**Functional Requirements Document for**

**WorkFlow**

**(Project Management Tool)**

**1. INTRODUCTION**

**1.1 Purpose**

The purpose of this document is to define the functional requirements for a web-based Agile project management tool.

**1.2 Scope**

This document outlines the core functionalities that will be included in the initial release of the Agile project management tool. These functionalities are designed to facilitate project planning, execution, collaboration, and tracking.

**1.3 Target Audience**

This document is intended for use by developers, testers, stakeholders, and anyone involved in the development and implementation of the project management tool.

**1.4 Installation**

**Frontend code URL:** <https://github.com/Shaik-Mohammed-Amaan/workflow-app>

**Installation steps:**

1. Install the project on your local system.
2. Open the project in the VS Code.
3. Open the terminal and run **npm install --force**
4. Then, run **ng serve**
5. Frontend Application will run on the http://localhost:4000/

**Backend code URL:** <https://github.com/Shaik-Mohammed-Amaan/workflow>

**Installation steps:**

1. Install the project on your local system.
2. Open the project in Eclipse or any other IDE.
3. Change the username and password of MySQL database in the application.properties
4. Create the database with the name **workflow** in the MySQL.
5. Run the application.
6. Populate the roles tables with these values.

USE workflow;

INSERT INTO roles values(1, ROLE\_PRODUCTOWNER);

INSERT INTO roles values(1, ROLE\_SCRUMMASTER);

INSERT INTO roles values(1, ROLE\_SDETENGINEER);

**2. OVERALL DESCRIPTION**

**2.1 Product Perspective**

The Agile project management tool is a web-based application designed to streamline project workflows and enhance team collaboration. It provides a centralized platform for managing project-related information, tasks, communication, and progress. The tool caters to teams with distinct user roles, ensuring that each member has the appropriate level of access and functionality.

**2.2 User Roles**

The system will support the following user roles:

**2.2.1 Product Owner:**

* Has full access to all projects they create within the system.
* Responsible for creating new projects, epics, and user stories (Product Backlog).
* Responsible for adding SCRUM teams (Scrum Master, SDET Engineers) to projects.
* Has access to view the overall progress of projects they created.

**2.2.2 Scrum Master:**

* + Has access to assigned projects.
  + Responsible for managing a set of user stories.
  + Responsible for creating a sprint.
  + Responsible for planning a sprint meeting.
  + Responsible for creating a sprint backlog.
  + Responsible for assigning the tasks to the SDET Engineers.
  + Managing the overall completion of the sprint.
  + Facilitates team communication within the project.
  + Monitors team workload.

**2.2.3 SDET Engineer:**

* + Has access only to the projects they are assigned to.
  + Responsible for viewing and completing their assigned tasks.
  + May track their time spent on tasks.

**2.3 Operating Environment**

The web-based project management tool is expected to be compatible with modern web browsers (e.g., Chrome, Firefox, Safari, Edge). Specific server requirements and technologies will be detailed in the System Requirements Specification (SRS) document.

**2.4 Design and Implementation Constraints**

Specific technologies, frameworks, and database systems to be used will be determined during the design phase. Security considerations, such as data encryption and access control, will be paramount. The system should be designed to be scalable and maintainable.

**3. FUNCTIONAL REQUIREMENTS**

This section details the functional requirements of the Agile project management tool, organized by key feature. Each requirement is assigned a unique identifier (e.g., FR-AUTH-001, FR-USER-001) for traceability.

* 1. **Authentication and Authorization (Implemented)**

**FR-AUTH-001: User Registration**

**Product Owner Role:** The system shall ask for the following details

* + - First Name
    - Last Name
    - Email address (for verification and password recovery)
    - Password (meeting complexity requirements)
    - Confirm password
    - Role (Product Owner)

**Scrum Master and SDET Engineer Role:** The system shall ask for the following details

* + - First Name
    - Last Name
    - Email address (for verification and password recovery)
    - Password (meeting complexity requirements)
    - Confirm password
    - Role (Scrum Master/SDET Engineer)
    - Unique Project Code (Scrum Masters and SDET Engineers will use this code to register and get assigned to projects)

**FR-AUTH-002: User Authentication**

The system shall provide a mechanism for users to authenticate themselves using an email and password.

