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**Project Name : Online Examination  
System**

**Roll no : 204**

# **Online Examination System**

## **CHAPTER 1**

### **INTRODUCTION**

The "Online Examination System" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and in some cases reduce the hardships faced by this existing system. Moreover this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. Online Examination System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources.

Every organization, whether big or small, has challenges to overcome and managing the information of Long Question, Exam, True-False Question, Answer, Matching Question. Every Online Examination System has different Exam needs, therefore we design exclusive employee management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executive who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

## **1.1 Background:-**

The purpose of Online Examination System is to automate the existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with.

Online Examination System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

The aim is to automate its existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients.

## **1.2 Objectives:-**

The main objective of the Project on Online Examination System is to manage the details of Exam, Long Question, Short Question, True-False Question, Matching Question. It manages all the information about Exam, Answer, Matching Question, Exam. The project is totally built at administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Exam, Long Question, Answer, Short Question. It tracks all the details about the Short Question, True-False Question, Matching Question.

### **1.2.1 Functionalities provided by Online Examination system.**

- Provides the searching facilities based on various factors. Such as Exam, ShortQuestion, True-False Question, Matching Question
- Online Examination System also manage the Answer details online for True-FalseQuestion details, Matching Question details, Exam.
- It tracks all the information of Long Question, Answer, True-False Question etc
- Manage the information of Long Question
- Shows the information and description of the Exam, Short Question
- To increase efficiency of managing the Exam, Long Question
- It deals with monitoring the information and transactions of True-False Question.
- Manage the information of Exam
- Editing, adding and updating of Records is improved which results in properresource management of Exam data.
- Manage the information of True-False Question
- Integration of all records of Matching Question.

## **1.3 Scope, and Applicability:-**

### **1.3.1 Scope:-**

It may help collecting perfect management in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the management of passed year perfectly and vividly. It also helps in current all works relative to Online Examination System. It will be also reduced the cost of collecting the management & collection procedure will go on smoothly.

Our project aims at Business process automation, i.e. we have tried to computerize various processes of Online Examination System.

- ☐ In computer system the person has to fill the various forms & number of copies of the forms can be easily generated at a time.
- ☐ In computer system, it is not necessary to create the manifest but we can directly print it, which saves our time.
- ☐ To assist the staff in capturing the effort spent on their respective working areas.
- ☐ To utilize resources in an efficient manner by increasing their productivity through automation.
- ☐ The system generates types of information that can be used for various purposes.
- ☐ It satisfy the user requirement
- ☐ Be easy to understand by the user and operator
- ☐ Be easy to operate
- ☐ Have a good user interface
- ☐ Be expandable
- ☐ Delivered on schedule within the budget.

## **Reports of Online Examination System:**

- It generates the report on Exam, Long Question, Answer
- Provide filter reports on Short Question, True-False Question, Matching Question
- You can easily export PDF for the Exam, Answer, True-False Question

## **Modules of Online Examination System:**

- ☐ Exam Management Module: Used for managing the Exam details.
- ☐ Matching Question Module : Used for managing the details of Matching Question
- ☐ Answer Module : Used for managing the details of Answer
- ☐ Long Question Management Module: Used for managing the information and details of the Long Question.
- ☐ Short Question Module: Used for managing the Short Question details.
- ☐ True-False Question Module: Used for managing the True-False Question information.
- ☐ VPN Module: Used for connecting to the secured and private network.
- ☐ Face Detection Module: Used for securing access to the right user.
- ☐ Login Module: Used for managing the login details.
- ☐ Users Module: Used for managing the users of the system.

## **Input Data and Validation of Project on Online Examination System**

- All the fields such as Exam, Short Question, Matching Question are validated and does not take invalid values
- Each form for Exam, Long Question, Answer can not accept blank value fields
- Avoiding errors in data
- Controlling amount of input
- Integration of all the modules/forms in the system.
- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Actual testing done manually.
- Recording of all the reproduced errors.
- Modifications done for the errors found during testing.
- Prepared the test result scripts after rectification of the errors.
- Functionality of the entire module/forms.
- Validations for user input.
- Checking of the Coding standards to be maintained during coding.
- Testing the module with all the possible test data.
- Testing of the functionality involving all type of calculations etc.
- Commenting standard in the source files.

**The software quality plan we will use the following SOA Strategy:**

- In the first step, we will select the test factors and rank them. The selected testfactors such as reliability, maintainability, portability or etc, will be placed in thematrix according to their ranks.
- The second step is for identifying the phases of the development process. Thephase should be recorded in the matrix.
- The third step is that identifying the business risks of the software deliverables.The risks will be ranked into three ranks such as high, medium and low.



## **Feasibility Study:**

After doing the project Online Examination System, study and analyzing all the existing or required functionalities of the system, the next task is to do the feasibility study for the project. All projects are feasible - given unlimited resources and infinite time.

Feasibility study includes consideration of all the possible ways to provide a solution to the given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily done based on the future upcoming requirements.

### **A. Economical Feasibility**

This is a very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor.

- ☐ All hardware and software cost has to be borne by the organization.
- ☐ Overall we have estimated that the benefits the organization is going to receive from the proposed system will surely overcome the initial costs and the later on running cost for system.

### **B. Technical Feasibility**

This included the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionality to be provided in the system, as described in the System Requirement Specification (SRS), and checked if everything was possible using different type of frontend and backend platformst.

