Project Management

System Requirements Specification Document v 1.0

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1. Introduction

1.1 Scope:

This report portrays the extent of the prerequisites for the project named Project Management'. The record subtleties all the significant level necessities intented with the project. This record ought to be utilized by the Architect and the engineers to structure the Solution Architecture for the undertaking.

The list of priorities of Project Management project is:

- Admin, Manager and Employee login
- Admin can create the projects and assign the projects to the manager
- Admin can view all the completed projects, the ongoing projects and the total number of projects completed so far
- Admin can view each employee record
- Manager creates the tasks and the subtasks and assigns them to the employees
- Manager can view the project details of his project and it’s progress percentage
- Manager has the authority to decide the completion status of the project based on the progress percentage of the tasks belonging to that project
- Employee can view his/her subtasks.
- Employee can update the progress percentage of his/her subtask

1.2 Management Summary:

Project Management is a project management tool which allows easy project creation and management. It has 3 main roles namely the admin, manager and the employee. It provides friendly user interfaces where the admin can create and view the projects, manager can create the project tasks and assign them to the employees. He can also view the project progress and has the authority to decide the project completion status. The employee can view his tasks and also update the subtask progress percentage.

1.3 Definitions:

- Spring Cloud: An open-source Java-based framework used to develop microservices.
- Angular: TypeScript-based open-source web application framework used to develop the application front-end.
- MySQL: An open-source relational database management system used to develop the back-end of the application.
- MongoDB: A NoSQL database which is used to develop the application backend.
- Eureka Server: An application that holds the information about all client-service applications. Every Micro service will register into the **Eureka server.**

1.4 Overview:

This documentation describes all the information related to the development of the application. It outlines the type of database utilized, the technology used for the development of frontend and backend. It additionally briefs out about the framework targets, the useful prerequisites, database construction and the application stream.

2. System Objectives

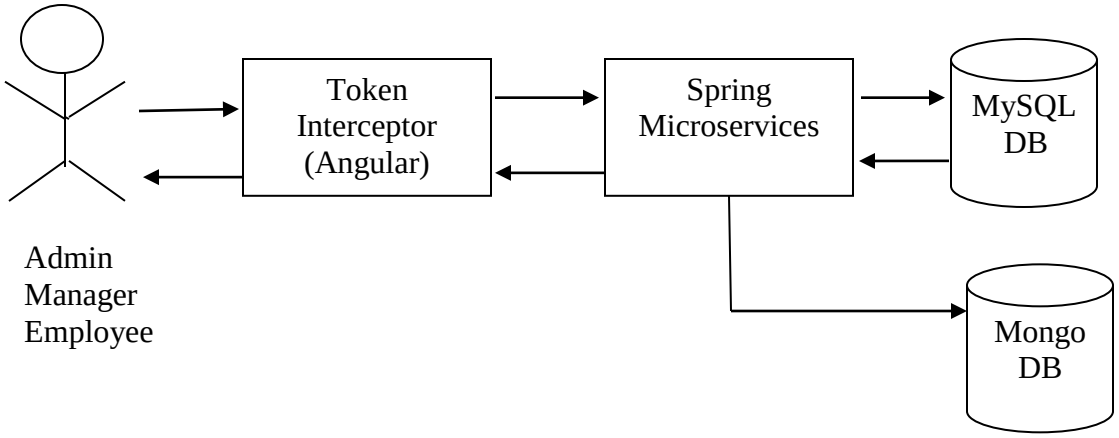

Figure 1: System Context Diagram

Figure 1 depicts the System Context Diagram. The system users include Admin, Manager and Employee. In order to use the Project Management tool, the admin, manager or the employee has to login using the credentials given. These credentials will be validated by the login microservice which is deployed in cloud. If the user enters invalid credentials, he is redirected to the login page else, the spring microservice determines the user's role and redirects him to his respective page to perform the necessary actions.

Project Management	A Project Management tool is used to manage all project related activities like project creation, assignment of the projects to the manager. Creation of the tasks and the subtask and their assignments to the employees. Viewing the progress of each subtask, task and the project.

User Interface	The application's user interface is developed using Angular framework. It provides a single page application to the user based on the user's role. The admin is provided with the privilege to create a project. The manager is provided with the privilege to assign the employees to the project and also create the tasks and the subtasks. The employee is provided with the privilege to view his/her tasks and update the progress of the subtasks.
Middleware	Spring microservices are used as middleware for various functionalities performed by the admin, manager and the employee respectively.
Databases	MySQL database is used to store the employee, project and task details. MongoDB is to store the project description and stakeholder information.

Cloud Services used:

Amazon web services (AWS)	Deployed MySQL database.
MongoDB Atlas	Deployed MongoDB
Pivotal Cloud Foundry	Deployed angular and microservices

3. Functional Requirements

3.1 Brief Description

Project Management project is a project management tool used to manage the overall project creation and handling process. It has 3 different roles namely the admin, manager and the employee.

This tool divides the activities that a user can perform based on his role.

If the user is an admin, then he has the authority to create projects.

If the user is a manager then he has the authority to assign the team for the project and also creation of the tasks and the subtasks.

If the user is an employee, then he can view his subtasks and also update the progress of the subtasks.