**FR-AUTH-003: Password Security**

The system shall enforce password complexity requirements, including minimum length, and a combination of uppercase and lowercase letters, numbers, and special characters.

**FR-AUTH-004: Password Storage**

The system shall securely store user passwords using a one-way hashing algorithm (e.g., bcrypt).

**FR-AUTH-005: Login Functionality**

The system shall allow registered users to log in using their email and password as well as to reset their password if they forgot.

**FR-AUTH-006: Authorization**

The system shall control user access to features and data based on their assigned role (Product Owner, Scrum Master, SDET Engineer).

**3.2 User Roles and Permissions**

**3.2.1 Product Owner Role**

* **FR-PO-001: Project Creation (Implemented)**

The system shall allow Product Owners to create new projects.

* **FR-PO-002: Epic and User Story Creation (Implemented)**

The system shall allow Product Owners to create Epics and User Stories, forming the Product Backlog.

* **FR-PO-003: User Assignment to Project (Implemented)**

The system shall allow Product Owners to add Scrum Teams to projects.

* **FR-PO-004: Overall Project Progress View**

The system shall provide Product Owners with a dashboard to view the progress of all projects they created.

* **FR-PO-005: Product Backlog Management (Implemented)**

The system shall allow Product Owners to prioritize and manage the Product Backlog (Epics and User Stories).

**3.2.2 Scrum Master Role**

* **FR-SM-001: Project Access (Implemented)**

The system shall allow Scrum Masters to access only their assigned projects to which they have registered during the registration process.

* **FR-SM-002: User Story Management (Implemented)**

The system shall allow Scrum Masters to manage a set of user stories within their assigned projects.

* **FR-SM-003: Sprint Creation (Implemented)**

The system shall allow Scrum Masters to create sprints, defining sprint goals and durations.

* **FR-SM-004: Sprint Planning Meeting Management**

The system shall facilitate Scrum Masters in planning and tracking sprint meetings (e.g., scheduling, agenda, notes).

* **FR-SM-005: Sprint Backlog Creation (Implemented)**

The system shall allow Scrum Masters to create a sprint backlog by moving user stories and tasks from the product backlog into a sprint.

* **FR-SM-006: Task Assignment**

The system shall allow Scrum Masters to assign tasks to SDET Engineers within their assigned sprints.

* **FR-SM-007: Sprint Completion Management**

The system shall provide tools for Scrum Masters to track and manage the overall completion of a sprint.

* **FR-SM-008: Team Workload View**

The system shall provide Scrum Masters with a view of their team's workload within the project.

* **FR-SM-009: Impediment Tracking**

The system shall allow Scrum Masters to track and manage impediments to sprint progress.

**3.2.3 SDET Engineer Role**

* **FR-SDET-001: Project Access (Implemented)**

The system shall allow SDET Engineers to access only their assigned projects to which they have registered during the registration process.

* **FR-SDET-002: Assigned Task View and Update (Implemented)**

The system shall allow SDET Engineers to view and update the status of their assigned tasks.

* **FR-SDET-003: Time Tracking**

The system shall allow SDET Engineers to track their time spent on tasks.

* **FR-SDET-004: Bug Reporting**

The system shall allow SDET Engineers to report bugs associated with specific tasks or user stories.

**3.3 Project Creation and Management**

* **FR-PROJ-001: Project Creation (Implemented)**

The system shall allow Product Owners to create new projects with a project name, description, and key stakeholders.

* **FR-PROJ-002: User Assignment to Project (Implemented)**

The system shall allow Product Owners to assign Scrum Teams (Scrum Masters and SDET Engineers) to projects, potentially by sending a unique project code to their email IDs.