### **C. Operational Feasibility**

No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory even to a layman. Besides, a proper training has been conducted to let know the essence of the system to the users so that they feel comfortable with new system. As far our study is concerned the clients are comfortable and happy as the system has cut down their loads and doing.

# **CHAPTER 2**

## **SURVEY OF TECHNOLOGIES**

### **Web Application:**

In Frontend, we have HTML, CSS3, and PHP In Database, we have MYSQL server

### **2.1 Frontend:**

A front-end system is part of an information system that is directly accessed and interacted with by the user to receive or utilize back-end capabilities of the host system. It enables users to access and request the features and services of the underlying information system. The front-end system can be a software application or the combination of hardware, software and network resources.

A front-end system is primarily used to send queries and requests, and receive data from the back-end system or the host information system. It serves or provides users with the ability to interact and use an information system. Typically, front-end systems have very limited computational or business logic processing capabilities and rely on the data and functions from the host system. However, some advanced level front-end systems do maintain copies of data, such as a duplicate of each transaction sent to the back-end system. A front-end system may include or consist of textual or graphical user interface (GUI) and/or a front-end client application that is connected by the back-end system

## 2.2 PHP :

PHP started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.

- PHP is a recursive acronym for "PHP: Hypertext Preprocessor".
- PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
- It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
- PHP is pleasingly zippy in its execution, especially when compiled as an Apache module on the Unix side. The MySQL server, once started, executes even very complex queries with huge result sets in record-setting time.
- PHP supports a large number of major protocols such as POP3, IMAP, and LDAP. PHP4 added support for Java and distributed object architectures (COM and CORBA), making n-tier development a possibility for the first time.
- PHP is forgiving: PHP language tries to be as forgiving as possible.
- PHP Syntax is C-Like.

## 2.3 XAMPP:

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, Maria DB database. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer. With the advantage a number of common add-in applications such as Word press and Joomla! can also be installed with similar ease using Bitnami.

## 2.4 Apache:

Apache Tomcat, often referred to as Tomcat Server, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet , Java Server Pages (JSP), Java EL, and WebSocket, and provides a "pure Java" HTTP web server environment in which Java code can run.

Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software

## 2.5 My SQL:

My SQL is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. The My SQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. My SQL was owned and sponsored by a single for-profit firm, the Swedish company My SQL AB, now owned by Oracle Corporation.<sup>[8]</sup> For proprietary use, several paid editions are available, and offer additional functionality.

My SQL is a central component of the LAMP open-source web application software stack (and other "AMP" stacks). LAMP is an acronym for "Linux, Apache, My SQL, Perl/PHP/Python".

Applications that use the My SQL database

include: TYPO3, MODx, Joomla, WordPress, Simple Machines Forum, php BB, MyBB, and Drupal. My SQL is also used in many high-profile, large-scale websites, including Google.

## 2.6 Angular JS:

**AngularJS** is a JavaScript-based open-source front-end web framework for developing single-page applications. It is maintained mainly by Google and a community of individuals and corporations. It aims to simplify both the development and the testing of such applications by providing a framework for client-side model–view–controller (MVC) and model–view–viewmodel (MVVM) architectures, along with components commonly used in web applications and progressive web applications.

AngularJS is used as the frontend of the MEAN stack, consisting of MongoDB database, Express.js web application server framework, AngularJS itself (or Angular), and Node.js server runtime environment.

# **CHAPTER 3**

## **REQUIREMENTS AND ANALYSIS**

### **3.1 Problem Definition:**

Problem Management includes the activities required to diagnose the root cause of incidents identified through the Incident Management process, and to determine the resolution to those problems. It is also responsible for ensuring that the resolution is implemented through the appropriate control procedures, especially Change Management and Release Management. Problem Management will also maintain information about problems and the appropriate workarounds and resolutions so that the organization is able to reduce the number and impact of incidents over time. In this respect, Problem Management has a strong interface with Knowledge Management, and tools such as the Known Error Database will be used for both. Although Incident Management and Problem Management are separate processes, they are closely related and will typically use the same tools, and may use similar categorization, impact, and priority coding systems. This will ensure effective communication when dealing with related incidents and problems.

### **Existing System of Online Examination System:**

In the existing system the exams are done only manually but in proposed system we have to computerize the exams using this application.

- Lack of security of data.
- Consumes large volume of paper work.
- Needs manual calculations.
- No direct role for the higher officials

