SRS Document

Project Name: AI Task Breakdown
Course: ENSF 400
Section: L01
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1. Introduction

1.1 Scope

Our system is a web-based application that is designed to assist its user in breaking down projects and assignments into manageable tasks. Users will provide a description of their project or assignment as the input, and the system will generate a structured task list using an LLM. These generated tasks will be displayed within the application as a to-do list or a kanban style interface so that it's easier for the user to digest. Additionally these tasks may be exported for external use.

The primary goal of the system is to bring clarity to projects and assignments that may seem confusing and incoherent. It focuses on decomposition and visualization only, so it will not perform any grading or evaluation, automatically complete assignments, and provide legal or professional advice.This will also mean that the application will not guarantee the correctness of the generated task.

1.2 Intended Audience

The intended audience is intended for but not limited to:

- Students of all grade levels that want clarity for assignments
- Professors that want to break down tasks to see manageability for assignments
- Project manager wanting to break down tasks to delegate

1.3 Terms and Acronyms

LLM - Large Language Model

- A type of artificial intelligence that is trained on large amounts of text so that it can 'understand' and generate language related tasks.

UI - User Interface

- Part of a software system through which users directly interact with.

SRS - Software Requirements Specification

- Detailed document listing all the functional and non-functional requirements of a software system. Usually written with the agreed terms between the customer and contractor.

API - Application Programming Interface

- A common language that allows for different software systems to communicate and exchange data with each other.

PDF - Portable Document Format

- A file format that is able to preserve text, layout, images and formatting exactly the way the original document looks..

Kan-ban style

- An Agile, visual workflow management method. Typically represented by cards which move through columns representing different stages of the process (ex. “To Do”, “Doing”, and “Done)

2. Overall Description

The AI Task Breakdown is a standalone application that was originally supposed to be incorporated inside of a General Development Lifecycle where it would automate the decomposition process of a large general task. However, it is not limited to teams and can be used individually as a basic task breakdown tool. In the case that it is used individually it will adjust to the users capabilities to also include expected time in reference to the task. The application will be web-based and designed in a way so that it will run smoothly on both desktop and mobile.

2.1 User Classes

Students

- Expect quick and clear task breakdowns for academic work
- May have limited technical knowledge

Professors

- Use to assess workload of assignments
- Could have complex descriptions

Project Managers

- Use for early-stage task breakdown
- Likely to want Kanban boards

2.2 Operating Environment

The system will operate as a web-based application accessible via modern web browsers on both desktop and mobile devices. No local installation should be required with the backend running on cloud infrastructure.

2.3 Constraints

- Internet connectivity is required.
- API usage is limited to the LLM provider.
- The system will need to use a third-party LLM API for task generation.
- Free-tier API usage may limit number of requests

2.4 Assumptions

- Users provide clear project description
- LLM service remains active and responsive
- Application is accessed through the web browser.
- System is using valid API credentials for the LLM

3. System Feature

Feature ID	Feature name	Description	Priority	Functional Requirements
FR-1	Login System	Allows users to create an account and log in so their projects and generated tasks can be saved and accessed later.	Medium	- The system shall allow users to register using an email address and password. - The system shall allow users to log in using a registered email address and password. - The system shall allow users to log out of the application. - The system shall display an error message when login credentials are invalid. - The system shall maintain an authenticated user session after a successful login. - The system shall restrict access to saved projects and tasks to authenticated users login.
FR-2	Project Description Input	Allows user to input a project or assignment description	High	- The system shall provide a text input field for project descriptions - The system allows the user to submit the description for processing. - The system shall validate that the description is not empty for

				submission. - The system shall allow the user to edit the description before generating tasks. - The system shall display a configuration/loading state after the user submits a description.
FR-3	LLM Task Breakdown	Uses an LLM to generate tasks based on user input.	High	- The system shall send the project description provided to the LLM API - The system shall receive then parse the generated response into tasks. - The system shall include a title and short description for each generated task. - The system shall handle failed or empty LLM responses without crashing. - The system shall display an error message if task generation fails. - The system shall allow the user to regenerate tasks using the same project description.
FR-4	Task Viewer	Displays generated tasks in a structured format	High	- The system allows the user to view tasks in detail. -The system shall allow the user to mark tasks as complete or incomplete.

