Final Report

Level 2

Internal Online Human Resource Management System

Team Xcite

Faculty of Information Technology

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Declaration

We declare that this thesis is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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Dedication

We dedicate this project to Ironone Technologies Pvt(Ltd) who came up with the initial idea of developing a platform to human resource handling.

Acknowledgement

We convey our gratitude to our former supervisor, Dr.(Mrs.) G.U. Ganegoda who helped us in every step of the way in completing this project from the very beginning to the end of this project. We should also thank Mr. Madhumal Gunathilake from Ironone Technologies (Pvt) Ltd. for helping us clarify all the requirements needed to be implemented in the project. Our sincere gratitude also goes to our families for always encouraging us and our friends who helped us in giving feedback and guidance to make this project a success.

Abstract

With the improvement of the technology complex manual office work load is implemented into a system. Real-time manual manageable work load in workplaces mostly implemented into a platform or a system for unique usage. Managing employees and resources are two of the main tasks allocated to the HR department of the organization. Tasks of the HR department should be real time , efficient and accurate in order to manage procedure of the organization. The organization we chose for the project addressed an issue regarding leave management and common resource tracking . Currently they exchange emails with the administration to notify about the leave to be approved or rejected, or to book a common resource for a project. So this method has less efficiency and more bugs because in some cases they faced ,emails have not received , leave has not been accepted before the relevant day or has clashed with other emails and leave request mail mistakenly has been ignored. Hence the aim of the project is to develop a unique system for the organization to overcome the above issues with leave management and resource tracking. Other than resolving above issues , we aim to develop a blog and survey to improve interaction and involvement of employees with each other and to manage the petty cash and reimbursements as well. Angular's latest version will be used for frontend development and .NET core will be used for backend development with MySQL database. In general, most HR managers manage leaves only . In this project we have uniquely identified three portions of HR management as leave and resource management, manage employee interactivity and handle cash receipt flow . This project is a bit more vast and complex than usual HR management systems. These main posts will result in efficient work flow within the organization as the real time and efficient leave handling , resource tracking, employee rich interaction and accurate cash handling .

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Chapter 1 – Project Description

1.1 Introduction

The project attempt is to design and develop an internal online HR management system for an IT organization. Project is motivated to deduct the issues in their existing methods and as well as to make a more interactive and efficient system. To manage leave of employees, to manage common limited resources among them, to manage expenses, to have a centred detailed repository, quiz and survey module to collect opinions, a blog, a tool to manage tasks are the requirements of an IT organization. The existing system even though gives the solution for them they are not centred and manageable online. As for leave management, leaves are requested and approved through mails where leave records are scattered, as well as common resources can request through an email or else direct where track of relevant resource is missing. In google drives they save their project documents by each development team. The detailed project file is in different users' google drives, which administrator cannot manage the repositories, nor need to access the documentation as when. Expenses are managed manually and records are not maintained as a continuous documentation. Opinions are asked physically and they are analysed manually without the aid of proper visualizations. Ideas are shared by mouth and no proper platform to keep them as centred in a blog. So as a solution to all these shortcomings, the IronOne organization focused on developing the “Internal Online Human Resource Management System”.

1.2 Background and Motivation

Since the existing method does not have centred details which can be accessible by administrator whenever he needs, organization and our team motivated to develop accurate and efficient system to overcome the problem of leave management, resource booking, resource repository, finance management, as it is not beautiful to say that we face these issues by being in a software company. These are some regular drawbacks we face in our company and we thought of keeping a full stop to all these complex issues by finding the best software solution. In addition to above requirements, we are motivated to embed some more modules to increase the interaction and involvement between employees and administration. Module to blog where employees can share posts regarding relatable topics and as well as entertainment topics, module to question related to company or projects which can improve interaction with the developer with project managers and task management module to assign and manage tasks of employees are them. This project provides flexible communication and work flow within the organization and as well as good interaction between the administration and employees.

1.3 Aims and Objectives

1.3.1 Aims

Our aim is to develop an online HR tool for company admin and as well as to the employees to make interactive and efficient connections with others and to make accurate working towards the clients, further to make the jumbled system a cleaner method with more accuracy replacing the emailed- manual methods.

1.3.2 Objectives

- Designing and developing user account management module
- Designing and developing leave management module
- Designing and developing resource booking module
- Designing and developing quiz and survey module
- Designing and developing resource repository module
- Designing and developing blog module
- Designing and developing task management module
- Designing and developing finance module
- Integrate as in system and connect with server

1.4 Proposed solution in brief

Administrator and user will be two layouts involved in using the system. Roles will be Super admin ,Admin, Leave manager(project manager or Tech Lead) , Finance manager,and user.

- User management module,
  - Super Admin can add ,edit users
  - Procedure to control errors may occur in Sign-in, Sign-out,forgot password. Authentication handling.
  - Each User can maintain his/her profile.
- Leave management module,
  - A form for users to apply for leave
  - Leave accepted or rejected by relevant project manager or tech lead(whose role also admin) by viewing user leave history. Approval or rejection notification through mail to personal mail account.
  - Leave allocation set up to date.
  - Leave quota containing all user Leave allocation details up to date.
  - Each admin can check pending leave requests sent ,and view upcoming leaves for the day and for current week.
- Resource booking module,
  - A form for users to request a resource for a certain period of time
  - A calendar to display the bookings for all the common resources based on the request approvals
  - Display details of the items that are already booked and those which are already being taken, including who took it, when he took it, and when he will return it.
  - Update the resource pool when one hires or returns the item.
  - Maintain resource profile (add, edit,delete), keep track of availability and unavailability of resource.
- Resource repo module,
  - A basic repo for all resources especially documents related to project works
  - Make users access different documents of his need
  - Create folder,file

oUpload file

oSearch folders, files

oRefresh

oRename, delete, set read accessibility for folders

oRename, edit, delete, set read or write accessibility, download created files

oRename, delete, set accessibility, download for uploaded files

❖ Quiz and Survey

oAn interactive component to keep the team engage–

oAdmin can create,draft,publish quiz as type Questionnaire and survey

oQuiz can be allocated to specific employees or everyone as per admin requirement.

oQuiz has various types of questions[MCQ,Free text,image]

oSee results of each employee as per requirements of admin

❖ Finance module

o Adding an expense with relevant details and proofs

o View expense history

o View an expense and approve or reject it

o Generate a finance report within the selected date, name, category and project name

❖ Blog

o Users Create posts and publish them, others can comment and like on them

o Search blogs by their title, category or tags

❖ Tasks

oAdmin can create tasks and assign employees to relevant tasks

oManage task according to the start date and duration whether it to be on going task or finished task.

oUser can view the tasks that has allocated to him by the administrator.

1.5 Report Overview

This report contains the implemented project scope in regards to final evaluation and working process and approach to the project. In Chapter 2 of this dissertation Review of other's works is discussed. Chapter 3 describes what are the technologies used for the development and how/why these techniques are appropriate to solve our problem.

Chapter 4 describes our approach to the project from planning to action with UI designs and routing with databases. Chapter 5 describes analysis and designing diagrams for each functionality. Chapter 6 describes implementation details of each module that is stated in the design diagram consistent with the design diagrams. Chapter 7 describes how we evaluate the solution to see whether the objectives have been achieved. In chapter 8 conclusion and further works to be done is mentioned and finally in chapter 9 individual contribution, other diagrams and implementation screenshots are attached as appendices.

Chapter 2 – Other's work

2.1 Introduction

Alternatives exist compared to this project, which gave us the motivation to develop the project UI and as well as design rich functionalities. Many developers developed HR systems with regards to leave management, inventory and for resource management separately. For the internal entertainment module, researched for many alternatives and studied the features and designed solution compared it with system requirements. For each and every functionality research supplied advanced features compared to system requirement, with that advantage system design became compatible and became richer in a functional way.

2.2 Motivation

Multiple HR systems have less or different functionalities compared to the project. As examplesome HR systems have leave management and inventory management, and most HR systems do not have an entertainment module along with the main functions.

User management – to maintain rich UI, registration and login modules should be more simple and by notifying errors when mistakes happen.

Leave management, Resource management – These features had basic functionalities as requested, apply and history and up to date details.

Resource repository – except for basic features such as upload file and edit, access for edit and be able to view documents for others gain more attention.

Quizzes and Survey - had a functionalities for creating a quiz as a questionnaire or a survey and collecting the responses from the specific person or a specific team member.

Finance management - motivated to go through basic features under only system requirements.

Task management - had functionalities to assign a task for the specific person or a team member.

2.3 Currently Available Products

As mentioned the alternatives were not achieve all the functionalities, therefore we followed up with alternatives for each functionality where we can specify more features.

Leave management

- HR simplifies online HR management system
- Fresh team HR management system
- Keko client management platform

Resource Booking

- Fresh team HR management system
- Property manage

Resource repository

- Apache archiva
- Google drive
- Cloudsmith package

Finance Management

- Petty cash web

Quizzes and Survey

- Office vibe

Blog

- Medium

Task management

- ClickUP

2.4 References

- https://hrsimplified.org/case-study/leave-management-simplified/
- https://www.freshworks.com/hrms/?tactic_id=3564349&imt=1&utm_campaign=Softwaresuggest_cpc&utm_source=Softwaresuggest&utm_medium=cpc&utm_content=
- https://www.pettycashweb.com/
- https://officevibe.com/
- https://www.keka.com/hr-resources/
- http://www.onsitepropertymanager.com/features/auto-posting-charges/
- https://archiva.apache.org/
- https://drive.google.com/drive/u/0/
- https://cloudsmith.io/~isc/repos/kea-1-8/packages/
- https://clickup.com/?utm_source=google&utm_medium=cpc&utm_term=clickup&targetid=aud-355876354542:kwd-301706406421&utm_campaign=branded-search-tIS-generic&utm_content=&gclid=Cj0KCQjw9_mDBhCGARIsAN3PaFPnIZKcXcNMHDXkOR6WKedHkzb_6ZaY-TlXSYhkPzEyzxlagIyOPLAaAqweEALw_wcB

Summary

This chapter contains the alternative developed softwares for mentioned functionalities.

Chapter 3 – Technology

3.1 Introduction

After designing the solution concentrated on technology which is trending and flexible and which is compatible with requirements and relevant organization suggestions. Develop and maintain the code flexible among team members in separate locations using a repository and formatted coding method from front end to back end.

3.2 Development Method

Technologies we used as follows

- Angular 8
- Asp.Net Core 3.1
- MySQL
- Entity Framework
- C#
- Bootstrap
- Angular Material
- GIT

Angular, Bootstrap and Angular Material for front development which are the most trending technologies. As well as flexible to develop with.

Entity framework used in between backend and database since retrieving data set is more compatible and required and flexible to code queries. Since it enables developers to visually design models and mapping of databases, more flexible to handle in between. On the other hand it reduces development time since sometimes it provides auto generated code from migrations.

MySQL for database and .Net core for back end development, which is compatible with angular.

3.3 Front-end Technologies

Since the organization requested their need of UI design which simple and elegant design theme representing organization theme colours. Since it has dependency update one theme format can apply for each module even the changes. In some modules upgrading is simpler as they are adding backwards compatibility mode.

Web workers improve the parallelizability and the speed of the application.

Bootstrap and Angular Material components give interesting UI pieces without having to do full design, so it is suitable since this is internally used.

3.4 Back-end Technologies

Back end is developed with ASP.NET Core 3.1 stable version.C# language is used for this library.the intermediate entity framework is more reliable. Since we are retrieving a set of data from the database and coding queries, considering a set of data entity frameworks is more suitable.Controlled code sharing and side by side versioning give more advantages for the accuracy for the system.

MySQL database is used for storing the data and MySQL Workbench tool is used for exploring the database.

Postman API is used to test the API with http calls to the backend.

3.5 Repository

GIT is used for version controlling and **Bitbucket** repository platform used to maintain code within the team members. Two branches for the development and sample testing make it easier to check the code.

Chapter 4 – Team Approach

4.1 Introduction

This section elaborates the approach taken to develop the solution brought forward by the project.

We developed the human resource managing tool for IronOne Technologies by using the latest technologies. Most of us weren't familiar with these technologies when we started the project. It wasn’t easy to pick the correct way to solve the particular problem. We discussed regularly and identified our mistakes. Sometimes, we tried different types of packages for completing the same task.

4.2 Utilizing Agile Scrum

First of all, we identified the main tasks of each module and included them on the jira software. Then, each of us initiated a task and developed the frontend and the backend for completing that particular task. Jira was very useful for us to identify the current stage of the developing process.

After the completion of every requirement, it was carefully analysed and implemented as per the Agile Scrum software model.

4.3 UI Solution and Connect With Database

We created interfaces according to the color theme of the company and used angular for developing the frontend. It was easy to work with Angular because all the things were well structured.

We used the backend migration technique for the table creation of the database. It was little bit difficult to find the tutorials for backend technologies, but we managed that by discussing issues with the team members

4.4 Final System I/O Process

The super admin has to input the details of the user within the process of creating the user. After accepting the invitation the user can view the main dashboard features according to his/her userrole.

In the leave management module, normal users can input the details for requesting leaves and administration can view the leave requests. The resource booking module contains different input, output operations. Request resource, create resource are some of the input processes and view resource requests and view resources are some of the output processes. When we consider the blog module, Create blog is the input process and view blog is the output process. The resource repo module consists of the input processes such as uploading files, and the output processes such as viewing all uploaded files. Create task is the input process and view task is the output process. In the finance module, add expense is the input process and viewing expenses is the output process.

Chapter 5 - Analysis and Design

5.1 Introduction

This section analyzes the system as a whole, its design and its functionalities. Before going into detailed diagrams, it provides an overview of the functionalities of the system. Then it elaborates those modules through use case Diagram, Entity Relationship Diagram ,Class Diagram and functionalities through Activity diagrams and Sequence Diagrams.

5.2 Analysis

User management module: Super Admin or Admin can create new User .Then after creating, he/she can Sign-in, Sign-out where content inside managed by the roles as

- oLeave management – Super admin,Project manager
- oResource booking,survey – Super admin,Admin
- oFinance – Super admin,Finance manager
- oBlog , Resource repository – all

Procedure to control errors may occur in Sign-in, Sign-out.Users can maintain his/her profile.

Leave Management module:A form for users to apply for leave(request leave form) ,Leave accepted or rejected by relevant project manager or tech lead(whose role also leave manager) by viewing user leave history. Approval or rejection notification through mail to personal mail account. Leave allocation set up to date. Leave quota containing all user Leave allocation details up to date. Each leave manager can check pending leave requests sent ,and view upcoming leaves for the day and for current week.

Resource Booking module:A form for users to request a resource for a certain period of time,A table to display the bookings for all the common resources based on the request approvals ,Display details of the items that are already booked and those which are already being taken, including who took it, when he took, and when he will return it. Update the resource pool when one hires or returns the item.Maintain resource profile (add, edit,delete), keep track of availability and unavailability of resource.

Resource Repository module:A basic repo for all resources especially documents related to project works .Make users access different documents of his need . Create folder,file ,Upload file ,Search folders, files ,Refresh , Rename, delete, set read accessibility for folders , Rename, edit, delete, set read or write accessibility, download created files , Rename, delete, set accessibility, download for uploaded files.

Finance Management module: Send expense request to super admin or finance manager with proof attached .Once the request approved super admin or finance manager can change the status of the approval to reimburse status once the money is banked. Generate expense report as per filter status(pending , approved, rejected) .

Task Management module: Admin can create tasks and assign employees to relevant tasks. Manage tasks according to the start date and duration whether it to be an ongoing task or finished task.User can view the tasks that have been allocated to him by the administrator.

Quizzes and Survey module: An interactive component to keep the team engaged.Admin can create,draft,publish quiz as type Questionnaire and survey.Quiz can be allocated to specific employees or everyone as per admin requirement.Quiz has various types of questions[MCQ,Free text,image] .See results of each employee as per requirements of admin .

Blog module: Create blog post and publish them to the system.Comment , Like for other's posts. Search post by title, category, tag. Draft posts and edit drafted post and publish.

