Software Requirements Specification

for

CHATGPT PAL

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
Mohammed Choudhary	2/12/2023	Final draft	Version 1.0 alpha

1. Introduction

1.1 Purpose

This Software Requirements Specification will outline the requirements for the Chatgpt pal application. An application that makes use of open AIs chatGPT API. The purpose of this document is to provide a thorough description of both the functional and non functional requirements for the chatgpt pal application for the stakeholders such as the software engineers and other employees involved in this project.

1.2 Document Conventions

In this SRS document, the following conventions and standards have been followed.:

1. Bold font is used for headings to aid distinguish different sections .

2. Numbered lists are used to concisely present steps and requirements

3. All requirements are written in clear concise language avoiding technical jargon where it is possible

4. Priorities for higher-level requirements are assumed to be inherited by detailed requirements.

5. Requirements are approved by the relevant stakeholders before being added to this document

1.3 Intended Audience and Reading Suggestions

This Software Requirements Specification (SRS) document is intended for several different types of readers, including:

1. *Developers: The document provides the technical details that are needed for the developers to make the ChatGPT app.*
2. *Project Managers: The document provides an overview of the priorities and constraints of the project.*
3. *Marketing Staff: The document provides essential features of the capabilities of the application which are intended for use in the ad campaigns..*
4. *Users: The document will outline the functionalities and use cases that the users can expect from the application.*
5. *Testers: This document provides a basis for testing the final product to meet user requirements*
6. *Documentation Writers: This document is intended to be used as a guide for creating user manuals and other relevant documentation..*

Organization and Sequence:

The rest of this SRS document is organised into several sections, including:

1. *Introduction: This section provides a brief overview of the ChatGPT Pal app and its intended purpose.*
2. *Overall description : This section provides a detailed description of the app's high level features.*
3. *System features. Outlines the functional requirements.*
4. *External interface requirements. Outlines the User interface and hardware/ software interfaces.*
5. *Other non functional requirements..*

A suggested sequence for reading the document is as follows:

1. *Developers: Read the introduction and the functional requirements which will outline development details.*
2. *Project Managers: Read the introduction followed by the functional and non functional requirements. Pay close attention to any constraints.*
3. *Marketing Staff: Read the introduction and then followed by the functional requirements in order to understand the products features for use in the marketing campaign*
4. *Users: Read the introduction followed by the functional requirements in order to understand the product's capabilities.*
5. *Testers: Read introduction and functional requirements in order to verify whether such requirements are being met in testing.*
6. *Documentation Writers: Read introduction followed by the functional requirements for use in manuals and other such documentation.*

This reading sequence is intended for all the stakeholders to be able to best understand their needs and responsibilities relating to this project.

1.4 Project Scope

This SRS covers all the functional and nonfunctional requirements of the chatGPT Pal application. The scope of this product includes the development of the chat-based interface, the integration with the OpenAI ChatGPT API, and the implementation of the various features, including schedule management, conversation companion, research aid, cooking recipes, and gym tips.

The scope of the project includes the interface design, the integration of the application with OpenAIs API and the specific features such as the schedule manager, companion, research aid, cooking and gym aid. The document will thus serve as a guide to ensure that the product meets the requirements and expectations of the relevant stakeholders.

2. Overall Description

2.1 Product Perspective

The ChatGPT Pal app is a new, self-contained product that has been developed to meet the needs of college students. The app leverages the advanced language processing capabilities of the OpenAI ChatGPT API to provide students with a wide range of helpful tools and services, including a virtual pal to talk to, a research aid, cooking recipes, gym tips, and a schedule planner.

ChatGPT pal is a novel self contained application that is intended to meet the needs of today's college students. The application leverages the natural language processing capability of the OpenAI chatGPT API allowing busy college students with a range of helpful services such as a virtual pal to have conversations with, a research / cooking / gym aid and a personal planner.

The idea from the product comes from a key market need. College students face many challenges as they navigate their education and personal lives. From managing academic courses to finding time for self- care, many students find it a struggle to balance personal and academic life. The chatGPT application is being developed to address these key challenges by giving students a tool to help them stay organised and make the most of their college experience.

ChatGPT Pal is a brand new self contained product and does not replace any existing system or follow from an existing family of products.

