
Software Requirements Specifications for Gamified Calendar

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Section 1. Introduction

1.1 Purpose

The purpose of this SRS document is to describe the operational requirements for the Gamified Calendar. The goal of the SRS is to provide a structured approach to the development of the project, enabling the developers of the team to complete the project in a timely, systematic manner consistent with modern Software Engineering approaches. This SRS will also serve as a means of explicitly laying out the intended purposes and features of this system. That is – what it will do, what the user interfaces will look like, and what the constraints will be.

1.2 Business Requirements

1.2.1 Background, Customer Needs, and Business Opportunities

This business model has been executed in Duolingo where they make the task of learning a new language fun and easy. With the gross income of \$250 million last year from subscriptions alone, they encourage users to keep the streak of doing simple and easy lessons that take less than ten minutes every day. Now that productivity has been on the rise since the recovery of the world from COVID-19, we can make use of the Duolingo business model and apply it to a task tracking calendar, targeting consistency rather than quantity of tasks done.

1.2.2 Business Objectives and Success Criteria

The objective for this project is to make sure our product is functional by the beginning of December 2022.

To achieve this goal, the following criteria must be fulfilled:

- The calendar will display all input tasks according to their deadlines.
- Users will be able to cross off tasks and see their maximum daily work streak.

- Users will be able to see their points increase every time they finish a task, and receive bonus points for completing all their tasks in a day or maintaining an impressive streak. This will incentivize them to complete all their tasks every day.
- The user experience will be smooth and minimal enough to not confuse and discourage users.

1.2.3 Business Risks

These are the potential hindrances that might show up during the work for this project. Each item is followed by the source of the risk and possible mitigation factors:

- The project might be too complicated and might not be complete by the deadline. We have too many databases to handle behind the scenes and the UI for the game is expected to be smooth enough to keep users engaged. This risk will be mitigated by laying out the basic functionality of the project, keep the UI minimalistic and implement more non functionality as we go on and have more time before the deadline to explore.
- The product might not be widely used by the targeted market. We don't have professional artists and UX designers to make sure we can impress new users. We also can't afford advertising/marketing for this product right away. These risks will be mitigated by having user free try out and advertising the product to our classmates first.

1.3 Vision

This project aims to boost productivity and target users in many different fields. Nowadays it is easy to get addicted to instant gratification with 60 second entertainment apps such as TikTok, Instagram Reels, Facebook Reels, and Youtube Shorts. These apps make it impossible for people to get their work done and as a result, many people resort to productivity management applications like Notion,

Obsidian or Google Calendar. But these apps are lacking the instant gratification that can actually push the users to finish the tasks they put onto the platform. With Gamified Calendar, we expect to outdo our competitors in the productivity applications market, following Duolingo's footsteps of making hard tasks easier and more fun to accomplish.

1.4 Scope and Limitation

Gamified Calendar aims to make productivity fun! When we usually end up using a calendar, it is to save an event that occurs at a later point of time. But what if we could gamify this process? The Gamified Calendar enables us to set events, goals and tasks onto either the to-do list or the calendar, and upon completion of said tasks, you gain experience and points, adding them to your streak of continuously productive days, and motivating you to finish more of your tasks and events in order to not break the streak. This helps us out immensely, since we are hardwired to continue to build our streaks, instead of breaking them. As a result, it helps us to stay active, build difficult but necessary habits and enables us to be more productive everyday.

Section 2. Description

2.1 Product Perspective

Gamified Calendar is a productivity web app calendar with to-do list hybrid for users to keep track of their day to day tasks. Gamified Calendar uses data storing to keep track of user streaks and score, which is earned by crossing off tasks from their own to-do list. This system is expected to offer users a better experience in productivity tracking by emphasizing on the work consistency instead of binge quantity of work which usually leads to burnout and mental health problems.

Users will be able to use any web browser, but Google Chrome is recommended.

