**AI-Driven**

**Destiny 2 Player Coach**

**Requirements Specification Document**

**G4RR Computer Science and AI**

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1. **Introduction**

**1.1 Document Purpose**

This document intends to describe the functional and non-functional requirements of the AI-Driven Destiny 2 Player Coach project, as well as define target platform and development environment. The reader should take note of the Project Outline[1] document, the Target Platform Analysis document[2] and Target Audience Specification document[3] for correct context.

The structure of this document follows similarly to the requirements specification by Chris Loftus for the 2023 Group Project[4].

**1.2 Scope**

The document describes the functionality required in the proposed piece of software to deliver an efficient player coach for the game, as well as the target platform and development environment of a deliverable final product.

**1.3 Objectives**

The main objectives of this document are:

* Provide a brief description of the project intent
* To define all requirement criteria of the project and what is expected in the final product
* To define the target platform of the final product
* To define the development environment of the project

1. **General Description**

**2.1 Project Context**

A coaching product is required that has 4 main roles to fulfill:

1. To help users with character builds for all activities available within the game and explain the advantages of the suggestions
2. To provide a knowledge base for a player to refer to that explains core concepts in a more digestible manner than other official sources
3. To provide weapon, character build and activity suggestions based on a users play history
4. To provide live character build suggestions for an activity the player is currently in
5. Tailor all of these aims (excepting the knowledge base) towards the user by using the players vault and inventory

The coach is not required to suggest specific strategies for individual activities (aimed at specific activities such as Raids, Dungeons, etc.). The coach must understand what builds and weapons a player has available to them, as well as provide an easily readable and digestible user interface for a player to interact with. It is also not required to provide any provable optimal suggestion.

**2.2 Product Functions**

The final product will provide these key features:

* Provide an easily navigable UI.
* It will allow a user to enter their Destiny 2 account details in a security-wise manner to allow the product to utilize their data for its functionality.
* For each build suggestion, it will provide the following:
  + Character Sub-class, including fragment, aspect, grenade, ability and melee option.
  + Provide primary, secondary and heavy weapon suggestions as well as the mods for each weapon.
  + Provide helmet, leg, arm, chest and class-specific (warlock bond, hunter cloak, titan X) armor choices as well as their selected mods.
  + Provide suggestions for artifact perks.
* It will provide a UI element for where the player is currently and their current build.
* Provide a knowledge section that lists each core game aspect (elemental effects, sub-class effects and other core keywords utilized in the game that are hard for new players to grasp), allowing a player to select one and the chatbot to explain; including context towards a players current build.
* Provide live suggestions at random intervals if a player is in an activity.

**2.3 User Characteristics**

Users of the product will be knowledgeable with the use of computer peripherals and navigation of user interfaces.

Users will have had a minimum playtime of the game, having a foundation of knowledge to how the game works and operates. They will know what the character screens generally look like and their different aspects, such as divisions in the sub-class sub-screen and divisions in the main character screen.

1. **Specific Requirements**

**3.1 Functional Requirements**

The following are the functional requirements that are necessary for a successful final product:

**FR1 Player Login**

The product will provide a user a secure way to enter their account details in order to get tailored suggestions. This will include messages to the user for incorrect details or detailing an inability to connect to the Bungie servers.

**FR2 Current Player Status**

The product will know at any given time what a players build is as well as if they are offline, or currently in an activity.

**FR3 Full-build suggestions**

Every full-build suggestion by the product will include:

* Primary weapon selection including any modifications
* Secondary weapon selection including any modifications
* Heavy weapon selection including any modifications
* Helmet suggestion including any modifications
* Arm Armor suggestion including any modifications
* Chest armor suggestion including any modifications
* Leg armor suggestion including any modifications
* Class specific armor suggestion including any modifications
* Sub-class suggestion including:
  + Fragment selections
  + Aspect selections
  + Grenade selection
  + Melee selection
  + Class-ability selection
  + Super selection

Each sub-aspect here will also include a brief explanation as to why it was suggested and what benefit it provides in the context of the activity.

**FR4 Full-Build suggestion by activity selection**

The product will allow a user to select from a list of all Destiny 2 activities, and provide up to 3 build suggestions based off of what a player has available on their character as well as in their vault.

**FR5 Suggestions by player activity history**

The product will suggest new weapon and sub-class types to become familiar with based off of the users activity history.

**FR6 Suggest activities by player activity history**

The product will suggest different activities for the user to tackle and become familiar with.

**FR7 Provide live-suggestions if applicable (only if player is in activity)**

The product will, at random intervals, suggest different weapons, sub-classes or armor pieces based off of the activity the user is currently in. It can provide suggestions for one or all of these game aspects.

**FR8 Provide knowledge base for a user to refer too**

The product will allow a user to select a keyword from a list of all game keywords and explain them to the user, with some context to what a players current build is if applicable.

**FR9 Allow Character Selection for suggestions**

For **FR4**, the product must allow not only the selection of activity, but the character they want to use also, as the game allows a player to have up to 3 different characters.