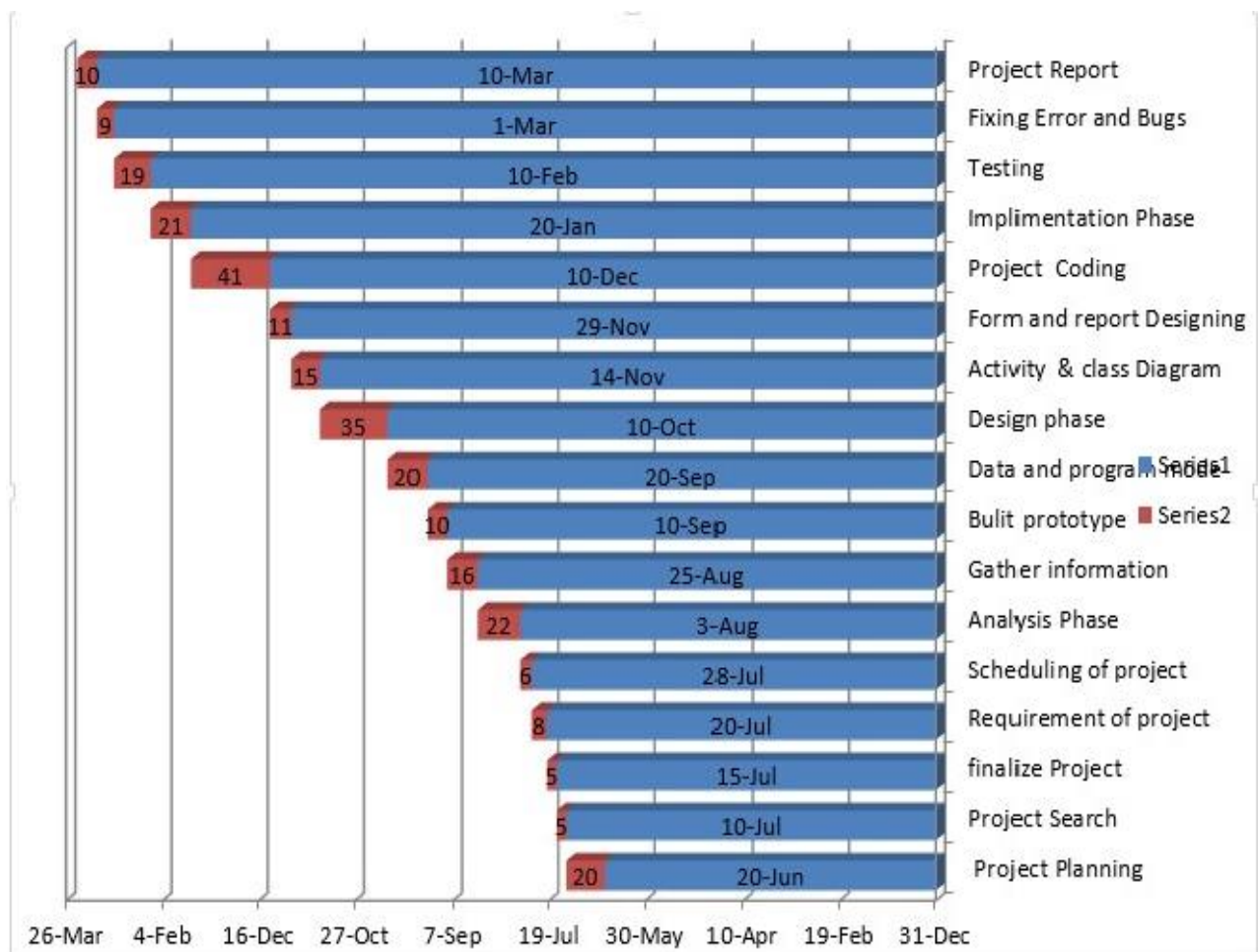
### **Proposed System of Online Examination System:**

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The system provides proper security and reduces the manual work.

- Security of data.
- Ensure data accuracy's.
- Proper control of the higher officials.
- Minimum time needed for the various processing.
- Greater efficiency.
- Better service.
- User friendliness and interactive.

## 3.2 Gantt Chart :

A Gantt chart is a horizontal bar chart used in project management as a tool for graphically representing the schedule of a set of specific activities or tasks. The horizontal bars indicate the length of time allocated to each activity, so the x-axis of a Gantt chart is subdivided into equal units of time, e.g., days, weeks, months. The y-axis of a Gantt chart, on the other hand, simply lists all the activities or tasks being monitored by the Gantt chart. A simple look at a Gantt chart should enable its user to determine which tasks take the longest time to complete, which tasks are overlapping with each other, etc.





### 3.3 Software and Hardware Requirements:

#### 3.3.1 Software Requirement :

| Name of components | Specification             |
|--------------------|---------------------------|
| Operating System   | Windows10                 |
| Language           | PHP, HTML, BOOTSTRAP      |
| Database           | MYSQL                     |
| Browser            | Chrome, Internet Explorer |

#### 3.3.2 Hardware Requirement :

| Name of component | Specification             |
|-------------------|---------------------------|
| Processor         | intel corei3              |
| RAM               | 2GB                       |
| Hard disk         | 500MB                     |
| Monitor           | 15” color monitor         |
| Keyboard          | 122 keys                  |
| Camera            | VGA or any better version |

### **3.4 Preliminary Product Description:**

The first step in the system development life cycle is the preliminary investigation to determine the feasibility of the system. The purpose of the preliminary investigation is to evaluate project requests. It is not a design study nor does it include the collection of details to describe the business system in all respect. Rather, it is the collecting of information that helps committee members to evaluate the merits of the project request and make an informed judgment about the feasibility of the proposed project

