Time Blocker App

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Customer Problem Statement

Problem Statement:

In the modern world, it can be difficult for people to manage their time efficiently and achieve their goals. Typically, time blocking is done with pencil and paper, which results in a very manual process where the individual must decide what they must do during each period of time and decide what to do next. However, with a modern web application this process could become less time-consuming and thought intensive. By allowing the system to take the guesswork out of what an individual should do when, they should be able to achieve more of their goals.

Glossary of Terms:

- **Web Application**
  - Web applications are a modern type of website that can be written in many different languages.
- **React**
  - A JavaScript library developed by meta (formerly Facebook) with focus on reusable components.
- **Next.js**
  - A full stack framework built on top of react. This is what we will use for our application to allow for easy and fast communication with the database.
- **Task**
  - A task in our system is something that a user can create, and we store. They can name a task whatever they like and give it a description if they want to.
- **Schedule**
  - The schedule within our application will be a visual representation of a user's day.

System Requirements

Functional Requirements:

No.	Priority Weight	Description
REQ-1	High	Application should allow users to create an account
REQ-2	High	Application should allow user to create new tasks; tasks should contain a name, time they need to be completed by, and an expected duration. The task could optionally contain a description.
REQ-3	High	A user should be able to view and manage their tasks.
REQ-4	High	The system should automatically generate/modify a time block schedule based on the user's tasks.
REQ-5	Medium	Tasks should have categories that are stored in the database
REQ-6	Low	Users should be able to invite other users to a shared task.
REQ-7	Medium	Tasks should be able to have dependencies (other tasks that depend on it).
REQ-8	High	Tasks should have an option for fixed times. (Similar to a calendar event)
REQ-9	Low	Option to import selected google calendar events as fixed time items.

Nonfunctional Requirements:

Flexibility	Application will function across multiple platforms due to it being web based.
Security	The application will need to securely keep user data on the server.
Maintainability	The application and server will need to be maintained over the life of the product to ensure usability.

User Interface Requirements

The user interface will begin with a login screen. The user will be able to use different methods to login to the service.

After the user is logged in, they will come to the main interface page. This will show the current date and what is scheduled for that day. The user will also be able to show different dates as well.

The main interface will have a function that will allow the user to input new events into the calendar.

Plan of Work:

Weeks 1 – 2:

- Create project proposal.
- Set up development environment.
- Complete

Weeks 3-4:

- Create problem statements and system requirements.
- Complete

Weeks 5-8:

- Initialize Solito project.
- Create interface and connection to the database.
- Gather requirements for backend and implement.

Weeks 9-12:

- Create login flow.
- Create authentication processes.
- Create the landing page.

Weeks 13-15:

- Development of tasks and the daily schedule.
- Develop backend to generate dynamic schedules based on user input.
- Record the final demo to showcase the app’s capabilities.

Functional Requirements

Stakeholders

Project Designers

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Caleb Leuellen

Chris Wilcox

Developers

Jaecob Dobler

Caleb Leuellen

Chris Wilcox

Managers

Jaecob Dobler

Caleb Leuellen

Chris Wilcox

Sponsors

Professor

Users

Actors and Goals

User – This actor can login to the service, create new calendar items, view calendar items, and view events for the day/week/month.

System – This actor will allow a user to create an account and interact with the UI.

