**AI-Driven**

**Destiny 2 Player Coach**

**Android Application**

**CS39440 Project Outline Document**

**G4RR Computer Science and AI**

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**Project Description**

This project, given a brief outline by the title, aims to produce an android application that helps newer players of the game (as well as seasoned players) equip the best builds (weapons, armor, subclass) for certain activities, suggest activities based off of a players activity history to broaden their skills as well as suggest training with weapons the player has used the least; again to broaden the players skills and confidence. The Bungie api[1] provides endless functionality, and so the possibility of extending functionality further exists throughout the development process. Another potential feature for example is providing a knowledge base. Character building has many different effects such as radiant, restoration, devour, armor charge, bolt charge and many more that are not well explained. A logical partition in the app could provide an exhaustive list of every effect that the chatbot can explain, when a user clicks one of the effects.

Destiny 2 is infamously hard for new players to come to grips with, having lots of variables for a player to consider when equiping their characters for certain activities such as perks, subclasses, stat builds and many more. The app aims to ease this process, with suggestions including explanations as to why they provide a benefit to the players experience.

The app will make use of the gemini android sdk library[2] for the suggestions, either using the 1.5 flash model or the newer 2.0 flash model. The Bungie api will be utilised to fetch all necessary information about a player. The api uses traditonal http endpoints, but a python wrapper exists (“aiobungie”)[3] which could be utilized by implementing the chaquopy[4] gradle plugin that allows python to run in android apps. The decision on which route to take in regards to this will take place at a later date and weigh the benefits and pitfalls of each approach.

The app will provide a functional and easily readable UI, with logical partitions for each piece of functionality as well as a secure login on app start so the app can retrieve a players account contents. Functionality to remember login details can be included, but requires security considerations.

The overall aim is to create an application that is useable and useful to the wider Destiny 2 community, ensuring relevance and ease of use.

**Proposed Tasks**

Over the course of project planning, design and development, several different tasks and investigations will need to take place in order to facilitate a professional, relevant and efficient program. These tasks include, but may not be limited to:

* **Investigation of Chatbots:** Considerations need to be made regarding the accuracy of a proposed chatbot. Although gemini is a likely contender due to its pricing and easy implementation, a full investigation involving alternative bots must be made to ensure the best quality of content for the proposed app.
* **Consideration of HTTP Endpoint requests or API Wrapper:** Two options for implementing a connection to the Bungie API are utilizing an existing python wrapper for easier implementation, or interfacing directly with the HTTP endpoints of the API with a requests library; weighing the pros and cons of each approach.
* **Planning:** A task that will involve detailed planning for possible implementations of the proposition, including all relevant diagrams and content such as UMLs, flowcharts, etc.
* **Development of a solution:** This can be broken down into individual steps:
  + **Development of Game Data Wrapper:** A wrapper class of some sort will need to be developed in order to provide the chatbot with the necessary player information and in the correct format. This will also involve providing the API with the appropriate player credentials.
  + **Integration of chatbot:** A stage concerning connecting the chatbot with the players game data in each case of proposed functionality, creating endpoints for integration with specific UI elements
  + **Development of Front-End UI:** The last stage where an appropriately designed UI (designed with android XML) is developed and connected with the solution back-end.
* **Project Meetings and Diary:** Each week, a meeting is conducted with the project supervisor to provide updates on progress and discuss any issues that have presented themselves as well as possible solutions to those. A diary will be kept of what was discussed at these meetings in the form of either a markdown language document or html document.
* **Demonstrations:** Two demonstrations are required for this project. Ensuring the project is at relevant stages in its development for these will be a consideration throughout the project lifecycle. The mid-term demonstration aims to demonstrate the capabilities of the main features discussed, focusing on back-end logic rather than any implementation for a UI. The final demo will include the front-end and back-end working in tandem, representing a deployable piece of software.

**Project Deliverables**

The project requires multiple pieces of work to be produced, including different aspects of documentation, as well as the software itself. These include and are limited to:

* **Deployable Application and Source Code:** The application itself having been built into an executable for the target device/platform as well as an accessible git repository to the application source code.
* **Final Report:** A document that details the full project lifecycle, including all third-party libraries, frameworks and tools utilized.
* **Final Demonstration:** A demonstration meetingto showcase the applications full capabilities. It must be considered throughout development as an end-point.
* **Mid-Term Demonstration:** Another demonstration occurring half-way through the project lifecycle, focusing on back-end logic and implementation. Another consideration when beginning and pursuing development.

**Annotated Bibliography**