### **3.5 Conceptual Models:**

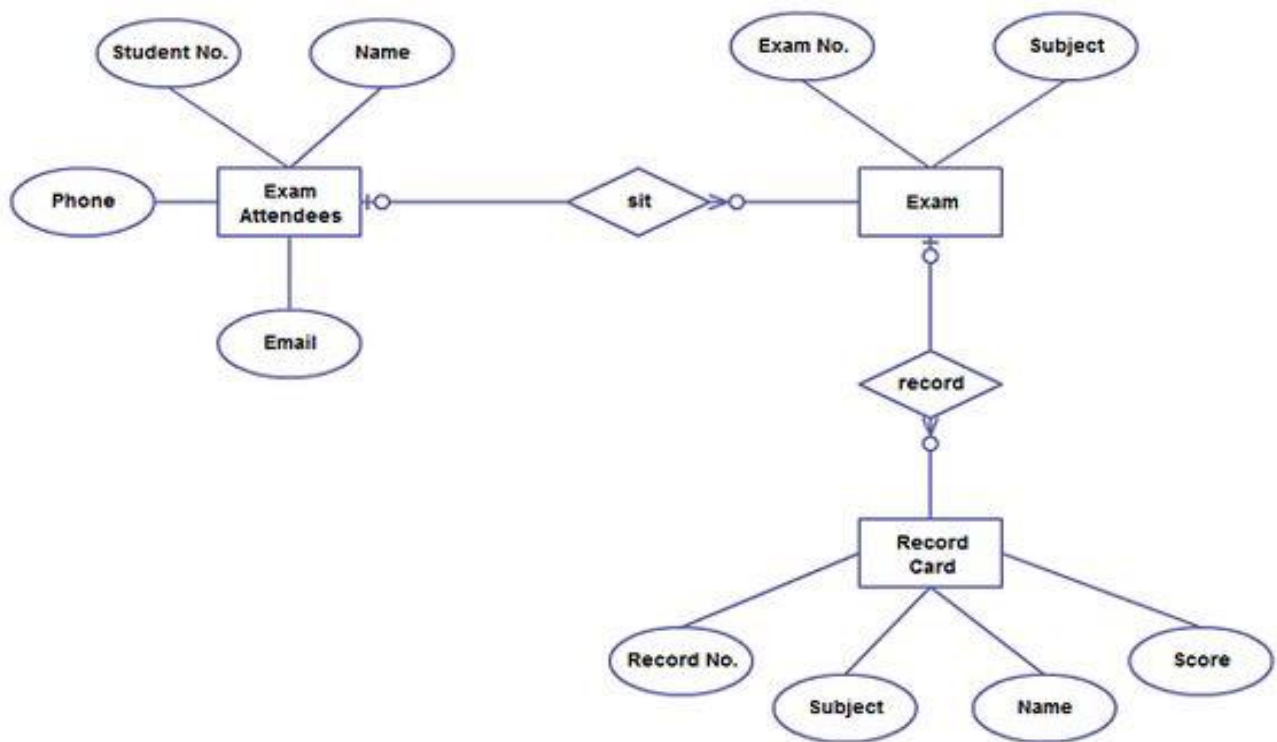
A conceptual model is a representation of a system, made of the composition of concepts which are used to help people know, understand, or simulate a subject the model represents. It is also a set of concepts. Some models are physical objects; for example, a toy model which may be assembled, and may be made to work like the object it represents. The term conceptual model may be used to refer to models which are formed after a conceptualization or generalization process.

Conceptual Models could consist of complete Data Flow Diagrams, Activity Diagrams, Class diagrams etc.

### 3.6.1 ER Diagram:

The relation upon the system is structure 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 modelling activity the attributes of each data object noted in the ERD can be described as data object descriptions.




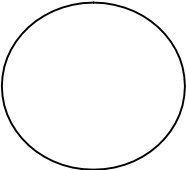
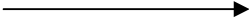

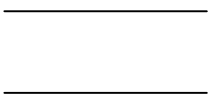
### **3.6.2 Data Flow Diagram :**

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.

#### **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

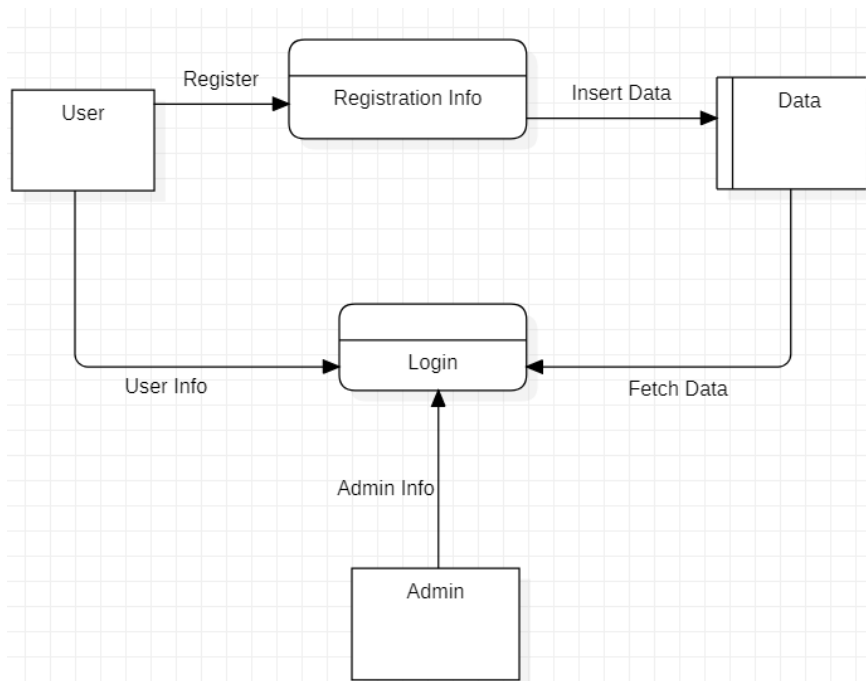
| Sr. No | Symbol   | Name                                  | Description  |
|--------|--|---------------------------------------|--|
| 1.     |   | <b><u>External Entity</u></b>         | An external entity is source or destination a data flow which is outside the area of study. For eg, Patient, Student etc.  |
| 2.     |   | <b><u>Process</u></b>                 | A process shows a transformation or manipulation of data flows within the system.  |
| 3.     |    | <b><u>Dataflow</u></b>                | A data flow shows the flow of information from its source to its destination. A data flow is represented by a line, with arrowheads showing the direction of flow.   |
| 4.     | <br><br>OR<br> | <b><u>Data File or Data store</u></b> | A data store a holding place for information within the system. Data stores may be long-term files such as sales ledgers, or may be short-term accumulations: for example batches of documents that are waiting to be processed. |