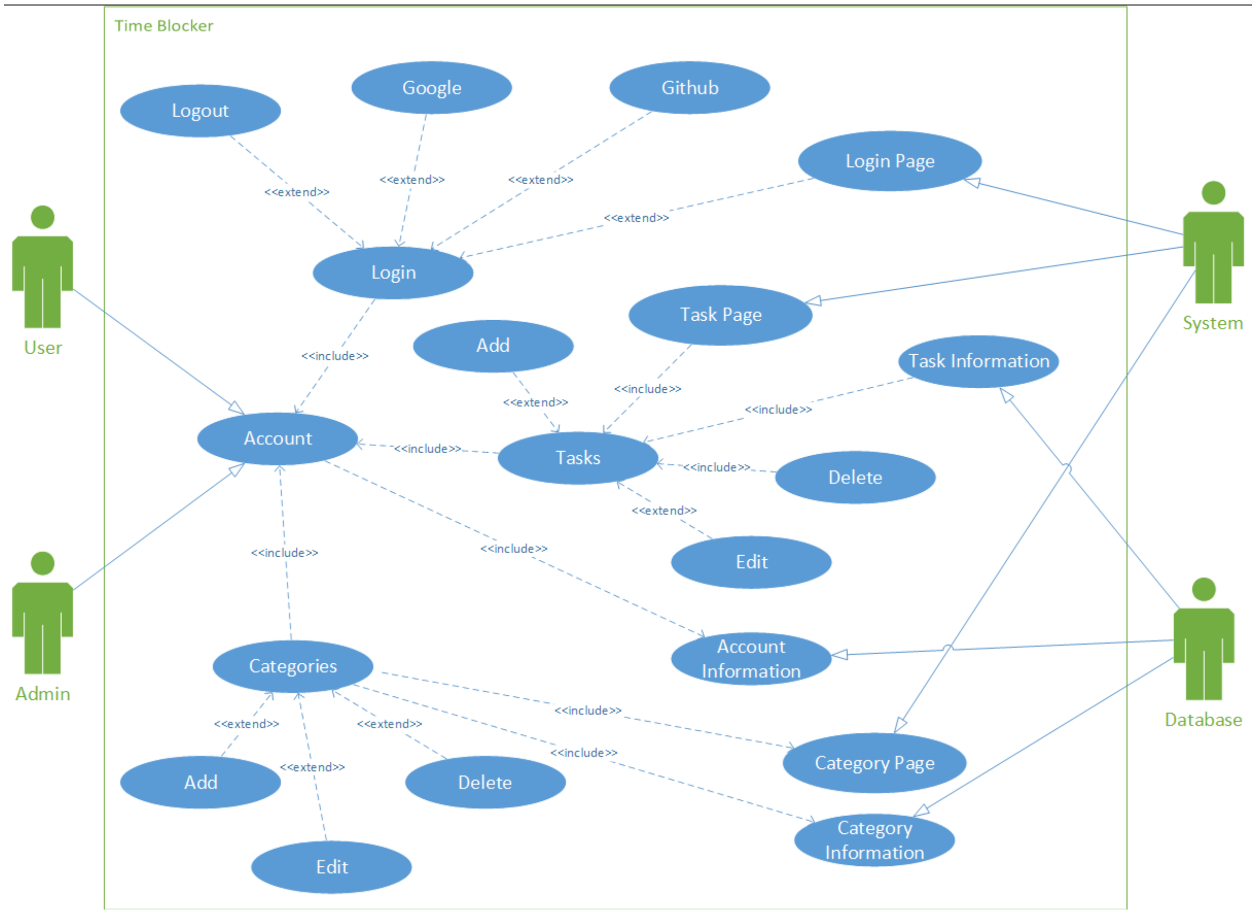
Database – This actor will be responsible for storing all the information input into the system.

Admin – This user will be able to assist a user with their account and with interacting with the UI.

