Faculty Management System

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Abstract

The Faculty Management System is a Microservice on the E-Governance Platform of the Computer Science and Engineering Department of PSG College of Technology. It is a system used to maintain all data of faculty members in the department. It also has the provision to assign, maintain and manage tasks to the faculty by the Head of Department (HOD) and Program Coordinators (PC). It Provides real time notifications regarding tasks and other intimations from the department. A profile page is provided where the faculty can update his/her details. All faculty members' information will be available to the registered users through the portal on request. Faculty can maintain notes for anything as and when required.

The tasks assigned have associated priority levels and provision to upload files and attach links to external sites. Notifications can be created by the user or can also be auto-generated by the system in certain situations like when a new task is assigned.

The aim of this system is to track and maintain faculty details, tasks and notifications within the Computer Science department.

System Requirements

Hardware Requirements

Processor : 1 core @ 1.2 GHz (minimum),

2 cores @ 1.4 GHz (recommended)

RAM : 2 GB (minimum),
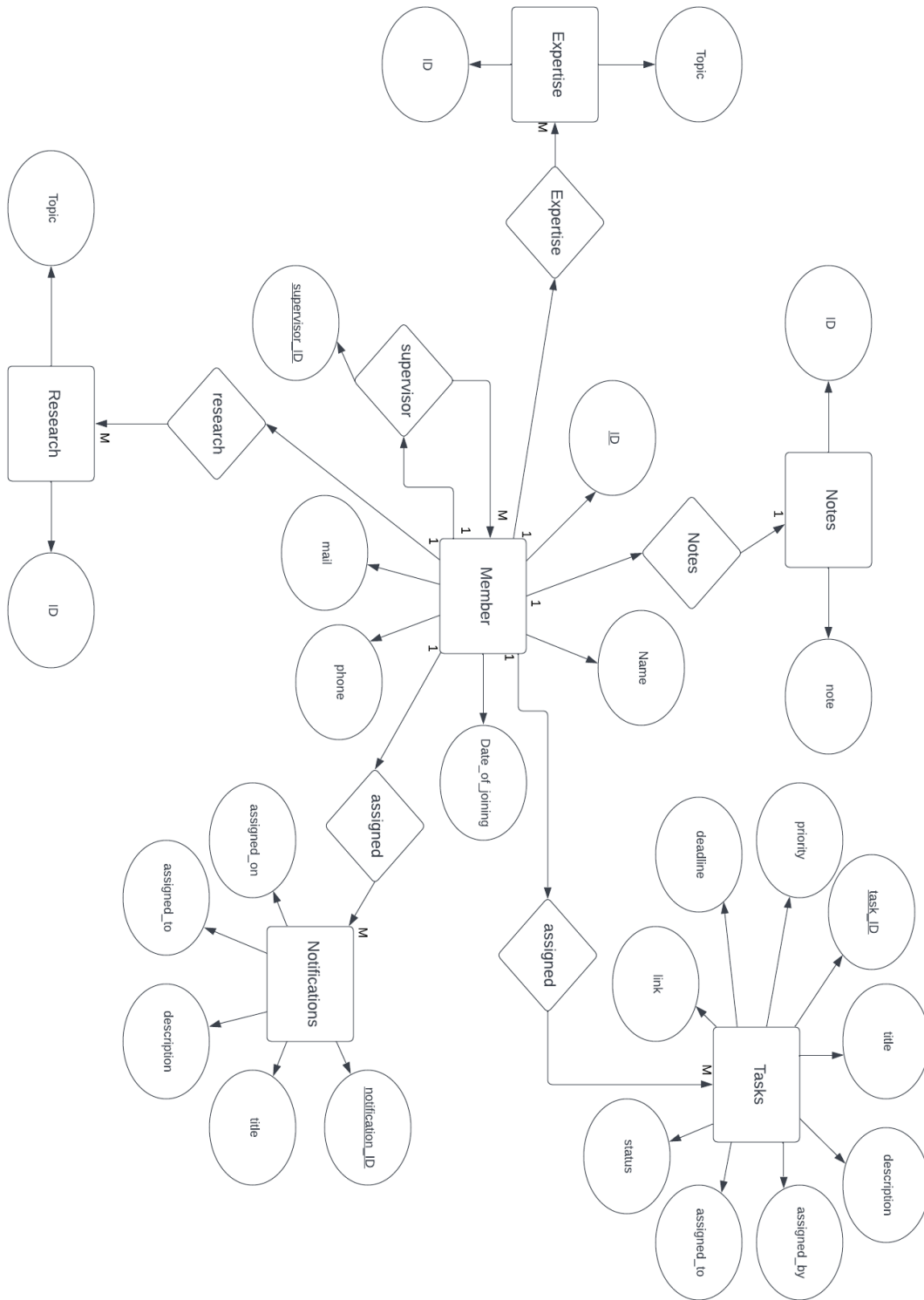
4 GB (recommended)