2.2 Product Features

ChatGPT Pal is a multi-functional app designed to meet the needs of college students. It offers the following major features:

Virtual Pal: Virtual Pal provides students with someone to talk to about their college experience and is a support in times of stress. It is not intended as a substitute for a medical professional.

Schedule Planner: ChatGPT pal schedules student's lives using all the information provided by the student such as events, courses and deadlines. This helps students stay organised and on top of everything.

Research Aid: ChatGPT Pal provides students with a research aid that answers questions and suggests resources in order to point students in the right direction. It begins each answer with a statement explaining the university's plagiarism policy.

Cooking Recipes: ChatGPT Pal provides students with a collection of delicious and healthy recipes to help them eat well and stay nourished. The app can suggest recipes based on the ingredients on hand, dietary restrictions, and other preferences.

Gym Tips: ChatGPT Pal provides students with tips for how to make effective use of the gym such as a diet plan and a custom training regime based on specific user goals.

2.3 User Classes and Characteristics

ChatGPT Pal is designed to be used by college students. It has a number of user classes.

Frequent Users : This user class consists of users who use the app on a daily basis in order to manage their schedules, find information and talk to the virtual pal. These users will be favoured,

Occasional Users: This user class consists of students who do not use the app everyday but use it less frequently for specific tasks such as cooking and gym tips.

New Users: This user class consists of students who are just starting to use the app and may need help getting started or learning how to use its various features. These users may have limited technical expertise and may need additional support and guidance to get the most out of the app.

New Users: This user class consists of those just starting to use the app and may need help getting started and exploring the various features. Developers should consider guides to help these users make the most of the app.

The favoured user class will be the Frequent users since they will log most of the time on the app but it is vital that the app remains accessible to all user classes.

Each user class has unique requirements, and the ChatGPT Pal app should consider the needs and preferences of all users to help them make the most out of the app.

2.4 Design and Implementation Constraints

The following will limit options available to developers in the creation of the chatgptPal application.

Technology: chatGPT Pal must comply with the standards set by openAI and must be compatible with the latest versions of operating systems and browsers.

Security and privacy: App must comply with security and data laws in the regions its used in. It must also consider the privacy of the schedules and research work of the students.

Standards: The application must comply with the industry standards for best design and programming practices in order to make future iterations and updates easier and increase transparency..

Compute limitations: The application has to consider computer hardware based limitations and be able to function with minimal latency times on a wide variety of devices.

2.5 User Documentation

Manual: A comprehensive clear and concise manual that will explore all of the features of chatgptPal and how to best utilise them.

Online support:: The online support system will provide contextualised methods of helping the user and should be accessible from inside the application.

Tutorials:A series of video based tutorials will show users how others are using the application in order for them to be able to make the most with chatGPT Pal.

User Documentation Delivery Formatting:

The user documentation should be in an easy to use i.e pdf format. It should be accessible from the app and also from the internet..In terms of standards, the user documentation will follow the best in industry standard practices and will be reviewed by an external team in order to ensure its effectiveness.

2.6 Assumptions and Dependencies

A number of factors are assumed in the making of the application.

OpenAI components: The ChatGPT Pal app will use the OpenAI API. The app needs the API and its natural language processing abilities in order to function.

Environment: The developers will develop the app in a cross platform environment which will allow the application to function in all the popular mobile and desktop interfaces.

Security and privacy: The ChatGPT Pal app will need to follow all of the relevant security and privacy standards that will be relevant such as the GDPR.

The following dependencies need to be taken into consideration.

External software changes: Since the app is dependent on the OpenAI API, it is thus sensitive to any changes that OpenAI makes to their API and so these changes will need to be monitored for appropriate response.

User data privacy: The application will store user data since this will be used to make a personalised experience for each user. It is assumed that users will make some effort toward protecting the privacy of their own data.

