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Group 19: Web Based Project Management Tool for Small Business

Software Requirement Specification

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1. Introduction

This SRS document is about a Web Based Project Management tool for small businesses. This tool provides user with simple task allocation and usage so that they can run it smoothly.

1.1 Purpose

The purpose of this Software Requirements Specification (SRS) is to define the functional and non-functional requirements of a web-based project management tool for small businesses. The development team will use the SRS as a guide to Develop software that satisfies the requirements of the intended users.

The intended audience for this SRS includes the project stakeholders such as the small business owners, project managers, software developers, testers, and other members of the development team who will be involved in the software development life cycle.

1.2 Scope

The Web Based Project Management Tool for Small Business is software designed to give small businesses an easy-to-use and effective approach to manage their projects. Users will be able to specify project schedules and milestones, create, assign, and track tasks, and request for the resources for the project. Users of the programme will also have access to a dashboard where they can track projects' progress, examine performance indicators. By using this software, small firms will be able to improve team communication and collaboration, streamline their project management procedures, and ultimately increase productivity and profitability. The scope of this software complies with the specification for the system requirements, guaranteeing that it will fulfil the demands and expectations of its users.

1.3 Definitions, Acronyms and Abbreviations

Definitions:

- Web-Based Project Management Tool: A software designed to help teams to manage projects, tasks, and resources through 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 and resources.

Acronyms:

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

1.4 References

- IEEE 830 1993 SRS Documentation

1.5 Overview

The rest of this System Requirements Specification (SRS) for the Web Based Project Management Tool for Small Business contains detailed information about the software product's requirements, functional and non-functional specifications, and constraints. This SRS aims to provide a clear and comprehensive understanding of the software product's requirements and specifications to ensure successful development and implementation.

2. Overall Description

The Overall Description section of the System Requirements Specification (SRS) for the Web Based Project Management Tool for Small Business provides a general understanding of the factors that impact the software product's requirements.

2.1 Product Perspective

The Web Based Project Management Tool for Small Business is a stand-alone software application that is not a part of a bigger system. As a result, the SRS' Product Perspective section will note that the programme is independent of other systems or products and has no dependencies on them.

This section of the SRS explains how the Web-based project management tool for small businesses functions under multiple constraints including system and hardware interfaces, user interfaces, software interfaces, communication interfaces, memory, operations, and site adaptation requirements.

2.1.1 System Interface

- **User Authentication**
    - **Functionality**: Users must be able to safely log in to see their project management dashboard and the data it contains.
    - **Interface Description**: The user authentication system should include a login page with fields for username and password. Before allowing access to the dashboard, the system should check the user's credentials. The system should display an error message and prompt the user to try again if the user inputs erroneous login information.
- **Project Creation and Management**
    - **Functionality**: Users must be able to start new projects using the software, including assigning tasks and establishing deadlines. Users must be able to manage projects' activities, including allocating work to team members, establishing deadlines, and monitoring progress.
    - **Interface Description**: The project creation system should include a form with fields for project name, description, start date, and end date. There should be fields for the task name, description, allocated team member, and deadline that the user may utilise to add tasks to the project. The system should include a task list view for each project, showing all tasks assigned to the user or the user's team. It should be possible for the user to give tasks to team members, establish deadlines, and mark work as finished.
- **Resource management**
    - **Functionality**: Users must be able to manage project resources, such as team members, tools, and materials, using the programme.
    - **Interface Description**: The resource management system should include a view that allows users to add, edit, and remove resources associated with each project. Users should be able to assign team members to projects, list the tools required for each job, and keep tabs on the materials' availability and consumption.

- **Report and Analytics**
    - **Functionality**: Users must be able to submit the report and analytics of the assigned project and the allocated resources.
    - **Interface Description**: The Report and analytics system should generate the graph for clear and intuitive report and easy to understand report of project and resource.

2.1.2 User Interface

The goal of the user interface design for the web-based project management tool for small businesses must be to provide an easy and effective user experience. The user interface must be simple to use and straightforward, with comprehensive instructions.

