

**A  
REPORT  
ON**

**File Sharing System**

*Submitted in the partial fulfillment of requirement for the award of  
the degree of*

**BACHELOR OF TECHNOLOGY (B.TECH.)**

**in**

**Computer Science and Engineering**



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# DECLARATION OF STUDENT

I hereby declare that the work, which is being presented in the Project Report, entitled " **File Sharing System** " in partial fulfilment for the award of Degree of Bachelor of Technology" in Deptt. Of Computer Science and Engineering and submitted to the Department of Computer Science and Engineering , GLA University, is a record of my own investigations carried under the Guidance of **Ms. Ruchi Gupta** Department of Computer Science and Engineering,

## **GLA University**

I have not submitted the matter presented in this Project Report anywhere for the award of any other Degree.

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## **ABSTRACT**

The objective of this application will manage a file sharing site. The Company can create a employee's database, each one with his assigned folder. Within this folder, the employee can upload its files or download the one already in the folder already uploaded by the company itself. When the company uploads a file in a employee's folder, the employee will receive an email alerting him of the new file and with a link to download it without logging in the File Sharing System. The employee can also log into the system any time and look for previously uploaded files.

Every user normally thinks about how to store information on files for future usage. Sometimes he used to share his data to another person's also that is called public data which can be shared with others. But some data may be protective means private only for limited persons or single usage. That's why the company creates a database for employees to store their data in the form of files. This system can give permissions to the users to create a new file through this application. Then user can be able to upload his own information into that particular file. Now he needs to put folder sharing options whether the folder information is public or private.

In the form of administration admin can upload information from his side. Then admin will send the Notifications or emails to users for his newly uploaded information. If the user wants that information then he has a facility to download the information and save into his personnel folder for further usage. The admin information is completely public for all users. The details of Uploading and downloading information are displayed to each and every user separately. The maximum number of space a user can be used is 2 GB only. Whenever user uploads or downloads the application can calculate the size of the file and adjust the maximum space of a user using.

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### **1.1 INTRODUCTION TO PROJECT**

The Docket Chunk System is a web based project. The Main purpose of this application will manage a file sharing site. The Company can create a employee's database, each one with his assigned folder. Within this folder, the employee can upload its files or download the one already in the folder already uploaded by the company itself. When the company uploads a file in a employee's folder, the employee will receive an email alerting him of the new file and with a link to download it without logging in the File Sharing System. The employee can also log into the system any time and look for previously uploaded files.

## **1.2 ORGANIZATION PROFILE**

Software Solutions is an IT solution provider for a dynamic environment where business and technology strategies converge. Their approach focuses on new ways of business combining IT innovation and adoption while also leveraging an organization's current IT assets. Their work with large global corporations and new products or services and to implement prudent business and technology strategies in today's environment.

### **Optimal Soft Solution's RANGE OF EXPERTISE INCLUDES:**

- Software Development Services
- Engineering Services
- Systems Integration
- Employee Relationship Management
- Product Development
- Electronic Commerce
- Consulting
- IT Outsourcing

We apply technology with innovation and responsibility to achieve two broad objectives:

- Effectively address the business issues our employees face today.
- Generate new opportunities that will help them stay ahead in the future.

**THIS APPROACH RESTS ON:**

- A strategy where we architect, integrate and manage technology services and solutions - we call it AIM for success.
  - A robust offshore development methodology and reduced demand on employee resources.
  - A focus on the use of reusable frameworks to provide cost and times benefits.
- They combine the best people, processes and technology to achieve excellent results - consistency. We offer employees the advantages of:

**SPEED:**

They understand the importance of timing, of getting there before the competition. A rich portfolio of reusable, modular frameworks helps jump-start projects. Tried and tested methodology ensures that we follow a predictable, low - risk path to achieve results. Our track record is testimony to complex projects delivered within and evens before schedule.

**EXPERTISE:**

Our teams combine cutting edge technology skills with rich domain expertise. What's equally important - they share a strong employee orientation that means they actually start by listening to the employee. They're focused on coming up with solutions that serve employee requirements today and anticipate future needs.

**A FULL SERVICE PORTFOLIO:**

They offer employees the advantage of being able to Architect, integrate and manage technology services. This means that they can rely on one, fully accountable source instead of trying to integrate disparate multi vendor solutions.

**SERVICES:**

Optimal Soft Solutions is providing its services to companies which are in the field of production, quality control etc with their rich expertise and experience and information technology they are in best position to provide software solutions to distinct business requirements.



### **1.3 PURPOSE OF THE PROJECT**

The project is fully integrated with Employee Relationship Management (CRM) solution and developed in a manner that is easily manageable, time saving and relieving one from manual.

The purpose of this system will manage an file sharing site. The Company can create a employee's database, each one with his assigned folder. Within this folder, the employee can upload its files or download the one already in the folder already uploaded by the company itself. When the company uploads a file in a employee's folder, the employee will receive an email alerting him of the new file and with a link to download it without logging in the File Sharing System. The employee can also log into the system any time and look for previously uploaded files.

### **1.4 PROBLEM IN EXISTING SYSTEM**

The existing system is semi-automated system. Here in this system needs to save the information in the form of excel sheets or Disk Drives. There is no sharing is possible if the data is in the form Disk drives. This system gives us very less security for saving data; some data may be lost due to mismanagement. It's a limited system and fewer users friendly. Searching of particular information is very critical it takes lot of time. The users cannot able to restrict the file sharing options. The users only know his information only not others. It is very critical to share public information to all users.

### **1.5 SOLUTION OF THESE PROBLEMS**

The development of this new system contains the following activities, which try to automate the entire process keeping in the view of database integration approach. User Friendliness is provided in the application with various controls provided by system Rich User Interface. The system makes the overall project management much easier and flexible. It can be accessed over the Intranet. Various classes have been used for file uploading and down loading. The user information files can be stored in centralized database which can be maintained by the system. This can give the good security for user information because data is not in client machine. Authentication is provided for this application only registered users can access. User can share is data to others, and also he can get data from others. There is no risk of data management at any level while the project development is under process. Report generation features is provided using Data reports to generate different kind of reports.

# **SYSTEM ANALYSIS**

## **2.1 INTRODUCTION**

After analyzing the requirements of the task to be performed, the next step is to analyze the problem and understand its context. The first activity in the phase is studying the existing system and other is to understand the requirements and domain of the new system. Both the activities are equally important, but the first activity serves as a basis of giving the functional specifications and then successful design of the proposed system. Understanding the properties and requirements of a new system is more difficult and requires creative thinking and understanding of existing running system is also difficult, improper understanding of present system can lead diversion from solution.

## **2.2 ANALYSIS MODEL**

### **SDLC METHDOLOGIES**

This document play a vital role in the development of life cycle (SDLC) as it describes the complete requirement of the system. It means for use by developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

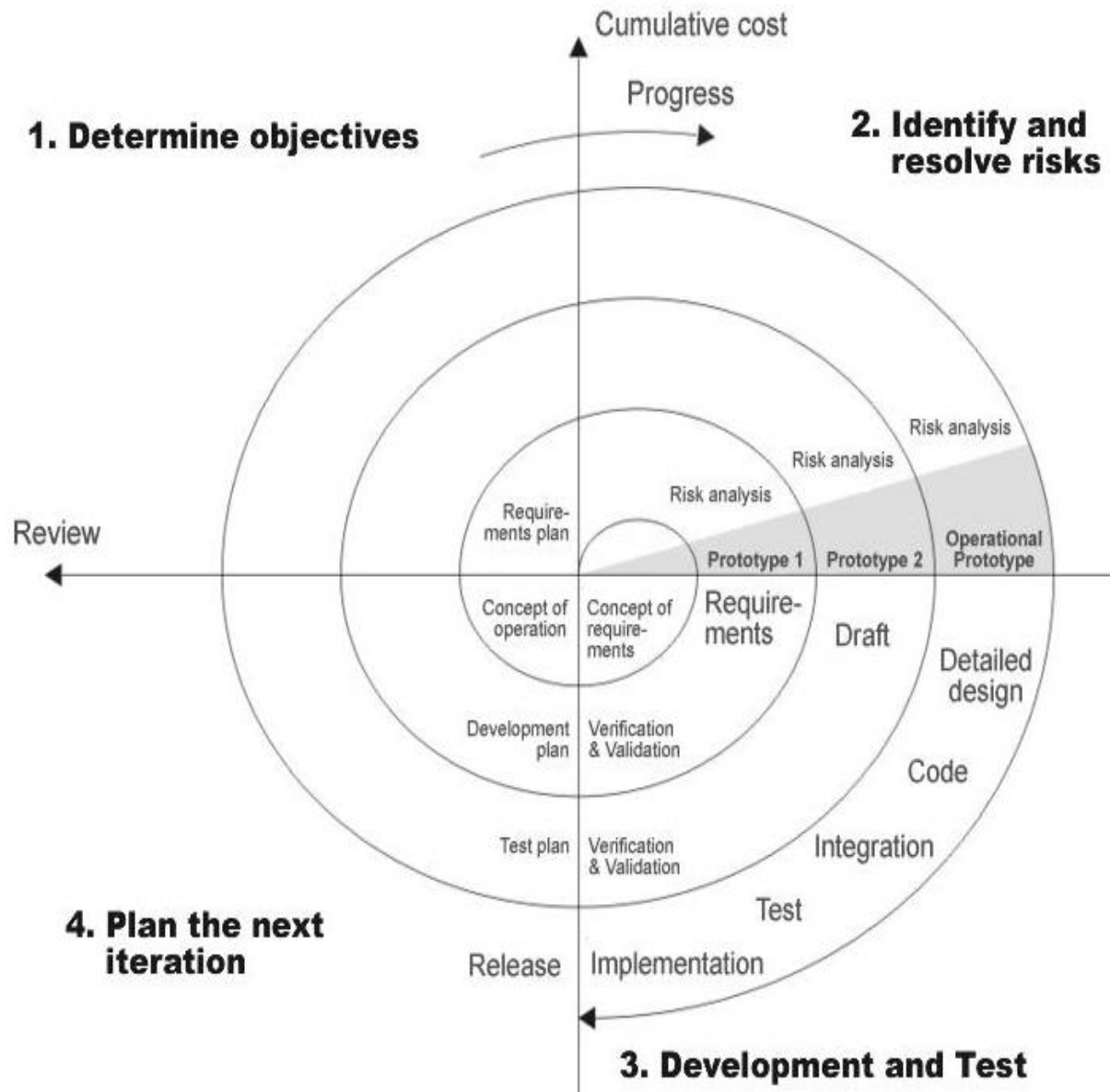
**SPIRAL MODEL** was defined by Barry Boehm in his 1988 article, "A spiral Model of Software Development and Enhancement. This model was not the first model to discuss iterative development, but it was the first model to explain why the iteration models.

As originally envisioned, the iterations were typically 6 months to 2 years long. Each phase starts with a design goal and ends with a client reviewing the progress thus far. Analysis and engineering efforts are applied at each phase of the project, with an eye toward the end goal of the project.

The steps for Spiral Model can be generalized as follows:

- The new system requirements are defined in as much details as possible. This usually involves interviewing a number of users representing all the external or internal users and other aspects of the existing system.
- A preliminary design is created for the new system.
- A first prototype of the new system is constructed from the preliminary design. This is usually a scaled-down system, and represents an approximation of the characteristics of the final product.
- A second prototype is evolved by a fourfold procedure:
  1. Evaluating the first prototype in terms of its strengths, weakness, and risks.
  2. Defining the requirements of the second prototype.
  3. Planning an designing the second prototype.
  4. Constructing and testing the second prototype.
- At the employee option, the entire project can be aborted if the risk is deemed too great. Risk factors might involved development cost overruns, operating-cost miscalculation, or any other factor that could, in the employee's judgment, result in a less-than-satisfactory final product.
- The existing prototype is evaluated in the same manner as was the previous prototype, and if necessary, another prototype is developed from it according to the fourfold procedure outlined above.
- The preceding steps are iterated until the employee is satisfied that the refined prototype represents the final product desired.
- The final system is constructed, based on the refined prototype.
- The final system is thoroughly evaluated and tested. Routine maintenance is carried on a continuing basis to prevent large scale failures and to minimize down time.

**The following diagram shows how a spiral model acts like:**



### **Fig 1.0-Spiral Model**

## **2.3 STUDY OF THE SYSTEM**

In the flexibility of the uses the interface has been developed a graphics concept in mind, associated through a browser interface. The GUI'S at the top level have been categorized as

1. Administrative user interface
2. The operational or generic user interface

The administrative user interface concentrates on the consistent information that is practically, part of the organizational activities and which needs proper authentication for the data collection. The interfaces help the administrations with all the transactional states like Data insertion, Data deletion and Data updating along with the extensive data search capabilities.

The operational or generic user interface helps the users upon the system in transactions through the existing data and required services. The operational user interface also helps the ordinary users in managing their own information helps the ordinary users in managing their own information in a customized manner as per the assisted flexibilities

## **NUMBER OF MODULES**

The system after careful analysis has been identified to be presented with the following modules:

The Modules involved are

1. Administration
2. Users
3. File Uploading and Downloading
4. File Sharing
5. Registration
6. Search

7. Reports

8. Authentication

### **Administration**

Administrator has an authentication to monitoring the complete system. He can have all the privileges. Administrator can register user directly, and delete the information of a registered users.

He verifies the information uploads into the system by the users. If any mismanagement done by the user immediately he can delete the information uploaded earlier by the user.

**File Type:** Administrator can add different type of file types, therefore user can upload files for that file types only. The file types normally

- Word File
- PDF file
- Text File
- Images
- Video/Audio File

**Search User:** Administrator having the advanced search facilities for searching the users. The search criteria is goes to

- Search by First Name and Last Name
- Search by Registration Date
- Search by Login Id
- Search by Country, State, and City Details

**User Login Tracking:** User Login Tracking can be done by administrator. For tracking the user details administrator must provide the user id and date of on which he needs to track the user details.

### **Users**

User is nothing but a registered user. A registered user directly uploads information into the system. Before uploading he needs to specify his credentials for authentication.

The upload files have 3 types of priorities.

- Public priority
- Private priority
- Partial Public priority

The definition of Public priority means, the files which are uploaded in to the system, those are shared by all the users which are registered in the system.

Private priority means, the accessibility of the uploaded file only by the user itself. Other users don't have any permission for downloading.

Partial public priority means while uploading the file the user can choose some other users which are registered into the system, and give accessibility of the file to them.

### **File Uploading and Downloading**

All registered user having authority to upload any file into the system, admin can track all uploaded files. Based on the priority users can download file from the system. For file uploading and downloading the system provides a good user interface for easy to use. User can save the downloading file with his desired location.

### **File Sharing**

For every uploading file user can put priority. Private means no accessibility for other users. It's simply personal. Public means every user can access that file. Partial public means user can choose a list of other users and give accessibility.

### **Registration**

The system has a process of registration. Every user need to submit his complete details in the form of registration. Whenever a user registration completed automatically user can get a user id and password. By using that user id and password user can log into the system.

### **Search**

Different kind of search available to users as well as administrator. A user can search other users for giving file sharing option. Administrator can search the files which are uploaded into the system for tracking.

### **Reports**

Different kind of reports is generated by the system.

- User Reports.
- File Uploading and Downloading status report.
- User Login Logout tracking report.

### **Authentication:**

Authentication is nothing but providing security to the system. Here every must enter into the system throw login page. The login page will restrict the UN authorized users. A user must provide his credential like user Id and password for log into the system. For that the system maintains data for all users. Whenever a user enters his user id and password, it checks in the database for user existence. If the user is exists he can be treated as a valid user. Otherwise the request will throw back.

In this system authentication is made of using

- Virtual Key Boards
- Password Encryption Algorithms

**Virtual Key Boards:** User can must provide his credentials using this virtual key board only. There is no physical key board usage in login scenario. For giving user id and password user need to use the mouse only.

**Password Encryption Algorithms:** The registered user password can be stored in the database in the form of encrypted by using SHA1 Algorithm.

## **2.4 System Requirement Specifications**

### **Hardware Requirements:**

- PIV 2.8 GHz Processor and Above
- RAM 512MB and Above
- HDD 40 GB Hard Disk Space and Above

### **Software Requirements:**

- WINDOWS OS (XP / 2000 / 200 Server / 2003 Server)
- Visual Studio .Net 2008 Enterprise Edition
- Internet Information Server 5.0 (IIS)
- Visual Studio .Net Framework (Minimal for Deployment) version 3.5



- SQL Server 2005 Enterprise Edition

## **2.5 PRAPOSED SYSTEM**

The development of this new system contains the following activities, which try to automate the entire process keeping in the view of database integration approach. User Friendliness is provided in the application with various controls provided by system Rich User Interface. The system makes the overall project management much easier and flexible. It can be accessed over the Intranet. Various classes have been used for file uploading and down loading. The user information files can be stored in centralized database which can be maintained by the system. This can give the good security for user information because data is not in client machine. Authentication is provided for this application only registered users can access. User can share is data to others, and also he can get data from others. There is no risk of data management at any level while the project development is under process. Report generation features is provided using Data reports to generate different kind of reports.

## **NEED FOR COMPUTERIZATION**

We all know the importance of computerization. The world is moving ahead at lightning speed and everyone is running short of time. One always wants to get the information and perform a task he/she/they desire(s) within a short period of time and too with amount of efficiency and accuracy. The application areas for the computerization have been selected on the basis of following factors:

- Minimizing the manual records kept at different locations.
- There will be more data integrity.
- Facilitating desired information display, very quickly, by retrieving information from users.
- Facilitating various statistical information which helps in decision-making?
- To reduce manual efforts in activities that involved repetitive work.

Updating and deletion of such a huge amount of data will become easier.

## **FUNCTIONAL FEATURES OF THE MODEL**

As far as the project is developed the functionality is simple, the objective of the proposal is to strengthen the functioning of Audit Status Monitoring and make them effective and better. The entire scope has been classified into five streams known as Coordinator Level, management Level, Auditor Level, User Level and State Web Coordinator Level. The proposed software will cover the information needs with respect to each request of the user group viz. accepting the request, providing vulnerability document report and the current status of the audit.

## **2.6 INPUT AND OUTPUT**

The major inputs and outputs and major functions of the system are follows:

### **Inputs:**

Admin enter his user id and password for login. User enters his user id and password for login. User Create new folder for personnel usage. Admin enter user id or date for track the user login information. New user gives his completed personnel, address and phone details for registration. Admin gives different kind of user information for search the user data. User gives his user id, hint question, answer for getting the forgotten password. User gives the folder permission for sharing the folder to other users.

### **Outputs:**

Admin can have his own home page. Users enter their own home page. The user defined folders can store in the centralized database. Admin will get the login information of a particular user. The new user's data will be stored in the centralized database. Admin get the search details of different criteria. User can get his forgot password. The user folder having permission for private or public purpose.

## **2.7 PROCESS MODEL USED WITH JUSTIFICATION**

### **ACCESS CONTROL FOR DATA WHICH REQUIRE USER AUTHENTICAIION**

The following commands specify access control identifiers and they are typically used to authorize and authenticate the user (command codes are shown in parentheses)

#### **USER NAME (USER)**

The user identification is that which is required by the server for access to its file system. This command will normally be the first command transmitted by the user after the control connections are made (some servers may require this).

#### **PASSWORD (PASS)**

This command must be immediately preceded by the user name command, and, for some sites, completes the user's identification for access control. Since password information is quite sensitive, it is desirable in general to "mask" it or suppress type out.

# **Feasibility Report**

Preliminary investigation examine project feasibility, the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

- Technical Feasibility
- Operational Feasibility
- Economical Feasibility

## **3.1. TECHNICAL FEASIBILITY**

The technical issue usually raised during the feasibility stage of the investigation includes the following:

- Does the necessary technology exist to do what is suggested?
- Do the proposed equipments have the technical capacity to hold the data required to use the new system?
- Will the proposed system provide adequate response to inquiries, regardless of the number or location of users?
- Can the system be upgraded if developed?
- Are there technical guarantees of accuracy, reliability, ease of access and data security?

Earlier no system existed to cater to the needs of 'Secure Infrastructure Implementation System'. The current system developed is technically feasible. It is a web based user interface for audit workflow at NIC-CSD. Thus it provides an easy access to the users. The database's purpose is to create, establish and maintain a workflow among various entities in order to facilitate all concerned users in their various capacities or roles. Permission to the users would be granted based on the roles specified. Therefore, it provides the technical guarantee of accuracy, reliability and security. The software and hard requirements for the development of

this project are not many and are already available in-house at NIC or are available as free as open source. The work for the project is done with the current equipment and existing software technology. Necessary bandwidth exists for providing a fast feedback to the users irrespective of the number of users using the system.

### **3.2. OPERATIONAL FEASIBILITY**

Proposed projects are beneficial only if they can be turned out into information system. That will meet the organization's operating requirements. Operational feasibility aspects of the project are to be taken as an important part of the project implementation. Some of the important issues raised are to test the operational feasibility of a project includes the following: -

- Is there sufficient support for the management from the users?
- Will the system be used and work properly if it is being developed and implemented?
- Will there be any resistance from the user that will undermine the possible application benefits?

This system is targeted to be in accordance with the above-mentioned issues. Beforehand, the management issues and user requirements have been taken into consideration. So there is no question of resistance from the users that can undermine the possible application benefits.

The well-planned design would ensure the optimal utilization of the computer resources and would help in the improvement of performance status.

