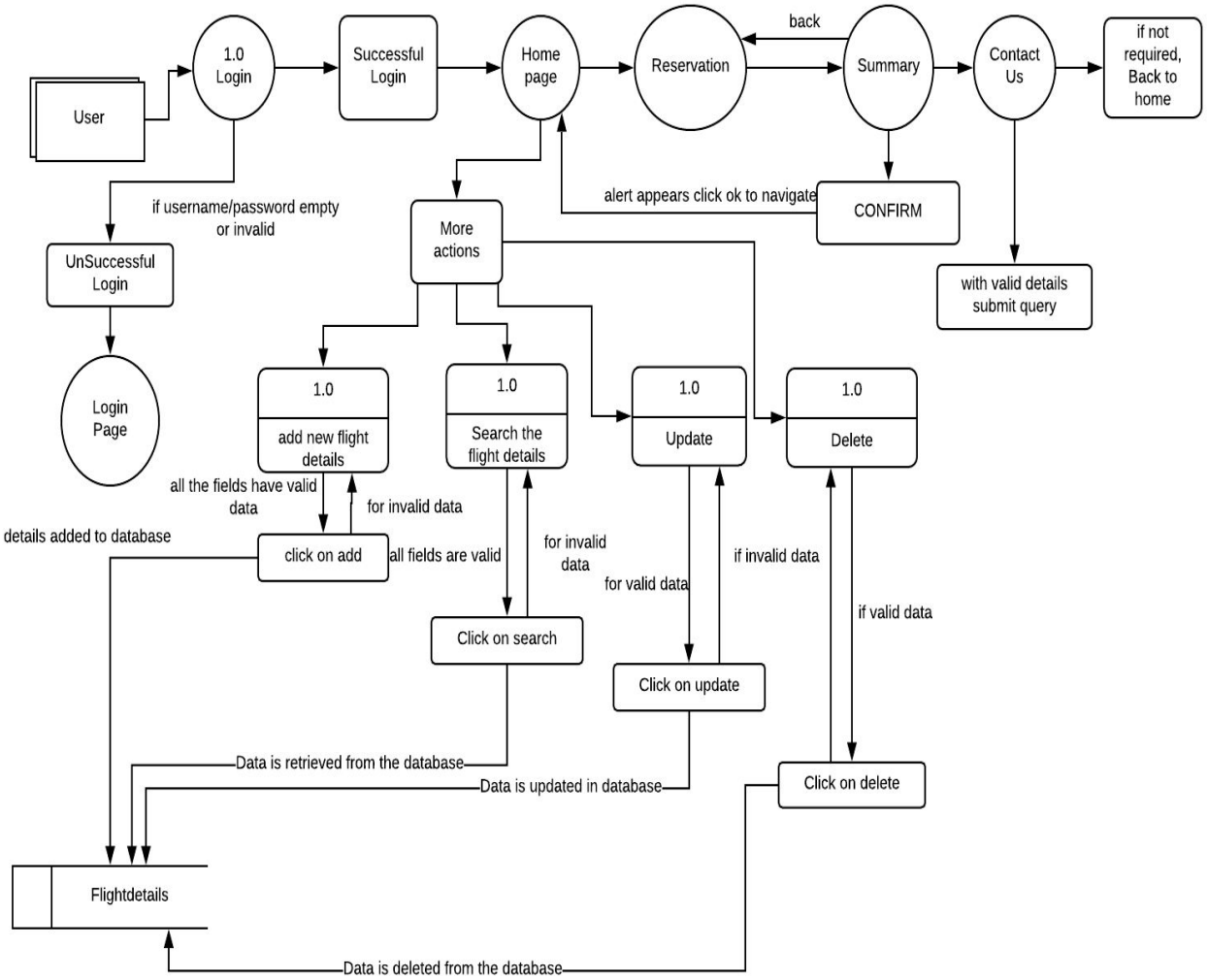


LEVEL 2:

A level 2 data flow diagram (DFD) offers a more detailed look at the processes that make up an information system than a level 1 DFD does. It can be used to plan or record the specific makeup of a system.


USER
valid credentials
Home page
Reservation
Contact us
fill and submit query
invalid
Back to home page
Unsuccesful login
ADD
SEARCH
UPDATE
DELETE
Flight details to reserve your seat
Reservation summary
back
Flightdetails
click on ok

LEVEL 3:



6. TABLE DESIGN:

Field Name	Data Type
FlightNumber	NUMBER
FlightName	TEXT
From	TEXT
To	TEXT
BaseFare	DOUBLE

9. CONCLUSION:

The entire project has been developed and deployed for the Airline reservation system. It allows the user to login with the existing credentials. After login user is allowed to add,search,modify and delete the flight details based on the fields. Users can reserve a ticket through the reservation forms and the informations can be verified in Summary section. Contact Us form is available for the user to send their query. Html is used to design a form in Frontend. In this project all the fields are validated to avoid the empty inputs in all the forms and an alert is added for every submit action using Javascript.

10. FUTURE ENHANCEMENT:

Additional to this the future implementation will be the email feature. After the reservation of the ticket must be allowed to convert it as pdf and send as an email or printing the ticket. Sign up form for the new users and the validation linking to the database. Forgot password section to the existing users. Offers page including hotel bookings to be added.

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