

Machine intelligence CMP402B

Faculty of engineering

Cairo University

Machine Intelligence

Project Proposal

Team 15

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| Name | Sec | BN |
| Islam Ahmed Mohamed | 1 | 12 |
| Mohamed Abobakr Gad | 2 | 14 |
| Mohamed Ibrahim Gab Allah | 2 | 13 |
| Omar Tarek Mohamed | 2 | 8 |

Team Members

Problems

1- League of legends

League of Legends is a MOBA (multiplayer online battle arena) where 2 teams (blue and red) face off. There are 3 lanes, a jungle, and 5 roles. The goal is to take down the enemy Nexus to win the game.

The game has a competitive mode (ranked solo queue) where players are ranked according to their skill levels (iron, silver, ...). The average time for a league of legends game is 25 to 30 min (depends on the rank).

The dataset contains the first 10min. stats of approx. 10k ranked games (SOLO QUEUE) from a high ELO (DIAMOND I to MASTER). Players have roughly the same account level.

This data can help gain insights about the effect of the early game (first 10 min) on the final winner and develop strategies for winning.

[Dataset](https://www.kaggle.com/bobbyscience/league-of-legends-diamond-ranked-games-10-min)

2- Gold Price Prediction

Historically, gold had been used as a form of currency in various parts of the world including the USA. In present times, precious metals like gold are held with central banks of all countries to guarantee re-payment of foreign debts, and to control inflation which results in reflecting the financial strength of the country. Recently, emerging world economies, such as China, Russia, and India have been big buyers of gold, whereas the USA, South Africa, and Australia are among the big seller of gold.

Forecasting rise and fall in the daily gold rates can help investors to decide when to buy (or sell) the commodity. But Gold prices are dependent on many factors such as prices of other precious metals, prices of crude oil, stock exchange performance, Bonds prices, currency exchange rates, etc.

The challenge of this project is to accurately predict the future adjusted closing price of Gold ETF across a given period in the future. The problem is a regression problem, because the output value which is the adjusted closing price in this project is continuous value.

[Dataset](https://www.kaggle.com/sid321axn/gold-price-prediction-dataset)

3- Brain Tumor Detection using MRI images

Brain tumor occurs owing to uncontrolled and rapid growth of cells. If not treated at an initial phase, it may lead to death. Despite many significant efforts and promising outcomes in this domain, accurate segmentation and classification remain a challenging task. A major challenge for brain tumor detection arises from the variations in tumor location, shape, and size.

[Dataset](https://www.kaggle.com/navoneel/brain-mri-images-for-brain-tumor-detection)

[Paper](https://link.springer.com/article/10.1007/s40747-021-00563-y)

Evaluation Metrics

In each of the problems stated above data will be split as follows 80% for training and 20% for the test.

The evaluation metrics used will be accuracy and loss. we might also include f1 score or confusion matrix based on the type of problem chosen.