

Final Submission Report

for

Java DB Application - Project Management System

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Table of Contents

[Introduction](#)

[Product Overview](#)

[Purpose](#)

[Future Scope](#)

[Overall Description](#)

[Product Perspective](#)

[Product Functions](#)

[User Characteristics](#)

[Database Design Specifications](#)

[Entities in Database](#)

[Relations in Database](#)

[ER MODEL](#)

[User Interface Design Specifications](#)

[List of Pages for User Interface](#)

[List of Pages for User Editing](#)

[Servlet Design Specification \(Package and Classes\)](#)

[DB Package](#)

[Connection Class](#)

[Project Package](#)

[Add Class](#)

[All Class](#)

[ApplyProject Class](#)

[ChangeRequirement Class](#)

[EditProject Class](#)

[SaveRemark Class](#)

[Search Class](#)

[TagAdd Class](#)

[Tags Class](#)

[View Class](#)

[User Package](#)

[Login Class](#)

[Logout Class](#)

[EditProfile Class](#)

[Profile Class](#)

[Signup Class](#)

[Other Design Details](#)

[Templating Using JSP](#)

[External API's for UI](#)

[ScreenShots of Project](#)
[THANKS](#)

See the Project live at : <http://db.prateekchandan.me>

I. Introduction

Product Overview

Project Management system is a web-based Java application where students, professors and alumni from a particular institute or different institutes can list up the current projects they are working on or have previously worked upon or planning to work

Purpose

To help users manage their projects better and make collaboration easier. To ease the functionality for people to float multiple projects or search projects matching to their interests and work on them

Future Scope

This project will be launched as a website under Students' Technical Activity Body , IIT Bombay to cater all types of projects. The ISPA projects which are floated can be floated via this platform. Also , at later stage the plan is to launch this across all IITs for a collaborative working

II. Overall Description

Product Perspective

The product is independent and totally self-contained, although it uses and external database connection

Product Functions

1. People can add the details and overview information about the project they've previously worked on or are currently working
2. Professors can create a list of all the possible projects that can be offered to students
3. Maintaining a user profile
4. Professor can keep track of the projects offered
5. Keeping track of team projects
6. Browse and search similar project and contact the person who has worked on something similar
7. Following a schedule and submitting reports to the mentor or professor

User Characteristics

There are 3 main types of users for this product

1. **Student:** student of an institution, add and apply for projects
2. **Professor:** professor of an institution, only add projects
3. **Alumnus:** Student becomes alumnus after graduating, view projects
4. **Others :** All others

III. Database Design Specifications

Entities in Database

The database consists of **3 main entities** :

- a. **USER** - userid as primary key - This table consists of Users with their personal details as name, email , roll no , phone no , password , phone no , Institute name and the type of users they are like student , professor , alumni , etc

Integrity constraints on the table :

userid is primary key because it uniquely identifies the user

check on usertype in ('student' , 'professor' , 'alumni' and 'others')

- b. **Projects** - project_id as primary key - This table contains details of all the projects which have been added to the database. It has attributes namely project_id , name of project , added_by (userid of user adding the project) , project status

Integrity constraints on the table :

project_id is primary key because it uniquely identifies the project

added_by is a foreign key referencing userid on user table

check on project status in ('completed' , 'in progress' , 'hold')

- c. **Tags** - tagname as primary key - This table has information regarding skills a user can have and also tags(skills) a project is concerned with.

Integrity constraints on the table :

There is only one constraint, i.e primary key as the tagname itself

Relations in Database

For these three entities, there are three relations defined on them as follows :

- a. **Skills** - This is a relation on user table and tags as it has a userid and a tagname defining what skills the user has.

The primary key on this table is (userid, tagname) as each instance of a skill can be uniquely identified by the tagname of the skill and the userid of the person having it.

- b. **Tagmap** - This will be a relation on users and projects. It also contains the number of users required for that project with that particular skill.

