*A Project report*

*on*

# SMART GRIEVANCE MANAGEMENT SYSTEM

*Submitted in partial fulfillment of the requirements*

*for the award of the degree of*

## BACHELOR OF TECHNOLOGY

*in*

## Computer Science & Engineering

*By*


| | |
|---|---|
| **K.SUMANA BAI** | **184G1A05A1** |
| **A.KRISHNA SAMPADA** | **184G1A05B5** |
| **T.SAI SRINIVAS REDDY** | **184G1A0578** |
| **M.SIVA KUMAR** | **184G1A0591** |

Under the Guidance of

**Dr. P.Chitralingappa,** M.Tech.,Ph.D.
Associate Professor

**Department of Computer Science & Engineering**

**SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY**

**(Affiliated to JNTUA & Approved by AICTE)**

**(Accredited by NAAC with 'A' Grade & Accredited by NBA (EEE, ECE & CSE))**

**Rotarypuram Village, B K Samudram Mandal, Ananthapuramu-515701.**


**2021-2022**

# SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY

(Affiliated to JNTUA & Approved by AICTE)
(Accredited by NAAC with 'A' Grade &Accredited by NBA (EEE, ECE & CSE)
Rotarypuram Village, B K Samudram Mandal, Ananthapuramu- 515701.

## DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING


# Certificate

This is to certify that the Project report entitled Smart Grievance Management System is the bonafide work carried out by **K.Sumana bai** bearing Roll Number **184G1A05A1, A.Krishna Sampada** bearing Roll Number **184G1A05B5, T.Sai Srinivas Reddy** bearing Roll Number **184g1a0578, M.Siva Kumar** bearing Roll Number **184g1a0591** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology** in **Computer Science & Engineering** during the academic year 2021 - 2022.

**Signature of the Guide**

Dr.P. Chitralingappa M.Tech., Ph.D.
Associate Professor

**Head of the Department**

Mr. P. Veera Prakash M.Tech, (Ph.D.)
Assistant Professor & HOD

Date:

Place: Rotarypuram

**EXTERNAL EXAMINER**

# ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without the mention of the people who made it possible, whose constant guidance and encouragement crowned our efforts with success. It is a pleasant aspect that I have now the opportunity to express my gratitude for all of them.

It is with immense pleasure that I would like to express my indebted gratitude to my Guide **Dr.P.Chitalingappa, Associate Professor**, **Computer Science & Engineering**, who has guided me a lot and encouraged me in every step ofthe project work. I thank him for the stimulating guidance, constant encouragement, and constructive criticism which have made it possible to bring out this Technical Seminar.

We are very much thankful to **Mr. P. Veera Prakash, Assistant Professor & HOD, Computer Science & Engineering,** for his kind support and for providing necessary facilities to carry out the work.

We wish to convey my special thanks to **Dr. G. Bala Krishna, Principal** of **Srinivasa Ramanujan Institute of Technology** for giving the required informationin doing my project work. Not to forget, I thank all other faculty and non-teaching staff, and my friends who had directly or indirectly helped and supported me in completing my project in time.

We also express our sincere thanks to theManagementfor providing excellent facilities**.**

Finally, we wish to convey my gratitude to my family who fostered all the requirements and facilities that I need.

**Project Associates**

**184G1A05A1**
**184G1A05B5**
**184G1A0578**
**184G1A05B5**

# Declaration

We, Ms K.Sumana bai with reg no: 184G1A05A1, Ms A. Krishna Sampada with reg no: 184G1A05B5, Mr T. Sai Srinivas Reddy with reg no: 184G1a0578, Mr M.Siva Kumar with reg no: 184G1A0591, students of SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY Rotarypuram, hereby declare that the dissertation entitled "SMART GRIEVANCE MANAGEMENT SYSTEM" embodies the report of our project work carried out by us during IV year Bachelor of Technology under the guidance of Dr.Chitralingappa Department of CSE, SRINIVASA RAMANUJAN INSTITUTE OF TECHNOLOGY, and this work has been submitted for the partial fulfillment of the requirements for the award of the Bachelor of Technology degree.

The results embodied in this project have not been submitted to any other University of Institute for the award of any Degree or Diploma.

| | |
|---|---|
| K.SUMANA BAI | Reg no: 184G1A05A1 |
| A.KRISHNA SAMPADA | Reg no: 184G1A05B5 |
| T.SAI SRINIVAS REDDY | Reg no: 184G1A0578 |
| M.SIVA KUMAR | Reg no: 184G1A0591 |

# CONTENTS

# LIST OF FIGURES

## LIST OF ABBREVATIONS

| | |
|---|---|
| WAP | Web Access Provider |
| SRS | Software Requirements Specification |
| URD | User Requirement Document |
| UAC | User Account Control |
| DFD | Data Flow Diagram |
| UML | Unified Modeling Languages |
| PHP | Hypertext Preprocessor |
| CGI | Common Gateway Interface |
| PDO | PHP Data Objects |
| SPL | Standard PHP Library |
| LAMP | Linux Apache MySQL PHP |
| MAMP | Mac OS Apache MySQL PHP |
| XAMPP | X-OS Apache MySQL PHP & PERL |
| WAMP | Windows Apache MySQL PHP |
| UAT | User Acceptance Testing |

# ABSTRACT

Smart Grievance Management System is an online platform, which resolves issues raised by the students and faculties of an organization. Effective grievance handling is an essential part of cultivating a healthy atmosphere in order to run the organization smoothly, and successfully and gain good productivity.

Earlier, Grievances were handled manually, where the complaints are written on paper and are disposed of in a box, which was collected and solved. Our proposed system builds a platform to address various kinds of issues such as accommodation, departmental, Transportation, Admission, Salary and so on and so forth that will be redressed by the higher officials of the organization .

# CHAPTER -1

# INTRODUCTION

Smart Grievance Management System is one of the productivity enhancement systems used by any institution wherever there is a need for booking complaints. The proposed system is an online complaint system where the issues of the students, parents, and faculties can be raised online, which will be redressed.

The one who raised the grievance can have the choice of hiding their details after login with two options like show id and hide id. The grievances are grouped and mapped like In-charge, HOD, Principal, and Management.

## 1.1 Problem Definition

Despite the existence of current institutions such as grievance committees managing and resolving grievances has proven to be a difficult undertaking. Furthermore, assigning the complaint to the appropriate person is a difficult task. Our proposed web application may receive complaints from students, parents, and even staff members and allocate them to the appropriate person to resolve. When a grievance is filed, it is assigned to specific in-charges, Departmental heads, Principles, and management, depending on the severity of the complaint, and they are responsible for resolving it.

## 1.2 Objective of Project

This is a web tool that allows students from various branches and years to submit concerns quickly and conveniently online. It creates a virtual environment for you to work in. We'll get the most up-to-date information on the complaint here. If the issue has been resolved, it can be viewed online. The administrator will take care of the concerns here.

# CHAPTER 2

# LITERATURE SURVEY

## 2.1 Introduction

Vaibhav Sabharwal [1] Fear of revealing their identity makes complainants go anonymous. It becomes a tough job for the authorities to know the authenticity of the complainant. Therefore the solution is presented so that complainants can complain about being intrepid.

Devika Radhakrishnan [2] focuses on a municipal corporation that consists of various departments and people who suffer from day-to-day problems. This site provides a basic idea to register a complaint and check the status. It is not responsible for the way that information is interpreted by whoever reads it.

Mukesh Buldak1 [3] paper is based on centralized management, only the admin can check or solve the complaint. Centralized management for checking the current status of the complaint and updating the status of complaints. Admin can generate a report of this system in between the selected date of his own choice.

## 2.2 Existing System

Complaints used to be written on paper and submitted to a complaint box inthe old method. Later on, in order to address any problems within organizations or institutions, an online web application was created, which only students within that organization could use to submit their grievances.

## 2.3 Disadvantages of Existing System

The current system's fundamental flaw is that it is a time-consuming operation. The pupil has no notion whether or not the problem has been solved. Students must wait a long time for their problems to be resolved. As a result, a web application is created.

## 2.4 Proposed System

To resolve the issues in the previous system, we developed a new web application with significant improvements. The suggested approach creates a platform for dealing with a variety of concerns that will be addressed in stages. It also enables transparency, which can be used to deliver solutions to students, parents, and faculty members.

## 2.5 Conclusion

We did a review of the current literature on our topic in this chapter. We categorized numerous ways based on this research after offering various definitions for student parent and teacher relationship management and its primary components for the objectives of this thesis. Finally, we conducted a thorough review of the current literature in order to classify student complaints into intelligent customer relationship management categories. After that, we looked at student satisfaction in terms of its antecedents and outcomes.

# CHAPTER 3

# ANALYSIS

## 3.1 Introduction

The planning stage establishes a bird's eye view of the desired software product, which is then used to define the fundamental project structure, assess the project's feasibility and hazards, and specify acceptable management and technical techniques. A list of high-level product needs, often known as goals, is the most important component of the project plan. During the requirements definition stage, all of the software product needs that will be developed stem from one or more of these goals. A title and textual description are required for each goal, while extra information and references to external papers may be provided.The configuration management plan, the quality assurance plan, and theproject plan and schedule are the outputs of the project planning stage, with a complete listing of scheduled activities for the forthcoming Requirements stage and high-level estimates of work for the subsequent stages.

## 3.2 Software Requirements Specification

The Software Requirement Specification (SRS) is where the software development process begins. As the system became more sophisticated, it became clear that the overall purpose could not be clearly understood. As a result, the requirement phase became necessary. The software is triggered by the requirements of the customer. The SRS is a tool for converting clients' mental images (the V/p) into a formal document (the o/p of the demand phase). The SRS phase is divided into two parts:

**Problem or requirement Analysis**

The orderly and nebulous process deals with understanding the problem, the aim, and the restrictions.

### 3.2.1 Requirement Specification

During this activity, the focus is on specifying what has been discovered by providing analyses such as representation, specification languages and tools, and testing the specifications. With the production of the validated SRS document, the requirement phase comes to an end. The primary purpose of this phase is to create the SRS document. The Software Requirements Specification (SRS) kicks off the process of translating software requirements into a language that developers can understand. The SRS takes the use-cases from the User Requirement Document (UR) and examines them from a variety of angles to find and eliminate inconsistencies, ambiguities, and omissions before development advance too far under incorrect assumptions.

### 3.2.2 Hardware Requirements

RAM : 4GB and above
Disk Space : 512GB and above
Processor: i5 and above.

### 3.2.3 Software Requirements

Operating System : Windows OS
Tools : XAMPP Server
Languages used : HTML, CSS, JS, PHP

### 3.2.4 XAMPP Installation Process:

MYSQL, PHP, and Perl are all included in XAMPP, which is an easy-to-install Apache distribution. Packages are available for Windows, Mac OS X, and Linux. The procedures to install XAMPP on your PC are outlined in this article.Note: These are the Windows installation instructions; Mac and Linux installation information may be found on the Apache friend's websites.

1. Go to google.com or yahoo.com and type in "XAMPP download."
2. Click Download XAMPP-Apache Friends to see a window with various download versions and sizes.

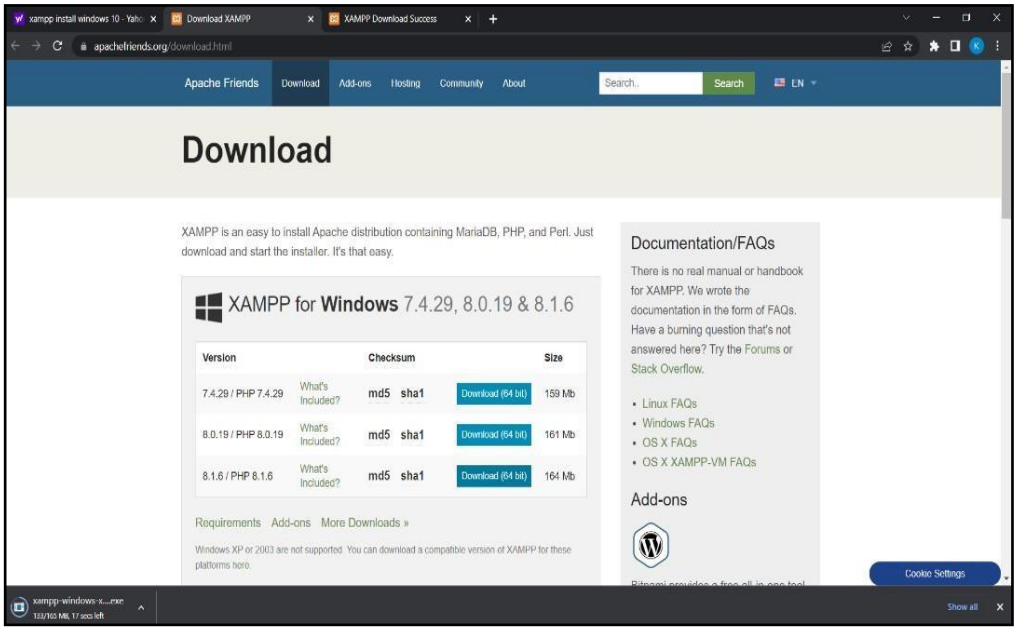


**Figure.3.1 Downloading process of XAMPP**

1. Choose and download PHP 8.1.6, then go to the next step.


**Figure.3.2 XAMPP setup page**

2. Select the components that you wanted to install and click **Next**.

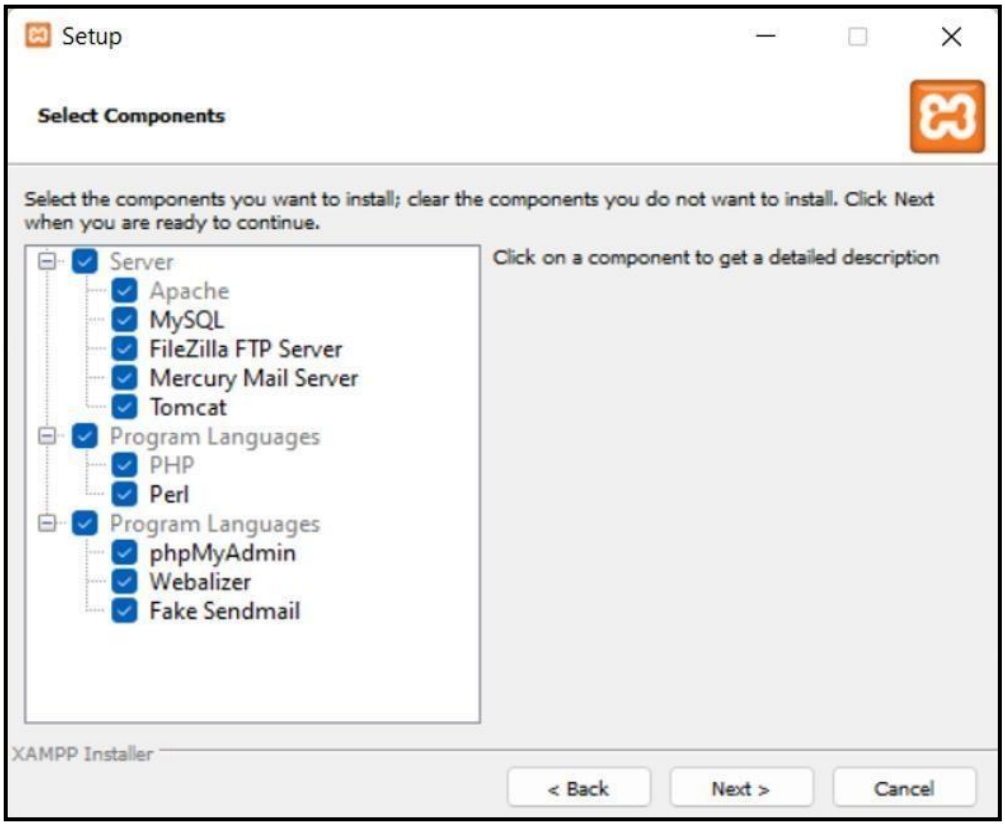


**Figure.3.3 selecting components for XAMPP installation**

3. Windows 7 users may likely see a little box asking if they wish to enable xampp-control.exe to make changes to their computer, depending on their security settings. Allow Apache or MYSQL to start by clicking Yes.

