Customer Requirements Document

C1. The system shall allow a user to Register.

C2. The system shall allow the user the login.

C3. The system shall allow the user to view the resources .

C4. The system shall allow the user to take resources.

C5. The system shall allow the user to lodge complaint.

C6. The system shall allow the admin to add resources.

C7. The system shall allow the admin to manage.

C8. The system shall allow the user to edit profile.

C9. The system shall allow the user to view his/her complaints.

C10. The system shall allow the user to view his/her occupied resources.

C11. The system shall allow the user to apply for renewal of their occupied resources.

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Software Requirements Specification

TeamNo.11

NITC Resource Management Register

Version <1.1>

Prepared by

Team Number: 11

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Arjun Nandlal Bhardwaj **M210683CA**
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Project Owner: **BHIMAVARAPU MANOGZNA**

Course: **CS4096D Software Engineering Laboratory**

Date: **24th January, 2022**

Contents

Version	Primary Author(s)	Description of Version	Date Completed
1.1	Abhishek Jain, Devansh Kaushik, Mukesh Patel	The revision is the first and constitutional build for the project in subject.	28/01/2023

2.1	Junaid Ansari Arjun Nandlal Bhardwaj Rakhi Kumari	Added design to the document	09/02/2023

1 Introduction

A resource management registrar is a system or organization responsible for maintaining a database of resources, such as equipment, personnel, or materials, and their availability for use. This can include scheduling and allocation of resources, as well as tracking and reporting on their usage. This system is can be used in industries such as construction, manufacturing, or logistics to help optimize the usage and efficiency of resources.

1.1 Document Purpose

A Resource Management Register (RMR) is a document that lists and tracks all the resources (e.g. personnel, equipment, materials) that are required for a project or organization. Its purpose is to ensure that all necessary resources are allocated and available when needed, and to help identify and resolve any resource conflicts or shortfalls that may arise. The RMR is typically used by project managers and resource managers to plan, track and report on resource usage and availability. It can also be used to monitor and control costs associated with resource usage.

1.2 Product Scope

The product scope of a Resource Management Register (RMR) typically includes the following:

1. A list of all the resources required for a project or organization, including personnel, equipment, and materials.
2. Information on the availability, allocation, and utilization of resources, including current and projected usage.
3. A system for tracking and reporting on resource usage and availability, including the ability to identify and resolve conflicts or shortfalls.
4. A system for tracking and reporting on resource performance, including the ability to identify and address any issues or problems that may arise.
5. A system for managing and updating the RMR, including the ability to add, modify, or delete resources as needed.

1.3 Intended Audience and Document Overview

The intended audience for a Resource Management Register (RMR) includes project managers, resource managers, and other individuals responsible for planning, tracking, and reporting on resource usage and availability within a project or organization. This document provides an overview of the resources required for a specific project or organization, including information on availability, allocation, and utilization.

1.4 Definitions, Acronyms and Abbreviations

Definition

A Resource Management System (RMS) is a software application that helps organizations plan, schedule, and allocate resources such as personnel, equipment, and materials. It is used to manage and track resources and ensure they are available when needed, and to identify and resolve any resource conflicts or shortfalls that may arise.

Acronyms and Abbreviations

- Resource Allocation: The process of assigning and scheduling resources for specific tasks.
- Resource Utilization: The measurement of how effectively resources are being used.
- Resource Conflicts: A situation where multiple projects or tasks require the same resources at the same time.
- Resource Shortages: A situation where there are not enough resources available to meet the demands of a task.
- RMS: Resource Management System

1.5 Document Conventions

This Document was created based on the IEEE template for System Requirement Specification Documents.

- Main heading : Times , 18 size , Bold
- Sub-heading : Times , 14 size , Bold
- Writing : Arial, 12 size

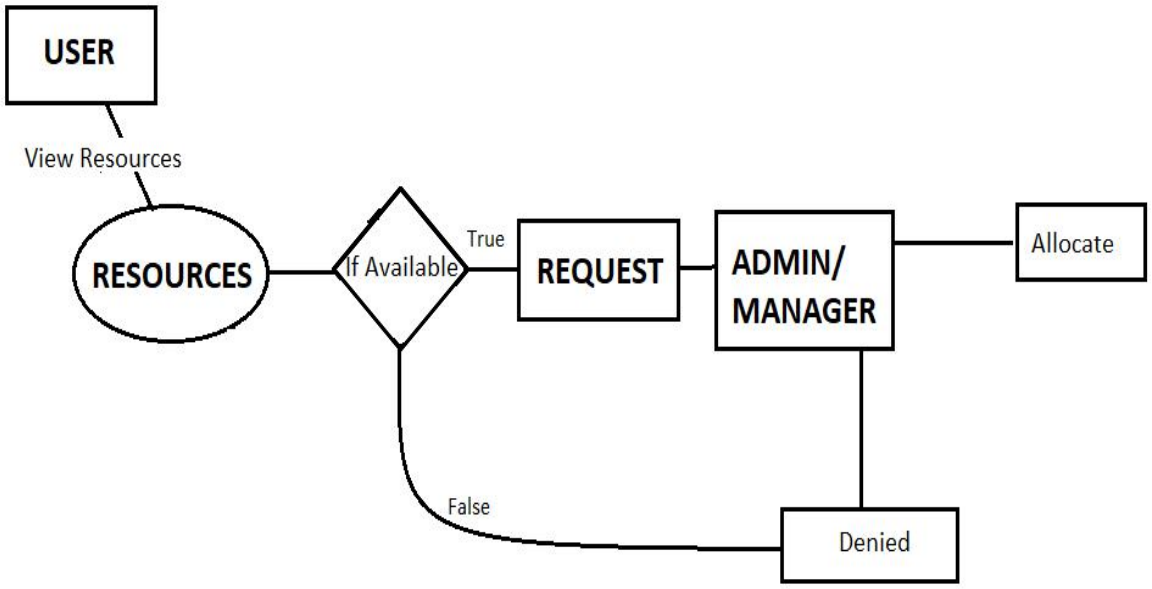
1.6 References and Acknowledgments

a. https://www.javatpoint.com
b. https://www.geeksforgeeks.org
c. https://www.stackoverflow.com

2 Overall Description

2.1 Product Overview

A resource management register (RMR) is a tool used to track and manage resources within an organization. It typically includes information about the type, quantity, location, and status of resources such as equipment, materials, personnel, and facilities. The RMR can be used to plan and schedule the use of resources, monitor their utilization, and identify any potential conflicts or inefficiencies. It may also include features for tracking inventory levels, generating reports, and integrating with other systems such as scheduling or budgeting software. The specific features and capabilities of a RMR will vary depending on the product and vendor.



General Diagram of NITC Resource Management System

2.2 Product Functionality

Functionalities of the application

a. User can check the list of resources available for use.
b. User can see the quantity of resources occupied for various uses.
c. User can check the number of resources available for use.
d. User can add the name of a new resource.
e. User will be able to see the various information like
    i. List of resources
    ii. Date and time of lending any resource
    iii. Due date
    iv. Availability of any resource

2.3 Design and Implementation Constraints

The software product being developed for a new portable stand-alone application which functions as a Resource Management System for the students of NITC.
The product works with any android device using android 7.0 or above. For the development of this application Android Studio is used. MySQL is used as Database. Figma is used to design the layouts of UI. The whole software is developed following proper SDLC steps.

2.4 Assumptions and Dependencies

1. The quantity entered should be a numeric value.
2. Availability of required network and communication tools.
3. Availability of proper infrastructure for project.
4. Project initiation depends on the availability of tools.
5. Efficiency in timely completion of the project.
6. Smoothness in proper execution of the project.
7. Project will be completed without any problem.
8. Date should be in proper format and the calendar should work properly.
9. User can view his/her complaints.
10. User can view his/her occupied resources.

3 Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

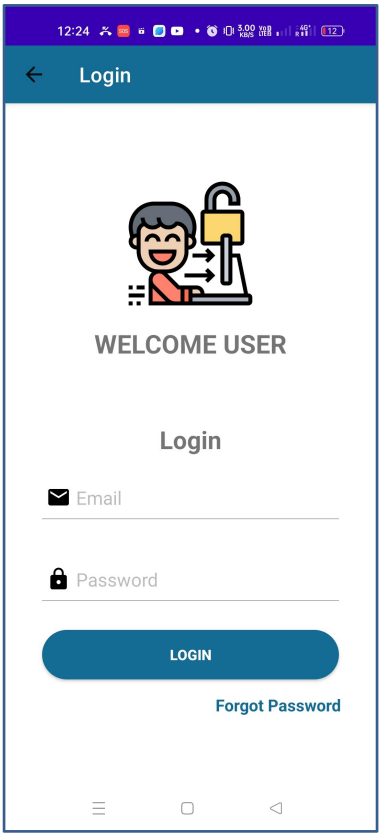
Admin Interface

In this view admin can see the resources available, damaged, due date and complains.