A primary key is (project_id, tagname) as a skill required for a project can uniquely be identified by the tagname of the skill and the project_id itself.

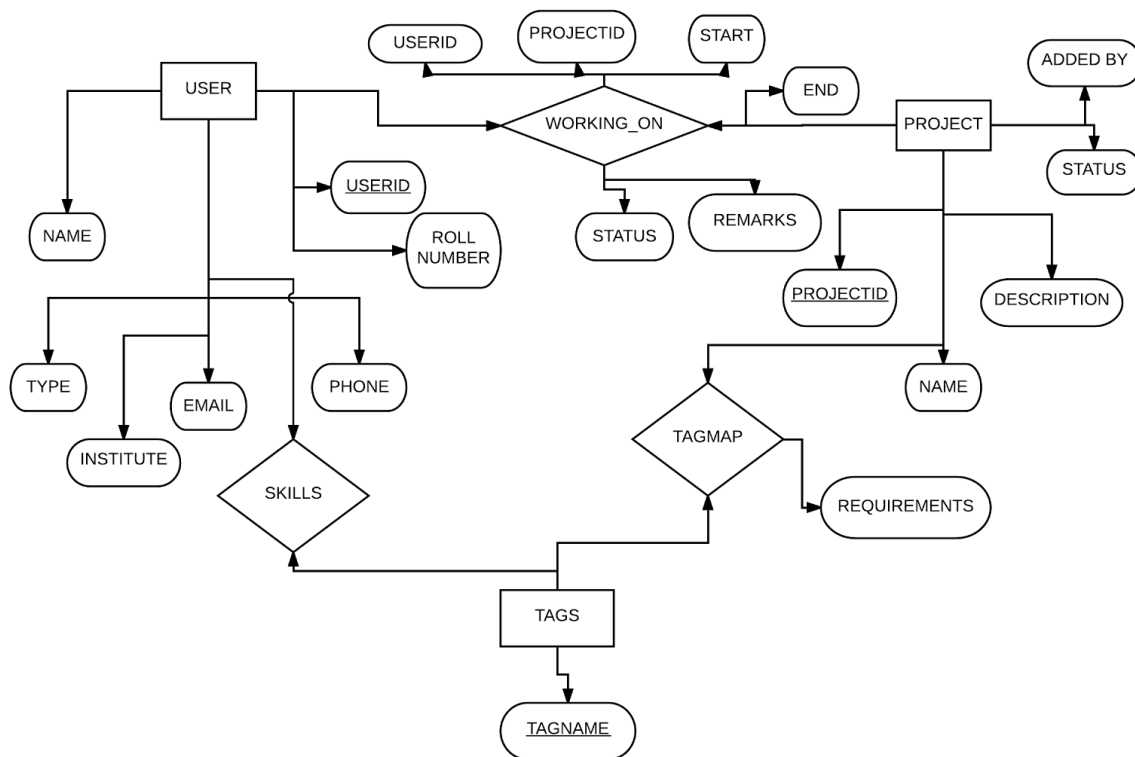
- c. **Working_on** - This is a relation on projects and their recruits, that is, it defines which user is working on which project(s). It also has attributes working_status, remarks by the person who added that project to the project, start time and end time of his work.

Constraints :

Primary key is (userid, project_id) for uniquely identifying a project member.

Also a check condition on status in ('applied' , 'working' , 'hold' , 'completed')

ER MODEL



Note : In the above ER Model , the arrows are not proper and has to be ignored due to the constraints in software used in designing ER Model

IV. User Interface Design Specifications

List of Pages for User Interface

The following pages have been used in the UI part of our project, for easy viewing by users:

- **Home Page** (URL : /) : This has a basic search button on the front to facilitate user to search among multiple projects, and also has detailed descriptions of features, instructions, utilities and quick instructions about how to use the application.
- **All projects page** (URL : / projects) : This page lists down all the projects (relevant projects if no. of project is large) with the given description and also has a search bar and list of tags on one side of it, so that the users can browse projects by tags or search some.
- **Project Specific Page** (URL : /project/project_id) : This page contains details of projects with project_id as in the URL. The details include the project name , the user who added this project, project description, users who are working on this project along with their remarks and working status. It also shows all the tags along with requirements.
- **Login Page** (URL : /login) : This page contains a form where the user can fill in his login credentials and securely login to the system.
- **User Profile Page** (URL : /user/userid) : This page would be the homepage of a user with id as <userid>. It contains all the user details as his personal info, skills, the projects added by the user and the projects he/she is working on, along with working status and remarks.
- **Tag Page** (URL : /tags/tagname) : This page would contain all the projects related to the tag with name <tagname> , along with the project description and the user who added the project
- **Search result Page** (URL : /search?q=string) : This page displays all the projects related to the search query <string> searched from the project name, description and list of tags and displays the related projects as their name , description and the person who added the project.

List of Pages for User Editing

The following pages have been used as user interfaces for editing data in the application:

- **Sign Up Page** (URL : /signup) : This page contains a form where the user can fill in his details to register himself as a member/subscriber of the application.
- **Page to add project** (URL : /add-project) : This page contains a form to enter project name , description in a proper WYIWYG Editor (What you see is what you get) and tags. The user can then save the project.
- **Page to edit project** (URL : /edit-project/project_id) : This page is for opening all the data related to the project with id <project_id> in the editor and the user can then edit it and then save it.
- **Page for project application & user maintenance/remarks**(URL: /project/project_id) : This page is same as the project display page but for that, when logged in, it displays a button named 'apply', to apply for that project. When the admin opens the page, he would get options to accept/delete or change status of user, edit the page and/or skills for that project.
- **Page to edit-profile** : (URL : /edit-profile) : This page has all the data of users previously added and here he can edit his details . This is accessible only after login.
- **Page to add new tag** (URL : /add-tag) : This page contains a field for user to add a new tag to himself.

V. Servlet Design Specification (Package and Classes)

DB Package

This package handles all things relating to database connectivity.

Connection Class

This class has a connection object and all the credentials to connect to the database. The object of this object is used in all other classes where connection to database is used. This is done in order to prevent entering database credentials at multiple places for login.

Project Package

This package contains the servlets (as classes) used for all the project and tag related work in the application. The list of servlets are:

Add Class

This servlet, on a GET request, displays the page to add new project with all other fields . While on a POST request it will check if all the fields entered by the user are correct and then adds the new project to the database, if the check passes.

All Class

This is a simple servlet which fetches all the project information from the database and then passes it on to the jsp page for display (on both GET and POST requests).

ApplyProject Class

This servlet takes the project id and user id from the request and adds the user to the project as being working on it, after checking if that user is actually logged in to the system.

ChangeRequirement Class

This servlet takes in the project_id , tagname and the new changed requirement as input and then modifies the people required in that tag and project. It throws an error if any user apart from the admin tries to access it or even if the tag and project id are different.

EditProject Class

This servlet takes in input as the project_id and the modified field values and then updates the project details as the modified version.

SaveRemark Class

This servlet takes in the input of the user id, remarks (if any) and the project. It modifies the remarks of that user working on that project, only if the request is sent by the admin.

Search Class

This servlet takes in input, a search query, and then searches the database for relevant information in order to generate a list of closely matching projects. It then sends it for display.

TagAdd Class

This servlet takes in input, a new tagname, and then adds it to the database. This addition is done only if the user is logged in. On GET request, it just displays the page with a field to add new tag.

Tags Class

This servlet takes in a tag as input from the url and then search for all the projects belonging to that tag. It then sends it to the display page for display.

View Class

This servlet takes in a project id and displays the page related to that project, along with all the users working on that project, project details and other skills related to it. It also checks if the user is admin, and if yes, it then displays all admin options. And if a user is logged in and not related to that project, then it will display an apply button (for that project).