## CONSTRUCTING A DFD:

Process should be named and numbered for an easy reference. Each name should be representative of the process.

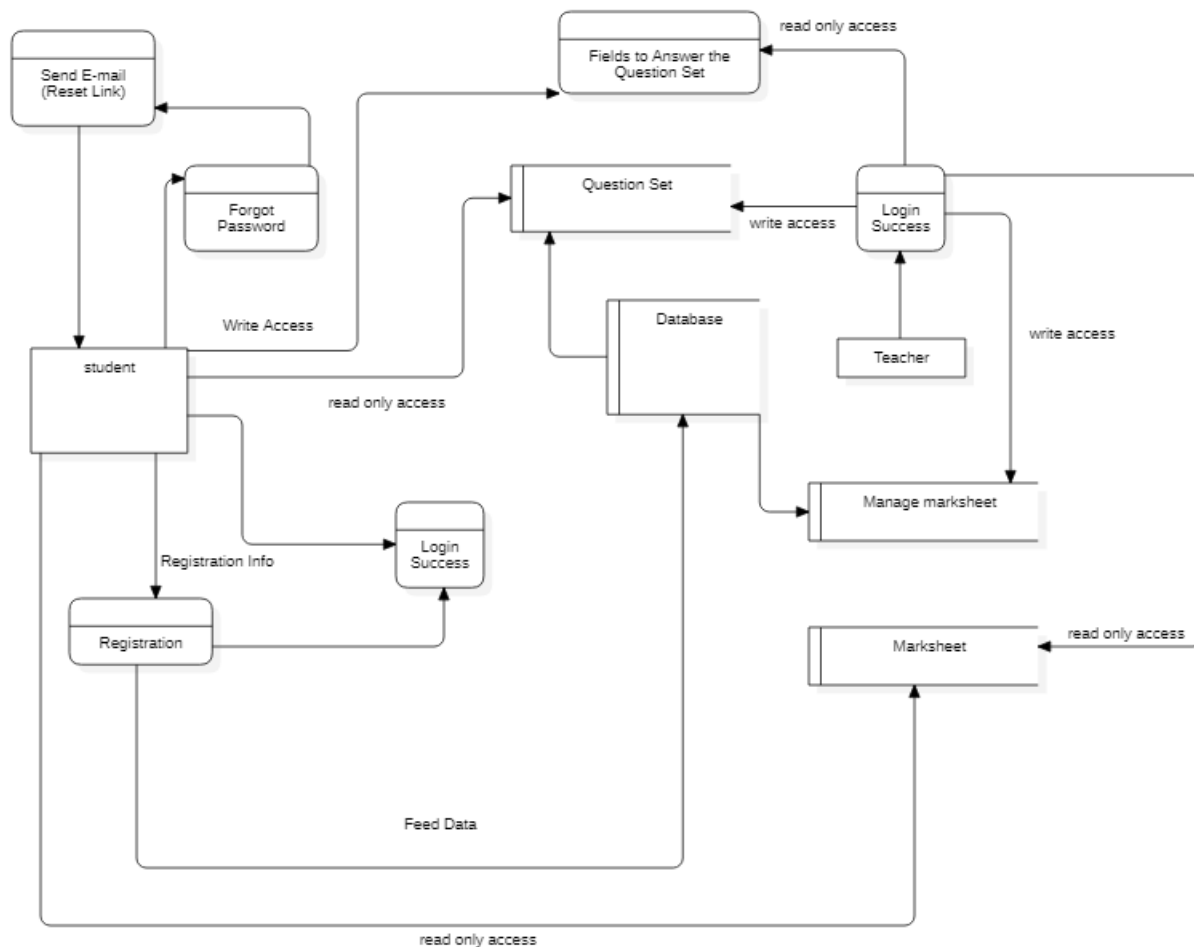
1. The direction of flow is from top to bottom and from left to right. Data traditionally flow from source to the destination although they may flow back to the source. One way to indicate this is to draw long flow line back to a source. An alternative way is to repeat the source symbol as a destination.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