**FR10 Automatic Sign-In**

The product will provide automatic sign-in for users for a window of 10 days (for security purposes) upon entering successful credentials.

**3.2 Non-Functional Requirements**

What follows are the non-functional requirements that are necessary for a successful final product. All requirements in this section focus on attributes covered by Asana[5]:

**NFR1 Security-Wise Product**

The proposed product deals with sensitive user data such as login credentials, player data as well as needing to establish a secure connection to the Bungie API for each player. The final-product will embody professional security design techniques and technologies, ensuring confidentiality, data integrity and clear accountability.

**NFR2 Storage Requirements**

The proposed product will not utilize secondary storage, apart from storing user credentials for automatic sign-in. There are no future plans for this to change.

**NFR3 Minimum Hardware Requirements**

The final product front-end will be accessible to all major browsers for both desktop and mobile, incorporating responsive design techniques and utilizing implementations of technologies that maximize availability. The product server will run on a machine outside the University network, and has the following hardware specification:

* CPU: Intel I3 13100f 4.5ghz
* RAM: Corsair Vengeance 3200mT/s DDR4
* Motherboard: MSI B650
* GPU: Nvidia GTX 1080
* OS: Windows 10

**NFR4 Availability Requirements**

The product must be available to atleast 10 concurrent users who use a product feature atleast 10 times a day, as a prototype of a fully-scalable system. The product should have a theoretical critical failure time of 6 months.

**NFR5 Scalability Requirements**

Established software design principles and patterns are to be utilized to create innate scalability of the final product. The product should be designed and developed to handle up to 20 concurrent users.

**NFR6 Maintainability Requirements**

Server-side code should be module-oriented to allow for easy modification, creating a clear view of individual components/modules and their tasks. Documentation must be thorough, including embedded documentation in the code base for ease of navigation and readability and documentation of all server-side and client-side dependencies. The final-product must be designed to allow for minimal downtime in response to any bug fixes required.

**3.3 External Interface Requirements**

**EIR1 User Interface/User Experience**

The user interface for both mobile and desktop browsers should use modern design techniques such as responsive design, ease of navigation and efficient use of white space. The interface will have a modern and dynamic aesthetic, using as little of static elements as possible. Material 3 design will be utilized for these purposes.

**EIR2 Hardware Interfaces**

The front-end part of the full-stack product will be available and fully-functional on all major browsers for desktop and mobile, using necessary versions of technologies to maximize this.

**EIR3 Software Interfaces**

A MySQL database will be utilized server-side for securely storing user details. All dependencies will be local to the server, requiring no communication with other networked devices, apart from in the case of APIs requiring authentication.

**4. Annotated References**

[1] Project\_Outline\_V1-0\_Release, “CS39440 Project Outline Document”, Last Update: 09/02/2025. [Document]. Available: <https://github.com/AzdenO/MMP/tree/main/Documentation/Project%20Outline>. [Accessed 10/02/2025].

The project outline document required for the module which details the project proposition, proposed tasks and required deliverables.

[2] Target\_Platform\_Analysis\_V1-0\_Release, “Target Platform Analysis Document”, Last Update: 12/02/2025. [Document]. Available: <https://github.com/AzdenO/MMP/tree/main/Documentation/Requirements%20and%20Project%20Analysis/Research%20and%20Analysis>. [Accessed 11/02/2025].

The Target Platform Analysis document which evaluates several different platforms as candidates for deployment, ultimately finding the most suitable and justifying the decision.

[3] NOT YET CREATED

[4] Software Engineering – Chess Tutor Requirements Specification 1.2 (Release), “Chess Tutor Requirements Specification”, Last Update: 28/02/2023. [Document]. Available: SEE BLACKBOARD MODULE. [Accessed 09/02/2025].

A document authored by Chris Loftus for the 2023 Software Engineering group project,

[5] Asana Article, “Software Requirements Specification Template”, Last Update: 14/01/2025. [Online]. Available: <https://asana.com/resources/software-requirement-document-template>. [Accessed 10/02/2025].

An article published by Asana, outlining what is required in a software requirements specification document, including more detailed aspects such as what should be covered in non-functional requirements.

**5. Document History**

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| --- | --- | --- | --- | --- |
| **Version** | **Issue No.** | **Date** | **Changes Made** | **Author** |
| 0.1 | N/A | 09/02/2025 | N/A – Original Draft | Declan W  DRW8 |
| 0.2 | N/A | 10/02/2025 | Finished draft of functional requirements and added non-functional requirements draft. Added draft of target platform analysis. Added document history | Declan W  DRW8 |
| 0.3 | N/A | 10/02/2025 | Removed target platform analysis section and moved it to its own document | Declan W  DRW8 |
| 0.4 | N/A | 11/02/2025 | Finished non-functional and external interface requirements. Added annotated references section and document contents page | Declan W  DRW8 |
| 0.5 | N/A | N/A | Final draft before review as potential release | Declan W  DRW8 |