User Package

This package contains the servlets (as classes) required for user management. The servlets are:

Login Class

This servlet, on a GET request, displays user login page with the login field inputs, while on a POST request, takes in the login fields as parameters and validates if the user is logged in .

Logout Class

This servlet deletes all the session-related variables and logs out the user safely.

EditProfile Class

This servlet takes input, the user id, on a GET request and displays a page with all the user details on it where the user can edit those details as well. Upon a POST request, it saves all those edited user details.

Profile Class

This servlet takes in userid as input and displays the page related to that user. The page also displays the skills of the user and on projects he is working on, along with project status, and list of projects added by him.

Signup Class

This servlet, on a GET request, displays a page where a user can input various fields to signup into the system and on POST request, it takes in that information and then adds a new user to the database.

IV. Other Design Details

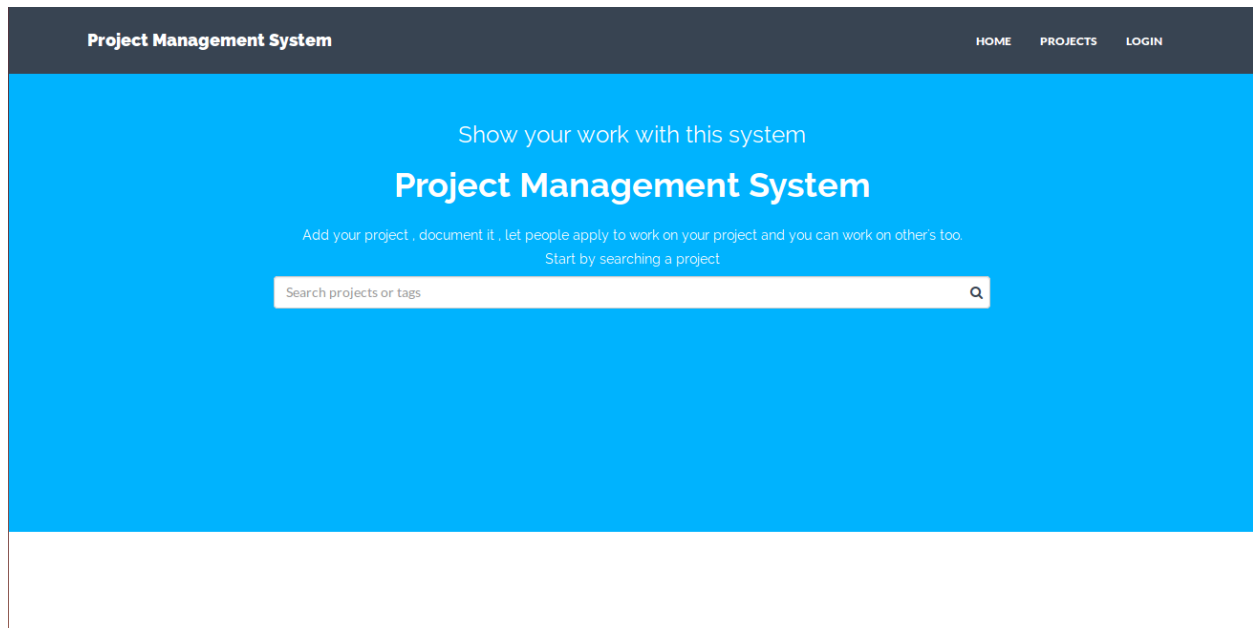
Templating Using JSP

For the user interface design, we have implemented a templating system using JSP. This has been done by defining a separate header and footer pages which include all the dependencies like CSS, JavaScript, etc on the page and hence do not need to include it again and again for every page. To keep those JSP files unreachable from the URL, we have kept them in the WEB-INF folder. This also facilitates for a fast and clean UI implementation.