4. You may see a security box pop up again, asking if you wish to authorize the changes to your machine. To allow it, select Yes.

5. To complete the installation, click Finish. The screen will now show that the installation is complete.

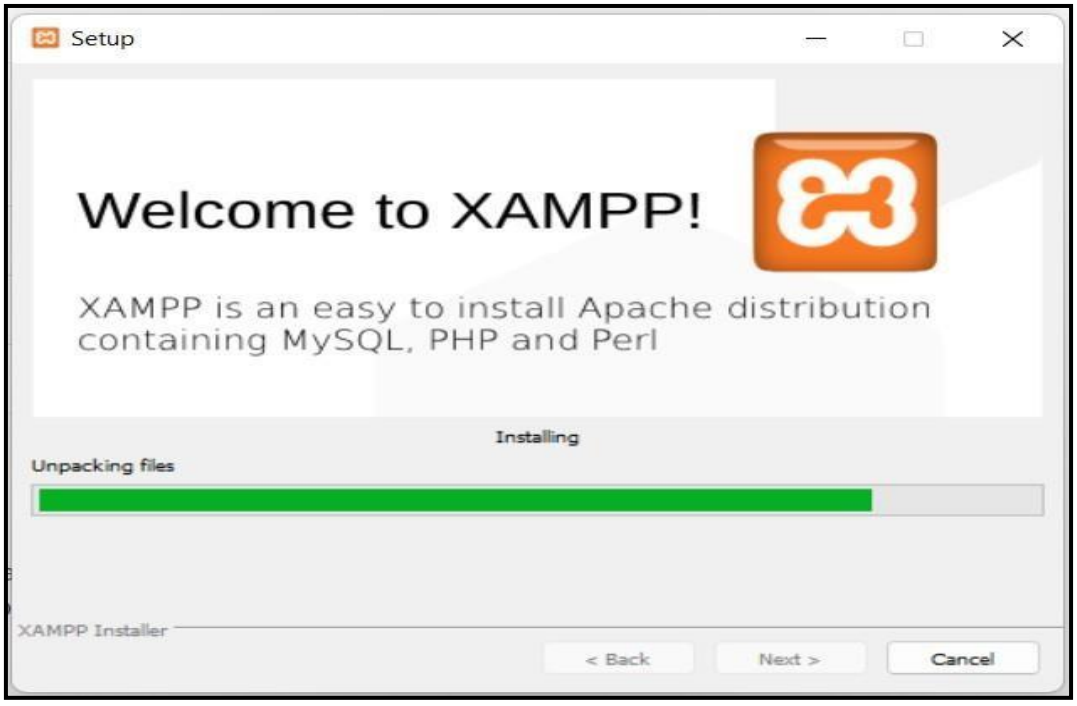


**Figure.3.4 XAMPP Installation**

6. Click **Finish** to complete the installation and to start the XAMPP.


**Figure 3.5 Completion of the XAMPP installation**

7. XAMPP installation is done successfully.
8. Start Apache and MYSQL in XAMPP.

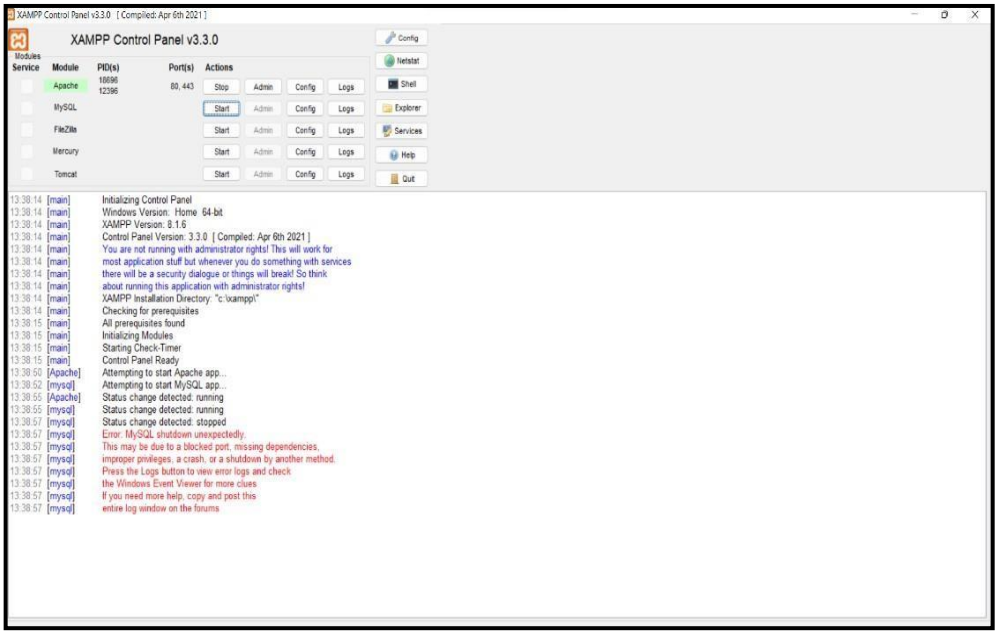


**Figure.3.6 XAMPP control panel**

## 3.3 Code Ignitor

CodeIgniter is a compact PHP framework designed for developers that require a simple and elegant toolkit to build full-featured web applications. CodeIgniter3.1.10 is the most recent version of the framework, which is compatible with PHP 5.6 and higher. Since version 2.x, a number of improvements have been made, most notably to the database, session handling, and encryption. This version is still being worked.

# CHAPTER-4

# DESIGN

## 4.1 Introduction

The needs defined in the approved requirements document are used as the initial input in the design stage. As a consequence of interviews, workshops, and/or prototype efforts, a collection of one or more design elements will be developed for each requirement. Functional hierarchy diagrams, screen layout diagrams, tables of business rules, business processes diagrams, pseudo code, and a comprehensive entity-relationship diagram with a full data dictionary are all examples of design elements that explain the required software features in-depth These design aspects are meant to provide sufficient detail about the software so that skilled programmers can construct it with minimal further implementation. The design document is completed and approved, and the RTM is modified to reflect that each design element is now formally linked to a specific need. The design stage's outputs include a design document, an updated RTM, and an updated project plan.

## 4.2 ER/DFD/UML Diagrams

### 4.2.1 ER Diagram

The ER diagram was created to help grasp the entire scenario; it was used to conceive the phenomena, actions, and interactions between numerous entities, as well as to arrive at the precise requirements in a complete manner.

This SRS comes with an ER diagram attached.

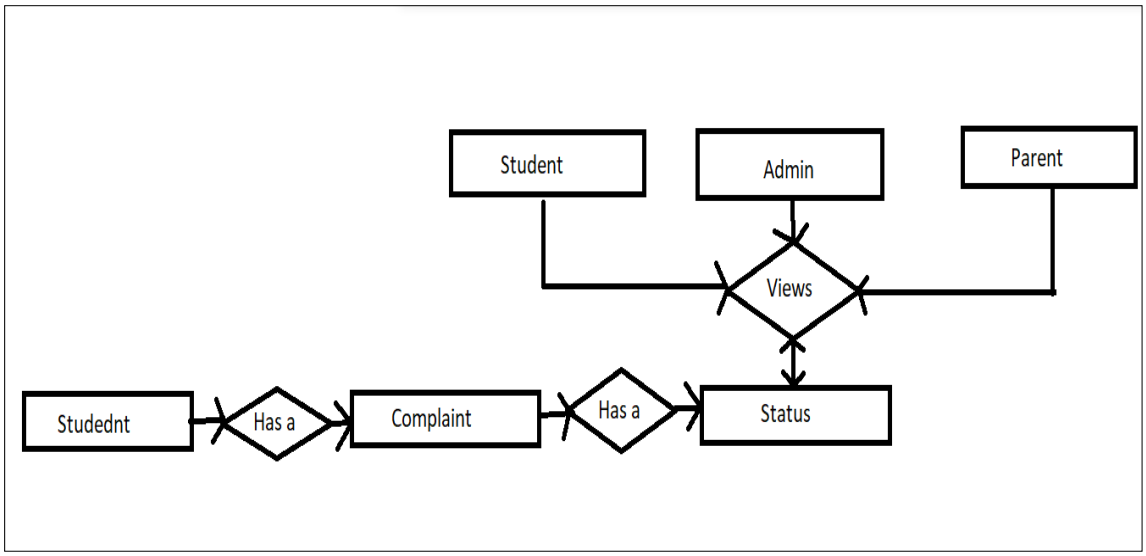


**Figure 4.1 ER diagram**

### 4.2.2 Data Flow Diagrams

A data flow diagram (DFD) is a graphical representation of data flow in an information system in the "Now." A data flow diagram can be used to visualize data processing as well (structured design). Dataflow diagrams can be used to givethe end-user a visual representation of where the data they input eventually affectsthe structure of the entire system, from order to dispatch to a restocking.

**Developing a DFD**

Creating a Top-Down Strategy

- The system designer creates a context-level diagram that depicts the interaction (data flows) between the system (shown one by one) and its surroundings (represented by terminator).
- The system is broken down into a set of operations, data stores, and the data flow between these processes and data stores at a lower level (Zero).
- After that, each process is dissected into a lower-level diagram including its sub-processes.
- This method is then carried out on consecutive sub-processes until the required and adequate degree of detail is achieved, which is referred to as the primitive process.

**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 ofdata.

The process transforms data flow.

### 4.2.3 Unified Modeling Language (UML)

The Unified Modeling Language (UML) is a standard language fordescribing, visualizing, building, and documenting software systems and their components. It's a visual representation.

Language is a system of semantics and rules that include a vocabulary. The University of Michigan focuses on the system of mental and physical representation. It captures the decisions and understandings that must be made regarding the systems that must be built. It is used to comprehend, develop, configure, maintain, and regulate system information.

The unified model of this project consists of many attributes like login, dashboard, profile, change password, rise complaint, view complaint, view status, and logout. These would be raised by the student, and faculty, and solved by members.

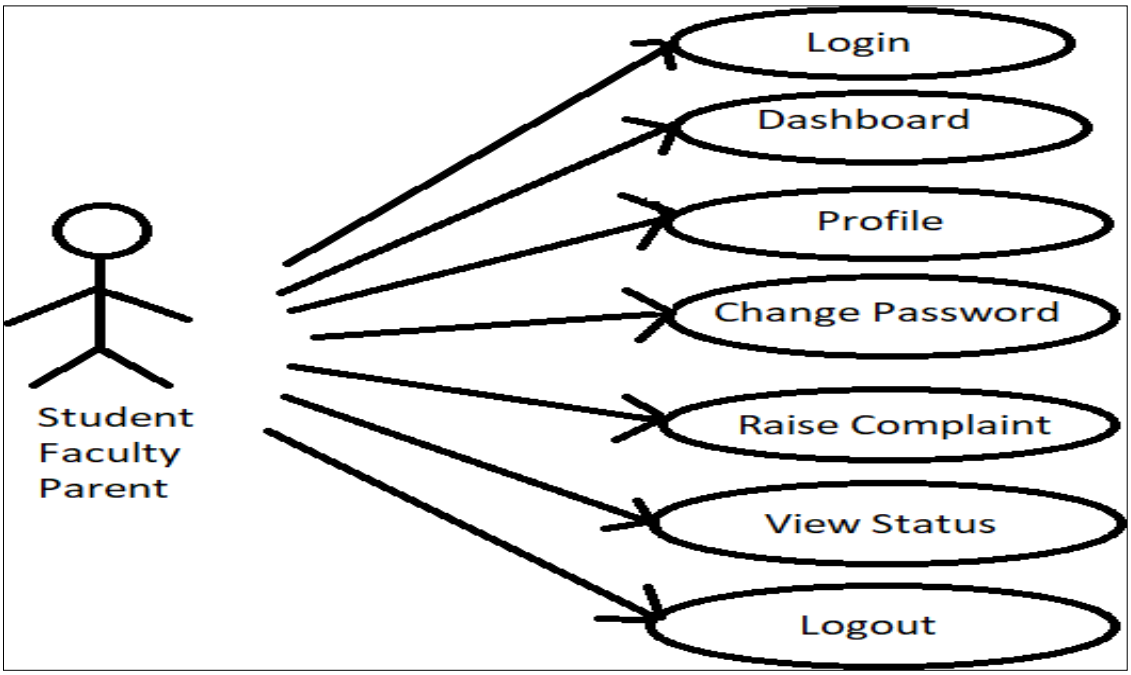


**Figure 4.2 UML diagram**

**Visualizing:**

We view an existing system using UML, and we eventually imagine how the system would look after implementation. We cannot implement unless we think.UML aids in visualizing how system components communicate and interact with one another.

