Coursework Part A – Project Proposal/Plan

Project Title:	Guard - Valorant Assistant Software
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Module Code:	CHC 5056
Module Name:	Innovative Product Development
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Section 1: Title and Description (6 marks)

Title: Guard - Valorant Assistant Software

Describe:

Valorant, also known as WuWeiQiYue in China, is a popular FPS e-sports game developed by Riot Games and distributed by Tencent. At present, the number of Chinese players is at least more than 1 million [1]. In the game, how to understand and use each hero's skills is a key factor affecting players' performance.

Guard - Valorant Assistant is a skill walkthrough App designed specifically for Valorant players in China. It will provide users with high-quality skill walkthroughs to improve their game performance, thereby helping them to enjoy the game.

By pre-collecting, integrating and analyzing walkthrough data on the Internet, it can generate high-quality skill walkthrough in a pre-set format, helping users learn a useful skill release method in a short time, so as to improve their game experience.

The benefits of the product are not confined to Valorant players, other stakeholders can also reap benefits. For game developers, this product can enhance player activity and retention, thereby fostering a healthy player ecosystem. In addition, advertisers can use this platform to precisely target Valorant players to advertise, attracting them to buy game-related or other merchandise.

Consequently, every Valorant player or relevant organization and company could be potential payers for this product.

Section 2: Background Research (6 marks)

Subsection 2.1: Product domain

（Market analysis chart）

Guard-Valorant Assistant is a skill walkthrough App designed to provide users with free, fast and high-quality skill release walkthrough to meet the needs of users to improve their Valorant game level in a short time. Valorant, also known as WuWeiQiYue in China, is a team cooperative FPS (first-person shooter) game developed by American game company Riot Games. The core gameplay of the game is competitive confrontation, players need to use the unique skills of heroes and team cooperation, in order to take advantage of the confrontation. Therefore, the understanding and use of each hero's skills is a key factor affecting the player's performance in the game.

Subsection 2.2: Data analysis

Market Size:

The market size for game walkthrough products targeting Valorant players (China) is massive, with a conservative estimate of 500,000 potential users. For example, on the Bilibili website, there are 9 Valorant-related walkthrough videos with over 500,000 views and over 1,000 comments each. The highest number of views on a single video reaches 1.2 million [2]. This represents at least 50,0000 Valorant players hope that improve their game performance by learning some walkthroughs.

Technical capability：

After market research, we found that most of the existing products use the manual mode to produce skills, not only the update is slow, and the quality cannot be guaranteed.

Price sensitivity:

At present, the existing products on the market are almost all free to provide users with their own Valorant game walkthrough services at 0 yuan, in order to seize market share. Therefore, considering the competitive game market, our product will provide free services in the early stage to attract users, and then consider introducing a tiered subscription model to increase revenue.

(The above data are as of October 29, 2023)

Subsection 2.3: Competitive analysis
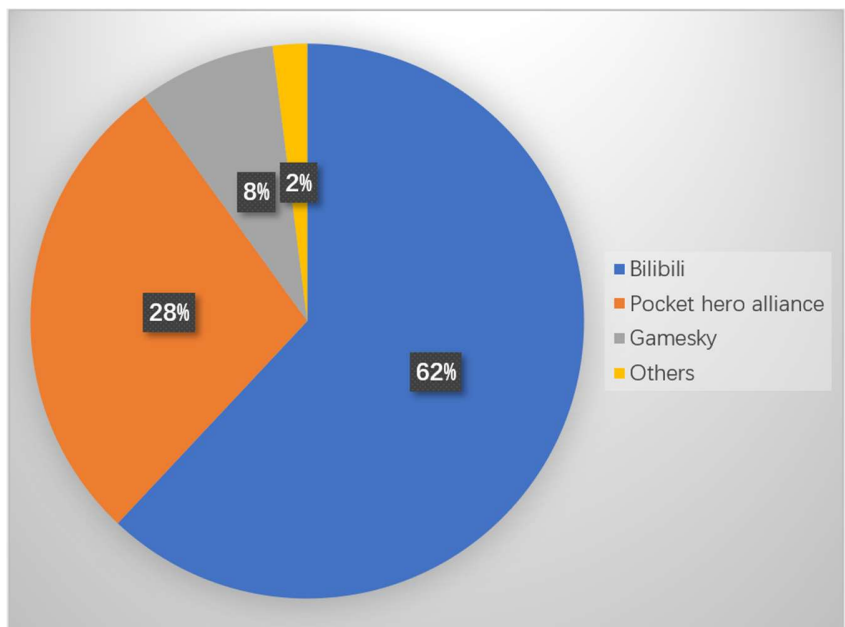
（Market share chart， 2023）