External API's for UI


1. **Bootstrap**: This is a platform which we have used for making the UI beautiful. It contains some pre-written CSS and javascripts for beautiful UI Implementation.
2. **JQuery**: It is a javascript framework which helps in writing Javascript quickly and efficiently with less effort but good functionality.
3. Some JQuery APIs we have used are:
 - i. Chosen JQuery : To make multiple select buttons look more beautiful
 - j. Redit.js : For providing the functionality of WYSIWYG Editor in web pages
 - k. PrettyPhoto JQuery API : For facilitating elegant display of images

VI. ScreenShots of Project



Project Management System


HOMEPROJECTSLOGIN



Add your Project

Show your skills and add your project awesomely on this platform and let people see and learn from it


Add Project



Browse Projects

Among all the awesome Projects on this platform , increase your knowledge graph to infinity. Browse among multiple projects in our system and read about them. Also you can apply to work on that project.

Browse Projects



Maintain your Profile


Add yourself to the Awesomeness by maintain your project Profile. This can serve you as your project resume where other people can see your work and remarks directly from your project creator.


Edit Profile


Project Management System


HOMEPROJECTSLOGIN


Browse From Multiple Tags


C++


JAVA


POSTGRESQL


HTML


CSS


JAVASCRIPT


Project Management System

HOMEPROJECTSWelcome Pateek Chandan

User: Pateek Chandan

Edit your Profile

User Id :

prateek

Name :

Pateek Chandan

Email :

prateekchandan5545@gmail.com

Phone No :

9619730024

Institute :

IIT Bombay

Who are you?

Student

Roll No:

120050042

db.prateekchandan.me

Project Management System

By: NL Sarda

Project Management system where students and professors from a particular institute or different institutes can list up the current projects they are working on or have previously worked upon or planning to work. The system will work as a platform where people can post requirements for their project and other people looking for some work opportunity can get a related work for themselves

[Browse Project]

Disk Arm Simulator with RAID1 Implementation

By: Anurag Shirolkar

AIM

To Create a disk storage simulator with suitable access arm movement strategy a cache on the disk and gathering of

Search

Search projects or tags

Browse Projects By Tags

- C++javaPostgreSQLHTML
- CSSJavaScript

Project Management System

HOMEPROJECTSWelcome NL Sarda

Note: All fields are compulsory

Project Name

Project Description

Project Skills Requirements

Select Some Options

Or add New tag

Submit

Add New Tag

Enter Tag Name

CloseAdd Tag

Added By : NL Sarda

☒Edit this Project

Project Description

Project Management system where students and professors from a particular institute or different institutes can list up the current projects they are working on or have previously worked upon or planning to work. The system will work as a platform where people can post requirements for their project and other people looking for some work opportunity can get a related work for themselves

People working on this project

Name	Working Status	Remarks	Started Working on	Stopped Working on	Action
Prateek Chandan	working	<div>Type remarks and</div>	2014-11-21	--	<div>Put on Hold</div> <div>Completed Project</div>
Anurag Shirolkar	working	<div>Type remarks and</div>	2014-11-21	--	<div>Put on Hold</div> <div>Completed Project</div>
JVS Shyam	working	<div>Type remarks and</div>	2014-11-21	--	<div>Put on Hold</div> <div>Completed Project</div>

Search

Search projects or tags

Browse Projects By Tags

- C++javaPostgreSQLHTML
- CSSJavaScript

Personal Info

[Edit Profile](#)

User Id : prateek
Name : Prateek Chandan
Email : prateekchandan5545@gmail.com
Phone No : 9619730024
Institute : IIT Bombay
Type of User : Student
Roll No : 120050042
Skills

C++

CSS

HTML

java

JavaScript

PostgreSQL

Projects by Prateek Chandan

[Add New Project](#)

Other's projects Prateek Chandan is working on

Name of Project	Working Status	Remarks	Started Working on	Stopped Working on
> Project Management System	working	--	2014-11-21	--
> Disk Arm Simulator with RAID1 Implementation	working	GOOD	2014-11-21	--