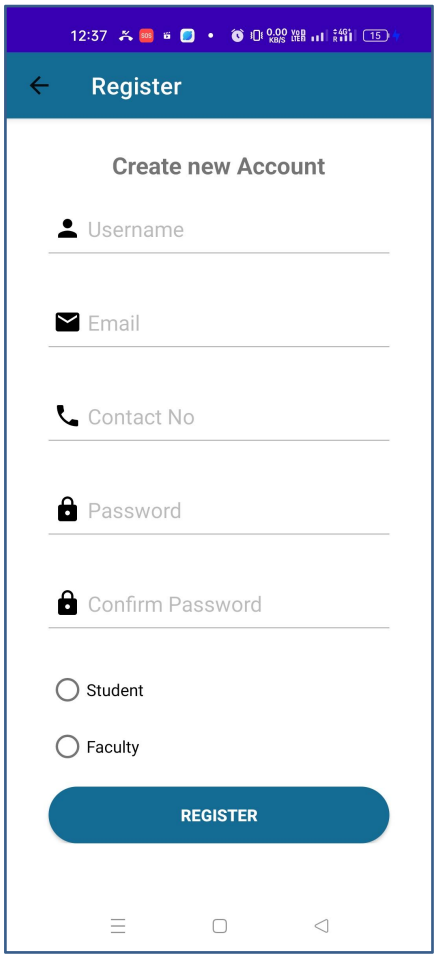
User Interface

- **Registration View**
  In this view user can register him/her by entering their details.
- **Login View**
  In this view user can login to the RMS to view their details, request for a resource and do complains.

1. Log-In page



2. New User Register



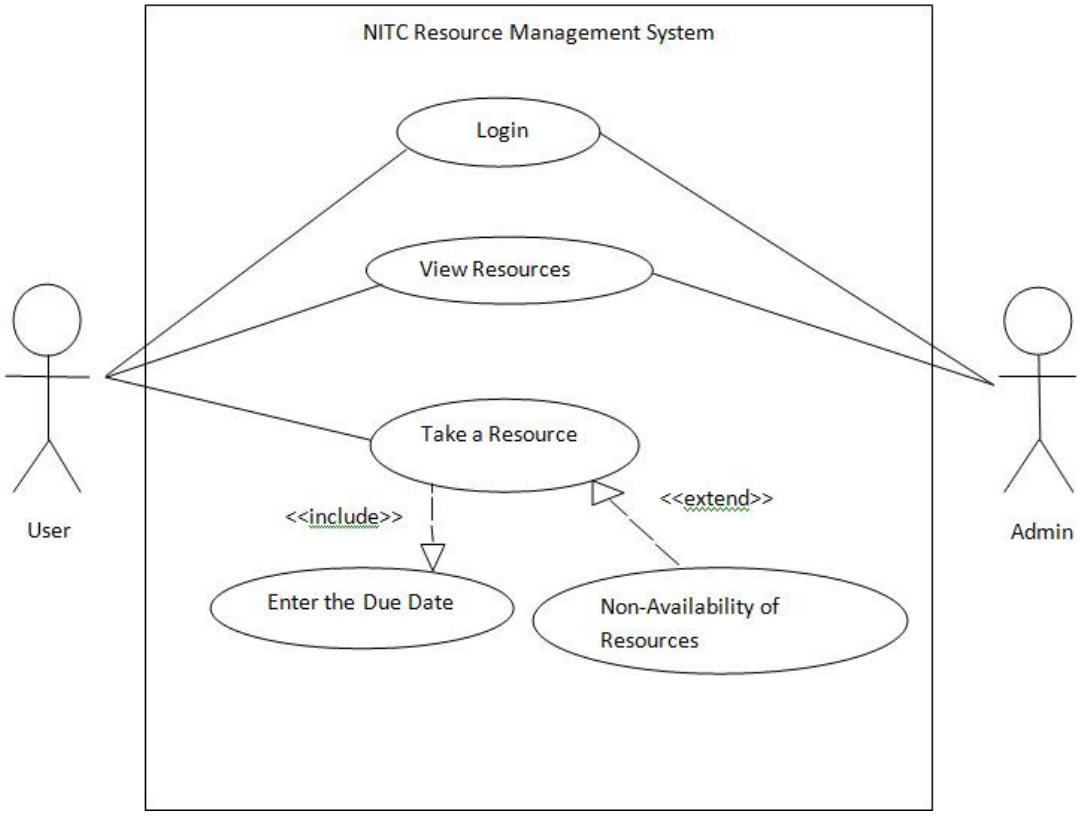
3. Available Resources Page- This page will tell us the list of available resources.
4. There will be various columns telling us about the due date and the date of the resources getting used.

3.2 Functional Requirements

F1. The system shall allow a user to Register.
F2. The system shall allow the user the login.
F3. The system shall allow the user to view the resources .
F4. The system shall allow the user to take resources.
F5. The system shall allow the user to lodge complaint.
F6. The system shall allow the admin to add resources.
F7. The system shall allow the admin to manage.
F8. The system shall allow the user to edit profile.

F9. The system shall allow the user to view his/her complaints.
F10. The system shall allow the user to view his/her occupied resources.
F11. The system shall allow the user to apply for renewal of their occupied resources

3.3 Use Case Model



3.3.1 Use Case #1 (List of Resources-U01)

Author – Mukesh Patel

Purpose–To Check the list of resources

Requirements Traceability – F1

Priority - Medium

Preconditions– User must be logged in.

Post conditions–User will be able to view the list of resources .

Actors – Student

Extends – None

Flow of Events

1. Basic Flow - User will login to the system and if the password is correct he/she will be logged in then the user can view the list of resources .
2. Alternative Flow - None
3. Exceptions - None

Notes/Issues - None

3.3.2 Use Case #2(Availability of Resources-U02)

Author – Devansh Kaushik

Purpose – To Check the list of resources available

Requirements Traceability – F1,F2,F3

Priority - High

Preconditions – User must be logged in.

Post conditions – User will be able to view the list of resources available.

Actors – Student, Faculty.

Extends – None

Flow of Events

1. Basic Flow - User will login to the system and if the password is correct he/she will be logged in then the user can view the list of resources available for using.
2. Alternative Flow - None
3. Exceptions - None

Notes/Issues – None

3.3.3 Use Case #3 (Due Date of Resources-U03)

Author – Abhishek Jain

Purpose – To Check the due date of resources occupied.

Requirements Traceability – F5

Priority - Medium

Preconditions – User must be logged in and the system should be in proper working state.

Post conditions – User will be able to view the due date of resources occupied and when the resources will be available in future for use.

Actors – Student, Faculty.

Extends – None

Flow of Events

1. Basic Flow - User will login to the system and if the password is correct he/she will be logged in then the user can view the due date of the respective resource he/she wants to use.
2. Alternative Flow - None
3. Exceptions - None

Notes/Issues - None

4 Other Non-functional Requirements

4.1 Performance Requirements

1. The login info verification would be done in a few seconds.
2. The loading of the interface screen shall not take much time.
3. The software will support simultaneous user access only if there are multiple PC's or other devices

4.2 Safety and Security Requirements

Safety Requirements

Security was taken as a very serious non-functional requirement so that the data and information of each user protected from visibility and possible alteration by the other users.

Security Requirements

- System will use secured Database
- Normal user can just read information but they cannot edit modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints

4.3 Software Quality Attributes

Maintainability: This system is developed in the modular way so it can be easily maintained .
Availability : This system will be available24/7.

Reliability : This system will be 100% reliable.

Accessibility : Admin, Student along with resource manager will be able to access it anytime and anywhere.

Appendix A - Activity Log

- **20 Jan 2023 (Duration: 1 hours)** – Discussed the project requirements and everyone read previously submitted functional and non-functional for the same topic.
- **21 Jan 2023(Duration: 2 hours)**
  Project work allocation:

Mukesh Patel- had to work on the introduction section of every part, product overview, assumptions.

Devansh Kaushik- had to work on functional Requirements, and Use cases.

Abhishek Jain- had to work on Non-functional Requirements, External Interfaces Requirements.

- **23 Jan 2023(Duration: 2 hours)** – complete SRS document and discussed UI for the project.