5.3 Use Case Diagram

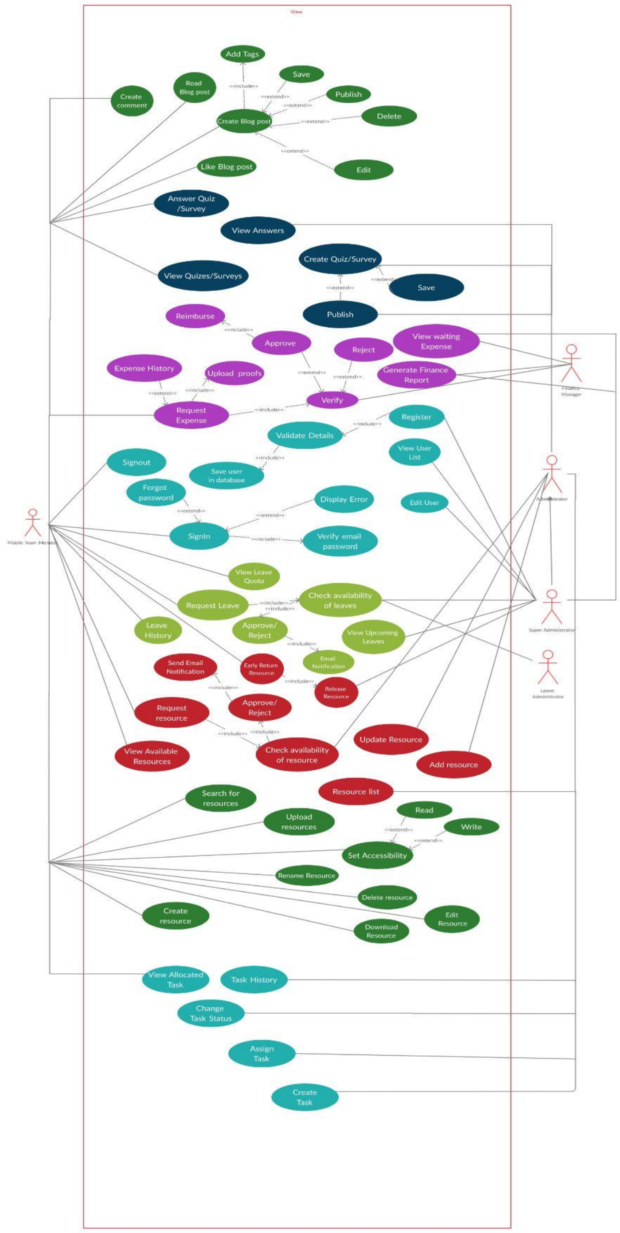


Figure 5.3 Use Case Diagram

5.4 Entity Relation Diagram

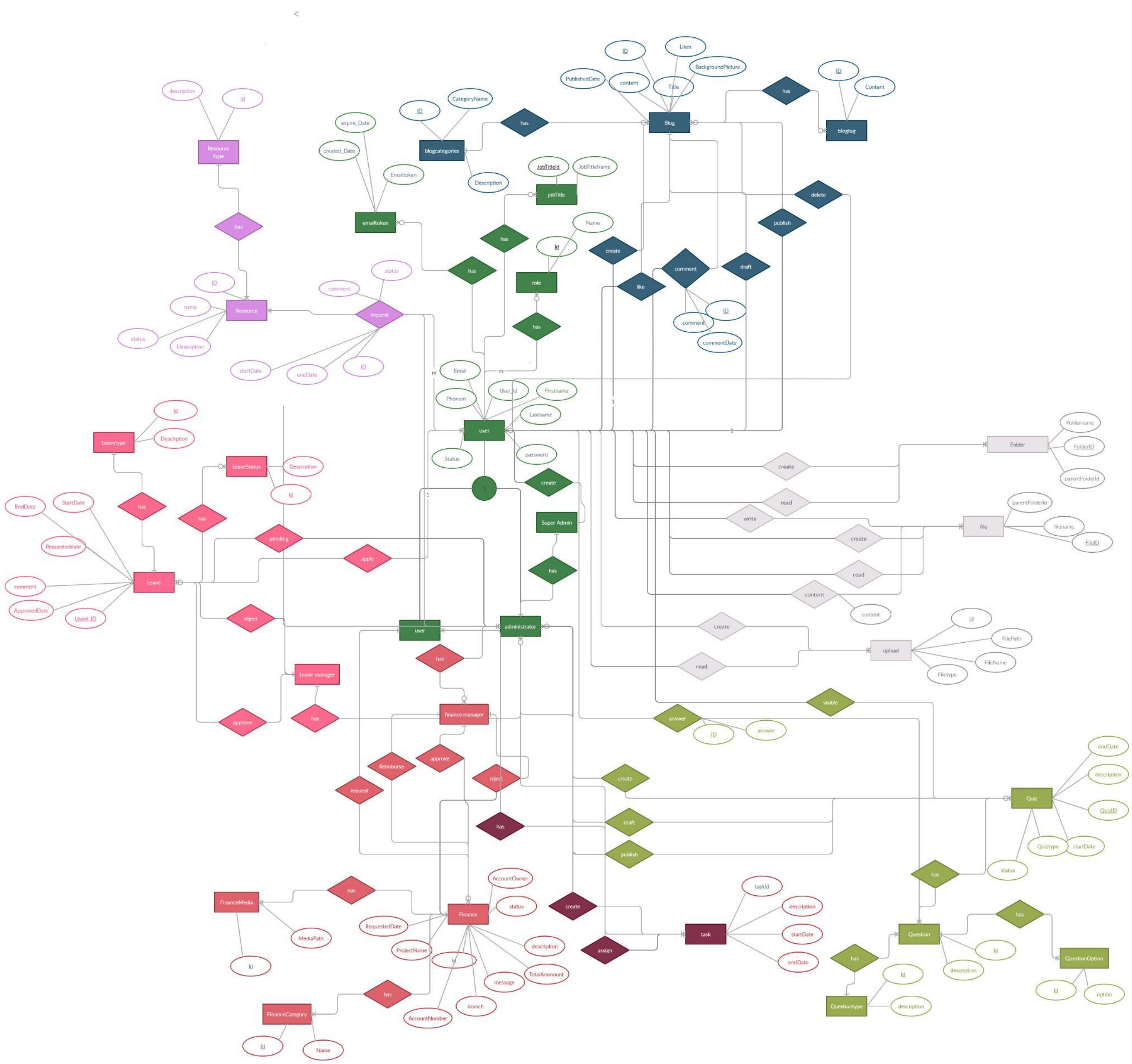


Figure 5.4 ER Diagram

Each module's entities and attributes are depicted in different colors. No weak entities recognized or weak relationships recognized. User and admin has separate functionalities in some points , relevant functionalities also mentioned with extended entities. Generally roles of administration mentioned here as the administrator.

5.5 Class Diagram

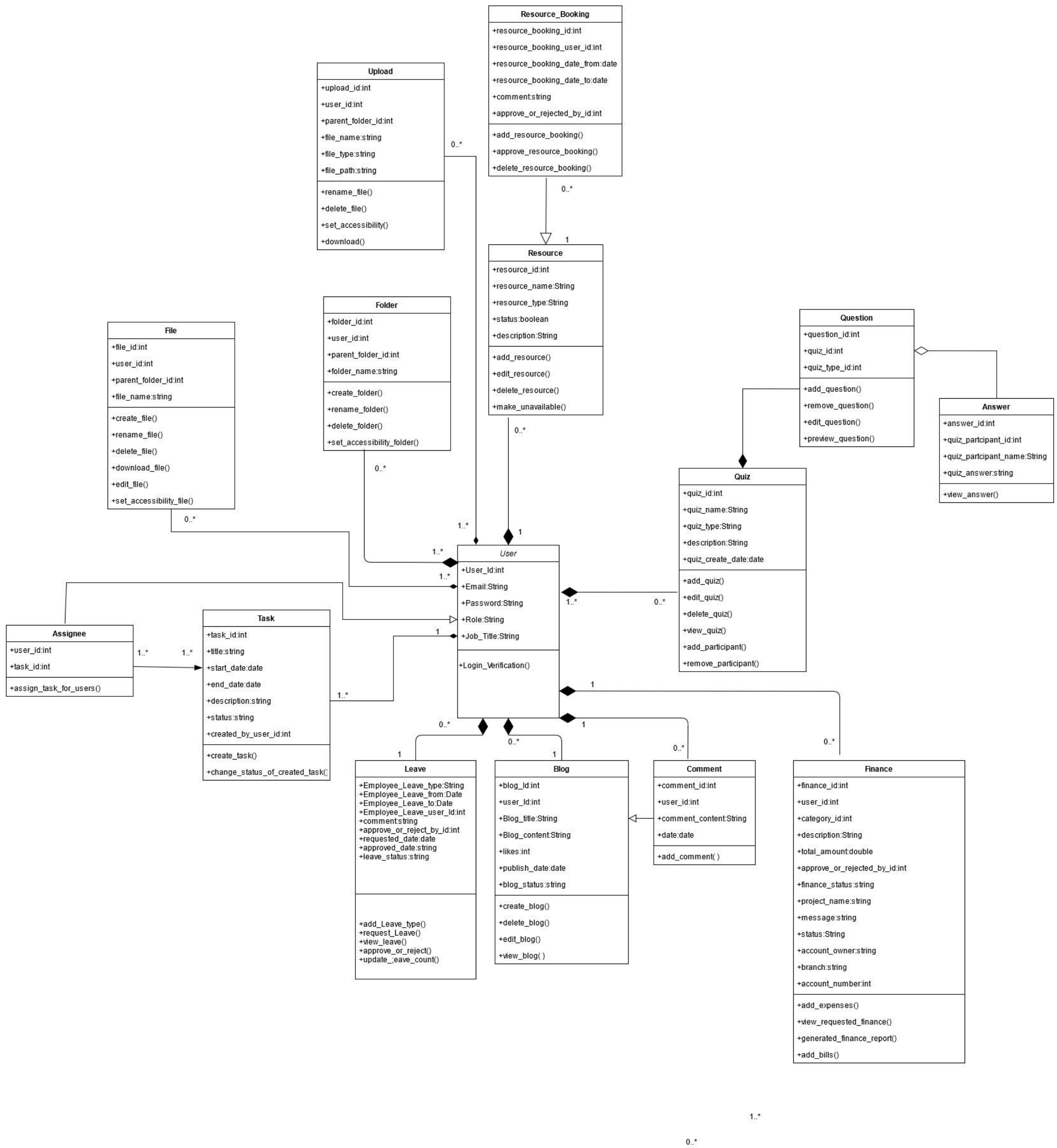


Figure 5.5 Class Diagram

Summary - The system is elaborated in to the form of diagrams and is discussed on in this chapter. The class diagram and the use-case diagrams and ER diagram gives out an overall view of the entire system .

Chapter 6 – Implementation

6.1 Introduction

This chapter includes the implementation techniques and processes defined comprehensively adopted when developing the proposed system.UI implementations are in appendix B.

6.2 Implemented modules (flow and the logic)

User management module:

Super admin is the person who has authority to create new users and assign the user roles for the users. The superadmin should input the details of the relevant user with the email address for the process of creating a new user. Invitation email will be sent to the relevant email address with the validation token. The user can be the member of the system by accepting the invitation.

The super admin can view all the users in the system and edit details of that particular user.

Leave management module:

Any user can request leave from a relevant project manager or Tech lead . relevant project managers or tech leads receive the request to be approved or rejected . and the user has the leave request in pending status. Once the request is approved the user will receive email to his/her registered email account including status as approved with details. And then leave the count update and leave quota which can be seen by the Project manager or Tech Lead. all requested leaves will be in pending sections with two options as approve or reject. Once the leave approved the days will be updated and in the upcoming leave section project manager or tech lead can see today’s leaves and week’s leaves.

Resource Booking module:

Admins add new resources to be requested by the team members.Main resource types are Mobile phone, Laptop, Macbook and internet dongle.Team members can check the current booking of a specific report and make requests for a use of resources for an unallocated date period.Then resource request can be seen by the admins and admin can approve reject the resource request according to the availability.An Email notification will be sent to the relevant request owner.If user returns the resource before the specified date period end date , admin can release the resource.Then the resource is again available for remaining date period.If a resource isn't able use for some reason admins can make the resource unavailable.Then upcoming bookings of the resource is cancelled and an members will be notified by an email notification.Current resources can be edited and deleted by the admins.

Finance Management module:

The finance module consists of three main sections named add expense, current requests and finance reports.

Add expense section will allow users to both make a reimbursement request for a new expense, as well as see the status of ongoing requests. This section will have two elements - 'Add new expense' form and 'Expense history' section. Any user can request an expense from the relevant finance manager and the super admin. Also, the users can view the status of their previous finance requests.

Members with the finance management permission can view this section to review the status of all expense requests made by the team.

- Each expense request will by default be in the 'Pending' status.
- Admins must first review these and either Approve or Reject the claims.
- Approving a claim means that the company is committing to reimburse the expense made by the team member.
- Approved claims will remain in the Approved state until the money is reimbursed to the team member (which happens outside of the system). At this point, a finance admin can change the status of a claim to Reimbursed.

The reporting section will allow admins to export the current expense data into an excel sheet.

Task Management module:

Tasks can be created by Admin or Super admin ,while also can assign users . Once a task is created and allocated to the user from the user layout, “check my task” will update.initially task will be in “to do” status . From an administrator view admin can see the list of “to do ” tasks ,which can be changed into “ongoing” status once the start date is on the current date . also “ongoing” tasks can be changed in “done ” status once the end date of the task is on the current date . administrator can view history of the task in detail. Users can see the details of the task allocated for them. Each task details can be viewed by clicking on the item in the admin layout.

Blog module:

Create blog posts and publish them to the system.Comment , Like for other’s posts. Search post by title, category, tag. Draft posts and edit drafted posts and publish.

Resource repository:

Create folder,file ,Upload file ,Search folders, files ,Refresh , Rename, delete, set read accessibility for folders , Rename, edit, delete, set read or write accessibility, download created files , Rename, delete, set accessibility, download for uploaded files.

Quizzes and Survey:

The quiz and survey module has 3 parts. There are quizzes and surveys, see my quiz and see the answers. There are two role models for the quiz and survey model. There are admin and normal users. Here, only the admin can create a quiz and he/ she can set the visibility to the specific member or a specific team member. There are two types for the quizzes. There are questionnaires and surveys.

In the create quiz and survey component, the admin should fill the forum and add the question whatever he or she wants. There are 4 types of questions. There is free text, mcq, media and rating. The admin can save the quizzes as a draft and he can publish the quiz.

In the see my quizzes component, all users can see the available quiz and he or she can answer the quiz.

In the see answer component, admin can see who responded to the questionnaire and survey and he or she can view the previous responses for the past quizzes.

Chapter 7 – Evaluation

7.1 Introduction

This chapter discusses how efficient the implemented solution is in achieving the predefined objectives. It is elaborated through experiments such as unit testing, detailed testing and questionnaires.

7.2 Unit Testing

User management module:

Test	Expected	Tested Result
Login as super admin	Can see all features	Passed
Login as project manager	Can see user layout + leave pending +upcoming+ leave quota	Passed
Login as finance manager	Can see user layout +pending expenses +list reimbursements+report generate	Passed
Login as user	Can see blog + repository+leave apply+book resource+answer quiz+my task	Passed
Login as admin	Can see user layout +create quiz + resource manage+task manage	Passed
Login with invalid email or password	Error pop up	Passed
Forget password	Reset password through mail	Passed
Super admin add user edit profile roles	See newly added user,relevant user can login	Passed
Manage user profile him or herselves	See edited details, change password , name , phone number	Passed

Leave Management module:

Test	Expected	Tested Result
Apply and send leave request to pm	Relevant pm can see the request	Passed
Pm approve	User will get approved email with description, leave allocation change.leave quota change	Passed
Pm reject	User will get mail mentioning reject.	Passed
Admin view updated leave quota	All users leave allocations and remaining leaves for each leave type- in a table	Passed
Upcoming leaves	Pm can see all the upcoming leaves for the relevant day and for the week	Passed
Request leave exceeding allocated count	Error pop up	Passed

Resource Booking module:

Test	Expected	Tested Result
Admin add resource	Update List of resources	Passed
Admin Edit resource profile	View update resource details	Passed
Admin Delete resource	Resource not visible	Passed
Book resource by requesting And admin accepted request	Resource update as unavailable	Passed
See current bookings	Current booking and available resources	Passed

Resource Repository module:

Test	Expected	Test Result
Create folder,file	Created folder can be seen and file within folder and outside also	Passed
Upload file	File in the selected folder	Passed
Search folder ,file by name	Only see the folders and files according to searched key	Passed
Folder rename and set read accessibility	Renamed Folder can not be edit by non accessibles	Passed
File rename,edit and set read accessibility and write accessibility	Renamed Folder can not be edit by non accessibles,only write accessibles can edit	Passed
Delete folder , file	File and folders not visible in dash	Passed
Download files	Any selected file whether upload or created by user itself download as pdf	Passed

Finance Management module

Test	Expected	Tested Result
Send expenses with the proof doc or image	Finance manger can see the requested reimbursement	Passed
Send email once it is approved,Finance manager approve request	user get an email with details	Passed
Send email once it is	user get an email with	Passed

rejected,Finance manager reject request	details	
Reimburse status ,once money is banked change status to reimburse	User get an email with reimburse details	Passed
Generate a report- filtering status and type of expense	Auto download excel document for filtered requirements	Passed

Task Management module:

Test	**Expected**	**Test Result**
Create task and assign employees to task	Assigned employees can see the task allocated	Passed
Admin change status of the tasks an on going	Status changed then visible in ongoing column	Passed
Admin change status of on going task to done	Status changed, then visible in the task history	Passed
Admin view the task detail	By clicking the task can see the details of the relevant task	Passed
User can see all his/her all tasks	In his/her task list can see all done ,to do and ongoing tasks	Passed

Quizzes and Survey module

Test	Expected	Test Result
Create quiz and add questions and preview	Display all questions added	Passed
Publish the quiz only to visible employees	Published quiz can be seen in selected employees view	Passed

Add questions as mcq type	Question and relevant mcq options	Passed
Add question as image upload answer type	Answer to the question can be upload as image	Passed
Draft a quiz and edit to publish	From draft quizzes list by clicking the draft quiz ,navigate to create quiz form	Passed
Answer to visible quiz	Only the visible quizzes allocated by admin can be seen to relevant user after answering can view result	Passed
See results for all quizzes	Admin can see all quiz result of each user	Passed

Blog module:

Test	Expected	Test result
Create post without tags	Can be create	Passed
Draft post and re edit	Saved in draft and when going to edit , draft navigate to create form	Passed
Comment and like to my post by me	Can not comment or like to my posts	Passed
Comment or like to other’s posts	Can write many comments and likes many times for others post	Passed
See any selected post	All the details of relevant post should be in the post format	Passed
Search by title ,tag or category	Filter blog posts according to the search key	Passed

7.3 Integrated Testing

Logged as Super Admin : User Management[all features can accessible] + leave management[all features can accessible] + resource booking[all features can accessible] + quiz and survey [all features can accessible]+resource repository[all features can accessible]+blog[all features can accessible]+task management[all features can accessible]+finance management [all features can accessible]

Logged as Admin : leave management[apply leave] + resource booking[all features can accessible] + quiz and survey[all features can accessible]+resource repository[all features can accessible]+blog[all features can accessible]+task management[all features can accessible]+finance management [apply expense]

Logged as Project manager: leave management[all features can accessible] + resource booking[booking request] + quiz and survey[see quizzes and answer]+resource repository[all features can accessible]+blog[all features can accessible]+task management[check my task]+finance management [apply expense]

Logged as Finance manager : leave management[apply leave] + resource booking[booking request] + quiz and survey[see quizzes and answer]+resource repository[all features can accessible]+blog[all features can accessible]+task management[check my task]+finance management [all features can accessible]

Logged as User : leave management[apply leave] + resource booking[booking request] + quiz and survey[see quizzes and answer]+resource repository[all features can accessible]+blog[all features can accessible]+task management[check my task]+finance management [apply expense]

Summary

This chapter showcases the tests that were carried on after the implementation of the system. It contains unit testing and other details of testing. There were two types of tests carried on, unit testing and integrated testing. Unit testing has test results to test against and detailed results has steps of the procedure that is carried on. These test cases highlight the features of the system, and certifies the success of the system.

Chapter 8 – Conclusion and Further work

Conclusion :

In this dissertation, a system that would have the capability to manage employee activities of the company in a structured manner is explained. The overall aim of this was to control and mitigate the errors that could take place in the initial stage of the Software Development Life Cycle. The proposed solution enhances engagement of users and efficient and accurate work flow of the company is a better way. After successfully implementing the system within the given scope, the above defined goals were successfully met. The system helps the user in formulating a straightforward coherent System Requirement Specification. And the system enables the user to be more attentive to their role in the process of creating a software system. Also it assists the administration and employees in delegating work in an effective manner without having unnecessary delays. Thus overall all of the objectives that were set were achieved from this system.

Further work :

The work performed in this project provides a package of overall activities happening within the company. The system can be developed in some key areas, which were not reachable within the given scope or the timeline. These areas include:

- To launch a mobile app incorporated into the system.
- improve UI with auto refreshing and increase loading speed .

Appendixes-A

Individual contribution

Hirushi.B.K.S. - 184057K

Leave management module : I completely developed the module from backend to frontend endpoint according to the requirements. The module consists of following requirements :

- Have administrator and user layouts
- Administrator-[project manager /teach lead/super admin]
    - Approve leave of user
    - Reject leave of user
    - Check leave quota of all employees - count of each leave taken for each leave type
    - Check upcoming leaves weekly and monthly
    - Apply leave - where super admin or relevant project manager of administrator level will approve leave.
    - Check all leave history
- User
    - Apply leave
    - Check own leave quota
    - Check user's leave history
- Once a leave approved by the administration , the user will be notified by an email. Once an admin applies for a leave , once it is approved he will receive an email. There are casual , annual , awarded, medical , work from home likewise leave types and each leave type has a unique leave count for a year. Usual error messages will pop up as if he try to exceed the allocated leave count for each type.

Task management module : I completely developed the module from backend to frontend . Requirement is to allocate tasks for employees . Module consists of ; Have user layout and administrator layout Administrator has the authority to allocate tasks to employees through the system .

Administrator -

- o Create task
- o Allocate tasks to employees
- o View tasks that are finished
- o Check to do tasks and ongoing tasks
- o Change the status of the tasks whether it is to do , ongoing task or finished task .

· User

- o See the tasks that are allocated to him / her.
- o He / she will be notified through mail when a task is allocated .

· In this module users can see the tasks that are allocated to them, while the administrator can manage all the tasks.Once the task is finished the employee will notify the administrator and he/ she will change the status of the task as to done .