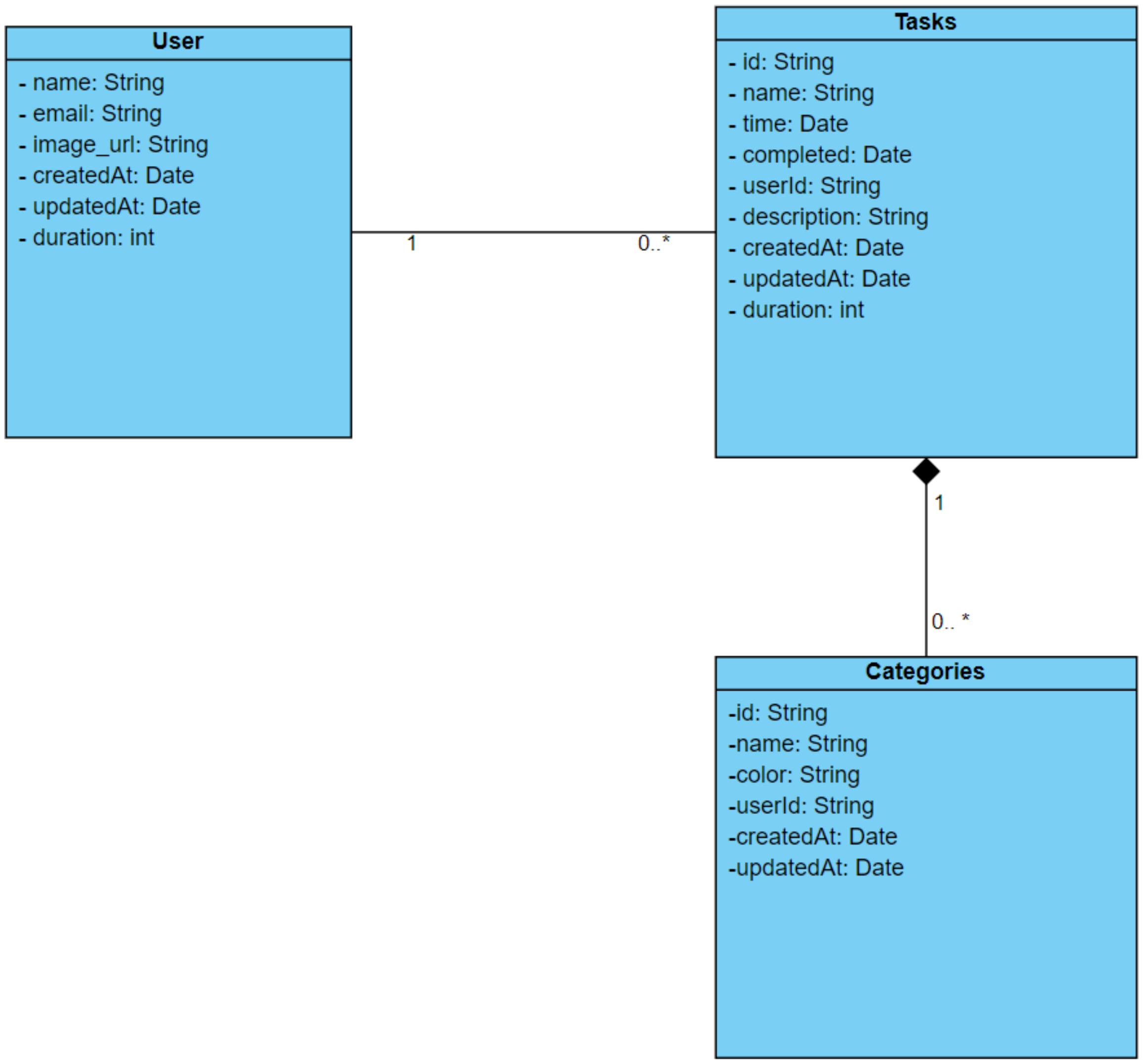
- **Use Cases**
- Create Tasks
- Update Tasks
- Delete Tasks

- Create Categories
- Update Categories
- Delete Categories
- Login with 0Auth2
    - Google
    - GitHub
- Edit profile
- View Pages
    - Dashboard
    - Report
    - View Report
    - Manage Tasks

Use Case Diagram



Class Diagram



Sequence and Activity Diagrams

User logs in with 0 auth

1. Check if a user is already logged in, if so reroute them to the dashboard.
2. When the user clicks login and grants access to their account, the database is checked to see if an account already exists.
3. If the account exists, it logs in the user to that account. If the account does not exist it will create a new account in the database.