**Specifying:**

Specifying entails creating models that are accurate, clear, and comprehensive. UML specifies all of the critical analytical, design, and implementation decisions that must be taken during the development and deployment of a software system.

**Constructing:**

By mapping a UML model to a programming language such as JAVA, C+, or VB, UML models can be directly connected to a variety of programming languages. With UML, you can do both forward and reverse engineering.

**Documenting:**

Apart from coding, a project's deliverables include requirements, architecture, desire, source code, project plans, tests, prototypes, releasers, and other artifacts that are critical in controlling, measuring, and communicating about a system during its development, such as requirements, architecture, desire, source code, project plans, tests, prototypes, and releasers**.**

**Diagrams in UML:**

The graphical representation of a set of items is called a diagram. Diagrams show or project a system from many viewpoints and perspectives. Diagrams are included in the UML. These diagrams are divided into the following categories:

**Static:**

1. Class Diagrams.
2. Object Diagrams.
3. Component Diagrams.
4. Deployment Diagrams.

**Dynamic:**

1. Use-Case Diagram.
2. Sequence Diagram.
3. Collaboration Diagram.
4. State Chart Diagram.
5. Activity Diagram.

### 4.2.4 Use Case Diagrams

Use case diagrams depict a set of use cases and actors, as well as the irrelationships.

These diagrams depict a system's static use case view and are useful for organizing and modeling the system's activities. The use case diagram is used to identify the system's core elements and processes. The main componentsarereferred to as "actors," and the procedures are referred to as "use cases."

The actor interactions with each use case are depicted in the use case diagram.

### 4.3 Module Design and Organization

In this project, the system after a careful analysis has been identified to be presented with the following modules;

The modules involved are:

**Dashboard:**

It gives information about the number of complaints not processed yet, the number of complaint status in progress, and the number of complaints closed.

**Lodge Complaint:**

This service allows students to describe their difficulties and complain about them. The administrator reviews the complaint, and after making the required decisions, the complaint's status is updated, which can also be accessed by the student.

**Complaint History;**

It provides information to the students about their complaint number, Registration date, last updation date, and status with another option to view details.

**Spiral Model:**

Each cycle involves the same sequence of steps as the waterfall process model. Breaks the development process down into multiple phases. Early phases focus on the construction of prototypes. Lessons learned from the development of one prototype can be applied to the exit iteration.

## 4.4 Conclusion:

A spiral model is used in the development of our web application. The Spiral model draws a cue from the iterative model and its repetition; the project travels through four phases (planning, risk analysis, engineering, and assessment) again and over in a "spiral" until it is completed, allowing for several rounds of modification.

# CHAPTER-5

# IMPLEMENTATION & RESULTS

## 5.1 Introduction

With the rapid development of computer technology, the – Complaint management system has flourished, and the Student information systemnot only has a large amount of information processing, information processing in a timely manner to facilitate preservation, and many other advantages, but it also hashigh reliability and security. As a result, several universities are attempting to establish their own - Complaint management systems in order to improve the quality and efficiency of their services.

## 5.2 Technology Used

### 5.2.1 PHP (Preprocessor Hypertext)

PHP is a server-side scripting language that was created for web development but may also be used for other purposes. The PHP Group now produces the reference implementation of PHP, which was originally designed by Rasmus Lerdorf in 1995. PHP stands for PHP: Hypertext Preprocessor, a recursive acronym that initially stood for Personal Home Page. A web server with a PHP processor module interprets PHP code and generates the following web page: Instead of contacting an external file to handle data, PHP commands can be inserted directly into an HTML source document. It's grown to include a command-line interface and can now be used in independent visual apps. Also, PHP is free software released under the PHP License. PHP can be deployed on also as a standalone shell on almost every Operating system and platform, free of charge.

**History of PHP:**

Rasmus Lerdorf, a programmer, began developing PHP in 1994 with a set ofCommon Gateway Interface (CGI) Perl scripts for his personal homepage. The parser was rebuilt in 1997 by ZeevSuraski and Andi Gutmans,culminating in PHP 3, which was given the recursive acronym PHP:Hypertext Preprocessor. Following that, public testing of PHP 3 began, and inJune 1998, it was formally released. Suraski and Gutmans then started rewriting PHP's source code from scratch.In Ramat Can, Israel, they also founded Zen Technologies. PHP 4, based on the Zend Engine 1.0, wasreleased on May 22, 2000. This branch had reached version 4.4.9 as ofAugust 2008. PHP 4 is no longer being developed, and no security updateswill be published. PHP 5 was introduced on July 13, 2004, and it was powered by the new Zend EngineImproved object-oriented programming support, the PHP Data Objects (PDO) extension (which defines a lightweight and uniform interface for accessingdatabases), and several efficiency improvements were all incorporated in PHP 7. PHP S became the only stable version in development in 2008.Static binding had been lacking from PHP until version 5.3 when it wasimplemented.

**Functioning and Implementation:**

The PHP interpreter only executes PHP code within its delimiters. Anythingoutside its delimiters is not processed by PHP (although the non-PHP text isstillto control structures described in PHP code). The most common delimiters are <?phptoopen and?> to close PHP sections. <script language="php"> and </script> delimiters are also available, as are the shortened forms <? or <?= (which is used to echo back a string or variable) and?> as well as ASP-style short forms <% or <= and%>, While short delimiters are used, they make script files less portable as support for them can be doubled inthe PHP configuration, and they are therefore discouraged. The purpose of all these delimiters is to separate PHP code from non-PHP code, Including HTML. The first form of delimiters, is <php and?>, in XHTML and XML document creates correctly found XML “processing instructions”. This means that the mixture of PHP code and other markup in the server-side file itself well-formed

XML. Variables are prefixed with a dollar symbol, and a type does not need to be specified in advance. Unlike function and class names, variable names are case-sensitive. Both double-quoted (") and here strings provide the ability to interpolate a variable's value into the string.

PHP treats newlines as whitespace in the manner of a free-form language (except when inside string quotes), and statements are terminated by semicolons. PHP has three types of comment syntax: /* */ marks block and inline comments: // as well as # are used for one-line comments. The echo statement is one of several facilities PHP provides to put text, c..., to a web browser. Rules for PHP variables are generally: Available starts with the $ sign, followed by the name of the variable. An available name must start with a letter orthe underscore character. A variable name cannot start with a number. A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and -).

Variable names are case sensitive ($y and $Y are two different variables).Super globals were introduced in PHP 4.1.0, and are built-in variables that are always available in all scopes. Several predefined variables in PHP are superglobals", which means that they are always accessible, regardless of the scope and you can access them from any function, class, or file without having to do anything special. The PHP super global variables are:

**$GLOBALS-** The global keyword is used to ascend a global variable from within a function. PHP also stores all global variables in an array called$GLOBALS (index). The index holds the name of the variable. This array is also accessible from within functions and can be used to update global variables directly

**$_SERVER** - is a PHP super Global variable that holds information about headers, Paths, script locations,

**$_REQUEST** - is used to collect data after submitting an HTML form.,

**$_POST** - is widely used to collect form data after submitting an HTML form With method- post". S POST is also widely used to pass variables.

Information sent from a form with the POST method is invisible to others (all names/values are embedded within the body of the HTTP request) and has no limits on the amount of information to send.

**$_GET** - can also be used to collect form data after submitting an HTML form with method="get". $_GET can also collect data sent in the URL. Information sent from a form with the GET method is visible to everyone (all variable names and values are displayed in the URL). GET also has limits on the amount of information to send.

**$_FILES** - An associative array of items uploaded to the current script via the HTTP POST method.

**$_ENY** - These variables are imported into PHIP's global namespace from the environment under which the PHIP parser is running, Other environment Variables include the CGI variables placed there regardless of whether PHP is running as a server module CGI processor.

**$-COOKIE**- It is often used to identify a user. This is stored on the user's computer so that every user will be identified if who are they: you can create and get the value of the cookie. Set Cookie() function used to create a cookie.

**Objects:**

Basic object-oriented programming functionality was added in PHP 3. Object handling was completely rewritten for PHIP 5, expanding the feature set and enhancing performance. In previous versions of P'1P, objects were handled like primitive types. The drawback of this method was that the whole object was copied when a variable was assigned or passed as a parameter to the method. In the new approach, objects are referenced by handle, and not by value, PHP 5 introduced private and protected member variables and methods, along with abstract classes and final classes as well as abstract methods and final methods. It also introduced a standard way of declaring constructors and destructors, similar to that of another object-oriented language such as C++, and a standard exception handling model. If the developer creates a copy of an object using the reserved word clone, the Zend engine will check if a clone () method has been defined or

not. If not, it Will calls a default_ clone () which will copy the object's properties. If a _clone () method is defined, then it will be responsible for setting the necessary properties in the created object. For convenience, the engine will supplya function that imports the properties of the sure object so that the programmer can start with a by-value replica of the source object and only override properties that need to be changed.

**Advantages of PHP**:

- **Open Source -** PHP is freely available for use. The community of open source PHP developers provides technical support and is constantly improving and updating the core PHIP functionalities. PHP is available free of cost under the PHP General Public License and most of its associative required software like MySQL, Text Editors, and Apache Server are also freely available, so it proves very cost-effective for the developers.
- **Cross-Platform**-PHP provides high compatibility with leading operating systems and web servers such as thereby enabling it to be easily deployed across several different platforms. PHP scripts can run across operating systems such as Windows, Solaris, Open BSD, Mac OSX, etc, and also provide support for all major web servers such as Apache, IIS, iPlanetcle
- **Power** - Several web tasks can now be easily performed using PHP. For Example, now we can develop from small websites to giant businesses and organizational websites, informative forums, chatting platforms, RM solutions, e- commerce shopping, community websites, -business, and gigantic database-driven sites.
- **User Friendly** - Designed in a user-friendly manner, PHP gives more flexibility than C, C++, and ASP and overall helps in increasing traffic to the site.
- **Object-Oriented -** PHP actually has the ability to call Java and Windows COM objects. In addition to this, you can create custom classes. Other classes can actually borrow from those custom classes as well which extends the capabilities of PHP even further.
- **Quick -** PHP is designed to work well with the web, and so things like the GET and POST and working with HTML and URLs are built-ins in the PHP language. This makes it really concise and straightforward to make a website

- **Extensions -** Being an open-source language, a large number of libraries and extensions, to extend its core functionalities for downloading the source code of PHP can be modified to include custom-created extensions components thereby increasing its extensibility.
- **Scalability** - In the world of IT, the word scalability is like gold. Whether you're dealing with databases, hosting, or in this case, programming scalability is never a bad thing. Due to the way PHP is built, you can easily increase your cluster size by adding more servers as your mini projects grow. There are many hosting companies: That will, for a few dollars a month, give you a server running PHP so you can make a website really easily.
- **Automatically Refreshes** - Nowadays developing dynamic websites is in huge demand due to their specific characteristics like automatically refreshing and does not need to make any changes manually.
- **Community Support** - A huge advantage that PHP offers are its community. I you are looking for a particular script, chances are another user has already created something similar. Check within the PHP community for availability. Likewise, if you have created a function that others might enjoy, be sure to post the code to others.
- **Easier to fix problems** - When it comes to web application development, you're bound to run into issues and come across the occasional "fail". But the benefit you get with PHP is that problems aren't as difficult to find and fix as theyother languages. This is because, with each request, PHP cleans up and starts over. So an issue with one request will not necessarily disrupt another.
- **Security** - PHP offers security as well that helps prevent malicious attacks. These security levels can be adjusted in the .ini file.
- **Sessions** - PHP provides extensive session and cookie management features and functions enabling the creation and development of personalized web pages,
- **Graphics** - PHP can be used to generate images and graphics dynamically. Using the image functionalities available with PHP, the header information of images can be accessed and manipulated, The library of PHP includes a host of features and functionalities that can be used to create images in various formats, such as gif, jpg, and png.

## Requirements for PHP

- You need PHP 5.2.0 or newer, with session support and the Standard PHP Library (SPL) extension. To support the uploading of ZIP files, you need the PHP zip extension.
- For proper support of multibyte strings (eg. UTF-8, which is currently default), you should install mbstring and type extensions
- You need GD2 support in PHP to display inline thumbnails of JPEGs ("image/jpng;inline") with their original aspect ratio
- When using the "cookie" authentication method, the mcrypt extension is strongly suggested.
- For most users, and is required for bit-bit machines. Not using mcrypt will cause phpMyAdmin to load pages significantly slower

### 5.2.2 MySQL

MySQL is the world's second most widely used open-source relational database management system. My SQL is named after co-founder Monty Widenius's daughter: My MySQL is a popular choice of database for use in web applications and is a central component of the widely used LAMP open-source web application software stack, Free-software-open source mini-projects that require full-featured database management the system often uses MySQL. MySQL is also used in many high-profile, large-scale websites, including Wikipedia, and Google, MySQL is a relational database management system, and ships with no GUI tools to administer MySQL databases or manage data contained within the databases.

Users may use the included command-line tools or use MySQL "front-ends", desktop software applications that create and manage MySQL databases, build database structures, back up data, inspect status, and work with data records. The official set of MySQL front-end tools, MySQL Workbench is actively developed by oracle and is freely available for use. Users may use the included command-line tools or use MySQL "front-ends", desktop software, and web applications that create and manage MySQL databases, build database structures, back up data, inspect status, and work with the data record. The official set of MySQL front-end tools, MySQL Workbench is actively

developed by Oracle and is freely available for use. MyPHPAdmin is a free Web-based front end widely installed by web hosts, since it is developed in PHP is included in the LAMP stack, MAMP, XAMPP, and WAMP software bundle installers.

- **Database Tables** - A database most often contains one or more tables. Each table is identified by a name (e.g., "Customers" or "Orders"). Tables contain records (rows) with data
- **queries-** A query is a question or a request. With MySQL, we can query a database for specific information and have a record set returned.

**Create a connection to a database** -Before accessing data from a database, we must open a connection to the MySQL server.

In PHP, this is done with the mysql_connect () function.

The syntax is mysql_connect(server-name, username, password);

**Parameter Description**

Server-name optional. specifies the server to connect to the default value localhost:3306".UsernameOptional.Specifies the username to log in and the defaultvalue is the name of the user that owns the

Server process. Password Optional. Specifies the password to log in with Default there are more available parameters, but these are the most important. The connection will be closed automatically when the script ends.

**Closing a Connection** - To close the connection before, we can use themysql_close() Function. The connection will also be closed automatically when the script ends.

**Create a Database** - the create database statement is used to create a data base MySQL. To get PHP to execute the statement above we must use the must use the mysql_query()function. This function is used to send a query or command.

