

# CMPE256 Team Project Proposal

## Team members:

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## Team name:

- Free Wi-Fi

## Project title:

- League of Legends ranked match pick strategy recommendation

## Project description:

- League of Legends is a 10-players online battle arena video game. 10 players are equally grouped into two teams, each team picks 5 roles with unique abilities to battle against another team of 5. In each battle, players start with certain gold, and then earn gold from killing enemy creeps, enemy hero, and neutral creeps. Players can purchase items by gold, in order to make the role stronger. The team who first defeat the enemy's base wins the game.
- Using about 1.8M non-zero records of previous ranked matches of League of Legends, each with more than 50 different features of that match, to provide a hero selecting recommendation based on home team and enemy team's hero combination.

## Methodology:

- Data pre-processing
  - Feature selections: choose important features, ie. heroes/lds
  - Attribute transformation: transform roles/hero names into different digits
  - Dimensionality reduction: ie. remove useless queueid in matches.csv
  - Data Aggregation: combine name of heroes and its id with other dataset
  - Feature creation: use aggregated data to form advantage and counter
- Find counter and synergy effect between every pairs of heros from created features(item-based)
- Find similar matches to recommend the best missing position choice for the team (user-based)
- Evaluation and validation
  - 10-folders
  - Provide the predicted winning rate for the given recommendation and compare with the real winning rate of the testing data

- Based on the progress of this class, new methodologies would be added

### Datasets to be used:

- 7 datasets will be used for this project.

Dataset ID	File Name	Size	Description
1	champs.csv	139*2	Name of heroes and its id
2	matches.csv	1.8M*8	Match id and detail features about that match
3	participants.csv	1.8M*8	10 players in each match and detail features about those players
4	stats1.csv	1M*56	First part of each players' detail performances and match results
5	stats2.csv	0.8M*56	Second part of each players' detail performances and match results
6	teambans.csv	1M*4	Banned heroes for each match
7	teamstats.csv	0.36M*13	Team performances for each match

### Notes:

In CMPE 255, we will use the same dataset for the team project and the project title is “League of Legends ranked match results prediction”. Not like the topic we choose for this project, in 255, we plan to use the data to predict a future rank match result by giving detailed information on that match.

The methodologies we choose to use will be totally different. In 255’s project, to predict the rank match and to find the relationships between different features, we will use kNN, decision tree, CNN, Bayes classifier, and SVM. For this project, we will focus on the recommendation algorithm, for ex., item-based recommendation and user-based recommendation.