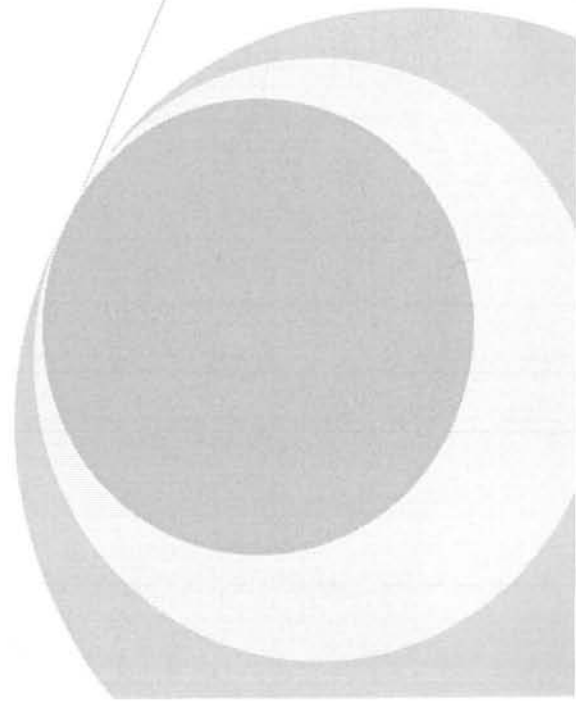
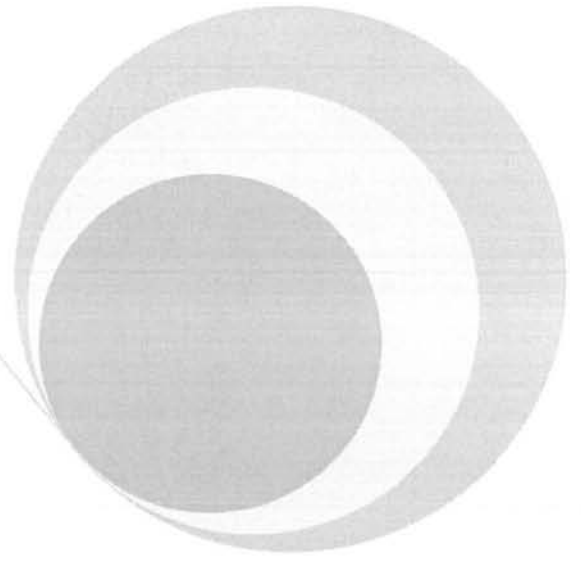


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**Pay and Budget
Management System**

CERTIFICATE OF ORIGINALITY

This is to certify that this Project Report titled "Pay and Budget Management System" submitted to Quaid-i-Azam University (Computer Center) in partial fulfillment of the requirement for the award of the Post Graduate Diploma in Information Technology, is an original work carried out by Mr. Sabih Khan Afridi, Registration No. 1626-CC/PGD-IT/2009 and Ms. Saira Kishwer Abbasi, Registration No. 1637-CC/PGD-IT/2009 under the guidance of Mr. Munnawar Tiwana.

The matter embodied in this project is a genuine work done by the students and has not been submitted whether to this University or to any other University/Institute for the fulfillment of the requirement of any course of study.

Mr. Munnawar Tiwana
Project Supervisor

DECLARATION

Sabih Khan Afridi and Saira Kishwer Abbasi hereby declare that the project report submitted to the University has been entirely programmed by us to fulfill the requirement of the final semester project. We declare that this project has been completed within given time & facilities mentioned by us in the report. We shall also declare that this project send to the university has not been produced or presented before any other university for any kind of degree or diploma. It is genuine and our own property.

Sabih Khan Afridi
and
Saira Kishwer Abbasi

Date:

Acknowledgement

“Success is to be measured not so much by the position that one has reached in life but as by the obstacle which he has, had to overcome while trying to succeed.”

In many ways it is, more difficult to acknowledge one's but I express our deep sense of gratitude to each and every one whose support and co-operation helped us to complete this project successfully, and without which the completion of this project would ever have been easier.

We hereby take the pleasures of thanking our project guide. We have truly benefited a lot from the constructive criticism and suggestions given to us by my teachers. Here are some special thanks to few special people whose co-operation made this work really special. We are thankful to our class fellows whose timely and important suggestions motivated us to complete our goal. If we forget the support of them who helped us to complete the project on time then it will be injustice with them.

We also wish to thanks our parents who always stand by us in our all decisions and without their help it was not possible for us to reach at this place.

At last but not least we are very grateful to Almighty ALLAH who provides us the energy and stamina to do some creative work which can help peoples doing their work efficiently and with ease.

Objective

To assist and ease the works of the Retail Outlet of Any Type of Organization/Companies, in particular, Pay and Budget Management System is being developed. This would comprise the features that can be operated easily. Pay and Budget Management System would take care of the every new appointed employee. It covers activities from keeping the details about salary, allowances, retirement date etc. The master and transaction activities are divided in modules so that the activities can be operated easily. The regular backup to the data can be taken and the backup data can be restored effectively. So, the Pay and Budget Management System assists the employees of Organization/Company in each and every aspect of In and Out. The Pay and Budget Management System is customized software and developed according to the needs of Any Type Organization/Company.

Proposed System

With the shortcoming in the existing system at every area of work a new system has to be worked upon. This may overcome all the inefficiencies that the present system has.

In today's high-tech world with all the characteristics of the system is outdated and a need for a new, powerful, stable and result oriented software is required which is why a new system based on Web & Ms Access is formulated. Web is used to provide front-end application for user-friendly ambience and Ms Access is used to maintain & update database for fast and reliable retrieval of data and processing of queries.

Advantages of the proposed system:

- User friendly and simple in nature
- Compatible on all windows based systems
- Upgradeable with slight modification in coding
- Easy application maintenance due to its robustness
- Menu driven navigation to facilitate simple and quick access to required functionality.
- A central database for all the data related to ensure data consistency
- Easier and faster data entry with menu support
- Can quickly produce required information related to employees, department and vacant posts etc

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CHAPTER-1

Introduction

“Represents for the most important and contentious element in the employment relationship and is equal interest to the employer, employee and government.”

1.1 Introduction:

The Pay and Budget Management System is basically designed for the Quaid-i-Azam University's Budget Section which also supports the auditors for auditing and pre-auditing this system is designed in such a way that it provides the desired information in an accurate and robust manner. It can support multiple queries for retrieving the information from database. The software is flexible in design to access multiple section/departments if it is registered on intranet or internet as desired by the owner/user. The system currently includes a basic framework that supports the future enhancement i.e., online Pay & Budget System and can use it with small amendments any Accounts/Audit system of any organization.

The basic purpose for developing this system is to retrieve the information about any employee, department and vacant posts within the organization from large amount of data of the University's database in true sense to get absolute value as the existing.

The history of Pay and Budget Management System, related work, development and testing is discussed in next section.

1.2 History:

History of Pay and Budget Management System

Before the Budget System it was so difficult to find out one transaction or any required specific data of any employee, department and about posts. It was painful and waste of time that if you find result of different queries like annual salaries include annual increments or deduction of taxes etc. The manual work before the computers was implemented in organizations, they work on registers and they assigned different name to the registers like budget register, posts register, departments register etc. The registers have all information about organization. If we see in past the banking transactions were also on large registers. That was so laborious and time consuming. It also should be mentioned here that often the work was not accurate, some time wrong entry or transaction inserted and founding it was also painful and waste of time work.

Calculation on the Web

The sudden expansion of the internet in the 1990's led to a great amount of information to be shifted online. This led to the formation of digital libraries. As more and more information was shifted online, the trend to make this information available about database software and other software increased.

Prior to this, users who used the computer and the internet had to be proficient in the English language and they also had to be computer literate. As time passed, more and more information was made

available on internet (in different countries language like China) about many software including database systems.

The rise in demand of software in computers has led the developers to think and rethink of making websites and link with database where the data store. That is why some of the enterprises have started to give as software languages in different compilers for execution in making of their own software. The increasing need of software on the Web has also led to the idea of different requirements of users.

1.3 Aims and Objectives: Pay and Budget Management System

As we are well aware the era of advance accounts systems on the web has started, so there is a need to have an online system. It will be all the more useful if it is made as a portable like a gadget.

Our aim is to develop software about Pay and Budget Management System that can be added as a tool on personalized web page. The software developer has the basic functions of simple queries like ascending or descending order, sorting the data and searching as well.

The interface should be easy to understand for the less educated users and the text on the menus should convey the meaning of the functions they perform.

1.4 Problem Description:

Before the software programming languages, the manual calculation system was not so efficient to find average commission, increments in pay allowances and basic pay etc. On the other hand it was complicated to locate mistakes in the huge amount of data. After big efforts of locating errors it was also not simple to resolve that mistake.

1.5 Scope

The scope of our software project is to build an easy and understandable interface for user to retrieve required information, add new entries in to the existing data, searching, sorting (alphabetic and numeric), increments and allowances in basic pay annually etc.