Pathirana G.K.R. -184114j

I created the quiz and survey module. The quiz and survey part can be divided into 3 parts. There are Create quizzes and surveys, see my quizzes and surveys and see the answers.

i) Create quiz and survey part,

This section is for admin users to create surveys/questionnaires and send invites to the members to answer them inside the system. The key purpose of this section is employee engagement. In the create quiz and survey model, admin can create different types of questions like text, media and mcq. Therefore, the admin can choose visibility. Not only that, the admin can save a questionnaire or a survey as a draft and the admin can edit and publish it again.

ii) See my quizzes and surveys,

This section (available to all users) to see what questionnaire and survey they have in the system to be answered.

iii) See my answer,

This section (available to all users) will host all answers for past questionnaires and surveys in the system. So, the admin can see who answered the questionnaire and survey.

Manupriya G.G.P . -184100M

I developed the login module, user management module and two parts of the finance module including “Add Expense” and “Current Requests” parts.

The **login module** consists of the forget password feature. I added user authentication and email token validation for the login module. The user should input the correct email and password for logging to the system.

There are two main features in the **user management module** for creating users and viewing user details. This module is only available for the super admins of this system. The super admin has authority to create new users and edit details of the existing users. With the creation of a new user, an invitation email is sent to the user’s email address with a valid token. That token is used to identify the actual user related to that particular creation.

I contributed to finalizing two parts (out of three) of the **finance module**. The user can add expenses to the system by using the “add-expense” feature. Here, the user should attach the bank account details and the bill image with the finance request. Then, the finance admins and the super admin can view the request in the “current requests” section. They have the power to approve or reject those finance requests. If they press the approve button, the money should be deposited to the relevant bank account. Then, they should press the reimburse button for finalizing the task.

Also, I did the integration part to combine all modules without any error.

Mifdha M.M.F - 184104E

I am mainly responsible for implementing resource repository module and blog module completely with their UI/UX designs and everything.

In the resource repo module I have made it possible to create folders, create files and upload files. Folder created users can rename, delete and set accessibility as who can see the created folder by him/her. File created users can rename, delete and set accessibility to read or write on the files he/she created. The access given users can edit and download files along with the created user. File uploaded users can rename, delete and set accessibility as who can see the uploaded file by him/her. Upload file access granted users can download that particular file and continue editing it. Also users can search any resource by their name.

In the blog module users can create blog posts and save them as draft or publish them. Users can add tags to post while creating posts. When a post is saved as draft the creator can edit it further and publish it or can save it as draft again. When a post is published the other users can view the blog post and like or comment on the posts and the creator is able to see the number of likes to his/her post and comments on his/her post. The users can search a blog post by their title, category or tags.

I implemented all the above mentioned features in the both modules with the needed security measures and validations.

184144B - Roshika H.H.N.

I developed a resource booking module and Finance report generating function for the Finance Module.

Resource Booking Module

- In this module mobile team members can request a resource for use of his/her project.
- There is a list of allocated resources for use of projects.
- When a team member requests a resource, admins can approve or reject the resource request.
- An email notification will be sent to the relevant requested user.
- Admins can add , edit , delete or hide(make unavailable) the resources from the resource list.
- Admins can view the history of each resource.

Finance Report Generating

- Administration can generate a report of the expenses and export it into a xlsheet
- Date period, member name, finance expense category,project name,expense request status are the filters which can be used to filter the expenses which are selected in the report.

