# Lab II Schedule Puzzle

Product Specification

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## 1. Introduction

Many people struggle to manage their daily tasks effectively and to prioritize their responsibilities which can lead to not being able to achieve their personal and professional goals. This can lead to a decrease in work performance, stress, and burnout. Research has shown that poor task management and productivity can lead to negative effects on mental health, job satisfaction, and overall well-being. In a study conducted by acuitytraining in 2022, 500 employees from different industries were surveyed, and only 18% of those employees said to have a proper time management system, and the other 82% of the employees would only use a list or their email inbox as a time management tool. (Richardson, 2022)

Possible characteristics of an effective solution include:

1. Flexibility: This can allow for customization and adaptability to meet the unique needs and preferences of an individual.
2. Accessibility: This ensures the solution is easy enough for anyone to use.
3. Accountability: This should be features that promote responsibility such as reminders.

With these characteristics in mind, the solution is to have a system with automated scheduling. Not everyone can come up with an effective schedule that works for them. They may create a schedule only to realize that there are several conflicts, and the individual will have to start over their scheduling process (Figure 1). With this solution, the individual can work together with the system to come up with a schedule that works for them. The individual provides tasks that need to be done, and the system prioritizes and schedules these tasks, and in

the end, the system will provide the individual with a schedule they can select from. This system is the solution, and it is called *Schedule Puzzle*.

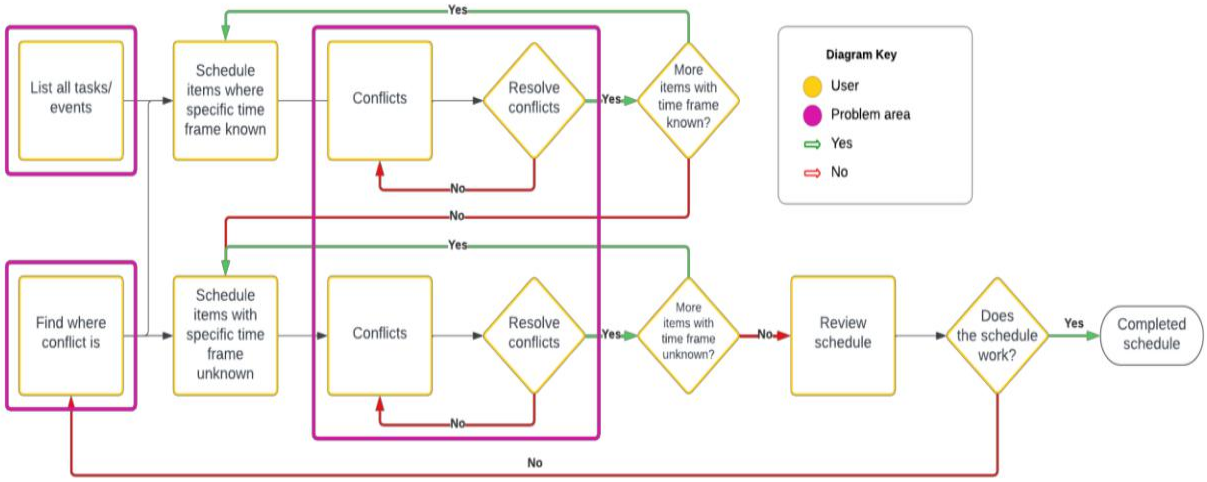


*Figure 1: Current Process Flow*

## 1.1. Purpose

The SRS document is intended to inform users on how Schedule Puzzle will work. Schedule Puzzle is a web application that specializes in automated schedule creation. Schedule Puzzle is intended for users to work together with the web application to create a schedule that best suits their lifestyle.

## 1.2. Scope

The goal of Schedule Puzzle is to assist people who have difficulty coming up with a schedule. The prototype will be fully functional except for automation and prioritization.

### 1.3. Definitions, Acronyms, and Abbreviations

**Application Programming Interface (API):** Software that allows two or more computer programs to communicate.

**Amazon Web Services (AWS):** Service that provides on-demand cloud computing and APIs to individuals and organizations.

**Cascading Style Sheet (CSS):** Language used to describe how elements are displayed on a screen.

**Comma Separated Value (CSV):** A text file format that uses commas to separate values.

**Discord:** A Voice over Internet Protocol (VoIP) and instant messaging social media platform that allows the users to communicate with voice calls, text messages, and sharing files.

**Django:** Python framework for secure and maintainable websites.

**Github:** An online software development platform that is used for storing, tracking, and collaborating on software projects.