1.6 Our Contributions:

The scope of our project is to develop a Pay and Budget Management System that provides the following:

- Basic pay, gross pay & net pay
- Automatically increment in basic pay every year
- Ad-hoc allowance, medical allowance and house rent will add in basic pay by command
- The system will show allocated, filled and vacant posts in each section/department
- Department wise financial budget allocated to departments/sections
- Vacancy's budget about allocated, filled and vacant in departments/sections

- Employee's hire & retirement date
- How many employees working
- How many categories of employees
- How many departments/sections

Requirements

For the system the following requirements should be fulfilled:

- (Hypertext Markup Language) HTML
- Active Server Page (ASP)
- MS Access (Application Software)

1.7 Technique Used:

- **HTML:** Short for Hypertext Markup Language, the authoring language used to create documents on the World Wide Web. HTML defines the structure and layout of a web document by using a variety of tags and attributes. The correct structure for an HTML document starts with<HTML><HEAD>(enter here what document is about)<BODY> and ends with </BODY></HTML>. All the information you'd like to include in your web page fits in between the <BODY> and </BODY> tags.
- **ASP:** Microsoft Active Server Page (ASP) is a server-side scripting technology that can be used to create dynamic and interactive Web applications. An ASP page is an HTML page that contains server-side scripts that are processed by a web server before being sent to the user's browser. You can combine ASP with Extensible Markup Language (XML) and Hypertext Markup Language (HTML) to create powerful interactive Web sites. ASP is a feature of the Microsoft Internet Information Server. Since the server-side script is building a regular HTML page, it can be served to almost any browser. An ASP file can be created by including a script written in VBScript or JScript in an HTML file.
- **Microsoft Access:** Microsoft Access is the database application from the Microsoft Office Suite of applications. It is a powerful personal database and data manipulation tool that is also widely used in many small businesses.

1.8 Inputs and Outputs

Input type in this system is text/numeric data from the keyboard and mouse for updating and searching information about organization record. The output of the system is in the form of text and numeric will be displayed on monitor's screen which is commanded by user.

Summary

In this chapter we have discussed the history of Pay and Budget Management System. The software will support the users to manage their account system of the organization as to search, sort and update database etc.

We have discussed the problems faced by the users who use manual lager updating system and their slow performance about work.

The aims and objectives are also discussed in which we have stated that to build a Pay and Budget Management System on the web that provides all the functionalities of transactions in database. These have been described in detail in the Scope.

The user's requirements and the technique used were also mentioned. In the end we have stated the inputs and outputs of the system.

In the next chapter we shall discuss the related work that has already been done and what we have done to extend it further.

CHAPTER-2

Related Work

2.1 Research

There are two main areas in which computers and their applications are used. These can be categorized as Database Software and Web applications. The first part of this chapter details with all the work that has been done within the software.

2.2 Web Database Software

With the new buzz about data management systems, you would have thought that they are a very recent invention. In fact, that is not true at all. Simple electromagnetic databases have existed even in the earliest electronic computers. In fact, it is hard for any computer to operate without a database infrastructure behind it. In this paragraph, I'll give you the history of database management systems.

If we think about it, database management systems have even existed for thousands of years. However, in the earlier days they were recorded without computers, with crude accounting systems that banks used to use over 500 years ago.

However, when most people talk about database management systems, they refer to one of an electronic nature. This is where electromagnetic storage of information takes place is organized and can be recalled later with a set of commands.

At first, database management systems are very crude, as there was always a memory problem with the earlier electronic computers. In fact, Bill Gates was quoted as saying in 1981 that 640K memory ought to be enough for anybody. Ha!

Around the 1960s, the earliest of electromagnetic database storage was used only by those who could afford it, because of its extremely high expense. In fact, whereas today databases are used for research purposes, at that time computers were themselves considered a research project.

It wasn't until the 1970s, when memory was able to be increased and component prices began to decrease was there any real headway with database management systems. It was at this time that a number of different problems started coming up, as related to information management on the computers. With all these problems surfacing, a solution was needed.

In the 1980 all the major vendors who sold hardware systems started incorporating database management systems into their computers for a systematic solution.

At first, these database management systems were very specific to the computer and to the user. IBM was one of the leaders in this category, but soon many clones and competitors entered into the marketplace, all at varying price points with different and alternative solutions.

With the advent of the 90s, the shift turned from having an accurate database management system, to having one that was easily maintainable. This is because memory capacity started to grow, as well as the creation and spread of information. This is when some of the more sophisticated database management systems at the market.

Currently, the focus is on completely automating most of the database management administration.

2.3 Major tasks

The major task present before me was to provide the user with a suitable GUI interface that the end user feel comfortable with. This also included providing meaningful names to menus so that the user does not "feel lost" during his use of the database system and to provide a better learning curve for the end user. The names are such that they relate to the tasks that they perform.

For example, under the "web page" are the substances that are related to whatever task may relate to the "web page" menu. Functionalities of this menu are basically related to the tool that will incorporate Pay and Budget Management System.

Similarly, these rules were extended for the other menus like "Insertion" which includes tasks related to Insertion of Data like "Sum up", "Subtraction", "Multiplication", "and Increment" and "Retirement date". All these tasks are related to the database system whatever the user has desire.

The next menu is "Searching". It creates tasks that are specifically related with to locate all the information about specific entity. This menu allows the user to explore desired specific data.

The last menu is the "Sorting". On screen you can select any column to sort. The sorting functionality is behind the all columns head of table that work by pressing left click button of mouse. This event will sort the whole column alphabetically or numerically if the data is alphabetic/numeric.

2.4 Need of Web Based Database System

Software Creations has been in the business of developing databases for the past 20 years. Developing the first online databases over 15 years ago for "Bulletin Board Services" (Remember the "BBS"?), and migrated to developing web-based databases in the early 90's. That was extensive experience designing, developing and implementing online applications and databases.

SDSS Subscription Server

If you currently have database content you would like to make available over the Internet, for paid or free subscription managed access, you may wish to take a look at our SDSS Subscription Server service.

Self-Administration Web Site

If the primary goal is to be able to make database tables available to your web site visitors, or to accept data from them into database tables, then you may want to take a look at our Self-Administration Web

Site software. This package allows you to create and maintain online database tables using a web-based control panel, and requires NO database development costs to implement at your site or ours.

What is Web-Based Database Development?

- accept query from browser over the World Wide Web
- extract/process data
- display results via browser over World Wide Web

It is the process of developing mechanisms for accessing and processing relational database management systems (like MS Access, MS SQL, Oracle and DB2) via the World Wide Web. On an elementary level, your database can:

Why should you be interested in this?

"Interactive". "Dynamic". "Value-Added". These are all words you have no doubt heard associated with the development of a successful web site. Keep in mind that a web site is basically a collection of "pages" (right now, mostly HTML /ASP to be replaced in the near future with XML). These pages can be arranged to deliver important information to your visitors. But if you want your site to really stand up and deliver, you've got to add a degree of "interactivity"; that is, the ability to interact with your users beyond just going to the next page. For this, your site needs database access: the ability for it to accept queries, process input and display results over the web.

It is one thing to be a popular website, quite another thing to be a profitable website. Even if yours is a non-profit organization, you still need to be focused on exploiting the customer service potential of your web site. In all cases, we want to enrich the experience of our visitors and in today's world, which takes a certain level of interactivity. This is accomplished on today's web site through programming and data access.

You don't develop a long term business relationship with an end-user (i.e., someone who returns to your site on a regular basis) with eye-popping graphics. You get people to return by giving them something worth returning for. This is either an ongoing, enhancing experience, or access to information they need when they need it.

What can we do?

We do web-based database development. Surprise, we can add on site the interactive, dynamic, value-added processes it requires to deliver the services you want to deliver to your end-users. We can go on and on about it, but this, basically, is the bottom line. We do web-based database development MS SQL, Access, Oracle, DB2, or any ODBC compliant database management system.

Examples

- Customer Service
- Front-End for Heavy Duty Transaction Processing
- Gather Data/Statistics
- Self-Directed Study and Testing Exercises
- Online Booking/Registration/Reservation Systems
- Online Catalogs
- Teaching/Learning/Research
- Technical Support

Probably the best and most well-known example of a web-based database system is the Federal Express Web Site (<http://www.fedex.com>). They had worked for years to develop a tracking database which follows each and every package they handle through every processing point from pickup to delivery. They created an incredible "value-added" customer service tool when they made access to this database available to their customers via the World Wide Web. Their site has been amongst the most popular and visited on the Internet since its creation.

Data Access

Basically, you can use web-based databases to display and receive data over the web. There are literally thousands of examples and we have included links below to help you educate yourself further in this area. However, here are a few which come to mind:

Enterprise Management

Web-Based Enterprise Management is essentially the process of using Internet technology to integrate management tools and information. Under this architecture, separate software applications and information can be integrated via a common browser interface that supports linking and data exchange.

In English, what this means is that if your organization has tons of data lying around in a bunch of legacy (nobody likes to use the word "old" anymore) databases, you can put that data to use by making it available over the Internet or over your private Intranet. Furthermore, you can reduce costs and increase productivity by redeveloping your applications to process this data using the web browser as your front end as opposed to a host of different proprietary desktop interfaces. And now that you've got a common interface, you can build applications which unify the data from various databases in ways which add "value" and make them more productive.

Internet Applications

We are fast approaching what might be called the "post-PC era", where the dominance of desktop applications and operating systems (well, I guess we're talking about one here: Windows) will be replaced by Internet "appliances" -- devices designed to perform specific tasks and which attach to the Internet to download their software applications from remote servers. They are cheaper, less complicated to use and easier to set up than the computers we are used to using today. Right now, the first of these appliances are simply web browser "terminals", but in the near future we shall see a number of hardware products using this architecture: mobile phones, hand-held computers, watches, toasters, ovens, pagers, etc.