### Level 0 DFD's:



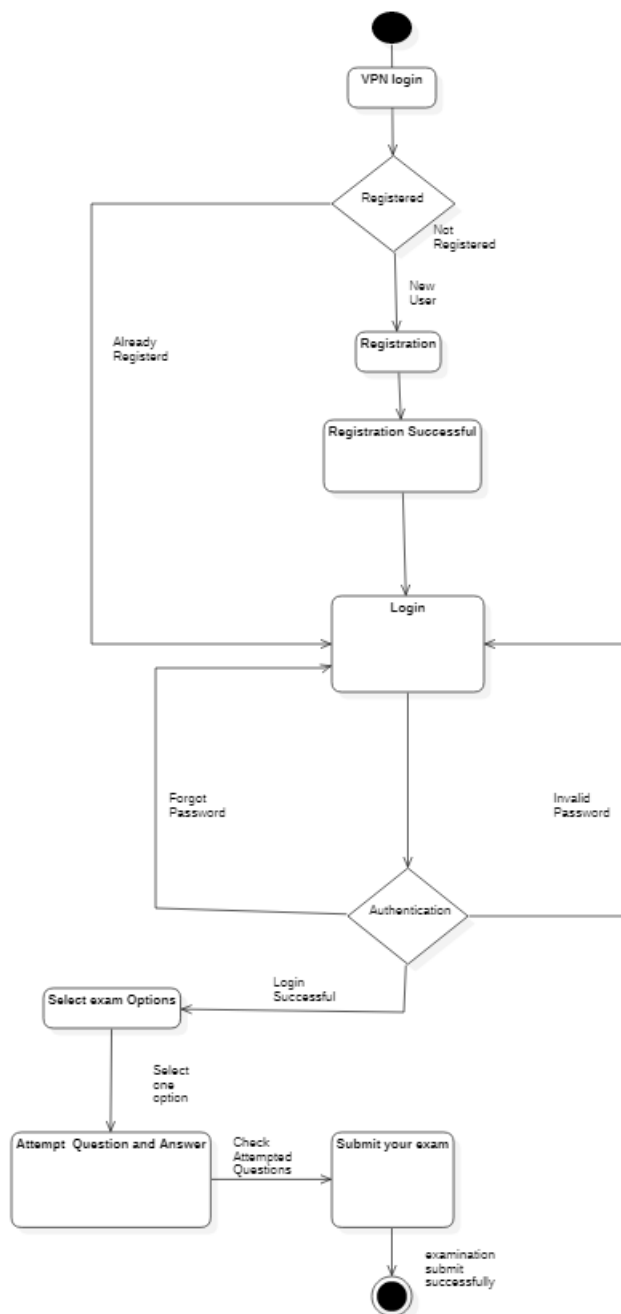
## Level 1 DFD's:

This D.F.D. shows all the processes together with all the data stores (tables). It shows the true data flow i.e. how data is actually flowing in the system. Data is coming from which table and going into which table is clearly shown by this DFD. This DFD is the main reference for the development of the system. After understanding the whole system, the application developer will fall back upon this DFD during the Development phase.



### 3.6.3 System Flow Chart :

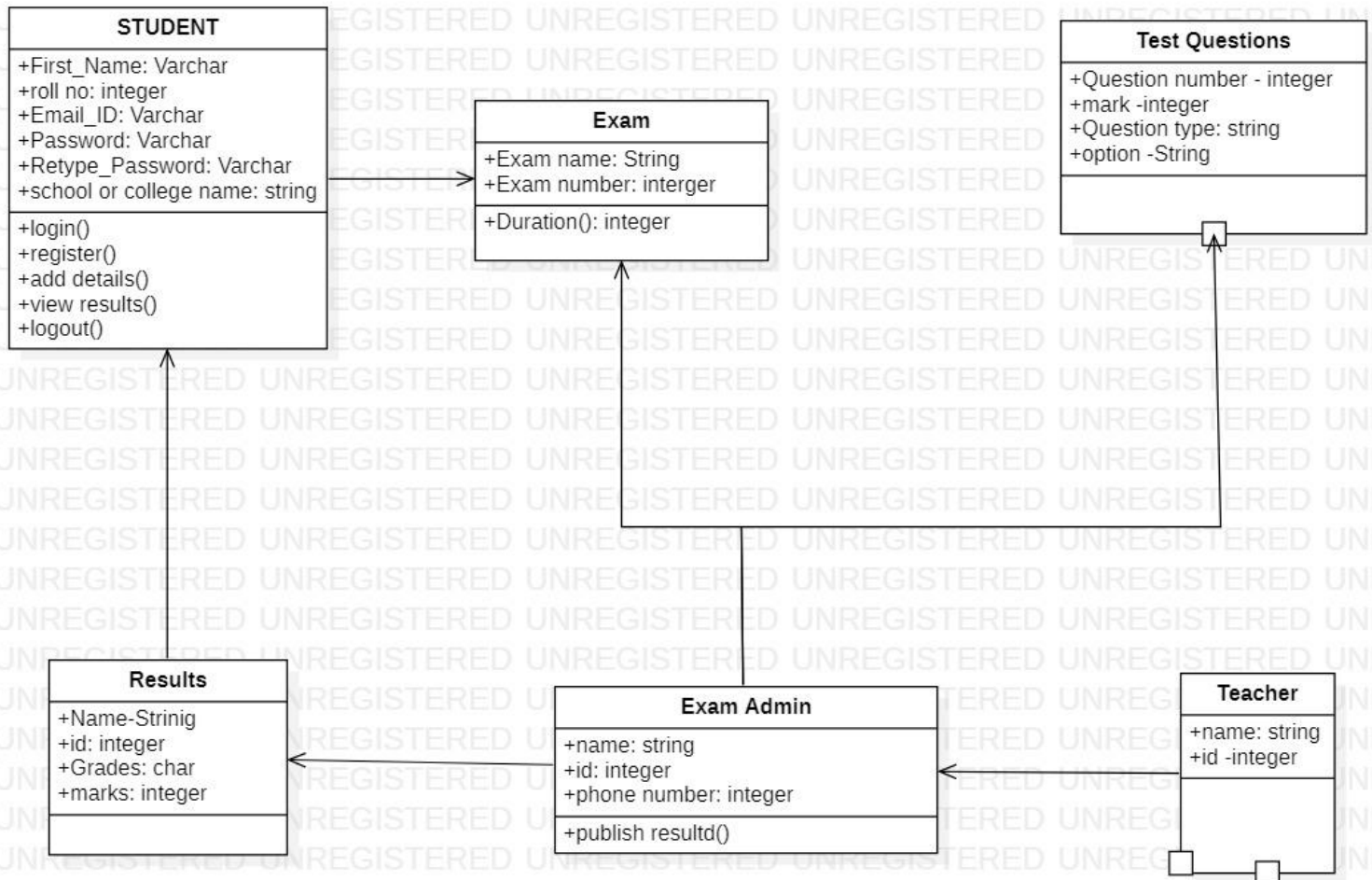
A system flow diagram is a way to show relationships between a business and its components, such as customers (according to IT Toolbox. System flow diagrams, also known as process flow diagrams or data flow diagrams, are cousins to common flow charts.