**3.4 Backlog Management (Epics and User Stories)**

* **FR-BACKLOG-001: Epic Creation (Implemented)**

The system shall allow Product Owners to create Epics with a title, description, and associated user stories.

* **FR-BACKLOG-002: User Story Creation (Implemented)**

The system shall allow Product Owners to create User Stories with a title, description, acceptance criteria, and priority.

* **FR-BACKLOG-003: Product Backlog Prioritization (Implemented)**

The system shall allow Product Owners to prioritize user stories within the Product Backlog.

* **FR-BACKLOG-004: User Story to Epic Association (Implemented)**

The system shall allow Product Owners to associate user stories with specific epics.

**3.5 Sprint Management**

* **FR-SPRINT-001: Sprint Creation (Implemented)**

The system shall allow Scrum Masters to create new sprints with a start date, end date, and sprint goal.

* **FR-SPRINT-002: Sprint Backlog Population (Implemented)**

The system shall allow Scrum Masters to add user stories and tasks from the Product Backlog to a sprint backlog.

* **FR-SPRINT-003: Sprint Progress Tracking**

The system shall provide Scrum Masters with tools to track the progress of ongoing sprints (e.g., burn-down charts, task completion status).

* **FR-SPRINT-004: Sprint Retrospective Support**

The system may provide features to support sprint retrospectives (e.g., capturing "what went well," "what could be improved," action items).

**3.6 Task Management**

* **FR-TASK-001: Task Creation (Implemented)**

The system shall allow authorized users (Scrum Master and SDET Engineers) to create tasks with descriptions, due dates, priority levels, assignees, and statuses.

* **FR-TASK-002: Subtasks/Checklists (Implemented)**

The system shall allow authorized users (Scrum Master, SDET Engineer) to create subtasks or checklists within tasks.

* **FR-TASK-003: File Attachments**

The system shall allow authorized users to attach files to tasks.

* **FR-TASK-004: Notifications and Reminders**

The system shall provide notifications and reminders for upcoming deadlines or task updates.

* **FR-TASK-005: Task Status Updates**

The system shall allow assigned users (SDET Engineers) to update the status of their tasks (e.g., To Do, In Progress, Done, Blocked).

* **FR-TASK-006: Task Commenting**

The system shall allow users to add comments to tasks for collaborative discussions.

**3.7 Chat Functionality (Not Implemented)**

* **FR-CHAT-001: Project-Specific Chat Channels**

The system shall provide project-specific chat channels for real-time communication within a team.

* **FR-CHAT-002: Direct Messaging**

The system shall allow direct messaging between users.

* **FR-CHAT-003: File and Link Sharing**

The system shall allow users to share files and links within the chat.

* **FR-CHAT-004: Chat Notifications**

The system shall provide notifications for new chat messages.

**3.8 Progress Tracking and Reporting (Not Implemented)**

* **FR-RPT-001: Overall Project Progress Dashboards**

The system shall provide Product Owners with overall project progress dashboards.

* **FR-RPT-002: Individual and Team Progress Reports**

The system shall provide Scrum Masters with individual and team progress reports within their assigned projects.

* **FR-RPT-003: Sprint Burn-down/Burn-up Charts**

The system shall generate sprint burn-down and burn-up charts to visualize sprint progress.

* **FR-RPT-004: Cumulative Flow Diagrams**

The system may provide cumulative flow diagrams to visualize the flow of work.

**3.9 Notifications and Alerts (Not Implemented)**

* **FR-NOTIF-001: Customizable Notifications**

The system shall provide customizable notifications for task assignments, deadlines, updates, sprint changes, and new chat messages.

* **FR-NOTIF-002: Email Notifications**

The system shall send email notifications for critical updates or assignments.

* **FR-NOTIF-003: In-App Notifications**

The system shall display in-app notifications for real-time updates.