The login credentials to the manager and the user are sent via emails.

The notification regarding the assignment of the tasks are also sent to the employees via emails.

3.2 Interface Details

See the System Objective diagram.

3.3 Table of requirement

Flow	Project management tool defines 3 main roles namely the admin, manager and the employee. Initially the admin creates a project and assigns to a manager who is available. A notification is sent to the manager with his login credentials which is auto generated. Once the manager logins in using these credentials, he can create the tasks and the subtasks for the project and assign the employees for the project. A

	mail is sent to all employees selected for the project which includes their login credentials respectively. When a subtask is assigned to an employee based on his expertise, a mail is sent to him notifying him of his newly assigned subtask. Then the employee can login using his credentials and then view his subtasks and also the progress percentage of that subtask. He can also update the progress percentage of his subtask.

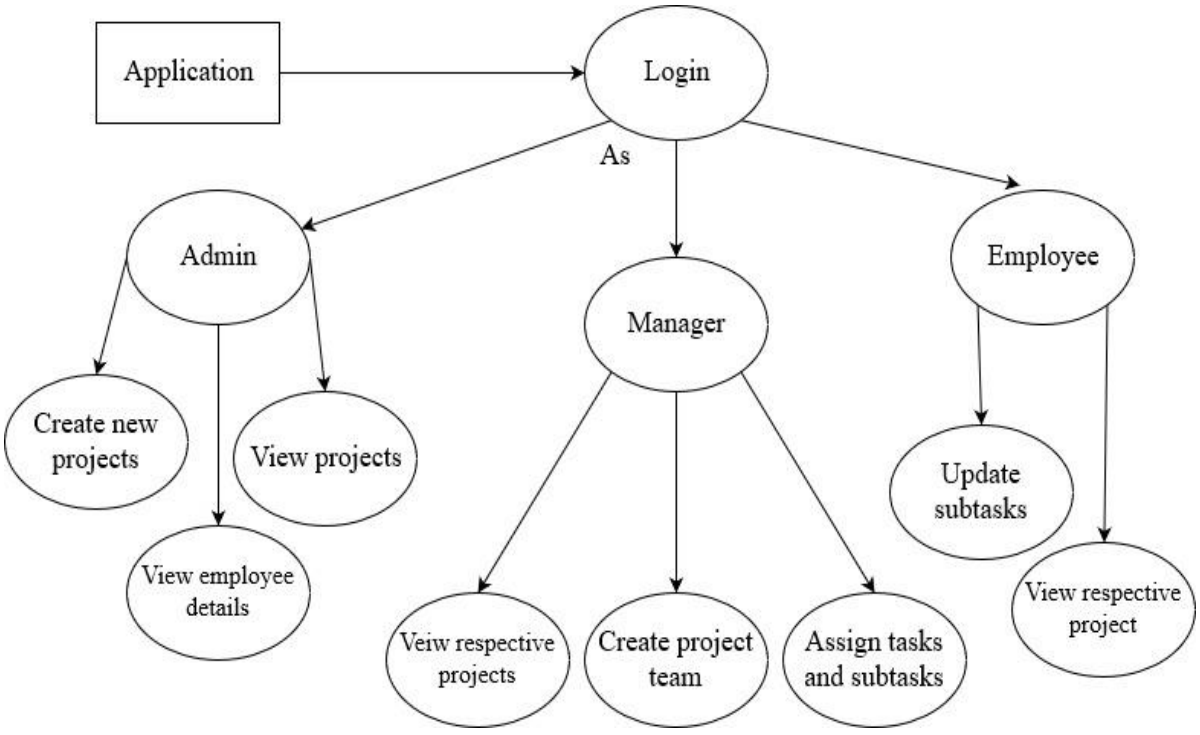

Figure 2 Application Flow Diagram

4. Database Schema:

There are a total of 8 tables in the application. 7 tables namely employee, project, employee_skills,employee_skills, task, subtask, project_member are stored in MySQL databse and 1 table namely projectdescstake is stored in MongoDB database.

MySQL Document

Employee
-employee_Id : Long
-first_name : String
-middle_name : String
-last_name : String
-user_type : String
-username : String
-password : String
-availibility : Boolean
-eul_agreement : Boolean

Project
-project_Id : Long
-project_name : String
-project_desc : String
-budget : Long
-githubLink : String
-stakeholders: String
-manager_Id : Employee
-start_date : Date
-end_date : Date
-is_completed : Boolean

Skills
-skill_Id : Long
-skill_name : String

Employee_Skills
-employee_Id : Employee
-skill_Id : Skills

Project_Member
-team_member_Id : Employee
-project_Id : Project
-authority : Boolean

Tasks
-task_Id : Long
-project_Id : Project
-task_title : String
-task_description : String
-start_date : Date
-due_date : Date
-subtask_count : Long
-progress: String

Subtask
-sub_task_id : Long
-task_id : Task
-employee_id : Employee
-sub_task_title : String -sub_task_description : String
-start_date : Date
-due_date :Date
-progress_percentage: Long
-comment : String

MongoDB document

ProjectDescStake
-project_id : Long
-project_desc : String
-stakeholders : String