One thing all of these Internet appliances will have in common, they will all be database driven. So, while your goal today may be to simply get a web site up to advertise your company or perform customer support or provide public information on your department's staff and functions, one day your site could be used to provide valuable information for someone's swatch. Don't laugh. It could happen.

Summary

In this chapter, we have discussed the types of Database Systems and the technology used to create online database systems. We have discussed the major tasks that were important to implement.

A brief comparison between the existing web-based Database Systems showed that all of them had some short comings, which should be removed. This was the need of a true web based Database System.

In the next chapter, we shall discuss the issues related to Requirement Analysis and Design of our system.

CHAPTER-3

Requirement Analysis and Design

3.1 Introduction

The requirement engineering phase defines the requirements of the system, independent of how these requirements will be met. The deliverable result at the end of this phase is the Software Requirement Specification (SRS) document. The requirements engineering phase should be carried out carefully because the hardest single part of building a software system is deciding what to build. No other part of the work so cripples the resulting system if done wrong.

After analyzing and understanding the requirements of the people who are related to the profession of accounts and auditing use different manual systems like MS Excel and MS Access sheets but there is a drawback that there is no graphical interface that may be easy for users to work and it is also very arduous job to maintain such huge database. So we have made software that may help those people to work in a friendly environment. We have named by our system Pay and Budget Management system based on HTML, ASP and MS Access. From here, the new system with added functionalities will be Pay and Budget Management System.

3.2 Functional Requirements

These are the statements of services the system should provide, how the system should react to a particular input and how the system should behave in a particular situation.

The functional requirements of our system are described by the use cases given in the fig 3.1.

3.3 Use Cases

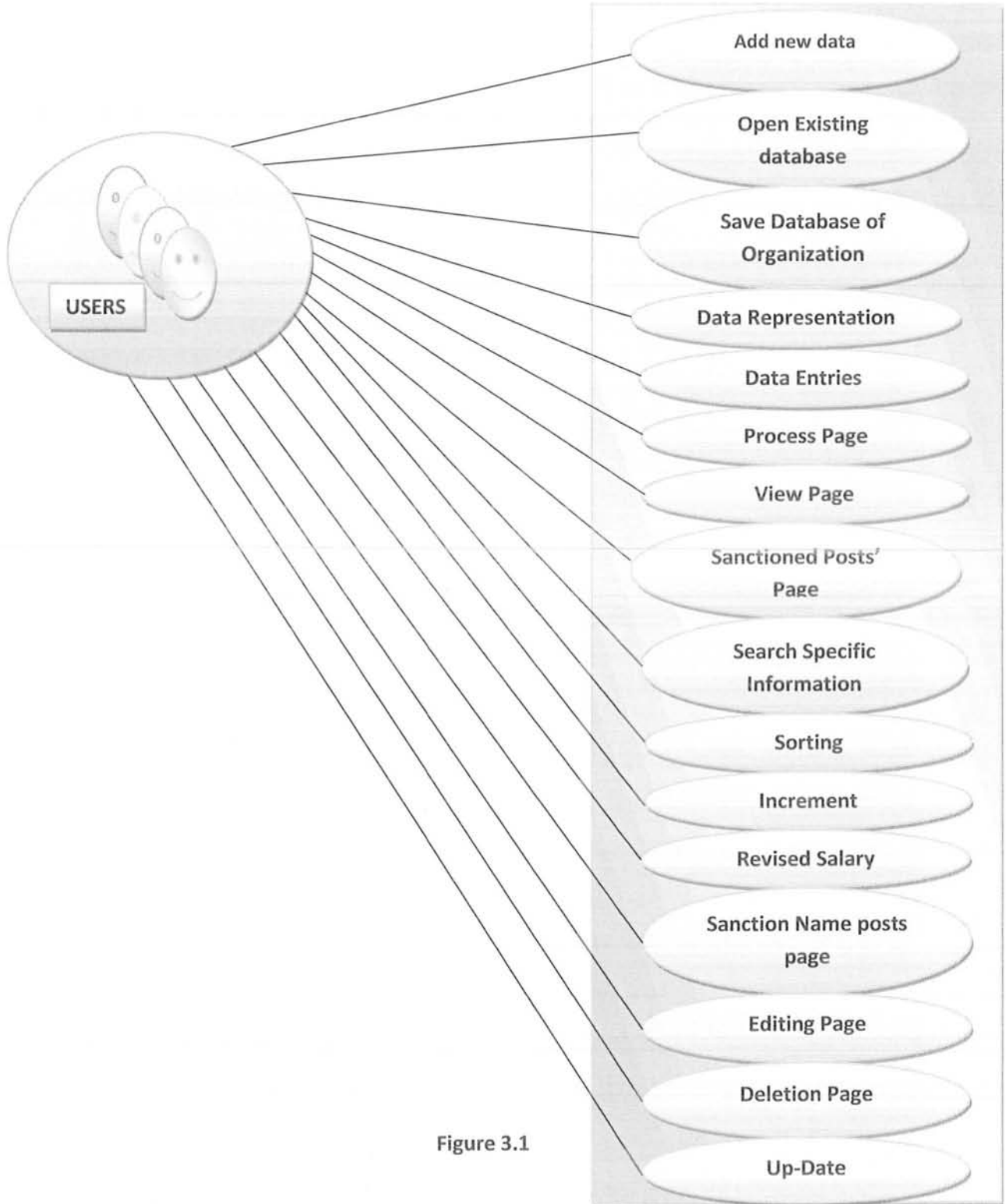


Figure 3.1

3.3.1 Add New Data

This is used when user want some new entries in the existing database e.g. to add the data about new appointed employees in organization.

3.3.2 Open Existing database

This is used to display the information about all employees salary, total allowances, their hire dates retirement date and vacant posts in different departments/sections etc. More over it give information about how many departments/sections, employees, categories, employee's scales and their designation etc.

3.3.3 Save Database of Organization

This is used to take the data in the form of text and numeric from keyboard and save it into the existing database. This Functionality facilitates the user to add new data in existing database and it is basic goal of our project.

3.3.4 Data Representation

This is used to display the data on HTML pages. However data will be saved in Ms Access Database while taking HTML/ASP with the help of Active Server Pages (ASP) functionalities. More over retrieve data from database to show on HTML/ASP Browsers.

This works fine when the system works as standard software on internet explorer and internet Mozilla browsers.

3.3.6 Data Entries

This is used for new data entries in to the existing data. Using add new record button displayed on HTML/ASP page in Pay and Budget Management System.

3.3.7 Process Page

The page is developed by the functionalities of ASP. It takes data from the Add New Data page and save it in to the Ms Access database.

3.3.8 View Page

The process page will save the data and after it, it has a button to display the data on HTML/ASP page if the button pressed by the user it will redirect the new page that will display all old and new entries.

3.3.9 Sanctioned Posts' Page

This use case the user can cut the selected text using the left mouse button by going into the Edit menu.

3.3.10 Search Specific Information

This page has the functionality to allow the user to select specific name, designation, basic pay scale etc. and against it display the required information which selected by the user.

3.3.11 Sorting

This page is developed only to facilitate the user to sort the information column wise (numerically and alphabetically) as desired by the user. The every column head has the functionality to sort the whole column.

3.3.12 Increment

The page is developed only for the annual increment in employees' basic pay. The command button will redirect to the incremental page and display the page with basic pay, allowances plus annual increment. The page is tested that it work properly and the result is accurate.

3.3.13 Revised Salary

Developed page of ASP/HTML will show the revised salary as desired by the user. This page uses mathematics operator to sum, subtract, multiply and column alias as revised salary.

3.3.14 Sanction Name posts page

This is another field of Pay and Budget Management System. These pages will take data from users in text and numeric form by using keyboard. While taking data it will save in database and retrieve data. If the user wants to see specific budgeted, vacant and filled posts in different departments/sections the page will display the whole information about posts (budgeted, vacant and filled).

3.3.15 Editing page

This page is developed to edit in existing data.

3.3.16 Deletion page

The ASP interface enables/supports the user to delete any selected entry through its deletion page.

3.3.16 Update page

Data can be updated through the Update page GUI for any specific field through by the command button.

3.4 Explore

With the ever increasing data, at some stage it would be quite difficult for an administrator/user to go to a relevant record for any requisite information. With the help of the Explore page, it would be quite easy to explore any given record under the relevant head, so as to provided robustness and efficiency to the system.

3.5 Pay and Budget Management System-Gadget

The functionalities provided by the System are:

- Add New data
- Open existing data
- Save data
- Edit, Delete
- Search data department/section wise
- Search data basic pay scale wise
- Search data employee name wise
- Sort data
- Increment in basic pay
- Display vacant posts
- Retirement date etc

The problems with the ASP/HTML that cannot store the data for long time and there is no function of database software. The Active Server Page and HTML tag is used for graphical interface and link between database software. The Active Server Page has functionality to add, save or open the document and retrieve data from database software and fulfill the user requirements. To solve this problem, we have made this software and try to make it easy its interface.

3.6 Non Functional Requirements

- The system should be reliable, i.e. the system should not crash.
- The interface must be understandable i.e. meaningful names should be given to the menus.
- The architecture should be designed in such a way that it can be extended for other database systems.
- Extension of other computers provided in the plug in so it can be enhanced in the future easily.

3.7 Design

Software design is aimed at finding the conceptual solution that fulfils the requirements, rather than its implementation. We followed the object oriented approach during design. The object oriented design emphasis on defining software objects and how they collaborate to fulfill the requirements. A successful

design is one that can translate the requirements into a finished product. A good design means that the software complexities are reduced. The design must contain following characteristics (PRESSMAN):

- The design ensures the accurate translation of customer’s requirements.
- It should be readable and understandable.
- Design should from the base for programming and maintenance.