About

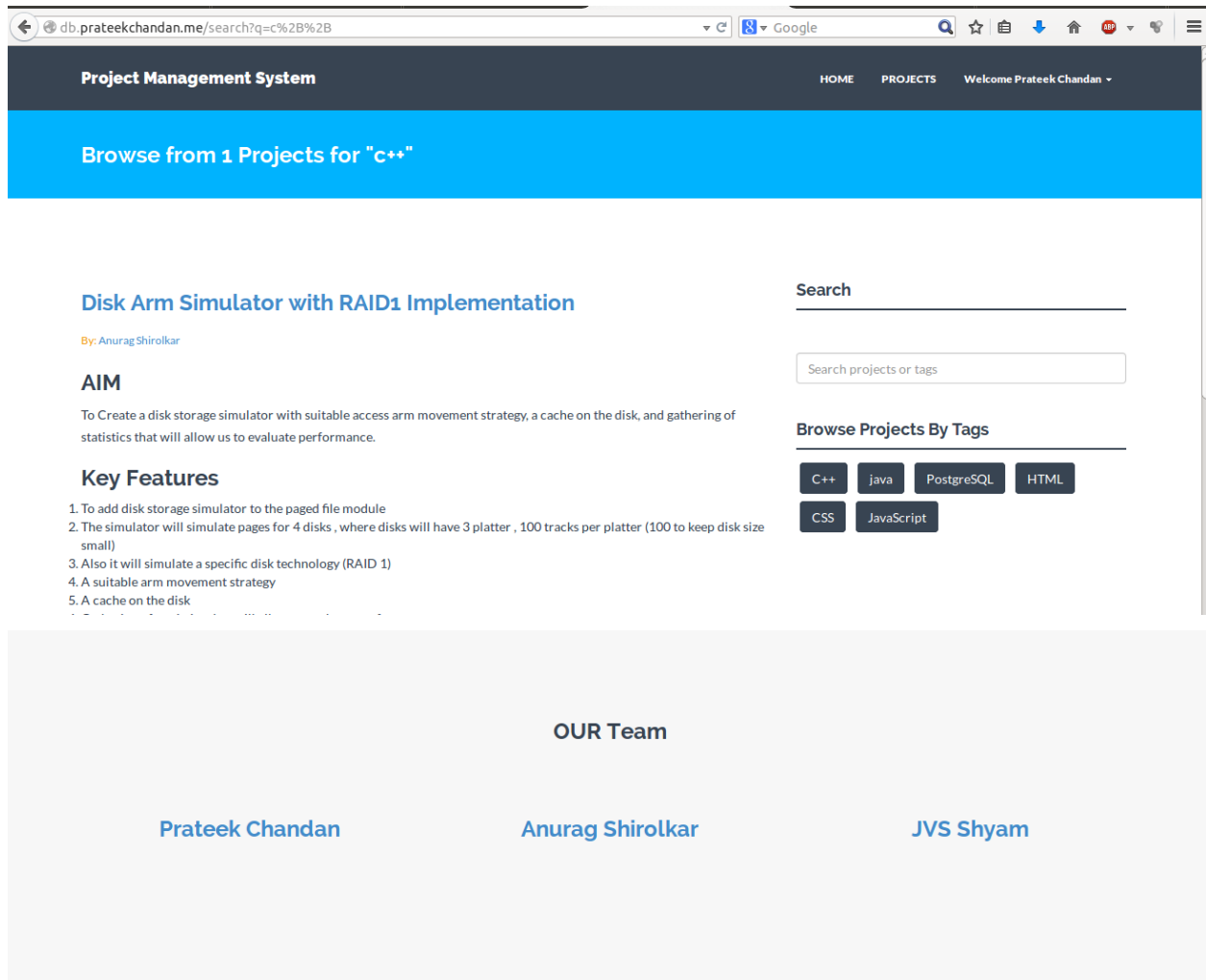
Project Management system where students and professors from a particular institute or different institutes can list up the current projects they are working on or have previously worked upon or planning to work.

Social Links



Our Bunker

3rd year
Department of Computer Science
IIT Bombay



THANKS