CREATE DATABASE database_name

**Create a Table**

The CREATE TABLE statement is used to create a table in MySQL

**Syntax**

CREATE TABLE

table_name(

column_nameldata_type,

column _name2 data_type,

)

**MYSQL Functions:**

mysql_affected_rows - get the number of affected rows in the previous MySQL operation

mysql_change_user-Change logged in user of the active connection

mysql_ client encoding- Returns the name of the character set

mysql_close-Close MySQL connection

mysql_ connect -Open a connection to a MySQL Server

mysql_ create_ db - Create a MySQL database

mysql_ data seek - Move internal result pointer

Mysql_db name - Get result data

Mysql_db_query-Send a MySQL query.

mysql_drop_dib-Drop(delete) a MySQL database

mysql_ermo- Returns the numerical value of the error message from previous MySQLoperation.

Mysql_error-Returns the text of the ear message from previous MySQL

operation mysql-escape_string- escapes a string for use in a mysql_query

mysql_ fetch array- Fetch a result row as an associative array, a numeric array, or both

mysql_fetchassoc- Fetch a result row as an associative array

mysql_fetch, field --Get column information from a result and return as an object

mysql_fetch lengths - get the length of each output in a result

mysql_ fetch_object - Fetch a result row as an object

mysql_pconnect-Open persistent connection to a MySQL server

mysql_ping-Ping a server connection or reconnect if there is no connection

mysql_query-Send a MySQLquerymysql_result--Get result data

mysqL_select_db—SelectMySQLdatabase

mysql_set_ charset - sets the client character set

mysql_stat -- Get current system status

my,sq)_ tablename --Get table name of the field

mysqL_thread_id -- Return the current thread ID

mysqL_unbuffered_ query- Send an SQL query to MySQL, without fetching and buffering the result.

### 5.2.3 PHP MyAdmin

PHP MyAdmin is an open-source tool written in PHP intended to handle the administration of MySQL over the World Wide Web. PHP MyAdmin supports a wide range of operations with MySQL. Currently, it can create and drop databases, create/drop alter tables, delete edit/add fields, and execute any SQL. The statement, manage users and permissions and manage keys on fields. While

you still have the ability to directly execute any SQL statement. PhpMyAdmin can manage a whole MySQL server (needs a super-user) as well as a single database.

**PhpMyAdmin can:**

- Browse and drop databases, tables, views, fields, and indexes.
- Create a copy, drop, rename and alter databases, tables, fields, and indexes,
- Maintenance server, databases, and tables, with proposals on server configuration.
- Execute, edit and bookmark any SQL statement, even batch queries.
- Load text files into tables.
- Create and read dumps of tables.
- Administer multiple servers and manage MySQL users and privileges range of operations with MySQL. Currently, it can create and drop databases, Create/drop/alert tables, delete /edit fields, and execute any SQL.
- The statement, manage users and permissions and manage keys on fields. While you still have the ability to directly execute any SQL statement. PhpMyAdmin can manage a whole MySQL server (needs a super-user) as well as a single database.

**PhpMyAdmin can:**

- Browse and drop databases, tables, views, fields, and indexes.
- Create a copy, drop, rename and alter databases, tables, fields, and indexes.
- Maintenance server, databases, and tables, with proposals on server

- configuration.
- Execute, edit and bookmark any SQL statement, even batch queries.
- Create and read dumps of tables.
- Load text files into tables.
- Administer multiple servers and manage MySQL users and privileges.

The phpMyAdmin is used for the database in the project. The platform is shown below.

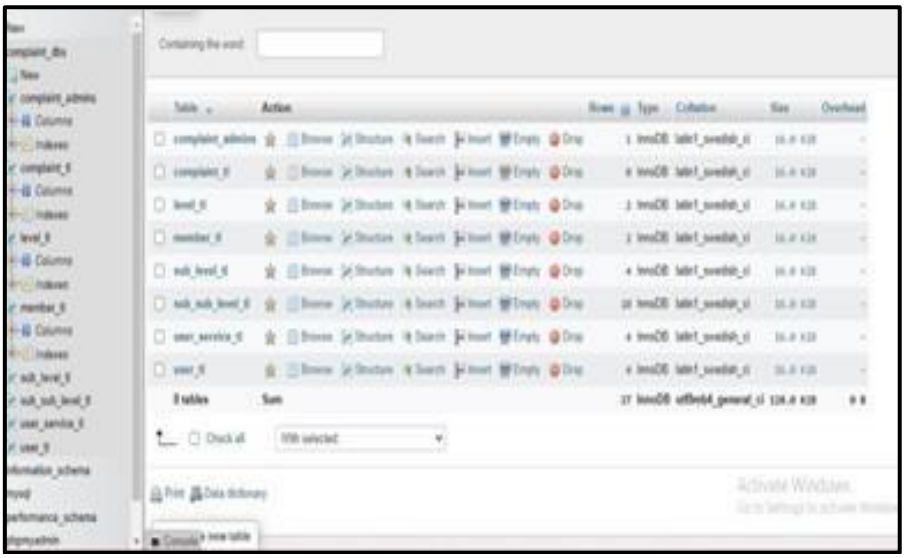

**Figure 5.1 Database of phpMyAdmin**

To insert the database we import the database in phpMyAdmin.

1. Click import on the top.
2. Click the Choose the file option and dump the file in the given position.

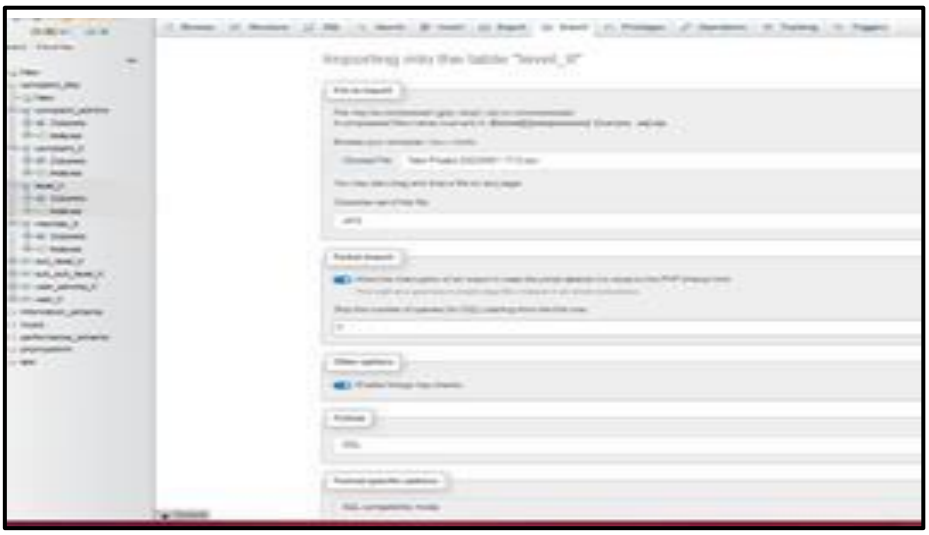

**Figure 5.2 Inserting file in phpMyAdmin**

3. Now come to the bottom of the page and click import to import the database.

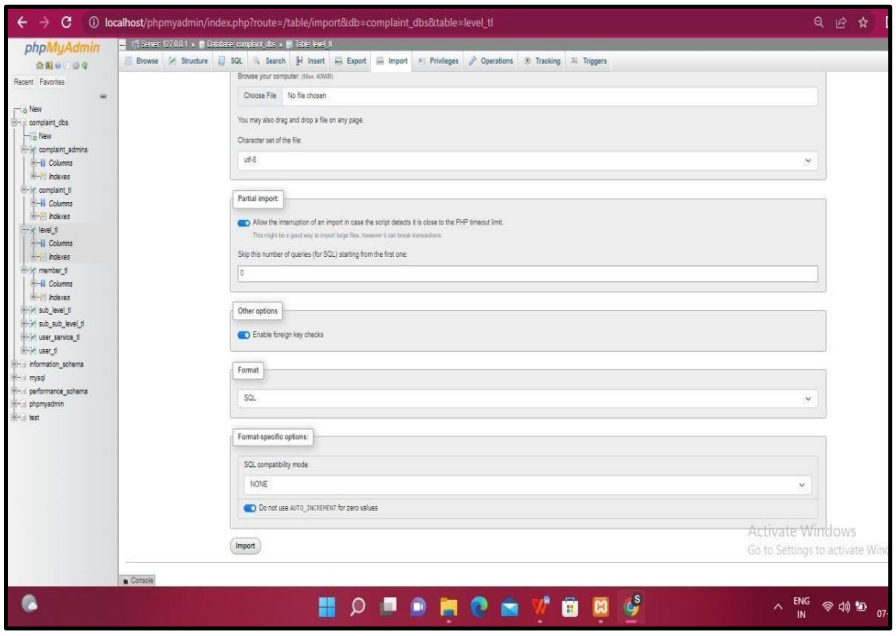


**Figure 5.3 File importation**

4. The file is imported successfully.

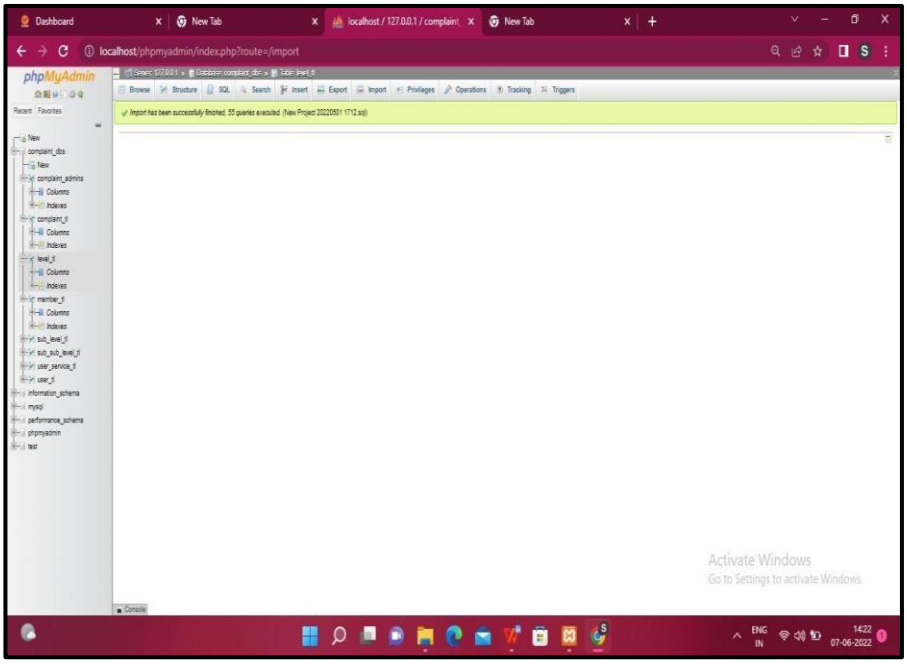


**Figure 5.4 Successful importation of file**

## 5.3 Input and Output screen Design

Here we have three login pages:

- Admin login
- User login
- Incharge login

### 5.3.1 Admin login

The Admin login output screen is given below

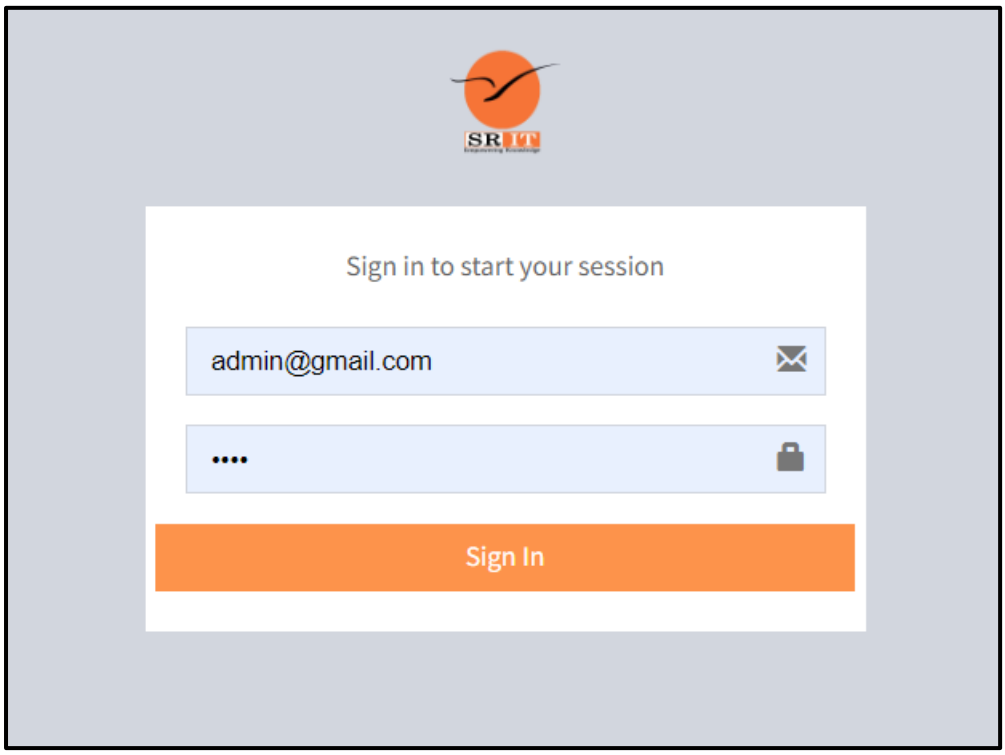


**Figure 5.5 Admin login page**

The elements that are provided in the admin dashboard are

1. Service Management
    - Service list
    - New service list
    - Sub-service list
    - New sub-service list
    - Sub sub-service list

- New sub-service list

2. Officer Management
    - Officers list
    - Officers New
3. Student Management
4. Complaint Management
    - Pending complaint list
    - Accepted complaint list
    - Rejected complaint list
5. Change password
6. Sign out.

The servicer list provides all the grievances lists that is submitted by the students/faculty.

The service management list provides a bunch of elements in which the services list is the first one. Where it shows all the service names and its description.