During the design phase, we tried to develop a design that fulfilled the characteristics described above. This section provides a description of the design of our system. The class diagram shows the relation between classes.

3.8 Architecture Design

Fig 3.2 Architecture Design of the system

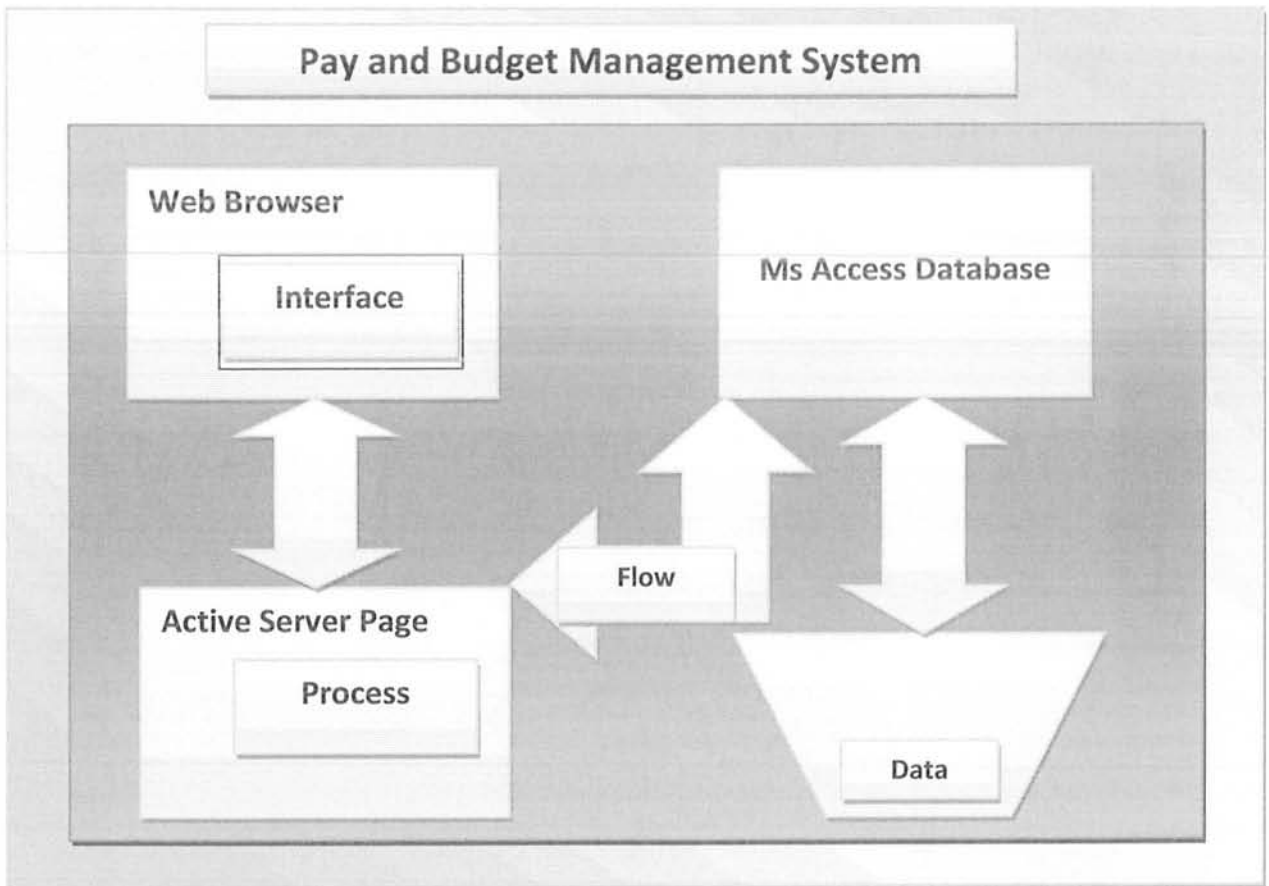


Fig 3.2

The architectural design of the system is shown in the fig 3.2. In the design, the interface is the main class of the Active Server Page and HTML tags that communicates with the Database.

The role of the Active Server Page to save the data in the data store located in the data folder and the folder contain the Ms Access file and it also retrieves the data from data store and display on browser page. The role of the Active Server Page language is to provide the interface to the user in different designing.

3.9 Class Diagram

The database diagram is shown in the Fig 3.3. It shows the relationship between the Active Server pages and Ms Access database. The Document Size Filter is the helper class of the interface which provides the basic methods used for inner the pages.

The dropdown list is used for searching purpose to facilitate the user to search information within minimum time. Where user can choose one object to see its whole information by click with mouse the ASP function will retrieve the entire information about the selected object.

The main interface class makes the interface which interacts directly with the user on the front end; it contains some menus and the features written in text form. **Fig 3.3 Class Diagram of the system**

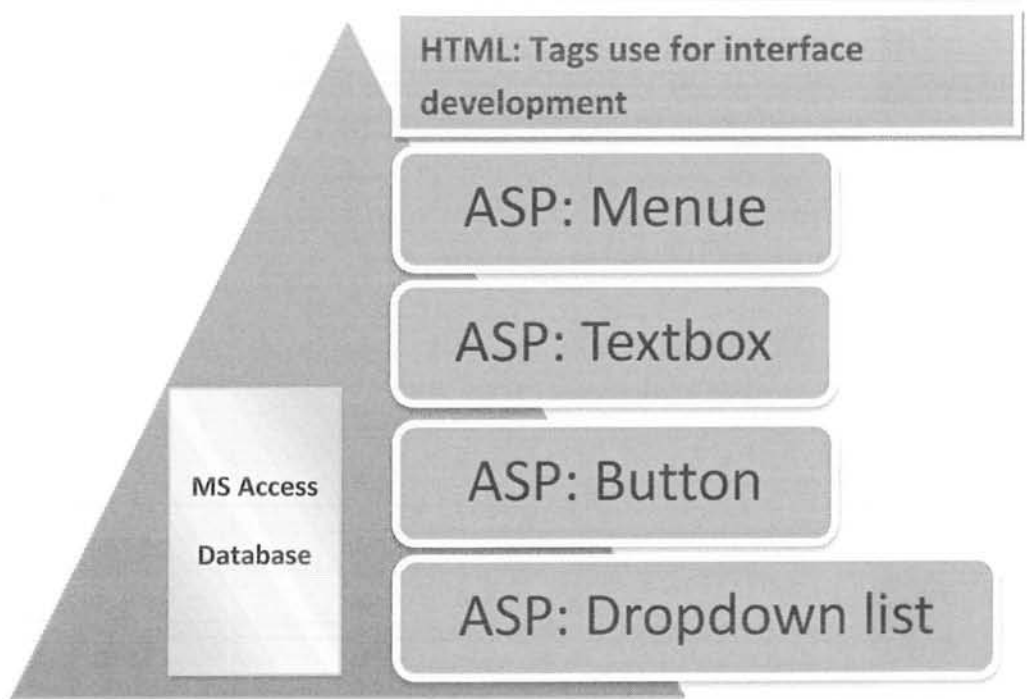


Fig 3.3

Summary

In this chapter we have described the functionalities of Active Server Page and the design of our project in detail and we have also discussed the class diagram. In next chapter we shall discuss the tools and API's which we used in the implementation of our project.

CHAPTER-4

Implementation

4.1 Introduction

System Implementation is the next phase after completion of design. The purpose of the implementation phase is to transfer the design into executable computer software. In the implementation phase, the system is built to meet the design specification. Implementation phase includes some additional issues that must be resolved before or while implementing the system. These include performance of hardware devices, software, utilities or tools that aid in development and the problems faced during their installation.

4.2 Tool Selection

In developing a new system, language selection is a difficult job and depends upon the system to be developed. But in our case it was not the problem, as we were using open source technology. In the requirement analysis the first prototype was using ASP technology.

We used HTML tags for making interactive graphical interface to help the user to understand it.

We used ASP;

Other Supporting and Functional Language;

Other supporting software including the following:

- MS Access for database
- Notepad for coding

4.3 Resource Identification.

Resources play an important role in the building of any software/application. Keeping track of resources can help us avoid inconveniences and help us deliver the system on time.

Following are the resources in the development of the system.

4.3.1 Hardware Resources

The necessary hardware for developing the system is a one computer system.

4.3.2 Software Resources

Software resources required for the development of our system are as follows:

- HTML tags for development
- Active Server Page for development
- MS Access 2003 as database
- Notepad for coding and save with ASP/HTML domain

4.4 Process Model Followed

The Factors involved in the selection of software process model are project size, complexity, identification of requirements and time, keeping in mind all these factors we decided to follow the prototyping model because all the requirements gathered during the requirement Analysis phase could not be implemented at once. So, we took one requirement and implemented it to construct the whole system.

4.5 Using the System

The sequence of steps with which the user uses the system is shown in below sequence of diagrams. The sequence diagrams of our system are shown in the 5th Chapter.

4.6 Related GUI's

Following is the list of GUI's that were used in the implementing of our system:

➤ **HTML and ASP**

- The interface class is used encapsulate the different queries of users. Every page has its own functionality to solve the mathematical equations with using logical and mathematical operators.
- We have used this ASP/HTML tags for friendly interface.