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Design Document

For

NITC Resource Management Register

Version 2.0

Prepared by Team 17:
(Based on SRS Version <1.1> prepared by Team <11>)

Gargi Paliwal	**M210665CA**	**gargi_m210665ca@nitc.ac.in**
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Project Owner: **BHIMAVARAPU MANOGZNA**

Course: **CS4096 Software Engineering Laboratory**

Date: **02/07/2023**

Table of contents

Glossary

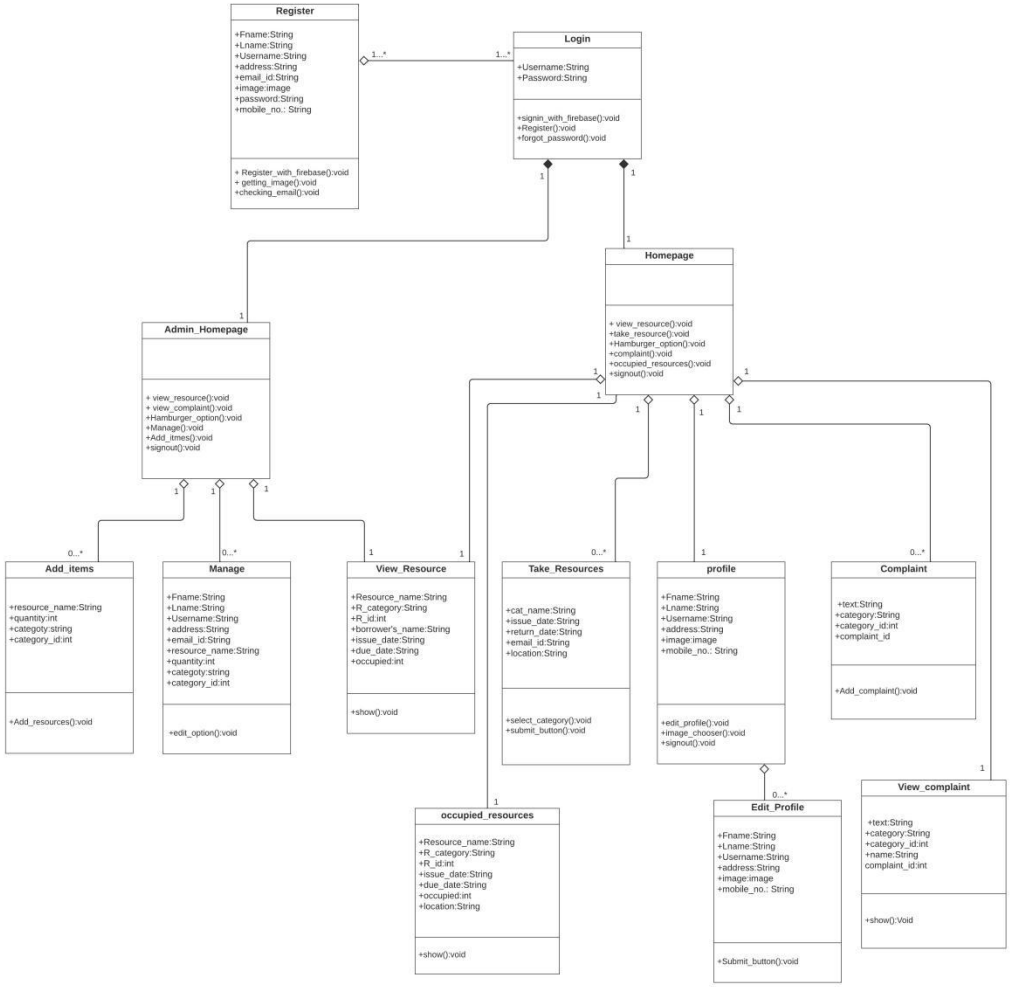
UML diagrams	A UML diagram is a diagram based on the UML (Unified Modeling Language) provides a compilation of *terminology* used in all versions of *UML*, along with their *definitions*. Any notable distinctions that may exist between versions are noted with the individual entry it applies to.
E-R diagram	E-R diagram is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system.
Prototyping	Prototyping is the activity of creating prototypes of software applications, i.e., incomplete versions of the software program being developed
Technology Stack	A tech stack is the combination of technologies a company uses to build and run an application or project. A tech stack typically consists of programming languages, frameworks, a database, front-end tools, back-end tools, and applications connected via APIs.

1. Detailed Design through UML diagrams

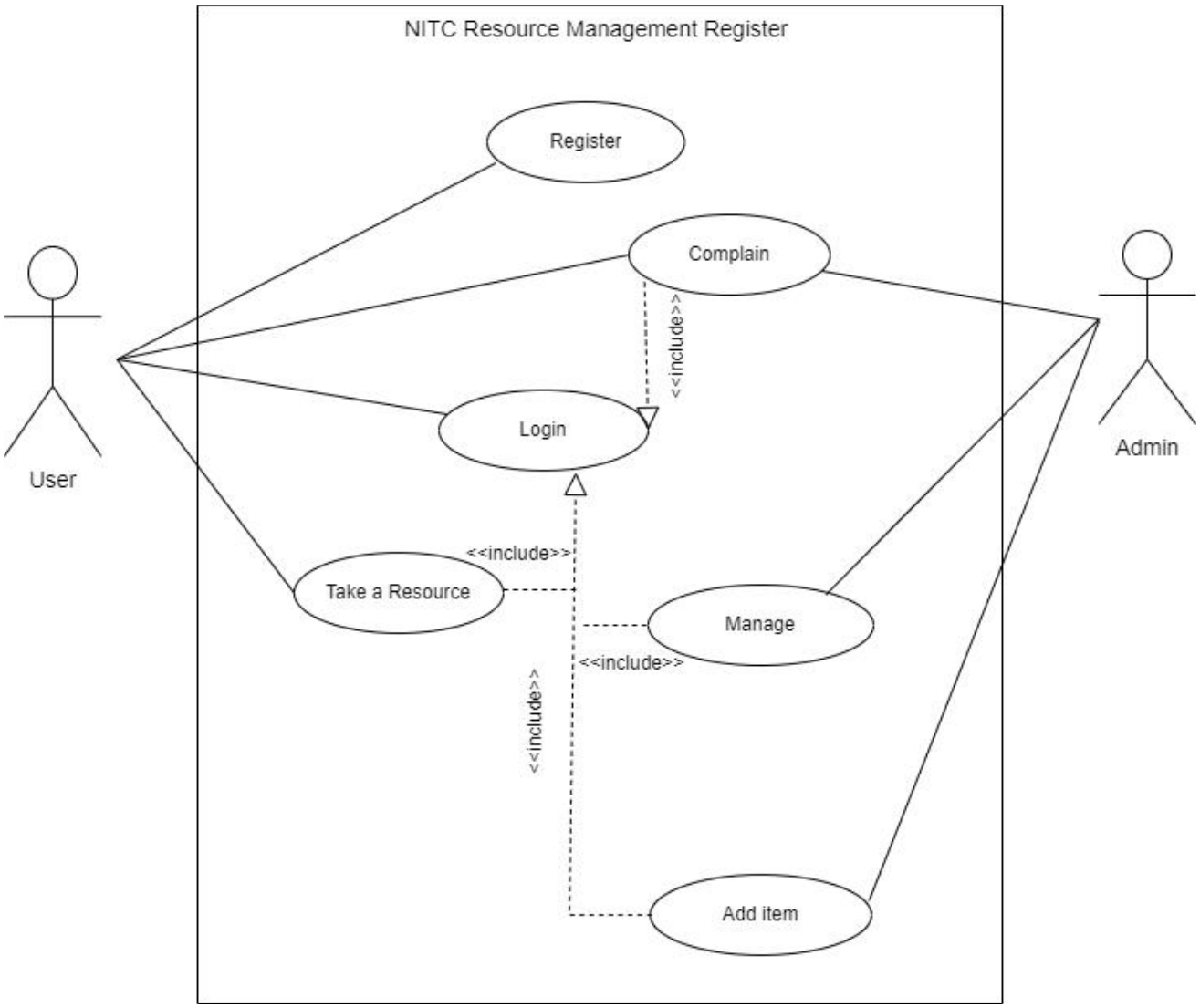
1.1 System model using Class Diagram

Class Diagram in the Unified Modelling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods) and the relationships among classes.