### 3.6.4 Class Diagram:

Class diagrams are widely used to describe the types of objects in a system and their relationships. Class diagrams model class structure and contents using design elements such as classes, packages and objects. Class diagrams describe three different perspectives when designing a system, conceptual, specification, and implementation. These perspectives become evident as the diagram is created and help solidify the design.



# CHAPTER 4

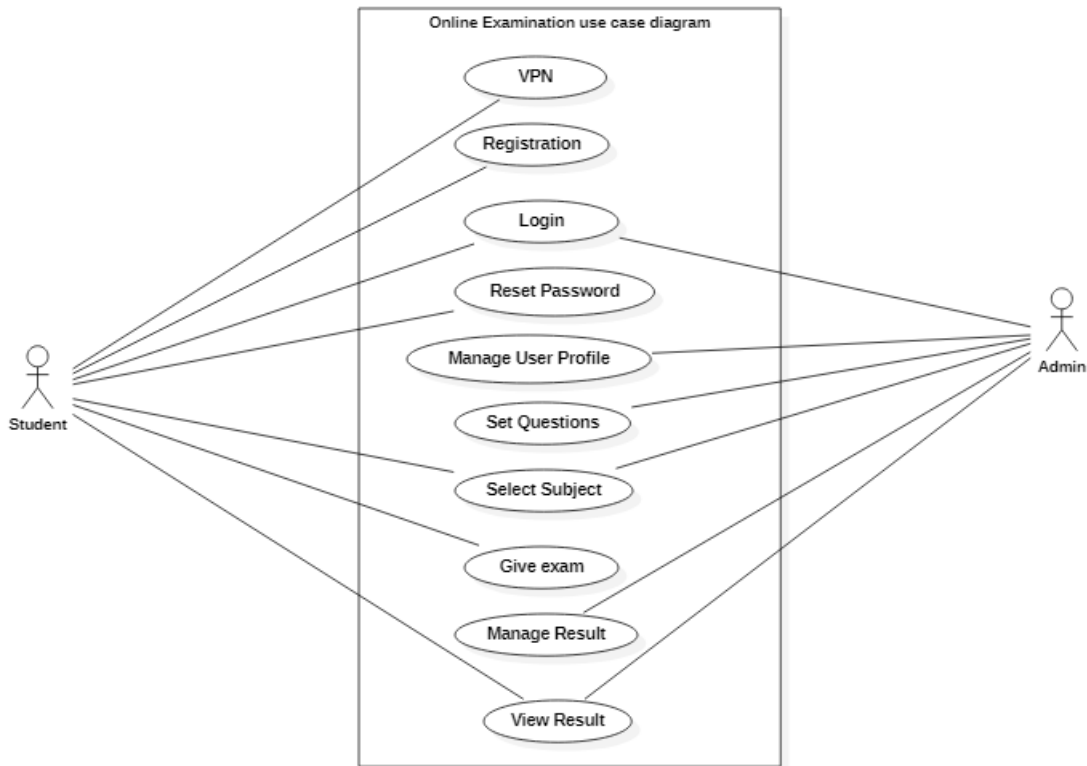
## SYSTEM DESIGN

### **System Analysis:**

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information about the Online Examination System to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is studied to the minutest detail and analyzed. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action. A detailed study of the process must be made by various techniques like interviews, questionnaires etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal. Preliminary study is the process of gathering and interpreting facts, using the information for further studies on the system. Preliminary study is problem solving activity that requires intensive communication between the system users and system developers. It does various feasibility studies. In these studies a rough figure of the system activities can be obtained, from which the decision about the strategies to be followed for effective system study and analysis can be taken.