Major competitor(Form)	Advantage/Disadvantage	Improvability
GamerSky (Website)	The walkthrough is classified according to the type, there are many kinds and the content is complete. No keyword search function, low efficiency. Different formats, uneven quality.	1. Uniform format, high quality walkthrough 2. Keyword search function
Pocket hero alliance （App）	The walkthrough is high quality, good format and uniform. But updating is slow and need a lot of practices.	1. Walkthroughs are updated in time 2. Learnability
Bilibili （App ,Website）	The walkthrough is of high quality, detailed content and strong practicability. But need to learn in advance, and can't learn it immediately. Some quality content is paid.	1. Fast learning mode 2. Free content

(Analysis table of the main competitors in the domain of Valorant Walkthrough products in 2023)


Subsection 2.4: Summary:

Through the above target market data and competitive analysis, it is clear that Guard-Valorant Assistant has great market potential. Players need a product that can provide free, high-quality, easy-to-learn skills walkthrough anytime, anywhere to meet the needs of players.

# Section 3: Summary of Technologies (8 marks)

Subsection 3.1: R&D method

Guard - Valorant Assistant will use waterfall model for software development because the core requirements of the software are clear. After the requirement analysis, the system design, coding implementation and testing are carried out according to the stage.
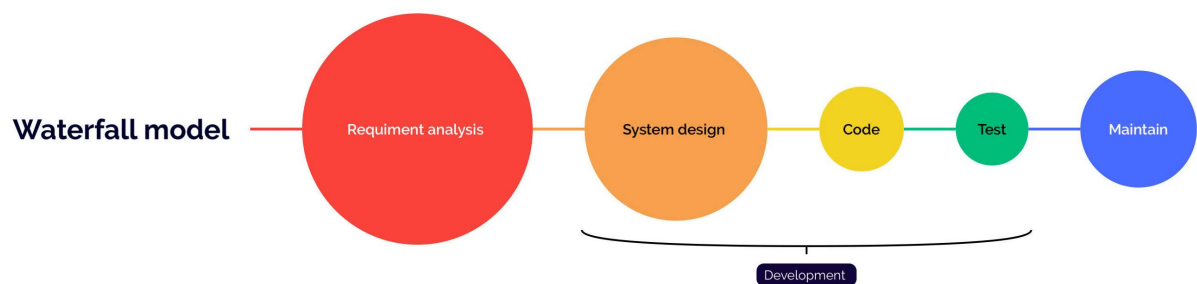
(Waterfall Model,2023)