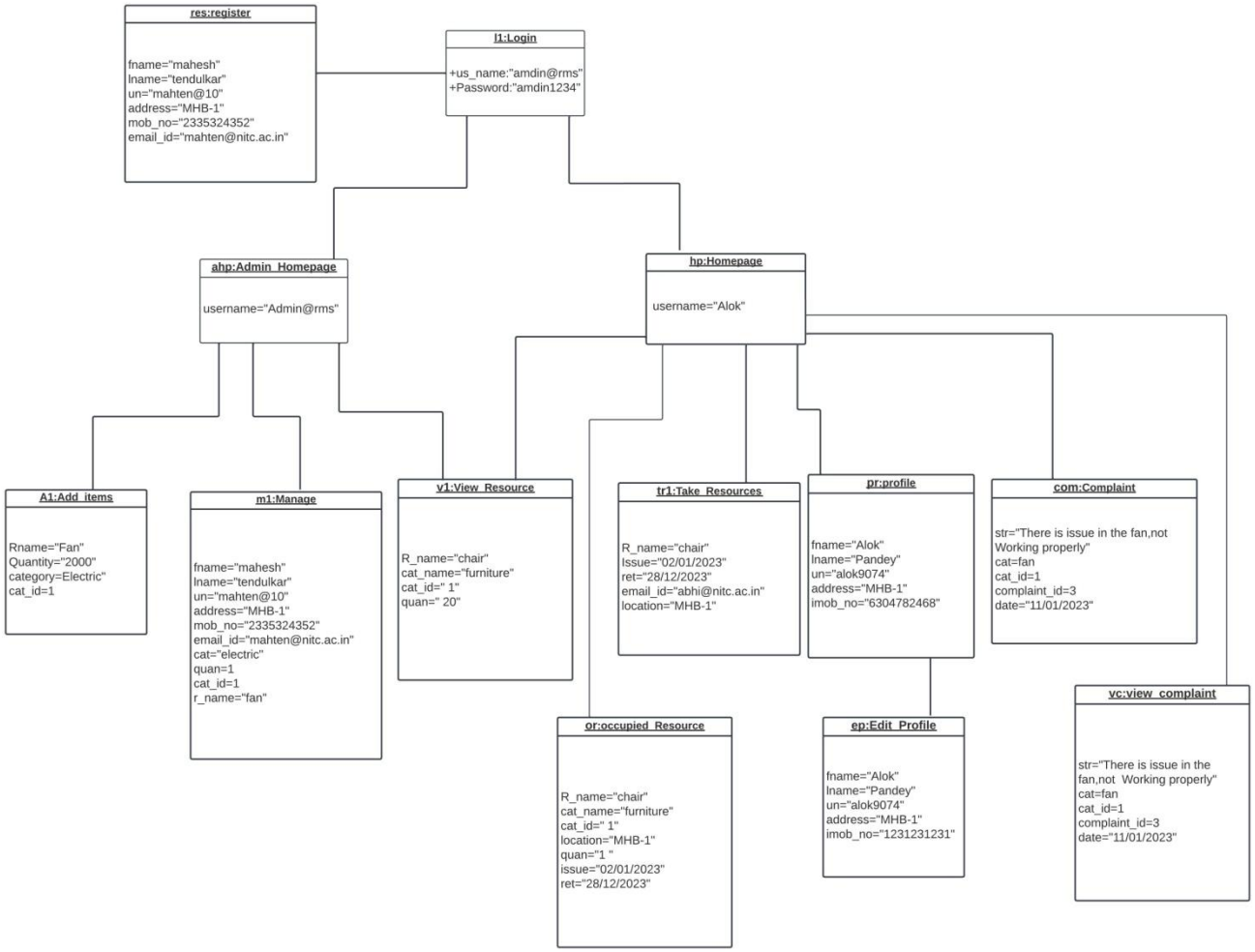
1.1.1 Class Diagram



1.2 Responsibilities - Usecase Diagram



1.3 Static snapshot of the system - Object Diagram

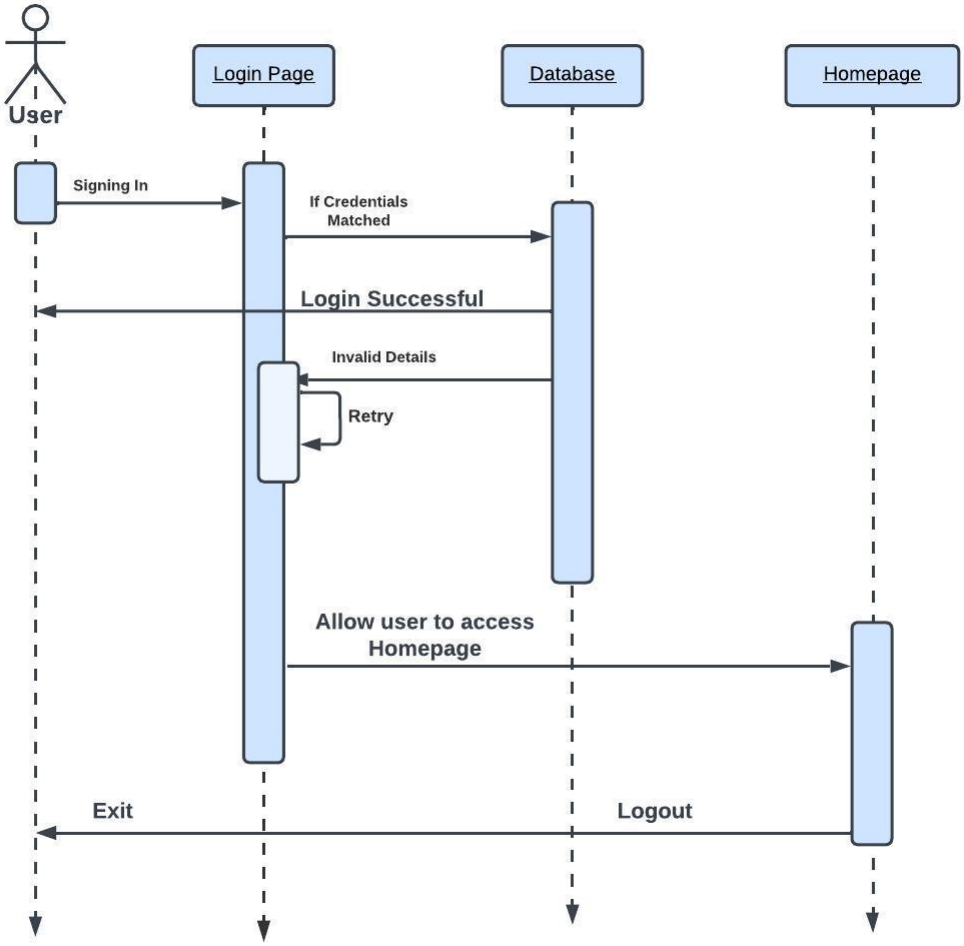


1.4 System Interactions through Sequence Diagrams

Sequence diagrams are interaction diagrams that show the sequence of messages exchanged by the set of objects performing a certain task. A sequence diagram shows, as parallel vertical lines (lifeline), different processes or objects that live simultaneously, and as horizontal arrows, the messages exchanged between them, in the order in which they occur.

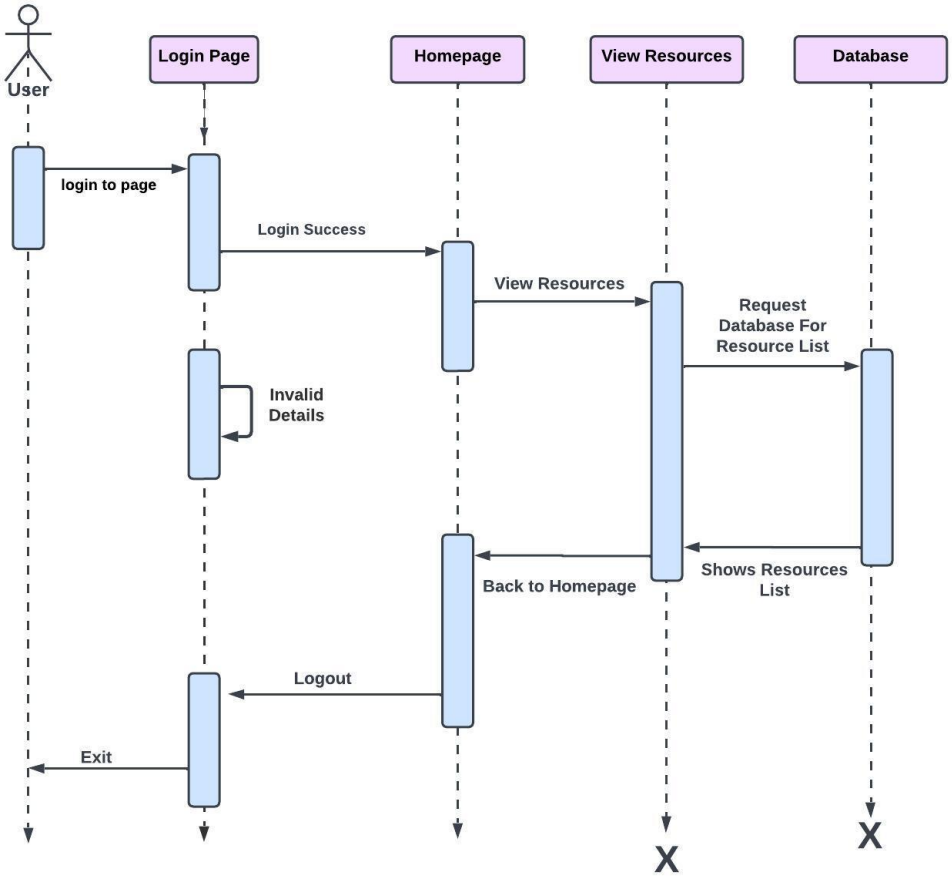
1.4.1 Login

This sequence diagram shows how the verification is done using database during login .



