

Cover page

Department of Natural Applied Science

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SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

Organizers

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Introduction

CollabTrack Overview

Purpose: A simple project and task management tool for individuals and small teams to organize goals, manage time, and collaborate effectively.

Core Idea: Focuses on clarity and usability—no unnecessary complexity. Users can create accounts, start projects, add tasks, assign priorities, and track progress in one place.

Evolution: Originally a personal organizer, now expanded into a full **collaborative platform** with secure login, shared projects, and real-time activity logs.

Technology: Built with **Node.js, Express, EJS, and SQLite**, with a future move to PostgreSQL.

Impact: Strengthens teamwork, coding, and version control experience while delivering a secure, user-friendly, and scalable project organizer.



Project: The main workspace or goal created by a user.

Task: A smaller step or action item within a project.

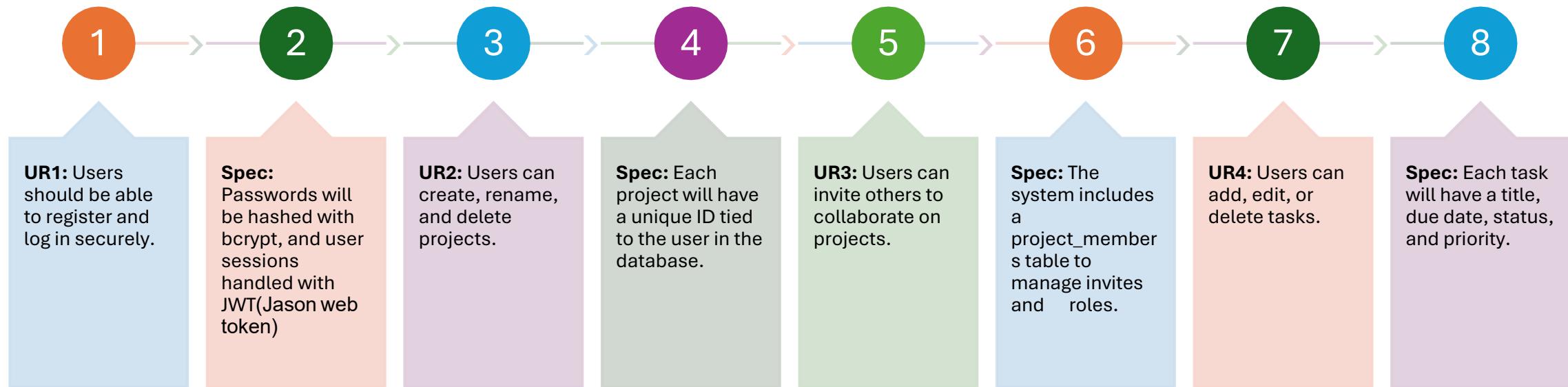
Reminder: A scheduled alert to notify users before due dates.

Private Project: Only visible to the project owner.

Shared Project: Visible to invited users for collaboration.

- **Owner:** The user who created the project and can manage members.
- **Member:** A user invited to collaborate on a project.
- **Status:** The progress stage of a task (To Do, In Progress, or Completed).
- **Activity Log:** A list of updates that show changes made by team members.
- **EJS:** The templating engine used to display dynamic HTML content.
- **API:** The backend routes that handle data and user actions.

User Requirements + System Specifications



User Requirements + System Specifications

- **UR5:** Users can set reminders for tasks.

Spec: A scheduler checks deadlines and displays or sends notifications.

- **UR6:** Users can leave comments or updates on a project.

Spec: Store user comments and updates in an activity log table.

- **UR7:** Users can choose between private or shared projects.

Spec: The database will include a privacy flag to limit visibility.

- **UR8:** Users can view project progress and completed task percentages.

Spec: Progress is calculated based on completed tasks vs total tasks.