### **3.3. ECONOMICAL FEASIBILITY**

A system can be developed technically and that will be used if installed must still be a good investment for the organization. In the economical feasibility, the development cost in creating the system is evaluated against the ultimate benefit derived from the new systems. Financial benefits must equal or exceed the costs.

The system is economically feasible. It does not require any addition hardware or software. Since the interface for this system is developed using the existing resources and technologies available at NIC, There is nominal expenditure and economical feasibility for certain.

## **SOFTWARE REQUIREMENT SPECIFICATION**

The software, Site Explorer is designed for management of web sites from a remote location.

### **INTRODUCTION**

**Purpose:** The main purpose for preparing this document is to give a general insight into the analysis and requirements of the existing system or situation and for determining the operating characteristics of the system.

**Scope:** This Document plays a vital role in the development life cycle (SDLC) and it describes the complete requirement of the system. It is meant for use by the developers and will be the basic during testing phase. Any changes made to the requirements in the future will have to go through formal change approval process.

### **DEVELOPERS RESPONSIBILITIES OVERVIEW:**

The developer is responsible for:

- Developing the system, which meets the SRS and solving all the requirements of the system?
- Demonstrating the system and installing the system at client's location after the acceptance testing is successful.
- Submitting the required user manual describing the system interfaces to work on it and also the documents of the system.
- Conducting any user training that might be needed for using the system.
- Maintaining the system for a period of one year after installation.

## **4.1. FUNCTIONAL REQUIREMENTS**

### **OUTPUT DESIGN**

Outputs from computer systems are required primarily to communicate the results of processing to users. They are also used to provide a permanent copy of the results for later consultation. The various types of outputs in general are:

- External Outputs, whose destination is outside the organization.
- Internal Outputs whose destination is within organization and they are the
- User's main interface with the computer.
- Operational outputs whose use is purely within the computer department.
- Interface outputs, which involve the user in communicating directly.

### **OUTPUT DEFINITION**

**The outputs should be defined in terms of the following points:**

- Type of the output
- Content of the output
- Format of the output
- Location of the output
- Frequency of the output
- Volume of the output
- Sequence of the output

It is not always desirable to print or display data as it is held on a computer. It should be decided as which form of the output is the most suitable.

For Example

- Will decimal points need to be inserted
- Should leading zeros be suppressed.

### **Output Media:**

In the next stage it is to be decided that which medium is the most appropriate for the output. The main considerations when deciding about the output media are:

- The suitability for the device to the particular application.



- The need for a hard copy.
- The response time required.
- The location of the users
- The software and hardware available.

Keeping in view the above description the project is to have outputs mainly coming under the category of internal outputs. The main outputs desired according to the requirement specification are:

The outputs were needed to be generated as a hot copy and as well as queries to be viewed on the screen. Keeping in view these outputs, the format for the output is taken from the outputs, which are currently being obtained after manual processing. The standard printer is to be used as output media for hard copies.

## **INPUT DESIGN**

Input design is a part of overall system design. The main objective during the input design is as given below:

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that the input is acceptable and understood by the user.

## **INPUT STAGES:**

The main input stages can be listed as below:

- Data recording
- Data transcription
- Data conversion
- Data verification
- Data control
- Data transmission
- Data validation
- Data correction

## **INPUT TYPES:**

It is necessary to determine the various types of inputs. Inputs can be categorized as follows:

- External inputs, which are prime inputs for the system.
- Internal inputs, which are user communications with the system.
- Operational, which are computer department's communications to the system?
- Interactive, which are inputs entered during a dialogue.

#### **INPUT MEDIA:**

At this stage choice has to be made about the input media. To conclude about the input media consideration has to be given to;

- Type of input
- Flexibility of format
- Speed
- Accuracy
- Verification methods
- Rejection rates
- Ease of correction
- Storage and handling requirements
- Security
- Easy to use
- Portability

Keeping in view the above description of the input types and input media, it can be said that most of the inputs are of the form of internal and interactive. As

Input data is to be the directly keyed in by the user, the keyboard can be considered to be the most suitable input device.

#### **ERROR AVOIDANCE**

At this stage care is to be taken to ensure that input data remains accurate from the stage at which it is recorded up to the stage in which the data is accepted by the system. This can be achieved only by means of careful control each time the data is handled.

## **ERROR DETECTION**

Even though every effort is made to avoid the occurrence of errors, still a small proportion of errors is always likely to occur, these types of errors can be discovered by using validations to check the input data.

## **DATA VALIDATION**

Procedures are designed to detect errors in data at a lower level of detail. Data validations have been included in the system in almost every area where there is a possibility for the user to commit errors. The system will not accept invalid data. Whenever an invalid data is keyed in, the system immediately prompts the user and the user has to again key in the data and the system will accept the data only if the data is correct. Validations have been included where necessary.

The system is designed to be a user friendly one. In other words the system has been designed to communicate effectively with the user. The system has been designed with popup menus.

## **USER INTERFACE DESIGN**

It is essential to consult the system users and discuss their needs while designing the user interface:

### **USER INTERFACE SYSTEMS CAN BE BROADLY CLASSIFIED AS:**

1. User initiated interface the user is in charge, controlling the progress of the user/computer dialogue. In the computer-initiated interface, the computer selects the next stage in the interaction.

2. Computer initiated interfaces

In the computer initiated interfaces the computer guides the progress of the user/computer dialogue. Information is displayed and the user response of the computer takes action or displays further information.

### **USER\_INITIATED INTERFACES**

User initiated interfaces fall into two approximate classes:

1. Command driven interfaces: In this type of interface the user inputs commands or queries which are interpreted by the computer.
2. Forms oriented interface: The user calls up an image of the form to his/her screen and fills in the form. The forms oriented interface is chosen because it is the best choice.

### **COMPUTER-INITIATED INTERFACES**

The following computer – initiated interfaces were used:

1. The menu system for the user is presented with a list of alternatives and the user chooses one; of alternatives.
2. Questions – answer type dialog system where the computer asks question and takes action based on the basis of the users reply.

Right from the start the system is going to be menu driven, the opening menu displays the available options. Choosing one option gives another popup menu with more options. In this way every option leads the users to data entry form where the user can key in the data.

### **ERROR MESSAGE DESIGN:**

The design of error messages is an important part of the user interface design. As user is bound to commit some errors or other while designing a system the system should be designed to be helpful by providing the user with information regarding the error he/she has committed.

This application must be able to produce output at different modules for different inputs.

### **4.2. PERFORMANCE REQUIREMENTS**

Performance is measured in terms of the output provided by the application.

Requirement specification plays an important part in the analysis of a system. Only when the requirement specifications are properly given, it is possible to design a system, which will fit into required environment. It rests largely in the part of the users of the existing system to give the requirement specifications because they are the people who finally use the system. This is because the

requirements have to be known during the initial stages so that the system can be designed according to those requirements. It is very difficult to change the system once it has been designed and on the other hand designing a system, which does not cater to the requirements of the user, is of no use.

The requirement specification for any system can be broadly stated as given below:

- The system should be able to interface with the existing system
- The system should be accurate
- The system should be better than the existing system

The existing system is completely dependent on the user to perform all the duties.

# **SELECTED SOFTWARE**

## **5.1 INTRODUCTION TO PHP**

PHP, which stands for "Hypertext Preprocessor," is a widely-used server-side scripting language designed for web development. It is embedded within HTML code and executed on the server, generating dynamic content that is then sent to the client's web browser. PHP is open-source and has become one of the most popular programming languages for web development.

Key features of PHP include:

### **1. Server-Side Scripting:**

- PHP is primarily a server-side scripting language, meaning it is executed on the web server rather than on the client's browser. The server processes the PHP code and sends the result (usually HTML) to the client's browser.

### **2. Embedding in HTML:**

- PHP code is typically embedded within HTML code. This allows developers to seamlessly mix PHP and HTML to create dynamic and interactive web pages.

### **Variables and Data Types:**

- PHP supports various data types such as integers, floats, strings, arrays, and more. Variables in PHP start with the dollar sign (\$).

### **Dynamic Content Generation:**

- PHP is widely used to generate dynamic content on websites. It can interact with databases, handle form data, and perform various server-side tasks to create dynamic and personalized web pages.

### Database Integration:

- PHP can connect to various databases, including MySQL, PostgreSQL, and others. This enables the creation of dynamic web applications that interact with databases to store and retrieve data.

XAMPP is a free and open-source cross-platform web server solution stack developed by Apache Friends. The name "XAMPP" is an acronym that stands for:

- **X:** Cross-platform (works on various operating systems)
- **A:** Apache (the web server)
- **M:** MySQL (or MariaDB, a relational database management system)
- **P:** PHP (a server-side scripting language)
- **P:** Perl (a general-purpose programming language)



XAMPP is designed to make it easy for developers to set up a local web server environment on their computer for testing and development purposes. It provides a bundle of software that includes all the components needed to run dynamic web applications.

The core components of XAMPP are:

1. **Apache HTTP Server:**  
A widely used open-source web server that processes requests and serves web pages to clients.
2. **MySQL or MariaDB:**  
MySQL is a popular relational database management system (RDBMS), and MariaDB is a fork of MySQL with ongoing development.
3. **PHP:**  
A server-side scripting language used for developing dynamic web pages.
4. **Perl:**

A high-level, general-purpose programming language often used for web development, system administration, and network programming.

5. **phpMyAdmin:**

A web-based tool written in PHP for managing MySQL databases. It provides an easy-to-use interface to perform database operations.

XAMPP simplifies the process of setting up a local server environment, eliminating the need to manually install and configure each component separately. This makes it particularly convenient for developers who want to work on web projects locally before deploying them to a live server.

XAMPP is available for Windows, Linux, and macOS, making it a versatile solution for developers across different operating systems. It is important to note that XAMPP is intended for development purposes and is not recommended for use in a production environment due to potential security risks.

The typical usage of XAMPP involves downloading and installing the software, after which users can start or stop the server components as needed. It provides a user-friendly control panel that simplifies the management of the server environment.

**HTML (Hypertext Markup Language):** HTML is the standard markup language used to create and design web pages. It provides a structure for content on the internet by using various tags to define different elements such as headings, paragraphs, links, images, forms, and more. HTML is not a programming language; instead, it's a markup language that instructs web browsers on how to present and structure content.

Let's break down the key components:



- `<!DOCTYPE html>`: Declares the document type and version of HTML.
- `<html lang="en">`: The root element of the HTML document, with an attribute specifying the language.
- `<head>`: Contains meta-information about the HTML document, such as character set and viewport settings.
- `<title>`: Sets the title of the webpage (displayed in the browser tab).
- `<body>`: Contains the content of the HTML document, including text, images, links, etc.
- `<header>`, `<nav>`, `<section>`, `<footer>`: Semantic HTML5 elements that define different sections of the webpage, providing structure and meaning to the content.
- `<h1>`, `<h2>`, `<p>`, `<ul>`, `<li>`: Headings, paragraphs, and list elements used to structure and organize content.
- `<a>`: Anchor tag for creating hyperlinks.

This is a basic example, and in real-world scenarios, you would include additional elements, styles, and scripts based on the specific requirements of your webpage. HTML serves as the foundation for web development, and its tags provide the building blocks for creating rich and interactive web content.

**CSS, or Cascading Style Sheets**, is a style sheet language used for describing the presentation and visual representation of a document written in HTML or XML. CSS defines how HTML elements should be displayed on a web page, including their layout, colors, fonts, spacing, and other design aspects. The separation of HTML (structure) and CSS (presentation) allows for greater flexibility, maintainability, and consistency in the design of web pages.

Here are some key aspects of CSS:

### **Selectors and Declarations:**

- CSS uses selectors to target HTML elements and declarations to define the style rules for those elements. A declaration consists of a property and a value.

### **Selectors:**

- Selectors can target HTML elements based on their type, class, ID, attributes, and more. This allows for precise targeting of specific elements or groups of elements.

### **Box Model:**

- The box model is a fundamental concept in CSS that describes how elements are laid out on the page. It consists of content, padding, border, and margin.

### **Responsive Design:**

- CSS enables the creation of responsive web designs that adapt to different screen sizes and devices. Media queries can be used to apply styles based on characteristics such as screen width.

**MySQL** is an open-source relational database management system (RDBMS) that uses structured query language (SQL). It is one of the most popular and widely used database systems, known for its reliability, performance, ease of use, and strong community support. MySQL is commonly used in conjunction with server-side scripting languages like PHP to create dynamic and data-driven web applications.

Key features of MySQL include:

### **Relational Database Management System (RDBMS):**

- MySQL is a relational database, which means it organizes data into tables with predefined relationships. This structure allows for efficient and organized storage and retrieval of data.

**SQL Support:**

MySQL uses SQL, a standard language for interacting with and managing relational databases. SQL allows users to perform tasks such as querying, updating, inserting, and deleting data in the database

**Data Security:**

MySQL provides robust data security features, including user authentication, encryption, and access control. Users can be assigned specific permissions, restricting their ability to perform certain operations on the database.

**Scalability:**

MySQL is scalable, allowing it to handle both small-scale and large-scale databases. It supports partitioning, replication, and clustering to distribute and manage data across multiple servers.

**Performance Optimization:**

MySQL is designed for optimal performance. It includes features such as indexing, caching mechanisms, and query optimization to enhance the speed of data retrieval and manipulation.

**Cross-Platform Compatibility:**

MySQL is platform-independent, meaning it can run on various operating systems, including Windows, Linux, macOS, and others. This makes it versatile for different deployment environments.

**Community and Support:**

MySQL has a large and active community of developers and users. This community support contributes to ongoing improvements, the availability of resources, and a wealth of documentation.

**Storage Engines:**

MySQL supports multiple storage engines, each with its own strengths and capabilities. The most commonly used storage engine is InnoDB, known for its ACID compliance and support for transactions.

**Reliability and Availability:**

MySQL provides features like replication and backup tools to ensure data reliability and availability. Replication allows for creating redundant copies of the database, ensuring failover capabilities.

**Open Source:**

MySQL is open-source software, meaning it is freely available for use, modification, and distribution. This has contributed to its widespread adoption and the development of a vibrant community.

MySQL is used by a broad range of applications and websites, from small-scale projects to large-scale enterprise solutions. It is an integral part of the LAMP (Linux, Apache, MySQL, PHP/Python/Perl) and MERN (MongoDB, Express.js, React, Node.js) stacks, widely employed in web development.

**SQL SERVER TABLES**

SQL Server stores records relating to each other in a table. Different tables are created for the various groups of information. Related tables are grouped together to form a database.

**PRIMARY KEY**

Every table in SQL Server has a field or a combination of fields that uniquely identifies each record in the table. The Unique identifier is called the Primary Key, or simply the Key. The primary key provides the means to distinguish one record from all other in a table. It allows the user and the database system to identify, locate and refer to one particular record in the database.

**RELATIONAL DATABASE**

Sometimes all the information of interest to a business operation can be stored in one table. SQL Server makes it very easy to link the data in multiple tables. Matching an employee to the department in which they work is one example. This is what makes SQL Server a relational database management

system, or RDBMS. It stores data in two or more tables and enables you to define relationships between the table and enables you to define relationships between the tables.

## **FOREIGN KEY**

When a field in one table matches the primary key of another field is referred to as a foreign key. A foreign key is a field or a group of fields in one table whose values match those of the primary key of another table.

## **REFERENTIAL INTEGRITY**

Not only does SQL Server allow you to link multiple tables, it also maintains consistency between them. Ensuring that the data among related tables is correctly matched is referred to as maintaining referential integrity.

## **DATA ABSTRACTION**

A major purpose of a database system is to provide users with an abstract view of the data. This system hides certain details of how the data is stored and maintained. Data abstraction is divided into three levels.

**Physical level:** This is the lowest level of abstraction at which one describes how the data are actually stored.

**Conceptual Level:** At this level of database abstraction all the attributes and what data are actually stored is described and entries and relationship among them.

**View level:** This is the highest level of abstraction at which one describes only part of the database.

## **ADVANTAGES OF RDBMS**

- Redundancy can be avoided
- Inconsistency can be eliminated
- Data can be Shared
- Standards can be enforced
- Security restrictions can be applied
- Integrity can be maintained
- Conflicting requirements can be balanced
- Data independence can be achieved.

## **DISADVANTAGES OF DBMS**

A significant disadvantage of the DBMS system is cost. In addition to the cost of purchasing or developing the software, the hardware has to be upgraded to allow for the extensive programs and the workspace required for their execution and storage. While centralization reduces duplication, the lack of duplication requires that the database be adequately backed up so that in case of failure the data can be recovered.

## **FEATURES OF SQL SERVER (RDBMS)**

SQL SERVER is one of the leading database management systems (DBMS) because it is the only Database that meets the uncompromising requirements of today's most demanding information systems. From complex decision support systems (DSS) to the most rigorous online transaction processing (OLTP) application, even application that require simultaneous DSS and OLTP access to the same critical data, SQL Server leads the industry in both performance and capability.

SQL SERVER is a truly portable, distributed, and open DBMS that delivers unmatched performance, continuous operation and support for every database.

SQL SERVER RDBMS is high performance fault tolerant DBMS which is specially designed for online transactions processing and for handling large database application.

SQL SERVER with transactions processing option offers two features which contribute to very high level of transaction processing throughput, which are

- The row level lock manager

## **ENTERPRISE WIDE DATA SHARING**

The unrivaled portability and connectivity of the SQL SERVER DBMS enables all the systems in the organization to be linked into a singular, integrated computing resource.

## **PORTABILITY**

SQL SERVER is fully portable to more than 80 distinct hardware and operating systems platforms, including UNIX, MSDOS, OS/2, Macintosh and dozens of proprietary platforms. This portability gives complete freedom to choose the database server platform that meets the system requirements.

## **OPEN SYSTEMS**

SQL SERVER offers a leading implementation of industry –standard SQL. SQL Server's open architecture integrates SQL SERVER and non –SQL SERVER DBMS with industry's most comprehensive collection of tools, application, and third party software products SQL Server's Open architecture provides transparent access to data from other relational database and even non-relational database.

## **DISTRIBUTED DATA SHARING**

SQL Server's networking and distributed database capabilities to access data stored on remote server with the same ease as if the information was stored on a single local computer. A single SQL statement can access data at multiple sites. You can store data where system requirements such as performance, security or availability dictate.

## **UNMATCHED PERFORMANCE**

The most advanced architecture in the industry allows the SQL SERVER DBMS to deliver unmatched performance.

## **SOPHISTICATED CONCURRENCY CONTROL**

Real World applications demand access to critical data. With most database Systems application becomes "contention bound" – which performance is limited not by the CPU power or by disk I/O, but user waiting on one another for data access. SQL Server employs full, unrestricted row-level locking and contention free queries to minimize and in many cases entirely eliminates contention wait times.

## **NO I/O BOTTLENECKS**

SQL Server's fast commit groups commit and deferred write technologies dramatically reduce disk I/O bottlenecks. While some database write whole data block to disk at commit time, SQL Server commits transactions with at most sequential log file on disk at commit time, On high throughput systems, one sequential writes typically group commit multiple transactions. Data read by the transaction remains as shared memory so that other transactions may access that data without reading it again from disk. Since fast commits write all data necessary to the recovery to the log file, modified blocks are written back to the database independently of the transaction commit, when written from memory to disk.



# **SYSTEM DESIGN**

## **6.1. INTRODUCTION**

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the first step in the development phase for any engineered product or system. The designer's goal is to produce a model or representation of an entity that will later be built. Beginning, once system requirement have been specified and analyzed, system design is the first of the three technical activities - design, code and test that is required to build and verify software.

The importance can be stated with a single word "Quality". Design is the place where quality is fostered in software development. Design provides us with representations of software that can assess for quality. Design is the only way that we can accurately translate a employee's view into a finished software product or system. Software design serves as a foundation for all the software engineering steps that follow. Without a strong design we risk building an unstable system – one that will be difficult to test, one whose quality cannot be assessed until the last stage.

During design, progressive refinement of data structure, program structure, and procedural details are developed reviewed and documented. System design can be viewed from either technical or project management perspective. From the technical point of view, design is comprised of four activities – architectural design, data structure design, interface design and procedural design.

## **6.2 NORMALIZATION**

It is a process of converting a relation to a standard form. The process is used to handle the problems that can arise due to data redundancy i.e. repetition of data in the database, maintain data integrity as well as handling problems that can arise due to insertion, updating, deletion anomalies.

Decomposing is the process of splitting relations into multiple relations to eliminate anomalies and maintain data integrity. To do this we use normal forms or rules for structuring relation.

**Insertion anomaly:** Inability to add data to the database due to absence of other data.

**Deletion anomaly:** Unintended loss of data due to deletion of other data.

**Update anomaly:** Data inconsistency resulting from data redundancy and partial update

**Normal Forms:** These are the rules for structuring relations that eliminate anomalies.

### **FIRST NORMAL FORM:**

A relation is said to be in first normal form if the values in the relation are atomic for every attribute in the relation. By this we mean simply that no attribute value can be a set of values or, as it is sometimes expressed, a repeating group.

### **SECOND NORMAL FORM:**

A relation is said to be in second Normal form if it is in first normal form and it should satisfy any one of the following rules.

- 1) Primary key is not a composite primary key
- 2) No non key attributes are present
- 3) Every non key attribute is fully functionally dependent on full set of primary key.

### **THIRD NORMAL FORM:**

A relation is said to be in third normal form if there exists no transitive dependencies.