Subsection 3.2: Requirement analysis

In the Requirement analysis stage, various technologies will be used to confirm user requirements and product functions priorities, finally produce a user requirement analysis report. Firstly, Face-to-face interview and questionnaire survey are used to conduct demand research and collect user requirements. Secondly, KANO model technology [3] is used to classify requirements, and then requirement priority is defined according to the Four-quadrant rule [4]. In addition, ERD (Entity-Relationship Diagrams), DFD (Data Flow Diagrams) and other office document technologies will be used to produce User Requirement Analysis Reports and other documents to clearly record requirements. Finally, UAT (User Acceptance Test) is used to verify the requirements.
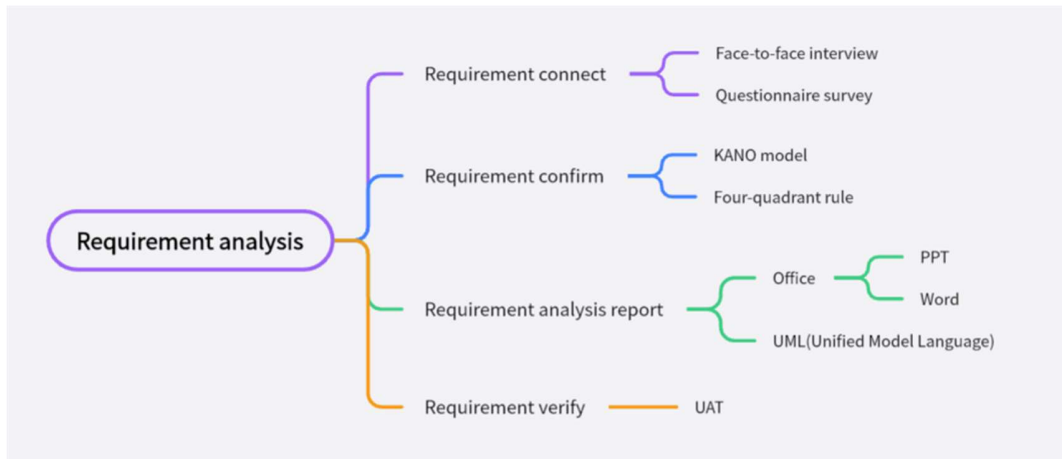
(Requirement Analysis Chart, 2023)

Subsection 3.3: System design

In the system design stage, the modular design method is first used to subdivide the system into independent modules to improve work efficiency. Then, Detailed Design is carried out for each module, the core design of which is Walkthrough Generation Design. To produce a qualified walkthrough, it is first necessary to collect raw data through Web Scraping and Crawling technology, and then use AI (artificial intelligence) technology for data analysis. Finally, the analysis results are converted into a skill walkthrough in standard format through the Content Management System (CMS) technology. (See chart below for complete system design)
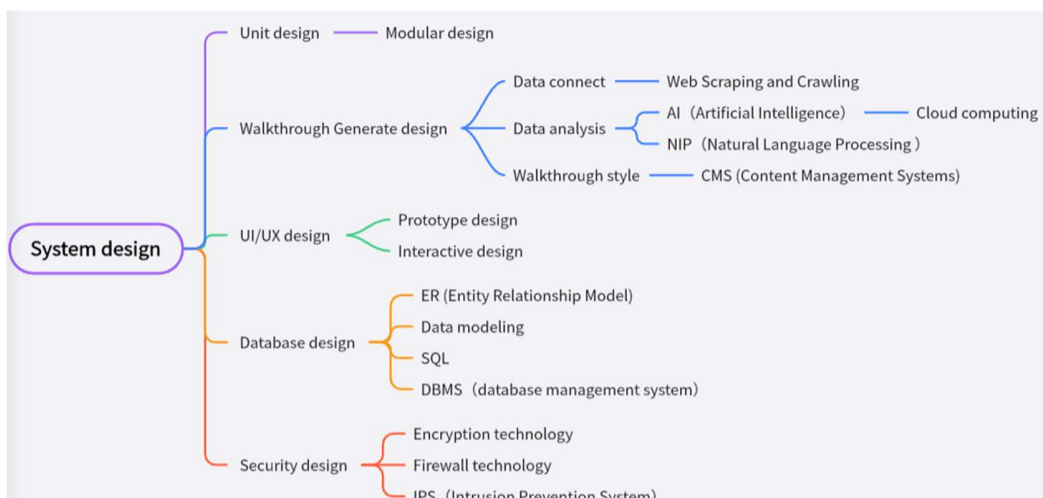
(System design Chart, 2023)

Subsection 3.4: Coding implementation

For different functional modules, it is important that choose the most appropriate language for coding implementation. For example, choosing HTML/CSS/JavaScript to implement Front-end pages, including layout, styling, and interactive behavior. The Back-end implementation mainly uses Python language to achieve core functions such as data collection, analysis and walkthrough generation. In addition, MySQL is used to realize the database function to store a large amount of data, and Redis is used to realize the cache technology to greatly improve the data access speed.