Internet Connectivity : 2 Mbps

Software Requirements

Operating Systems : Windows 7 and newer, MacOS 10.11 and newer, Linux 4.0 and newer

Browser : Any with internet connectivity

Entity Relationship Diagram

Normalization

The Attached ER diagram is normalized.

However denormalization can be applied to it to improve accessibility of certain data members. The Expertise and Research entities can include Names as this can make report generation easier. Similarly in notification and Tasks, Name can be added to make it easier to understand and access the data.
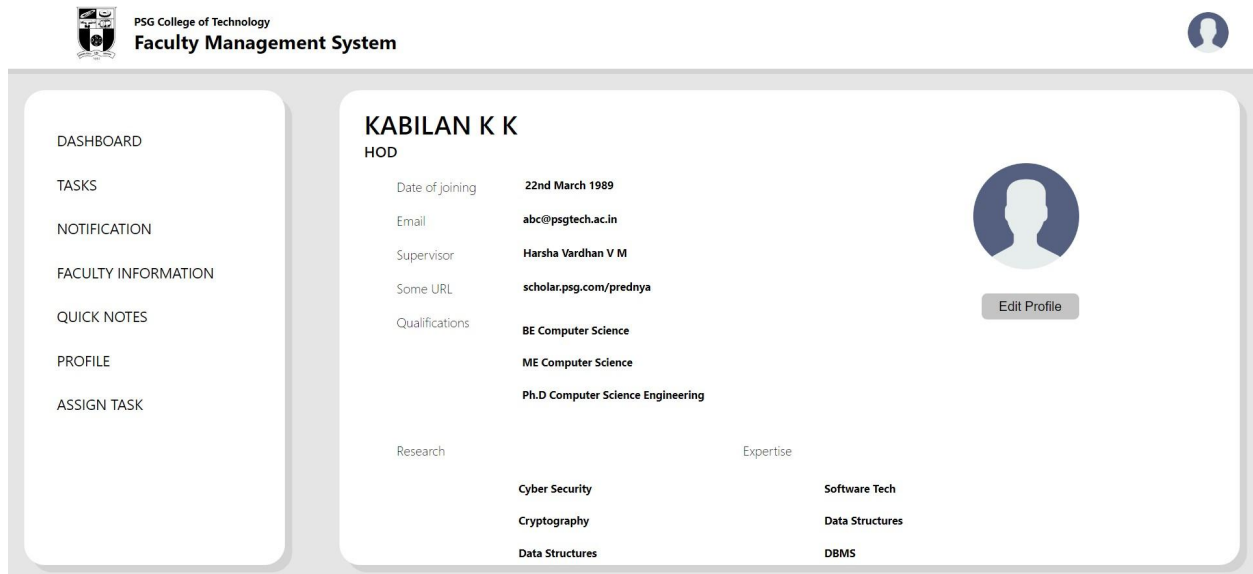
Modules