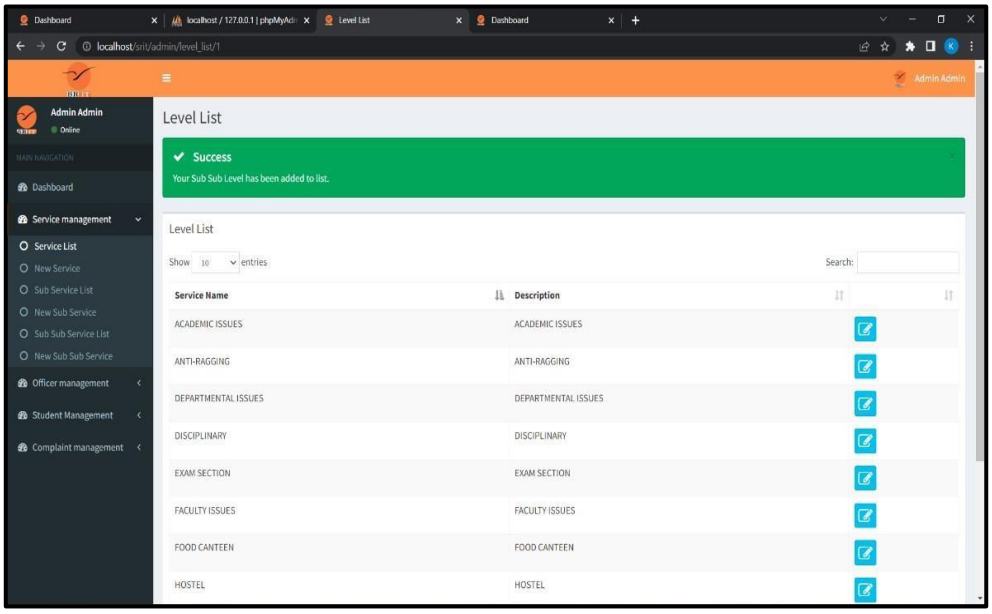


**Figure 5.6 Service list**

Next to that is the New Service list in which the admin can edit the grievances.

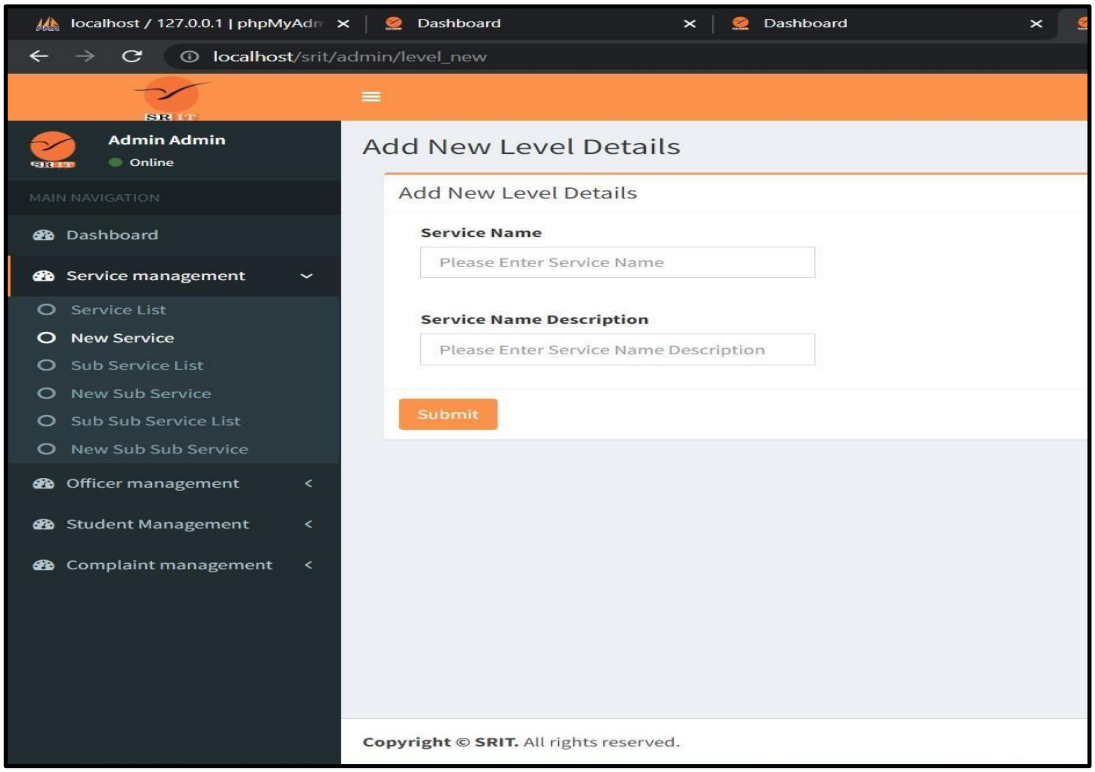


**Figure 5.7 New service list**

Thirdly, there is the sub-service list where the details of the service are given.

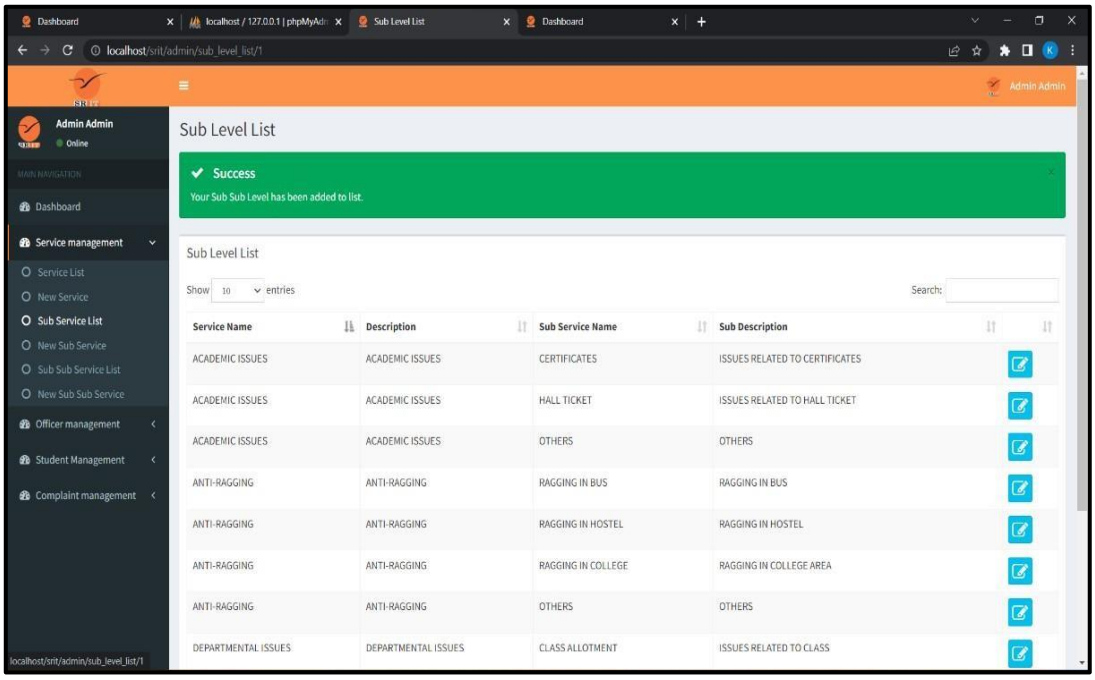


**Figure 5.8 Sub-service list**

Subsequently, new sub-services to add the new sub-service details are given.

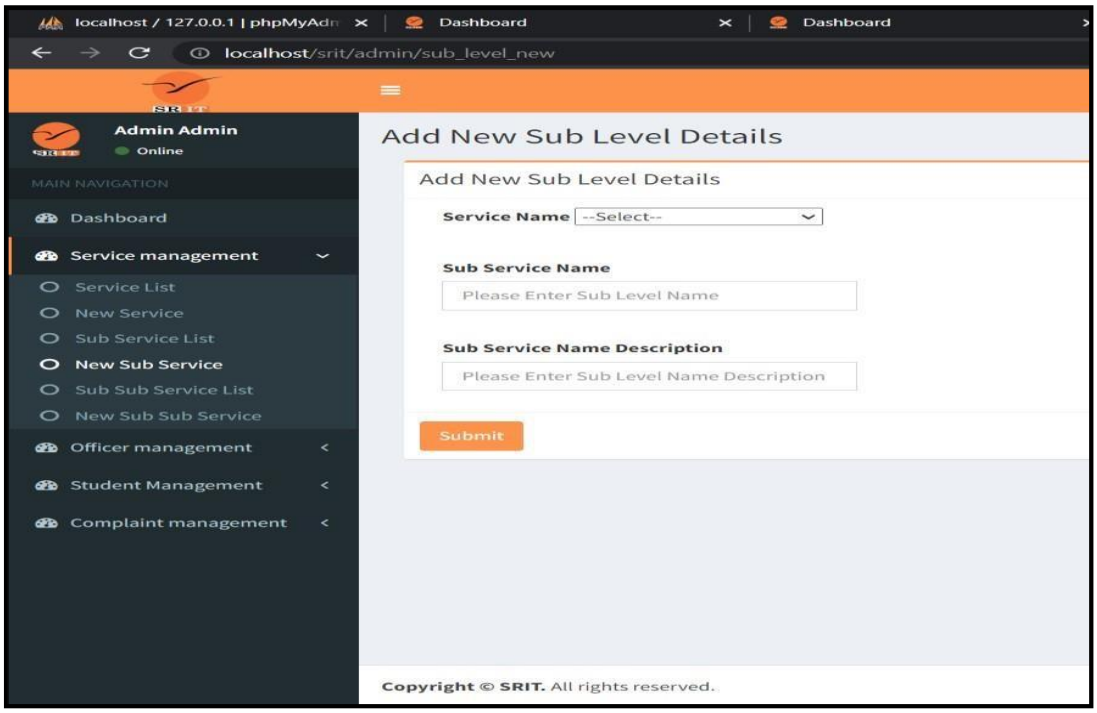


**Figure 5.9 New sub service list**

Next, sub-sub service details were the ultimate detailed description of the problem is stated.

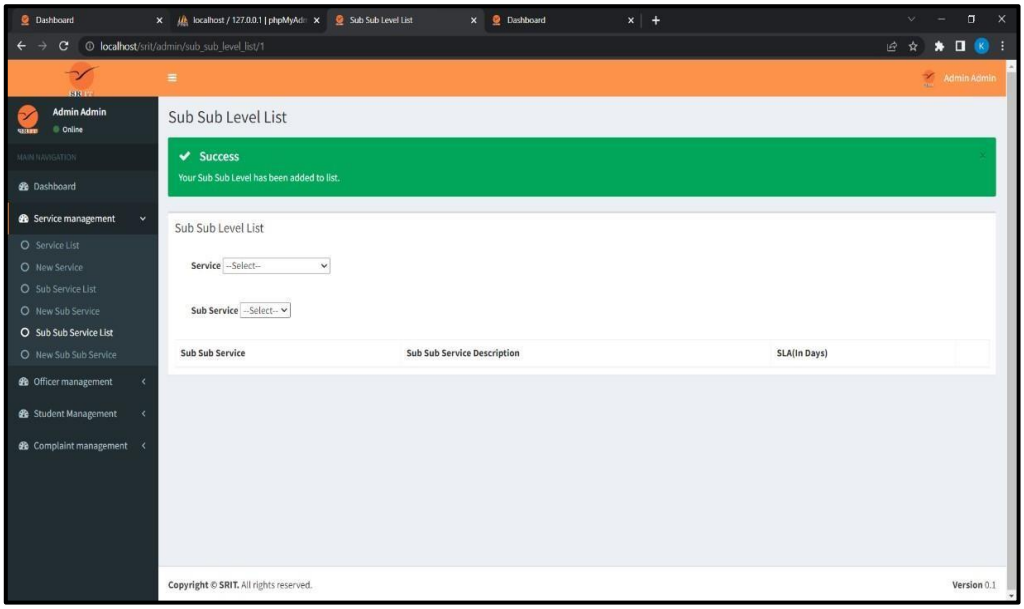


**Figure 5.10 sub sub service list**

Finally, the New sub-sub-sub-services list is used to edit the detailed version of theproblem.

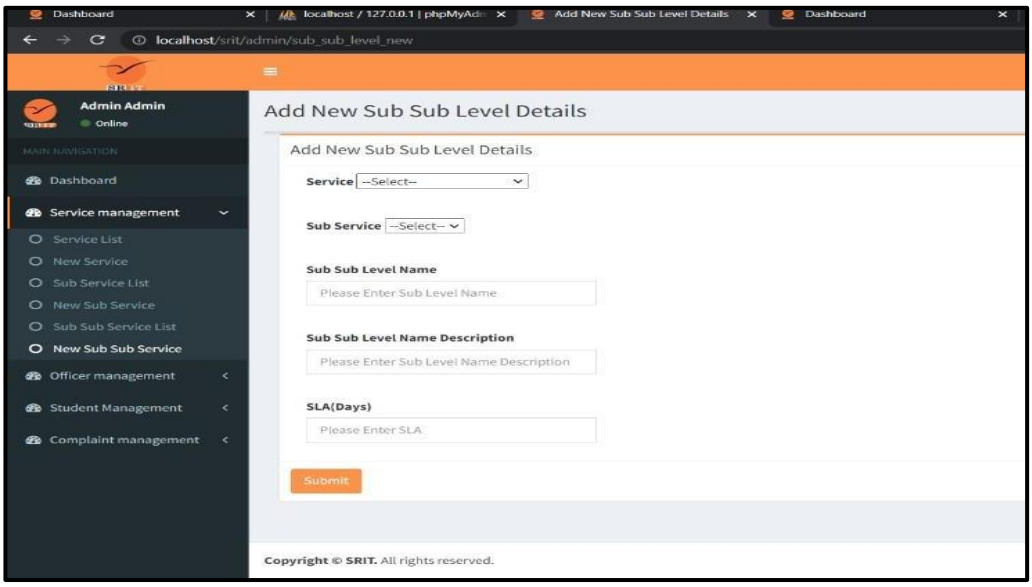


**Figure 5.11 New sub sub services list**

The officer management list provides the list of all the chargers that will solve the respected problems/grievances.

The first in that is the officer list where the list of members are shown.