**HyperText Markup Language (HTML):** Designed for creating web pages.

**Integrated Development Environment (IDE):** Software application used for software development.

**JavaScript:** A scripting language for creating dynamic web page content.

**Natural Language Processing (NLP):** Machine learning used to interpret human language.

**PostgreSQL:** A relational database management system.

**Python:** A programming language used to create a variety of different programs.

**SQLite:** An embedded, server-less relational database management system.

**Task:** Catch all term for things that need to be completed by the user

## 1.4. References

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## 1.5. Overview

This product specification will go into detail about the features of Schedule Puzzle. It will cover things such as interfaces (external, hardware, software, user, and communications protocol interfaces), the requirements of functionality and performance, maintainability, and reliability.

## 2. Overall Description

Schedule Puzzle is an automated schedule creation web application that allows users to input tasks/events and Schedule Puzzle will create a schedule based on the user's inputs. Schedule Puzzle will have essential calendar functions such as importing existing calendars from Google Calendar, Microsoft Outlook, and Apple Calendar and exporting a created calendar. It will also have tagging and labeling tasks and notify users of upcoming tasks/events.

### 2.1. Prototype Architecture Description

The prototype for Schedule Puzzle, for the most part, will have the functionalities of a real-world product. As seen in Table 1, custom prioritization and natural language processing will be partially functional, and behavioral suggestions will be partially or eliminated.

| **Feature** | **Real World Product** | **Prototype** |
|---|---|---|
| Basic Calendar Functionalities | | |
| Import existing schedules (.ics, .csv) | Fully functional | Fully functional |
| Export existing schedules (.ics, .csv) | Fully functional | Fully functional |
| Has daily/weekly/monthly calendar interface | Fully functional | Fully functional |
| Modify tasks | Fully functional | Fully functional |
| Create notes inside of tasks | Fully functional | Fully functional |
| Send reminders/notifications (push, text, email) | Fully functional | Fully functional |
| Automation, Customization, and Prioritization | | |
| Automatic schedule creation | Fully functional | Fully functional |

| | | |
|---|---|---|
| Semi-automatic conflict resolution | Fully functional | Fully functional |
| Custom prioritization | Fully functional | Partially functional |
| Natural language processing | Fully functional | Partially functional |
| Behavioral suggestions | Fully functional | Partially/Eliminated |

*Table 1. Real World vs Prototype*

## 2.2. Prototype Functional Description

Schedule Puzzle is comprised of the following major components:

- Hardware
  - Personal Computer
    - Desktop
    - Laptop
  - Cellular Device
  - Tablet
- Software
  - Languages
    - SQLite3
    - HTML, JavaScript, CSS
    - Python
  - Library
    - Django Framework

The Figure 1 below showcases the major functional components of Schedule Puzzle.

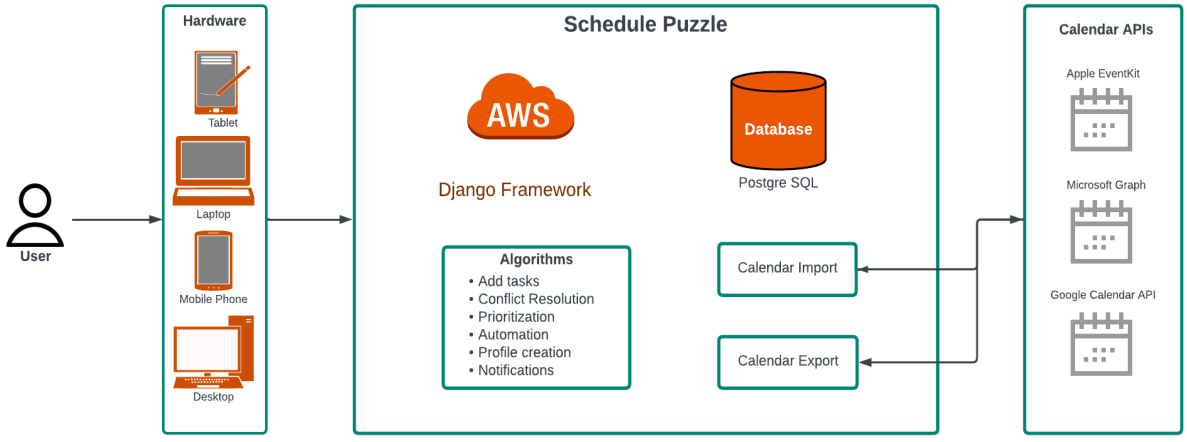


*Figure 1. Major Functional Component Diagram*

### 2.3. User Characteristics

### 2.4. Constraints

N/A

### 2.5. Assumptions and Dependencies

N/A