Dashboard
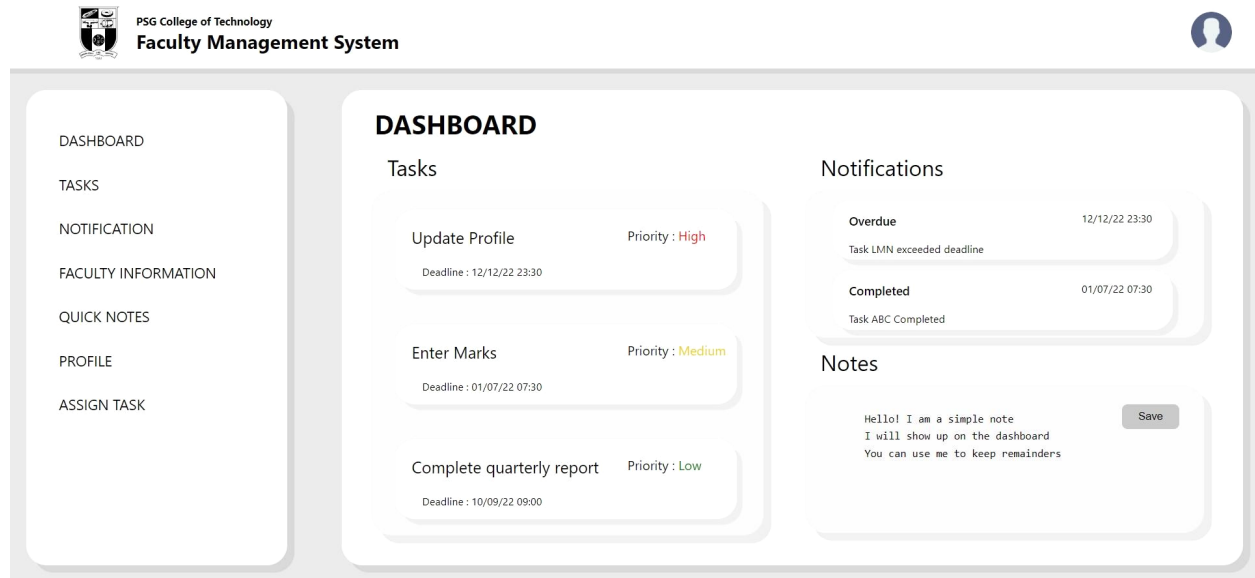
The Dashboard is the first page the user accesses after logging into the website. It has information about the latest 3 tasks, latest 2 notifications and the first 5 lines of the notes. All these widgets are loading information dynamically from the database. Clicking on any of them will take the user to the respective page. The notes can be edited directly from the dashboard. The side navigation bar is common to all the web pages.

Profile

The profile page has the user's basic information. It also has the information about research interests, expertise and contact details of the user. This information can be edited by the user at any time. Profile pictures can be updated by the user too.

Faculty Information
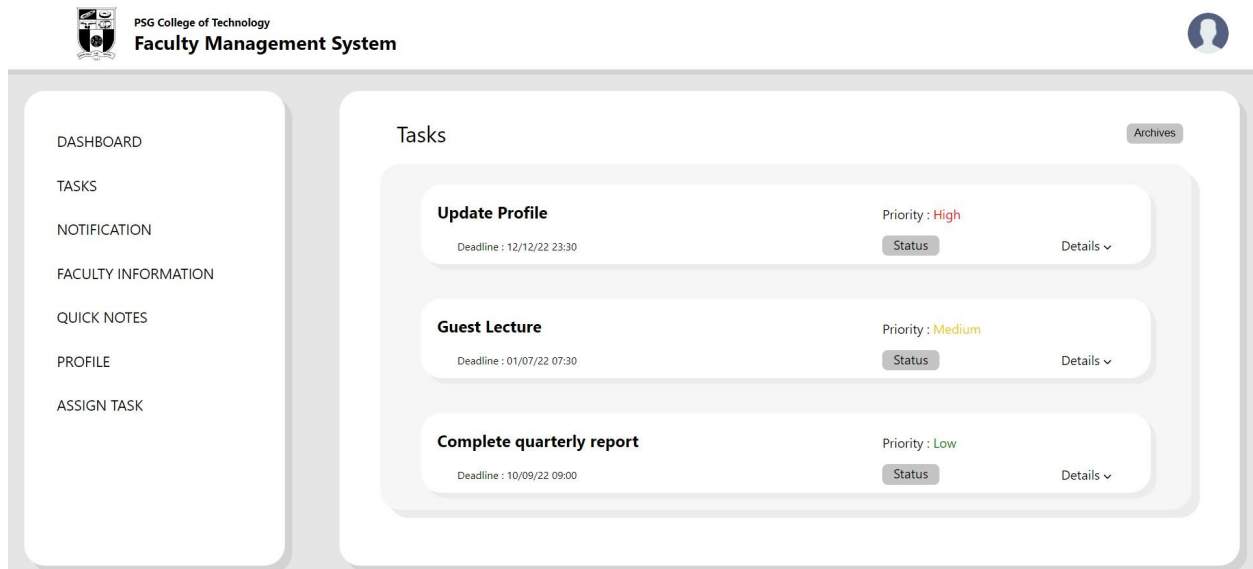
Faculty information page is used to search for a specific faculty. This can be done on the basis of name, designation, research and field of interest. The result set is the name and designation of the faculty for the search string. Their profile can be viewed by clicking on the card.