2.2 User Classes and Characteristics

Users are people who seek aid from productivity applications and have the habit of using online task trackers. Users need to input their tasks to the calendar and cross off each item in the list to get more points and keep up a max streak of the number of days they get their tasks done.

2.3 Operating Environment

OE-1: The Gamified Calendar webapp should operate on desktop computers, tablets and mobile devices via a web browser.

OE-2: The Gamified Calendar webapp should operate on all common browsers including Microsoft Edge, Google Chrome, Mozilla Firefox, Safari, and Opera, from the latest version at the start of September, 2022 and forward.

2.4 Design and Implementation constraints

CO-1: The system's design, code, and maintenance documentation shall conform to the standards dictated in the CSDS 393 Software Engineering course.

CO-2: The programming languages used to completed the Gamified Calendar are Typescript, SCSS and React for the UI framework, Java, Python, or JavaScript for back end logic, and API integration, and PostgreSQL, MySQL, or MongoDB for the database. The languages are subject to change depending on implementation constraints and connectivity requirements, which might require additional support from other platforms.

2.5 Assumptions and Dependencies

AS-1: Users will be honest when marking their tasks as done.

AS-2: Users will be consistent about inputting their daily and future tasks with deadlines and description.

AS-3: Users will be already knowledgeable about how to use a webapp and online calendar such as Google Calendar.

AS-4: Users will be a normal person with many tasks to input, enough to benefit from the streak tracking system.

Section 3. System Features

3.1 Calendar

3.1.1. Description and Priority

On the calendar page, users are to be able to view all upcoming events and tasks during the month, and have a concise view on how much of the month is left, and the flow of time and tasks during the month. Priority: High

3.1.2 Stimulus/Response Sequences

Stimulus: User opens the calendar view

Response: Tasks that were entered into the task view are converted into the calendar view.

Stimulus: User changes the date to move to a different date

Response: Calendar skips to the required month, and shows the tasks and dates associated with said month.

3.1.3 Functional Requirements

Feature ID	Feature Name	Description
CT-F1	Calendar.ChangeDate	User can change the date, and access either future or past months.
CT-F2	Calendar.TBD	TBD

3.2 To-do List

3.2.1 Description and Priority

The to-do list is a page that shows all the tasks for a specific day. The user can utilize the to-do list by adding new tasks, removing existing tasks, modifying existing tasks, or requesting a list of all of their tasks. Priority: High.

3.2.2 Stimulus/Response Sequences

Stimulus: User requests to add a new task.

Response: System queries user for details about the task and will prompt the user to fill out all relevant fields before adding the task to the to-do list.

Stimulus: User requests to remove a task.

Response: System removes task from user's to-do list.

Stimulus: User requests to modify a task.

Response: System will prompt the user to fill out all relevant fields before updating the task in the to-do list.

Stimulus: User requests a list of all tasks.

Response: System returns a list of all of the user's tasks from their to-do list.

3.2.3 Functional Requirements

Feature ID	Feature Name	Description
TD-F1	ToDo.Add	The system shall add new task into the user to-do list
TD-F2	ToDo.Remove	The system shall remove the chosen task in the user to-do list
TD-F3	ToDo.Modify	The system shall open up the modify window for user to

		modify their task within the existing to-do list
TD-F4	ToDo.Blank.Yes	If there is a question left as blank, the system shall prompt the user to fill out that question.
TD-F5	ToDo.Blank.No	If all question fields are filled, the system notifies the user that their data has been submitted.
TD-F6	ToDo.Request	The system shall display the generated list of tasks in user's to-do list
TD-F7	ToDo.Error	If the user attempts to add a task to a day in the past, an error message will be displayed.
TD-F8	ToDo.TBD	TBD

3.3 Streak

3.3.1 Description and Priority

The user can utilize the streak and level system by completing tasks and accruing points. Completion of tasks will add to a user's streak over time and increase their number of points. Priority: High.