3. System Features

3.1.1 Description and Priority

***Virtual Pal**: This feature allows college students to chat with a virtual companion who can be a friend and offer support and guidance. This is the highest priority feature with a benefit rating of 9/9 and a penalty rating of 2/9. The cost of implementing this feature is a 5/9 and the risk rating is a 4/9.*

***Schedule Planner**: This feature allows college students to manage their time effectively using deadlines and access to their college calendar. This is also a high priority feature with a benefit rating of 8/9 and a penalty rating of 2/9. The cost of implementation is 4/9 and the risk is 5/9.*

***Research Assistant**: This feature provides college students with assistance when conducting research but also follows the university plagiarism guidelines to avoid abuse when making assignments. This is a medium priority feature with a benefit of 7/9 and a much higher penalty of 5/9. The cost to implement is 4/9 and the risk is higher than other features at 7/9.*

***Gym Tips**: This feature provides a college student with recommendations for gym and cooking recipes. Since the cooking recipes can be cited from elsewhere this is a low cost low risk feature with a cost of 2/9 and a risk of 2/0. The benefit however is more modest than other features with a rating of 4/9.*

3.1.2 Stimulus/Response Sequences

Virtual Pal:

Stimulus: User prompts the virtual pal to start a conversation..

Response: The virtual pal greets the user and initiates a conversation with the user, either by asking questions or making small talk. This happens so long as the user continues to prompt the Pal and stops if the user indicates an intention to end the conversation.

Schedule Planner:

Stimulus: User inputs the relevant information for scheduling such as deadlines, appointments, dates and class times.

Response: The schedule displays the users finished timetable and send notification of key events the user has flagged as important via push notification..

Research Aid:

Stimulus: User enters a certain idea they want to explore.

Response: The research aid cites relevant websites, books and articles that will help the user explore the idea of interest..

Gym Tips*:*

Stimulus: User inputs information about their current fitness levels such as BMI, weight etc.

Response: The feature gives the user personalised daily goals based on their long term goals. Note that this feature and the advice received is not a substitute for medical advice from a healthcare professional.

3.1.3 Functional Requirements

Virtual Pal

REQ1: The user should be able to start a conversation with a virtual pal with just a single text prompt or series of prompts. The virtual pal should respond to the user by using contextually relevant and appropriate responses..

REQ2: The virtual pal should have the capability to store logs of previous conversations in order to provide the user with a personalised and contextual experience.

REQ3: The virtual pal should be able to provide emotional support to the user by reading the users tone and emotions. If necessary this may lead it to give information on mental health supports relevant to the user.

REQ4: The virtual pal should be able to understand and hold a conversation on a wide variety of things such as sports entertainment and music.

REQ5: The virtual pal should be able to provide recommendations for movies or books based on the users stated preferences. It should hold these stated preferences in separate logs to the storage of conversations.

If the user's input is invalid or inappropriate or beyond the capabilities of the virtual pal it should respond with an appropriate message saying it cannot fulfil the request and prompt the user for a different request.

Schedule planner

REQ 1: The user should be able to make a visually appealing schedule by adding all their classes appointments and other relevant information.

REQ 2: The user should be able to see and make necessary changes to their schedule when needed.

REQ3: The schedule planner should be able to send reminders for upcoming activities via push-notification if the user grants permission for push notifications.

REQ4: The schedule should be able to provide suggestions if the user's activities start to conflict..

REQ5: The schedule feature should be able to sync with all of the necessary applications such as google calendar in order to streamline the user experience.

Errors

If the user enters invalid or conflicting information into the schedule planner then the user should be prompted to re-enter the information following an appropriate error message.

Research assistant.

REQ1: The research aid should be able to respond using an accurate suggestion to where the user will find information relating to their input or answer the query directly. It should supply a message claiming the answer is outside of its scope if unsure.

REQ2: The research aid should be informed of the university policy on plagiarism and deny any requests that it suspects would violate the university policy

If the request is outside the scope of the research assistant or it is unsure about whether it can fulfil it or it is unsure about whether a request poses a policy violation it should respond with an appropriate message indicating it cannot fulfil the request.

***gym helper**:*

REQ1: Should provide a database of workouts including workout videos which includes the targeted muscles, necessary equipment and the goals associated with the workouts.

REQ2: The gym helper should be able to track workout progress by measuring the distance to a certain user goal and providing what % of the achievement has already been completed. A motivational response should be displayed whenever a certain milestone is reached. e.g you have lost 2 stone this month!.