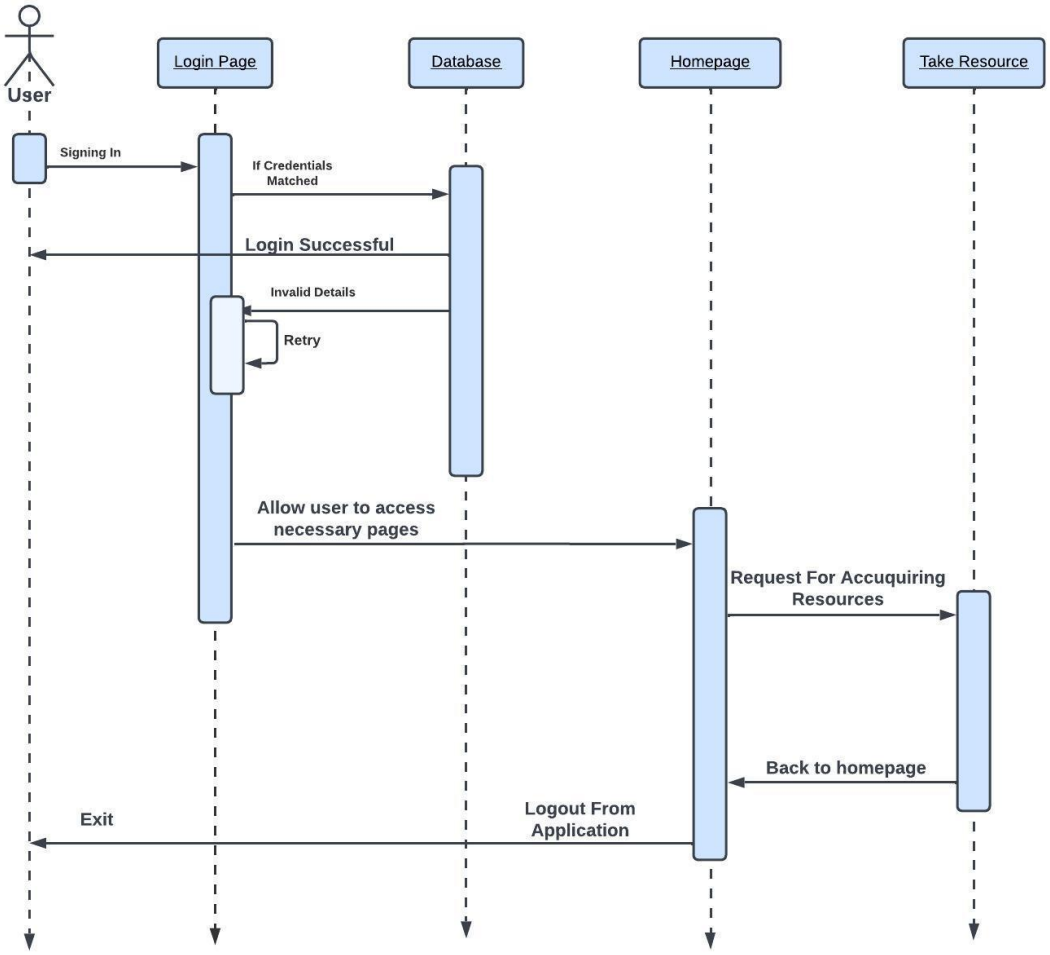
1.4.2 View Resource

This sequence diagram is start when user successfully login in the app. After that from Homepage user can click on View resource button and after that user will be able to view resources.



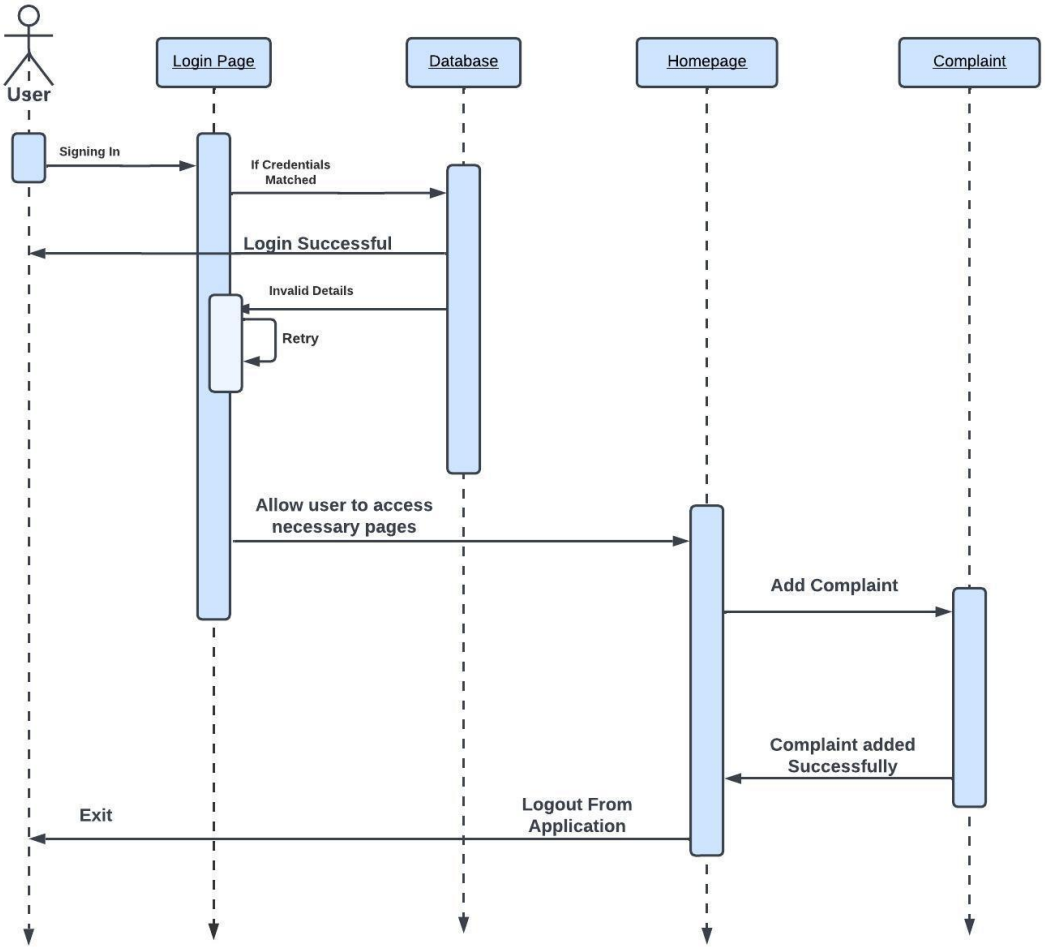
1.4.3 Take Resource

This sequence diagram, is start when user successfully login in the app. After that from Homepage user can click on Take resource button and after that user fills the necessary details to take resources.



1.4.4 Complaint

This sequence diagram is start when user successfully login in the app. After that from Homepage user can click on complaint button and after that complaint page opens and user can register his/her complaint.

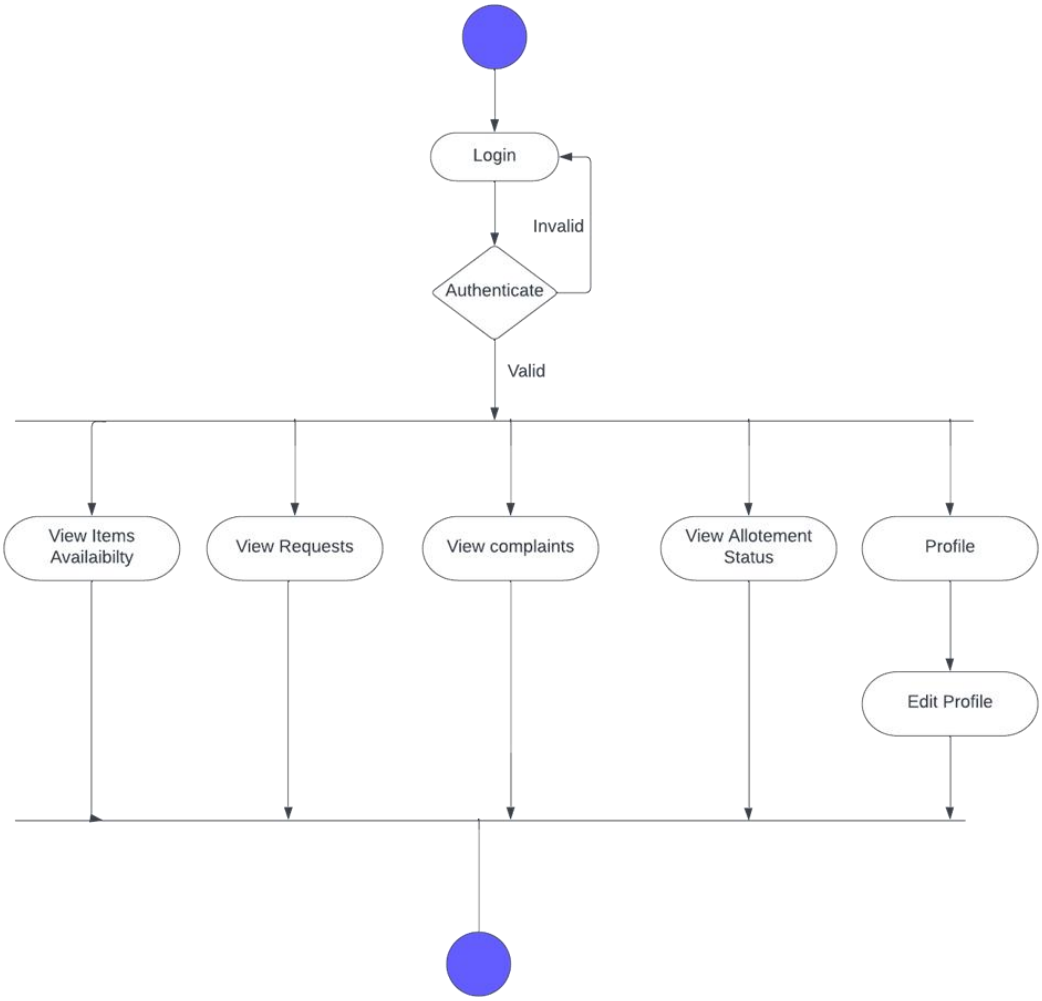


1.5 Control and Data Flows through Activity Diagrams

An activity diagram is used to describe the dynamic aspects of a system. It provides a view of the behavior of a system by describing the sequence of actions in a process. Activity diagrams are similar to flowcharts because they show the flow between the actions in an activity. It uses activity nodes and activity edges to model the flow of control and data between actions.