- **User Management and Logins:**
    - A login screen that using pre-existing login information.
    - Secure access is ensured through user identification and permission.
- **Dashboard:**
    - A dashboard that shows the status of active projects.
    - 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 milestones and progress.
- **Resource Management:**
    - The distribution and monitoring of project resources.
    - Planning for resource allocation and availability for effective resource use.
- **Report and analytics:**
    - Team performance

All aspects of optimizing the interface with the person who must use the system must include the following:

- Simple and clean design with an easy-to-use interface.
- Consistent navigation throughout the platform.
- User-friendly terminology and labels for all features and functions.
- Efficient response times and fast loading speeds.
- Compatibility with different web browsers and operating systems.

These requirements should be verifiable, such as "A small business owner with basic computer skills can create a new project, allocate resources, and assign team members to it within 10 minutes of accessing the system."

2.1.3 Hardware Interface

The Web-based project management tool for small businesses will have the following hardware interfaces:

- **Internet connection**: In order to access and utilize the software, you will need a dependable and steady internet connection.
- **Computer/Laptop**: Any computer or laptop device that supports a contemporary web browser can access the software. The user's device needs to adhere to the system requirements' minimal specifications.

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, progress, and milestones.
- **Task lists**: The task list is where users can view, create, edit, and delete tasks. It may include details such as task descriptions, due dates, priority levels, assigned team members, and status updates.
- **Reporting and analytics**: The reporting and analytics section provides insights into project performance, team productivity, and other metrics. It may include charts, graphs, and other visual aids to help users make data-driven decisions.
- **Project settings**: The project settings section allows users to configure the tool to meet their specific needs. This may include customizing notifications, setting up integrations with other tools, or adjusting security settings.
- **User management**: The user management section allows project administrators to manage user accounts, assign roles and permissions, and control access to project data.

2.1.5 Communication Interface

Communication interfaces for Web-based Project Management Tool for Small Business should include:

- Local network protocols for seamless communication between the tool and other business software and systems.

2.1.6 Memory constraints

Memory constraints that developers of web-based project management tools need to consider include:

- **Server memory**: Web-based project management tools typically rely on servers to store and manage data. The amount of memory available on the server can limit the amount of data that can be stored and processed.
- **Client memory**: The memory available on the user's computer or device can also limit the amount of data that can be displayed and manipulated within the web-based project management tool.
- **Database memory**: The size of the database used to store project management data can also be a constraint on memory usage. Large databases require more memory to operate efficiently.

To address memory constraints, developers can use various techniques such as optimizing code to reduce memory usage, implementing caching to reduce the number of database queries, and using compression algorithms to reduce the size of data being transferred.

2.1.7 Operation

Operations for a web-based project management tool for small businesses should specify the normal and special operations required by the user, such as:

- **Modes of Operations:**
    - **Project manager-initiated operations**: assigning tasks to team members; tracking progress; generating reports.
    - **Resource manager-initiated operation:** Allocation and management of resource of the enterprise.
    - **Employee-initiated operation:** Completion of task, request for resource.

    - **Admin-initiated operations**: Creating, editing, and deleting projects and tasks; Adding or removing team members; granting or revoking permissions; and managing user accounts.
- **Periods of Operations:**
    - **Interactive Operations**: During business hours, team members can access the tool and collaborate in real-time.
    - **Unattended Operations**: The tool should be available 24/7 for accessing project information and updating tasks.
- **Resource Management:**
    - Managing project resources such as team members, equipment, and materials.
    - Allocating resources to tasks based on availability.
    - Tracking resource usage and availability.
- **Data Processing Support Functions:**
    - Automatic updates for project and task changes.
    - Ability to import and export project data.

These operations should help ensure that the tool can effectively support project management and resource allocation for the small business.

2.1.8 Site adaptation requirements

Site adaptation requirements for Web Based Project Management Tool for Small Business:

- **User roles and permissions customization**: The tool should allow for the definition of user roles and permissions to match the organization structure and hierarchy of the business.
- **Compliance with local data privacy regulations**: The tool should comply with any local data privacy regulations and allow for the customization of data storage and security settings to match the business requirements.