➤ **Windows PC as a Web Server**

- PC can act as a web server if install IIS or PWS
- IIS or PWS turns computer into a web server
- Microsoft IIS and PWS are free web server component

➤ **IIS - Internet Information Server**

IIS is a set of Internet-based services for servers created by Microsoft for use with Microsoft Windows, IIS is easy to install and ideal for developing and testing web applications.

➤ **HTML tags**

The Font tag with its properties represents fonts, which are used to render text in a visible way. A font provides the information needed to map sequences of characters to sequences of glyphs and the render sequences of glyphs on Graphics and Component objects.

We have used this GUI for handling different pages, queries and database as well.

- GUI is based on HTML
- ASP give functions and work behind HTML
- Ms Access handle by ASP

This high level event is generated by a component (such as a Button) when the component specific action occurs (such as being pressed). The event is passed to every Action Listener object that registered to receive such events using the component's add Action Listener method. The object that implements the Action Listener interface gets this Action Event when the event occurs. The listener is, therefore, spared the details of processing individual mouse movements and mouse clicks and can instead process a "meaningful" (semantic) event like "button pressed".

We have used this GUI for handling all events of mouse keyboard etc.

➤ The drop down list

Interface Attribute Set specifies the interface for a set of information and queries. A button attribute is an event object whose work is specified in coding which written behind the button.

This GUI was used for different events.

➤ ASP (response.write Command)

```

<%
response.write("Hello World!")
%>
```

The response, write command is used to write output to a browse like as ("Hello World!")

➤ Other Scripting Languages

ASP is shipped with VBScript and JScript (Microsoft's implementation of JavaScript). If you want to script in another language, like PERL, REXX, or Python, you will have to install script engines for them.

➤ Declare a variable

Declaration of variable is used to store information. This example demonstrates how to declare a variable, assign a value to it and use the value in a text. Like "dim" is a reserved word in ASP it only use for declaration of variable.

➤ Declare an array

Arrays are used to store a series of related data items. This example demonstrates how to declare an array that stores names.

➤ **A form with method="get"**

How to interact with the user, with the Request Query String command

➤ **A form with method="post"**

How to interact with the user, with the Request Form command

➤ **A form with radio buttons**

How to interact with the user, through radio buttons, with the Request Form command.

➤ **Form Validation**

User input should be validated on the browser whenever possible (by client scripts). Browser validation is faster and reduces the server load.

Consider server validation if the user input will be inserted into a database. A good way to validate a form on the server is to post the form to itself, instead of jumping to a different page. The user will then get the error messages on the same page as the form. This makes it easier to discover the error.

➤ **The Session object**

When working with an application on computer, open it, do some changes and then close it. This is much like a Session. The computer knows who you are. It knows when you open the application and when you close it. However, on the internet there is one problem: the web server does not know who you are and what you do, because the HTTP address doesn't maintain state.

ASP solves this problem by creating a unique cookie for each user. The cookie is sent to the user's computer and it contains information that identifies the user. This interface is called the Session object.

The Session object stores information about or change settings for a user session.

Variables stored in 'Session object' hold information about one single user and are available to all pages in one application. Common information stored in session variables are name, id, and preferences. The server creates a new Session object for each new user and destroys the Session object when the session expires.

➤ **When does a Session Start?**

A session starts when:

- A new user requests an ASP file and the Global.asa file includes a Session_OnStart procedure
- A value is stored in a Session variable
- A user requests an ASP file and the Global.asa file uses the <object> tag to instantiate an object with session scope

➤ ADO Demonstration

- ADO is a Microsoft technology
- ADO stands for ActiveX Data Objects
- ADO is a Microsoft Active-X component
- ADO is automatically installed with Microsoft IIS
- ADO is a programming interface to access data in a database

➤ Accessing a Database from an ASP Page

The common way to access a database from inside an ASP page is to:

- Create an ADO connection to a database
- Open the database connection
- Create an ADO recordset
- Open the recordset
- Extract the data you need from the recordset
- Close the recordset
- Close the connection

➤ Create a DSN-less Database Connection

The easiest way to connect to a database is to use a DSN-less connection. A DSN-less connection can be used against any Microsoft Access database on web site.

In Pay and Budget Management System database called "db.mdb" located in a final project folder containing data folder like "data/employee", can connect to the database with the following ASP code:

```
<%  
set conn=Server.CreateObject("ADODB.Connection")  
conn.Provider="Microsoft.Jet.OLEDB.4.0"  
conn.Open "data/employee.mdb"  
>%
```

➤ Display the Field Names and Field Values

The database named "employee" and we want to display the data from the "pay_allowance" table (remember to save the file with an .asp extension):

➤ **ADO Queries**

We may use SQL to create queries to specify only a selected set of records and fields to view.

➤ **Stream Object**

The ADO Stream Object is used to read, write, and manage a stream of binary data or text. A stream object can be obtained in three ways:

- From a URL pointing to a document, a folder, or a Record object
- By instantiating a Stream object to store data for your application
- By opening the default Stream object associated with a Record object

Summary

In this chapter we have discussed the resources that we used for implementation of our project in which we explicitly name the hardware and software resources. Also give the information of process model followed. The information of tools and supporting software's is also discussed in this chapter.

In next chapter we shall discuss the testing phase of our project.

CHAPTER-5

Testing

5.1 Introduction

System testing is the most misunderstood and most difficult testing process. System testing is not a process of testing the functions of the complete system or program, because this would be redundant with the process of function testing.

Given this purpose, two implications are as follows:

- System testing is not limited to systems. If the product is a program, system testing is the process of attempting to demonstrate how the program, as a whole, does not meet its objectives.
- System testing, by definition, is impossible if there is no set of written, measurable objectives for the product. (MYERS):

5.2 Test Cases in Pay and Budget Management System

5.2.1 Select page

This test case identifies the correct selection of page by the User. User selects the page by mouse and can chose by tab button on keyboard. The tab button has a feature to jump one to other page and after selection press enter button by using keyboard. Test case is described in Fig 5.1.

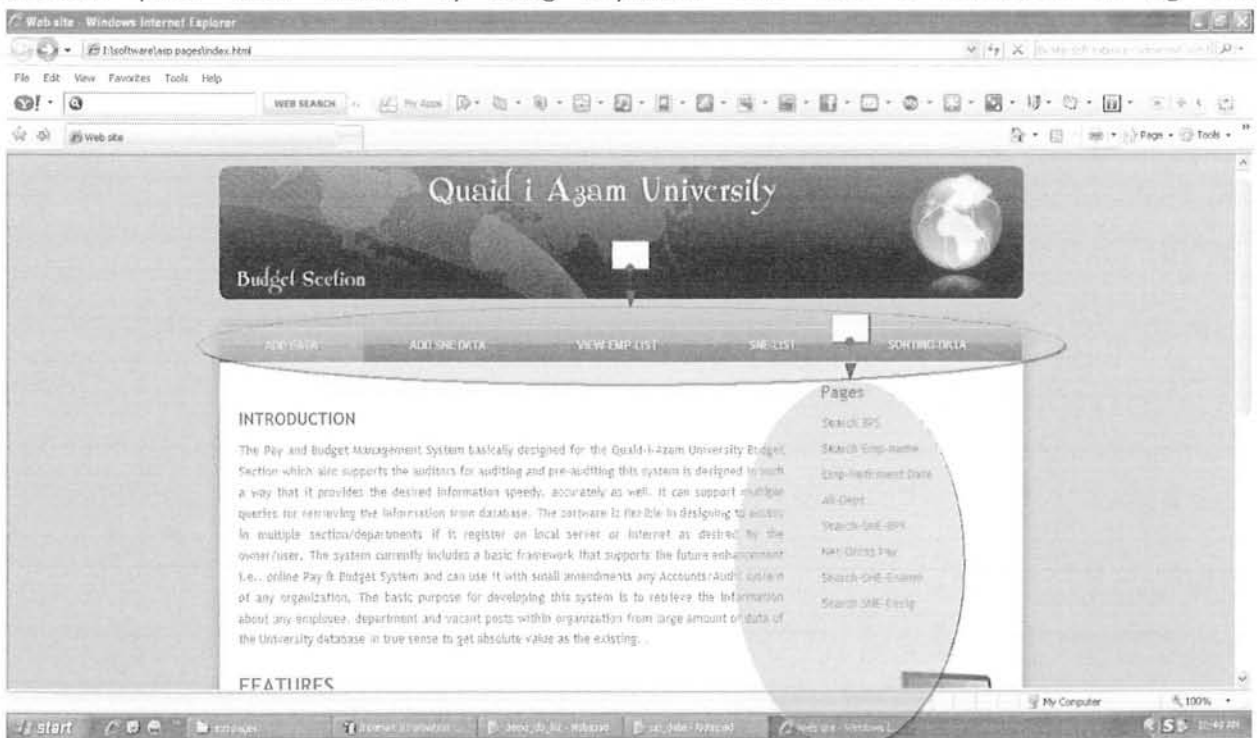


Fig 5.1

5.2.2 Insertion page

This test case identifies the User can insert data in textboxes and the textboxes are defined that which is alphabetic and numeric as well. User input the data in to every text box and after filling of all textboxes the user presses the button to submit the data, after this event the data will save in database. **Test case is described in Fig 5.2.**