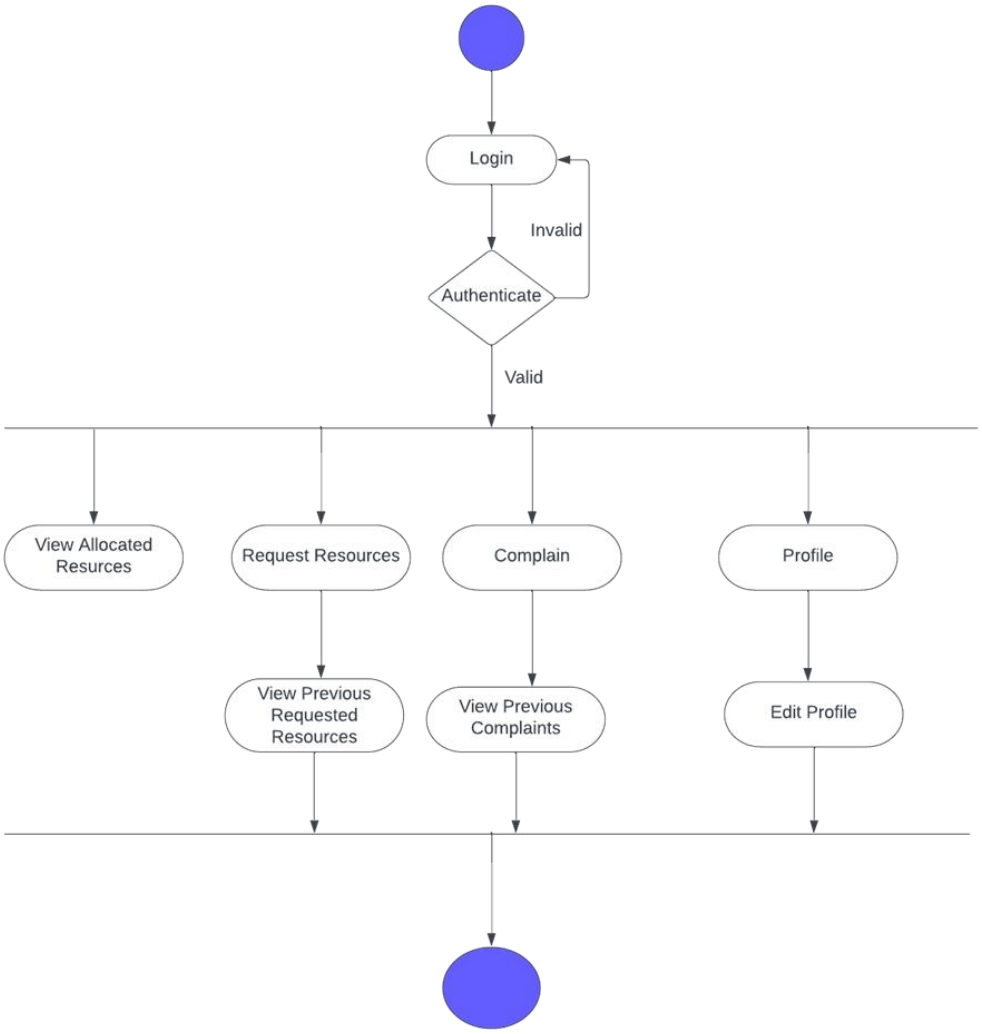
1.5.1 Admin Activity

This is Admin's activity diagram shows how Admin manages the pages.



1.5.2 User Activity

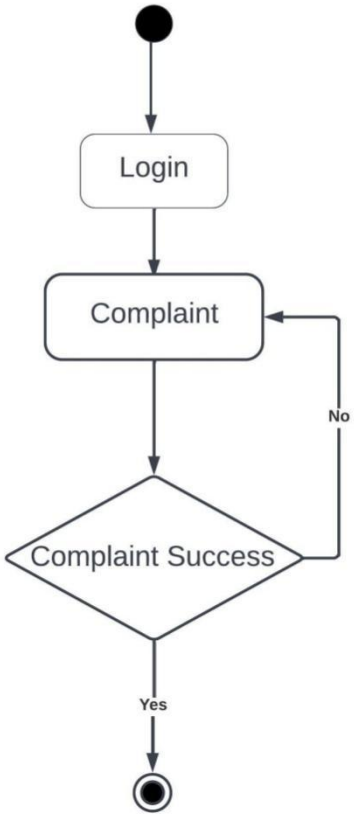
This is user's activity diagram that shows how user access the pages.



1.5.3 Complaint

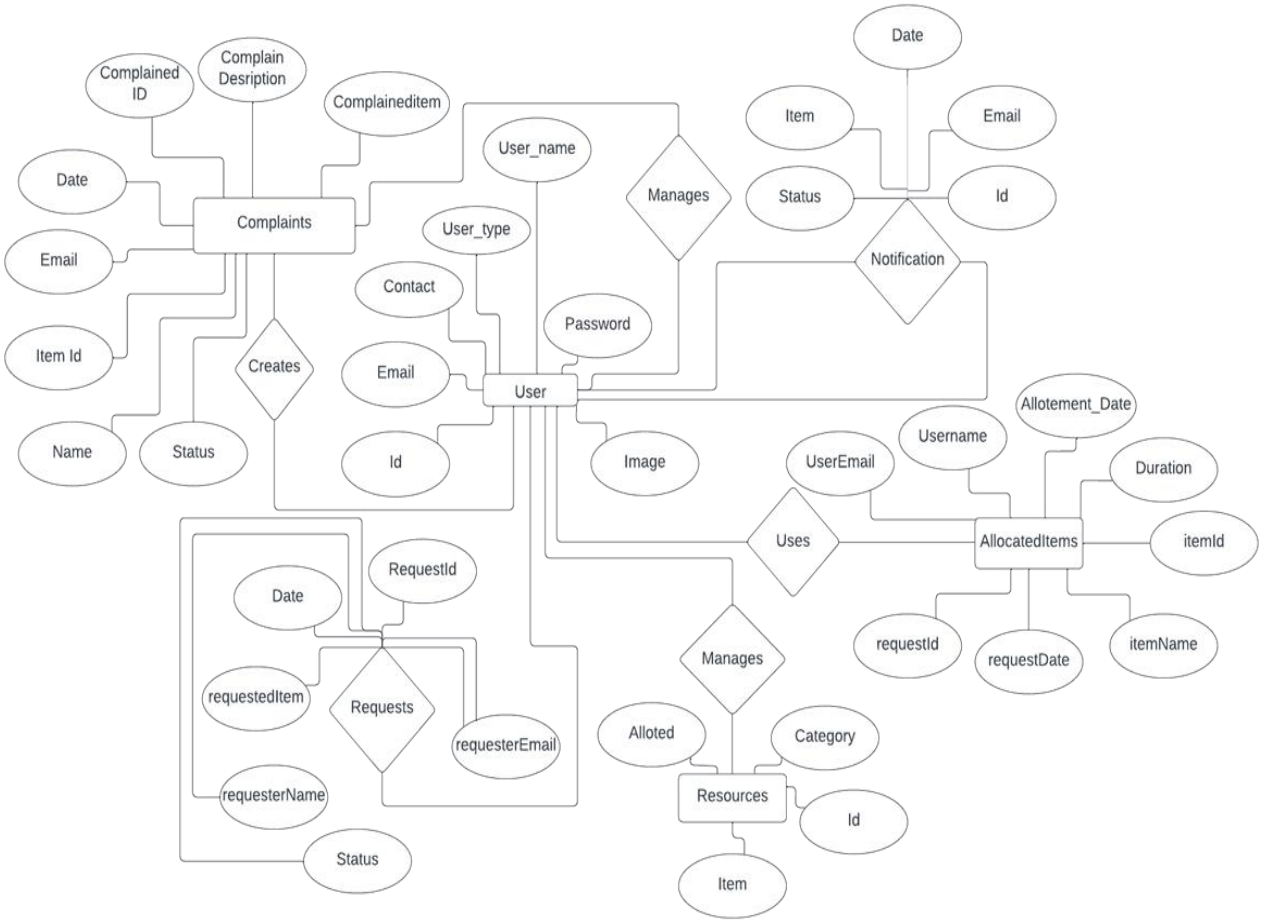
This is compalint activity diagram that shows how user can lodge a complaint.