Appendix -B -Other Diagrams

B.1 Activity Diagram

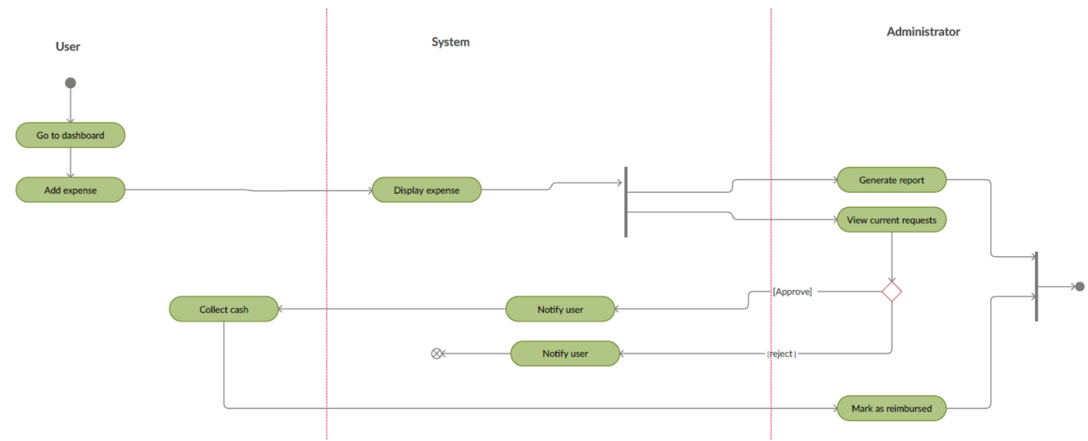


Figure B.1 - finance module

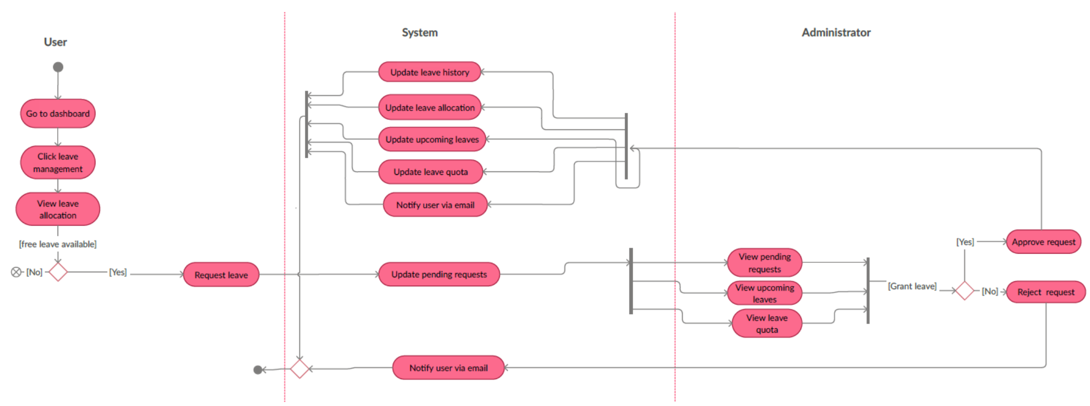


Figure B.1 - Leave Management module

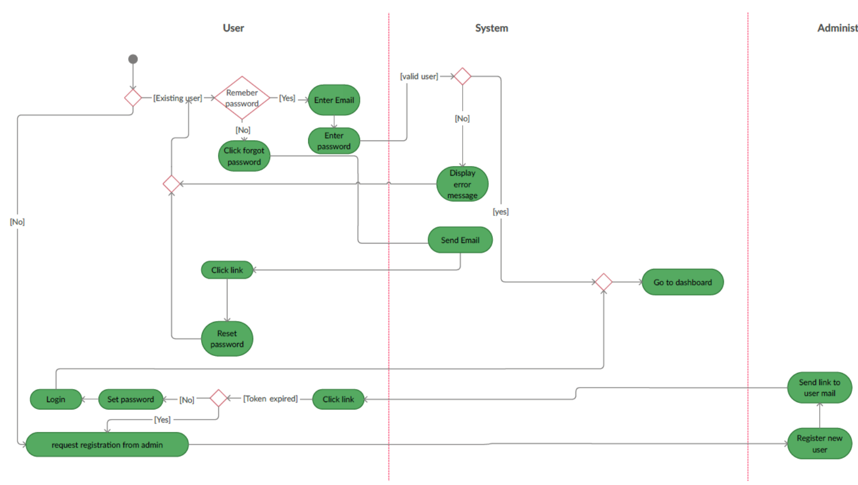


Figure B.1- User Management module

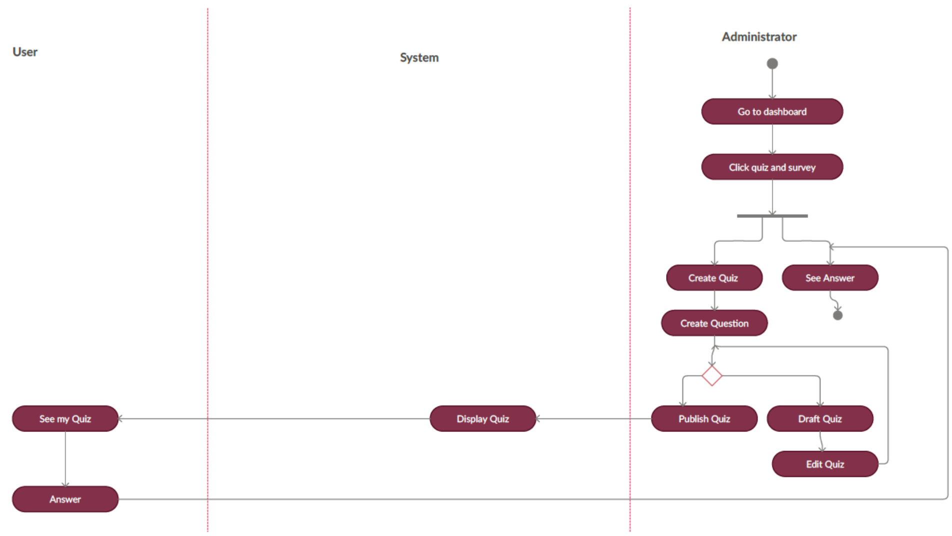


Figure B.1 - Quiz module

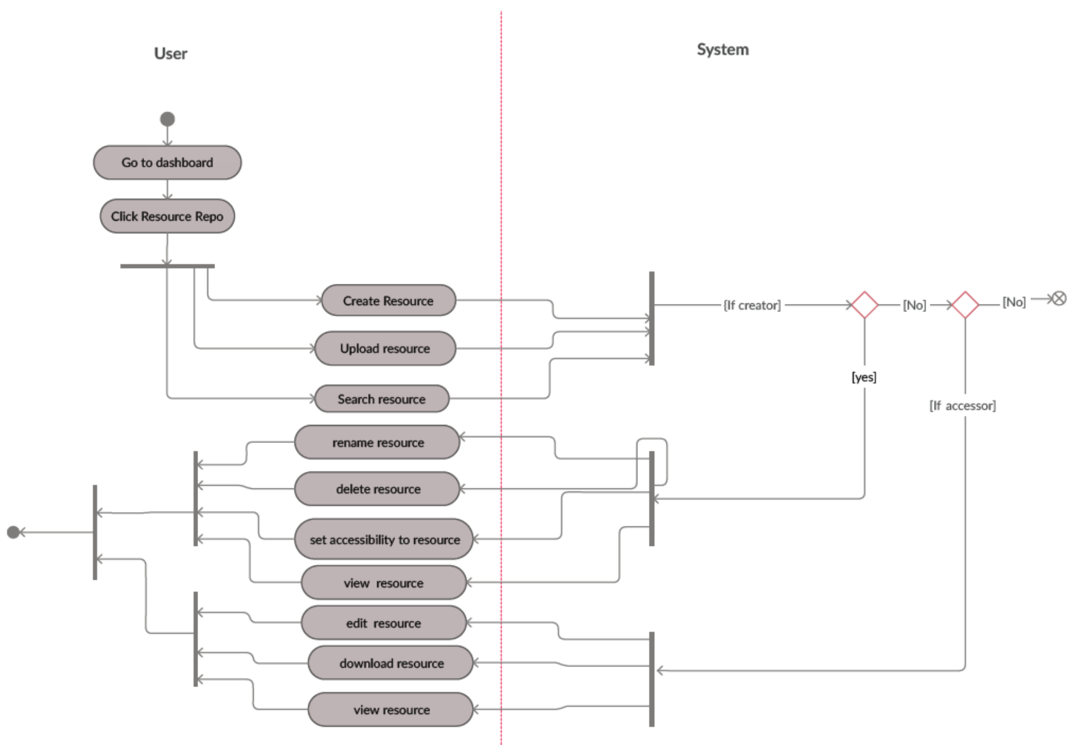


Figure B.1 Resource Repository module

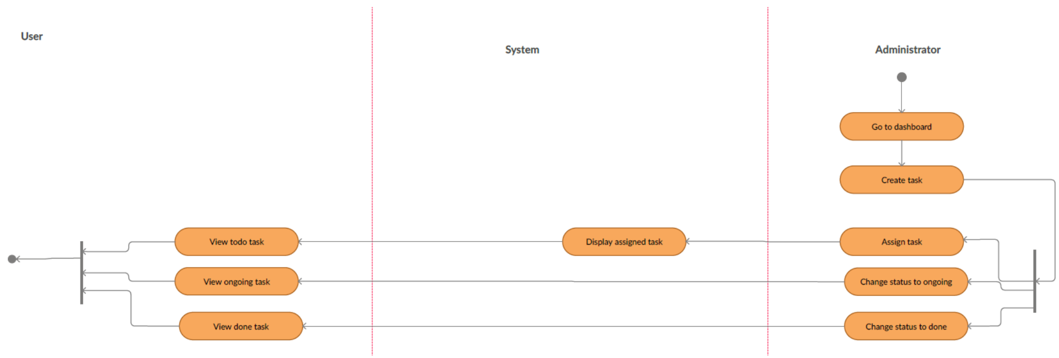


Figure B.1-Task module

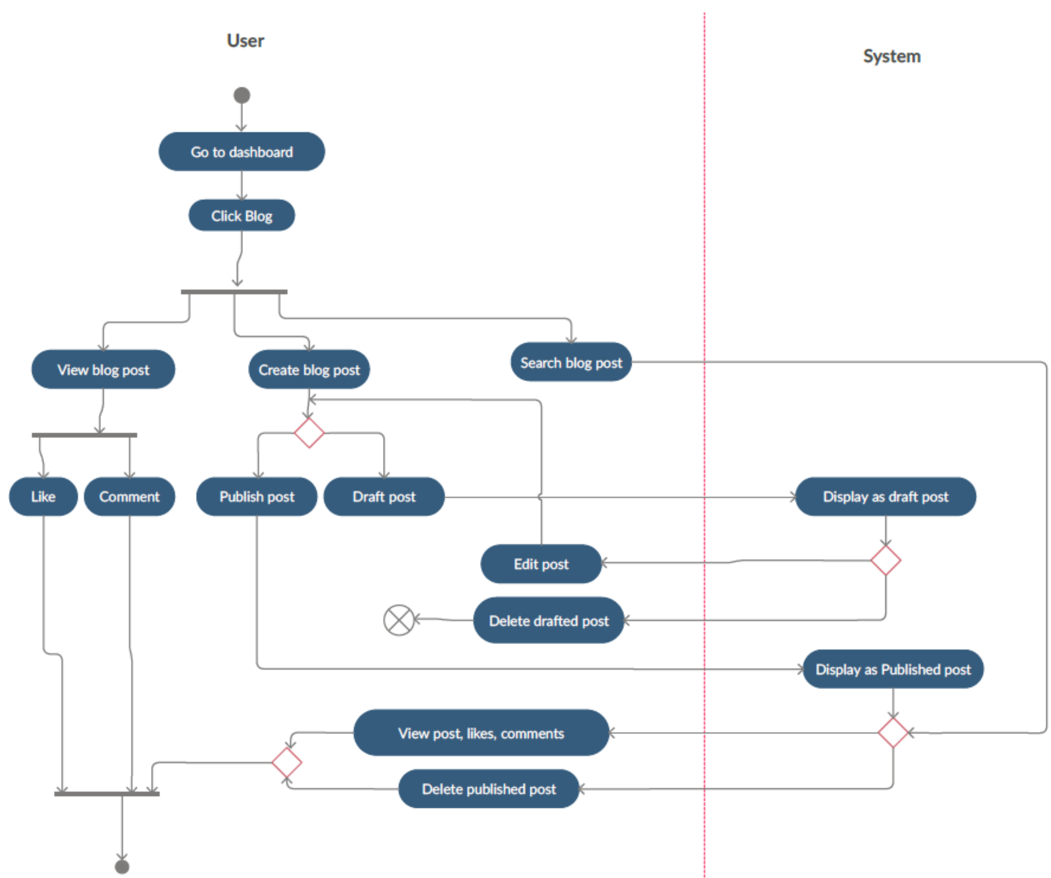


Figure B.1 - Blog module

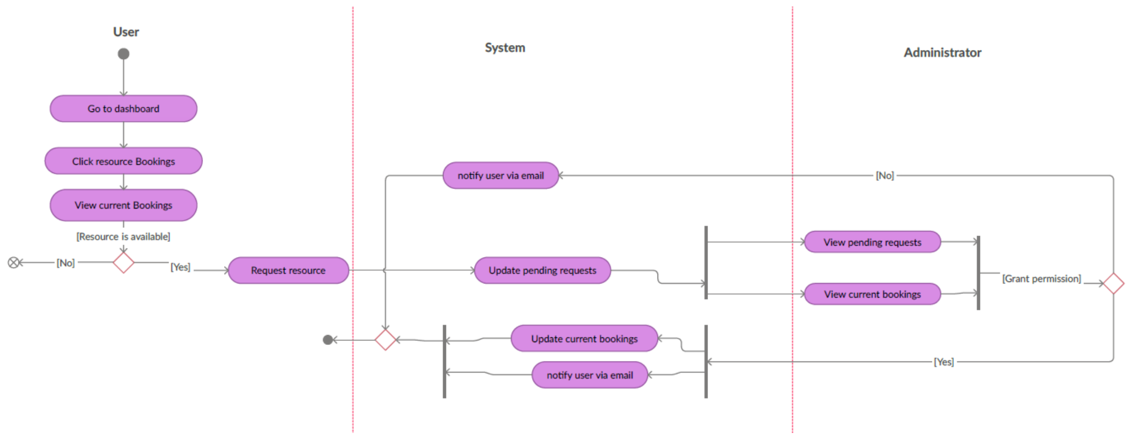


Figure B.1 - Resource booking

B.2 Sequence Diagram

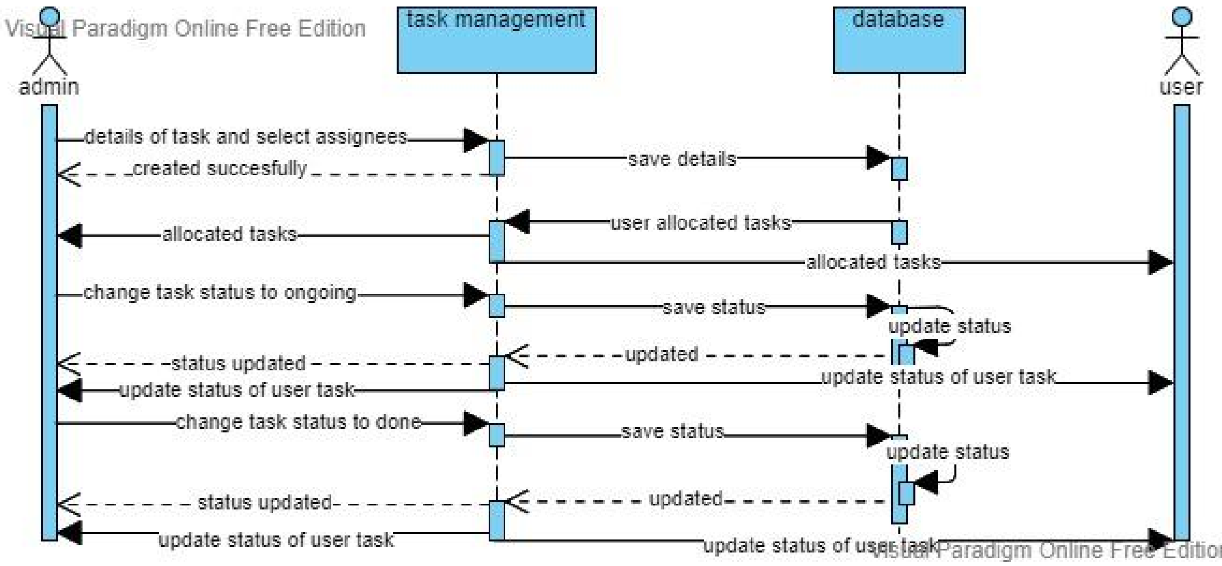


Figure B.2- Task management module

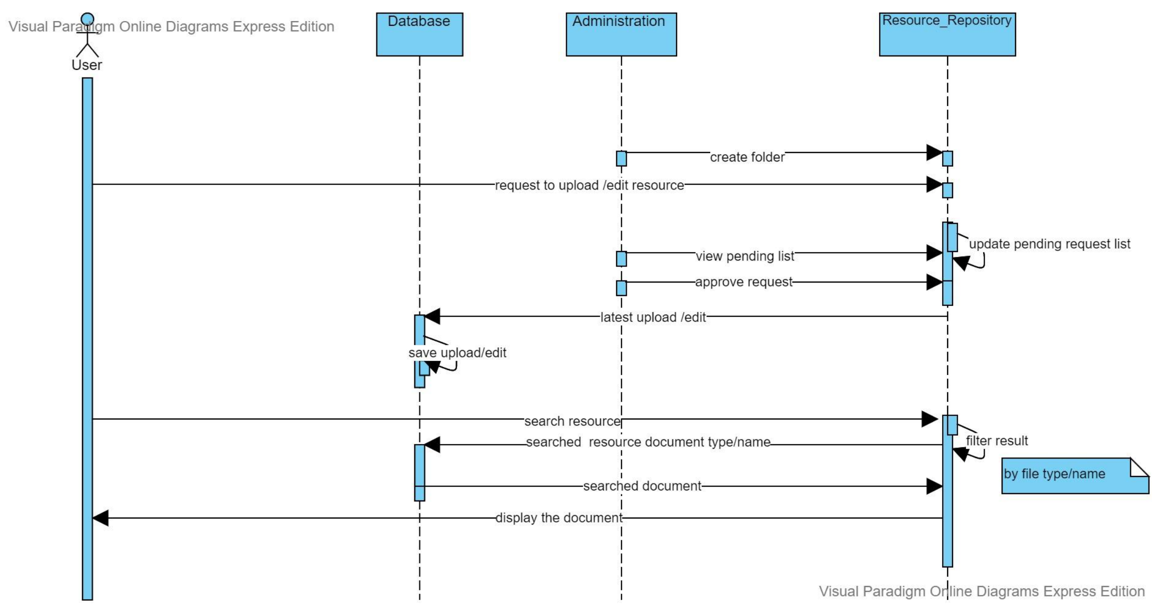


Figure B.2- Resource repository

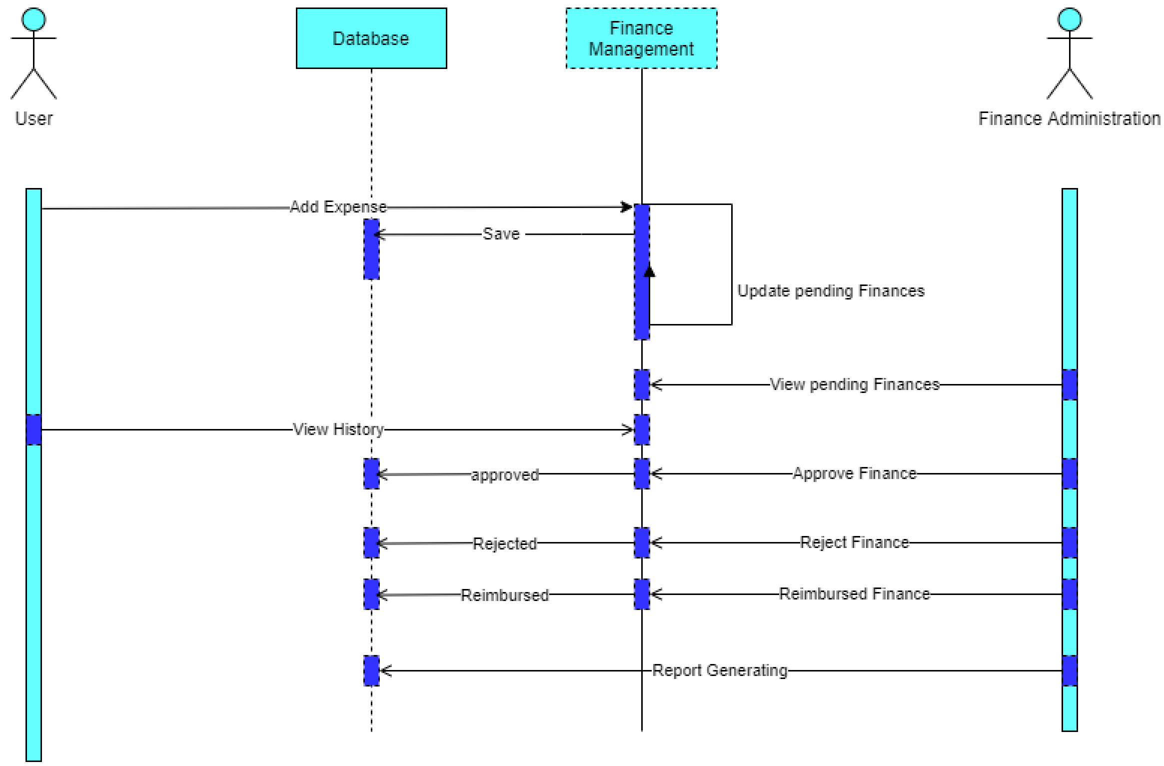


Figure B.2- Finance management

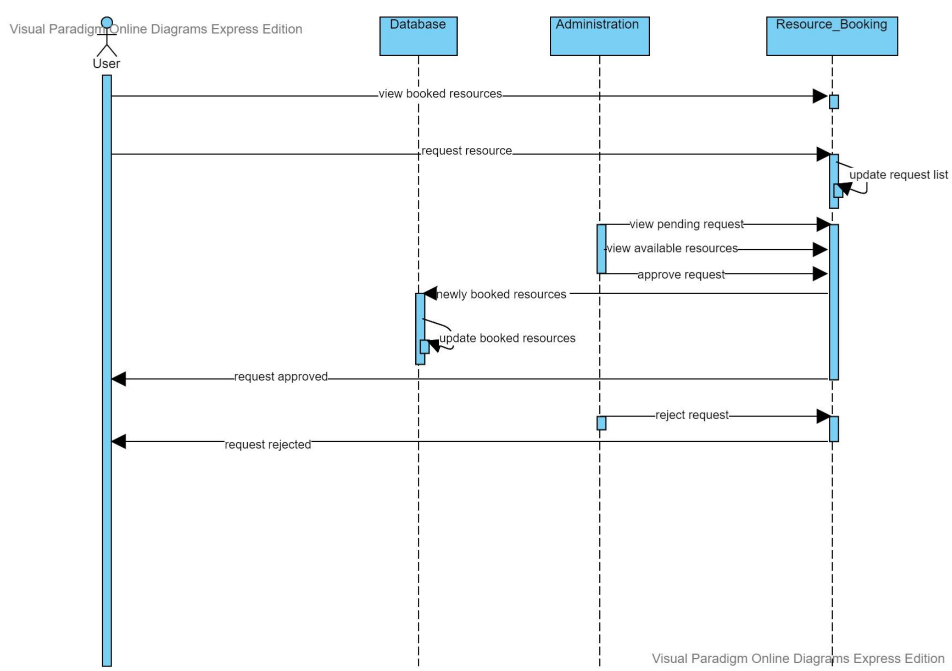


Figure B.2-Resource booking

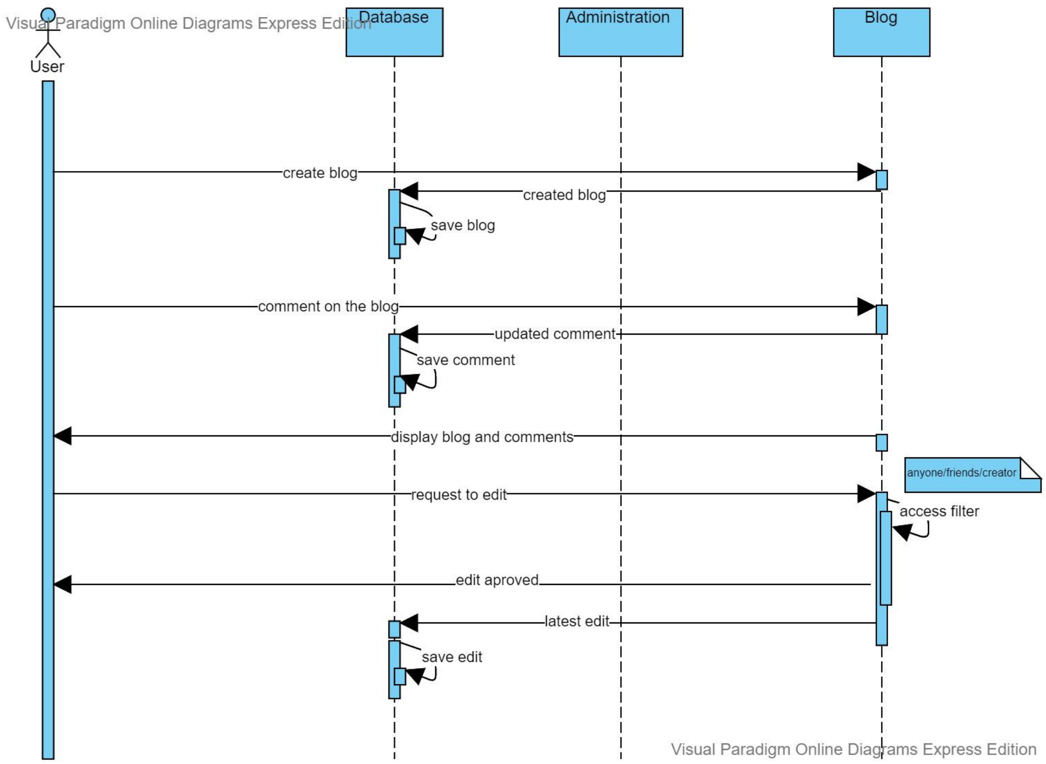


Figure B.2- Blog module

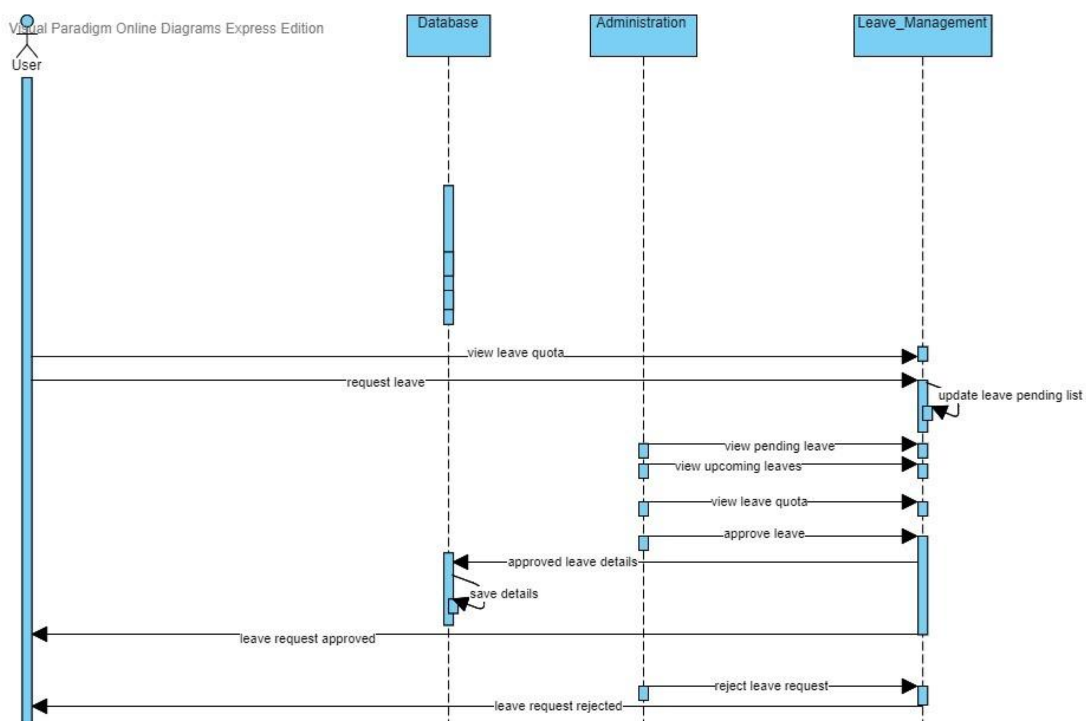


Figure B.2-Leave management module

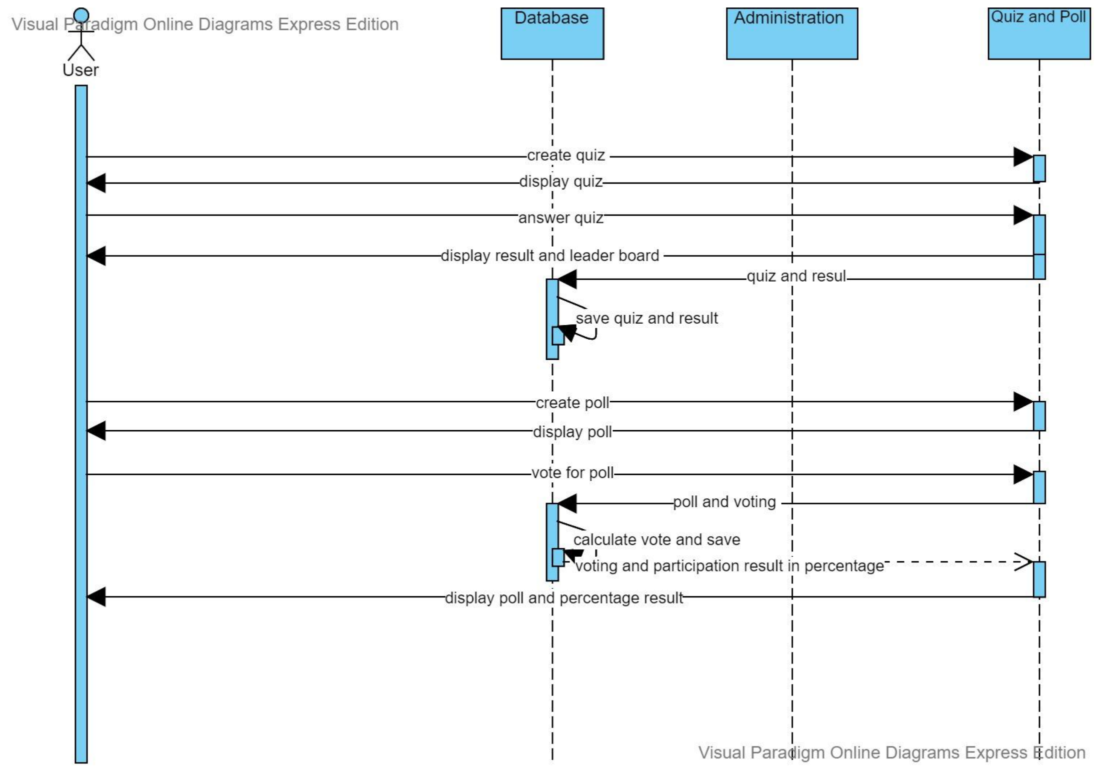


Figure B.2 - Quizzes and Survey module

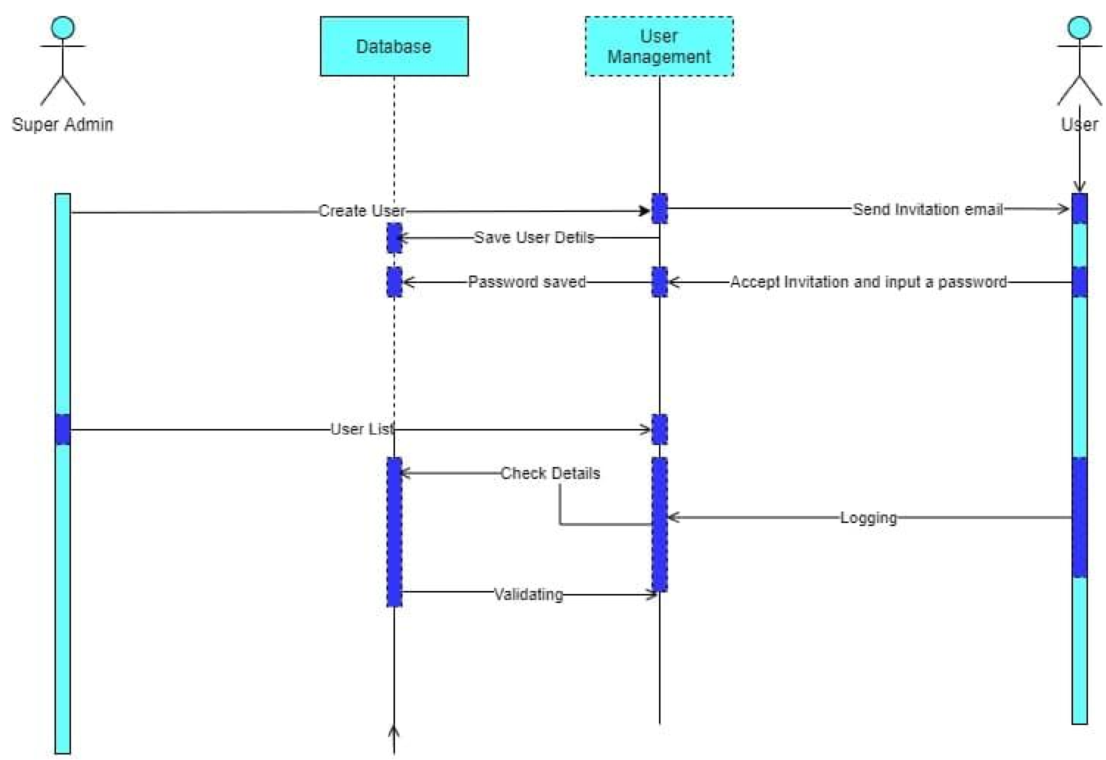


Figure B.2- User management module

B.3 Component Diagram