Functional Requirements (Summary)



NON – FUNCTIONAL REQUIREMEN TS

High Priority (Core System Qualities)

- **NFR1: Security & Privacy** – Protect user data with password hashing (bcrypt) and JWT authentication; restrict access to private projects.
- **NFR2: Reliability** – Ensure reminders trigger accurately and data saves consistently.
- **NFR3: Performance** – Maintain quick response time (under 3 seconds per page).

Medium Priority (Enhancement Qualities)

- **NFR4: Usability** – Keep the interface clean, simple, and easy to understand for all users.
- **NFR5: Maintainability** – Organize backend code (routes/controllers/views) for easier updates and debugging.
- **NFR6: Portability** – App should run locally or deploy easily to services like Render or Heroku using MySQL.
- **NFR7: Scalability** – Designed so the database and system can expand to handle more users or switch to a stronger DB (PostgreSQL).

Low Priority (Future Improvements)

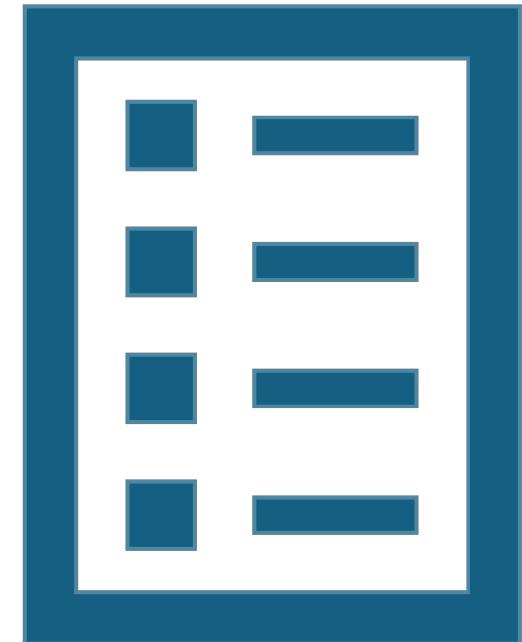
- **NFR8: Accessibility** – Optimize for mobile and assistive technologies (screen readers, keyboard navigation).
- **NFR9: Data Backup & Recovery** – Automatic daily backups or export feature for data recovery.
- **NFR10: Analytics Integration** – Support future tracking for performance and usage stats.

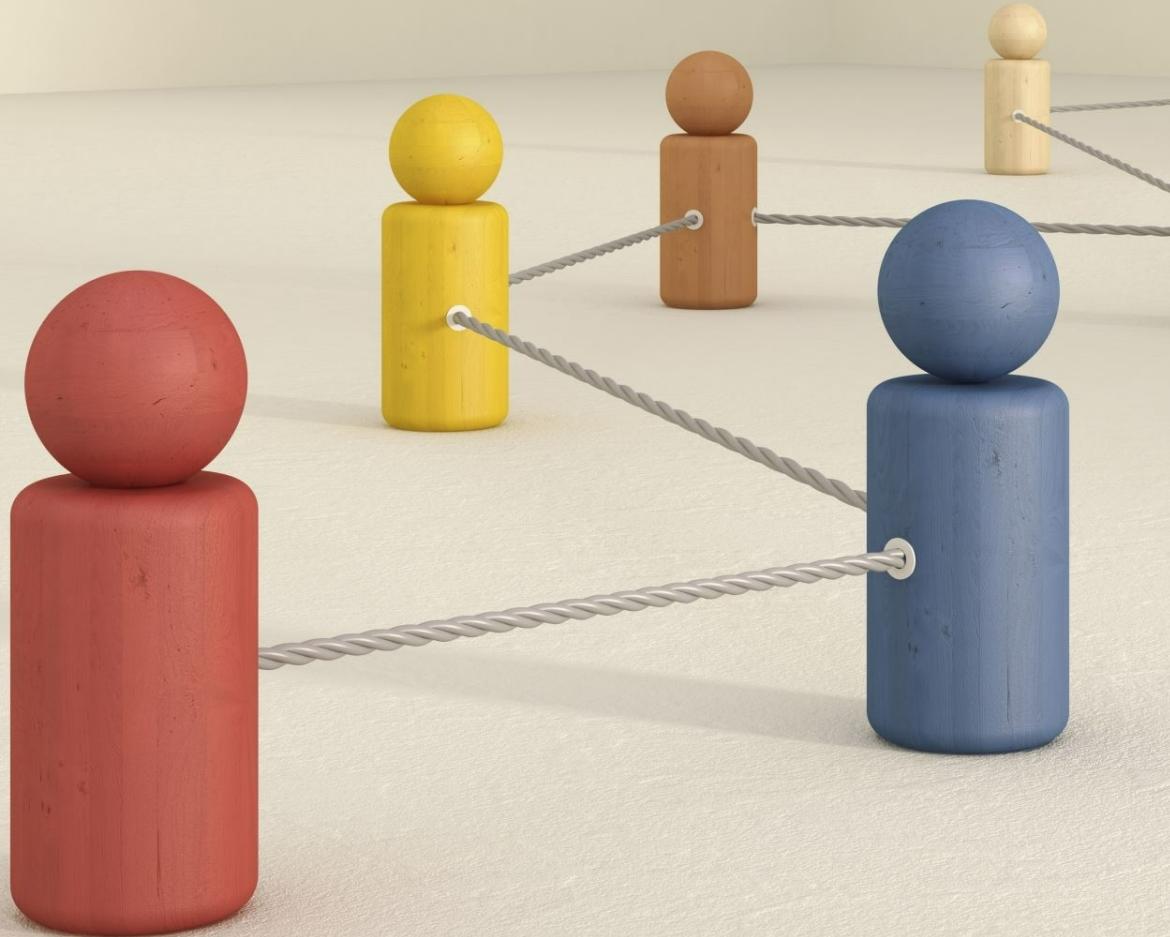
Priority Method:

- Based on the **MoSCoW Method** (Must, Should, Could, Won't). Focus first on “must-have” qualities like security, reliability, and speed before enhancements and future expansions.

Top 5 Requirements

- **Function:** Task Creation
- **Inputs:** Details on task name, description, due date, urgency, importance
- **Outputs:** A task added to the user's calendar
- **Requires:** A user account with CollabTrack
- **Description:** This creates a new task that the user wants to keep track of. The new task will be added to the user's general task calendar
- **Action:** User will be prompted for information regarding the new task. Upon inputting task information like name, description and deadline, the system will create a new task and add it to the user's general calendar
- **Precondition:** There must not be an exact same task with the same name, due date and description
- **Postcondition:** The new task has been added to and is viewable on the user's general calendar
- **Side Effects:** None





- **Function:** Group Creation
- **Inputs:** Two CollabTrack accounts (including the user creating the group)
- **Outputs:** A new CollabTrack group with two members
- **Requires:** Two valid CollabTrack accounts
- **Description:** Creates a new CollabTrack group board with a multiple or one single account
- **Action:** Upon clicking the 'New Group' button a user will be prompted with information about the group like name and description. The user will then need to select one other user to add to the group at creation. When the user has input all selections, the new group is created and added to the list of group the user is in.
- **Precondition:** The only precondition is that the two accounts that will be in the group at its creation must be valid(Valid = Account exists)
- **Postcondition:** The new group has been created, and group members can access the group board
- **Side Effects:** None

- **Function:** Task deadline notifications
- **Inputs:** An existing tasks deadline time stamp, the current time stamp
- **Outputs:** A notification will be sent to the option the user selected to receive notifications through
- **Requires:** A CollabTrack account, an existing task, the current time stamp, an option selected for notification 'pathway' (The option for how or what users will use to receive notifications)
- **Description:** When a task deadline has passed/arrived, the system will send a notification to the user to inform them of the task
- **Action:** The system keeps track of all user created and group tasks. The system compares the current time stamp to the deadline(will be stored as a time stamp) for a task. If the deadline has passed the system will send a notification via the option, the user selected as their notification pathway. The notification will be sent through either email, text, or app notification.
- **Precondition:** An existing task with a time stamp that has not been passed already, an option selected for how the user will receive notifications
- **Postcondition:** A notification sent through the users desired pathway ('Pathway' as in text, email or app notification)
- **Side Effects:** None

Top 5 Requirements (Cont.)