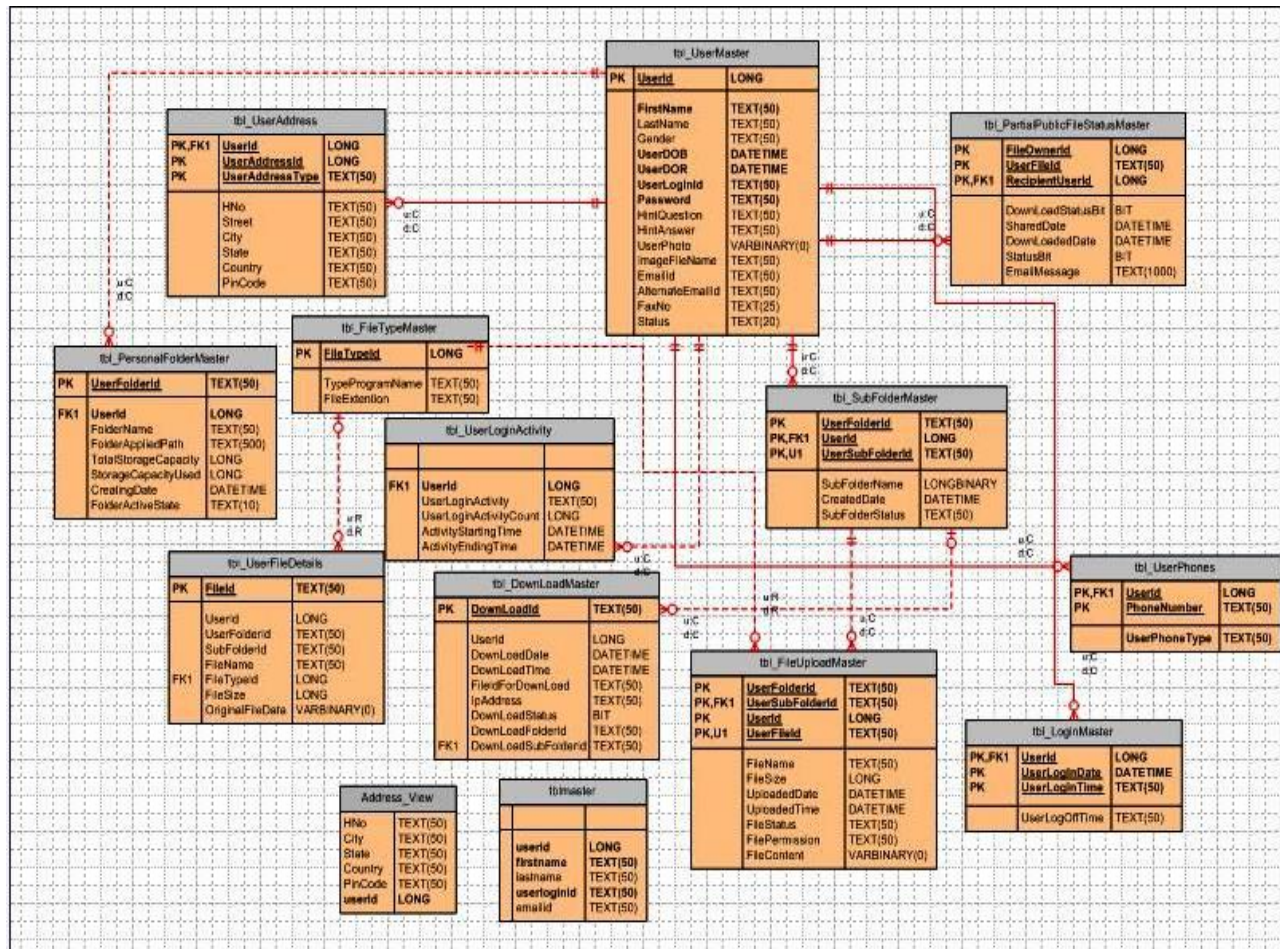
**Transitive Dependency:** If two non key attributes depend on each other as well as on the primary key then they are said to be transitively dependent.

The above normalization principles were applied to decompose the data in multiple tables thereby making the data to be maintained in a consistent state.

### **6.3 E-R Diagrams**

- The relation upon the system is structured through a conceptual ER-Diagram, which not only specifies the existential entities but also the standard relations through which the system exists and the cardinalities that are necessary for the system state to continue.
- The entity Relationship Diagram (ERD) depicts the relationship between the data objects. The ERD is the notation that is used to conduct the data modeling activity. The attributes of each data object noted in the ERD can be described using a data object description.
- The set of primary components that are identified by the ERD are
  - Data object
  - Relationships
  - Attributes
  - Various types of indicators.

The primary purpose of the ERD is to represent data objects and their relationships.



## 6.4 DATA FLOW DIAGRAMS

A data flow diagram is graphical tool used to describe and analyze movement of data through a system. These are the central tool and the basis from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow diagrams. The physical data flow diagrams show the actual implements and movement of data between people, departments and workstations. A full description of a system actually consists of a set of data flow diagrams. Using two familiar notations Yourdon, Gane and Sarson notation develops the data flow diagrams. Each component in a DFD is labeled with a descriptive name. Process is

further identified with a number that will be used for identification purpose. The development of DFD'S is done in several levels. Each process in lower level diagrams can be broken down into a more detailed DFD in the next level. The top-level diagram is often called context diagram. It consists a single process bit, which plays vital role in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD.

The idea behind the explosion of a process into more process is that understanding at one level of detail is exploded into greater detail at the next level. This is done until further explosion is necessary and an adequate amount of detail is described for analyst to understand the process.

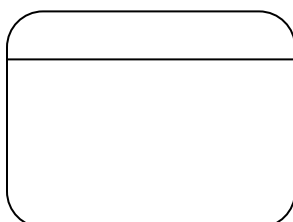
Larry Constantine first developed the DFD as a way of expressing system requirements in a graphical from, this lead to the modular design.

A DFD is also known as a "bubble Chart" has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.

### **DFD SYMBOLS:**

In the DFD, there are four symbols

1. A square defines a source(originator) or destination of system data
2. An arrow identifies data flow. It is the pipeline through which the information flows
3. A circle or a bubble represents a process that transforms incoming data flow into outgoing data flows.
4. An open rectangle is a data store, data at rest or a temporary repository of data



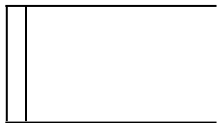
Process that transforms data flow.



Source or Destination of data



Data flow



Data Store

### **CONSTRUCTING A DFD:**

Several rules of thumb are used in drawing DFD'S:

1. Process should be named and numbered for an easy reference. Each name should be representative of the process.
2. The direction of flow is from top to bottom and from left to right. Data traditionally flow from source to the destination although they may flow back to the source. One way to indicate this is to draw long flow line back to a source. An alternative way is to repeat the source symbol as a destination. Since it is used more than once in the DFD it is marked with a short diagonal.
3. When a process is exploded into lower level details, they are numbered.
4. The names of data stores and destinations are written in capital letters. Process and dataflow names have the first letter of each word capitalized.

A DFD typically shows the minimum contents of data store. Each data store should contain all the data elements that flow in and out.

Questionnaires should contain all the data elements that flow in and out. Missing interfaces redundancies and like is then accounted for often through interviews.

## **SAILENT FEATURES OF DFD'S**

1. The DFD shows flow of data, not of control loops and decision are controlled considerations do not appear on a DFD.
2. The DFD does not indicate the time factor involved in any process whether the dataflow take place daily, weekly, monthly or yearly.
3. The sequence of events is not brought out on the DFD.

## **TYPES OF DATA FLOW DIAGRAMS**

1. Current Physical
2. Current Logical
3. New Logical
4. New Physical

### **CURRENT PHYSICAL:**

In Current Physical DFD process label include the name of people or their positions or the names of computer systems that might provide some of the overall system-processing label includes an identification of the technology used to process the data. Similarly data flows and data stores are often labels with the names of the actual physical media on which data are stored such as file folders, computer files, business forms or computer tapes.

### **CURRENT LOGICAL:**

The physical aspects at the system are removed as much as possible so that the current system is reduced to its essence to the data and the processors that transforms them regardless of actual physical form.

### **NEW LOGICAL:**

This is exactly like a current logical model if the user were completely happy with the user were completely happy with the functionality of the current system but had problems with how it was implemented typically through the new logical model will differ from current logical model while having additional functions, absolute function removal and inefficient flows recognized.

## **NEW PHYSICAL:**

The new physical represents only the physical implementation of the new system.

## **RULES GOVERNING THE DFD'S**

### **PROCESS**

- 1) No process can have only outputs.
- 2) No process can have only inputs. If an object has only inputs than it must be a sink.
- 3) A process has a verb phrase label.

### **DATA STORE**

- 1) Data cannot move directly from one data store to another data store, a process must move data.
- 2) Data cannot move directly from an outside source to a data store, a process, which receives, must move data from the source and place the data into data store
- 3) A data store has a noun phrase label.

### **SOURCE OR SINK**

The origin and /or destination of data.

- 1) Data cannot move direly from a source to sink it must be moved by a process
- 2) A source and /or sink has a noun phrase land

### **DATA FLOW**

- 1) A Data Flow has only one direction of flow between symbols. It may flow in both directions between a process and a data store to show a read before an update. The later is usually indicated however by two separate arrows since these happen at different type.
- 2) A join in DFD means that exactly the same data comes from any of two or more different processes data store or sink to a common location.

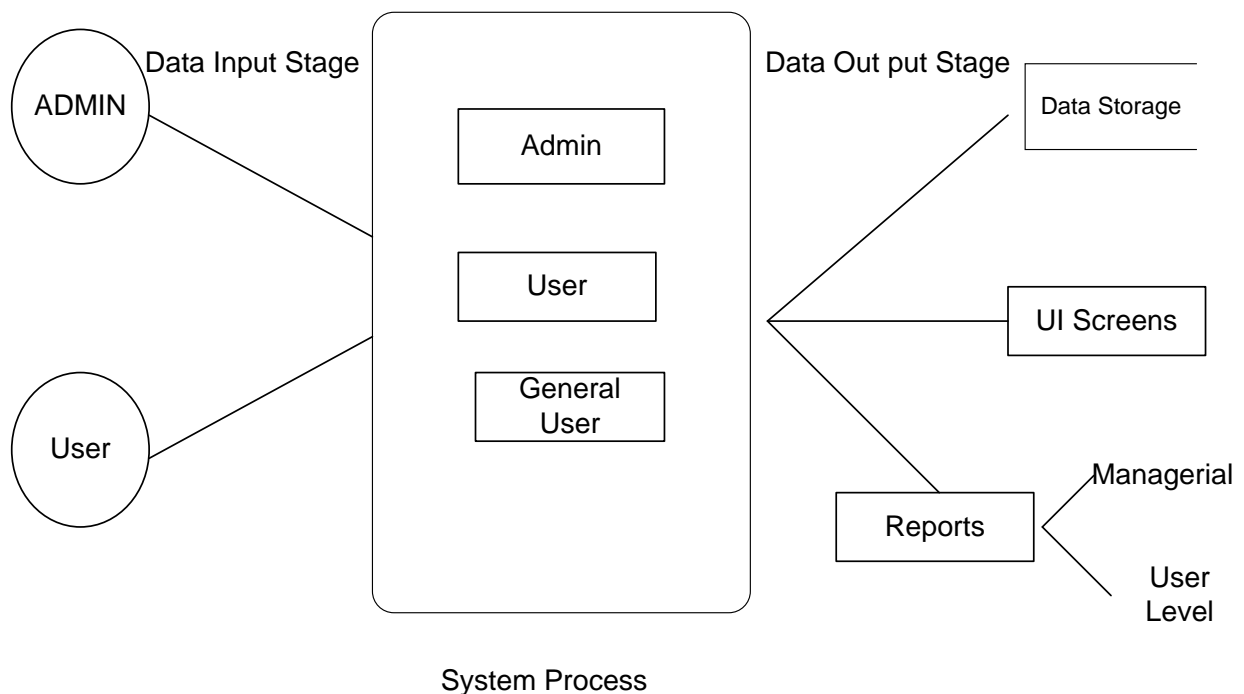


- 3) A data flow cannot go directly back to the same process it leads. There must be at least one other process that handles the data flow produce some other data flow returns the original data into the beginning process.
- 4) A Data flow to a data store means update (delete or change).
- 5) A data Flow from a data store means retrieve or use.

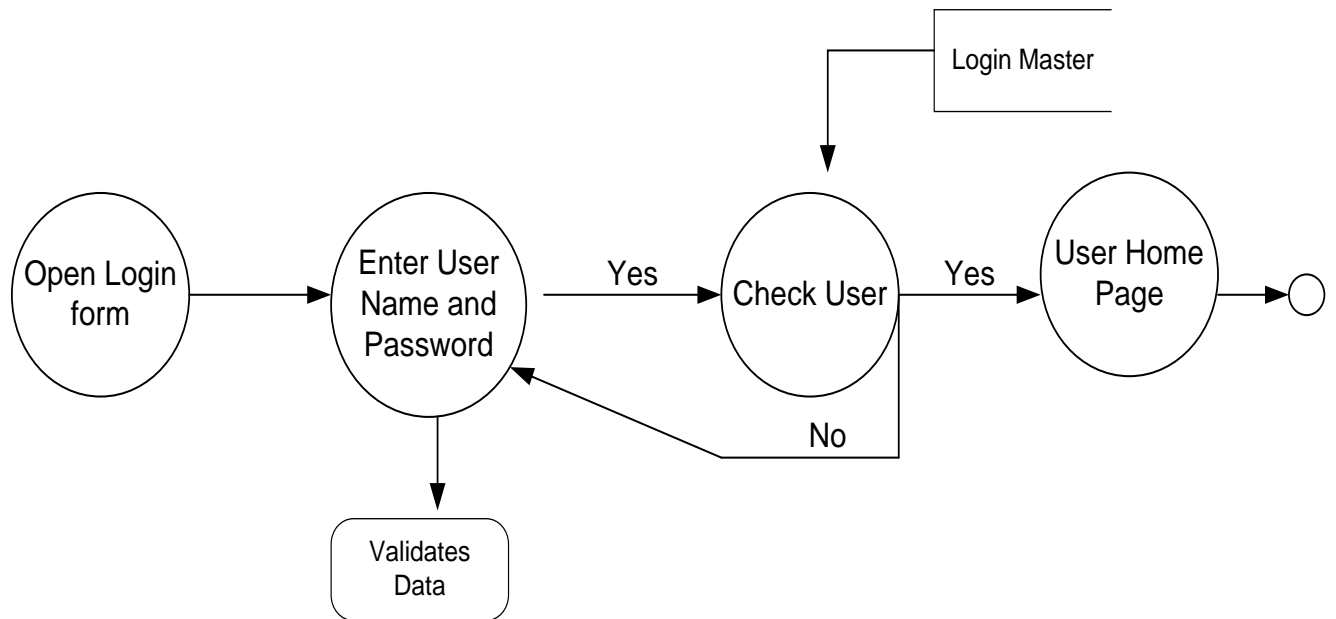
A data flow has a noun phrase label more than one data flow noun phrase can appear on a single arrow as long as all of the flows on the same arrow move together as one package.

