Lab 2 - Product Specification Outline

Team Gold

Kofi Amoah

CS 411W

Old Dominion University

Fall 2023

Professor Thomas Kennedy

December 1, 2023

Table of Contents

List of Figures

List of Tables

1 Introduction

People have a plethora of tasks to complete and sometimes scheduling, time management, and prioritizing can be a hassle. In a study conducted by Acuity Training, key takeaways were that less than 1 in 5 people had a proper time management system (Richardson, 2022). Additionally, 82% of people did not have a time management system; they just used a list or their email inbox. (Richardson, 2022).

Scheduling tasks, when done the right way can help an individual make the most out of their resources. Scheduling helps establish a consistent and predictable routine, which can reduce stress and improve efficiency (Profit.co, n.d.). This will lead to better decision-making, get rid of uncertainties, and build better time management. It will also make accomplishing tasks easier and increase productivity.

With people having a myriad of tasks and little time to complete them, it can be hard to prioritize. Someone might make a schedule, and they may later realize that that schedule does not work for them.

Scheduling tasks with a system that comes equipped with automated scheduling is an effective way to resolve this. This is where Schedule Puzzle comes in; it will alleviate strict and rigid schedule creation by allowing users to work with the system. The product will also allow the user to help with conflict resolution during the process. Once completed, the user can select from multiple schedules and refine any schedule they pick.

1.1 Purpose

Schedule Puzzle is for individuals who struggle with time management, organization, and prioritization of tasks. It is also for individuals who already use calendar applications. Planned tasks can be too rigid to follow through with sometimes, opportunities to be productive can be

missed, and important tasks can be neglected. Schedule Puzzle will alleviate the stress that comes with schedule creation. Students, organization leaders, and starting professionals are examples of groups who will find the automated schedule process Schedule Puzzle implements useful.

1.2 Scope

The Schedule Puzzle Prototype is a scaled-down version of the real world product and its main objective will be developing and honing Schedule Puzzle features. The application will have users create an account and add tasks. The application will feature a dashboard with the user's tasks grouped into default system categories and custom ones that the user can make. Schedule Puzzle will mainly serve users who have a hard time with time management and schedule creation, including but not limited to entry-level professionals, college students, high school students, and organizations.

The prototype will allow users to import schedules from external calendars in the form of ics files to Schedule Puzzle. It will also allow users to export their schedules from Schedule Puzzle into a CSV format. A main feature of Schedule Puzzle is prioritization. The prototype will feature conflict resolution in its design, where with the input of the user, it will fix time conflicts in the schedule. Based on a numbering system with the lowest number being tasks with the highest priority and the highest number being tasks with the lowest priority, the prototype will give preference to the highest priority tasks when it comes to conflict resolution and schedule creation.

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.

Backend: parts of a computer application or a program's code that allow it to operate and that cannot be accessed by a user.

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.

Server: a computer or system that provides resources, data, or services to other computers known as clients over a network.

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

Indeed Editorial Team. (2021, February 22). 12 Time Management Problems (and How To Fix Them). Indeed. Retrieved from https://www.indeed.com/career-advice/career-development/time-management-problems

Nemko, M. (2021, December 3). 4 Causes of Poor Time Management | Psychology Today. Psychology Today. Retrieved from https://www.psychologytoday.com/us/blog/how-to-do-life/202112/4-causes-of-poor-time management

Team Gold. (2023, September 5). Lab 1 Schedule Puzzle Product Outline. Retrieved November 2, 2023 from https://kaypineda.github.io/2023-Fall-CS411W-Gold/labs.html

Prabhu, A. (2022, November 25). Importance of scheduling tasks and its benefits. Profit.co. Retrieved from https://www.profit.co/blog/task-management/importance-of-scheduling-tasks-and-its-benefits/

Richardson, B. (2022, October 26). Time Management Statistics & Facts (New 2022 Research). Acuity Training. Retrieved from https://www.acuitytraining.co.uk/news-tips/time-management-statistics-2022-research/

1.5 Overview

This product specification provides the hardware and software configuration, external interfaces, capabilities, and features of the Schedule Puzzle prototype. The information provided in the remaining sections of this document includes a detailed description of the hardware, software, and external interface architecture of the Schedule Puzzle prototype; the key features of the prototype; the parameters that will be used to control, manage, or establish that feature; and the performance characteristics of that feature in terms of outputs, displays, and user interaction.

