PRO-PLANNING -: A WEB-BASED PROJECT MANAGEMENT SYSTEM

-by group number 19

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Software Requirement Specification

1. Introduction-

This Software Requirements Specification (SRS) document pertains to a web-based Project Management System. The system is designed to offer users streamlined task allocation and utilization capabilities, ensuring seamless operations for efficient project management

1.1 Purpose

The objective of this Software Requirements Specification(SRS) is to delineate the functional and non-functional requisites of a web-based project management system tailored for small projects. The development team will utilize the SRS as a roadmap to create software that meets the needs of the targeted users(admin,project manager,employee).

1.2 Scope

The web-based project management system for small businesses is software designed to help small businesses easily manage their projects. Admin can create projects, assign project manager and track progress . Project manager can manage employees, assign them tasks, add deadlines to tasks , track progress. By using this software, small businesses can enhance team communication,streamline project management and boost productivity and profitability. The software's scope aligns with system requirements, ensuring it meets users' demands and expectations.

1.3 Definitions

- **Web-Based Project Management System:** A tool created to assist teams in handling project ,tasks using a web browser.

-**Small Business**: A small business is generally defined as a privately-owned enterprise that has a relatively small number of employees and a limited budget.

1.4 Acronyms:

SRS: Software Requirements Specification
UI: User Interface
UX: User Experience
API: Application Programming Interface
HTML: Hypertext Markup Language
CSS: Cascading Style Sheet

1.5 Overview

The remaining part of this System Requirements Specification(SRS) for the Web-based Project Management System for small businesses includes in-depth information about the software product's needs, both functional and nonfunctional specifications. The goal of this SRS is to offer a thorough and clear comprehension of the software product's requirements and specifications, ensuring a successful development and implementation process.

2. Overall Description

This Segment of the SRS for a Web-Based project management system provides a broad perspective on the factors that influence the software product.

2.1 Product Perspective

This section of the SRS delineates the tool's functionality within various constraints, encompassing system and hardware interfaces, user interfaces, software interfaces, communication interfaces, memory utilization, operational requirements, and site adaptability.

2.1.1 System Interface

- **Project Creation and Management**

☐ **Functionality:** Admin requires the capability to initiate new projects within the software, encompassing task assignments and deadline setting. Additionally, they should manage project activities, assigning work to team members, defining deadlines, and monitoring progress.

☐ **Interface Description:** The project creation system should feature a form containing fields for project details such as name, description, start and end dates. Task-specific fields including name, description, assigned team member, and deadline should be available for users to add tasks to the project. The system must display a task list view for each project, presenting all tasks

allocated to the user or their team. Users should have the ability to assign tasks to team members, set deadlines, and mark tasks as completed.

2.1.2 User Interface

The primary objective of the user interface design for the web-based project management tool targeting small businesses is to ensure a user-friendly and efficient experience. The interface aims for simplicity and clarity, incorporating intuitive design elements along with detailed instructions for ease of use.

- **Login:**
  - ☐ A login screen that uses pre-existing login information which was given before.
  - ☐ Secure access is ensured through user identification and permission.
- **Dashboard:**
  - ☐ A dashboard that shows the status of which projects are active now.
  - ☐ A brief summary of the project's status, due dates.
- **Project creation and management:**
  - ☐ Having the capacity to allocate team members to new projects.
  - ☐ Tracking of project progress.

2.1.3 Hardware Interface

Following are the hardware interfaces required for the Web-based project management tool.

- Internet Connectivity: A reliable and consistent internet connection is necessary to access and operate the software.

- Computer or Laptop: The software is accessible via any computer or laptop that supports modern web browsers, provided that the user's device meets the specified minimal system requirements."

2.1.4 Software Interface

A web-based project management tool typically requires a software interface that allows users to access and interact with the tool's features and functions.

Dashboard: The dashboard is the first screen users see after logging in. It provides an overview of the project, including tasks, timelines, and progress.

Task lists: Employees can see, add, edit, and delete tasks from the task list. Details like task descriptions, deadlines, priority rankings, team members allocated to the work.

Chat: Employees can communicate with other Team members through the chat section.

2.1.5 Communication Interface

Communication interfaces for Web-based Project Management Tool include:

- Local network protocols enable smooth communication between the tool and various business software and systems, ensuring seamless interaction within the network environment.

2.1.6 Memory constraints

The following are some memory restrictions that web-based project management tool developers must need consider:

Database Memory: The size of the database employed for storing project management data can significantly impact memory usage. Larger databases require increased memory allocation to operate optimally.

Server Memory: Web-based project management tools commonly utilize servers for data storage and management. The available memory on these servers can impose restrictions on the volume of data that can be stored and processed efficiently.

Client Memory: The memory capacity of the user's computer or device is also a factor in limiting the amount of data that can be displayed and manipulated within the web-based project management tool.

Developers have access to a variety of tools to mitigate memory limits, including code optimization for lower memory use, caching for fewer database queries, and compression algorithms for smaller data transfers.

