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| SYSTEM REQUIREMENTS |



FLEX: SCHEDULING APPLICATION

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# Description of Terms

## **Task**

An item in a user’s calendar that represents an action, assignment, or chore that the user would like to complete.

A task must have the following properties:

* Task Name
* Start Date
* Due Date
* Duration

A task may additionally have any of the following properties:

* Description
* Priority
* Location

Each task retains a one-to-many relationship with event objects in Google Calendar.

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# Optimization Algorithm

The optimization algorithm determines how to organize the user’s schedule. The algorithm performs in the following manner:

* First, the system places tasks with fixed, user-specified, time slots in the schedule.
* Second, the system groups tasks that are physically located near one another, provided the grouping does not create a scheduling conflict.
* Then, the system inserts the remaining tasks and flexible groups into the schedule in order of their due date, ensuring that every task is scheduled.

If the user attempts to insert a task that cannot be scheduled before its deadline, the system shall attempt to reschedule tasks before the deadline using the steps above in order to find an available and appropriate time for the new task.

If a conflict persists, the system shall display the conflict resolution dialog for the user to manually decide how to resolve the conflict.

# Priority Levels

## **Level 1: Core Functionality**

This level denotes a requirement that is critical to the application.

## **Level 2: Extended Functionality**

This level denotes a requirement that is not critical, but is of high value to users.

## **Level 3: Future Extension**

This level denotes a requirement that users would appreciate if implemented in the application, but is of a low importance and does not significantly shape the scope of the project.

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# User Account Management [UA]

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| --- | --- |
| Description | Priority |
| The system shall allow an unauthenticated user to be authenticated using Google OAuth 2.0. | 1 |
| The system shall allow an authenticated user to sign  out of their account from the main page (see “Page Layouts”). | 1 |

# Task Management [TM]

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| --- | --- |
| Description | Priority |
| The system shall allow the user to create a new task. | 1 |
| The system shall retrieve the user’s task information. | 1 |
| The system shall use the task information to reorganize the user’s tasks according to the optimization algorithm (see “Optimization Algorithm”). | 1 |
| The system shall update the user’s Google Calendar with the reorganization immediately after they are made within the application. | 1 |
| The system shall allow the user to update a task’s properties. | 1 |
| The system shall allow the user to delete tasks by clicking the garbage can icon. | 1 |
| The system shall allow the user to view a task’s properties. | 1 |
| The system shall allow the user to mark a task as complete by clicking the checkmark icon. | 1 |

# Calendar View [CV]

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| --- | --- |
| Description | Priority |
| The system shall display task details alongside the task when a user clicks on a specific task. | 2 |

# Task View [TV]

|  |  |
| --- | --- |
| Description | Priority |
| The system shall display the user’s tasks as a list in order of creation. | 1 |
| The system shall allow the user to mark a task as completed using a checkbox next to the task. | 1 |
| The system shall allow the user to filter tasks by time frame. | 3 |
| The system shall allow the user to filter tasks by location. | 3 |
| The system shall allow the user to directly rename a task inline from the list view. | 3 |
| The system shall provide a search interface for the task view so that the user can find specific tasks. | 2 |

# System Performance [SPE]

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| --- | --- |
| Description | Priority |
| The system shall prerender the web application’s interface before sending it to the user’s browser. | 2 |
| The system’s API server shall be stateless. | 3 |
| The system shall perform page routing on the client side. | 2 |
| The system shall use content delivery networks to deliver software libraries to the browser. | 3 |

# User Support [US]

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| --- | --- |
| Description | Priority |
| The system shall provide the user with a way to contact customer support directly from the help page. | 2 |

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