User creates a task

1. User fills out task form, form validated on client.
2. Form data is sent to API and added into database. Includes(categories)

User creates a category

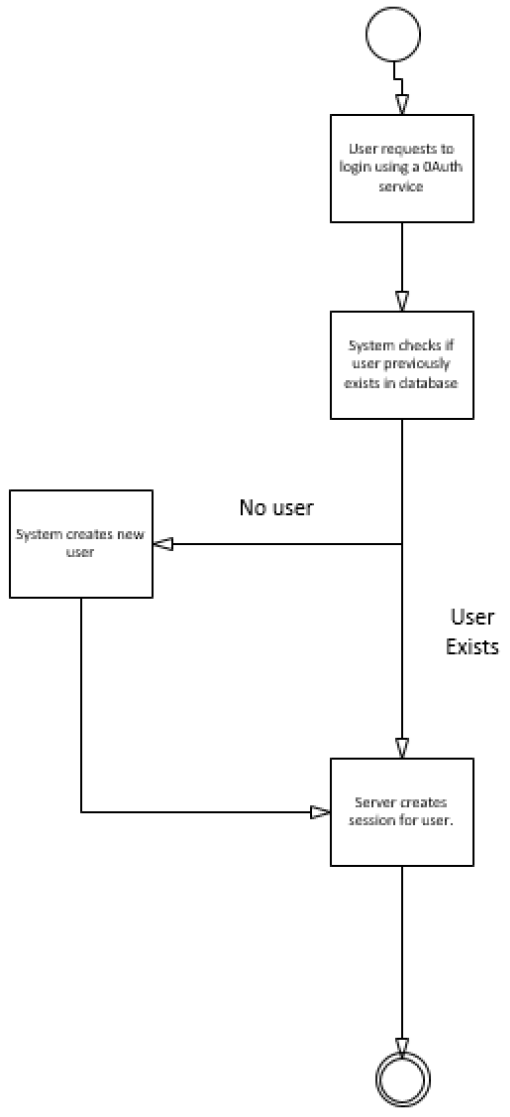
1. User fills out category form, form validated on client.
2. Form data is sent to API and added into database.

User deletes a task

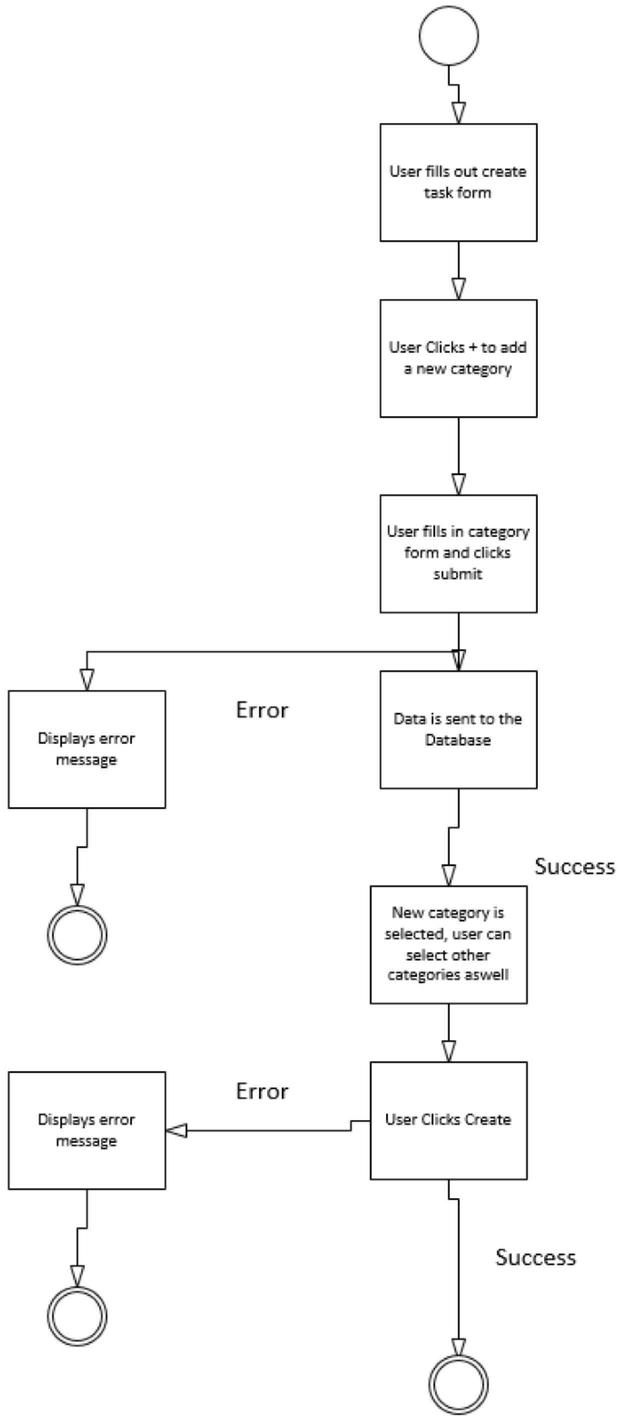
1. User pushes delete on task that they would like to remove.
2. The index of the mapped object is used to determine which task to remove.
3. The task ID is sent to the backend to remove from the database.