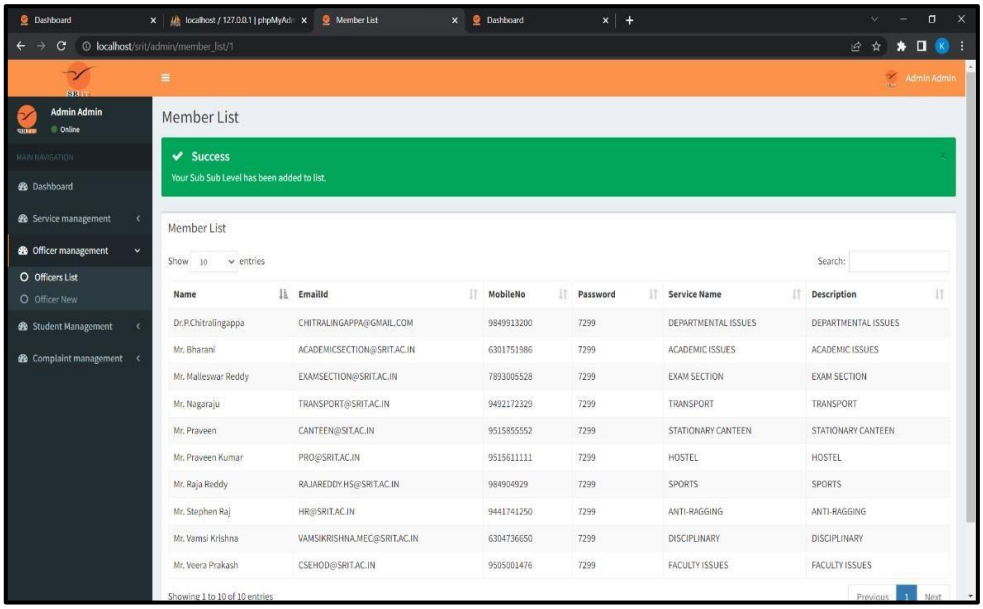


**Figure 5.12 Officer list**

And also, the officer new list is given to edit and add the in charges list.

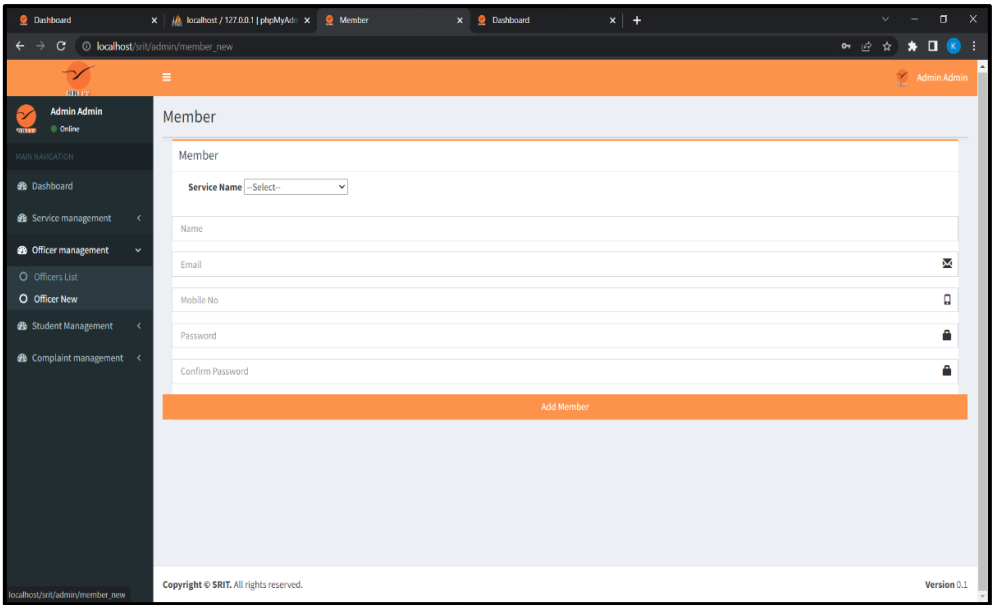


**Figure 5.13 Officer new list**

The Student Management session gives information about the whole student data.In that, the first session is the student list, where the student data is visible.

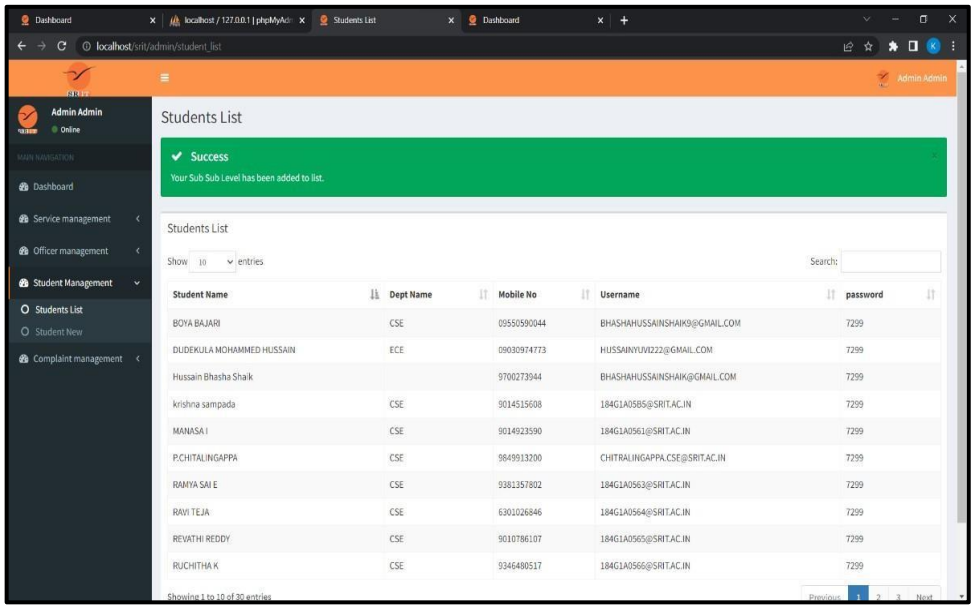


**Figure 5.14 Student list**

The Student New is used to edit the list which is shown in the student list session.

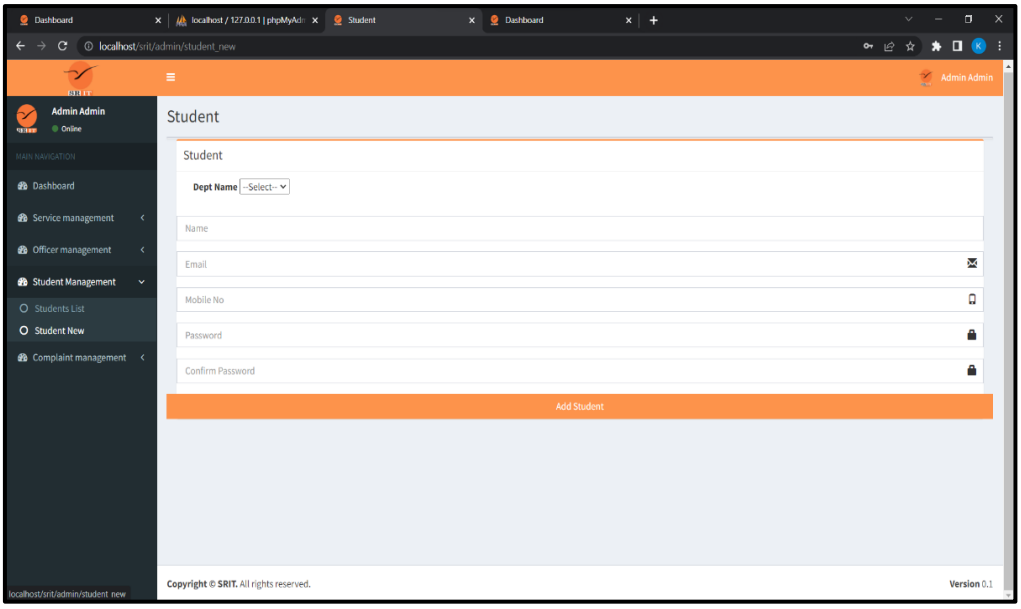


**Figure 5.15 Student New list**

The Complaint management session provides the information about pending, accepted, and rejected complaint list.

Firstly, the pending complaints, where the list of complaints which are not viewed andnot yet decided to accept or reject are given here.

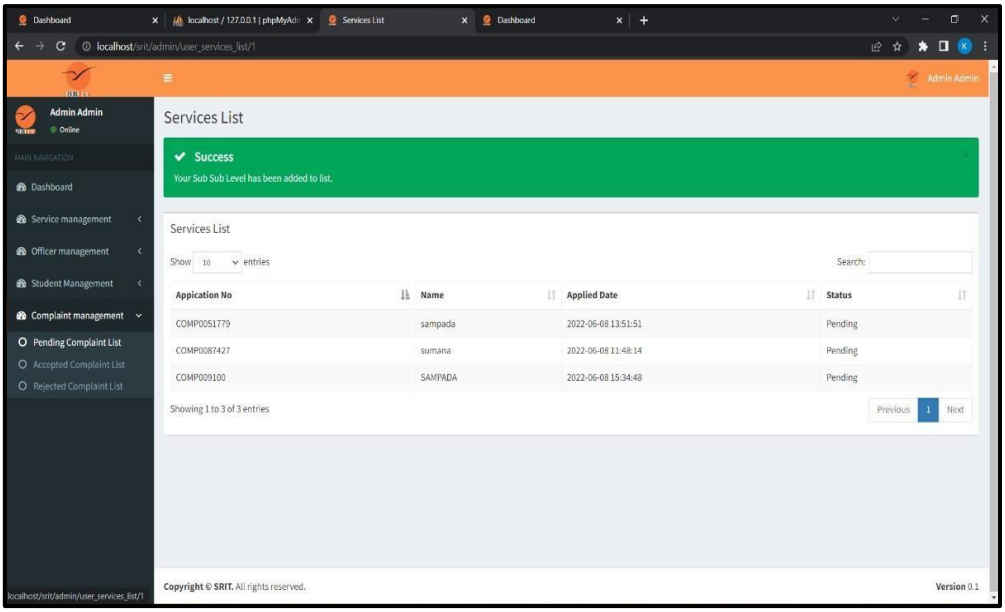


**Figure 5.16 Pending Complaint list**

Secondly, the accepted list where the accepted services by the in charges are shown in this session.

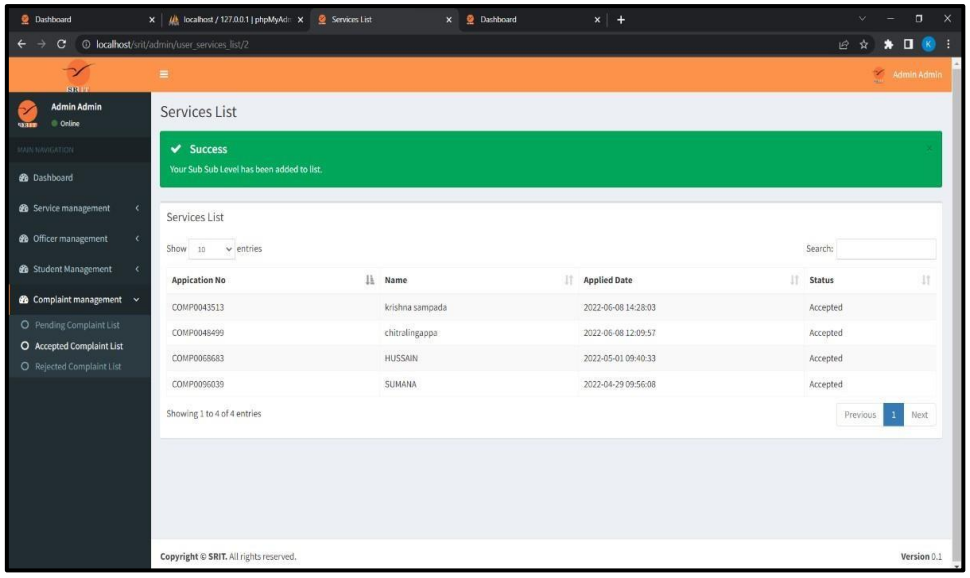


**Figure 5.17 Accepted Complaint List**

Finally, the rejected list shows the services which are rejected by the in chargers i.e, which can't be solved or are already solved.