3.3.2 Stimulus/Response Sequences

Stimulus: User completes all tasks for the day.

Response: Their streak is extended by one day and their point total is increased by the value associated with the task.

Stimulus: User does not complete a task for the day or does not log in for the day.

Response: Their streak is reset to zero days. Their point total is unaffected.

3.3.3 Functional Requirements

Feature ID	Feature Name	Description
SL-F1	Streak.Start	Starts the streak automatically, if tasks are completed for two consecutive dates
SL-F2	Streak.Notification	Streak notifications are sent if only 12 hours are left, and one or more tasks are not completed
SL-F3	Streak.Notification2	Streak notifications are sent if only 6 hours are left and one or more tasks are not completed
SL-F4	Streak.Success	Successful completion of streak is sent as a notification.
SL-F5	Streak.Failure	Failure to complete streak is sent as a notification
SL-F6	Streak.TBD	TBD

Section 4. Non-Functional Requirements

4.1 External Interface / User Interface

4.1.1 User Interfaces

UI-1: The login/landing page will prompt the user to enter their credentials. Users will also be able to create a new account if they are not registered yet. The application will direct the user to the calendar page (UI-2) after logging in.

UI-2: Gamified Calendar will have a calendar page that shows all the days in the current month. Each day box will display a mini to-do list with the tasks assigned for that day. Longer task names will be truncated due to limited space.

UI-2.1: Users can select any specific day on the calendar to display the tasks for that day on the day task view (UI-3).

UI-2.2: The top of this page includes a menu bar to navigate to different pages. There will be arrow buttons to allow the user to switch between different months, located on the top left. Users will also be able to access the profile page (UI-4) by clicking the profile icon on the top right.

UI-3: The day task view is a page that displays all the tasks for that selected day. Here, longer task names will display more characters due to the extra space. This is also where users will be able to modify tasks, and is where the streaks and points will be displayed.

UI-4: The profile page will display user statistics, such as number of tasks completed, number of points earned, best streak, current streak, etc. There will also be a mini calendar graph that fills in squares based on how many tasks were completed on that day, with brighter colors representing more tasks completed. For example, if a user had 10 tasks to complete on a specific day, completing 0 tasks would fill in a gray color, 5 tasks a dark green color, and 10 tasks a bright green color.

4.1.2 Hardware Interface

No hardware interfaces have been identified yet.

4.1.3 Software Interface

SI-1: The application will store all user account information in a database.

4.1.4 Communication Interface

No communication interfaces have been identified yet.

4.2 Other Non Functional Requirements

4.2.1 Performance Requirements

PE-1	The system needs to be able to handle the storage of 5000 user data at all times
PE-2	The system shall display the user's tasks

	under 30 seconds over a 40KBps modem connection.
PE-3	The system shall update the database and display the new task immediately after the user input it.
PE-4	The system shall update the database with new user reviews within 24 hours of submission.
PE-5	The system shall take no longer than 5 seconds after the user queries the data for their personal information.

4.2.2 Safety Requirements

No safety requirements have been identified.

4.2.3 Security Requirements

No security requirements have been identified.

4.2.4 Software Quality Attributes

Availability-1	All the users will be capable of accessing the web application during most of the time when the traffic is low.
Robustness-1	The user base data will be periodically stored in another database monthly in order to ensure that there will not be total loss of data.
Correctness-1	The system will remind user to be truthful to their tasks activities to make sure the streaks and levels between users are correct
Portability-1	The entire website can be displayed and accessed on all mainstream operating systems such as Windows and macOS.
Maintainability-1	The system will keep track of error incidents inside an internal log system which will inform and require developers to review and fix it.

4.2.5 Business Rules

At this time, we have not identified any necessary business rules.