Tasks

PSG College of Technology
Faculty Management System

DASHBOARD

TASKS

NOTIFICATION

FACULTY INFORMATION

QUICK NOTES

PROFILE

ASSIGN TASK

Task

Update Profile   Priority: High

From : Harsha Vardhan V M

Description : Document the mark aggregate for the previous semester and attach digital copy of the same.

Status :   Consolidation completed

File :   Report.pdf
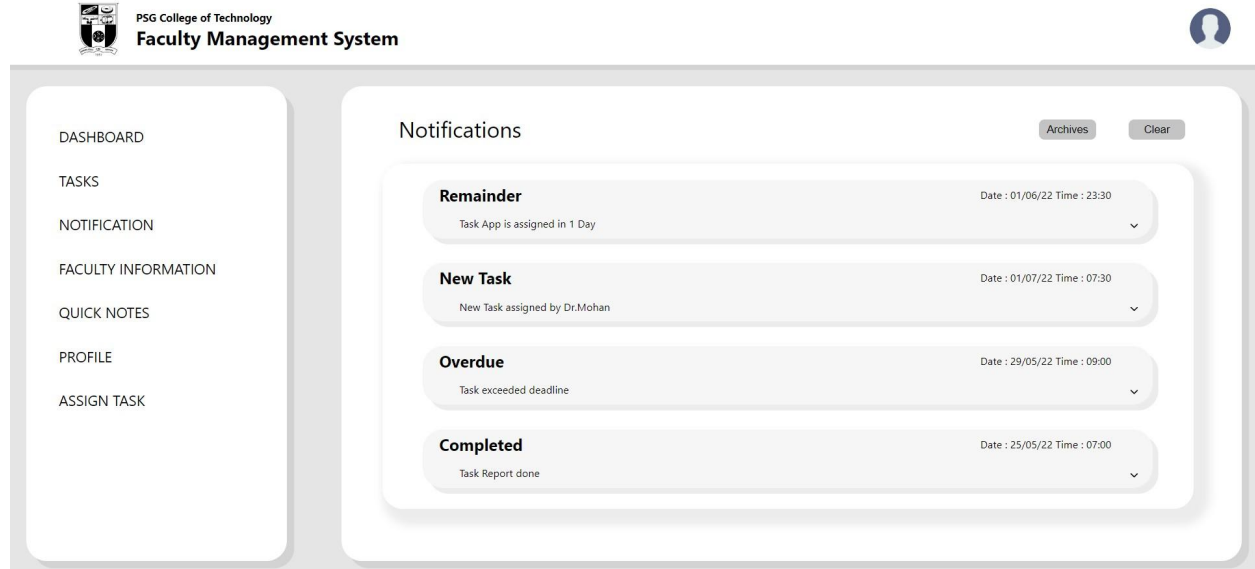
Link :

[Update]   [Complete]

Tasks Page is where the user can see all the tasks assigned to them. The main tasks page has a summary view of the most recent tasks. The title, deadline and priority will be displayed. By clicking on the details button, the expanded view of the tasks will be displayed. The expanded view will have all the information like who has assigned the task, description, current status, priority, file(s) attached and link(s) included. When a task is completed, it will be transferred to the archives. It can be viewed at any time. Creation of a new task will create a notification to be sent to that particular user.