2 General Description

Schedule Puzzle's prototype will partially implement the key features of the real-world product enough to show a functional system and proof of concept. Some features have been removed due to restrictions in the prototype development and demonstration environment, available resources, or because they do not contribute to the key proof of concept.

2.1 Prototype Architecture Description.

The features implemented in the Schedule Puzzle program show how schedules can be generated quickly and uniquely to meet an individual's needs. Users will be able to create an account to store, edit, and view their various schedules. As shown in Figure 1, when the user is at the Login Page and has an existing account, they will log into their account and be directed to the schedule dashboard. If the user does not have an existing account, they will be directed to create one by entering their account information.

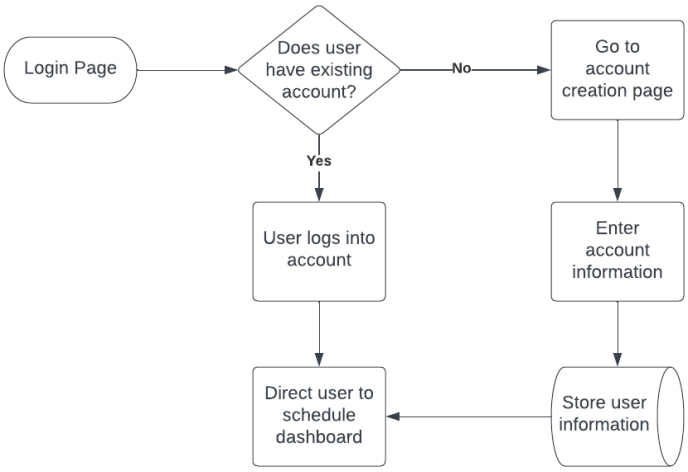

Figure 1: Profile Creation Algorithm

By carefully weighing all potential risks and addressing them with industry best practices, the prototype will mitigate the risks associated with scheduling conflicts. Schedule Puzzle will help customers create schedules and reduce the stress and mistakes that come with the process. The goal of the prototype is to enable people to create automatic schedules. The prototype is also equipped with features that allow users to choose whether they want notifications via text, email, or push notifications.

2.2 Product Functions

Schedule Puzzle is a web application where individuals with time-management problems are alleviated of rigid schedule creation because of its automation and conflict-resolution features. Table 1 describes the features that will be in the Schedule Puzzle prototype and to what extent that they will be implemented.

[*This space is intentionally left blank.*]

Table 1.

Prototype Features

Functional Element	*Prototype*
User Account Creation	Fully Implemented
View/edit schedules	Fully Implemented
Import calendars	Fully Implemented
Export calendars	Fully Implemented
Add user based categories	Fully Implemented
Notifications	Partially Implemented
Multiple calendar views	Partially Implemented
Modify tasks	Fully Implemented
Prioritization	Fully Implemented
Semi-automatic conflict resolution	Partially Implemented
Natural language processing	Eliminated
Behavioral suggestions	Eliminated

2.3 User Characteristics

Schedule Puzzle offers users the ability to interact with external calendar applications and import their schedules there to Schedule Puzzle. The prototype will give the user the opportunity to view their calendar on three interfaces: daily, weekly, and monthly. Additionally, notifications generated by Schedule Puzzle shall include the task name, task due date, task time frame, and task location. Schedule Puzzle shall also allow the user to input tasks with fields such as name of tasks, specific time period, and how often it will occur.

2.4 Constraints

N/A

2.5 Assumptions and Dependencies

N/A