2.2 Product Functions

- **Project Management**: Using the system, administrators can allocate managers and personal to projects. Tasks can be managed by project managers, who can also prioritize them, establish deadlines, monitor progress, and review and approve work. Additionally, the system has tools for team management and staff performance evaluation.
- **Employee Performance Analytic**: To assess employee productivity and enhance team performance, the system offers analytics based on employee performance, including work speed and quality.
- **Budget Analytics**: The system creates graphical reports for budget planning and evaluation, giving users the ability to instantly analyse budget and costing data.
- **Task submission:** Employee can submit task which is assigned to him/her.
- **Resource Booking & Allocation**: The system has a dynamic mechanism for employee resource booking that the resource manager keeps an eye on. This solution improves the booking process and enables effective resource allocation.

2.3 User Characteristics

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

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

- **Resource Managers**: Resource managers are responsible for allocating and managing resources. They need access to project management tools to manage resources, assign resources to tasks, and monitor budgets.

- **Employees**: Employees are responsible for completing tasks assigned to them along with booking resources required for assigned tasks. They need access to project management tools to view their tasks, deadlines, and resource availability.

2.4 Constraints

- **Budget constraints**: The cost of development, hosting, and maintenance must be kept within a certain budget to ensure the tool is financially viable for small businesses.
- **Security constraints**: The tool must have robust security features to prevent unauthorized access and protect sensitive data of the small business and its clients.
- **Usability constraints**: The tool must be easy to use and intuitive, with a simple and clear interface that requires minimal training.
- **Compatibility constraints**: The tool must be compatible with various web browsers and operating systems to ensure that users can access it from any device.

2.5 Assumption and Dependency

2.5.1 Assumption:

- The small business can utilize the web-based project management solution with a dependable internet connection.

- The project management tool's users are accustomed to utilizing web-based application and have a basic understanding of computers.

- Through widely known online browsers including Google Chrome, Mozilla Firefox, and Microsoft Edge, you may access the project management tool.

- The small business already has the necessary IT infrastructure in place to facilitate the project management tool implementation.

2.5.2 Dependency:

- For the web-based project management application to be implemented successfully, a trustworthy and reachable cloud hosting provider with scalable hosting solutions, sufficient security measures, and quick response times is required.

- A project management tool that is scalable, secure, and efficient must be built by qualified web developers who are knowledgeable in HTML, CSS, Django, and other pertinent technologies. Without competent developers, the tool's functionality, security, and design may decrease, which would reduce its value to small firms.

3 Specific Requirement

3.1 External Interface

External Interface Requirements for Web Based Project Management Tool for Small Business:

- **Hardware Interfaces:** The tool should be accessible through any device with a web browser and an internet connection, such as desktops, laptops.
- **Software Interfaces:** The tool should be compatible with commonly used web browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari.

- **Communication Interfaces:** The tool should support secure data transmission.
- **Database Interfaces:** The tool should store all data in a secure, reliable, and scalable database.

3.2 Functions

- **Project Management**: enables users to plan and organize projects. Features may include creating project timelines, defining milestones and dependencies, and setting project budgets.

- **Task Management**: enables users to create, assign, prioritize, and track tasks for individual team members or entire projects. Features may include task creation with description and due date, assignment of tasks to team members.

- **Progress Monitoring**: The system should offer in-the-moment updates on project status, enabling team members to monitor their performance in relation to project deadlines and milestones. This will make it more likely that projects will be finished on schedule and under the given budget.

- **Performance Tracking & Analytics**: The tool needs to offer performance tracking and analytics features so that team members can monitor their output and spot areas for improvements.

- **Resource Management**: The tool must feature a resource list and management functionality that enables team members to keep track of and manage project resources

- **Integration with other application**: The tool should be able to connect to other applications used for project management.

3.3 Performance Requirement

- **Response time:** The tool should load quickly and respond to user actions without delay. Users should be able to navigate between different sections of the tool without experiencing any lag or slowdown.

- **Scalability:** The tool should be able to handle large volumes of data and users without performance degradation.