Complaint Activity Diagram



2. Database Design

2.1 ER Diagram



3. Implementation Plans

3.1 Technology Stack

- **Android Studio**

Android Studio is the official[8] integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development.[9] It is available for download on Windows, macOS and Linux based operating systems.[10] It is a replacement for

the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development

- **Java**

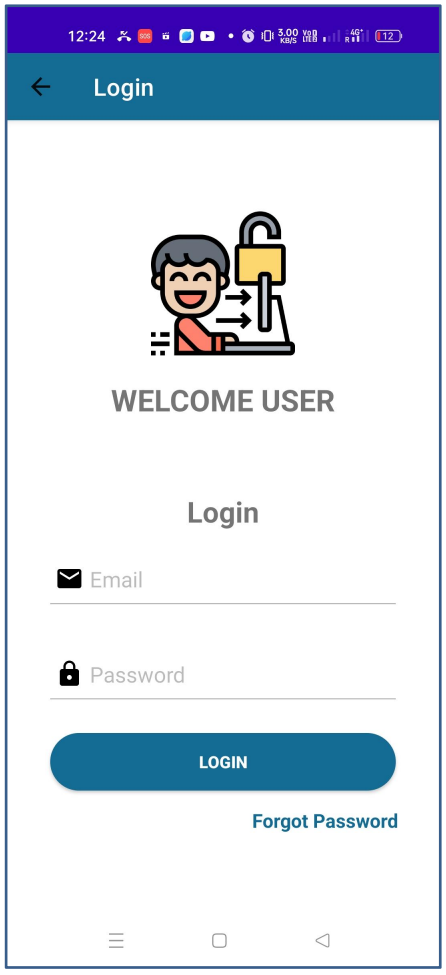
Java is a programming language and a platform**.** Java is a high level, robust, object-oriented and secure programming language. Java was developed by *Sun Microsystems* (which is now the subsidiary of Oracle) in the year 1995. *James Gosling* is known as the father of Java. Before Java, its name was *Oak*. Since Oak was already a registered company, so James Gosling and his team changed the name from Oak to Java.

- **Firebase**

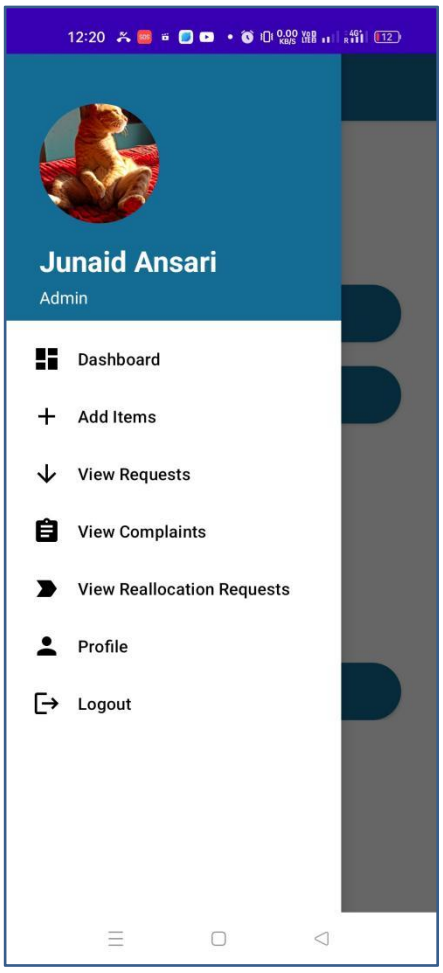
Firebase is a set of hosting services for any type of application (Android, iOS, Javascript, Node.js, Java, Unity, PHP, C++ ...). It offers NoSQL and real-time hosting of databases, content, social authentication (Google, Facebook, Twitter and Github), and notifications, or services, such as a real-time communication server