Notifications

Notifications page will have the list of notifications assigned to the user. They will be ordered as latest notification first. Notifications can be user created or system-generated. Users (PCs and HOD) can create notifications to be sent to other users (faculty). The system can generate notifications when a new task has been assigned, a task is due soon, a task is overdue or completed and profile update status.

Quick Notes

Quick notes page is a text pad where the user can store any text data as required. This can be used as a scribble pad to make note of anything anytime. This will be visible on the dashboard too and is editable both on this page and on the dashboard. One user will have only one note. Pressing save will save the note in the database.

Testing

Unit Testing

During the developmental phase each functionality or task developed was tested with all the boundary cases. In all the pages, the data entered by the users are properly validated for its type and the type of value it can have. Unit testing of the functionalities are done by generating dummy data in the database.

Integration Testing

All the developed modules are integrated to realize a functionality and it is tested for its appropriateness. This testing helped to make the modules to be more cohesive with that of supporting modules to implement the required functionality.

Incremental-Integration Testing

Incremental-Integration testing was done repeatedly whenever a new feature is added. Every time a new button or functionality was added to a web page, all the other functionality of that page was tested to ensure the new addition had not affected the consistency of the previously working module because of the dependency. Whenever it got affected all the bugs were fixed and then the next task was implemented.

Functional Testing

This test was done several times to check the functionality irrespective of the architecture of the software inside. This testing helped to implement the functionality faster. Once the required task was implemented, then we organized the code such that the software gets to a better architecture. Initially the functionalities were implemented by having a number of communications with the database, but once the tasks were successfully implemented, steps were taken to reduce the communication with the database and thereby improving the performance of the website.

System Testing

Every time a stable product developed was tested for the entire functionality as per the requirements.

Acceptance Testing

Acceptance testing was done to verify whether the software met all the requirements as stated by the college officials.

Usability Testing

The system usability was checked by allowing the naive user to use the system at different levels of development and thereby got feedback from them to improve the usability. Compiling all such feedback the system was implemented with more usability and also with a user-helper video.

Test Cases

Test Case	Test Case Description	Steps	Test Data	Steps to Perform	Expected Result	Actual Result
1	Check assigned task and update status	1	domain-name /home	Launch website	Website opens	Website opens
		2		click on the tasks button	redirects to domain-name /tasks and displays list of latest tasks	redirects to domain-name /tasks and displays list of latest tasks
		3	task 1	Click on task 1	Redirects to domain-name /tasks/expan ded and displays detailed informtaion on the tasks	Redirects to domain-name /tasks/expan ded and displays detailed informtaion on the tasks

2	Search for HOD details in the Faculty information page	1	domain-name /facultyInform ation	Open faculty information page	Faculty information page opens	Faculty information page opens
		2	Search string : HOD	Enter Search string in the search box	The search string is used to identify all	The search string is used to identify all

					possible results. Display the results in order of relevance	possible results. Display the results in order of relevance
		3		Click on the HOD's Card	HOD's Profile is loaded with all necessary details from the Database	HOD's Profile is loaded with all necessary details from the Database

3	HOD Assign Task to faculty	1	domain-name /assignTask	Open assign task page	Assign task page opens	Assign task page opens
		2	Title : Update profile, description : Update profile photo to latest one, assigned_to : John Doe, priority : Low, deadline : 22-jun-2022	Enter Details of the task and press assign	New task assigned to faculty and updated in database	New task assigned to faculty and updated in database

4	Update notes	1	domain-name /quickNotes	Open the Quick notes page	Quick notes page opens and loads the latest saved note	Quick notes page opens and loads the latest saved note
		2	make changes/additions to the note	type in the changes	Notes has been changed in the website	Notes has been changed in the website
		3		Press save button	The changes are saved in the database	The changes are saved in the database