Activity Diagrams:

User Logs in with 0Auth

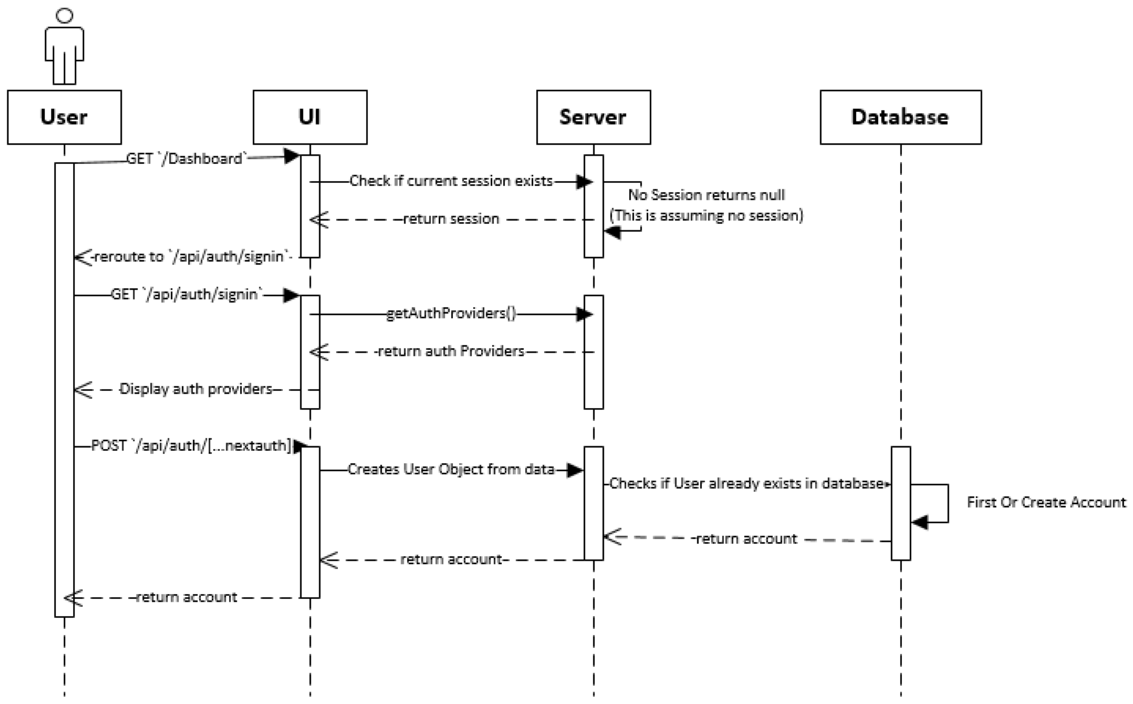

User requests to login using a 0Auth service
System checks if user previously exists in database
No user
System creates new user
User Exists
Server creates session for user.