				- The system shall allow the user to edit a task title and task description. - The system shall allow the user to delete tasks from the task list. - The system shall support viewing tasks in either a lit view or a kanban-style view. - The system shall persist task changes for logged-in users.
FR-5	Export Tasks	Allows user to export task as a file (PDF or text)	Low	- The system will allow the user to select if they want to export tasks as a downloadable file. - The system support exporting tasks in at least one structured format (e.g., CSV or JSON). - The system shall include task titles, descriptions, and completion status in exported data. - The system shall allow the user to export either all tasks or a selected subset of tasks.
FR-6	Conversationally add/drop tasks	Allows the user to modify the task list using natural language commands (e.g., add tasks, remove tasks, or revise tasks) through an LLM-assisted chat input.	High	- The system shall provide a conversational input field for task modifications. - The system allows the user to request adding new tasks using natural language. -The system shall

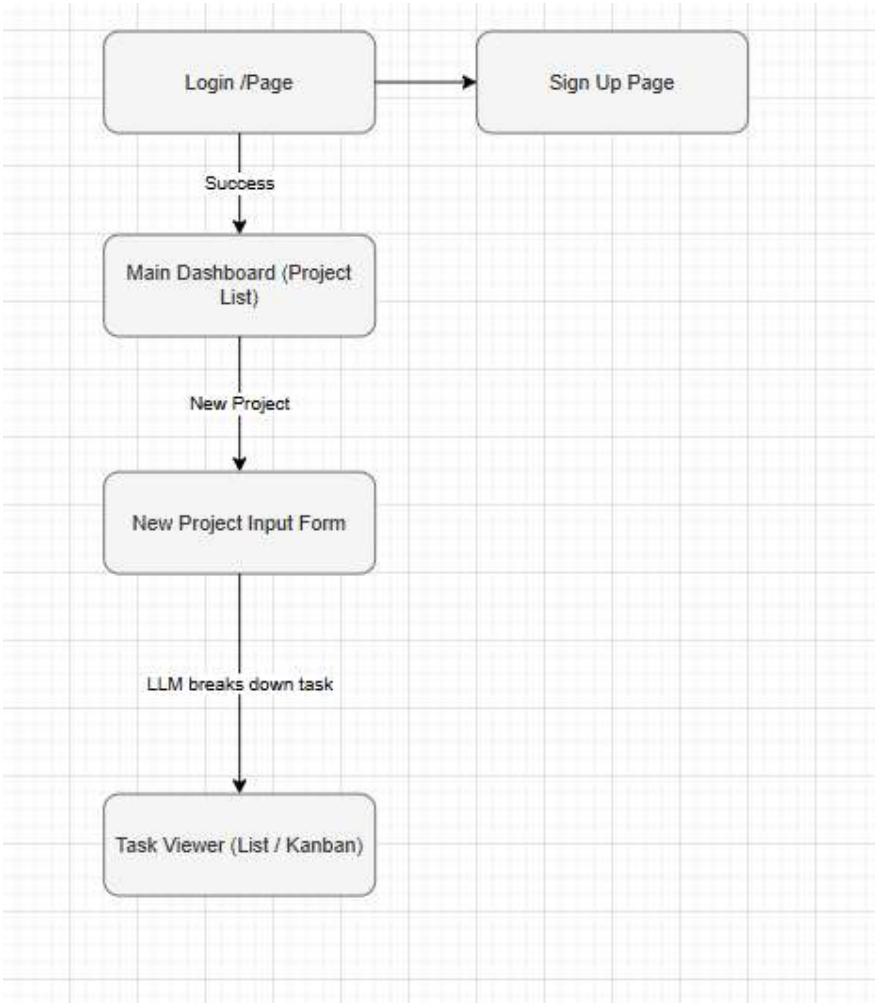
				allow the user to request edits to existing tasks using natural language. -The system shall allow the user to request deleting existing tasks using natural language. - The system shall apply approved changes to the task list after receiving the LLM response. - The system shall display an error message if the conversational update fails.

