CS410 Final Project Proposal

In this project, we develop a 5-student team to complete the CS410 final project. There are five people on our team. The team captain is Qiyang Chen. Below is our teammates' names and NetIDs:

- Qiyang Chen qiyangc2 **(Captain)**
- Yanhao Qiu yanhaoq2
- Xipeng Song xipengs2
- Yufei Ouyang yunfeio2
- Xinyi Ai xinyia2

We plan to build a recommender system similar to Netflix's to recommend movies to users. It is essential and interesting because films are very close to our daily life and the performance of the recommended system will affect the users' experience while getting recommended films from the system. In addition, Netflix introduced Autoencoder into the recommendation domain, which achieved a good performance in this domain.

We plan to implement three architectures in our recommendation system, the autoencoder, content-based filter and user-based filter based on the public dataset on Kaggle. We will first investigate those techniques by reading research papers, then we will find data online that suits our project.

We will implement the three techniques and evaluate their performance. Lastly, we will Implement a User Interface for user interaction with the recommender system which enables users to receive recommendation notifications based on users' chosen tags and other similar users' preferences. At the same time, this user interface provides a search bar where users can search for relevant information. We will evaluate our results manually.

Our project is developed based on Python. Below lists our main tasks for this project and the estimated cost for each task.

- Reading related papers (20 hours)
- Data acquisition (2 hours)
- Data processing (20 hours)
- Developing Autoencoder based recommended system (20 hours)
- Developing Content-based Filter recommended system (20 hours)
- Developing User-based Filter based recommended system (20 hours)
- Performance analysis (10 hours)
- Frontend UI-based Python GUI (20 hours)
- Evaluation (10 hours)
- Writing a final report (10 hours)