Subsection 3.5: Test

During the testing phase, it is very important to use different testing techniques to check the quality of the product. Therefore, various testing tools such as Cypress, Apache, and Junit, testers will be used to test all aspects of the product. First of all, the Black Box Test method can be used for functional testing and compatibility testing of the product to ensure that the product can work properly in different environments. The White Box Test method will be used for unit testing and security testing, which will ensure the safety and viability of the product. In addition, using Automated Testing techniques for regression

testing and performance testing will significantly improve test efficiency.
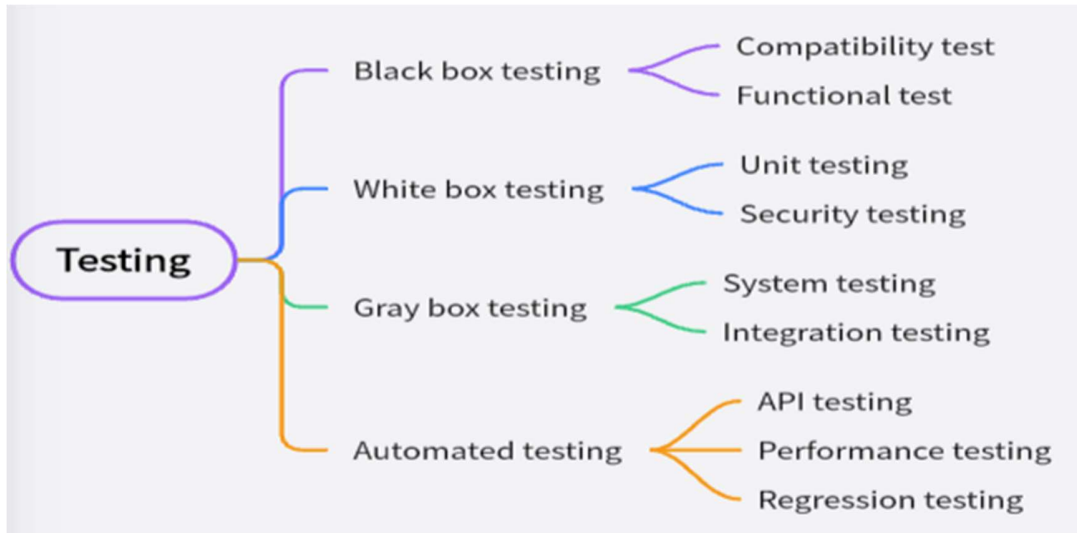
(Testing Chart, 2023)

Subsection 3.6: Future planning
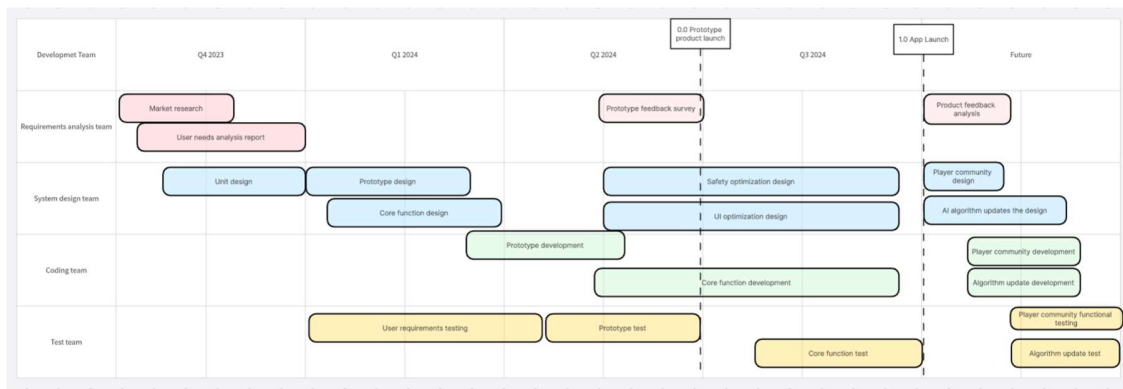
（Roadmap,2023）

Although the time of the project is limited, we still need to consider the future promotion plan of the project and further improve the product function. This includes adding new features in future releases, optimizing UI design and walkthrough generation algorithms, and enhancing the user experience.