#### DFD Diagrams:

##### Context Level (0<sup>th</sup> level DFD)

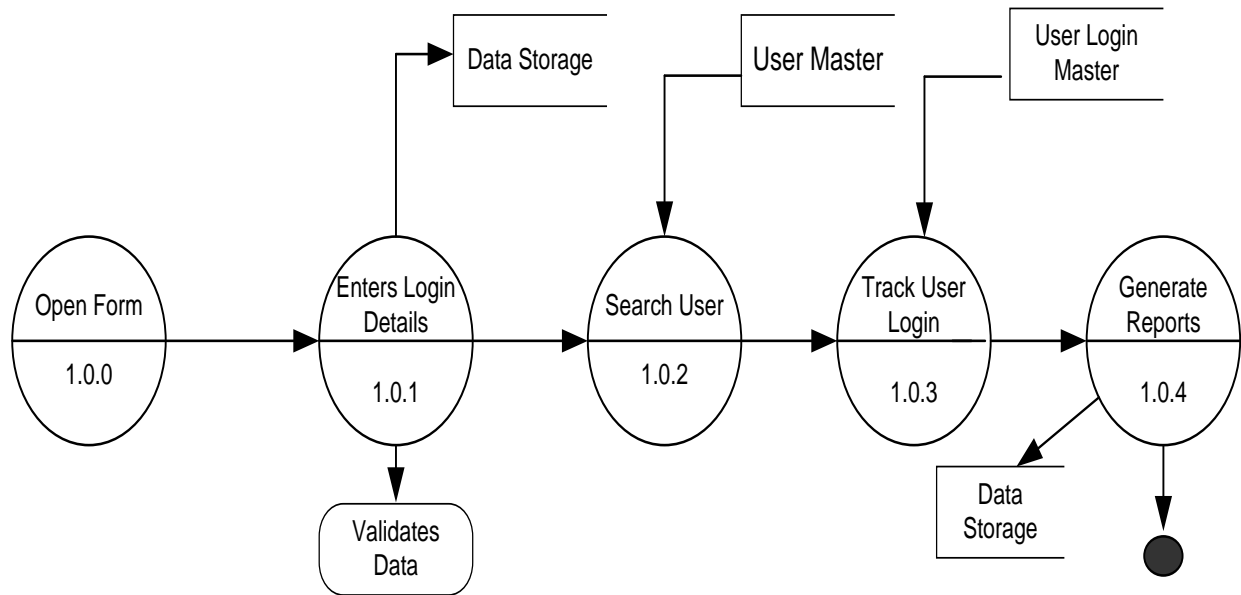


### Login DFD

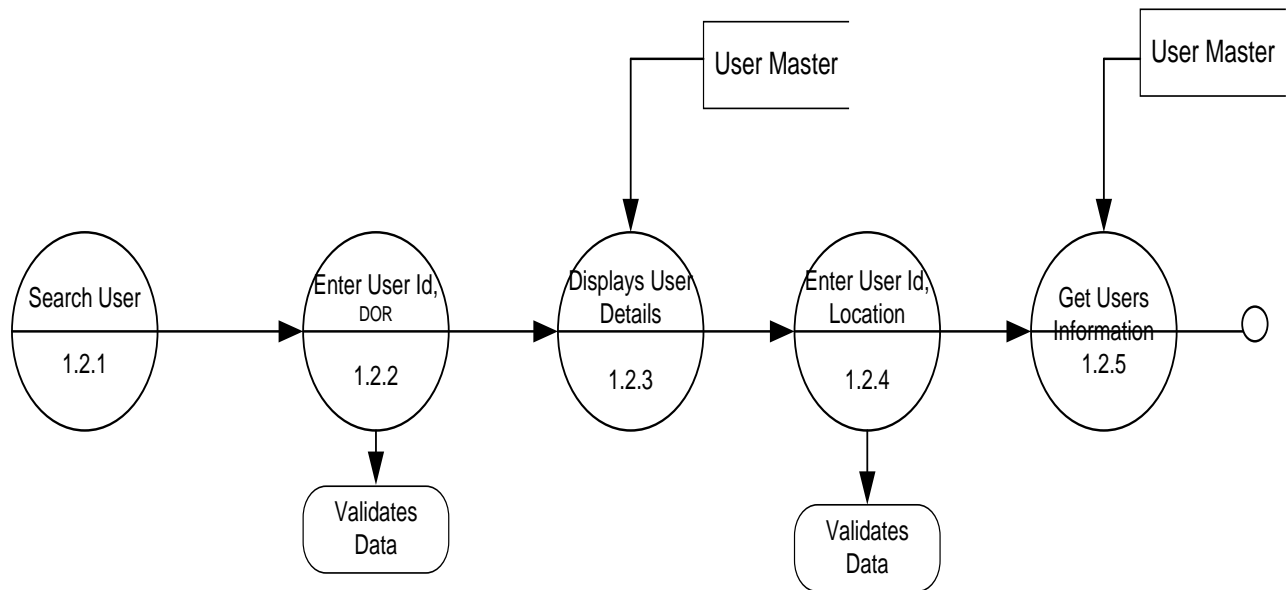


## Admin Details Data Flow

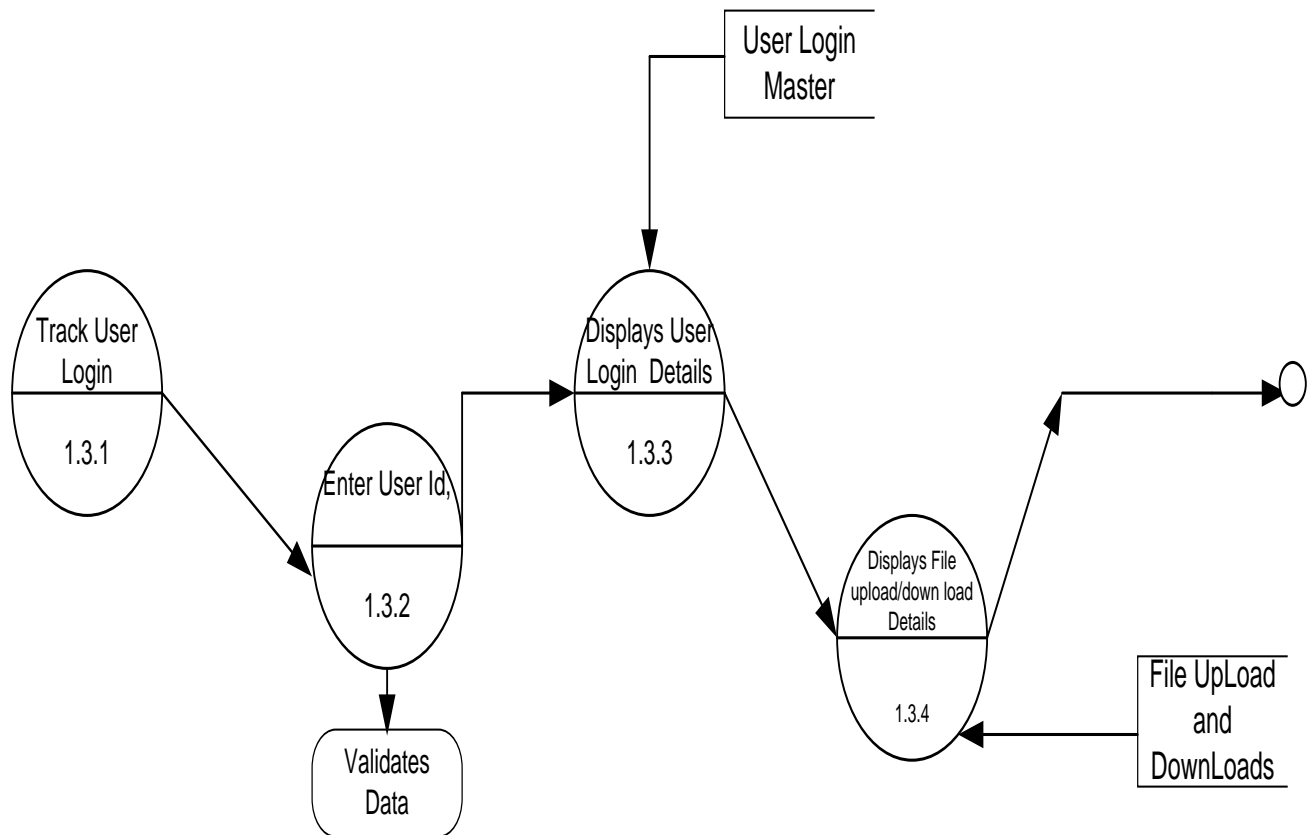
### 1<sup>st</sup> level DFD



**2<sup>nd</sup> level DFD (Admin)**

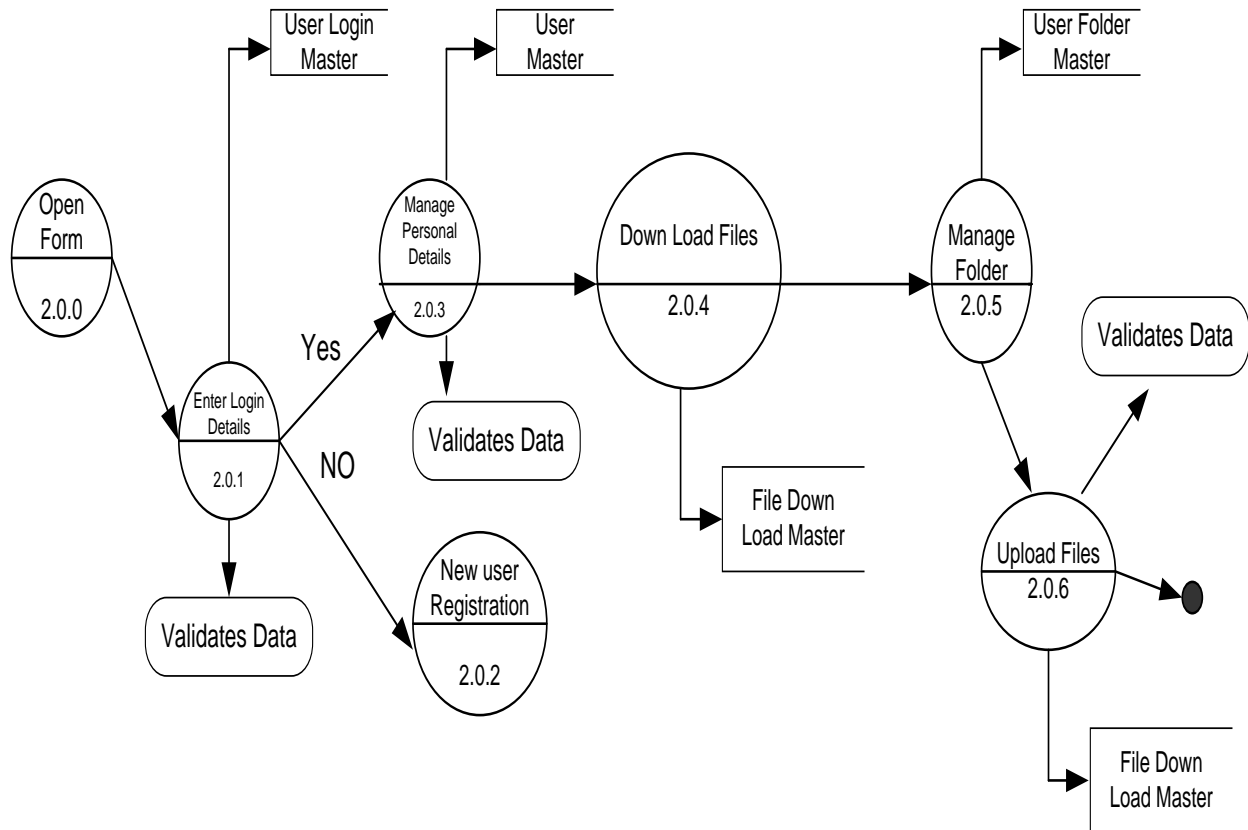


### Administrator Track User Login Details

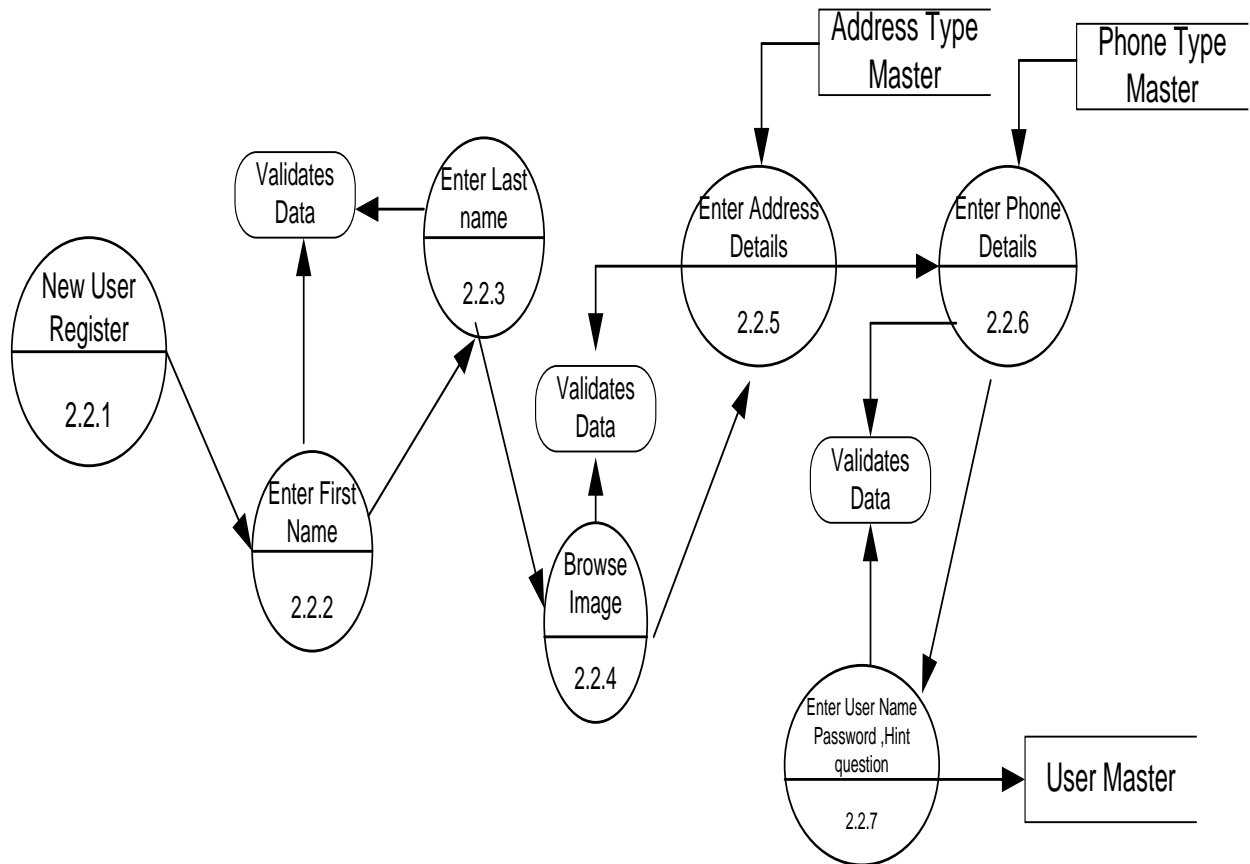


## User Details Data Flow

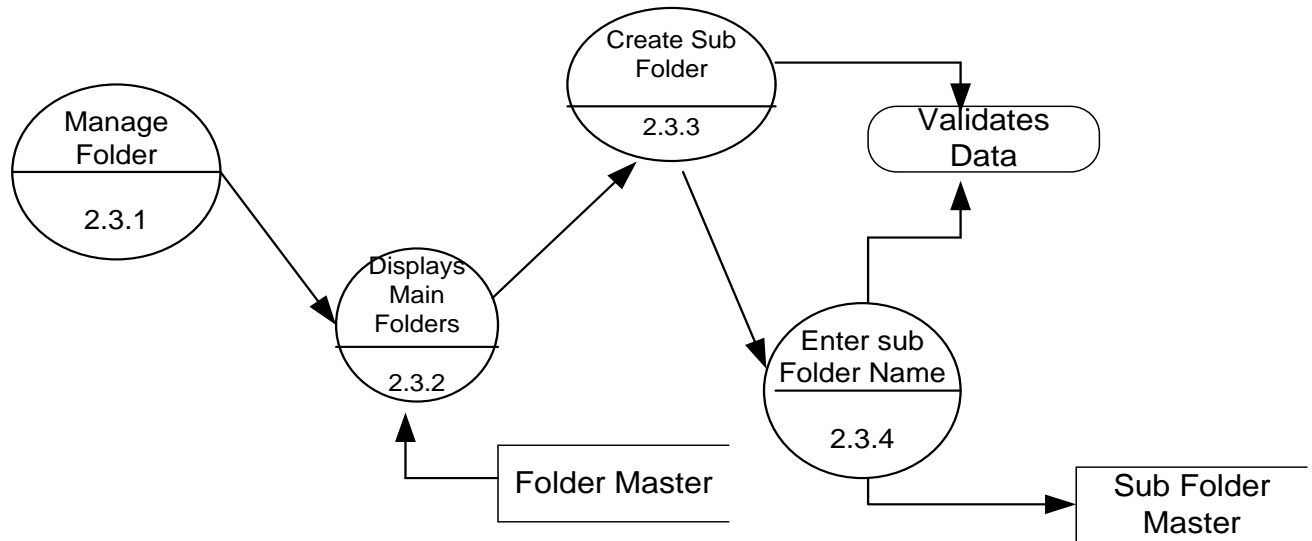
### 1<sup>st</sup> level DFD



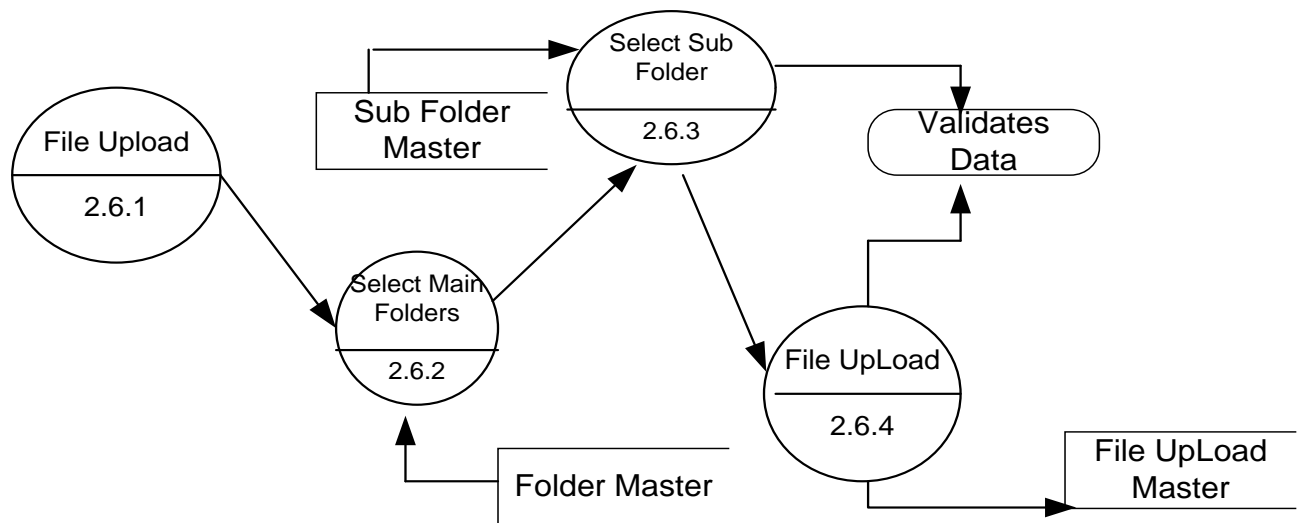