Admin can also change his/her password

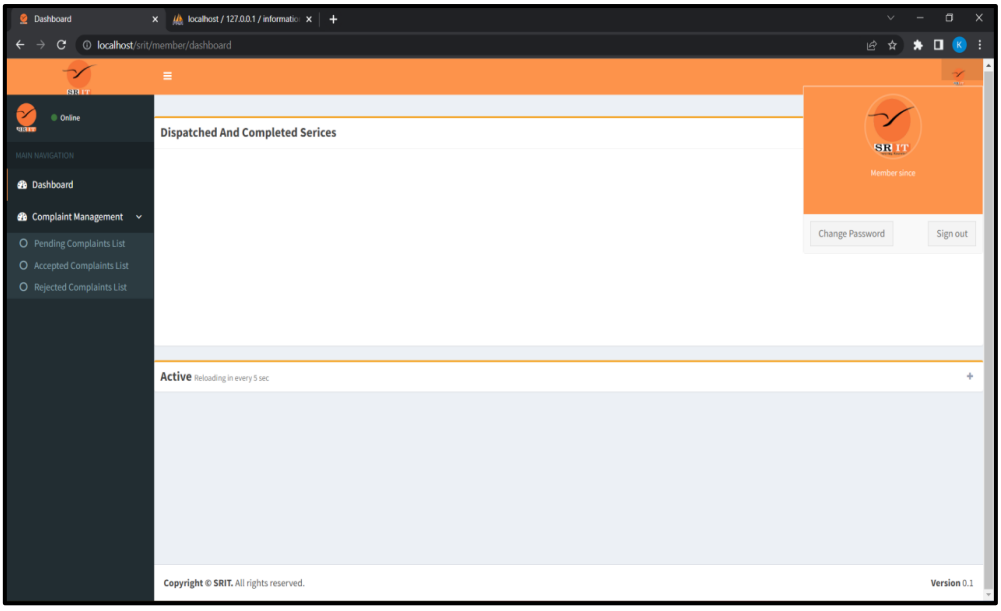


**Figure 5.18 Change password and Sign Out**

### 5.3.2 User login

The Student login output screen is given below

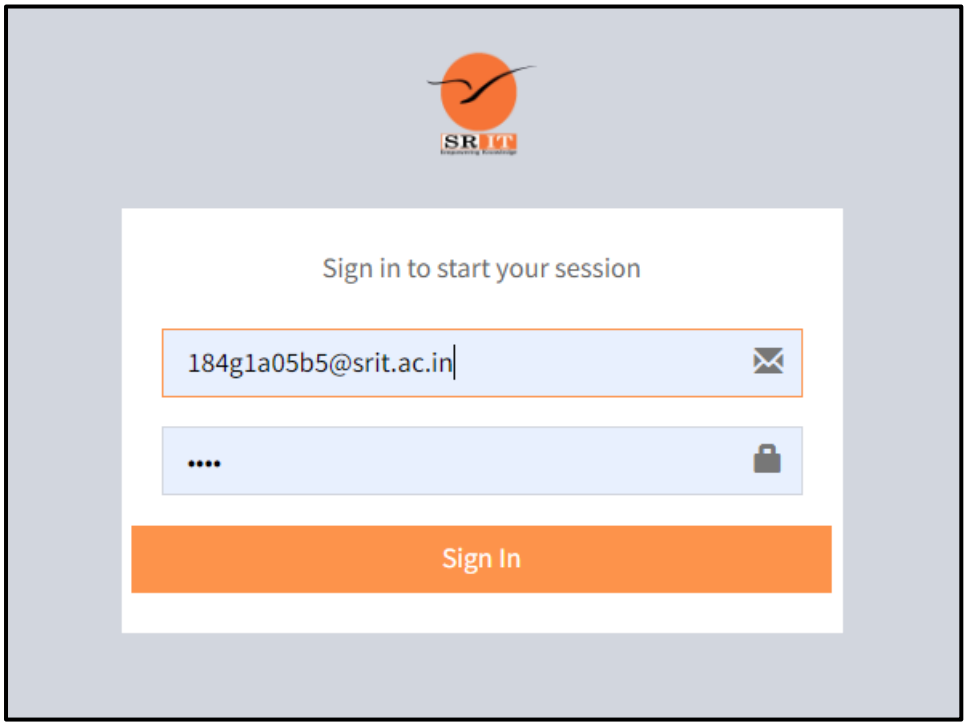


**Figure 5.19 User login page**

The elements that are provided in the User dashboard are

1. Dashboard
2. Complaint management
    - My complaint list
    - Apply new complaint.
3. Change password
4. logout

Dashboard of the User looks like

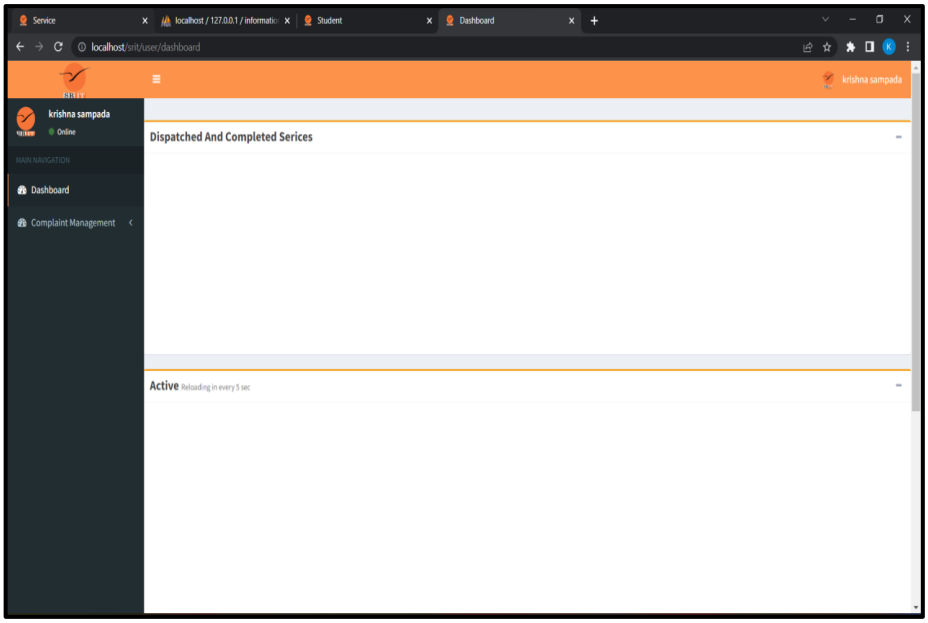


**Figure 5.20 User dashboard**

The Complaint management session provides the information about the complaint list that is raised by the user and also provides to raise a new complaint.

Users can able to see his/her complaint history in my complaint list

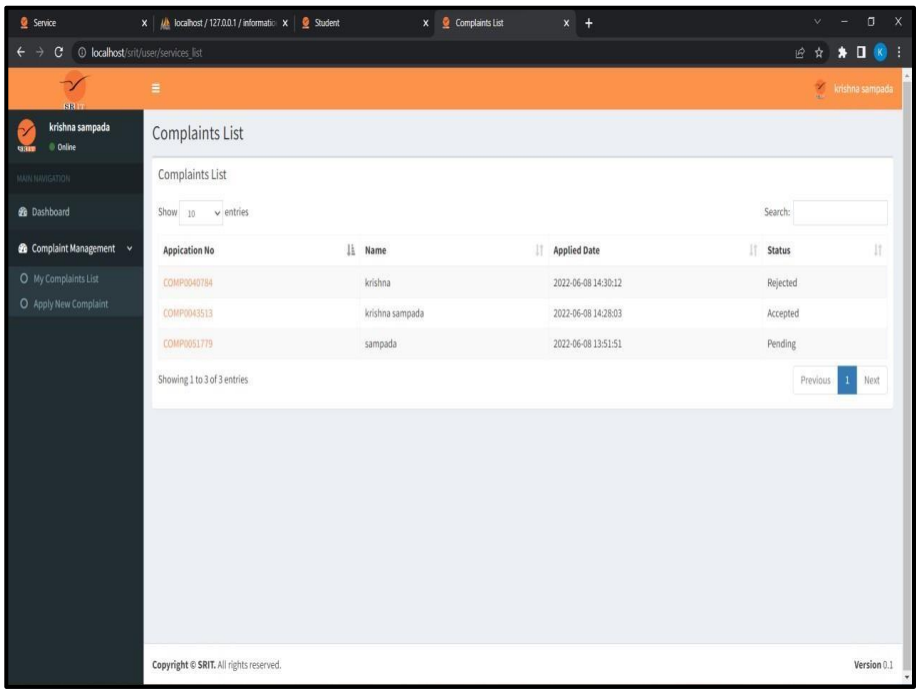


**Figure 5.21 My complaint list**

Users can raise complaints by simply clicking to apply a new complaint

The complaint raiser can hide his ID by selecting hide option in student detail.

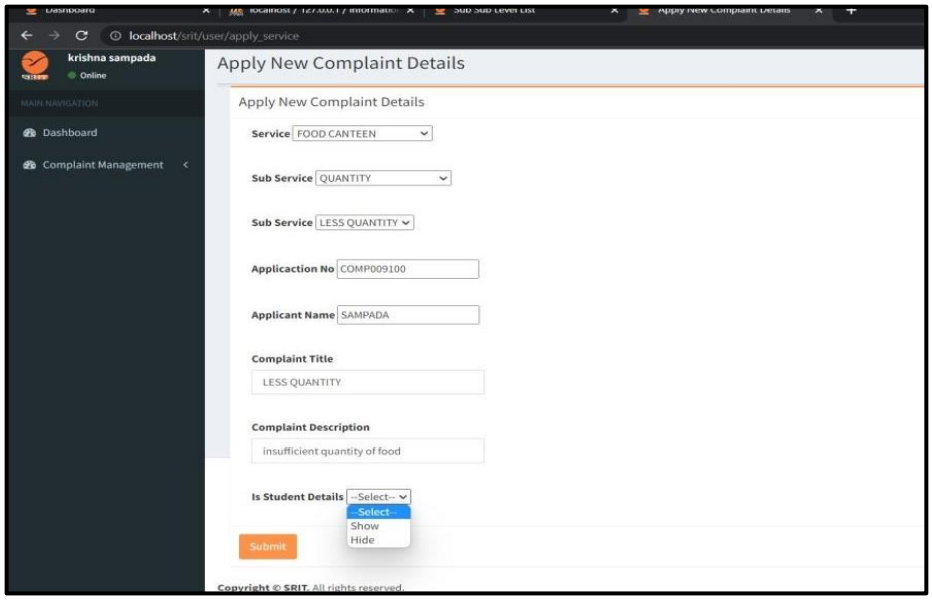


**Figure 5.22 Application of new complaint**

### 5.3.3 Member login

The Member login output screen is given below

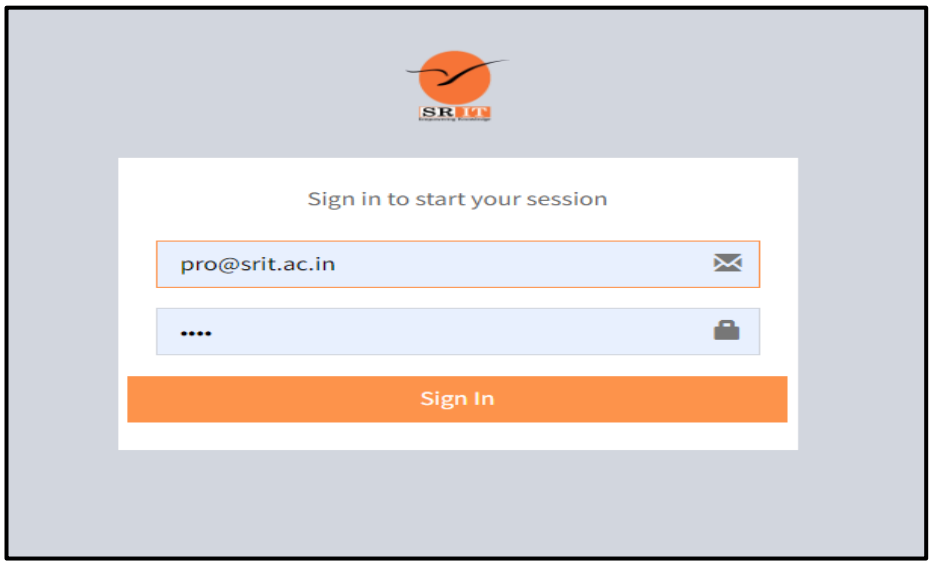


**Figure 5.23 Member login page**

The elements that are provided in the Member dashboard are

1.Dashboard

2. Complaint Management

- Pending complaint list
- Accepted complaint list
- Rejected complaint list

3.Change password

4.Sign out.

Member can log in in his login page to view the raised complaints

1.The dashboard of the member.

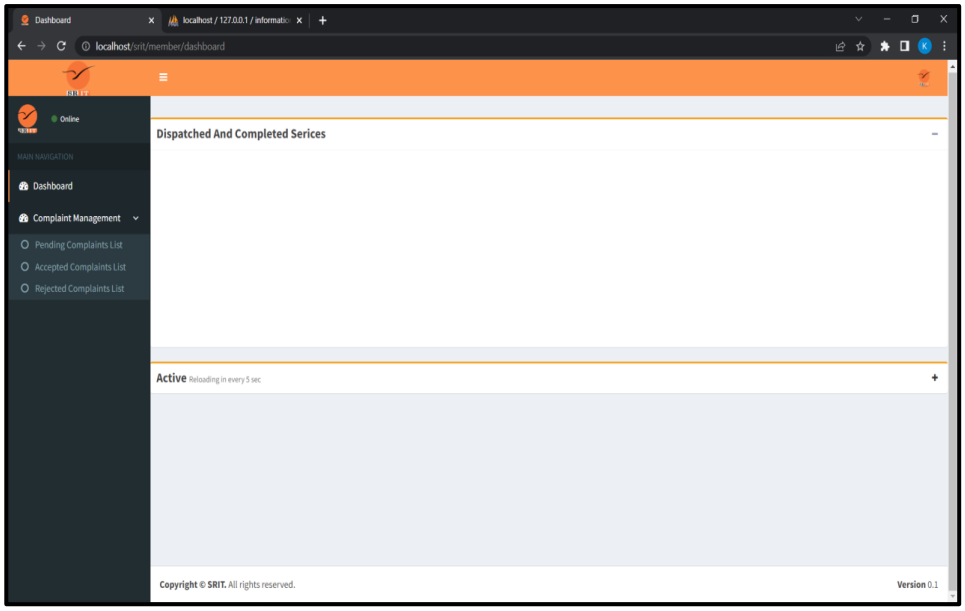


**Figure 5.24 Member dashboard**

2.The Complaint management session provides the information about the pending, accepted, and rejected complaint list.

The complaints that are yet to solve are viewed in pending complaints

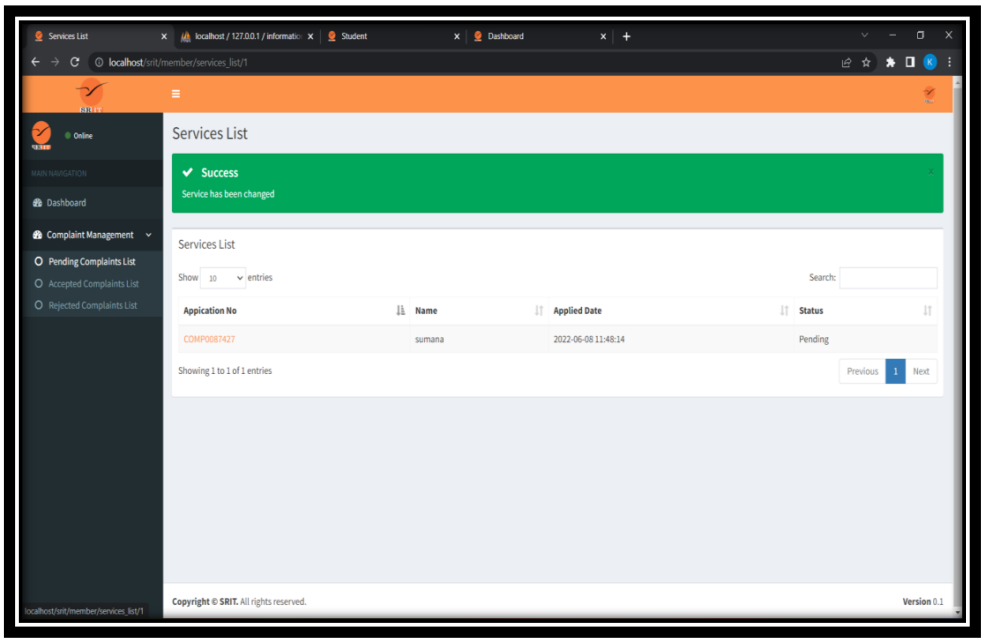


**Figure 5.25 Pending complaint list**

The complaints that are accepted and solved are listed in Accepted Complaint List