Section 4: Professional Issues (4 marks)

Subsection 4.1: Colleague test

Stakeholder:
Develop Team: Want to successfully develop an App that will generate commercial returns and reputation. Responsibility includes ensuring product quality.
Possible Actions:
Using unlicensed source code to develop.
Test applied:
Colleague test (What would professional colleagues say?)
Consequences:
A professional colleague might say, "You should contact the source code author immediately and request permission of the unauthorized code. Because the use of unauthorized code for development will lead to infringement problems, which violates the BCS Professional Competence and Integrity regulations [5]."

Subsection 4.2: Legality test

Stakeholder:
Developer: Want to collect more game walkthroughs from the web to produce better content and attract users. The responsibility is to comply with the relevant laws.   Regulators: Ensure fair and legitimate market competition
Possible Actions:
Unauthorized game walkthroughs may be collected.

Test applied:
Legality test (Would this choice violate a law?)

Consequences:
It will violate a law. The collection of unauthorized game guides will lead to infringement of others' intellectual property rights, in violation of Article 12 of the Cybersecurity Law of the People's Republic of China [6].

Subsection 4.3: Harm test

Stakeholder:
Users: Want to get high quality game walkthrough but worry about their personal data.
Development team: Collect user data to optimize user experience. The responsibility is to protect the user's private data.
Advertisers: Want to gain access to user data to deliver targeted ads, thereby generating revenue.

Possible Actions:
Provide advertisers with user data

Test applied:
Harm test (Do the benefits outweigh the harms, short term and long term?)

Consequences:
Benefits: The project can get more advertising revenue.
Harms (Short-term): Some unqualified advertisements will cause the user trust crisis and refuse to use
Harms (Long-term): Ongoing privacy concerns could lead to legal consequences.

Section 5: Project Team Requirements (6 marks)

Subsection 5.1: Technical skills

1. AI (artificial intelligence) research experience, including but not limited to natural language processing, computer vision, etc.
2. Programming experience, including but not limited to C, Python, Java and other languages.
3. Design skills, including but not limited to UML (Unified Modeling Language), Content Management System (CMS) and other software design tools and methods.
4. Requirement analysis ability, including but not limited to market research, data analysis, etc.
5. Test ability, including but not limited to the use of Cypress, Apache and other software test tools and black box test, white box test and other test methods.

Subsection 5.2: Transferable skills

1. Teamwork skills - Development tasks will rely on group work. Therefore, developers should have excellent teamwork skills, be willing to work with others, and be able to maintain close communication with other team members in team work to share information and knowledge.
2. Problem solving ability - The development process will face various problems. Therefore, developers need to have the basic problem solution ability, when faced with different problems in the development process, they can quickly find the root cause of the problem and put forward effective solutions.
3. Time management ability - The development process has a strict time limit. Therefore, developers need to have excellent time management skills and be able to effectively manage their time according to the development process.

References

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2. Bilibili, "0 base! The most involved door tutorial, watch this video is enough! | WuWeiQiYue contract teaching set tips," Bilibili, 12-July-2022. [Video]. Available: https://www.bilibili.com/video/BV1u14y1S7WP/?spm_id_from=333.337.search-card.all.click&vd_source=7f25e69c1bdfcc0e8a583588e7fcd6d9. [Accessed: 16-October r-2023].

3. N. Kano, N. Seraku, F. Takahashi and S. Tsuji, "Attractive Quality and Must-Be Quality," Journal of the Japanese Society for Quality Control, vol. 14, no. 2, pp. 39-48, Apr. 1984.

4. S. R. Covey, "The 7 Habits of Highly Effective People," New York, NY, USA: Free Press, 1989.

5. British Computer Society, "Professional Competence and Integrity - Codes and Regulations," BCS, Swindon, UK, [Online]. Available: https://www.bcs.org/membership/member-communities/professional-competence-and-integrity/. [Accessed: 23-October-2023]

6. Standing Committee of the National People's Congress, "Cybersecurity Law of the People's Republic of China," Beijing, China, Jun. 1, 2017. Available: http://www.npc.gov.cn/npc/c238/201706/2a9f160ec85a414ea3f8b689b16f5f68.shtml. [Accessed: 27-October-2023].