User creates a task with a new category

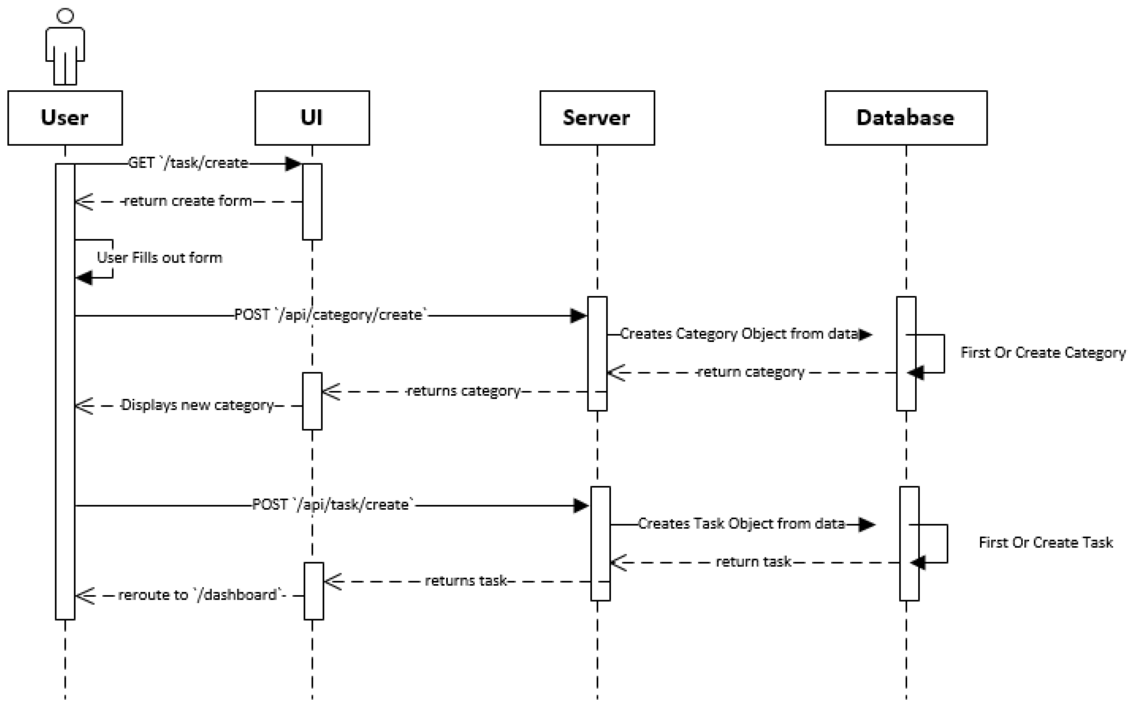

User fills out create task form
User Clicks + to add a new category
User fills in category form and clicks submit
Displays error message
Error
Data is sent to the Database
Success
New category is selected, user can select other categories aswell
Error
Displays error message
User Clicks Create
Success

Sequence Diagrams:

User logs in with 0Auth

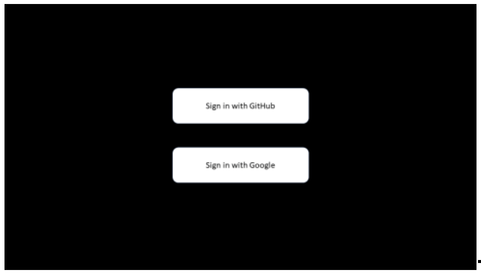


User Creates a new task with a category



User Interface Specification

Reference



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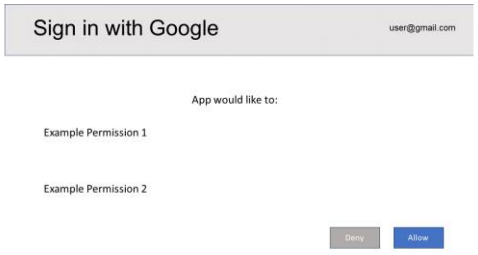