### 2<sup>nd</sup> Level DFD



## User Folder Creation



### User File Uploading

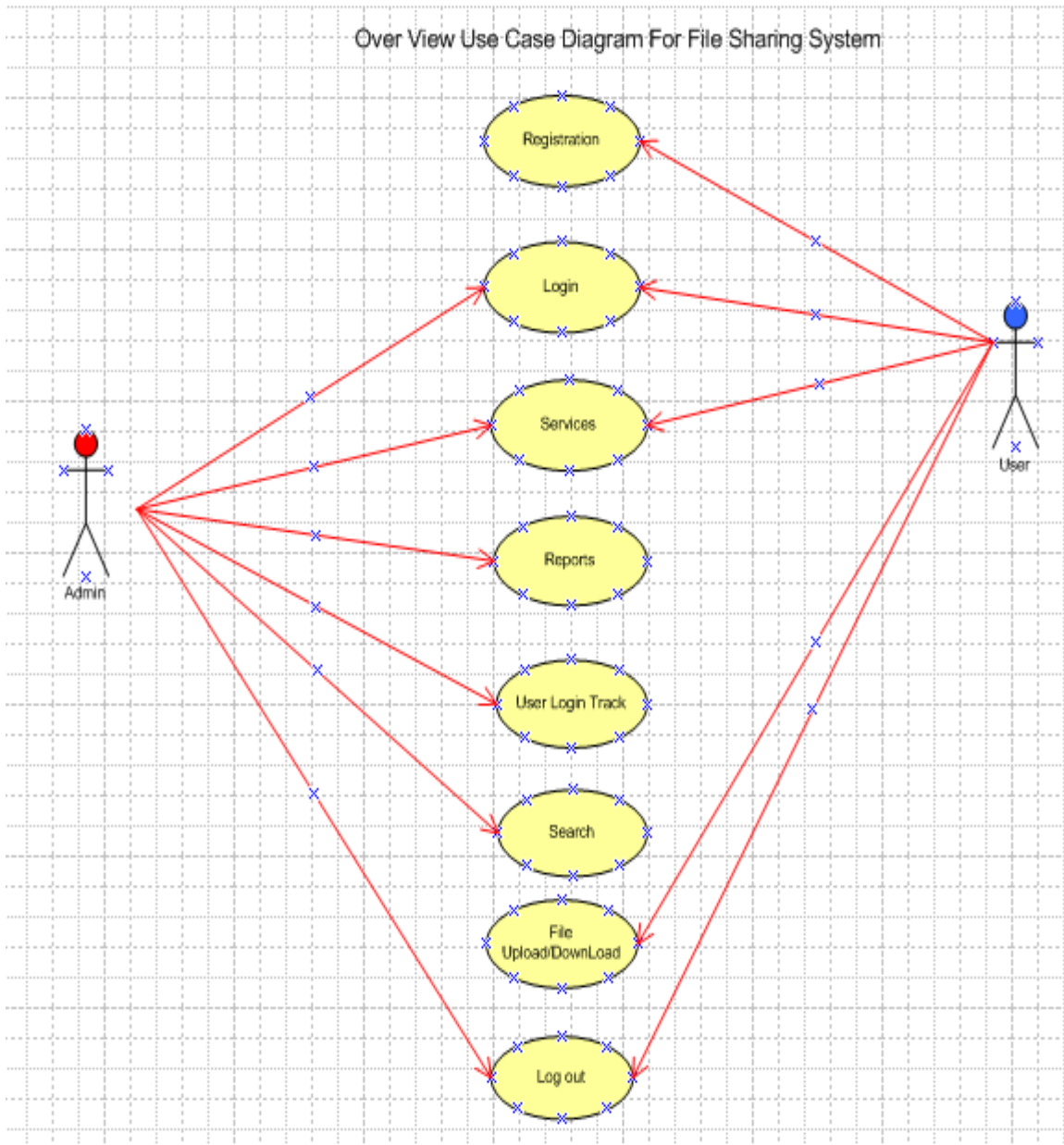




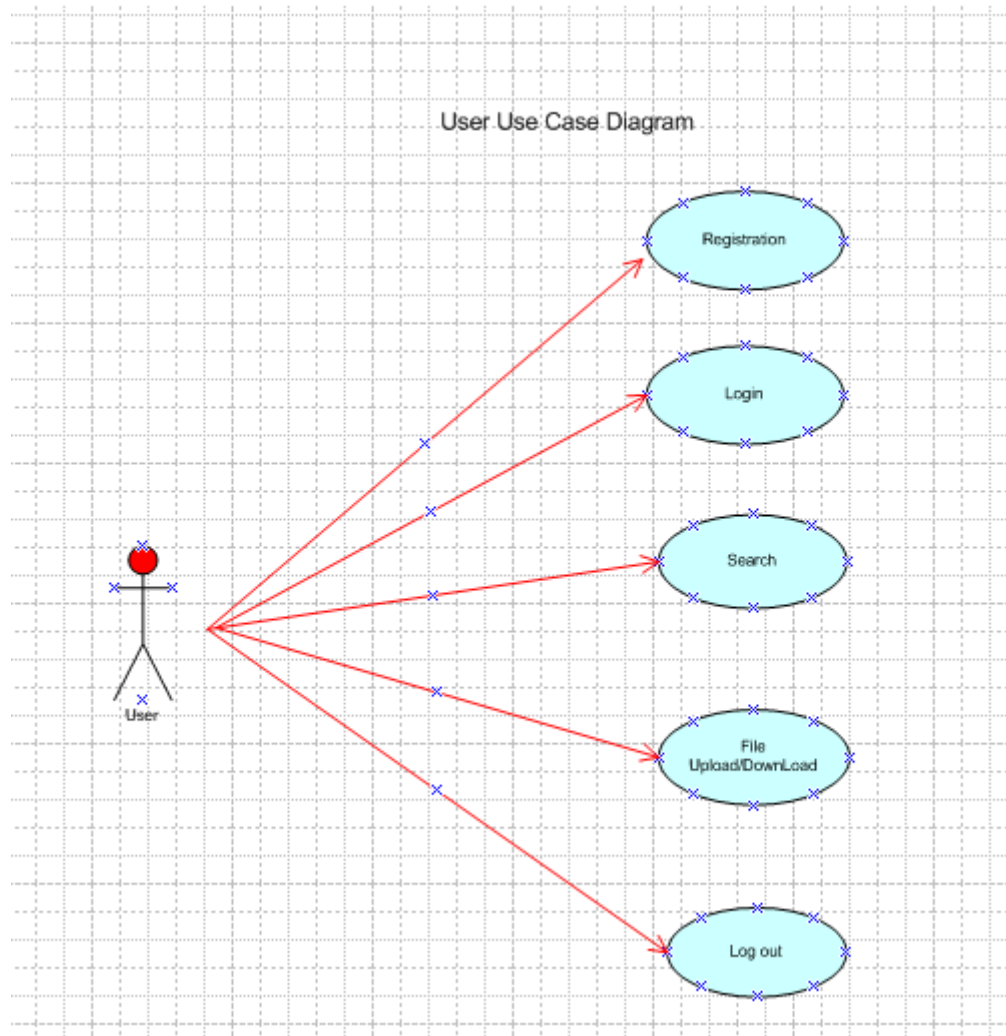
## **6.6 UML DIAGRAMS**

### **Use Case Diagrams:**

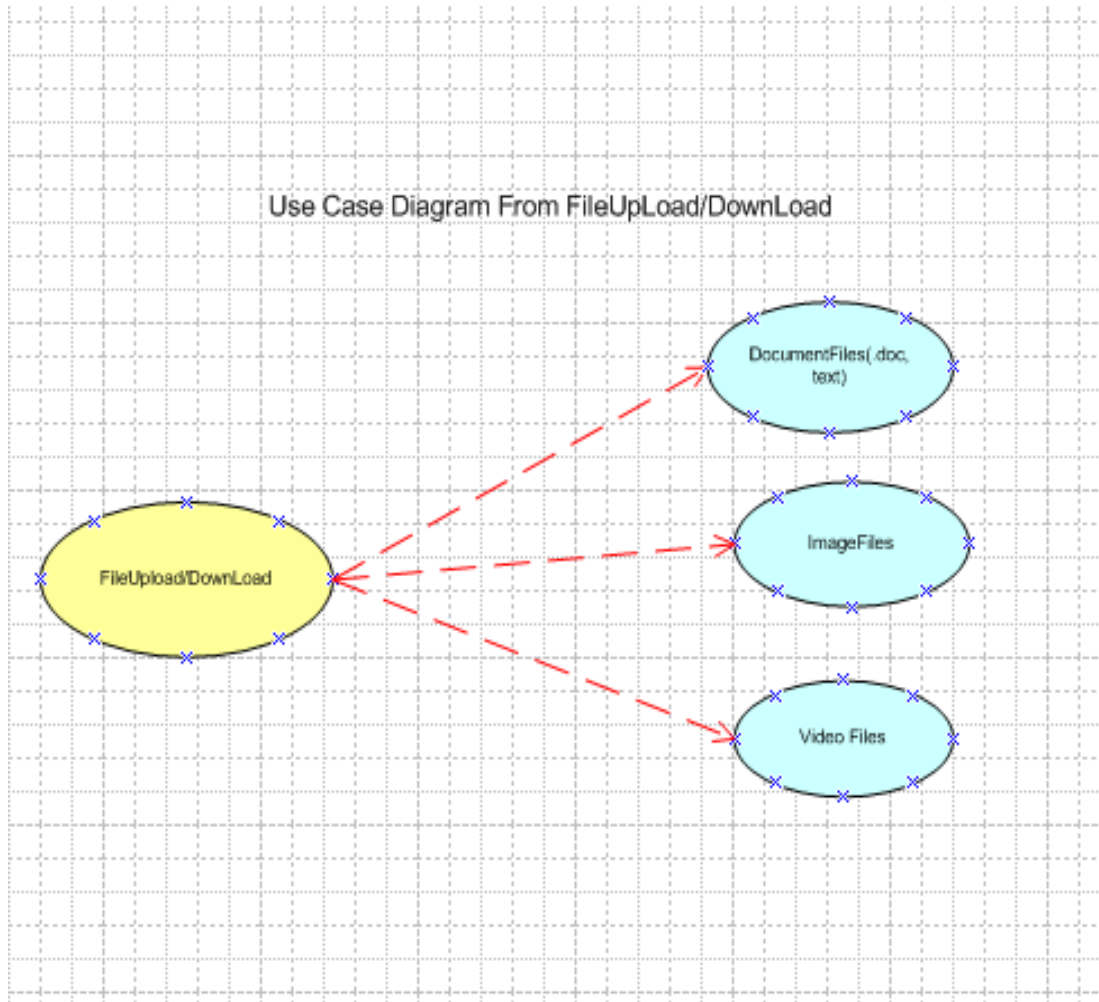
#### **Overview Use Case Diagram:**



## User Use Case Diagram:

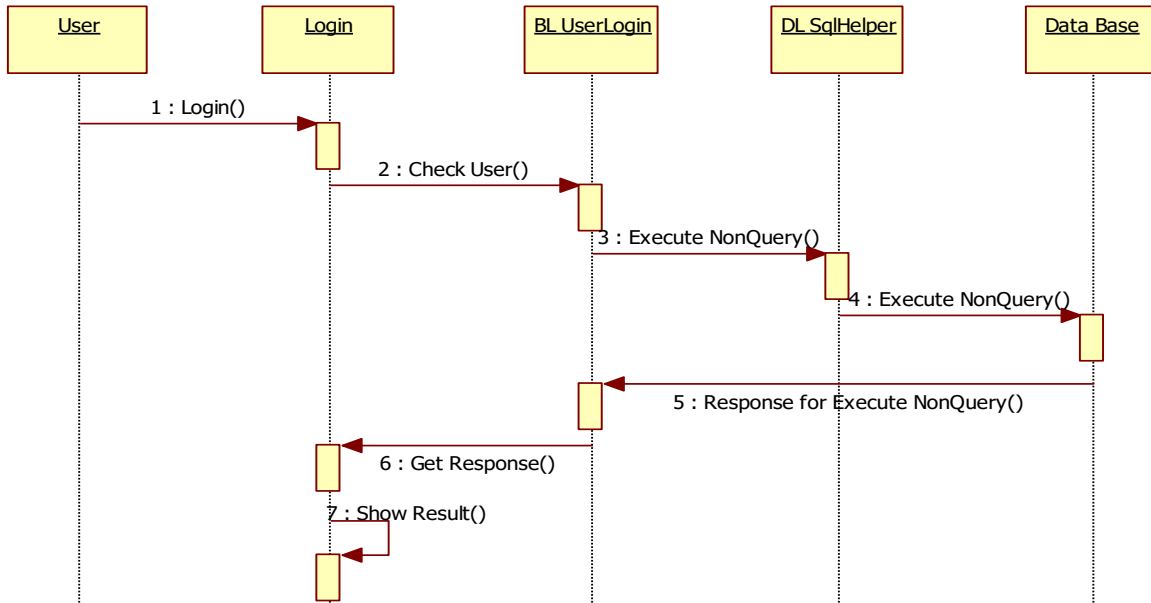


## Use Case Diagram for File Upload/Download:

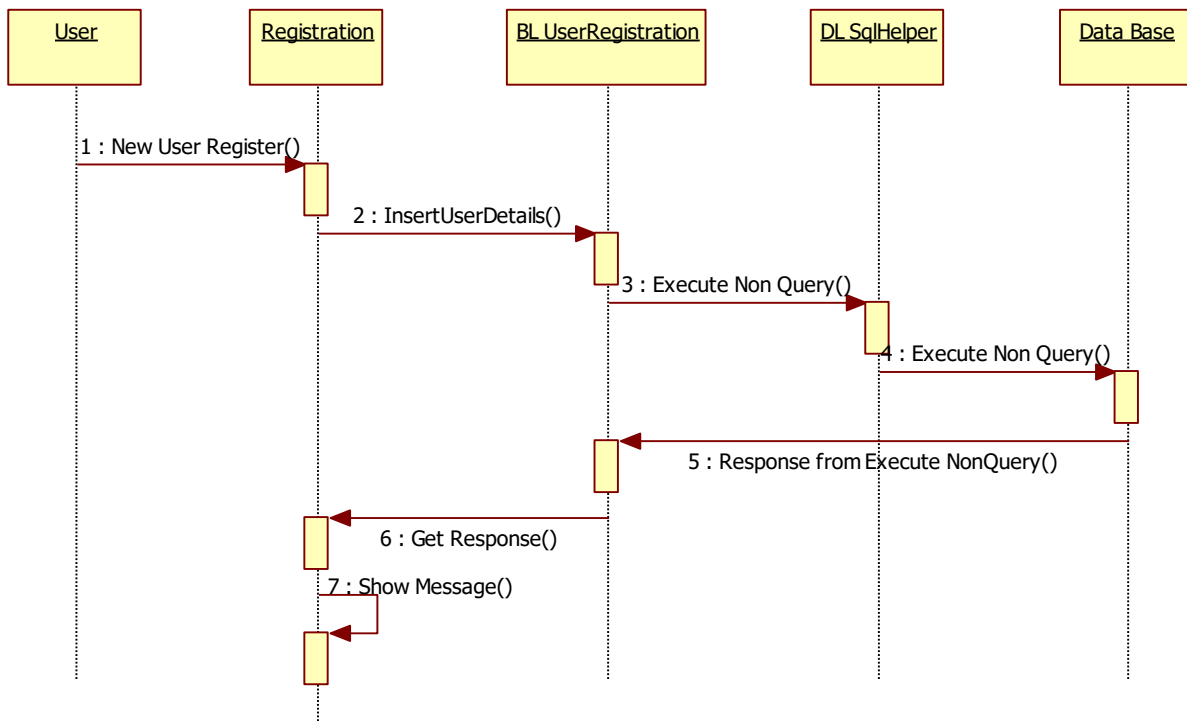


## Sequence Diagrams

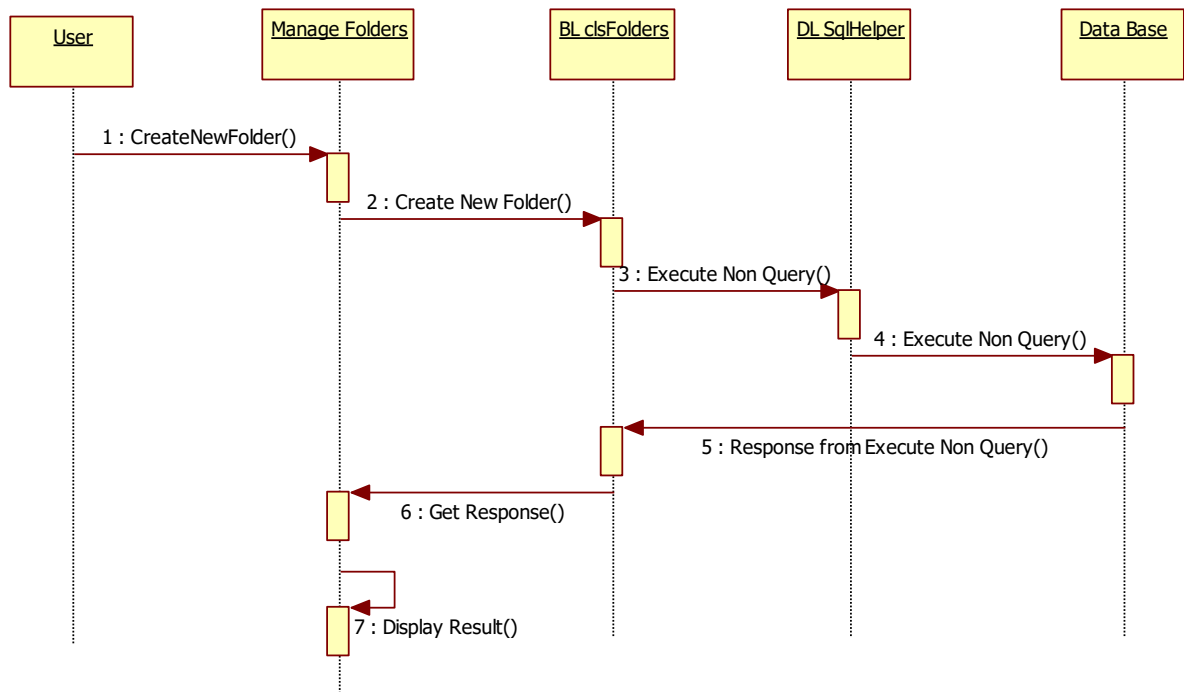
### Login Sequence:



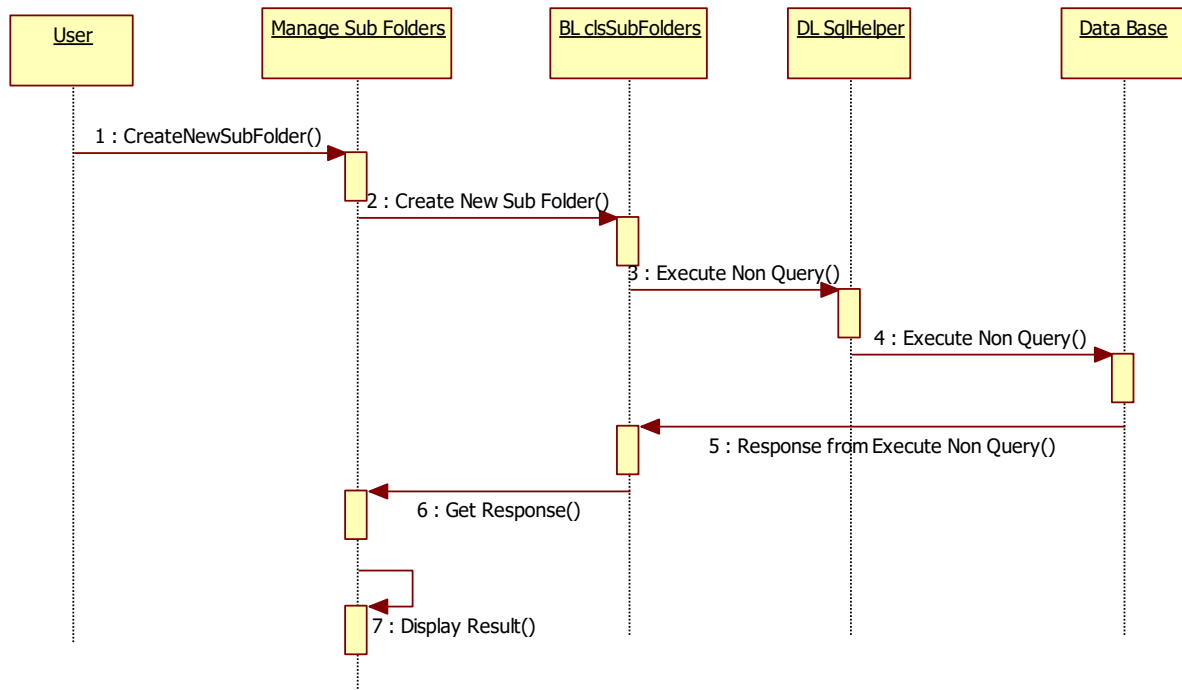
## User Registration



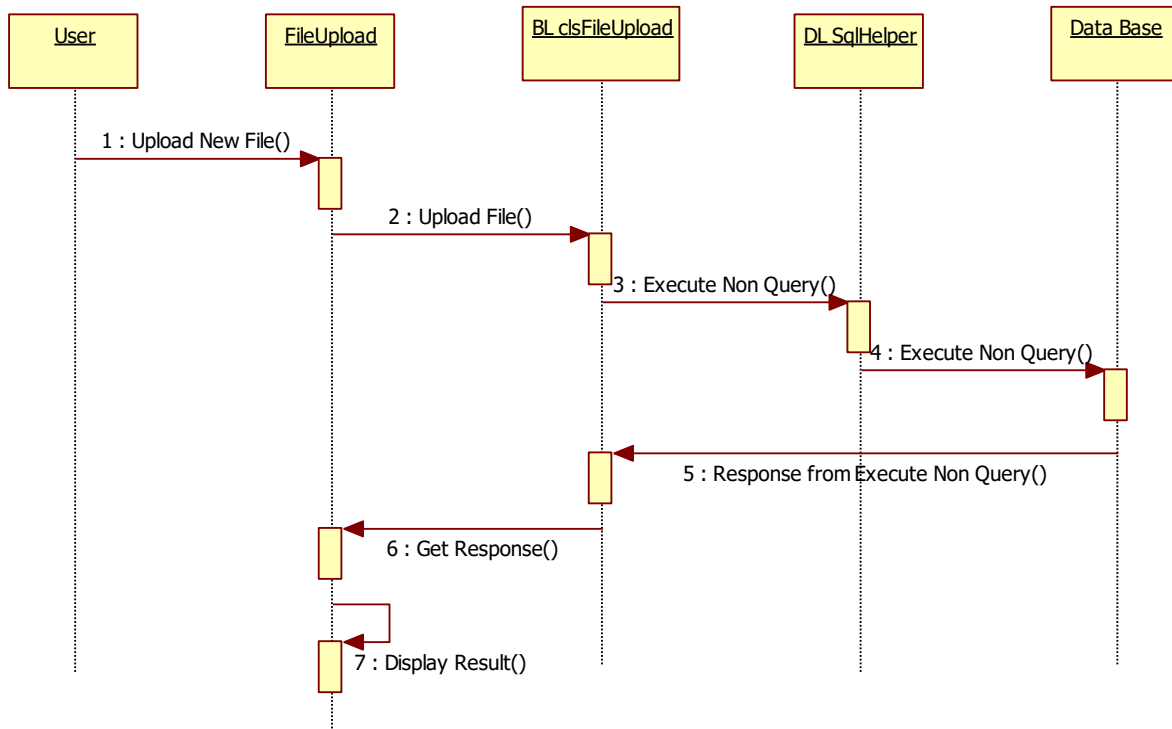
**New Folder Creation**



## New Sub Folder Creation

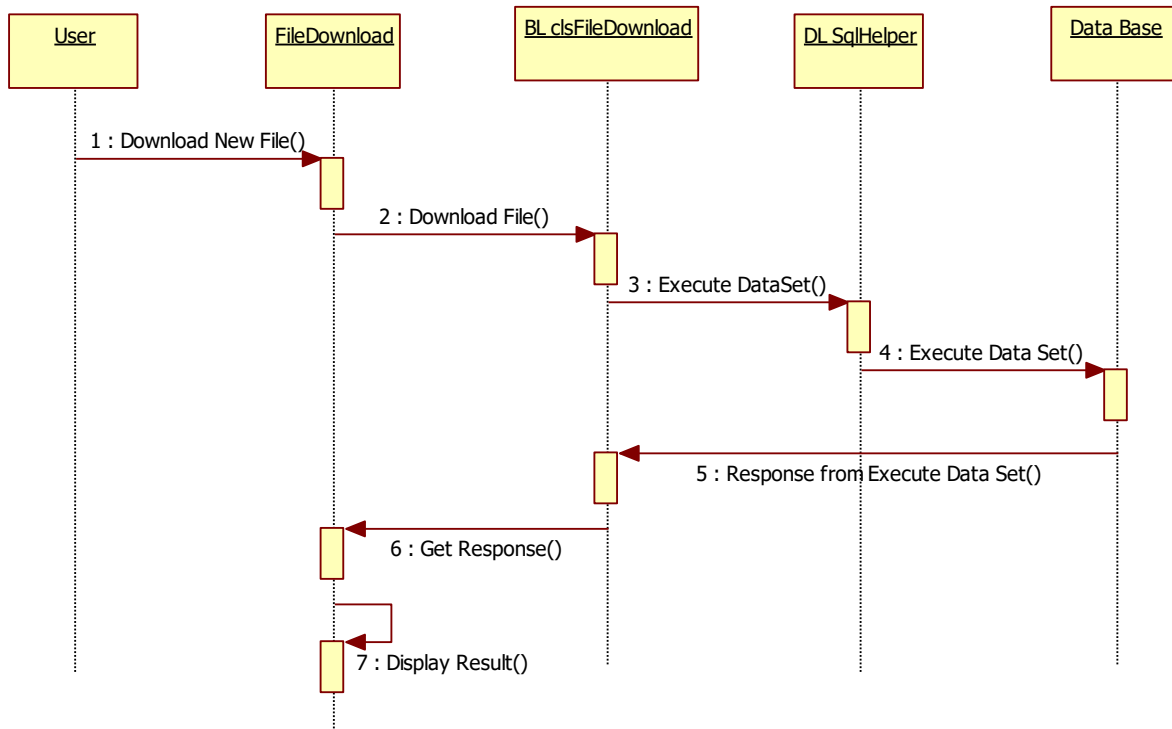


## User File Upload

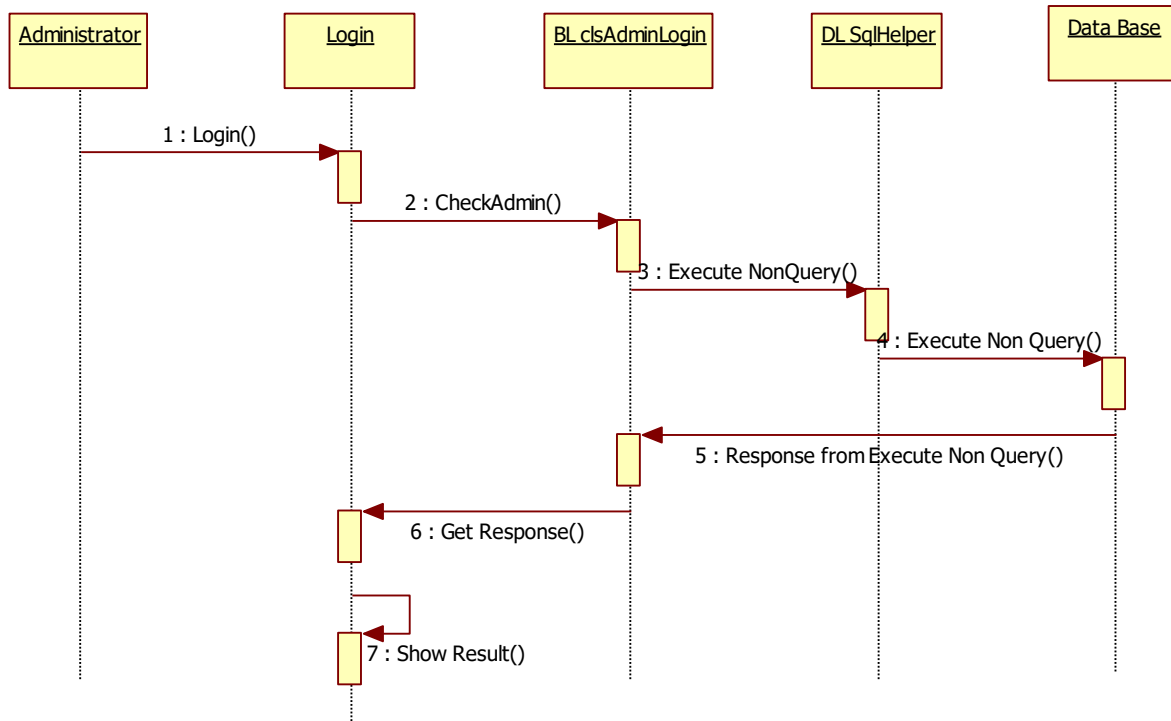




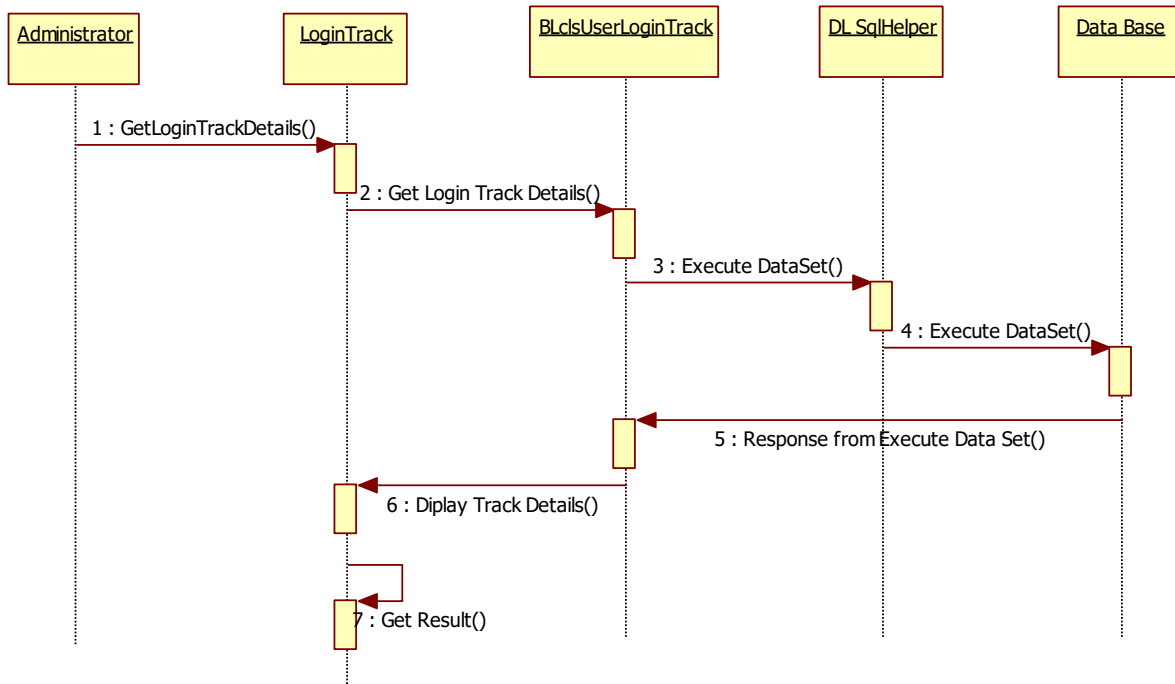
## User File Downloading



## Administration Login

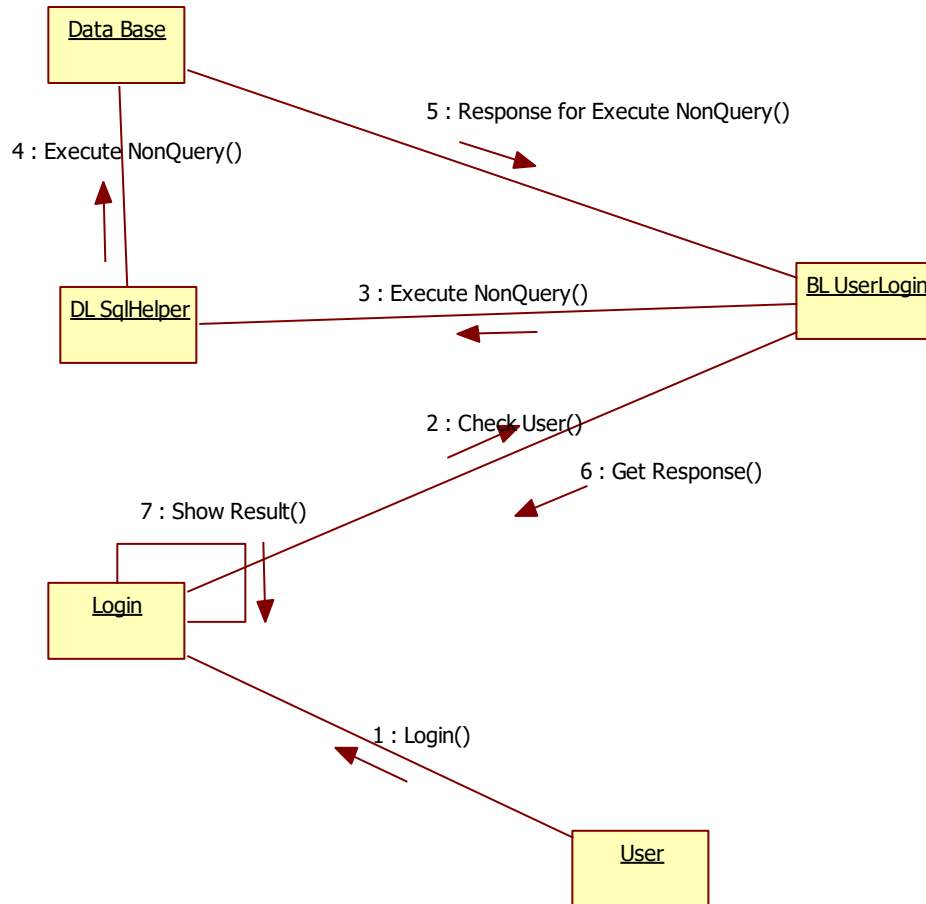


## Admin Track User Login and LogOut Track Details

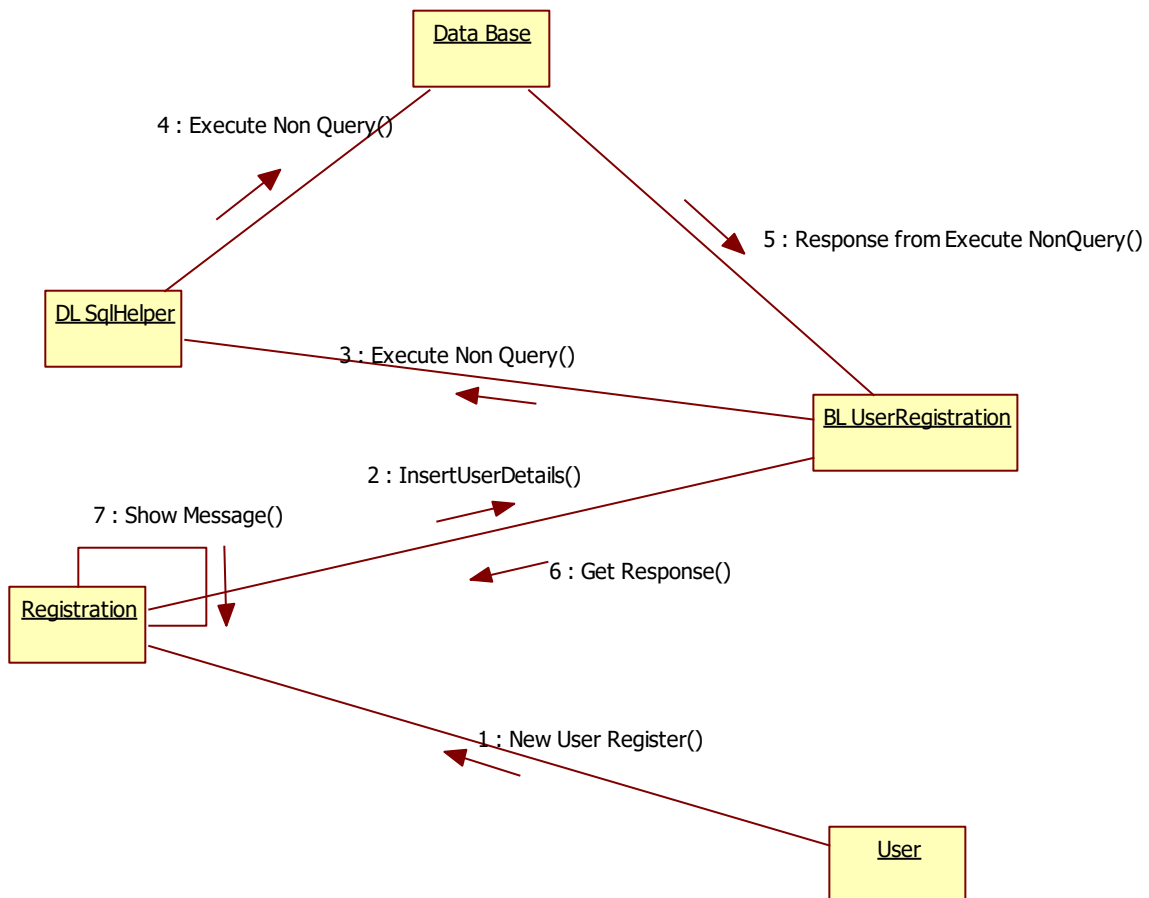


## Collabration Diagrams

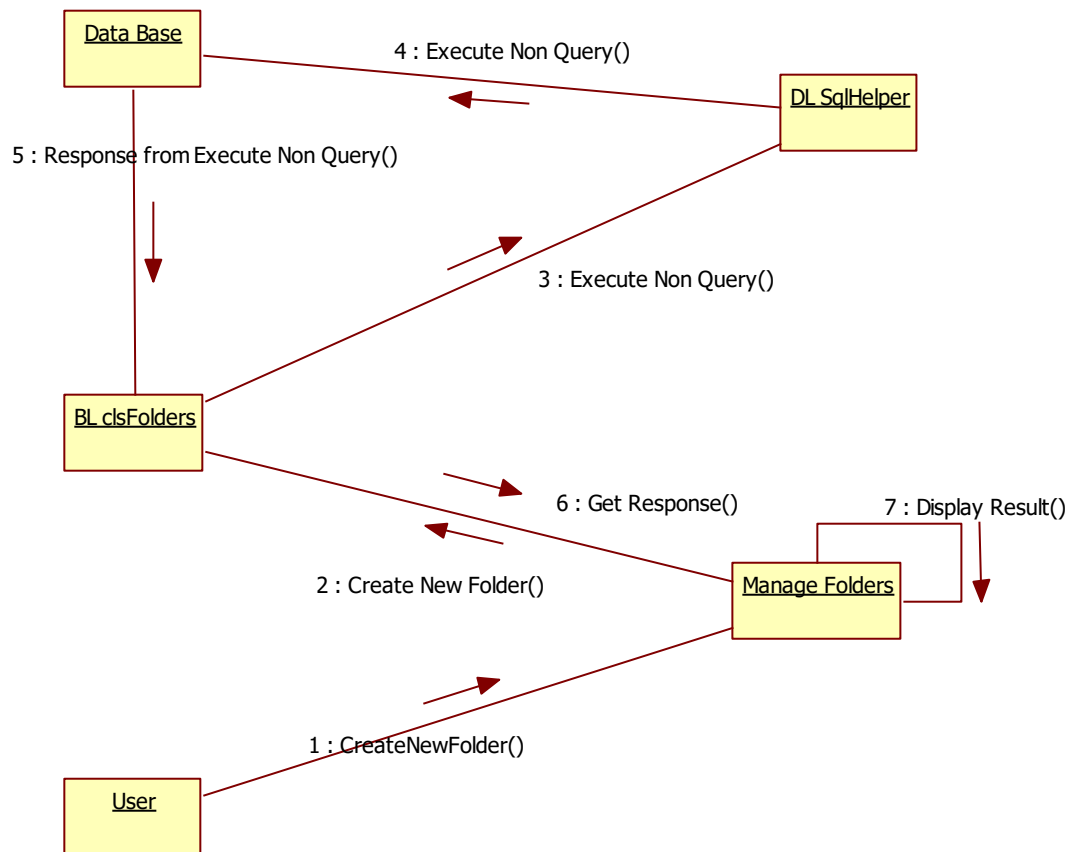
### Login Collabration



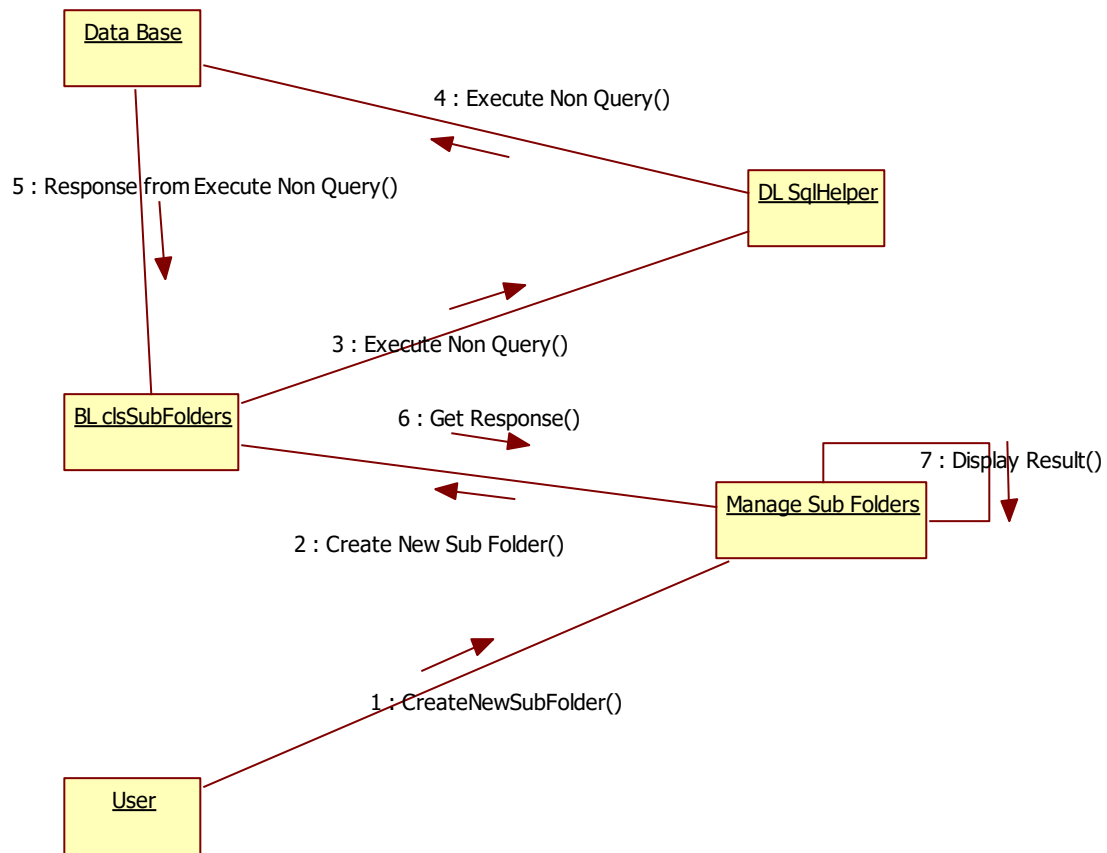
## User Registration



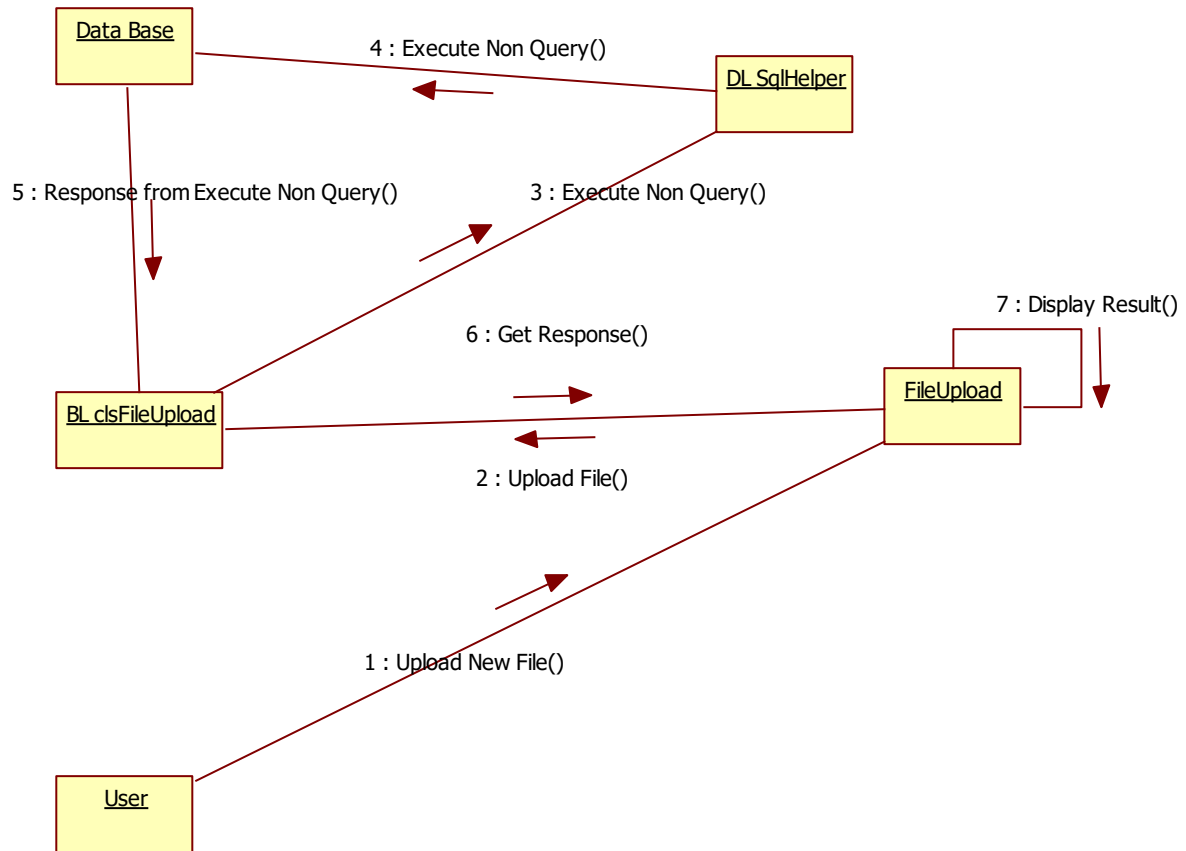
### User New Folder Creation



## User New Sub Folder Creation

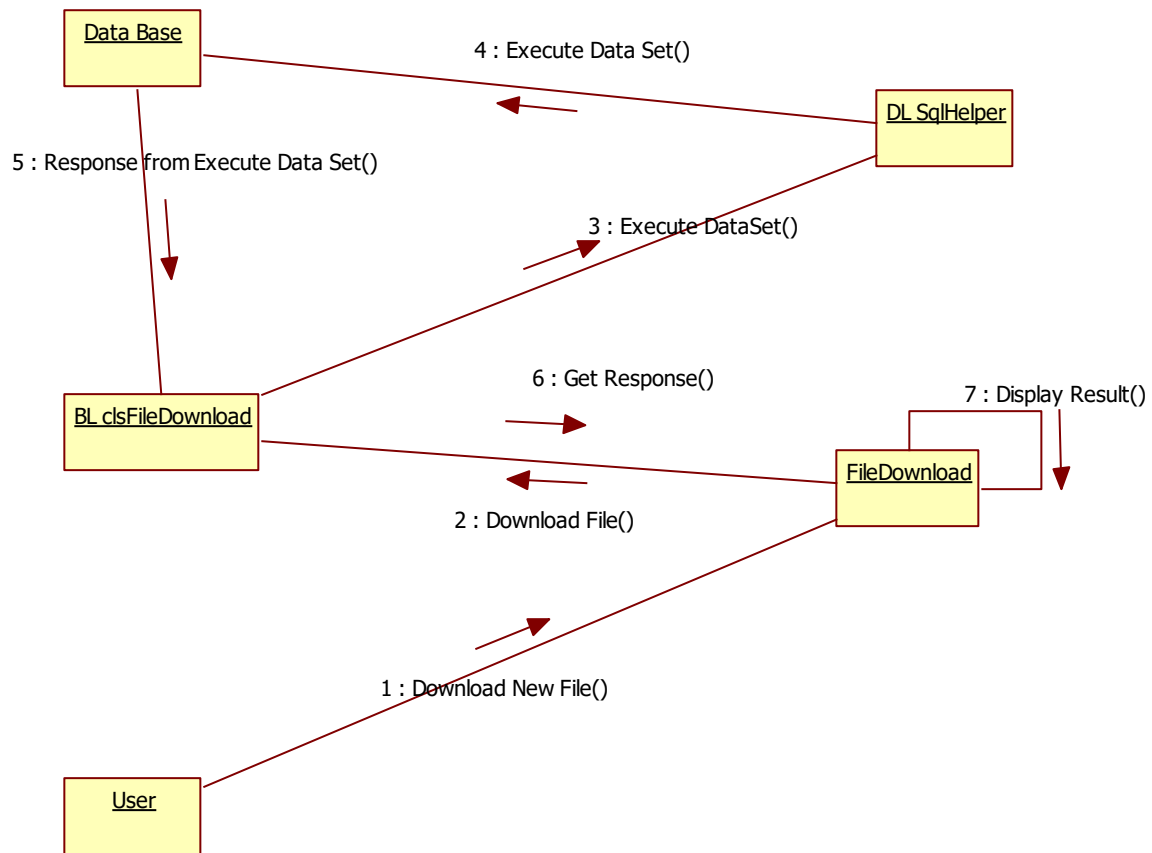