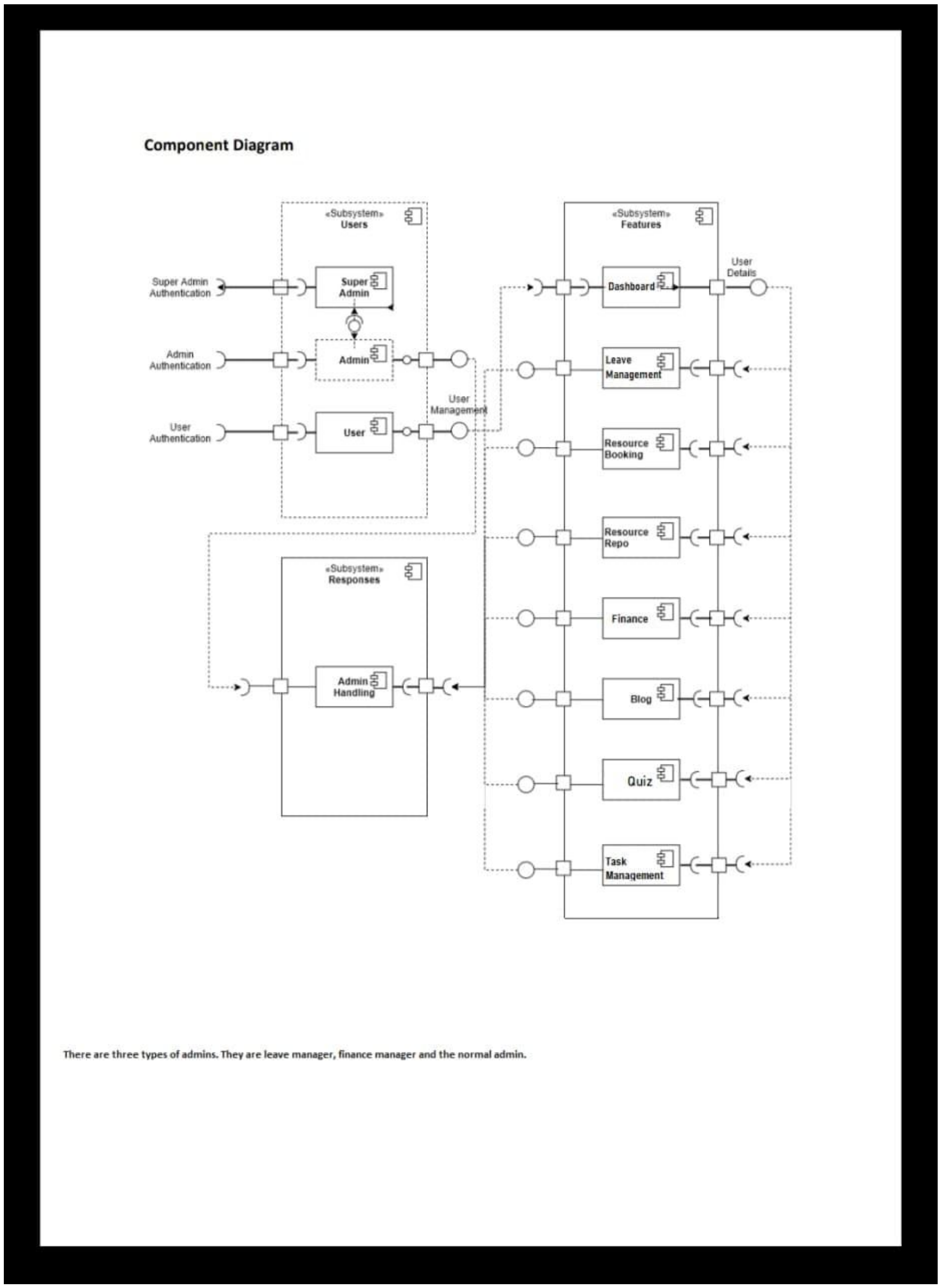
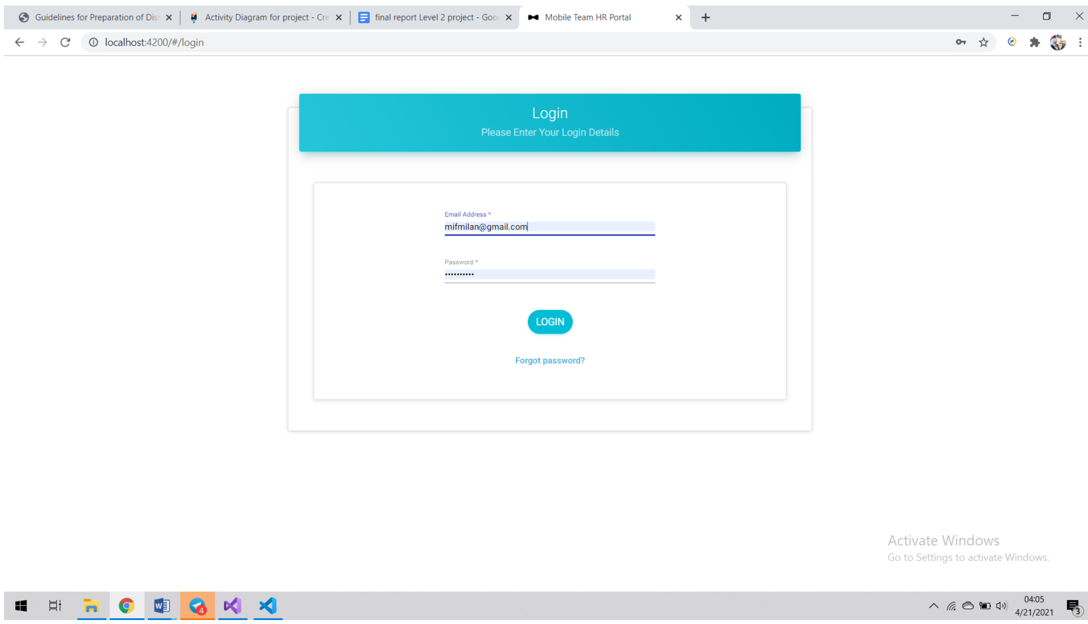


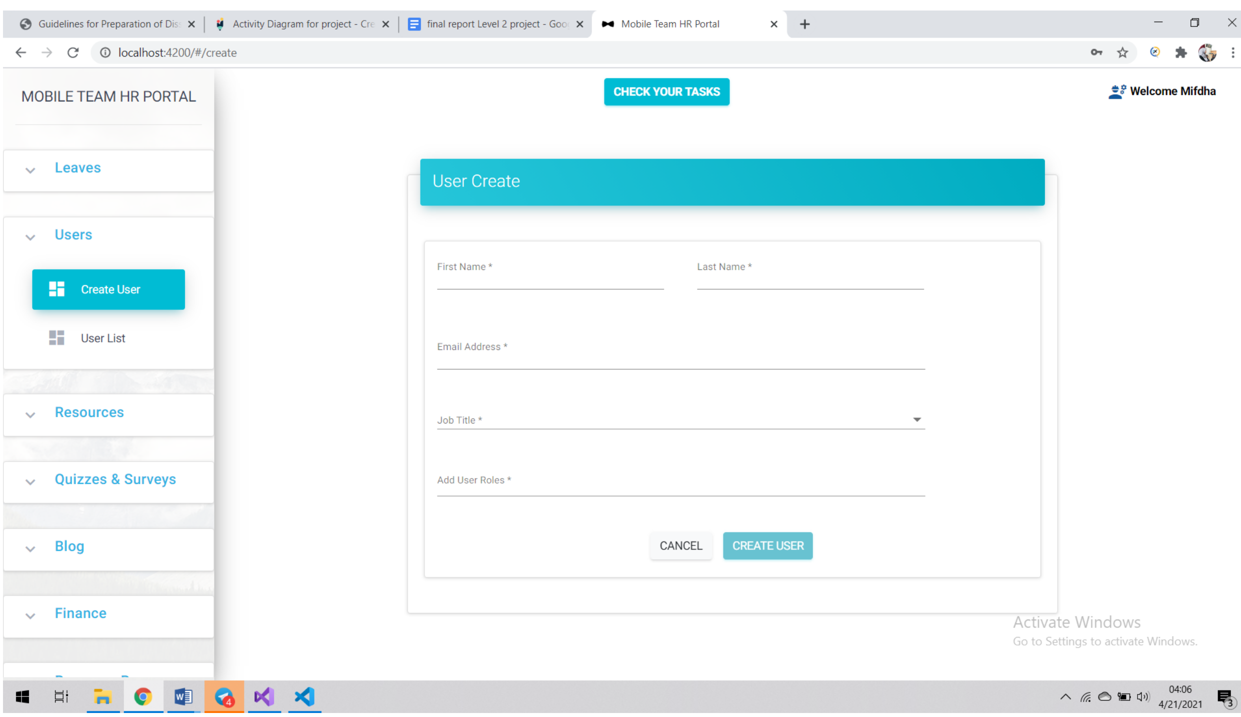
Figure B.3 Component Diagram

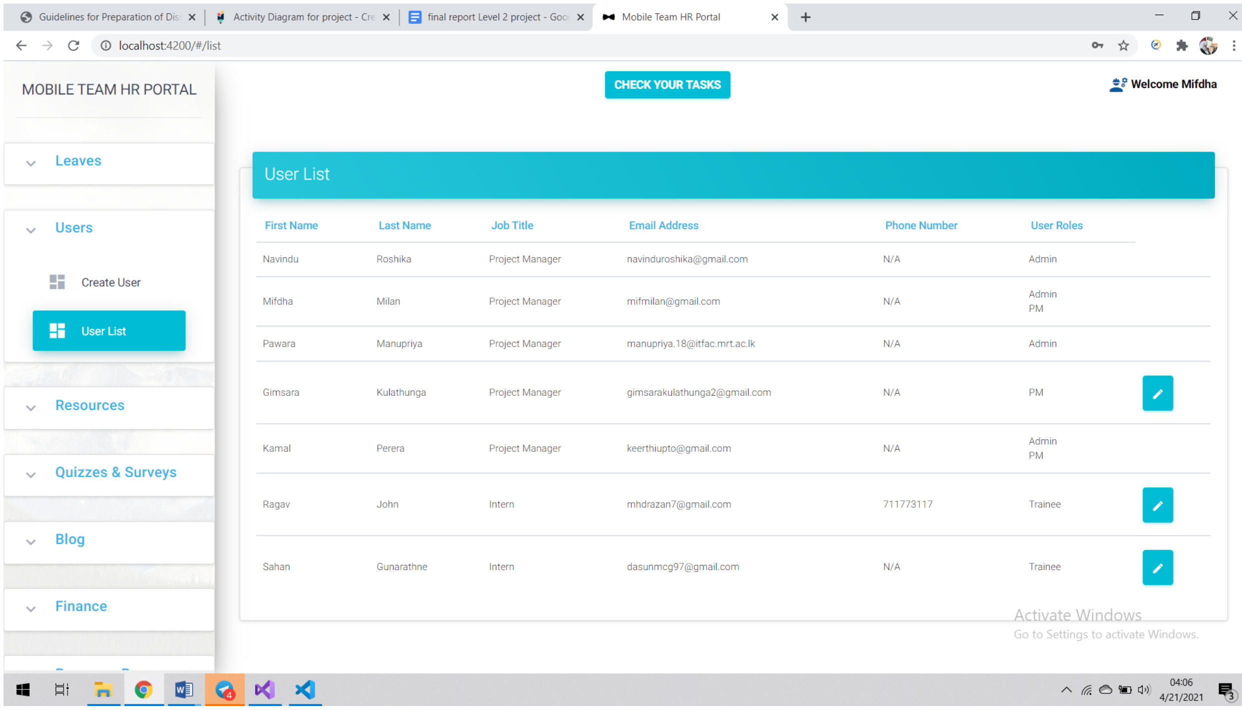
Appendix-C- Implementation

1.User management module:

Figures C.1 - UI-user management

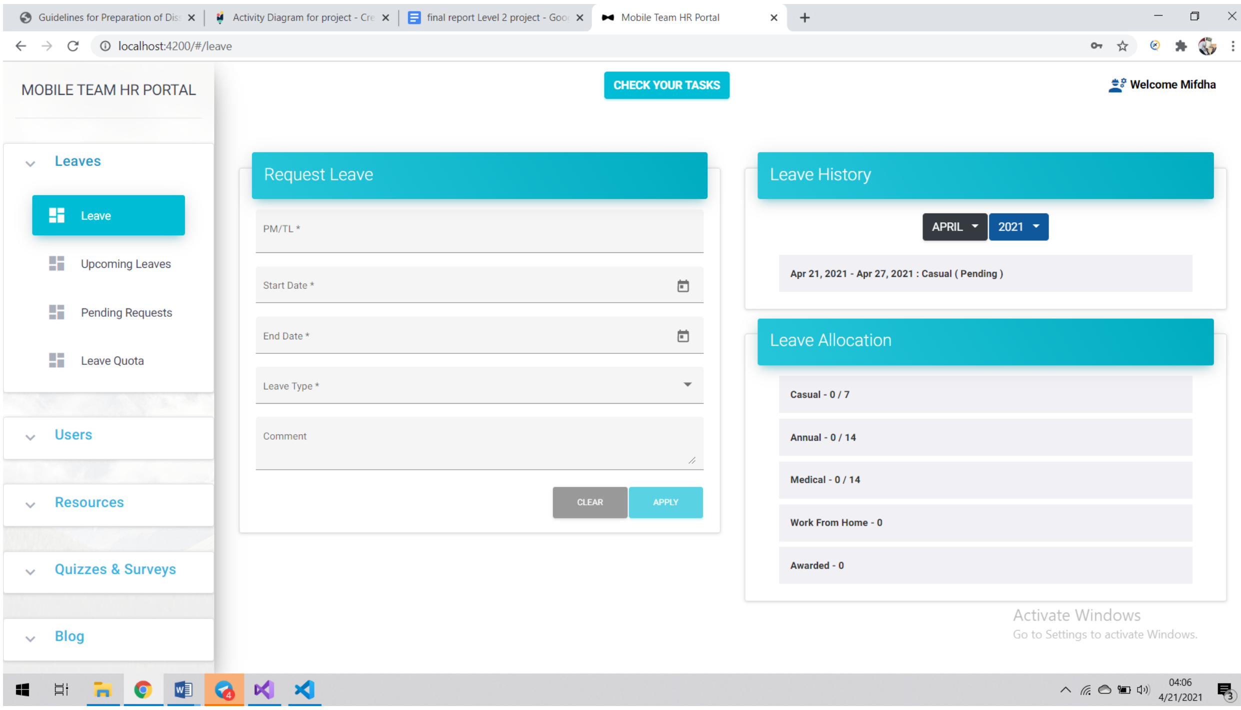


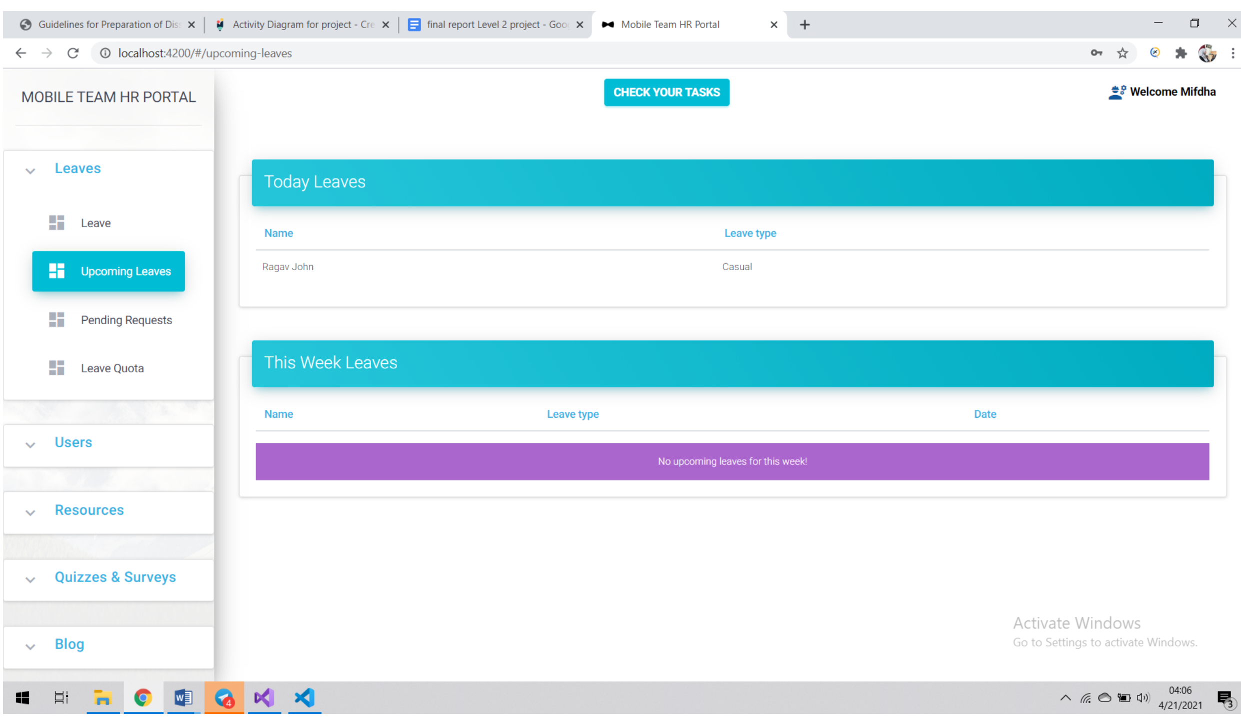


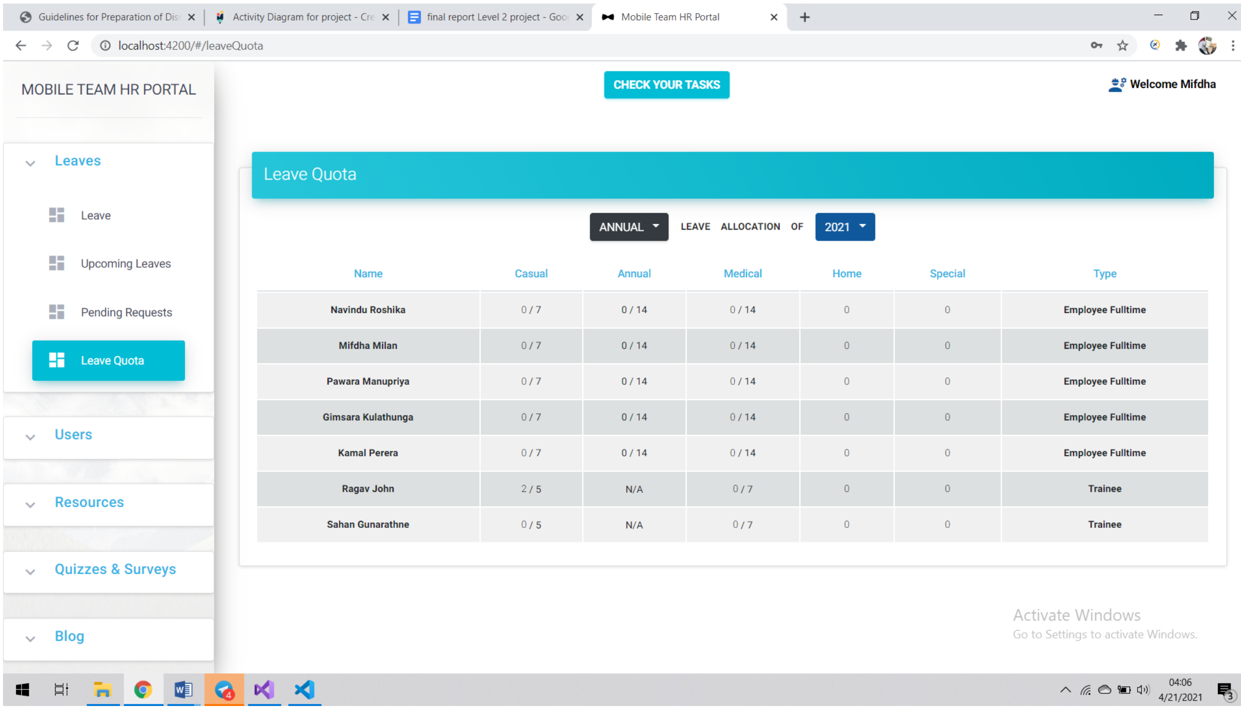

Guidelines for Preparation of Dis
Activity Diagram for project - Cre
final report Level 2 project - Goo
Mobile Team HR Portal
localhost:4200/#/list
MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Mifdha
Leaves
Users
Create User
User List
Resources
Quizzes & Surveys
Blog
Finance
User List
First Name
Last Name
Job Title
Email Address
Phone Number
User Roles
Navindu Roshika Project Manager navinduroshika@gmail.com N/A Admin
Mifdha Milan Project Manager mifmilan@gmail.com N/A Admin PM
Pawara Manupriya Project Manager manupriya.18@itfac.mrt.ac.lk N/A Admin
Gimsara Kulathunga Project Manager gimsarakulathunga2@gmail.com N/A PM
Kamal Perera Project Manager keerthiupto@gmail.com N/A Admin PM
Ragav John Intern mhdrazan7@gmail.com 711773117 Trainee
Sahan Gunarathne Intern dasunmcg97@gmail.com N/A Trainee
Activate Windows
Go to Settings to activate Windows.
04:06
4/21/2021