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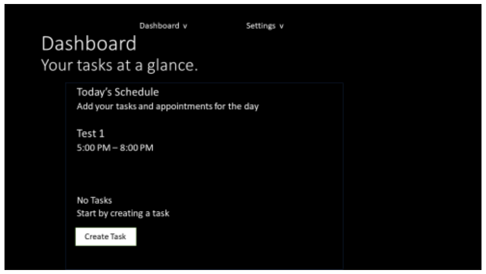
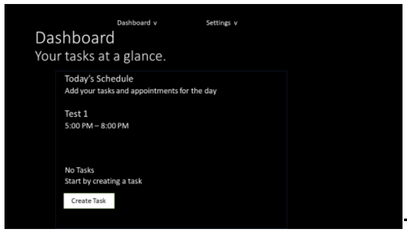


Click "Sign in with Google"

Click "Allow" when prompted

If successful, user will end up on the Dashboard

Use Case: User creates a new Task



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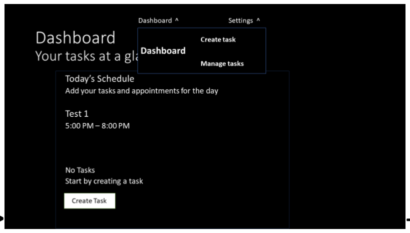

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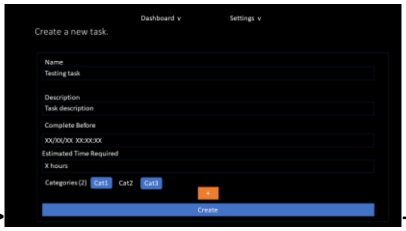


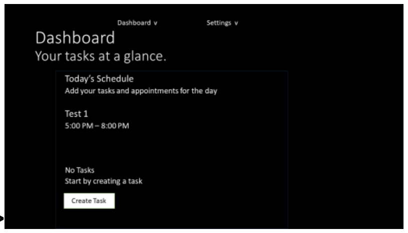
Name
Testing task

Description
Task description

Complete Before
XX/XX/XX XX:XX:XX

Estimated Time Required
X hours

->



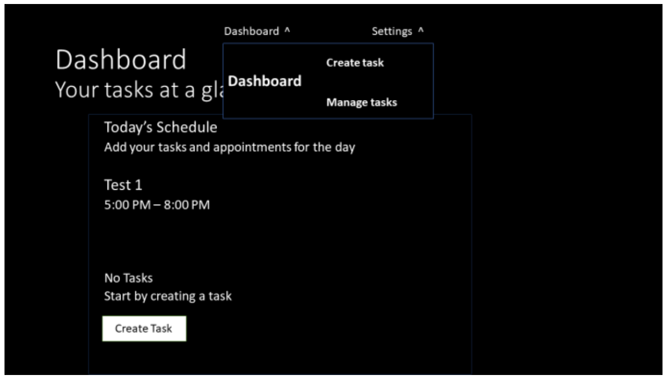
From the dashboard click the Create Task button.

Alternatively, Click Create Task from the top menu.

Fill in all the required details and then click Create.

User is redirected back to the dashboard but the new task is added.

Use Case: User deletes a Task



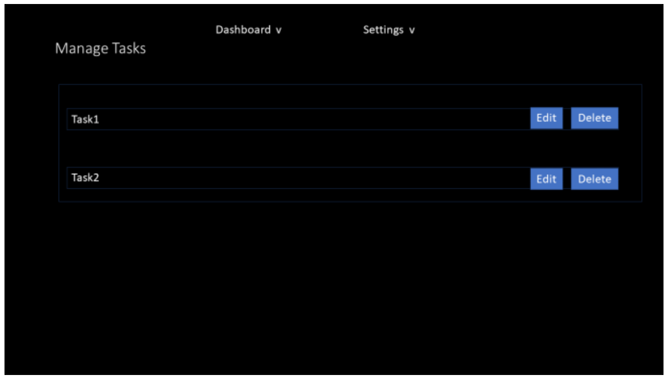
Dashboard
Your tasks at a gl

Today's Schedule
Add your tasks and appointments for the day

Test 1
5:00 PM – 8:00 PM

No Tasks
Start by creating a task

->



Manage Tasks

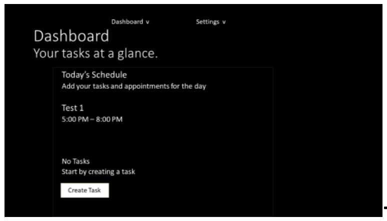
Task1

Task2

On the top menu, click "Manage Tasks"