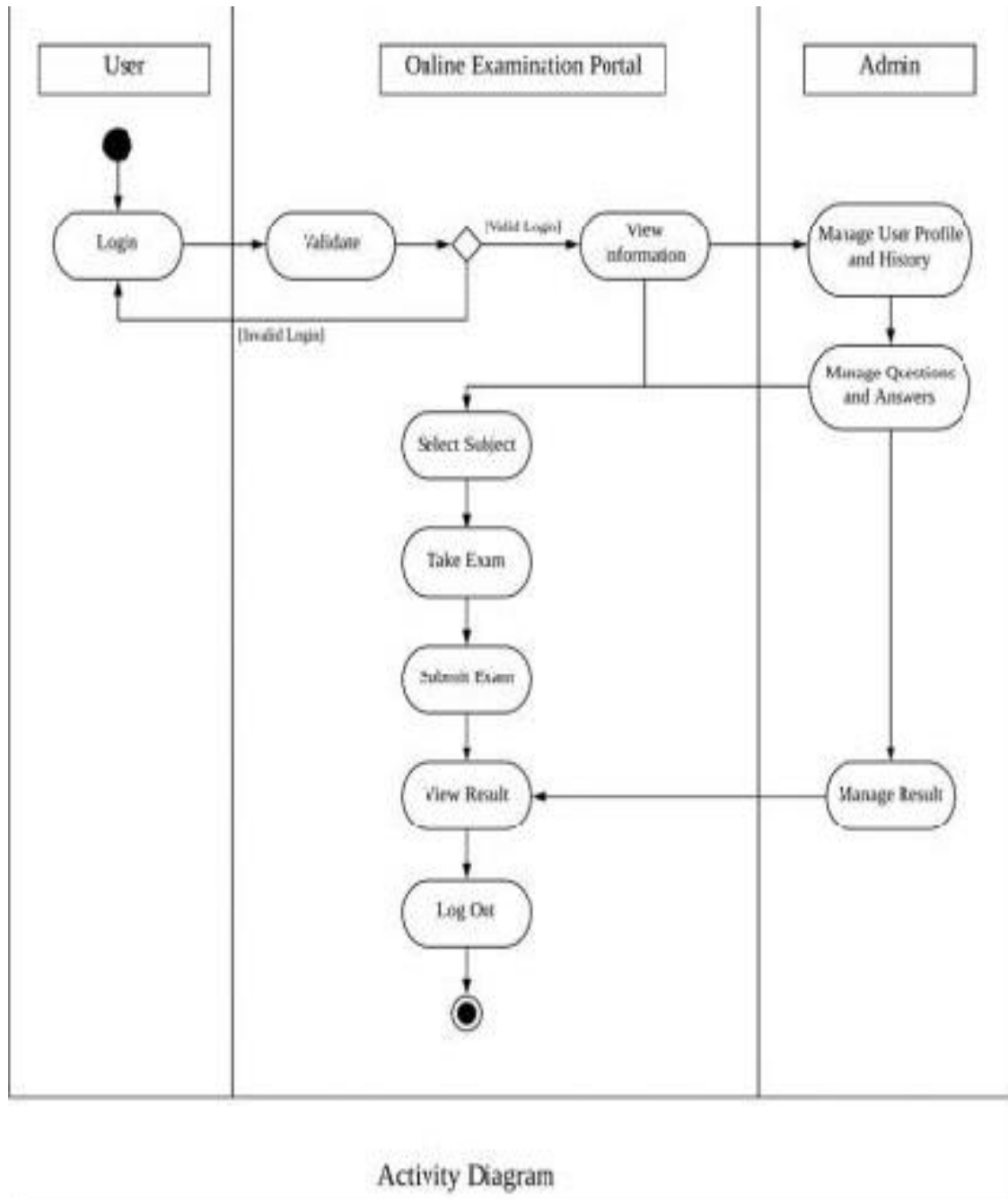
## 4.1 Use Case Diagram:

UML Use Case Diagrams. Use case diagrams are usually referred to as behaviour diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).



## 4.2 Activity Diagram:

Activity diagrams describe the workflow behaviour of a system. Activity diagrams are similar to state diagrams because activities are the state of doing something. The diagrams describe the state of activities by showing the sequence of activities performed. Activity diagrams can show activities that are conditional or parallel.



## 4.3 Test Cases Design:

Software testing is a process which is used to measure the quality of software developed. It is also a process of uncovering errors in a program and makes it a feasible task. It is useful process of executing program with the intent of finding bugs.

In order to prove that a piece of software works, the software must be tested to determine if the requirements of the application are met. There are several different types of tests used throughout the development process. The two main types of testing are white box and black box testing.

White box test cases are used to test specific paths through the code. At decision points you can test the boundaries of the decision (boundary testing) and the partitions of the decision (partition testing).

| <b>Sr<br/>.<br/>no</b> | <b>Test Case</b>   | <b>Validation Or<br/>Requirement</b>     | <b>Test Data</b>           | <b>Expected<br/>Result</b>                                | <b>Actual<br/>Result</b> | <b>Modification<br/>done</b> |
|------------------------|--|--|----------------------------|---|--------------------------|------------------------------|
| <b>1</b>               | <b>User<br/>Entry</b>  | <b>User ID Auto<br/>generation</b>       | <b>Adding<br/>new User</b> | <b>User Entry<br/>should be<br/>done<br/>successfully</b> | <b>successful</b>        | <b>No modification</b>       |
| <b>2</b>               | <b>New User<br/>Entry</b>                                      | <b>All Data<br/>Must Be<br/>Required</b> | <b>All Details</b>         | <b>Successful<br/>entry</b>                               | <b>successful</b>        | <b>No modification</b>       |
| <b>3</b>               | <b>New<br/>Entry as<br/>admin or<br/>existing<br/>username</b> | <b>All Data<br/>Inserted</b>             | <b>All Details</b>         | <b>Show<br/>Error</b>                                     | <b>Showing<br/>Error</b> | <b>No modification</b>       |