2. Leave management module:

Figures C.2 -UI-leave management

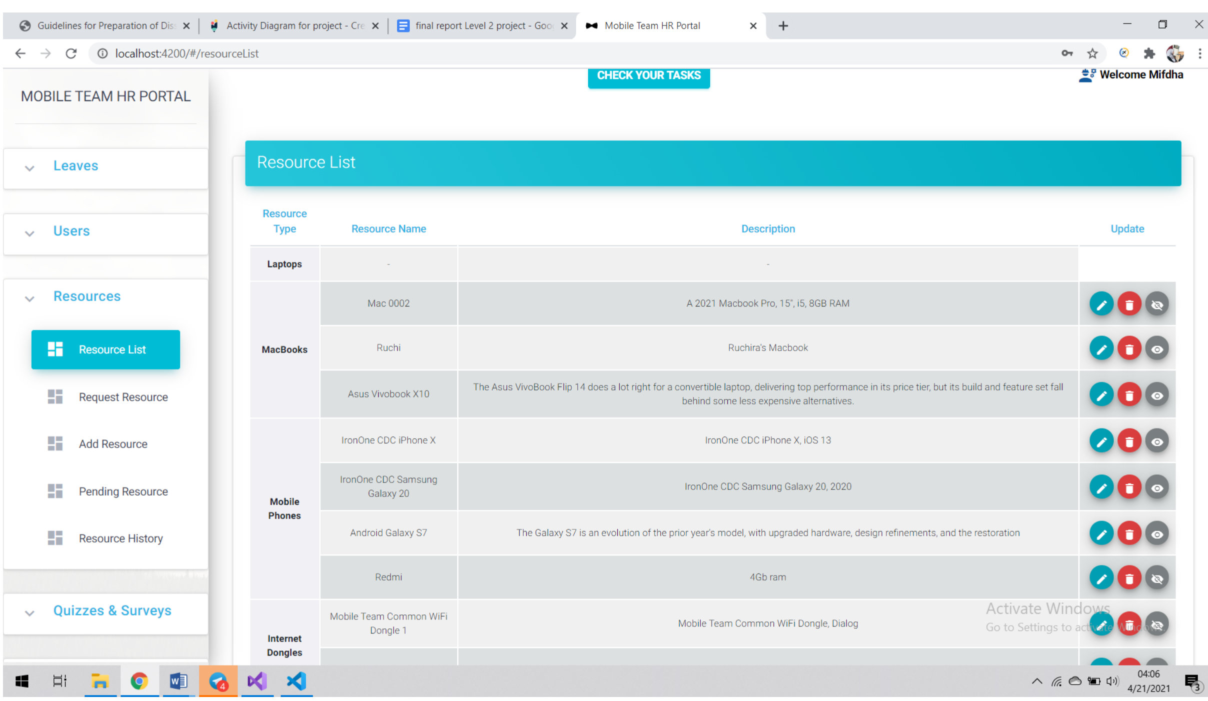


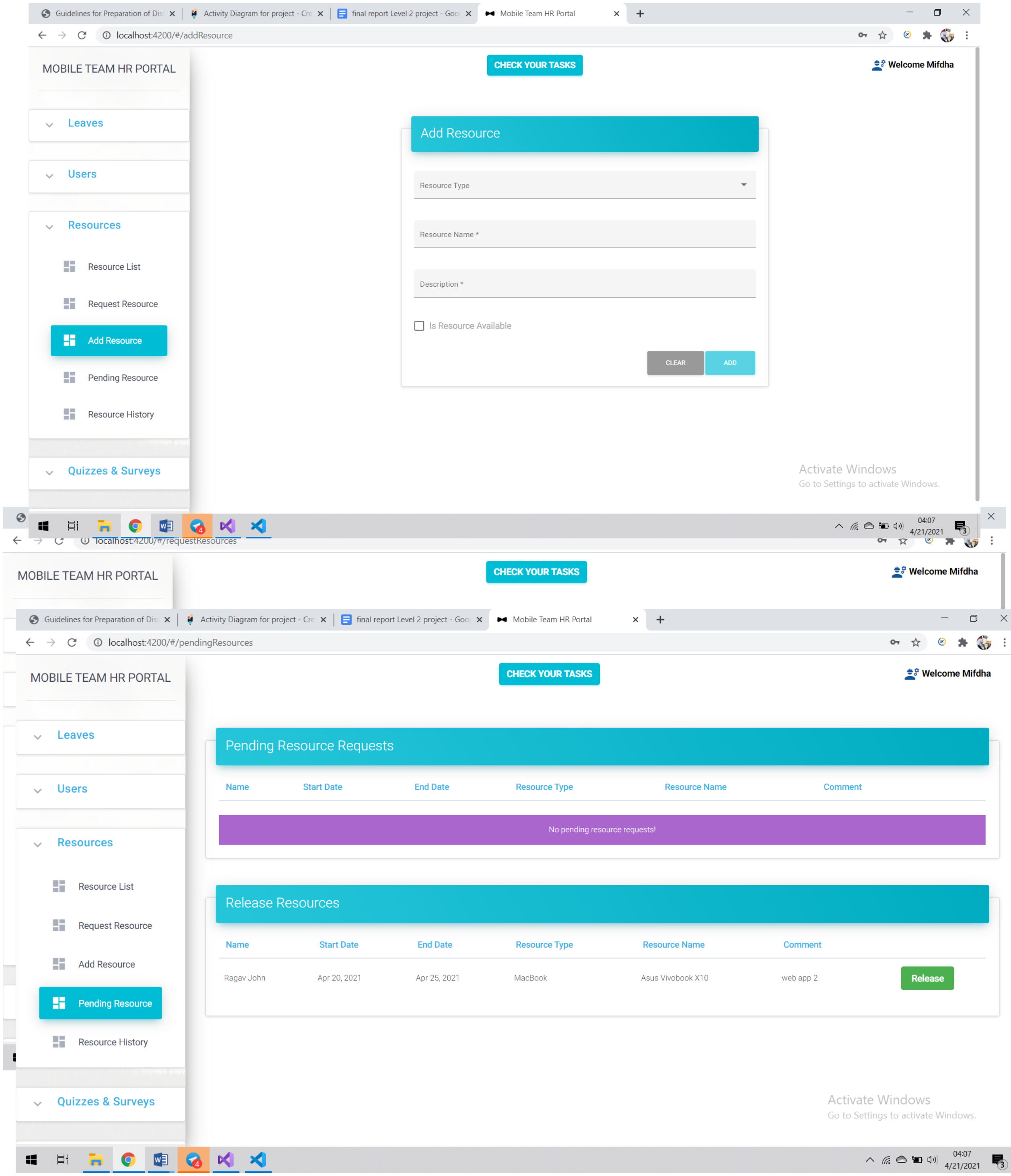


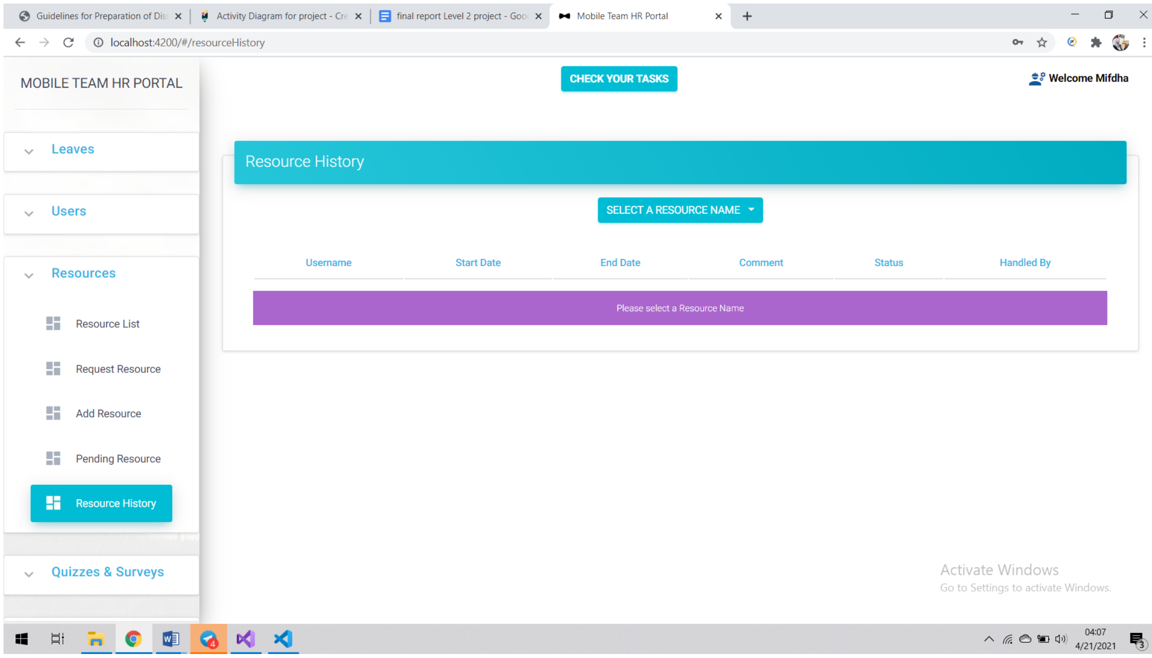


3.Resource Booking module:

Figures C.3 -UI-resource booking

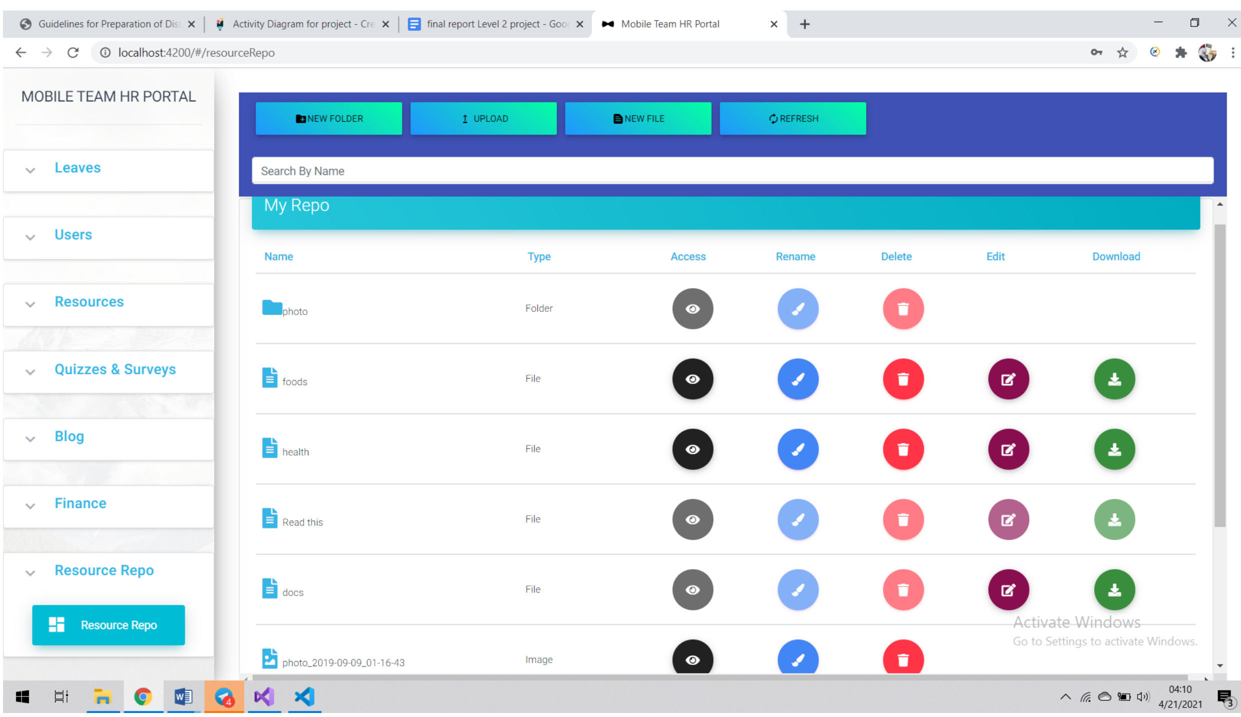



MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Mifdha
Leaves
Users
Resources
Resource List
Request Resource
Add Resource
Pending Resource
Resource History
Quizzes & Surveys
Add Resource
Resource Type
Resource Name *
Description *
Is Resource Available
CLEAR
ADD
Pending Resource Requests
Name
Start Date
End Date
Resource Type
Resource Name
Comment
No pending resource requests!
Release Resources
Ragav John
Apr 20, 2021
Apr 25, 2021
MacBook
Asus Vivobook X10
web app 2
Release
Activate Windows
Go to Settings to activate Windows.



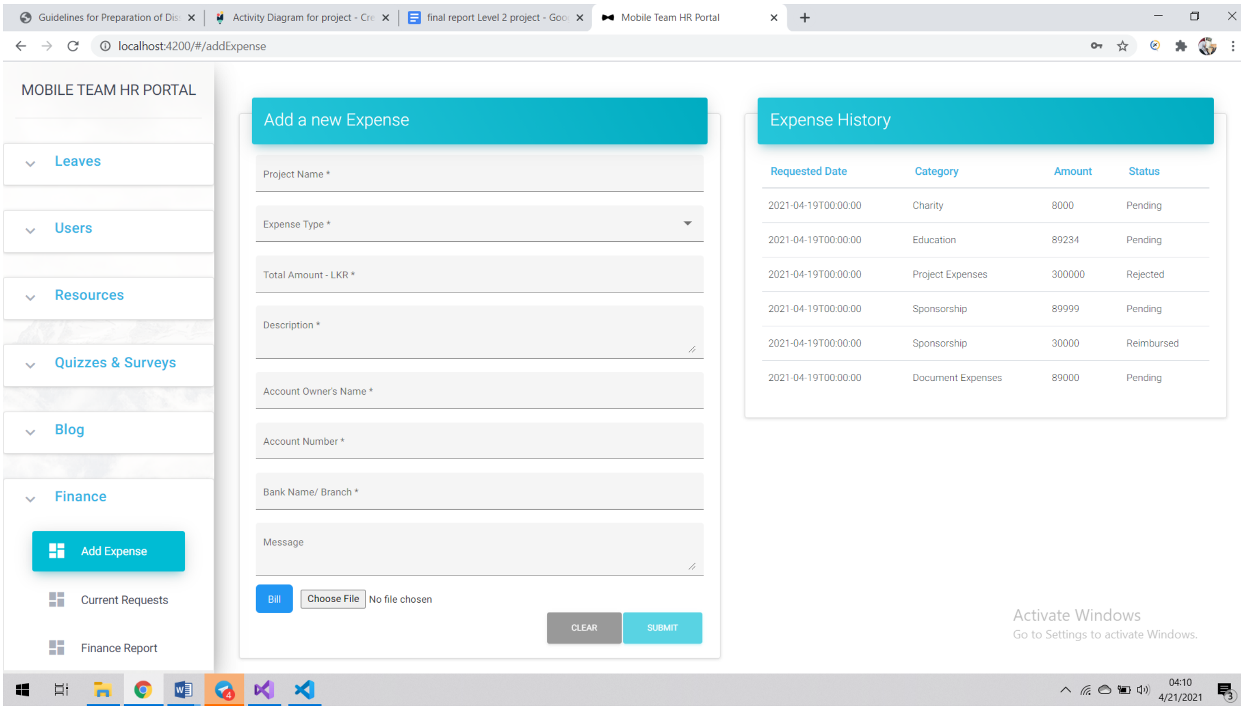
4.Resource Repository module:

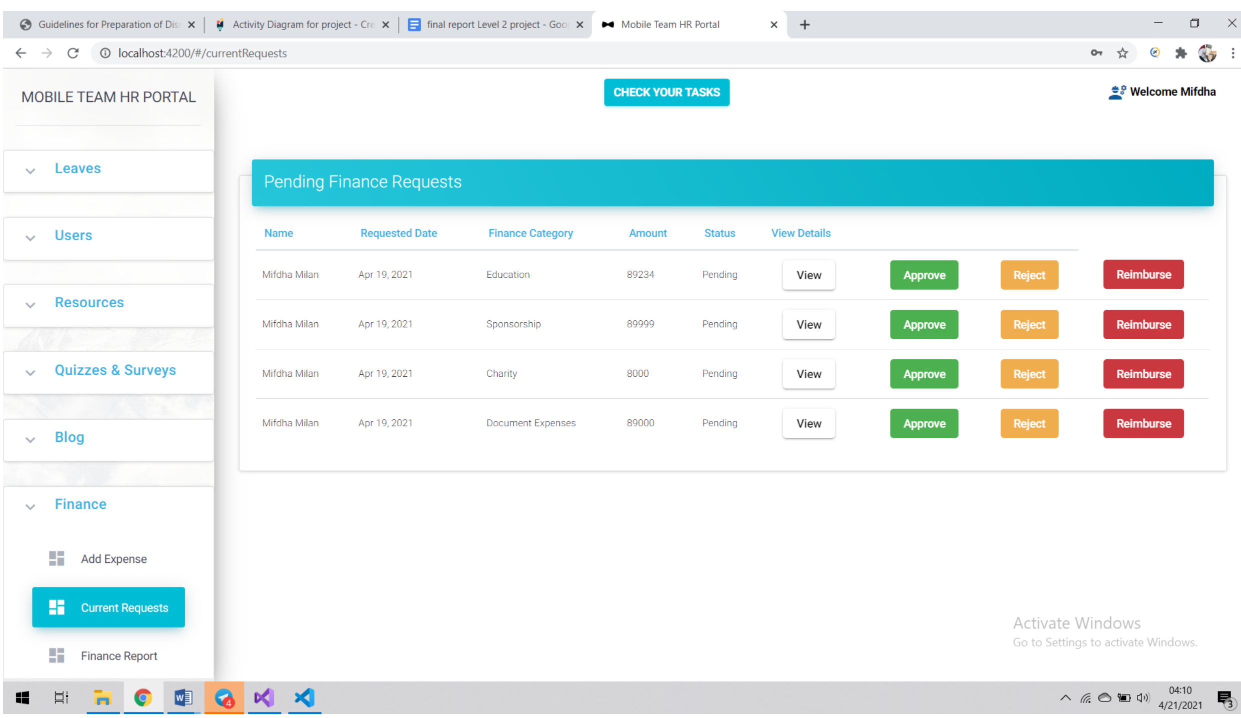
Figures C.4 -UI-resource repository

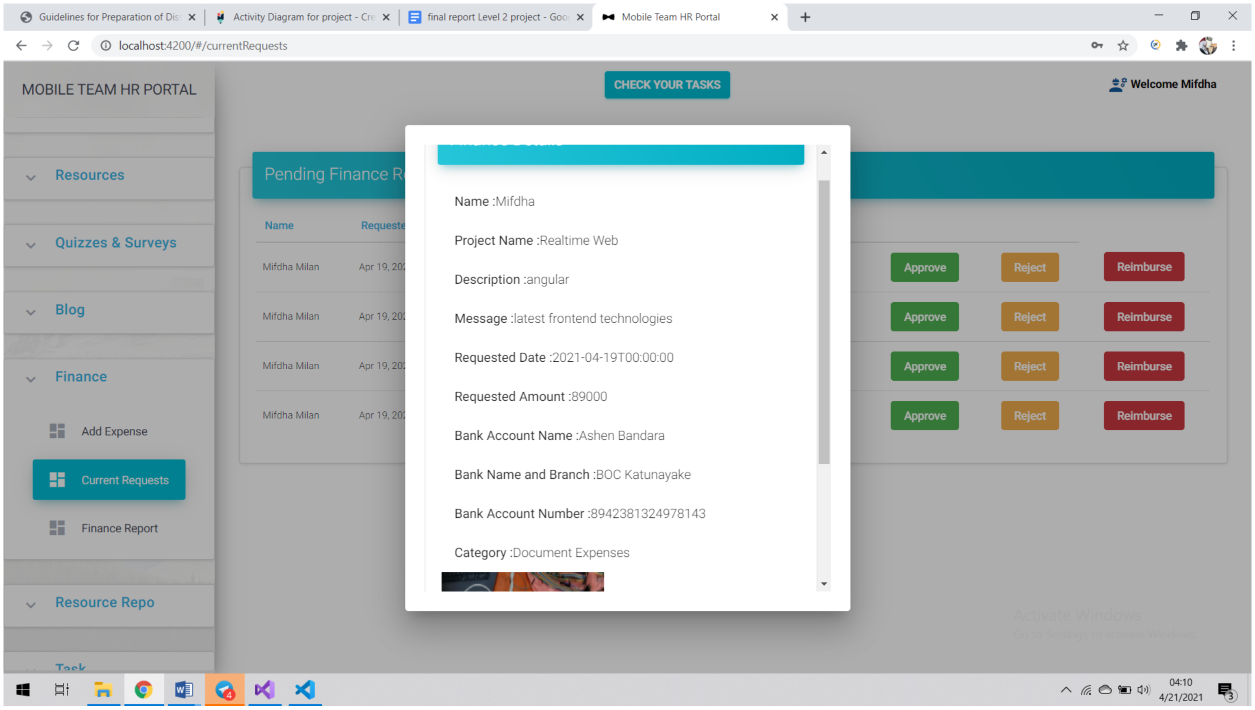


5. Finance Management module:

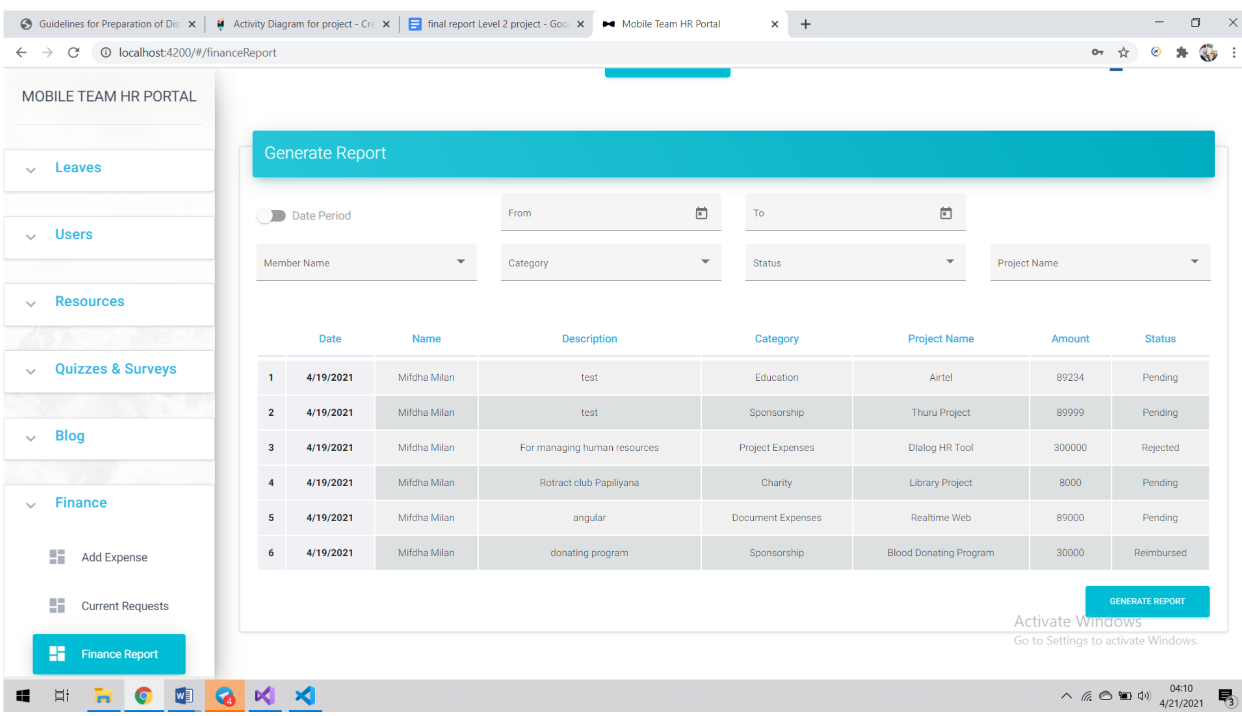
Figures C.5 -UI-finance management







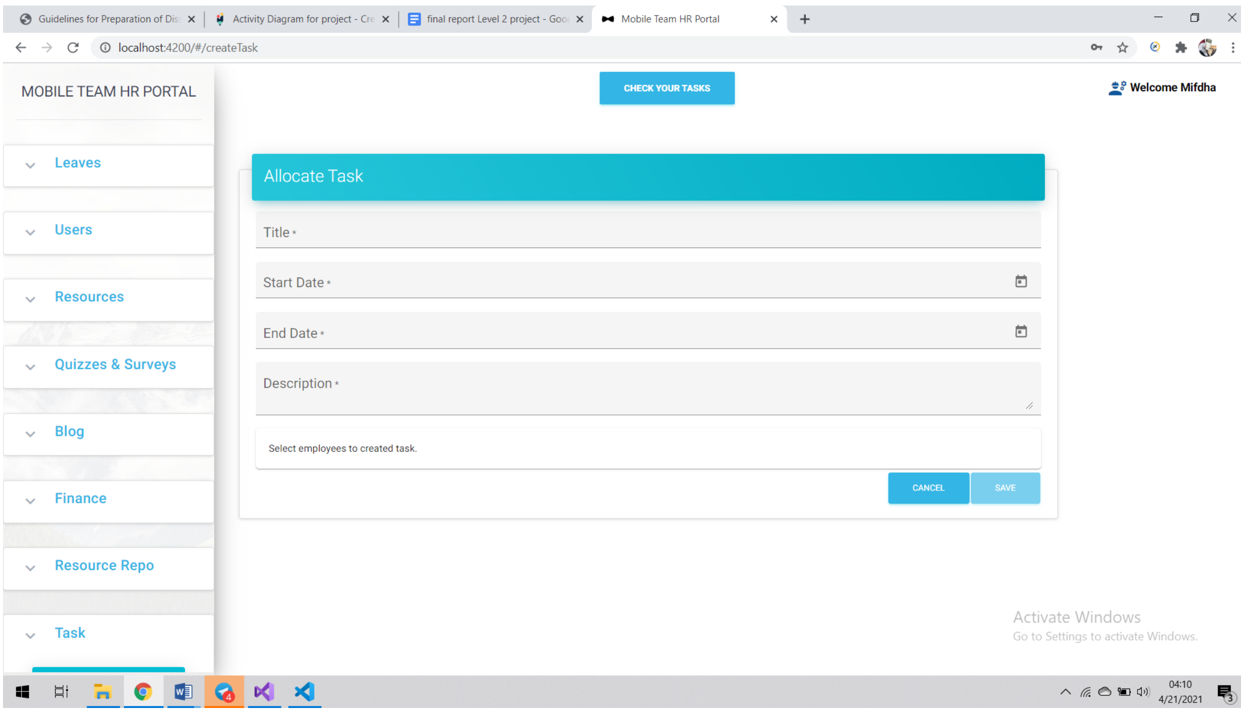
localhost:4200/#/currentRequests
MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Mifdha
Resources
Quizzes & Surveys
Blog
Finance
Add Expense
Current Requests
Finance Report
Resource Repo
Name :Mifdha
Project Name :Realtime Web
Description :angular
Message :latest frontend technologies
Requested Date :2021-04-19T00:00:00
Requested Amount :89000
Bank Account Name :Ashen Bandara
Bank Name and Branch :BOC Katunayake
Bank Account Number :8942381324978143
Category :Document Expenses
Approve
Reject
Reimburse

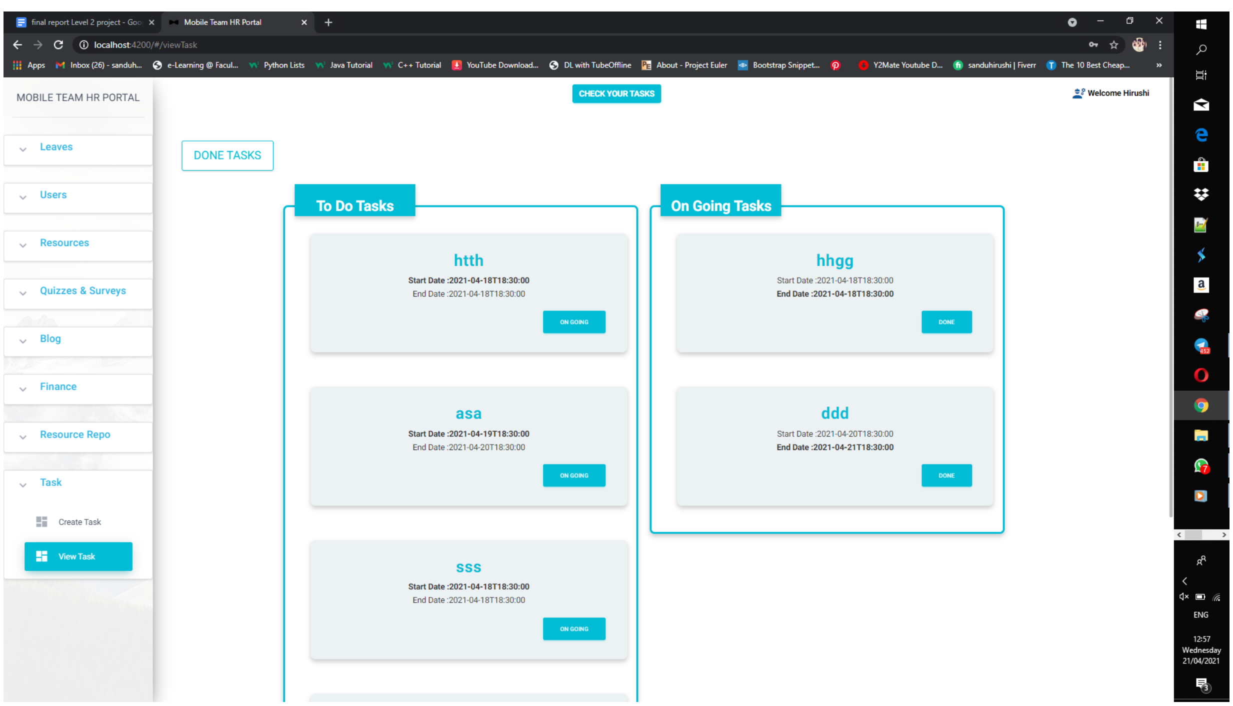


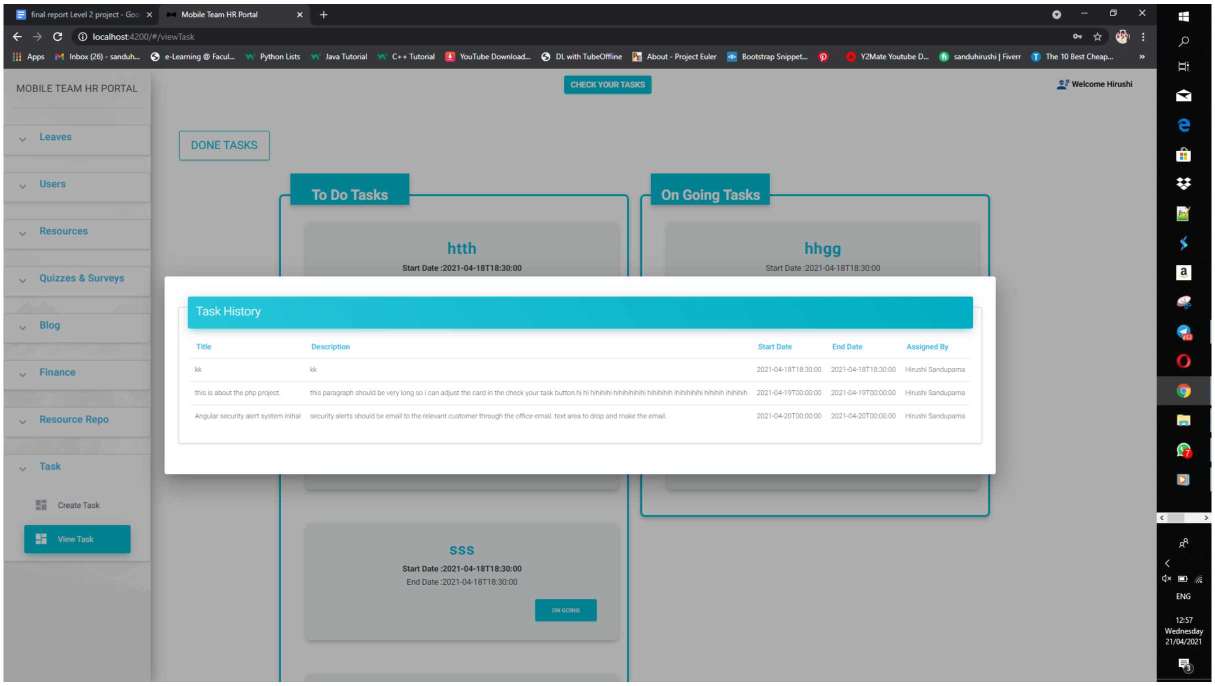
localhost:4200/#/financeReport
MOBILE TEAM HR PORTAL
Leaves
Users
Resources
Quizzes & Surveys
Blog
Finance
Add Expense
Current Requests
Finance Report
Generate Report
Date Period
From
To
Member Name
Category
Status
Project Name
Date Name Description Category Project Name Amount Status
1 4/19/2021 Mifdha Milan test Education Airtel 89234 Pending
2 4/19/2021 Mifdha Milan test Sponsorship Thuru Project 89999 Pending
3 4/19/2021 Mifdha Milan For managing human resources Project Expenses Dialog HR Tool 300000 Rejected
4 4/19/2021 Mifdha Milan Rotract club Papiliyana Charity Library Project 8000 Pending
5 4/19/2021 Mifdha Milan angular Document Expenses Realtime Web 89000 Pending
6 4/19/2021 Mifdha Milan donating program Sponsorship Blood Donating Program 30000 Reimbursed
GENERATE REPORT

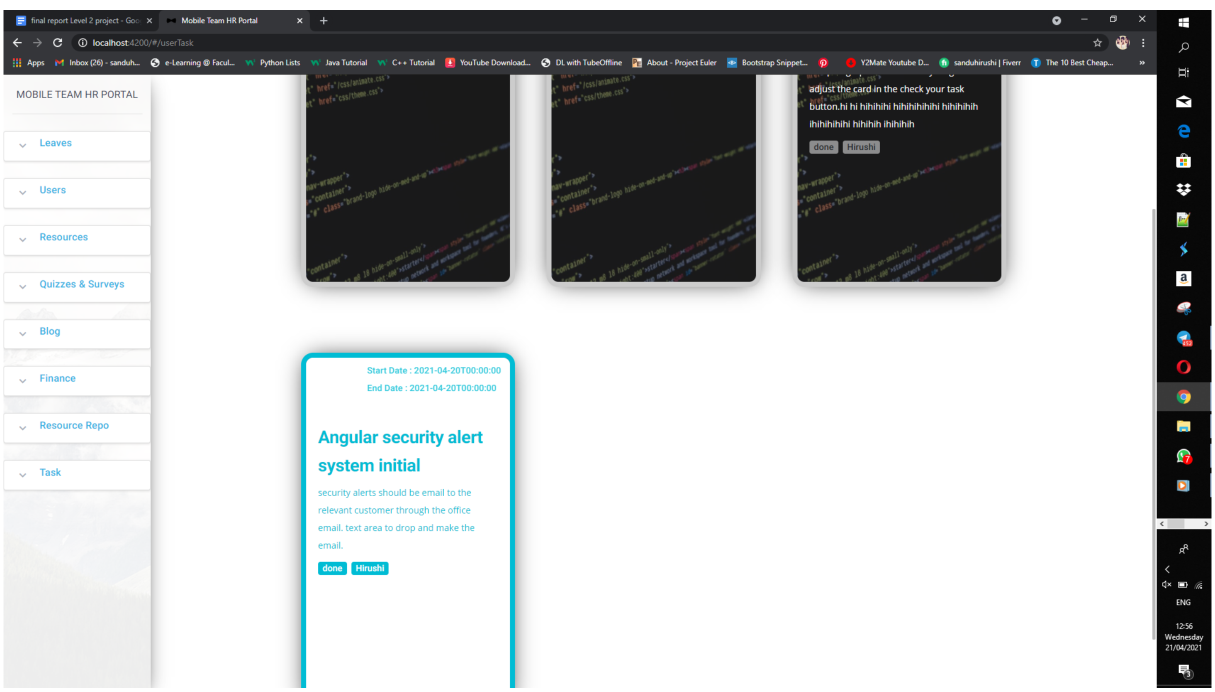
6.Task Management module:

Figures C.6 -UI-task management





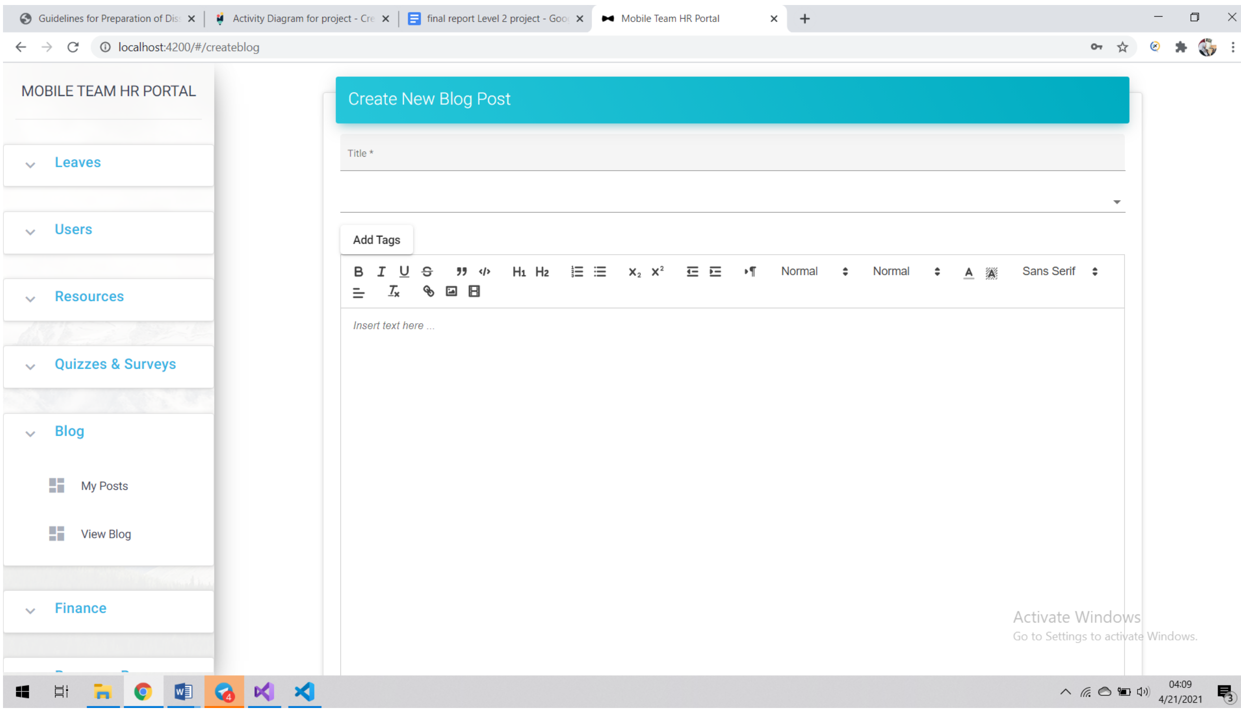

MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Hirushi
DONE TASKS
To Do Tasks
On Going Tasks
htth
hhgg
Task History
Title
Description
Start Date
End Date
Assigned By
sss
Leaves
Users
Resources
Quizzes & Surveys
Blog
Finance
Resource Repo
Task
Create Task
View Task