Click "Delete" next to the task that needs to be removed

Use Case: User adds a category



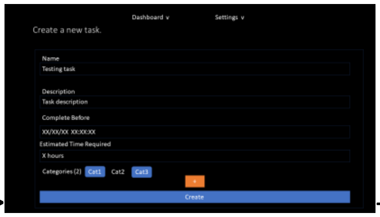
Dashboard
Your tasks at a glance.

Today's Schedule
Add your tasks and appointments for the day

Test 1
5:00 PM – 8:00 PM

No Tasks
Start by creating a task

->



Create a new task.

Name: Testing task

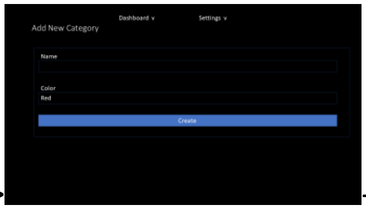
Description: Task description

Complete Before: XX/XX/XX XX:XX:XX

Estimated Time Required: X hours

Categories (2)

->

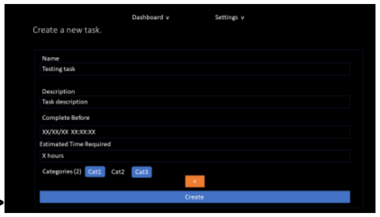


Add New Category

Name

Color: Red

->



Create a new task.

Name: Testing task

Description: Task description

Complete Before: XX/XX/XX XX:XX:XX

Estimated Time Required: X hours

Categories (2)

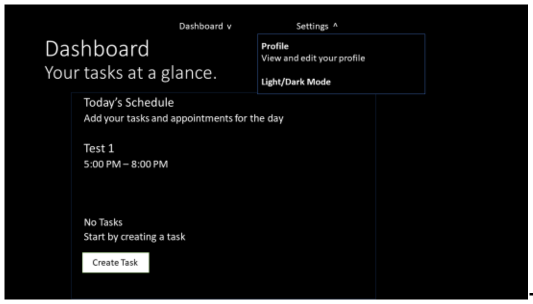
Proceed with task creation as normal and click "Confirm."

Click the orange + next to categories creating the task.

Fill in required information

Use your new category and finish

Use Case: User edits profile



Dashboard

Your tasks at a glance.

View and edit your profile

Today's Schedule

Add your tasks and appointments for the day

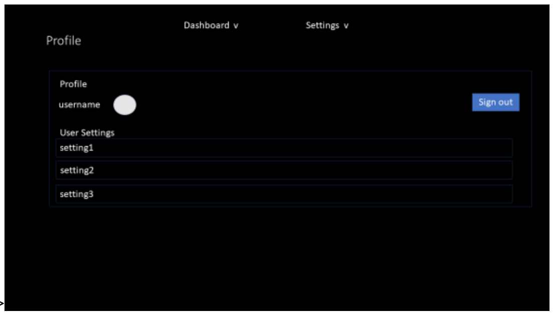
Test 1

5:00 PM – 8:00 PM

No Tasks

Start by creating a task

->



From the top menu, click "Profile"

Edit the user settings as needed

Usage Scenario	**Navigation**	**Clicks**	**Keystrokes**
User logs in with 0Auth2 (Google/GitHub)	Sign in screen, Authentication, Dashboard	<5	<20
User creates a new Task	Dashboard, Task creation screen, Dashboard (updated)	<10	<50
User deletes a Task	Dashboard, Task management screen	3	0
User updates a Task	Dashboard, Task management screen, Task edit screen	4	<50
User creates a new category	Dashboard, Task creation screen, Category creation screen	5	<10
User updates a category	Dashboard, Task creation screen, Category management screen	5	<10
User deletes a category	Dashboard, Task creation screen, Category management screen	5	0
User edits profile	Dashboard, Profile settings screen	<5	<20

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