Criterion A: Planning

Description of the scenario

My client Miss Zou, who is a big movie fan and is in a movie club, always struggles with searching for related information about her interesting movies. It took her much time to browse and find satisfactory results because some movie search interfaces are arranged in a way that was not her expectation[1]. Also, when she was attracted by a foreign movie poster and wanted to search for it, she was always frustrated to spell and input the arcane name[2].

Because of all these inconveniences, she would like to have a computer program to resolve this. Since I am interested in watching movies as well and sometimes had the same worries as her, I accepted this invitation. At first, we discussed the possibility of designing a website, but she would like to introduce the application in her club as well, and given the poor Wifi signal in her lab, she preferred a product that could contain several functions offline[3]. Also, since her club included uniform OS computers, one application program would be enough, and she did not care about the installation progress[4]. In addition, considering the fact that different users might access the same computer in her lab, we decided to include user authentication in the application[5]. Besides, she would like the system to be computer-based since this would be convenient for her to watch movies right after finding satisfactory results[6]. Finally, we made a negotiation on designing a computer-based movie search-and-sorting system application.

In another meeting, we made an agreement on the several functions of the application. First of all, the system should be capable of both typing input and image recognition in the case that users have troubles typing the movie name or simply are tired of inputting information[7]. The text content extracted from the inputted poster will be divided into tags to let users choose[8]. Additionally, the system should offer a well-organized result of movie names, scores, dates, actors, genres, and hyperlinks for users to have further information[9].

My advisor is my IB Computer Science teacher Ms. Wu, who will monitor my process and give suggestions.

[1] Appendix A.1
[2] Appendix A.1
[3] Appendix A.2
[4] Appendix A.2
[5] Appendix A.2
[6] Appendix A.2
[7] Appendix A.1
[8] Appendix A.3
[9] Appendix A.3

Rationale for the solution

After acquiring such requirements from my client, I decided to use Python and Qt design(QT) as the main programming tool. I chose Python because it is easy to program and could be used on different operating systems. Also, since my client does not require the timeliness of the product, Python is enough to fulfill the application. Additionally, because my product will be a Graphical Use Interface(GUI) to be user-friendly, I chose QT to be my helpmate. The use of QT benefits not only users but also me, the programming developer, since it can work with Python and is compatible with both Mac OS and Windows. Hence, it will be convenient for me to adjust my software given that I might switch between different computers during the construction process.

In order to fulfill the functions, I chose several existing modules: Sqlite, Crawler, and Baidu API[10]. For the need to store user information and movie lists, relatively light tasks for a database, Sqlite could be a better choice than heavy databases like MySQL. Also, given that Sqlite is the built-in function in Python, I could avoid the installation process. To get enough movie lists, I would use the Crawler module, and after contacting with my client, we agreed on using Douban Movie[11] as the website which is the referencing source to the Crawler[12]. This is because the website contains much more sufficient and latest information than collections done by myself. To achieve the image recognition function, I planned to use Baidu API because it does not need me to do trainings, and since it is used and proven by many users, the result will be more accurate.

[10] Appendix F

[11] https://movie.douban.com

[12] Appendix A.4

Success Criteria

Module	Description
1. Function	
1.1 The system allows users to choose their identity.	The system will offer user authentication. Users can choose to register or not. Unsigned users should be responsible for their data security.
1.2 The system should encrypt inputted usernames and passwords using Haxi	After users create their usernames and passwords, the system will use Haxi to encrypt these information.
1.3 The system will insert user information into user database	The program should be able to insert Haxi usernames and passwords of registered users into user database.
1.4 The system allows users to change some Configuration	The system offers configurations for users to choose the number of movie results they would like to be displayed and the photos they would like to upload in once.
1.5 The system allows users to input the information they would like to search	The system is compatible for both typing input and photo input.
1.6 The system offers a translation between posters and text contents	The system should be able to recognize the text contents from the inputed posters.
1.7 The system can display the posters users chose to be searched	Once users choose to input movie posters, the photos they choose will be displayed on the screen.
1.8 The system can divide word contents extracted from posters into tags	The system will divide the text contents extracted from the inputed posters into tags and display these below the posters. Users can click on their interested tags as searching objects.
1.9 The system will be able to acquire movie lists from Douban Movie by Crawler	The system should be capable of using input information from users or programmers(as a pre-acquisition) to crawler online results.
1.10 The system will insert movie lists into local database	The program will insert crawler results into local database.
1.11 The system will display searching results based on users' preference	Related movie results and the hyperlink of the detailed descriptions and broadcast address will be rearranged(from the highest movie score to the lowest) and shown on the screen.
1.12 The system will be able to store and display history searching results	For registered users, the system will store and can display their own searching histories.

Module	Description
2. User system	
2.1 The system offers Registration interface	Users can sign and login to the system by using usernames and passwords.
2.2. The system allows users to choose whether they are in online or offline condition	Users can find ‘Offline’ button in Configuration and click that button to be in offline module.
2.2.1 Online users	Users will get their movie lists based on Crawler. Crawler interface will be shown in main user interface.
2.2.1.1 The system offers several functions for Registered users	1. Users can set the configurations to change the number of displayed results and the number of photos uploaded in once. 2. Users can type in the information they would like to search. 3. Users can upload posters to the system. 4. Users can click on ‘tags’ to certify the needed information on posters. 5. Users can click on the hyperlinks to get other information about their interested movies and watch it. 6. Users can see their using histories started from the latest one.
2.2.1.2 The system will limit several functions for Unregistered users	1. They SHOULD be responsible for their data security. 2. The system will NOT store their using histories. 3. They CAN use other functions same as registered users.

Module	Description
2.2.2 Offline users	1. Users canNOT choose the number of displayed results. 2. The movie results will only be searched from the local database not from crawler if the user is offline. Because there might time lags for updating the database information, users might NOT be able to search for the latest information. 3. The hyperlink canNOT be accessed. 4. The using history under offline condition will NOT be stored and displayed. 5. The limitations above are for all users, and the difference between registered users and unregistered users is the same as online users: Unregistered users and should take care of their data security.
3. User interface	1. A menu bar illustrating different functions is available at the left hand side. 2. On-screen help will be shown once users' mice are on the functioning buttons. 3. If users successfully register their accounts, a verification will be shown. 4. If users type in invalid information or there are not any movie results found, error verifications will be shown.

Word Count: 354 + 279 + 0 = 633 (Excluding subheadings, footnotes, and the table)