Function: Group Task Creation

Inputs: Details on task name, description, due date, urgency, importance

Outputs: A new task that is viewable on that specific groups calendar

Requires: A CollabTrack account, an existing group that you are in

Description: Creates a new task on the group calendar that all group members can view

Action: User will be prompted for information regarding the new group task. Upon inputting task information like name, description and deadline, the system will create a new task and add it to the groups task calendar for all group members to view.

Precondition: Only precondition is that a group exists, and the user is a part of it

Postcondition: A new group task that all group members can view

Side Effects: None

Function: Group Invitation

Inputs: An existing group, a CollabTrack account that is not in the provided group

Outputs: A CollabTrack account that has joined the provided group

Requires: An exsisting group, a CollabTrack account that is not in the provided group

Description: Sends an invitation to a user to join a group user can accept or deny

Action: A user selects a specific or multiple CollabTrack accounts to invite to an existing group they are in. Once the invitations have been sent, the receiving users can choose to deny or accept the invitation. If they accept, they will be added into the CollabTrack group

Precondition: An existing group must exsist in order to invite another account to it

Postcondition: The account that was invited is either in the group if they accepted it or not if they denied the invitation

Side Effects: None

Scenarios

Initial Assumption: John, Jane, and Brandon are all students in a group for their biology final project. The group of students are planning on doing a group project on ecosystems. They all have accounts with CollabTrack and are all in a group within CollabTrack. The group has an important date coming up where they will present a rough draft of their project.

Normal: One member of the group creates a task in the group calendar within the CollabTrack app. They note down the tasks name, urgency, importance, and add extra info to the description of the task.

What can go wrong: A task may have already been created with that date and time. Users should be prompted to continue with the creation of the task. If they respond yes, the task will be created and the app will remember to notify the user when the new and already created tasks are coming up. If the user decides to not continue with the task's creation, the task will be deleted and not be added to the group calendar.

Other activities: N/A

System state on completion: The task has been created on the group calendar. Group members will be notified of when the task is coming up.

Scenarios (Cont.)

Initial Assumption: John, Jane, and Brandon are all students in a group for their biology final project. The group of students are planning on doing a group project on ecosystems. They all have accounts with CollabTrack and are all in a group within CollabTrack. The group has an important date coming up where they will present a rough draft of their project.

Normal: One of the group members, John needs to access the CollabTrack app to inform the other group members about not being able to make the presentation date and to reschedule. John has not accessed the CollabTrack app on his laptop, so he'll need to log in again.

What can go wrong: John might have forgotten the password to his account. He will need to go through the CollabTrack password reset where users authenticate with an email that they provided at account creation. The system will send code to the user which they can then use to reset the password to their account.

Other activities: N/A

System state of completion: Once John has received the code sent by the CollabTrack system, he can then use it to reset and create a new password for his account and get logged in to send the message to his group members.

Scenarios (Cont.)

- **Initial Assumption:** John, Jane, and Brandon are all students in a group for their biology final project. The group of students are planning on doing a group project on ecosystems. They all have accounts with CollabTrack and are all in a group within CollabTrack. They recently found a fourth person they want to invite to the CollabTrack group they made.
- **Normal:** The new group member can create a new CollabTrack account then someone from inside the group can invite the new member by searching their CollabTrack username up and inviting them. Once the new member gets the invite notification sent to them, they can accept or deny the invite.
- **What can go wrong:** When attempting to invite the new member, the new members account may not be able to be found by searching with their username. Instead, users can use the email or phone number linked to an account to find other accounts. The user could have already been in the group or have already been invited. In that case the invite will not be sent, and the user will be informed in the app that the intended user to add has already been invited to the group or already is in the group.
- **Other activities:** N/A
- **System state of completion:** The new member should be added to the group

CollabTrack Use Case Diagram