2.1.7 Operational Functions

Operations within a web-based project management tool tailored for small businesses encompass the following:

- **Modes of Operation:**

  - ☐ **Project Manager-Initiated Operations**: Tasks assignment, progress tracking, and report generation.
  - ☐ **Employee-Initiated Operations:** Task completion and resource requests.

- ☐ **Admin-Initiated Operations:** Project and task creation, editing, team management, permissions, and user account administration.

- **Operation Periods:**

  - ☐ **Interactive Operations:** Team access during business hours for real-time collaboration.
  - ☐ **Unattended Operations:** Tool availability 24/7 for accessing project information and updating tasks.

These operations should help to ensure that the tool can effectively support project management functionalities.

2.1.8 Site Adaptation Specifications

Site adaptation specifications for the Web-Based Project Management Tool for Small Businesses include:

- **Customization of User Roles and Permissions:**

Capability to define user roles and permissions aligning with the organizational structure and hierarchy of the business.

- **Adherence to Local Data Privacy Regulations:**

Ensuring compliance with local data privacy regulations.
Provision for customization of data storage and security settings to meet specific business requirements.

2.2 Product Functions

- **Project Management:** Using the system, administrators can allocate managers to projects. Tasks can be managed by project managers, who can also prioritize them, establish deadlines, monitor progress, and review and approve work.
- **Task submission:** Employee can submit a task which is assigned to him/her.
- **Track Progress of Employee:** The admin and manager can track the progress of the employee.
- **Chat**: Employees can communicate with other employees through the chat section.

2.3 User Characteristics

Admins/Business Owner: Admins are responsible for managing the project management tool, including managing users, project creation, and user access security

Project Managers: Project managers are responsible for planning, assigning, and reviewing tasks. They need access to a project management tool that is used to assign tasks, and track progress.

Employees: Employees are responsible for completing tasks assigned to them. They need access to project management tools to view their tasks, and deadlines, and to chat with Other employees.

2.4 Constraints

Security Constraints:

The tool should incorporate strong security measures to prevent unauthorized access and safeguard sensitive data belonging to the small business and its clientele.

Usability Constraints:

The tool Emphasis on ease of use and intuitiveness, necessitating a straightforward and clear interface that demands minimal training for users.

Compatibility Constraints:

The tool ensures the tool's compatibility across diverse web browsers and operating systems, enabling universal access from any device.

2.5 Assumptions and Dependency

2.5.1 Assumptions:

- The effective utilization of the web-based project management solution by the small business necessitates a reliable internet connection.
- Users of the project management tool are accustomed to working with web-based applications and possess a fundamental understanding of computing.
- Access to the project management tool is available through commonly used internet browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge.
- Implementation of the project management tool assumes that the small business already possesses the required IT infrastructure to support its deployment.

2.5.2 Dependencies:

- Successful implementation of the web-based project management application relies on a dependable and accessible cloud hosting provider offering scalable hosting solutions and robust security measures with responsive service.
- Development of a scalable, secure, and efficient project management tool necessitates competent web developers proficient in HTML, CSS, Django, and related technologies. Inadequate expertise among developers may compromise the tool's functionality, security, and design, thereby diminishing its value to small businesses.

3. Specific Requirement-

3.1 External Interface

External Interface Requirements For Web-Based Project Management Tool For Small Business:

- **Hardware Interfaces:** Any device, including desktops and laptops, with a web browser and an internet connection should be able to use the tool.
- **Software Interfaces:** Common online browsers including Google, Chrome, Mozilla, Microsoft Edge, and Safari should be able to use the application.
- **Communication Interfaces:** The tool should support secure data transmission
- **Database Interfaces:** All of the data should be kept in a secure, reliable, and scalable database by the tool.

3.2 Functions

- **Project Management:** allows the user to arrange and schedule tasks.Creating timelines, specifying dependencies and milestones, and allocating project budgets are some examples of features.
- **Task Management:**allow users to create, assign, prioritize, and monitor tasks for specific team members or projects as a whole.Task creation with a description and a deadline, as well as task delegation to team members, are examples of features.
- **Progress Monitoring:** Team members should be able to track their performance in relation to project deadlines and milestones by using the system's real-time updates on project status.This will increase the likelihood that the project will be completed within the allocated budget and on time.

3.3 Logical Database Requirement

- **Frequency of use:**
    - project information is frequently accessed and updated.
    - Task information is frequently accessed and updated.
    - User information is frequently accessed but updated when necessary.

-Accessing Capabilities:

- The application should allow users with the appropriate role to access and modify project and task information.
- User information should only be accessible and modifiable by administrators.

-Integrity constraints:

- Users must have a unique username and email.
- Tasks must be assigned to an existing user.

○ Description must be associated with an existing project or task

-Data retention:

○ User information should be retained until the user account is deleted.

-Data access:

○ Easily access the data from the database whenever it is used in the system by the user.