The gym helper should be able to handle invalid inputs such as unhealthy or unrealistic goals and make suggestions about what goals the user should instead be chasing after.

4. External Interface Requirements

4.1 User Interfaces

Virtual Pal:

The user interface for Virtual Pal should have an intuitive design which would let users easily initiate a conversation with the chatbot. The main screen should have a text input bar which allows the user to type their messages and a display on top of this which shows the chatbots responses. The display should slide to show previous responses if the user scrolls up. The interface should have buttons for different modes of conversation. Error messages should display the same way regular messages do if the chatbot is unable to respond to the user's input.

Schedule Planner:

The main screen should have a standard calendar view which allows the user to input their assignments, deadlines and appointments. The interface should allow for adding, deleting or editing calendar events by clicking on the time in the calendar. The interface should give the option for allowing push- notifications with a bell icon in the top right hand corner.If the user inputs invalid or conflicting fates then the system should display an appropriate error message.

Research aid

The user interface for the Research aid feature should be optimised for efficiently helping users solve research tasks. The main screen should display relevant information such as articles, books and other sources based on the chosen topic. The interface should have a filter button for sorting and filtering based on several factors such as date or relevance to the topic. Error messages should be displayed as normal if the assistant cannot fulfil a certain query.

Gym tips

The user interface for the gym tips should display a number of icons in a bar at the bottom including cooking recipes, workout videos, health and fitness tracker and more. Error messages should be displayed if the user inputs an unsafe or invalid fitness goal. The tracker should make use of the phone's internal features such as a step counter if available.

4.2 Hardware and software Interfaces

The software components ChatGPT Pal interface with a variety of hardware components including the user's device i.e the smartphone or computer and the internet for connecting to the OpenAI API. The software should be optimised for different screen sizes and screen resolutions. The software application would need to access the systems resources such as the memory and storage so would need to interface with the devices operating system. This could be done with the relevant APIs that are provided by the device manufacturer or the firm designing the operating system. The software could interface with the notification systems in the operating system to send the relevant reminders.The ChatGPT Pal application will run on popular interfaces such as android and ios. The application will use OpenAIs API for ChatGPT and data will be transmitted and received in JSON format. The application can use a database to securely store information such as schedule data and the conversations with the virtual companion. The database will be SQL based. The application will also make use of external libraries for specific features such as cooking recipes and free for use fitness content. The application should communicate with Brightspace in order to view student information such as calendar information and student information in order to optimise the scheduling feature on the application.

4.3 Communications Interfaces

Communications will be implemented through the chatbot interface using OpenAIs API. Standard protocols such as HTTP or HTTPS will be used to communicate with the API.The communication between the user and the chatbot will be based on a web based interface. The software may need to interface with a user's email in order to send relevant notifications. The OpenAI API is secure and encrypted so no further encryption mechanism is required. The privacy and security of the users is the highest priority for the development of ChatGPT Pal.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The virtual companion should be able to respond to user inputs in less than 5 seconds. It should be able to respond appropriately based on the input given.The schedule planner should have no delay in the ability to search for specific events or appointments in order to meet user requirements. The gym tips feature and research assistants should provide accurate and safe information to the user. The research aid feature should be able to search the internet for information relevant to the user and be able to source this information in a timely manner.

5.2 Safety and security Requirements

Data protection: The app must protect against unauthorised hacking attempts and unauthorised access via user authentication. The user authentication can be achieved via a standard password request upon opening up the application.The app must have safeguards in place to protect against data loss or corruption such as regular backups. The app must comply with the safety requirements of the user interface it's running on as well as the relevant laws and regulations such as GDPR. It must also have whatever safety certifications are necessary like SOC 2. The app must ensure privacy and must not intend to share data with any third party organisations.

5.3 Software Quality Attributes

Intuitive design: the user interface should be intuitive and easy to navigate.7

Reliability: The app should provide reliable and consistent results. The communication with the virtual assistant should feel natural just like a conversation with a person.

Personalisation: The app should conform to user preferences as much as possible.

Maintainability: TThe app should be easy to maintain with clear, easy to understand code so that it is easy to iterate test debug and use.

Ethics: The app should err on the side of caution when it is unsure if it is violating user privacy or violating the relevant universities plagiarism policy with the research assistant.