## User File Uploading

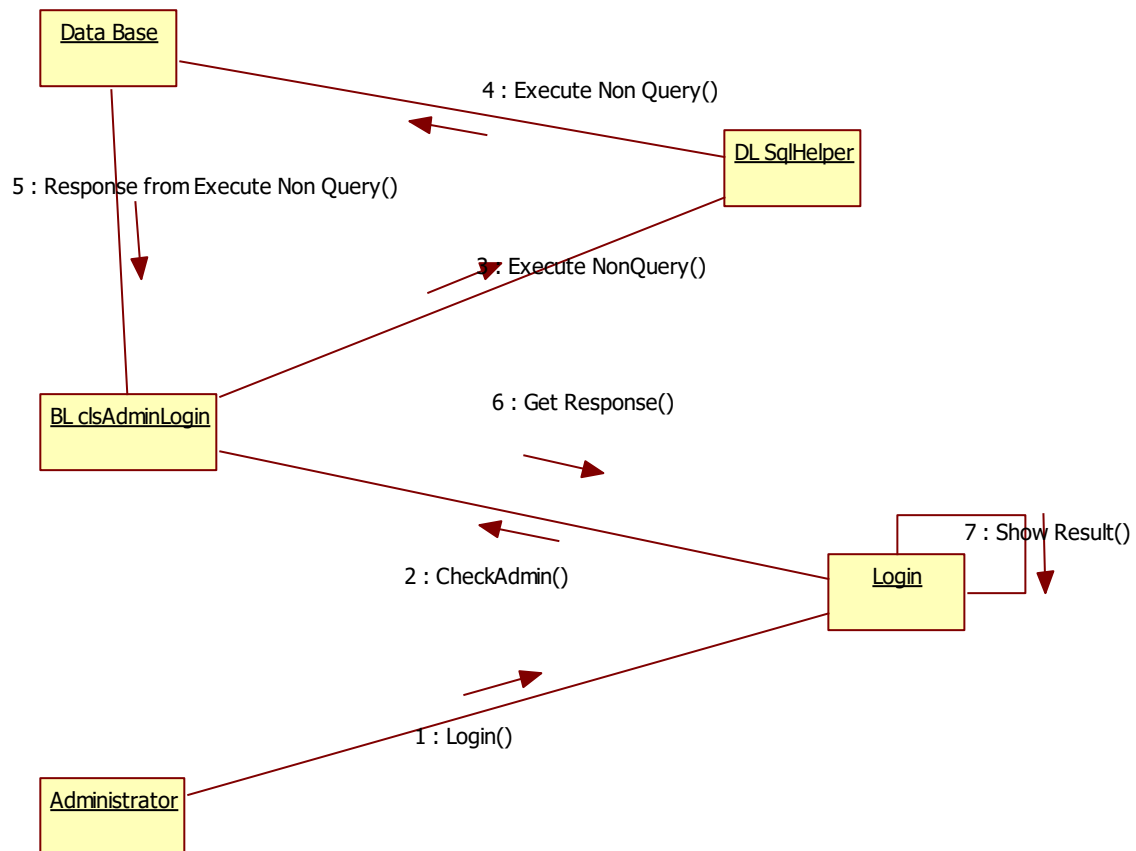




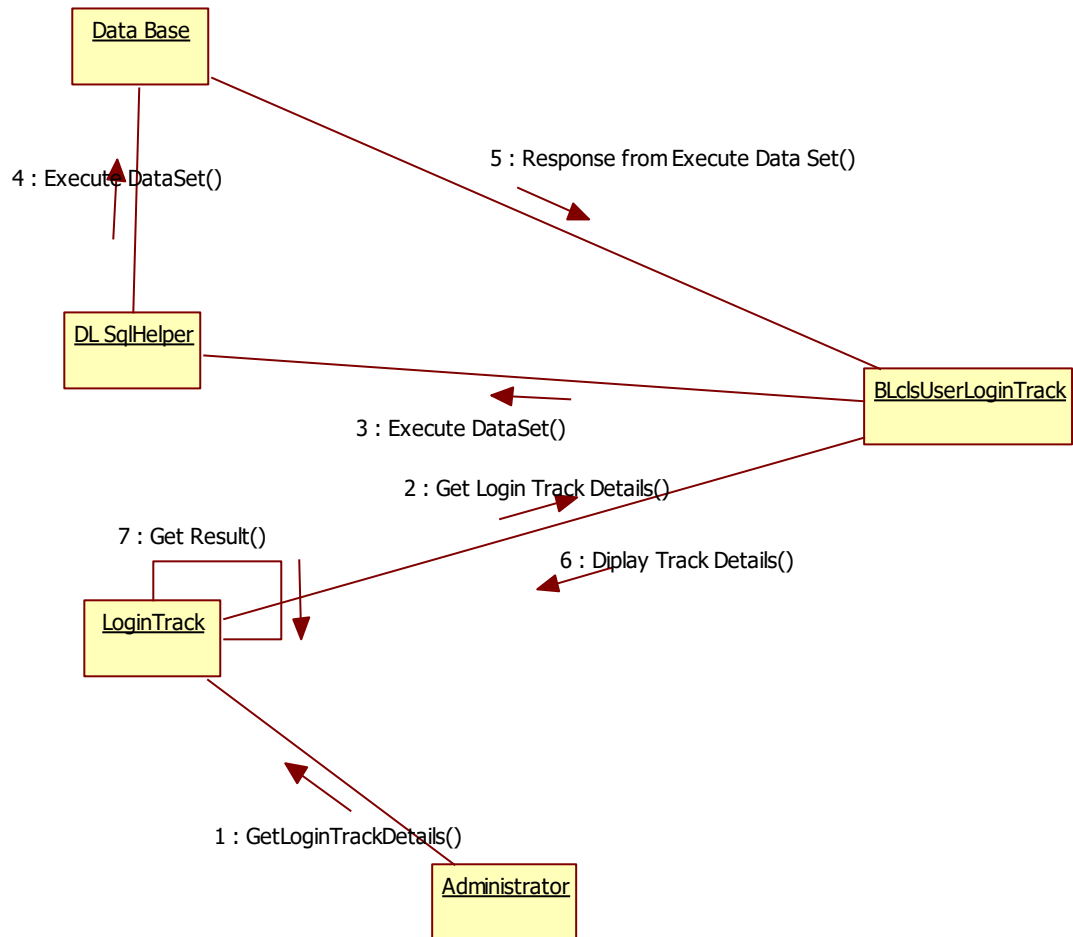
## User File down Loading



## Administrator Login

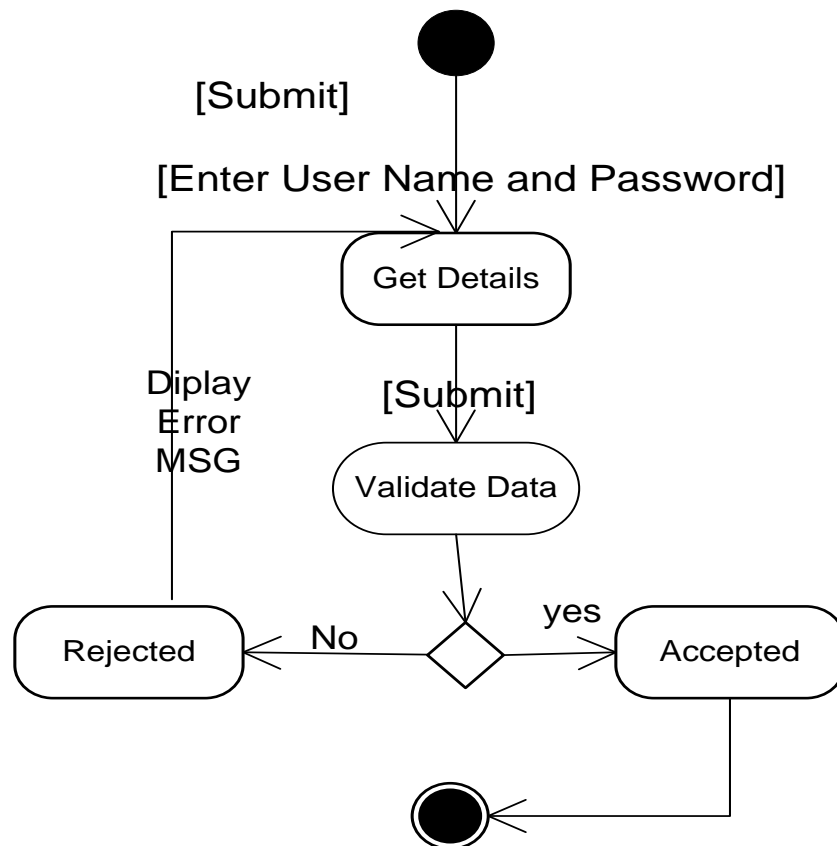


## Administrator Login Tracking

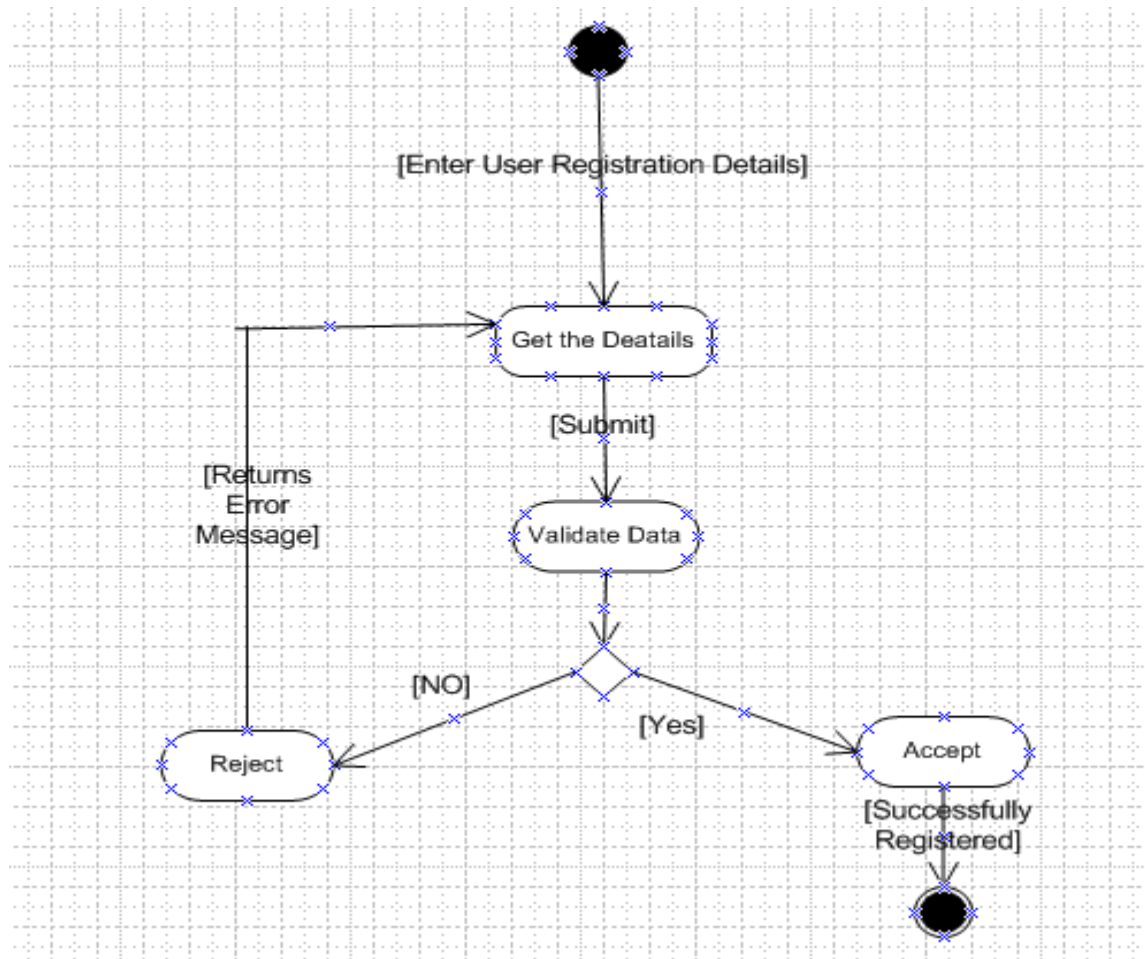


## Activity Diagrams:

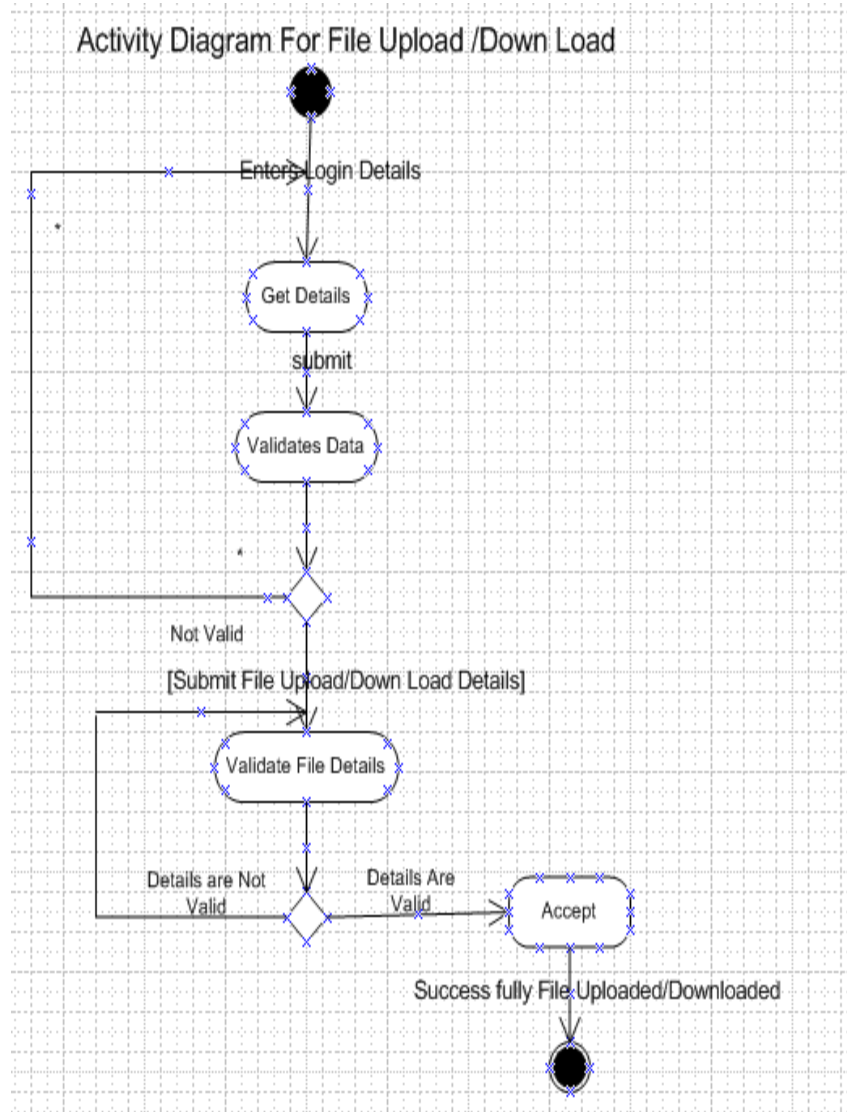
### Login Activity



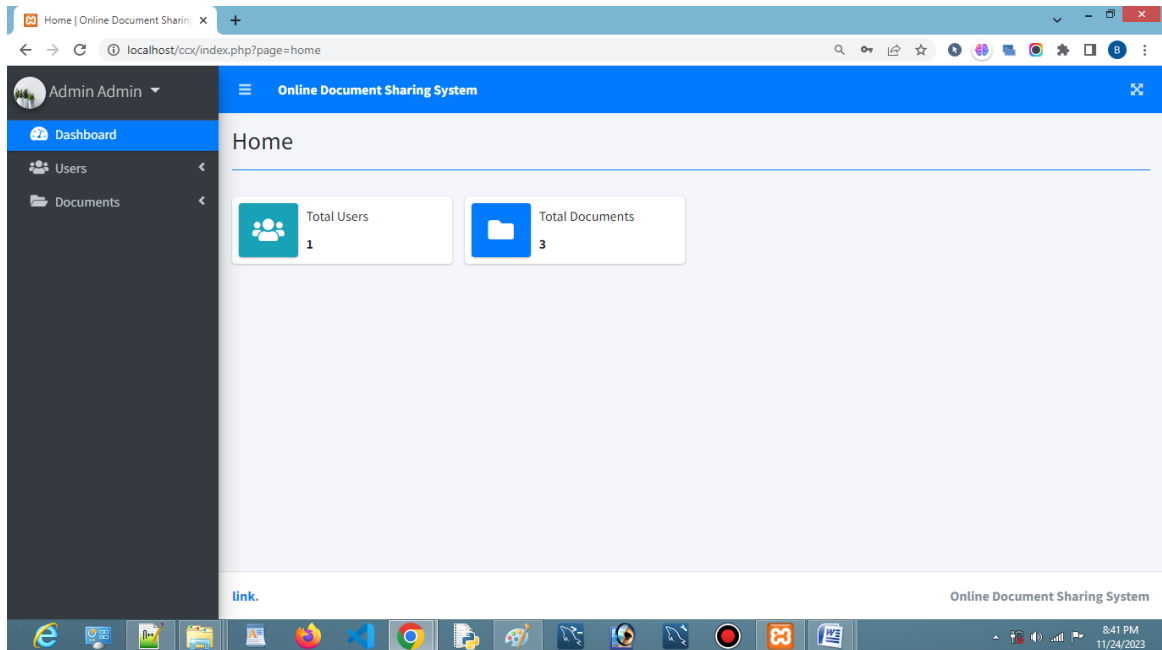
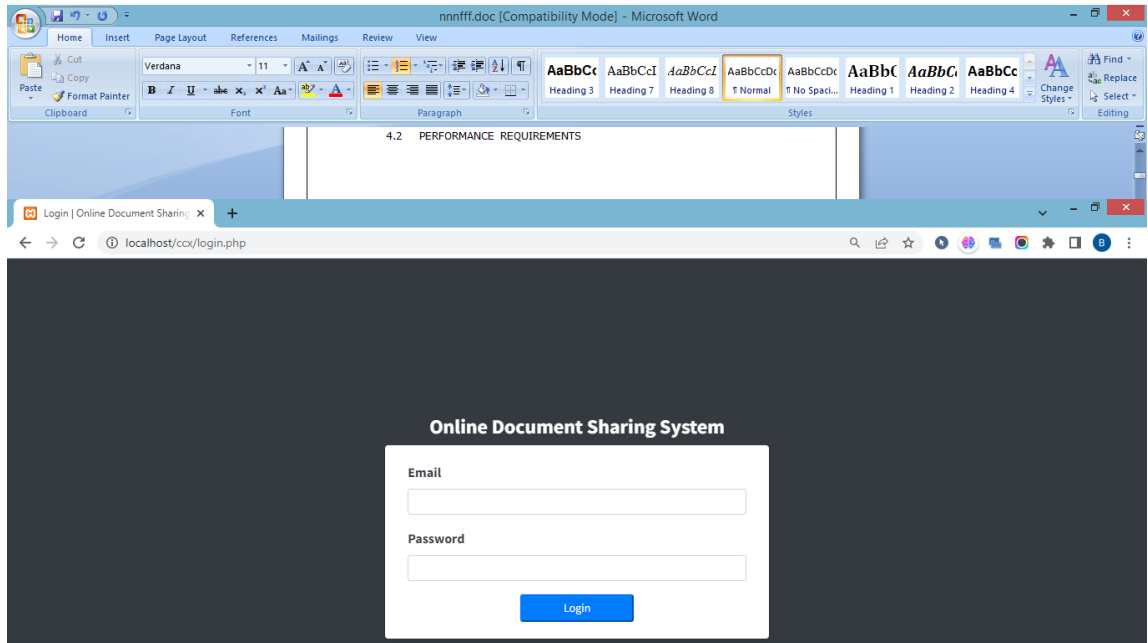
### User Registration Activity:



### File Upload/Down Load Activity:



# OUTPUT SCREENS



New User | Online Document Sharing System

## New User

Personal Information

**First Name**

**Middle Name**

**Last Name**

**Contact No.**

**Address**

**Avatar**

Choose file

**System Credentials**

**User Role**

User

**Email**

**Password**

**Confirm Password**

link.