**4. User Interfaces**

The UI will be designed to be intuitive, user-friendly, and visually appealing, adhering to modern design principles.

**4.1 Home Page**

* **Content:**
  + Responsive Navigation Bar: Logo, website name (left); About, Contact, Login, Register links (right).
  + Hero Section: Project management vector and catchy headline.
  + Key Features Section: Main features displayed as cards.
  + Testimonials Section: User reviews as horizontal scrollable cards.
  + Footer section.

**4.2 Registration Page**

* **Content:**
  + Form with fields for: Username, Email, Password, First Name, Last Name, Gender, Mobile Number, Role (Product Owner during initial registration).
  + Team Leads (Scrum Master) and Team Members (SDET Engineer) will also have a field for "Project Code".
  + "Register" button.
  + Link to the login page.
* **Elements:** Input fields with labels, clear error messages for invalid input, progressive disclosure for role-specific fields.

**4.3 Login Page**

* **Content:**
  + Form with fields for: Email/Username, Password.
  + "Login" button.
  + Link to the "Forgot Password" page.
  + Link to the registration page.
* **Elements:** Input fields with labels, "Show/Hide Password" functionality, error message for incorrect credentials.

**4.4 Project Dashboard (Product Owner)**

* **Content:**
  + List of all projects created by the Product Owner.
  + Ability to create a new project.
  + Navigation to individual project views.
* **Elements:** Card-based layout for project display, "Create Project" button, search/filter functionality, progress indicators for each project.

**4.5 Project View (Product Owner/Scrum Master)**

* **Content:**
  + Project details (name, description).
  + List of team members assigned to the project.
  + List of tasks for the project.
  + Project progress overview.
  + Link to project chat.
  + Ability to add/remove team members (Product Owner).
  + Ability to create/manage tasks.
* **Elements:** Sidebar navigation for different sections (e.g., "Overview," "Team," "Tasks," "Chat"), progress bar, task list with filters and sorting.

**4.6 Task List/Board (Scrum Master/SDET Engineer)**

* **Content:**
  + List or Kanban board view of tasks.
  + Task details (name, due date, assignee, status, priority).
  + Ability to filter and sort tasks.
  + Ability to create new tasks (Scrum Master).
  + Ability to update task status (SDET Engineer, Scrum Master).
* **Elements:** Drag-and-drop functionality for status updates (Kanban board), task cards with relevant information, modal or inline editing for task details.

**4.7 Task Detail View**

* **Content:**
  + All task details (name, description, due date, assignee, status, priority).
  + Subtasks/checklists.
  + File attachments.
  + Comments/discussion section.
  + Ability to edit task details (Scrum Master).
  + Ability to add/complete subtasks.
  + Ability to upload/download files.
* **Elements:** Form for editing task details, list of subtasks with checkboxes, file upload component, comment input area.

**4.8 Chat Interface**

* **Content:**
  + List of chat messages.
  + Input area for sending new messages.
  + Display of user names and timestamps.
  + File/link sharing functionality.
* **Elements:** Message bubbles, scrollable message area, input field with a "Send" button, file upload button.

**4.9 User Management (Product Owner)**

* **Content:**
  + List of all users.
  + User details (username, email, role, etc.).
  + Ability to edit user roles and status.
  + Ability to deactivate user accounts.
* **Elements:** Table or card-based layout for user display, "Edit" and "Deactivate" buttons, search/filter functionality.

**4.10 Report Generation**

* **Content:**
  + Options to select report type.
  + Filters (date ranges, projects, users).
  + Ability to generate and download reports.
* **Elements:** Dropdown menus for selecting report type and filters, "Generate Report" button, download link for generated reports.

**4.11 Profile Screen**

* **Content:**
  + User details (username, email, first name, last name, gender, mobile number).
  + Ability to edit user details.
* **Elements:** Form for editing profile information, "Save Changes" button.