3.2 User Interface Prototyping

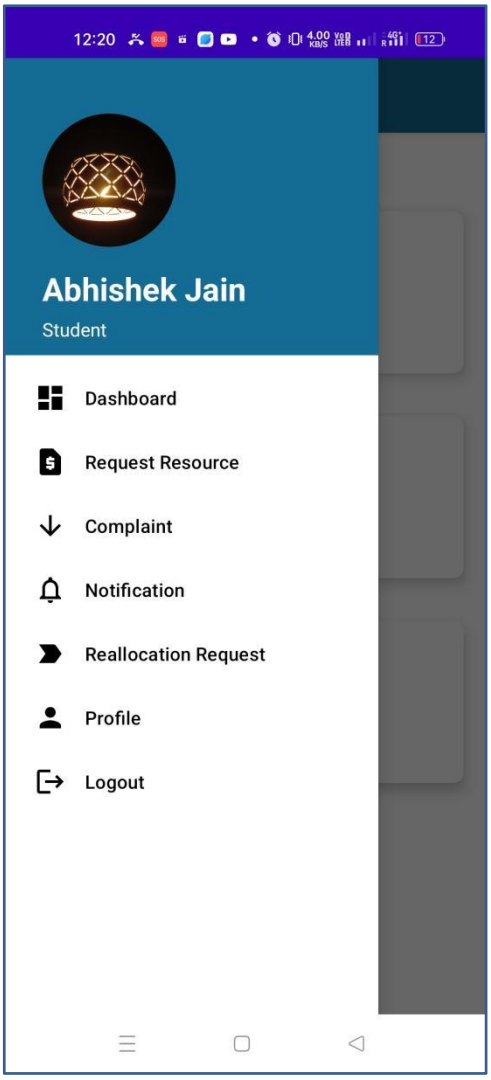
Login Page **Admin Home Page**



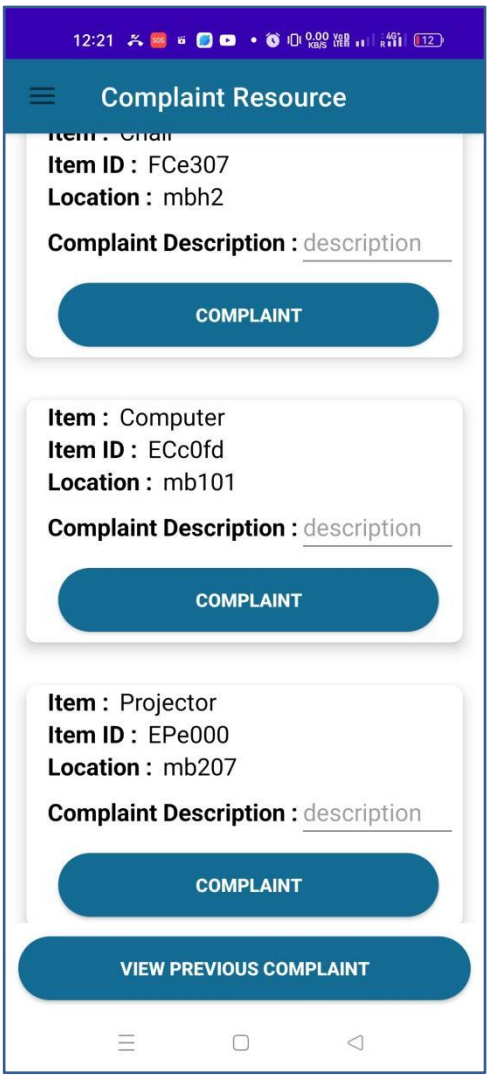
User homepage



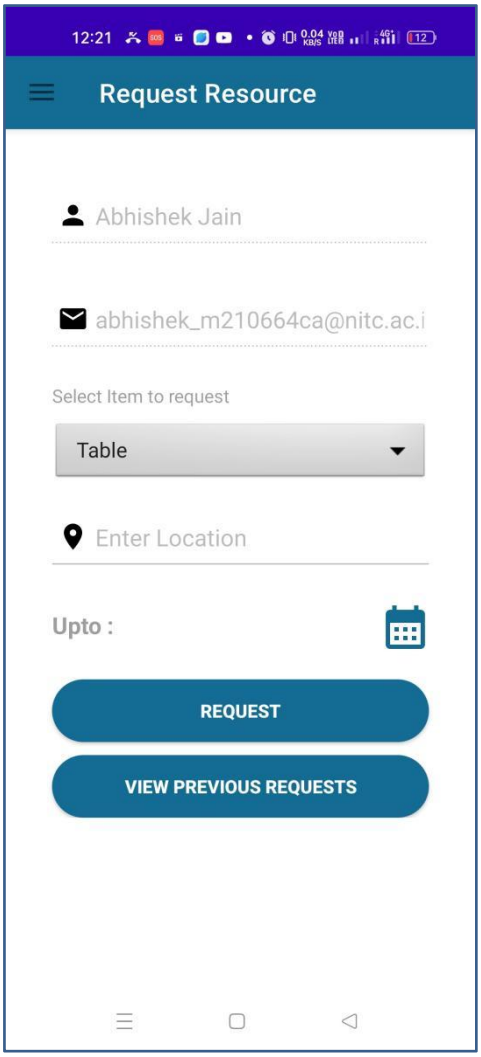
User Complaint

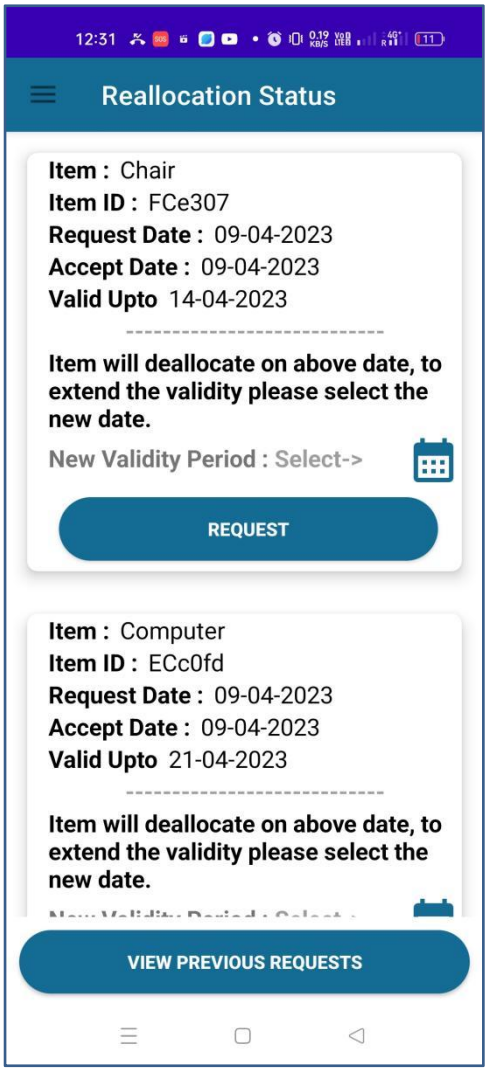


User Request Resources



User Reallocation Request (Renewal)


12:21
Request Resource
Abhishek Jain
abhishek_m210664ca@nitc.ac.i
Select Item to request
Table
Enter Location
Upto :
REQUEST
VIEW PREVIOUS REQUESTS


12:31
Reallocation Status
Item : Chair
Item ID : FCe307
Request Date : 09-04-2023
Accept Date : 09-04-2023
Valid Upto 14-04-2023
Item will deallocate on above date, to extend the validity please select the new date.
New Validity Period : Select->
REQUEST
Item : Computer
Item ID : ECc0fd
Request Date : 09-04-2023
Accept Date : 09-04-2023
Valid Upto 21-04-2023
Item will deallocate on above date, to extend the validity please select the new date.
VIEW PREVIOUS REQUESTS

4. Test Cases

4.1 Test Case #1 (TC_001)

Author: Gargi Paliwal

Test Case Description:

Test scenario: Student registration on the application

Test case: Enter name, Address, valid email address(NITC email id) and the desired password.

Pre-Conditions: Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.
2. Click on the Register button.
3. Enter name, address, valid email address and the desired password.
4. Click on the Register button after filling credentials.

Test Data:

Name: Gargi Paliwal

Address: Room No.46, MHB-1

Username: gargi@gmail.com

Password: gargi123

Expected Result: Successful registration of the student

Post Condition: The student will be given a username and password for login.

4.2 Test Case #2 (TC_002)

Author: Gargi Paliwal

Test Case Description:

Test scenario: User(admin/student/faculty) login on the application

Test case: Enter the valid email address(NITC email id) and password.

Pre-Conditions: User must have registered with his/her valid mail id before logging in.

Test Steps:

1. Open the Application.
2. Click on the Login button.
3. Enter email id and password.
4. Click on the Login button after filling the respective details.

Test Data:

Username: gargi@nitc.ac.in

Password: gargi123

Expected Result: User will be successfully logged in and directed to his/her dashboard.

Post Condition: User must log out before exiting the application.

4.3 Test Case #3 (TC_003)

Author: Rekha Kumari

Test Case Description:

Test scenario: Log-in as Admin

Test case: Enter the valid email address(NITC email id) and the password for the admin account.

Pre-Conditions:

1. Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.
2. Log in by entering admin credentials.

3. You will be logged in as admin and you can perform operations like modifcation.

Test Data:

Username: rekhaadmin@nitc.ac.in

Password: rekha1234

Expected Result: Will be logged in as admin.

Post Condition: You will be logged in as admin and you can perform operations like modification.

4.4 Test Case #4 (TC_004)

Author: Rekha Kumari

Test Case Description:

Test scenario: Student or faculty wants to view resources available.

Test case: User have to log-in for viewing the list of available resources.

Pre-Conditions:

1. Application must be installed in the mobile phone.

2. Users (student, staff) should be registered for logging in.

Test Steps:

1. Open the Application.

2. Log in by entering credentials.

3. Click on the button view resources .

4. List of all the available resources will be displayed on the screen under the various headings like furniture,electrical .

Test Data:

Username: rekha@nitc.ac.in

Password: rekha123

After successfully logging in click on the view resource button.

Expected Result: List of resources available will be displayed.

Post Condition: User is in the condition to take the resource he/she wants given they are available.

4.5 Test Case #5 (TC_005)

Author: Aman Yadav

Test Case Description:

Test scenario: User wants to borrow(take) resources.

Test case: Login and borrow the required resource if they are available.

Pre-Conditions:

1. Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.

2. Log in by entering credentials.

3. Click on take resource button and enter the required details like issue date, return date.

4. User can take the respective resource after filling in details, only if the resources are available.

Test Data:

Username: aman@nitc.ac.in

Password: aman123

After successfully logging in click on take resource button.

Expected Result: User will be able to place request for the resource after filling the required details.

Post Condition: User will get a confirmation regarding the request placed.

4.6 Test Case #6 (TC_006)

Author: Rekha Kumari

Test Case Description:

Test scenario: Admin add resources .

Test case: Login and add new resource.

Pre-Conditions:

1. Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.
2. Log in by entering credentials.
3. Click on add items button and enter the required details like category_name, category_id, quantity etc.

Test Data:

Username: rekhaadmin@nitc.ac.in

Password: rekha1234

After successfully logging in click on add items button.

Expected Result: Admin will able to add items.

Post Condition: Admin will get a confirmation after the completion.

4.7 Test Case #7 (TC_007)

Author: Rekha Kumari

Test Case Description:

Test scenario: Admin can manage the resources and its due date.

Test case: Login and change the due date.

Pre-Conditions:

1. Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.

2. Log in by entering credentials for admin.

3. Click on manage button to extend the due date of any resource that the user wants to extend

Test Data:

Username: rekhaadmin@nitc.ac.in

Password: rekha1234

After successfully logging in click on manage button.

Change the due date of the particular resource.

Expected Result: Due date will be extended.

Post Condition: Admin will get a confirmation message regarding the extension of due date.

4.8 Test Case #8 (TC_008)

Author: Aman Yadav

Test Case Description:

Test scenario: User can edit his/her details.

Test case: Login and edit your details.

Pre-Conditions:

1. Application must be installed in the mobile phone.

Test Steps:

1. Open the Application.

2. Log in by entering credentials.

3. Click on the edit icon available on homepage.

4. User can update or edit his/her information except the nitc mail id.

Test Data:

Username: aman@nitc.ac.in

Password: aman123

After successfully logging in click one edit icon.

Edit your details.

Expected Result: Details will be edited according to the user's choice.

Post Condition: User will get a confirmation about the successful completion.

4.9 Test Case #9 (TC_009)

Author: Aman Yadav

Test Case Description:

Test scenario: User can view his/her complaints.
Test case: Login and view complaints.

Pre-Conditions:
1. Application must be installed in the mobile phone.

Test Steps:
1. Open the Application.
2. Log in by entering credentials.
3. Click on the side panel(on the top left corner) inside which user can click on view complaint button.
4. User can view his/her complaints.

Test Data:
Username: aman@nitc.ac.in
Password: aman123
After successfully logging in click on side panel(on the top left corner) inside which user can click on view complaint button.

Expected Result: user will be able to view his/her complaints.

Post Condition: User will get a confirmation about the successful completion.

4.10 Test Case #10 (TC_010)

Author: Aman Yadav

Test Case Description:

Test scenario: User can view his/her occupied resources.
Test case: Login and view complaints.

Pre-Conditions:
1. Application must be installed in the mobile phone.

Test Steps:
1. Open the Application.
2. Log in by entering credentials.
3. Click on the occupied resource button.
4. User can view his/her occupied resources.

Test Data:
Username: aman@nitc.ac.in
Password: aman123
After successfully logging in click on occupied resources.

Expected Result: user will be able to see his/her occupied resources.

Post Condition: User will get a confirmation about the successful completion.

5. Traceability

	TC_001	TC_002	TC_003	TC_004	TC_005	TC_006	TC_007	TC_008	TC_009	TC_010
F1	X									
F2		X								
F3				X						
F4					X					
F5										
F6						X				
F7							X			
F8								X		
F9									X	
F10										X

References

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