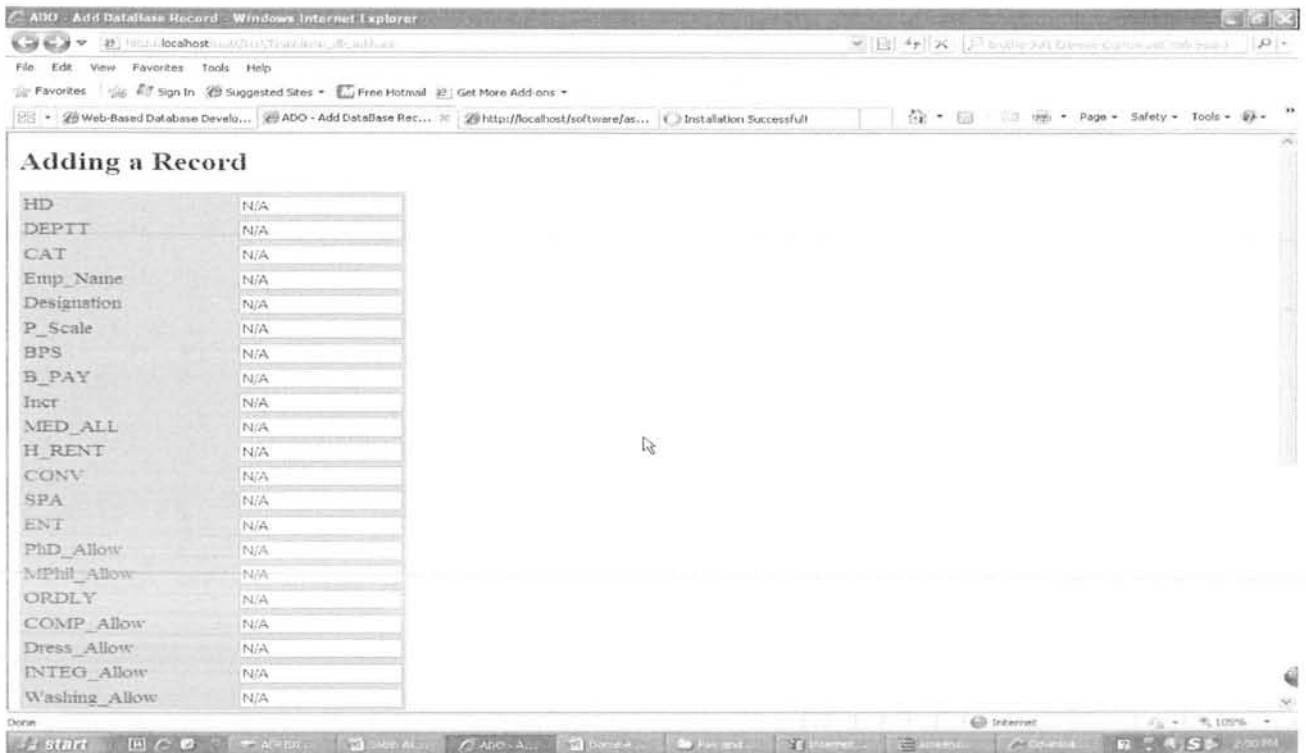


Fig 5.2

5.2.3 Progression page

This test case identifies the data inserted by the user by using ASP page in to the database is properly inserted and saved. This page only use to take data from insertion page and submit into database. The page works like a post man. The text is cut. **Test case is described in Fig 5.3.**



Fig 5.3

5.2.4 View page

This test case identifies that the user inserted data was in correct form. The Progression page saves data in database properly. If the view page display all information that means the system is working in good manner. **The text is pasted. Test case is described in Fig 5.4.**

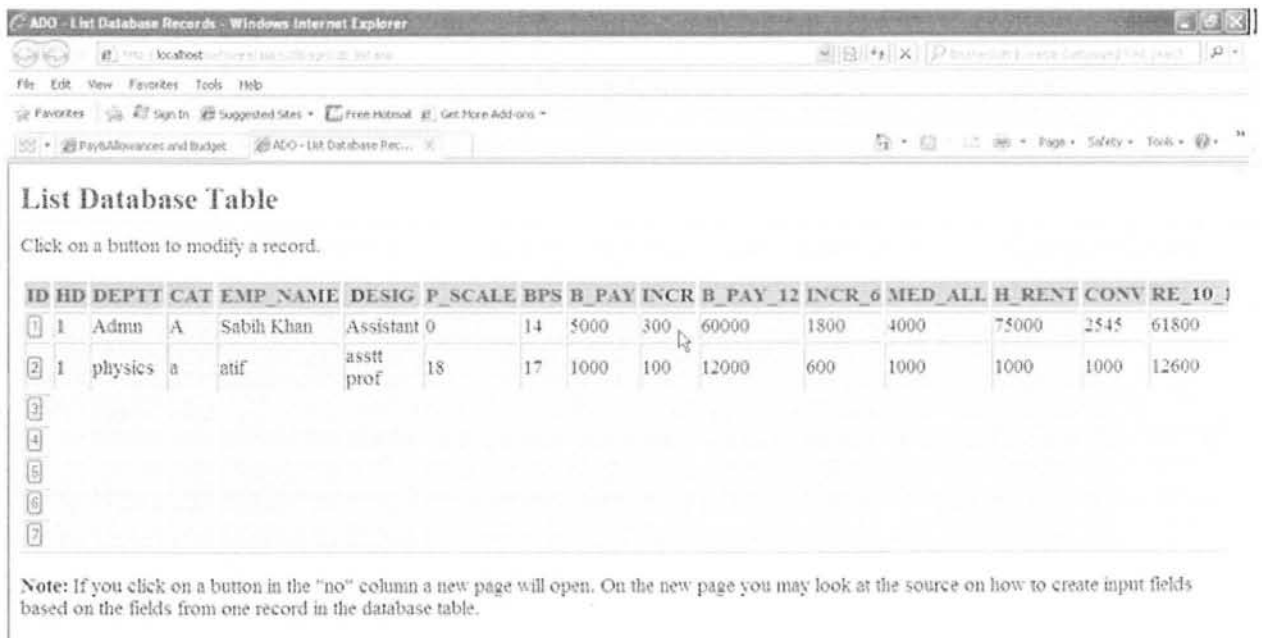


Fig 5.4

5.2.5 Searching page

This test case identifies the User's input was correct form if yes than the searching page will show the correct information about specific entity. Then select the background color and change it. Test case is described in Fig 5.5.

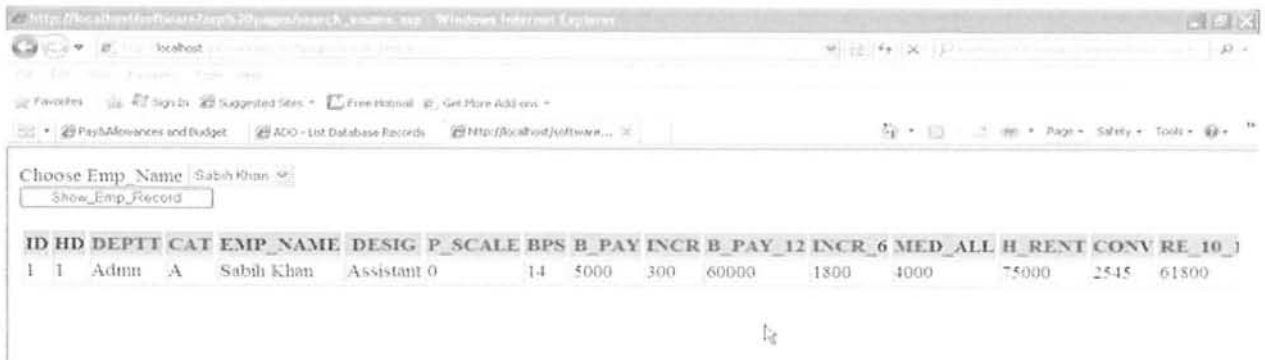


Fig 5.5.1



Fig 5.5.2

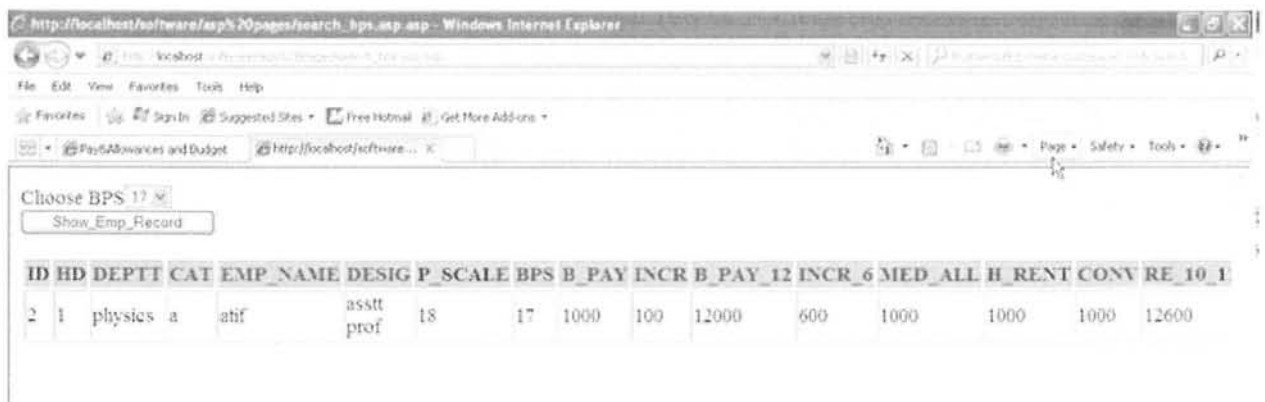


Fig 5.5.3

5.2.6 Sorting page

This test case identifies the user can sort information column wise every column head is based on sorting function. Moreover, it has capability to sort alphabetically and numerically as well. Test case is described in Fig 5.6.