4. External Interface Requirements

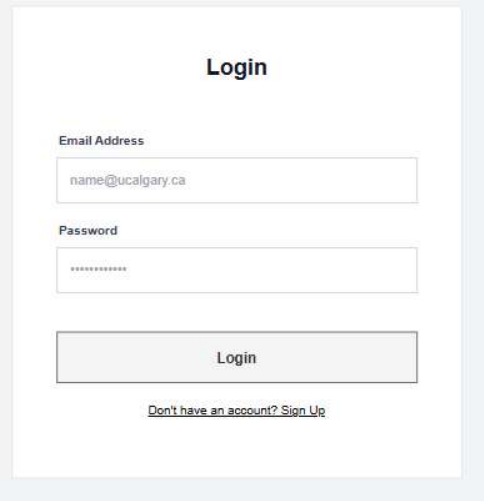
4.1 User Interface

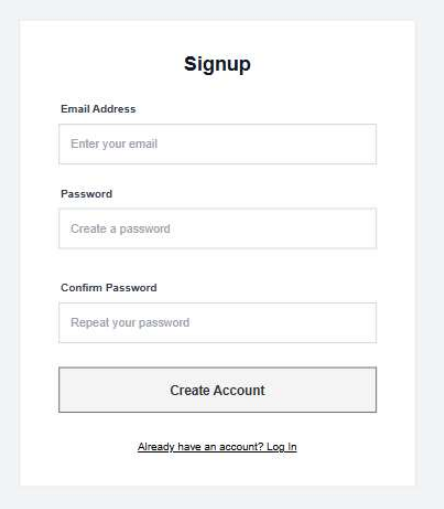
- Login page
- Signup page
- Input form
- Task Viewer (to-do/kanban)

See the below images for our initial plan for the layout of the UI, made in draw.io:

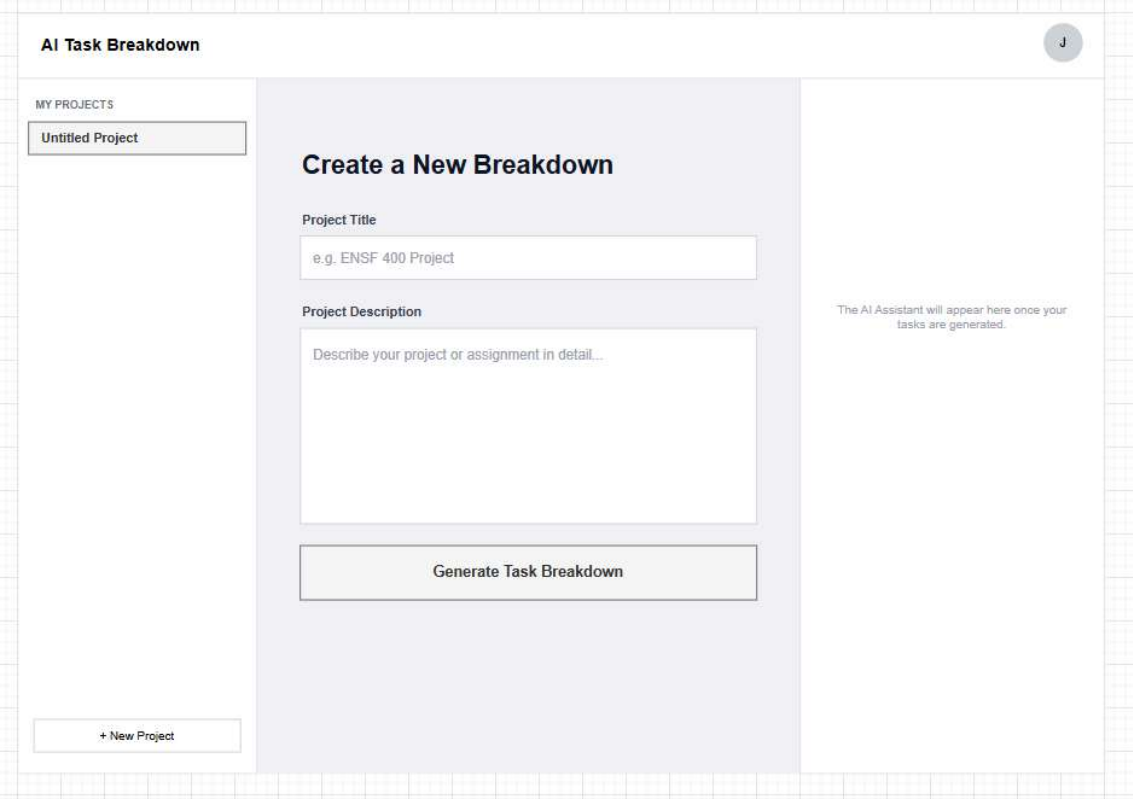


Login/Signup:

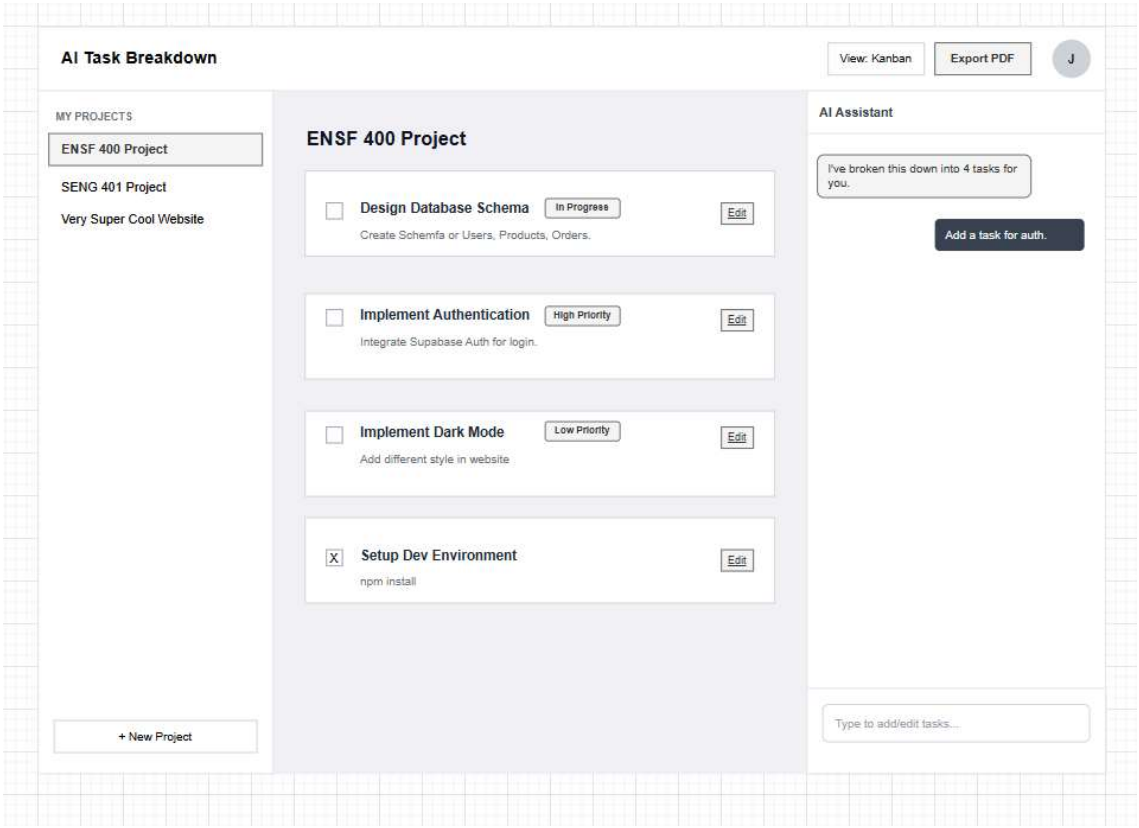




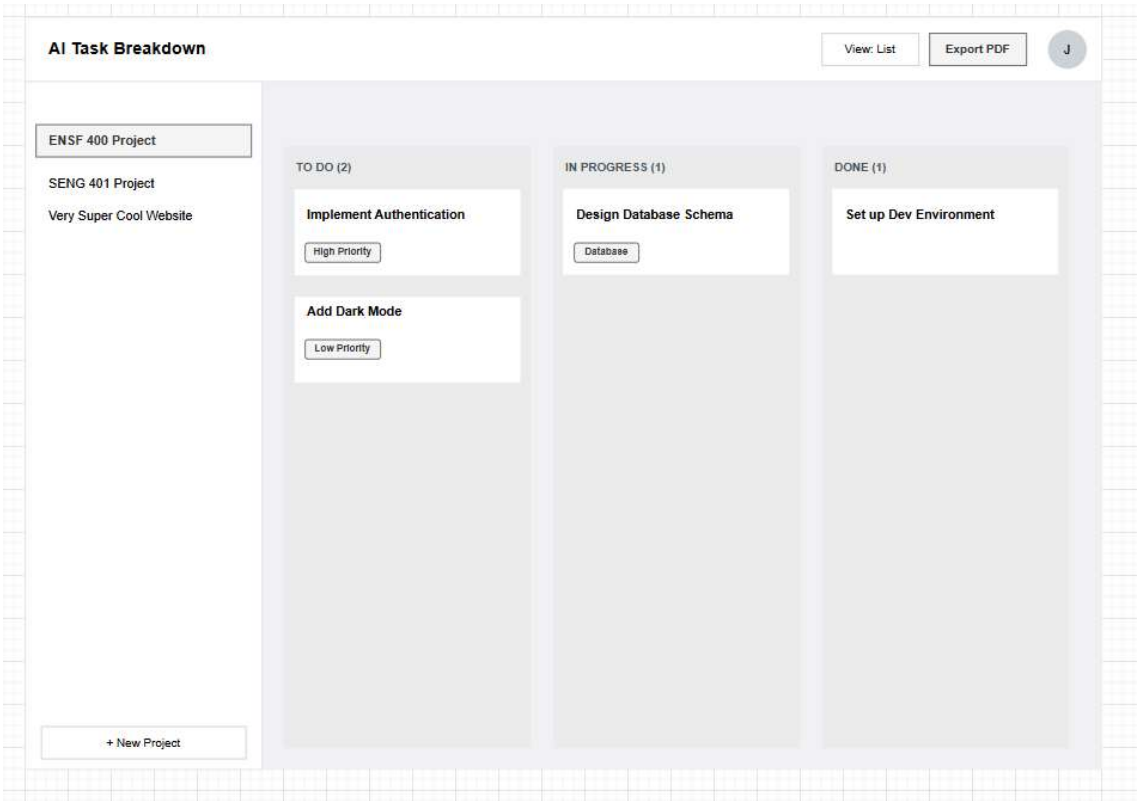
New Project:



ToDo List:



Kanban:



4.2 Software Interfaces

- LLM API
- Supabase DB
- Authentication provider (if applicable)
- Vercel Deployment

4.3 Communication Interfaces

- HTTPS
- REST APIs
- JSON Responses

5. Non–Functional Requirements

- Compatibility:
    - Be able to be accessed from mobile and from desktop.
    - UI must adjust appropriately across both modes.
- Performance:
    - Initial page load time of under 5 seconds
    - The system shall need to support at least 30 concurrent users without a significant performance drop off.
    - The system needs to process the user's input and display results without needing to reload the page.
- Security:
    - Users shall be able to login securely to application with sensitive data stored in an encrypted manner
    - System shall securely store API keys used to access the LLM.
    - Prevent unauthorized access to system configuration.
- Usability:
    - Application must be self-explanatory where first-time users must be able to figure out how to use it with no prior knowledge
    - Provide clear and direct error messages

    - Consistent layout and visual design.
    - Support keyboard navigation.

- Reliability:
    - A failed service like failed LLM response generation, must not bring down the entire application
    - Have 99% uptime

- Availability
    - Accessible at all times except during system maintenance.
    - Notify users when the system is temporarily unavailable.

- Maintainability
    - Use modular components for the UI, backend and API integration.
    - Allow updates to the LLM without change to the UI.