- **Reliability:** The tool should be reliable and consistently available. Downtime or other technical issues can disrupt project workflows and negatively impact team productivity.

- **Security:** The tool should be secure and protect user data from unauthorized access.

- **Compatibility:** The tool should be compatible with a range of browsers and devices. This is particularly important for project management tools, as team members may be accessing the tool from a variety of devices and locations.

- **Usability:** The tool should be user-friendly and intuitive. This includes features such as clear navigation, easy-to-use search functionality, and clear instructions and prompts.

3.4 Logical database requirement

- **Frequency of use:**
    - Project information is frequently accessed and updated.
    - Task information is frequently accessed and updated.
    - User information is infrequently 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 is used in the system by the user.

Here are some types of data which is stored in the database,

- Project Management Data: The database should have the ability to store and manage data related to project management, including project tasks, deadlines, progress tracking, and project team members.
- User Information: The database should store user information such as user profiles, login credentials, and permissions and delete data of user if user leave the job.
- Resource Management Data: The database should store information related to project resources, including equipment, materials, and human resources.
- Reporting Data: The database should store data needed for generating reports such as project status, resource utilization, and financial information and also store the submissions of tasks which is done by any employee.

3.5 Design Constraints

3.5.1 Standard Compliance:

- **Data naming**: The tool should adhere to a standard naming convention for data fields to ensure consistency and compatibility with other systems.

3.6 Software System Attributes

3.6.1 Intuitive UI/UX

A web-based project management tool should have an interface that is easy to navigate and understand. The tool's design should be intuitive to ensure that all team members can use it efficiently without extensive training.

3.6.2 Scalability

The tool should be able to handle increasing amounts of data, users, and projects as the business grows. This ensures that the tool can continue to meet the needs of the company as it expands.

3.6.3 Security

A project management tool should be secure to prevent unauthorized access to sensitive information, such as project data and client information. The tool should have strong encryption and other security measures in place to protect the data.

3.6.4 Performance

The tool should respond quickly and handle concurrent requests, especially as the number of users and projects increase. The performance of the tool should remain stable even during peak usage times.

3.6.5 Reliability

The project management tool should be available and operational at all times, with minimal downtime. Downtime can cause delays and impact the productivity of the team.

3.6.6 Compatibility

The tool should be designed to be accessed by the different device like laptop, desktop computer, mobile or table. The Website should be viewed properly with different size.

3.6.7 Maintenance

Regular maintenance and updates are necessary to ensure the smooth operation of the project management tool. This includes fixing bugs, adding new features, and improving the performance of the tool.

3.6.8 Customization

The tool should be adaptable to the specific needs of individual businesses. This includes allowing businesses to customize the tool to suit their workflows and processes, and providing integrations with other software that the business uses.

3.7 Organizing the specific requirement

3.7.1 System Mode

Operating in online mode is essential for easy access to project data and carrying out important tasks when using a web-based project management application for small organizations. Team members may readily access and update task information from anywhere with an internet connection, making it simple to collaborate and keep track of project progress.

3.7.2 User Class

- **Admins/Business Owner**: Admins are responsible for managing the project management tool, including managing users, project creation, budget tracking and user access security.
- **Project Managers**: Project managers are responsible for planning, assigning, and reviewing tasks. They need access to project management tool to assign tasks, and track progress.
- **Resource Managers**: Resource managers are responsible for allocating and managing resources assigned for tasks. They need access to project management tools to manage resources, assign resources to tasks, and monitor budgets
- **Employees**: Employees are responsible for completing tasks assigned to them along with booking resources required for assigned tasks. They need access to project management tools to view their tasks, deadlines, and resource availability

3.7.3 Objects

- **Project**: represents a specific initiative or goal that the tool is being used to manage. Attributes may include project name, description, start date, end date, budget. Services include adding tasks to the project, assigning team members to tasks, tracking progress, and generating reports.
- **Task**: represents a specific piece of work that needs to be completed as part of a project. Attributes may include task name, description, start date, end date, assigned team member(s), priority, and status. Services may include updating task status, assigning sub-tasks, and attaching files or comments.
- **Dashboard**: represents a customizable overview of project and team performance. Attributes may include graphs that show key metrics (project completion rate, team workload, budget status).