ID	HD	DEPT	CAT	Emp_Name	Desig	P_Scale	BPS	B_PAY	Incr	B_PAY_12	INCR_6	MED_ALL	H_RENT	CONV	RE_10_11	SP
1	1	Admn	A	Sabih Khan	Assistant 0		14	5000	300	60000	1800	4000	75000	2545	61800	45
2	1	physics	a	atif	asst prof	18	17	1000	100	12000	600	1000	1000	1000	12600	100

Fig 5.6

5.2.7 Incremental page

This test case identifies the User can see the annual increment in basic pay of all employees. And also this page will display revised pay and six month increment in advance. Test case is described in Fig 5.7.

AR_15PCNT	AR15PCNT	ADHOC_RELIEF_01_07_09	ADHOC_RELIEF_01_07_10	T_ALLOW	ONE INC PAY	DATE OF BIRTH
2		8558	8555	22914	130570	10/10/1988
0		100	100	3100	6600	10/10/1988

Fig 5.7

5.2.8 Display drop down list

This test case identifies the User can see on screen dropdown list for selection of entity to get its information, this is only because of least time spent the user to select the required point in list. The list will be self update as data insert. It is directly proportion to the data insertion page. Test case is described in Fig 5.8.



Fig 5.8

5.2.9 Tables with Head

This Test case identifies the User can understand the column by its head if the data is related to its head then the software is working well. **Test case is described in Fig 5.9.**

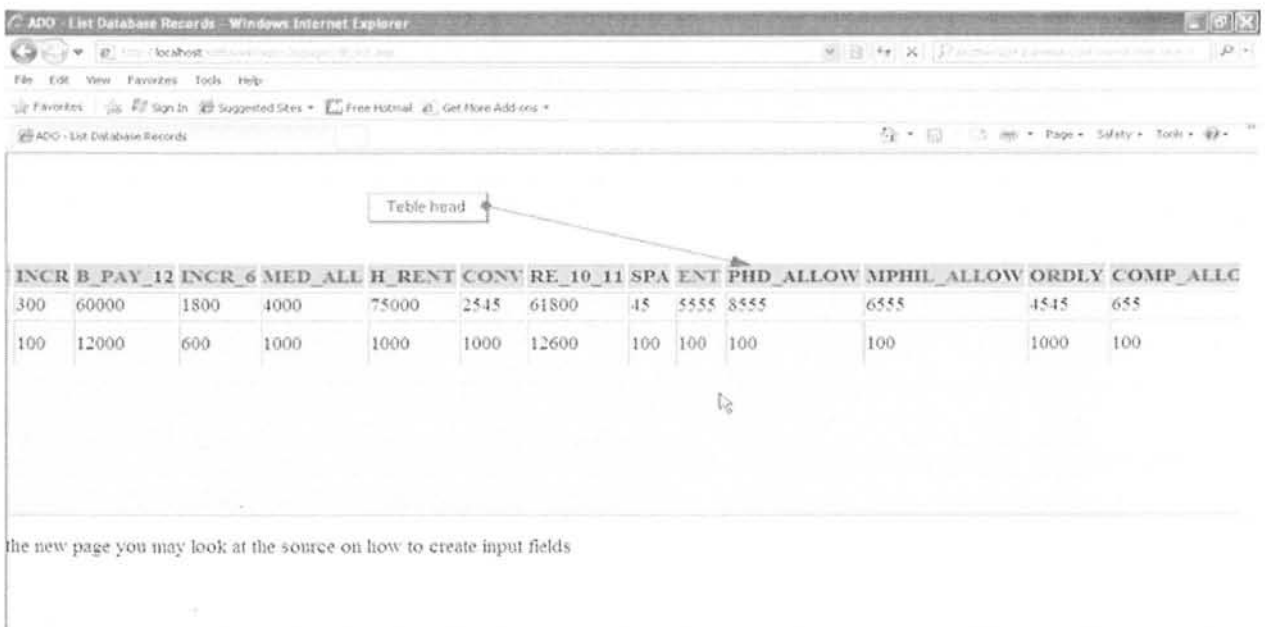


Fig 5.9

5.2.10 Textboxes

This test case identifies the User can understand that what value will put in to the textbox, every textbox has its specific name and display on the browser page. **Test case is described in Fig 5.10.**



Note: If you click on "Add Record" a new page will open. On the new page you may look at the source on how to add a record to a database table.

Fig 5.10

5.3 Test Cases in Pay and Budget Management System

Following are the test cases in the system

5.3.1 ID NO

This test case identifies the User can create new identity number to a new record. If a new employee appoint in organization the database will assign a unique number. **Test case is described in Fig 5.11.**

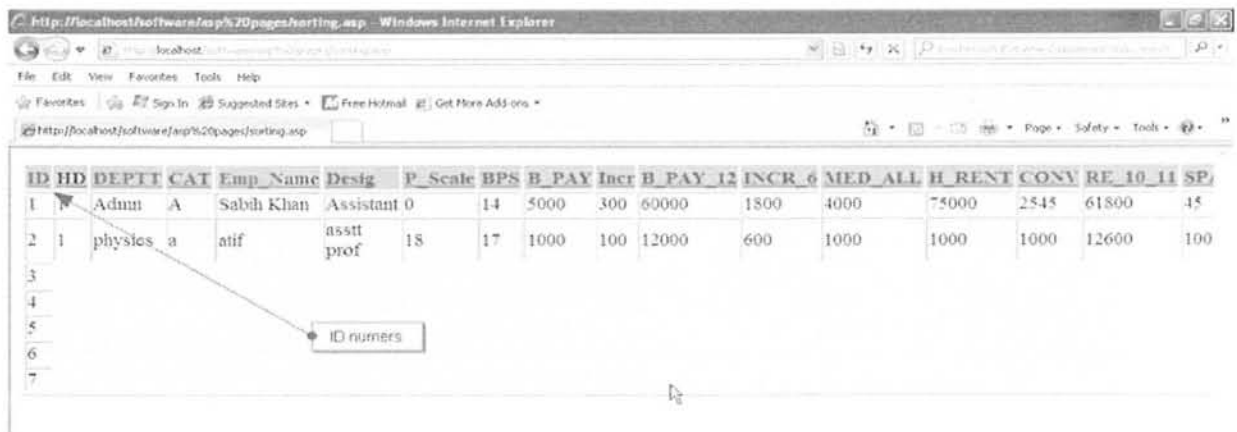


Fig 5.11

5.3.2 Department/Section

This test case identifies the user to input department/section to every employee when the data is inserted to the database. Test case is described in Fig 5.12.

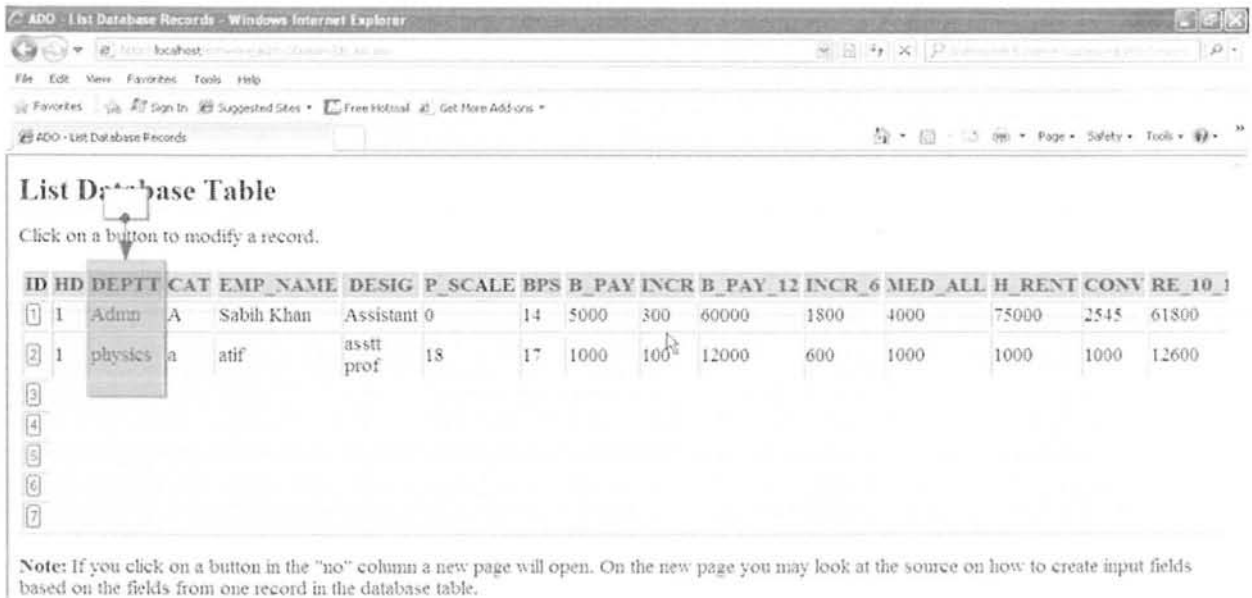


Fig 5.12

5.3.3 Categories

This test case identifies the User to insert correct categories of employee to the database like that employee is clerk or professor. Test case is described in Fig 5.13.