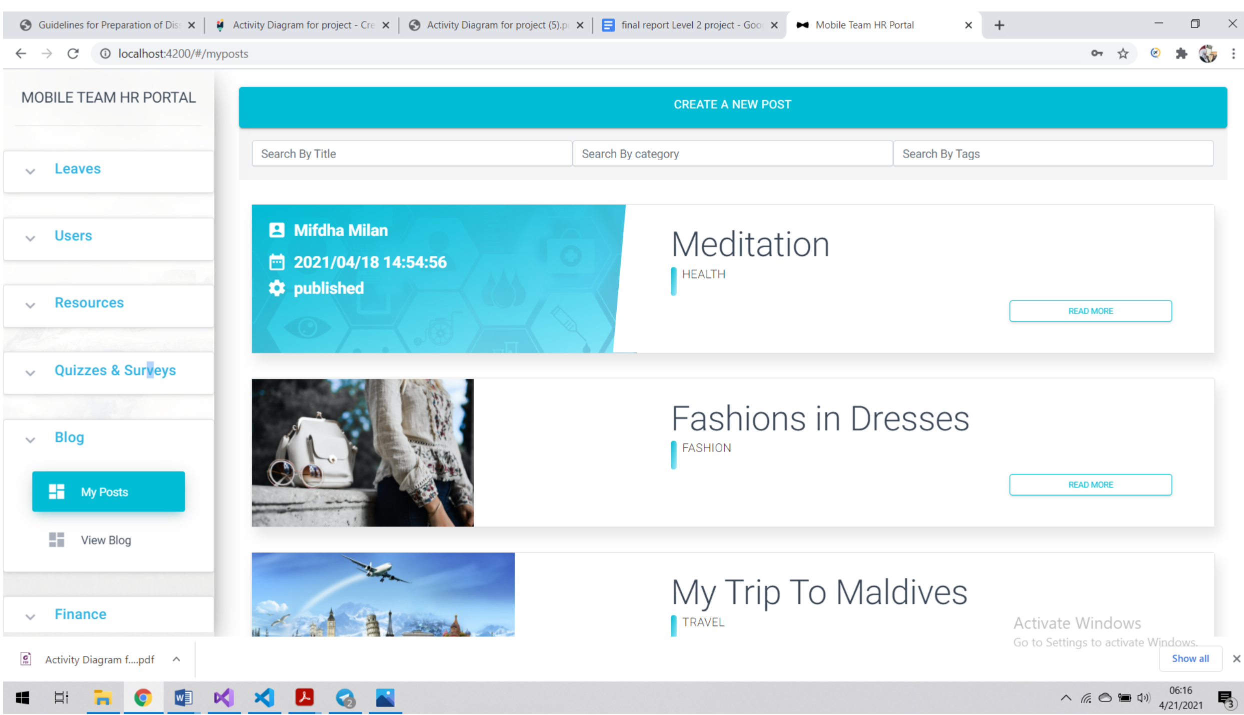

MOBILE TEAM HR PORTAL
Leaves
Users
Resources
Quizzes & Surveys
Blog
Finance
Resource Repo
Task
Start Date : 2021-04-20T00:00:00
End Date : 2021-04-20T00:00:00
Angular security alert system initial
security alerts should be email to the relevant customer through the office email. text area to drop and make the email.
done
Hirushi

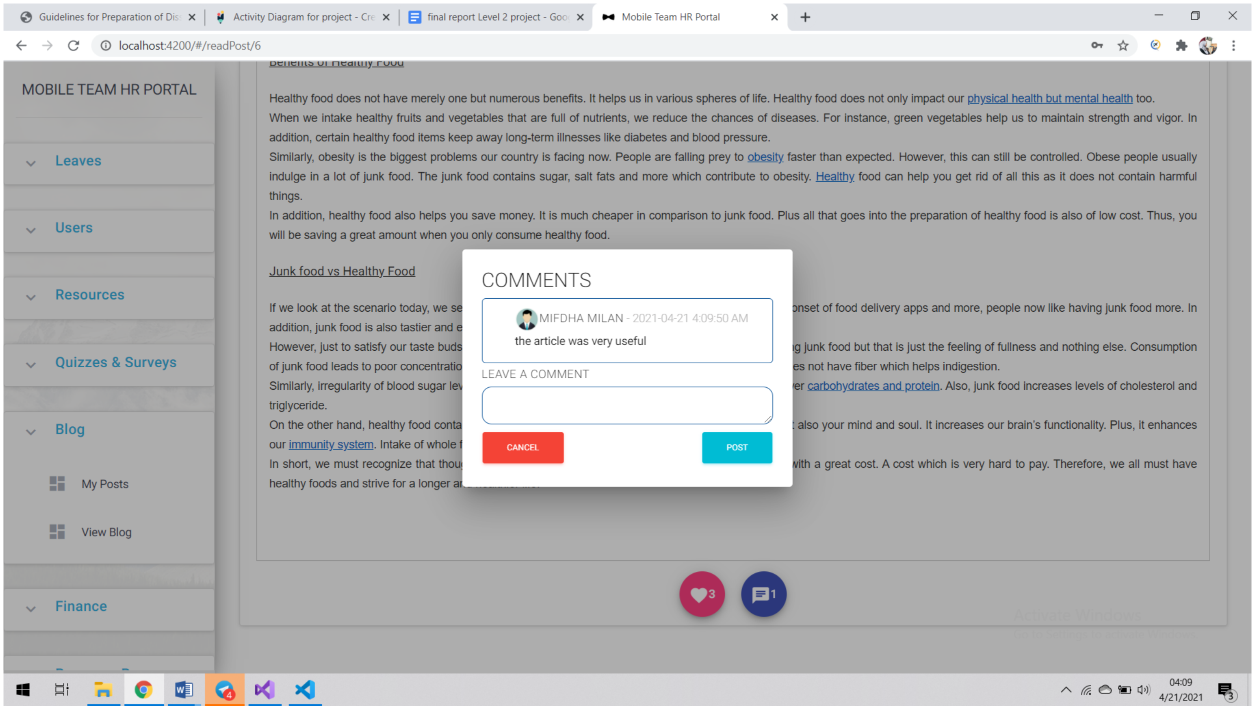
•

7.Blog module:

Figures C.7 -UI-blog

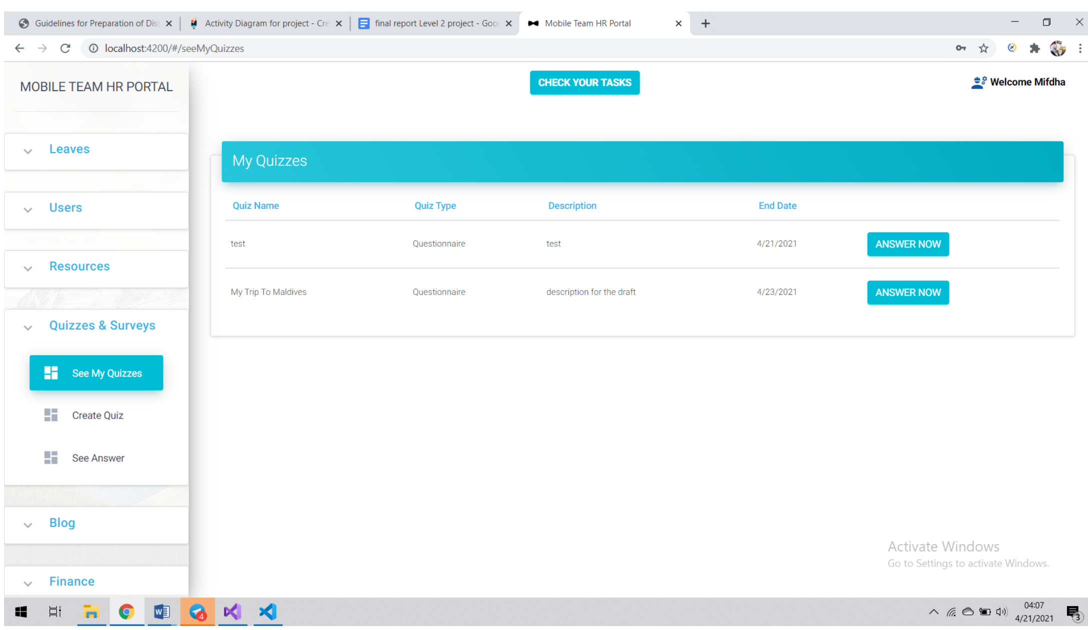


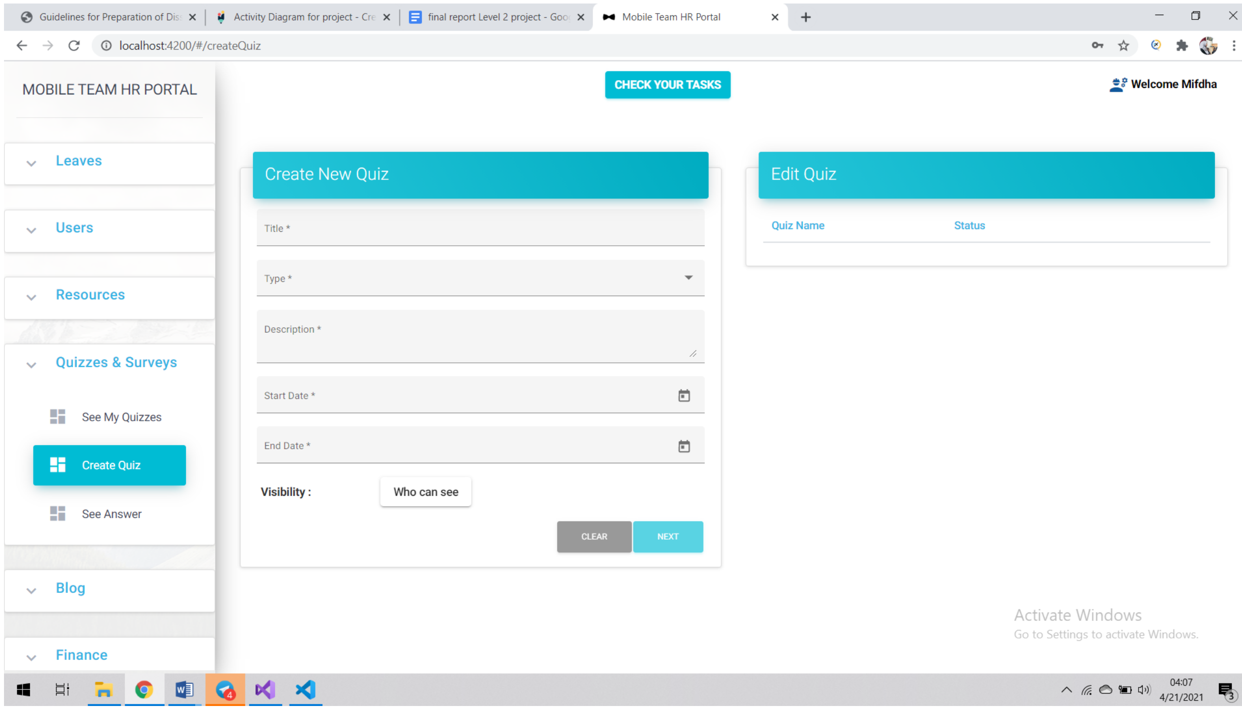


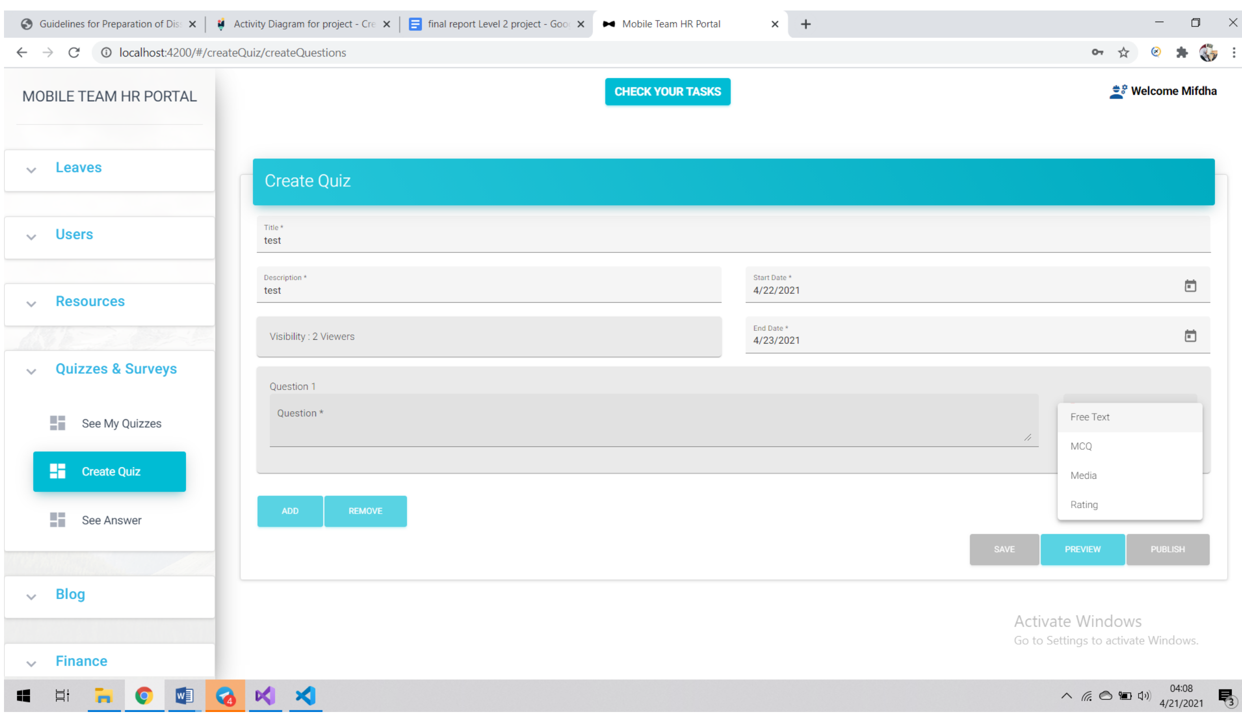


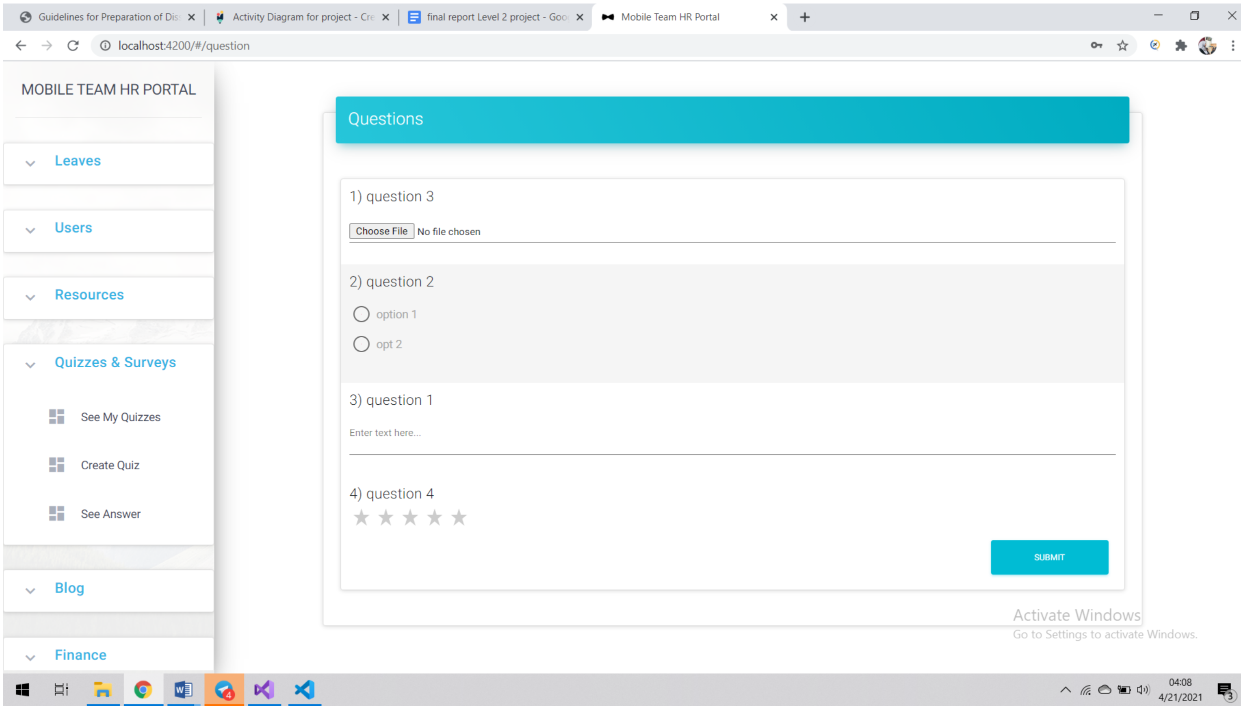
8.Quizzes and Survey:

Figures C.8 -UI-quizzes and survey




MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Mifdha
Leaves
Users
Resources
Quizzes & Surveys
See My Quizzes
Create Quiz
See Answer
Blog
Finance
Create New Quiz
Title *
Type *
Description *
Start Date *
End Date *
Visibility :
Who can see
CLEAR
NEXT
Edit Quiz
Quiz Name
Status
localhost:4200/#/createQuiz


MOBILE TEAM HR PORTAL
CHECK YOUR TASKS
Welcome Mifdha
Leaves
Users
Resources
Quizzes & Surveys
See My Quizzes
Create Quiz
See Answer
Blog
Finance
Create Quiz
Title *
test
Description *
test
Start Date *
4/22/2021
Visibility : 2 Viewers
End Date *
4/23/2021
Question 1
Question *
Free Text
MCQ
Media
Rating
ADD
REMOVE
SAVE
PREVIEW
PUBLISH
localhost:4200/#/createQuiz/createQuestions


Guidelines for Preparation of Dis
Activity Diagram for project - Cre
final report Level 2 project - Goo
Mobile Team HR Portal
localhost:4200/#/question
MOBILE TEAM HR PORTAL
Leaves
Users
Resources
Quizzes & Surveys
See My Quizzes
Create Quiz
See Answer
Blog
Finance
Questions
1) question 3
Choose File
No file chosen
2) question 2
option 1
opt 2
3) question 1
Enter text here...
4) question 4
SUBMIT
Activate Windows
Go to Settings to activate Windows.
04:08
4/21/2021