Here are some type of Data Which is stored in database,

● Project Management Data**:** The database should be able to hold and handle project management-related information, such as project tasks, deadlines, progress reports, and team members.

● User Information**:** When a user leaves their job, the database should erase their personal information, which includes their profile, login credentials, and permissions.

3.4 Design Constraints

3.4.1 Standard compliance:

● Data naming: For consistency and system compatibility, the tool's data fields should be named according to a standard convention.

3.5 Software System Attributes

3.5.1 intuitive UI/UX

The interface of a web-based project management tool should be simple to use and comprehend. To ensure that all team members can use the tool effectively without requiring extensive training, it should be designed with ease of use in mind.

3.5.2 Scalability

As the business expands, the tool should be able to handle growing numbers of users, projects, and data.this guarantees that the tool will be able to accommodate the company's growing needs.

3.5.3 Security

To prevent unwanted access to sensitive data, including project and client information, a project management tool needs to be secure.To safeguard the data, the tool needs to have strong encryption and other security features.

3.5.4 Performance

The tool should be able to respond to requests simultaneously and quickly, especially as the number of users and projects grows. The tool's functionality ought to hold steady even during periods of high usage.

3.5.5 Reliability

There should be very little downtime and constant availability and functionality for the project management tool. Delays and lower team productivity can result from downtime.

3.5.6 Compatibility

The tool should be made to work with a variety of devices, including laptops, desktops, computers, mobile phones, and tables. Different screen sizes should be used to properly view the website.

3.5.7 Maintenance

To guarantee the project management tool runs smoothly, regular maintenance and updates are required. This includes resolving bugs, incorporating fresh features, and enhancing the tool's functionality.

3.5.8 Customization

The tool should be flexible enough to accommodate each business's unique requirements. This includes offering integrations with other software that the company uses and enabling customization of the tool to fit workflows and procedures.

3.6 Organizing the specific requirement

3.6.1 System mode

When using a web-based project management application for small organizations, operating in online mode is essential for quick access to project data and completing critical tasks.With an internet connection, team members can easily access and update task information from any location, facilitating collaboration and project progress monitoring.

3.6.2 User class

- **Admins:** Adminis are in charge of overseeing the project management tool, which includes creating projects, tracking budgets, managing users, and securing user access.
- **Project managers:** It is the duty of project managers to organize, assign, and review work.To allocate tasks and monitor advancement, they require access to a project management tool.
- **Employes:** Employees are in charge of finishing the tasks that are allocated to them and scheduling the resources needed to complete those tasks.To view their tasks, due dates, and available resources, they require access to project management tools.

3.6.3 Objects

- **Project:** symbolizes an initiative or objective that the tool is being used to handle. Features could be the name of the project, its description, its

start and end dates, and its budget. Task addition, task delegation, progress monitoring, and report generation are among the services offered.

- **Tasks:** denotes a particular task that must be finished as part of the project. Task name, description, start and end dates, assigned team members, priority, and status are examples of attributes. Services could include attaching files or comments, assigning subtasks, and updating task status.
- **Dashboard:** provides customizable summary of team and project performance. Among the attributes are graphs displaying important metrics.

3.6.4 Feature

- **Time tracking:** permits users to monitor the amount of time spent on assignments or projects. Features could include reports on team members' or projects' time spent, manual or automatic time tracking, and integration with invoicing and billing.
- **Project management:** permits project planning and organization for users. Establishing project budgets, specifying dependencies and milestones, and creating project timelines are examples of features.
- **Task management:** allow users to set up, assign, track, and monitor tasks for specific team members or entire projects. Features could include assigning tasks to team members and creating tasks with descriptions and deadlines.
- **Communication:** provides for the discussion of tasks and projects between team members and stakeholders.Features may include email notifications,team messaging, and comments on tasks and projects.

3.6.5 Stimulus

Stimulus: project management

- **creating and managing projects:**
  - creating a new project
  - assigning team members to a project
  - setting project deadlines

- **Task management:**
  - creating a tasks within a project
  - assigning tasks to team members

- **Tracking:**
  - monitoring progress of projects and tasks

Stimulus: User management

- **User onboarding and access control:**
  - manage user access and permissions
  - ensure data security and compliance with regulatory standards

3.6.6 response

Response for Stimulus: project management

● creating a new project is the first step in project management

● assigning team members to a project ensures that the right people are working on the project.

● creating tasks within a project and assigning them to team members is important for task management.

●Monitoring progress of projects and tasks is important to ensure timely completion.

●Generating reports on project status helps in tracking the overall progress of the project.

Response for Stimulus: User management

● User onboarding and access control are important for user management.

● managing user and access and permissions can help in ensuring data security and compliance with regulatory standards.

3.6.7 Functional Hierarchy

To better understand the system's functions can be organized into a functional hierarchy consisting of four main categories.

● **User interface:** give users tools to enable them to engage with the system; this category includes task and project creation, dashboard, navigation, and login and authentication.

- **Project Management :** control the workflow and timelines for projects.This category includes task and project tracking as well as task and project assignment.