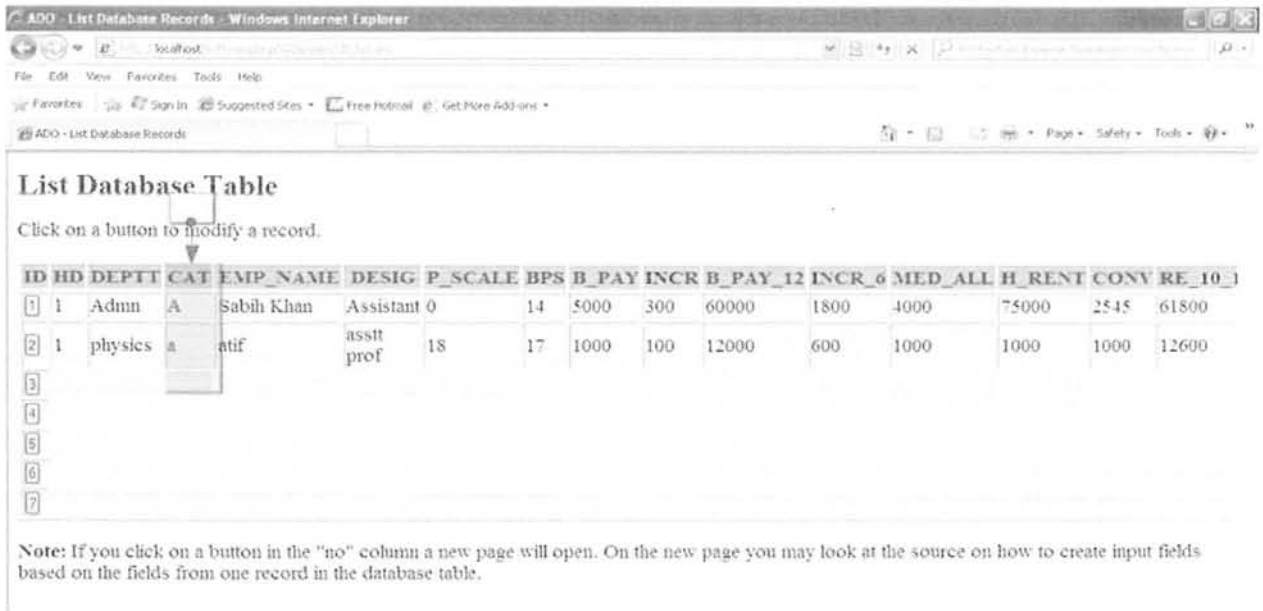


Fig 5.13

5.3.4 Date of Birth

This test case identifies the User to give the date of birth of every employee to the database for calculation of exact retirement date. Test case is described in Fig 5.14.

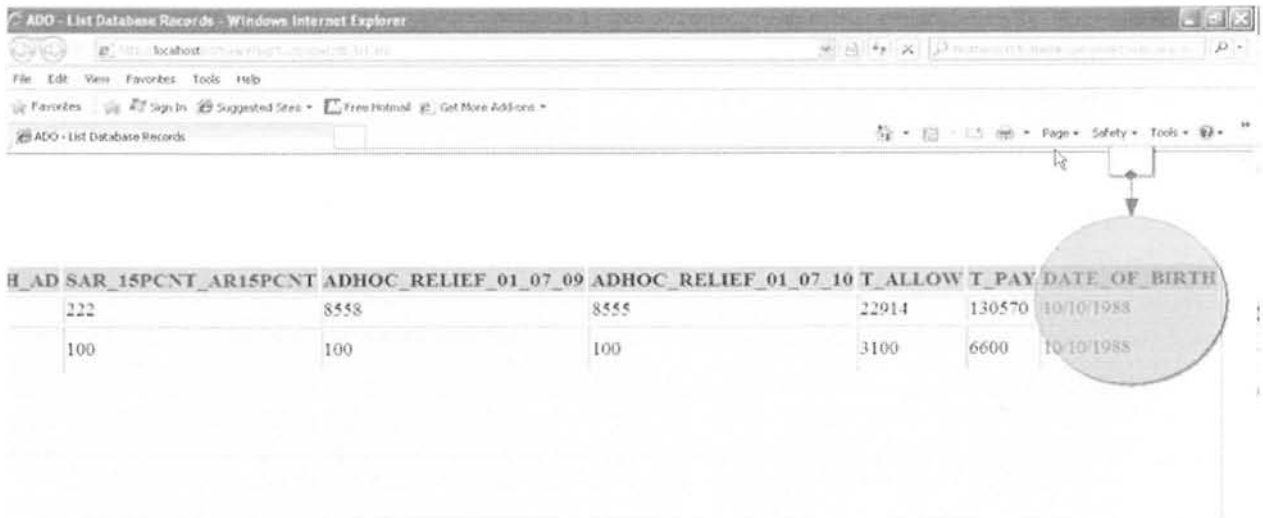


Fig 5.14

5.3.5 Budgeted Post

This test case identifies the User inset correct information about sanctioned and filled posts to retrieve exact vacant posts. Test case is described in Fig 5.15.

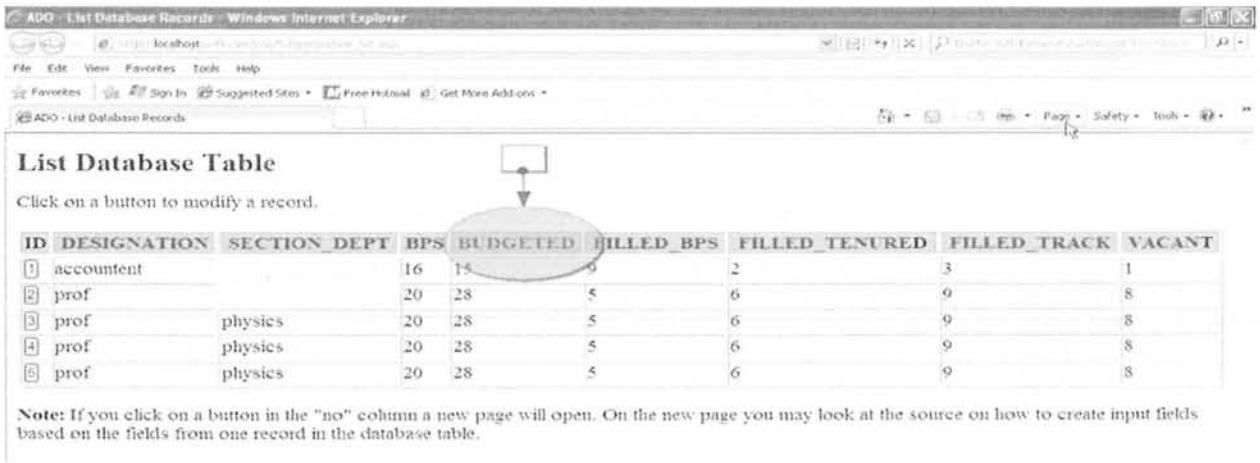


Fig 5.15

Summary

In this chapter we have discussed the test cases for all uses cases. And also describe them with the help of screen shots.

In next chapter we shall discuss the future enhancements and conclusion of all our work.

CHAPTER-6

Conclusion

6.1 Introduction

This is the concluding chapter of our report.

We have discussed the history of Accounting Software and how the trend to make more easy software to emerged as a new software industry.

6.2 Benefits

We have developed a Web based Pay and Budget Management System in the true sense. The software system that allows the user to insert, search and sort data, retrieval and display on browser page, in this age of information, online database management is growing ever more convenient. Online databases allow for the convenience of being able to access valued information from anywhere around the world. This allows for people to work together from different and in some cases remote, locations. With the access to information at the push of a button, many businesses have reported increased productivity and profit. Online databases management has allowed for people to work from the office, from home, from the field office and even from a hotel room. Workers can access and prepare reports and other data analysis at a click of a button which may have otherwise taken hours or days to produce. Many professionals now carry laptops and blackberries so that they can literally work from anywhere in the world.

In most cases a server and an online host is required for online database management systems. There are several companies that offer this service for as little as \$20 per month equivalent to Pak Rs. 1750. These companies also usually offer technical support and security features as well.

Security of online database management systems is often a concern. Valuable information must be secured in order to ensure that confidential information does not get passed into the wrong hands. Security is commonly controlled by limiting access to the database management system itself. This is usually done by requiring a user to provide a login and a password to access the online database management system. Additional security measures may include having auditing logs in order to keep a record of what changes have been made and who has made the changes. Many commercial online databases have chosen to include encryption as an added security feature as well. Online database management systems today provide businesses with valuable information that is secure at the click of a mouse.

6.3 Future Enhancements

Currently many multinational companies use oracle as database and pay in dollars for renew of license. Ms Access is also functioning same and its statements also same like oracle. The Ms Access gives the programmer all features of any database software. It is easy to understand and not a heavy program to slow the computer speed. It has also to import data from the other one application software. Microsoft Access is a development environment used to create computer-based databases. To complement it, it ships with a programming language called Active Server Page and Visual Basic for Application (VBA) and various libraries. This language and the libraries are used in a programming environment called Active

Server Page/Microsoft Visual Basic, which also ships with Microsoft Access. This project has many future applications like it can be used in any of the Retail Outlet of Any type of companies. This project was build keeping in mind all the requirements of these outlets and they can be implemented in any such type of organization with very little modification and has a modular nature. With modifications it can be possible for Employee Attendance to control all retail outlets by connecting them through a network. Because of this software all they need is a Server application and any type of connectivity to that server.