Section 5. Appendix / Application Flow Charts

5.1 Work distribution

Levent Batakci	Backend	Database
David Frost	Backend	Database, API
Jo Phan	Frontend	UX design, UI Development
Dillon Yu	Backend	Database,API
Smyan Thota	Frontend	Database, API

Any other additional requirements have not been identified and will be determined later if needed.

5.2 Appendix A: Definitions

Glossary User ID: 9 digit alphanumeric string

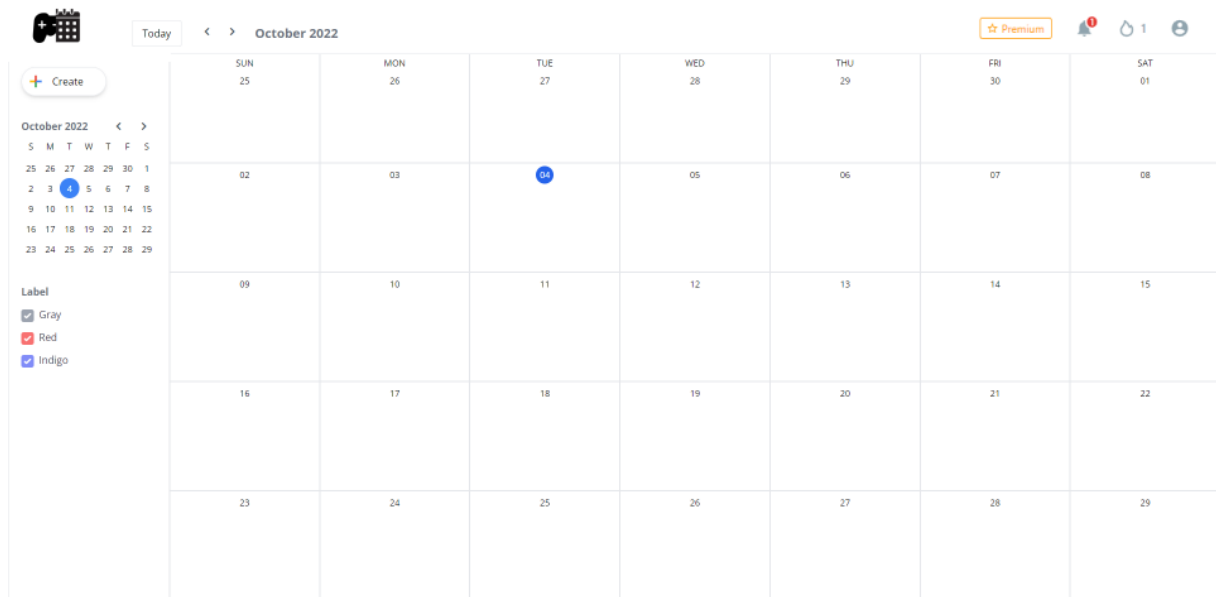
Calendar: A view that can show items in a chronological order over some time period.

Points: A number representing the total amount of progress that a user has made via finishing tasks and other goals.

Streak: A consecutive period of days in which some activity was completed

To-do list: A list of tasks to be completed at some point in the future that can eventually be crossed off from the list

5.3 Appendix B: Flowcharts and UI Mockups



Sample mockup of how the Calendar Page will look.



Welcome to GC! Tackle any tasks

Level up your productivity
game with our gamified system



Sample mockup of landing/login page.



Today



October 2022

Premium



Social 3



Meet at James' for tea

Tomorrow 4:30 PM



Have a few beers with Mary

Tomorrow 9:00 PM



Go to spa with mom

Tomorrow 9:15 AM



Add task

Professional 2



Get coffee with Ryan Zhong

Tomorrow 5:00 PM



Lunch with Emilie (former colleague)

Tomorrow 12:30 PM



Add task

Medical 2



General check-up with GP

Sample mockup of to-do list page.