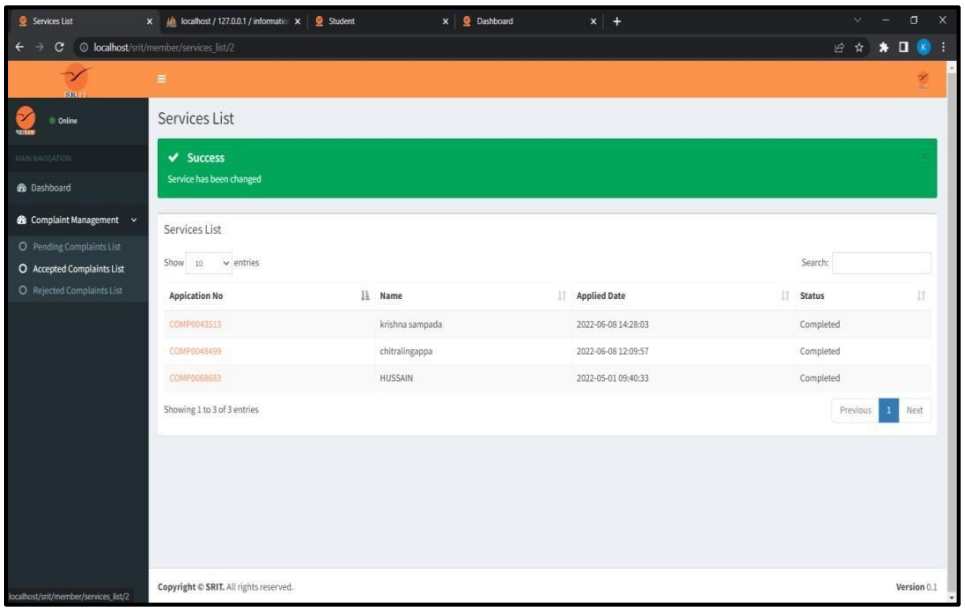


**Figure 5.26 Accepted complaint list**

The complaints rejected are viewed in Rejected complaint list

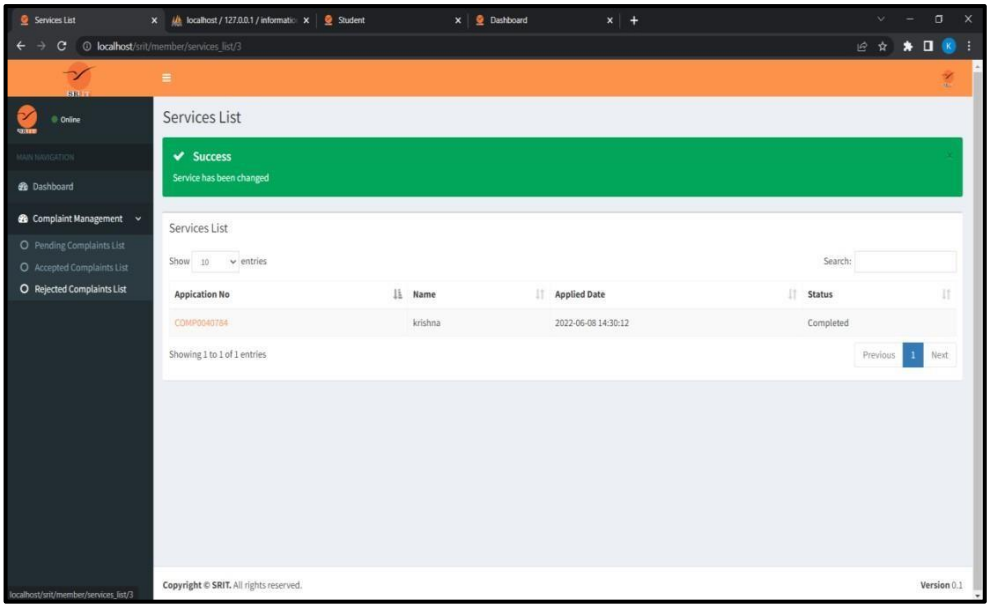


**Figure 5.27 Rejected complaint list**

Resolvers can see the complaint details by clicking on the complaint ID that has been generated when the complaint been has raised.

He can accept or reject the complaint by clicking accepted and rejected by giving reason by replying the complaint

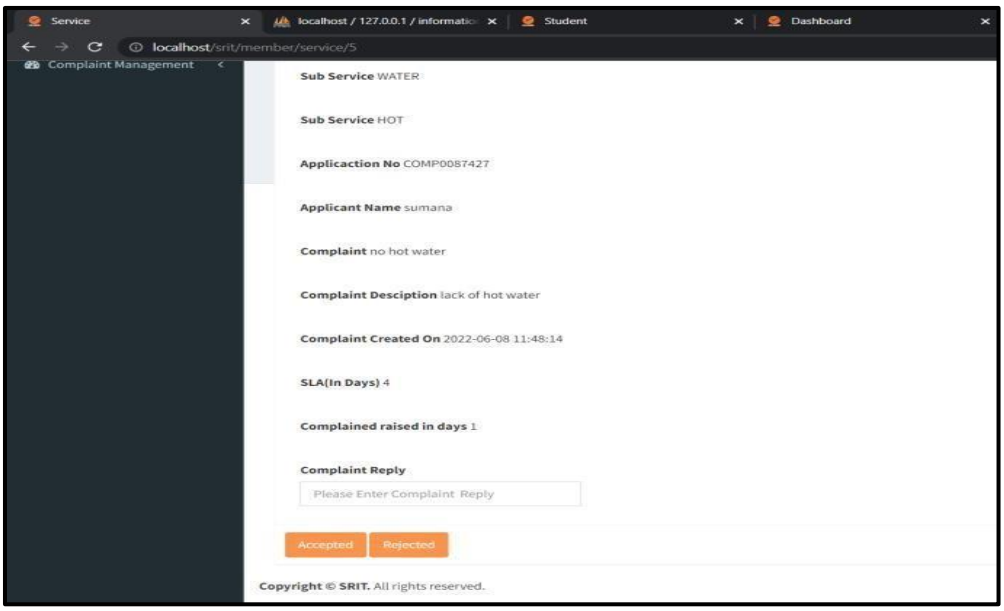


**Figure 5.28 Complaint details**

# CHAPTER-6

# TESTING AND VALIDATION

## 6.1 Introduction

Testing is an investigation that is carried out to offer information to stakeholders regarding the quality of the product or service being tested. Program testing also gives the business an objective, unbiased picture of the software, allowing them to grasp and comprehend the risks associated with software implementation. The process of executing a programme or application with the purpose of detecting software faults is one example of a test technique.

## 6.2 Design of Test Cases and Scenarios

The completion of a system will be achieved only after it has been thoroughly tested. Though this gives a feel the project is completed, there cannot be any project without going through this stage. Hence in this stage, it is decided whether the project can undergo the real-time environment execution without any break downs, therefore a package can be rejected even at this stage.

### 6.2.1 Methods of Testing

The two techniques are used to explain the point of view that a test engineer employs when designing test cases and are generally classified into black-box testing and white-box testing.

1. **Black box testing-** treats software as if it were a "black box" with no knowledge of its internal implementation.Equivalence partitioning, boundary value analysis, all-pairs testing, fuzz testing, and model-based testing are examples of black-box testing methodologies. exploratory testing, specification- based testing, traceability matrix.
2. **White box testing** - Unlike black-box testing, white box testing allows the tester access to internal data structures and algorithms (as well as the code that

implements them). White box testing techniques can also be used to assess the completeness of a test suite developed using black-box testing techniques. This allows the software team to study aspects of a system that are rarely tested while also ensuring that the most critical functions are tested.

3. **Grey Box Testing**-entails having access to internal data structures and algorithms for the purpose of developing test cases, but testing at the user, or black-box, level. Manipulation of input data and output formatting do not qualify as a "grey box" because the input and output are obviously outside of the "black- box" system under test. When conducting integration testing between two modules of code authored by two different developers, where just the interfaces are accessible or least, this distinction is especially essential. Reverse engineering may be used during grey box testing to determine boundary values or error messages, for example.

4. **Acceptance testing -** is a term that can refer to one of two things:

Prior to presenting a build to the main testing process. A smoke test is utilized as an acceptance test. Customer acceptability testing is referred to as user acceptance testing (VAT).

5. **Regression Testing** - Any sort of owner testing that seeks to detect software regressions is known as regression testing. When software functionality that was previously working correctly ceases performing as planned, this is referred to as a regression. Regressions are frequently unanticipated consequences of program changes. Re-running previously ran tests and evaluating whether previously repaired errors have re-emerged are common regression testing methods.

6. **Non-functional Software Testing** - Non-functional components of software can be tested using special methodologies.

- The software's performance is tested to see if it can manage massive amounts of data or users. Software scalability is the term used to describe this. Load testing is a term used to describe the activity of non-functional software testing.
- Stability testing determines whether the software can function properly for an extended length of time. Non-functional software testing is also known as indurations testing.
- Usability testing is required to determine whether the user interface is simple to use and comprehend.

- Security testing is required for software that processes confidential data and toprevent hackers from breaking into the system.
- To test these elements of software, internationalization and localization are required, and a faux localization method can be utilized.

### 6.2.2 Methodologies for Software Testing

A software testing plan gives the software developer a map to follow.

- Testing is a collection of tasks that can be planned ahead of time and carried out in a methodical manner.
- As a result, a software testing template, consisting of a series of phases into which we may insert individual test case design methodologies, should be createdas part of the software engineering process.

The following characteristics should be present in any software testing strategy:

1. Testing begins at the module level and progresses "outward" toward thecomplete computer-based system's integration.
2. At different times in time, different testing procedures are acceptable.
3. Testing is carried out by the software's developer and an independent testgroup.
4. While testing and debugging are two separate processes, debugging must beincluded in any testing strategy.

#### 6.2.2.1 Unit Testing

Unit testing concentrates verification efforts in the smallest unit of software design (module).

1. Considerations for unit tests
2. Procedures for unit testing

#### 6.2.2.2 Integration Testing:

Integration testing is a systematic method of developing the program structure while running tests to find faults in interfacing. Integration testing can be divided into two categories:

1. Top-Down Integration: Top-down integration is a method of building program structures in stages. Moving down the control hierarchy, starting with the primarycontrol module, modals are integrated.
2. Bottom-Up Integration: As the name implies, bottom-up integration begins with automatic modules for contraction and testing.
3. Testing for Regression Regression testing, in this context of an integration test strategy, is the re-running of a subset of tests that have already been run to check that modifications have not resulted in unforeseen side effects.

## 6.3 Things to think about when selecting software testing methodologies

**1. RISKS**. During testing, risk management is critical, therefore think about the dangers and the level of risk. Regression is a significant concern for a well-established app that is still evolving. Regression-averse methods make a lot of sense in this situation. If you choose a risk-based analytical technique for a new app, risk analysis could show a variety of risks.

**2. OBJECTIVES**. To be successful, testing must meet the expectations and needs of stakeholders. A dynamic technique makes sense if the goal is to find as many problems as possible with the least amount of time and effort committed upfront.

**3. SKILLS** are the third item on the list. Consider what talents the testers have and don't have because techniques should not only be chosen but also implemented. When there aren't enough skills or time on the team to develop a plan, a standard-compliant strategy is a good solution.

**4. PRODUCT.** Some goods, such as contract development software and weapons systems, have well-defined requirements. This could result in synergy with a requirements-based analytical strategy.

**5. COMPANY.** Business and strategy issues are frequently relevant. A model- based

method could be used if a legacy system is used as a model for a new one.

**6. RULES AND REGULATIONS** In some cases, not only stakeholders but also regulators, must be satisfied. In this instance, a deliberate plan that satisfies these regulations may be required.

You should choose testing methodologies keeping the considerations listed earlier in mind, as well as the project's timeline, budget, and feature limits, as well as the realities of the company and its politics.

## 6.4 Validation:

After integration testing, the program is fully constructed as a package; interfacing issues have been identified and rectified, and the last set of software tests - validation testing - can begin. Validation can be defined in a variety of ways, but a simple definition is that validation is successful when software performs as expected by the client.

A reasonable expectation is stated in the software requirement specification, which is a document that lists all of the software's user-visible features. A section titled "Validation Criteria" is included in the standard. The information in the section serves as the foundation for a validation testing strategy.

## 6.5 Conclusion:

This program has been successfully computed and tested through the use of "test cases." It is user-friendly and contains the necessary options for the user to accomplish the requested activities. To a large extent, application software satisfies the defined information requirements. The system was created with current and future requirements in mind, and it is extremely versatile. The programme achieves the following objectives: instant access, increased productivity, optimal resource usage, and efficient record management.

# CONCLUSION

With the development of a Smart Grievance Redressal System, students and faculty grievances will be immediately addressed, and aggrieved students, teachers, and parents in higher educational institutions will receive timely assistance. There are primarily three interfaces in the Smart Grievance Management System. A user interface for complaint raiser, cell member's interface for redressing the grievances and an admin interface for controlling the entire system are included in the completely automated system.

The Smart Grievance Management System displays the current status of the complaint, indicating whether it is in the process of being resolved, rejected or pending. The Admin has the ability to delete and add a User. Checking the current status of complaints and amending the status of complaints is centralized management..

# REFERENCES

[1] Shaligram Prajapat, "A Prototype for Grievance Redressal System",DOI:10.1007/9 78-981-10-8198-9_5,Shaligram Prajapat, Jan.2018.

[2] Devika Radhakrishnan, "Smart complaint managementsystem".IJTRD | Nov-Dec2016.

[3] Mukesh Buldak1,"An online Grievance Redressal System", vol. 11, pp. 11-15, Shrikant Pandhekar, Mar.2019.

[4] VAishwarya, SunidhiSoni, ShailjaKhare."Online Student Grievance support system", ISSN:2581-6918(E), 2582-179 2(P) Year-05,Volume-05, Issue-01.:jan2022.

[5] Varun, G.: Redressing grievances and complaints regarding basic service delivery.WorldDev.41,109–119(2013)

[6] Dip65++ankar,M.:Solution towards effective complaint registration system in Indian scenario. In: IJCA Proceedings on National Conference of Advancement of Systems & Computer Networks(ISCON—2012),vol.1,pp. 1–2(2012)

[7] Nripendra, P.R.,Yogesh,K.D.,Michael,D.W., Vishanth, W.:Investigating success of an e-government initiative:validation of an integrated IS success model.Inf.Syst.Front.17(1),127–142(2015)