- **Resource**: represents a physical or digital asset that is required to complete a task or project. Attributes may include resource name, description, availability, and cost. Services may include reserving or requesting resources, tracking resource usage.

3.7.4 Feature

- **Time Tracking**: enables users to track the time spent on tasks or projects. Features may include manual or automatic time tracking, reports on time spent by team members or project, and integration with billing and invoicing.
- **Project Management**: enables users to plan and organize projects. Features may include creating project timelines, defining milestones and dependencies, and setting project budgets.
- **Resource Management**: enables users to manage physical or digital resources needed for tasks or projects. Features may include resource reservation or request, tracking of resource usage, and alerts for resource availability or conflicts.
- **Task Management**: enables users to create, assign, prioritize, and track tasks for individual team members or entire projects. Features may include task creation with description and due date, assignment of tasks to team members.
- **Communication**: enables team members to communicate with each other and stakeholders about tasks and projects. Features may include email notifications, team messaging, and comments on tasks and projects.
- **Reporting**: enables users to generate reports on tasks, projects, and resources. Features may include customizable report templates, graphical representations of data, and export options to various file formats.
- **Integration**: enables users to integrate the project management tool with other software or services. Features may include integration with email, calendar.

3.7.5 Stimulus

Stimulus: Project Management

- Creating and Managing Projects
    - Creating a New Project
    - Assigning Team Members to a Project
    - Setting Project Deadlines
- Task Management
    - Creating Tasks within a Project
    - Assigning Tasks to Team Members
- Tracking and Reporting
    - Monitoring Progress of Projects and Tasks
    - Generating Reports on Project Status

Stimulus: Resource Management

- Resource Allocation
    - Approve the resource allocation request
    - Track the resource utilization

Stimulus: User Management

- User Onboarding and Access Control
    - Manage User Access and Permissions
    - Ensure Data Security and Compliance with Regulatory Standards

3.7.6 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.
- Setting project deadlines helps in managing and tracking the progress of the project.
- Creating tasks within a project and assigning them to team members is important for task management.
- Monitoring the 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: Resource Management

- Allocate the resources by approving the request
- Keep track of the resource utilization and availability

Response for Stimulus: User Management

- User onboarding and access control are important for user management.
- Managing user access and permissions can help in ensuring data security and compliance with regulatory standards.

3.7.7 Functional Hierarchy

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

- **User Interface**: provide users with tools to interact with the system. This category includes Login and Authentication, Dashboard and Navigation, and Task and Project Creation.
- **Project Management**: manage project workflows and schedules. This category encompasses Project and Task Assignment, and Task and Project Tracking.
- **Resource Management**: involve managing and optimizing resource utilization. This category comprises Resource Allocation and Resource Utilization Tracking.
- **Reporting and analytics**: which provide valuable insights into project and task performance. This category includes Project and Task Performance Metrics.

4. Change Management System

The Change Management System consists of four main components:

- Change Request: This component involves the identification and documentation of a requested change, including its scope and impact. It serves as the initial step in the change management process and requires a clear understanding of the reason behind the requested change.
- Request Evaluation: This step involves a thorough assessment of the requested change to determine its feasibility and potential impact on the organization's processes, systems, and people. The evaluation process also involves identifying potential risks.
- Request Approval: This step involves obtaining the necessary approvals from relevant stakeholders. The approval process ensures that the change is aligned with the organization's strategic goals and that it is feasible, cost-effective, and sustainable.
- Request Implementation: This final step involves the actual implementation of the approved change. It includes communication, training, testing, and deployment of the new process or system. The implementation phase also involves monitoring and evaluating the success of the change.

5. Supporting Document

The Supporting document is consisted of the user stories for the different users of the project management system, which was done as a part research of the project to understand the functional requirement of the project.

Link: https://drive.google.com/file/d/1jD0m5q-cf5LSRQ8mTEJ8Rck6AlfFFuzS/view?usp=sharing