Premium



user1684325135
Rank 706,822
Edit Profile

Community Stats

- Views 0
Last week
- Finished 0
Last week
- Discuss 0
Last week
- Reputation 0
Last week

Checked tasks

68
Solved

Casual 32 / 197 Beats 65.2%
Medium 32 / 197 Beats 66.2%
Urgent 4 / 136 Beats 49.2%

Badges

0

Locked Badge
Oct Productivity Challenge

303 tasks in the last year



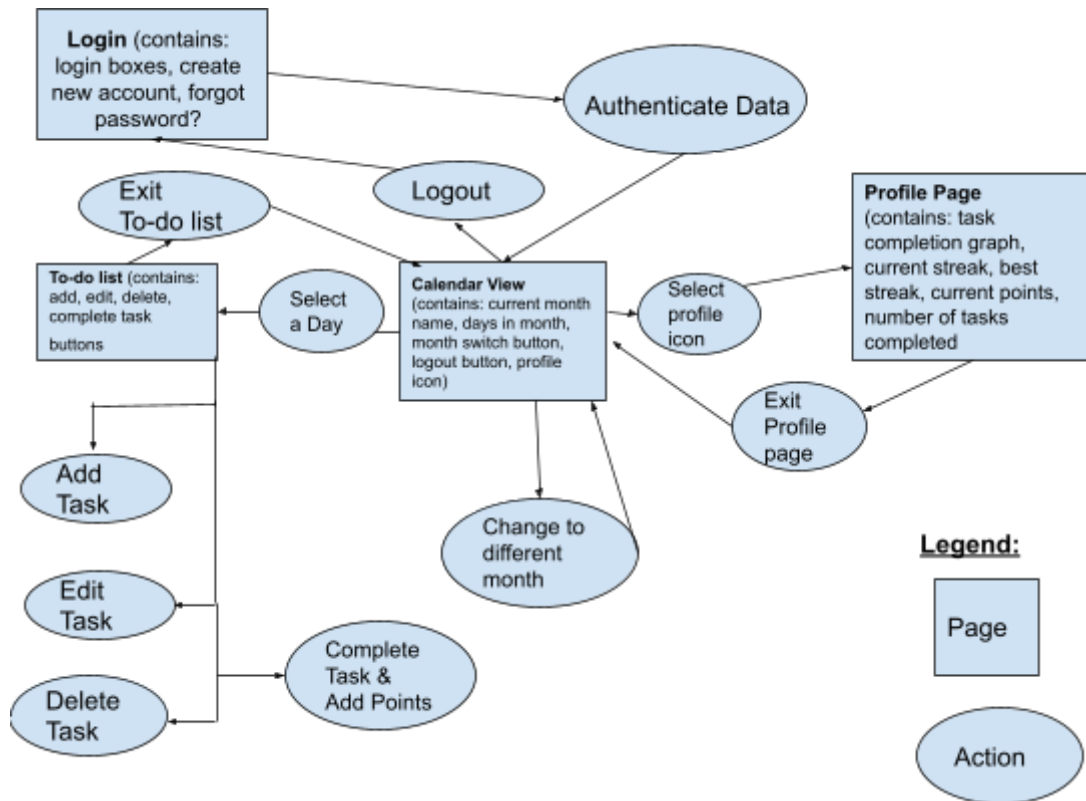
Recent Tasks

Finished Community

View all submissions

- Walk the Dog 12 hours ago
- Water Plants 2 days ago
- Go to Gym 3 days ago
- Call Ana 4 days ago
- groceries 5 days ago
- Job search/researches 6 days ago
- Label the fridge 6 days ago

Sample mockup for profile page.



Data Flow diagram for the Gamified Calendar

5.4 Appendix C: To Be Determined List

TBD-1	Specific language used for Backend
TBD-2	Other Requirements

5.5 Appendix D: Point Calculation

All tasks will be worth a constant number of points. Upon completion of the task, this constant number of points will be added to the user's total points. Users will also receive bonus points if they complete all their assigned tasks in a day, or maintain an impressive streak.