Online Document Sharing System

User List | Online Document Sharing System

## User List

[+ Add New User](#)

Show  entries

Search:

#	Name	Contact #	Role	Email	Action
1	Admin, Admin	+12354654787	Admin	admin@gmail.com	<a href="#">Action</a>
2	Singh, Demo C	+14526-5455-44	User	demo@gmail.com	<a href="#">Action</a>

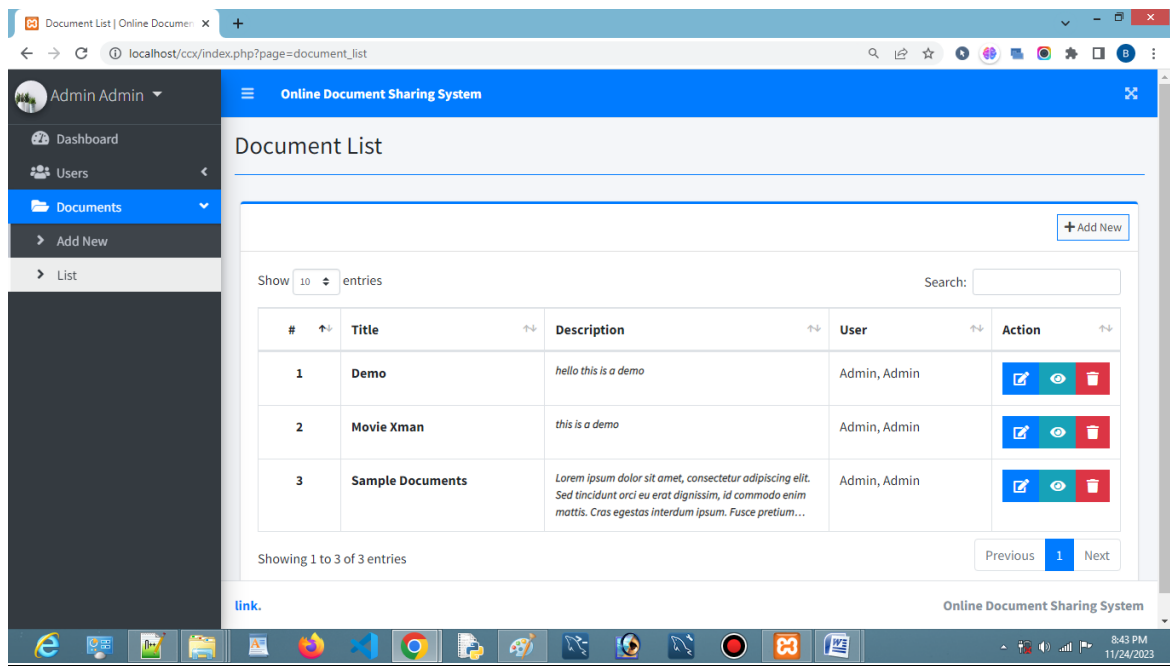
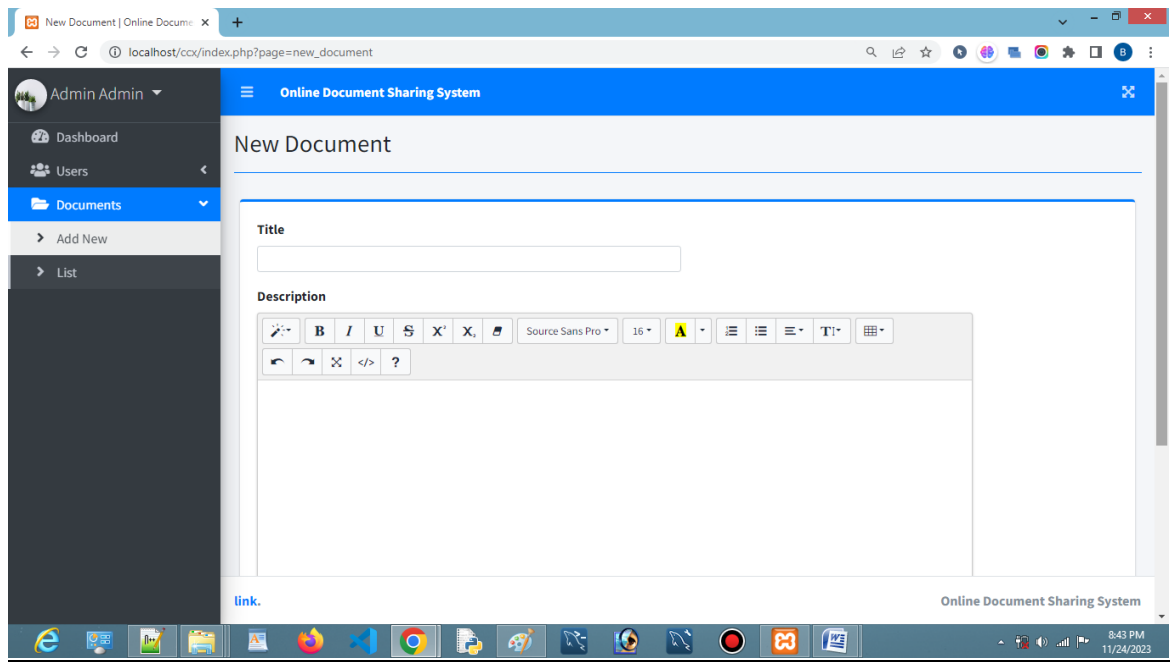
Showing 1 to 2 of 2 entries

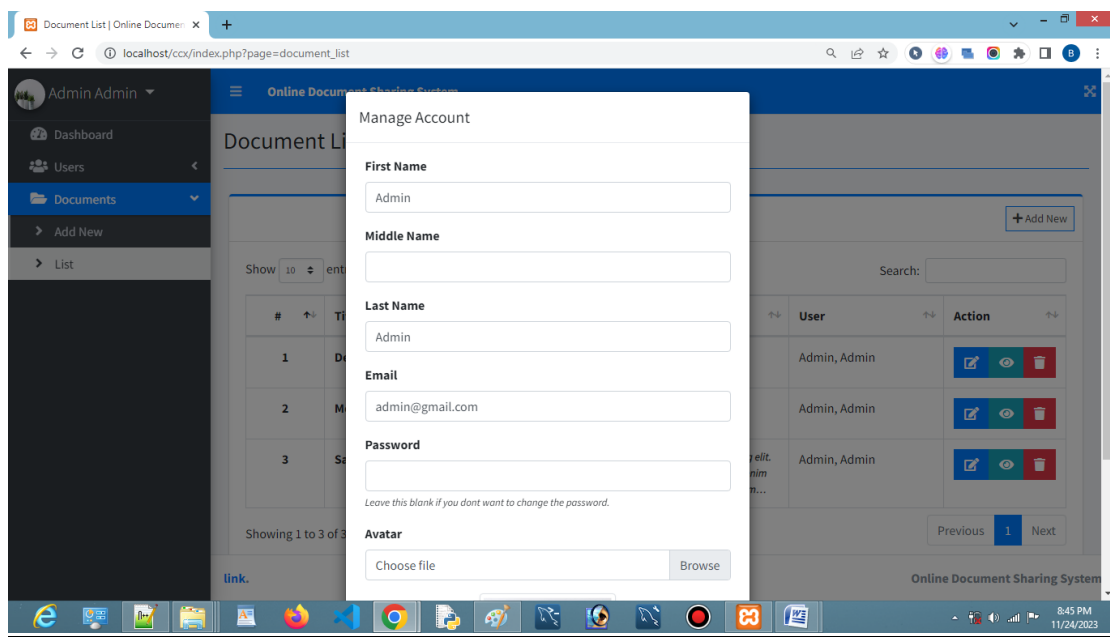
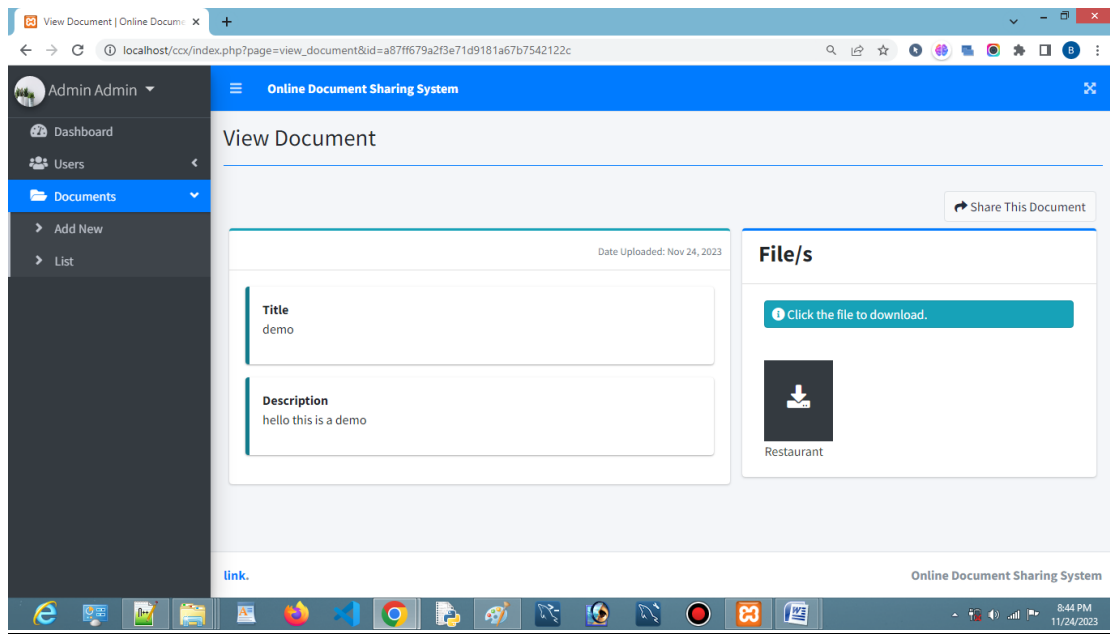
Previous [1](#) Next

link.

Online Document Sharing System







# **SYSTEM TESTING AND IMPLEMENTATION**

## **1.1 INTRODUCTION**

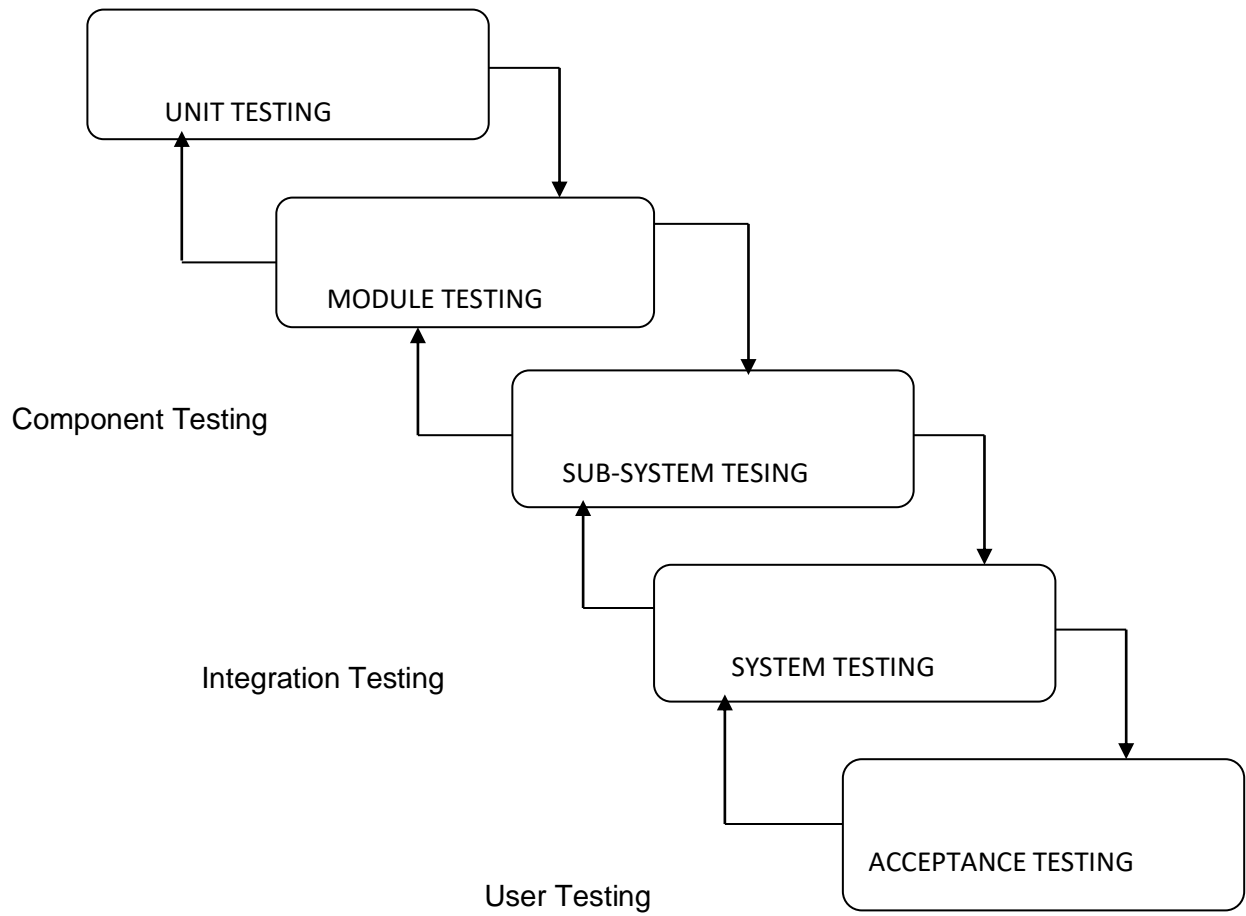
Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

## **8.2. STRATEGIC APPROACH TO SOFTWARE TESTING**

The software engineering process can be viewed as a spiral. Initially system engineering defines the role of software and leads to software requirement analysis where the information domain, functions, behavior, performance, constraints and validation criteria for software are established. Moving inward along the spiral, we come to design and finally to coding. To develop computer software we spiral in along streamlines that decrease the level of abstraction on each turn.

A strategy for software testing may also be viewed in the context of the spiral. Unit testing begins at the vertex of the spiral and concentrates on each unit of the software as implemented in source code. Testing progress by moving outward along the spiral to integration testing, where the focus is on the design and the construction of the software architecture. Talking another turn on outward on the spiral we encounter validation testing where requirements established as part of software requirements analysis are validated against the software that has been constructed. Finally we arrive at system testing, where the software and other system elements are tested as a whole.



### **8.3. UNIT TESTING**

Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing we have is white box oriented and some modules the steps are conducted in parallel.

#### **1. WHITE BOX TESTING**

This type of testing ensures that

- All independent paths have been exercised at least once
- All logical decisions have been exercised on their true and false sides
- All loops are executed at their boundaries and within their operational bounds
- All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing we have tested each form .we have created independently to verify that Data flow is correct, All conditions are exercised to check their validity, All loops are executed on their boundaries.

#### **2. BASIC PATH TESTING**

Established technique of flow graph with Cyclomatic complexity was used to derive test cases for all the functions. The main steps in deriving test cases were:

Use the design of the code and draw correspondent flow graph.

Determine the Cyclomatic complexity of resultant flow graph, using formula:

$$V(G)=E-N+2 \text{ or}$$

$$V(G)=P+1 \text{ or}$$

$$V(G)=\text{Number Of Regions}$$

Where  $V(G)$  is Cyclomatic complexity,

$E$  is the number of edges,

$N$  is the number of flow graph nodes,

$P$  is the number of predicate nodes.

Determine the basis of set of linearly independent paths.

### **3. CONDITIONAL TESTING**

In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested. So that each path that may be generate on particular condition is traced to uncover any possible errors.

### **4. DATA FLOW TESTING**

This type of testing selects the path of the program according to the location of definition and use of variables. This kind of testing was used only when some local variable were declared. The *definition-use chain* method was used in this type of testing. These were particularly useful in nested statements.

### **5. LOOP TESTING**

In this type of testing all the loops are tested to all the limits possible. The following exercise was adopted for all loops:

All the loops were tested at their limits, just above them and just below them.

All the loops were skipped at least once.

For nested loops test the inner most loop first and then work outwards.

For concatenated loops the values of dependent loops were set with the help of connected loop.

Unstructured loops were resolved into nested loops or concatenated loops and tested as above.

Each unit has been separately tested by the development team itself and all the input have been validated.

# **SYSTEM SECURITY**

## **9.1 INTRODUCTION**

The protection of computer based resources that includes hardware, software, data, procedures and people against unauthorized use or natural Disaster is known as System Security.

System Security can be divided into four related issues:

- Security
- Integrity
- Privacy
- Confidentiality

**SYSTEM SECURITY** refers to the technical innovations and procedures applied to the hardware and operation systems to protect against deliberate or accidental damage from a defined threat.

**DATA SECURITY** is the protection of data from loss, disclosure, modification and destruction.

**SYSTEM INTEGRITY** refers to the proper functioning of hardware and programs, appropriate physical security and safety against external threats such as eavesdropping and wiretapping.

**PRIVACY** defines the rights of the user or organizations to determine what information they are willing to share with or accept from others and how the organization can be protected against unwelcome, unfair or excessive dissemination of information about it.

**CONFIDENTIALITY** is a special status given to sensitive information in a database to minimize the possible invasion of privacy. It is an attribute of information that characterizes its need for protection.

## **9.3 SECURITY SOFTWARE**

System security refers to various validations on data in form of checks and controls to avoid the system from failing. It is always important to ensure that only valid data is entered and only valid operations are performed on the system. The system employs two types of checks and controls:

## **CLIENT SIDE VALIDATION**

Various client side validations are used to ensure on the client side that only valid data is entered. Client side validation saves server time and load to handle invalid data. Some checks imposed are:

- VBScript is used to ensure those required fields are filled with suitable data only. Maximum lengths of the fields of the forms are appropriately defined.
- Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty fields that are mandatory can be sorted out at the client side to save the server time and load.
- Tab-indexes are set according to the need and taking into account the ease of user while working with the system.

## **SERVER SIDE VALIDATION**

Some checks cannot be applied at client side. Server side checks are necessary to save the system from failing and intimating the user that some invalid operation has been performed or the performed operation is restricted. Some of the server side checks imposed is:

- Server side constraint has been imposed to check for the validity of primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results into a message intimating the user about those values through the forms using foreign key can be updated only of the existing foreign key values.
- User is intimating through appropriate messages about the successful operations or exceptions occurring at server side.
- Various Access Control Mechanisms have been built so that one user may not agitate upon another. Access permissions to various types of users are controlled according to the organizational structure. Only permitted users can log on to the system and can have access according to their category. User-name, passwords and permissions are controlled on the server side.
- Using server side validation, constraints on several restricted operations are imposed.



## **CONCLUSION**

It has been a great pleasure for me to work on this exciting and challenging project. This project proved good for me as it provided practical knowledge of not only programming in ASP.NET and C#.Net web based application and no some extent Windows Application and SQL Server, but also about all handling procedure related with "**Docket Chunk System**". It also provides knowledge about the latest technology used in developing web enabled application and client server technology that will be great demand in future. This will provide better opportunities and guidance in future in developing projects independently.

### **BENEFITS:**

The project is identified by the merits of the system offered to the user. The merits of this project are as follows: -

- It's a web-enabled project.
- This project offers user to enter the data through simple and interactive forms. This is very helpful for the client to enter the desired information through so much simplicity.
- The user is mainly more concerned about the validity of the data, whatever he is entering. There are checks on every stages of any new creation, data entry or updation so that the user cannot enter the invalid data, which can create problems at later date.
- Sometimes the user finds in the later stages of using project that he needs to update some of the information that he entered earlier. There are options for him by which he can update the records. Moreover there is restriction for his that he cannot change the primary data field. This keeps the validity of the data to longer extent.
- User is provided the option of monitoring the records he entered earlier. He can see the desired records with the variety of options provided by him.
- From every part of the project the user is provided with the links through framing so that he can go from one option of the project to other as per the requirement. This is bound to be simple and very friendly as per the user is concerned. That is, we can sat that the project is user friendly which is one of the primary concerns of any good project.
- Data storage and retrieval will become faster and easier to maintain because data is stored in a systematic manner and in a single database.
- Decision making process would be greatly enhanced because of faster processing of information since data collection from information available on computer takes much less time then manual system.
- Allocating of sample results becomes much faster because at a time the user can see the records of last years.

- Easier and faster data transfer through latest technology associated with the computer and communication.
- Through these features it will increase the efficiency, accuracy and transparency,

**LIMITATIONS:**

- The size of the database increases day-by-day, increasing the load on the database back up and data maintenance activity.
- Training for simple computer operations is necessary for the users working on the system.

## **FUTURE IMPROVEMENT**

- It can be implemented to upload files with an huge amount of size with the support of various file formats.
- This System being web-based and an undertaking of Cyber Security Division, needs to be thoroughly tested to find out any security gaps.
- A console for the data centre may be made available to allow the personnel to monitor on the sites which were cleared for hosting during a particular period.
- Moreover, it is just a beginning; further the system may be utilized in various other types of auditing operation viz. Network auditing or similar process/workflow based applications...

# **BIBLIOGRAPHY**

## 1. **MDN Web Docs (Mozilla Developer Network):**

- [MDN Web Docs](#) is an excellent resource for web developers. It provides comprehensive documentation and guides for HTML, CSS, JavaScript, and related technologies. While it doesn't focus specifically on MySQL, it's a valuable reference for front-end technologies.

## 2. **W3Schools:**

- [W3Schools](#) is a popular online learning platform that covers a wide range of web development technologies, including HTML, CSS, JavaScript, PHP, and MySQL. It offers tutorials, examples, and a "Try it Yourself" feature for hands-on practice.

## 3. **MySQL Documentation:**

- The [MySQL Documentation](#) is the official documentation for MySQL. It provides in-depth information on MySQL features, SQL syntax, administration, and more. It's an essential resource for anyone working with MySQL databases.

## 4. **PHP.net:**

- [PHP.net](#) is the official website for the PHP programming language. It offers extensive documentation, including a PHP manual, user-contributed notes, and a vibrant community. It's an authoritative source for PHP-related information.

## 5. **Stack Overflow:**

- [Stack Overflow](#) is a community-driven question and answer site where developers can seek help and share knowledge. It's a valuable resource for troubleshooting issues and learning from others' experiences. You can find discussions on HTML, CSS, JavaScript, PHP, and MySQL.

## 6. **CSS-Tricks:**

- [CSS-Tricks](#) is a website that focuses on CSS and front-end development. It provides tutorials, articles, and a helpful guide to CSS. While it doesn't cover MySQL or PHP, it's an excellent resource for enhancing your CSS skills.

7. **JavaScript.info:**

- [JavaScript.info](https://javascript.info) is a comprehensive resource for learning JavaScript. It covers the language from basics to advanced topics and includes interactive examples. It's a valuable reference for JavaScript development.