StarCraft II Player Analysis:

Insights and Predictions

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About our Topic

- **What type of game is StarCraft2 ?**

- science fiction real time strategy video game

- Playing as three races in a variety of ways in four modes

- Player grades are divided into S, the highest rank, A, B, C, D, E, and F, then no rank

About our Data

From SkillCraft1 Master Table Dataset

- **3395 Rows * 20 Conlumns**

Game ID

Leugue Index → Bronze, Silver, Gold, Platinum, Diamond, Master, GrandMaster, and Professional (1-8)

Age | HoursPerWeek | TotalHours → Players' personal info

APM | SelectByHotkeys | AssignToHotkeys | UniqueHotkeys

MinimapAttacks | MinimapRightClicks | NumberOfPACs | GapBetweenPACs

ActionLatency | ActionsInPAC | TotalMapExplored | WorkersMade

UniqueUnitsMade | ComplexUnitsMade | ComplexAbilitiesUsed

→ Players' Actions' data on each game

Objective

- Examine the characteristics of StarCraft 2 players using the game-related statistics
- Analyze the relationship between various factors of the player and his performance
- Predict a player's rank using data of his performance

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The steps of Data Analysis

- ✓ Import the data
- ✓ df.shape
- ✓ df.info()
- ✓ df.describe()
- ✓ df.head()
- ✓ df.tdf.tail()

- ✓ Check null values
- ✓ Convert conlumn's type
- ✓ handle missing values using median or mean values
- ✓ Drop the outliers

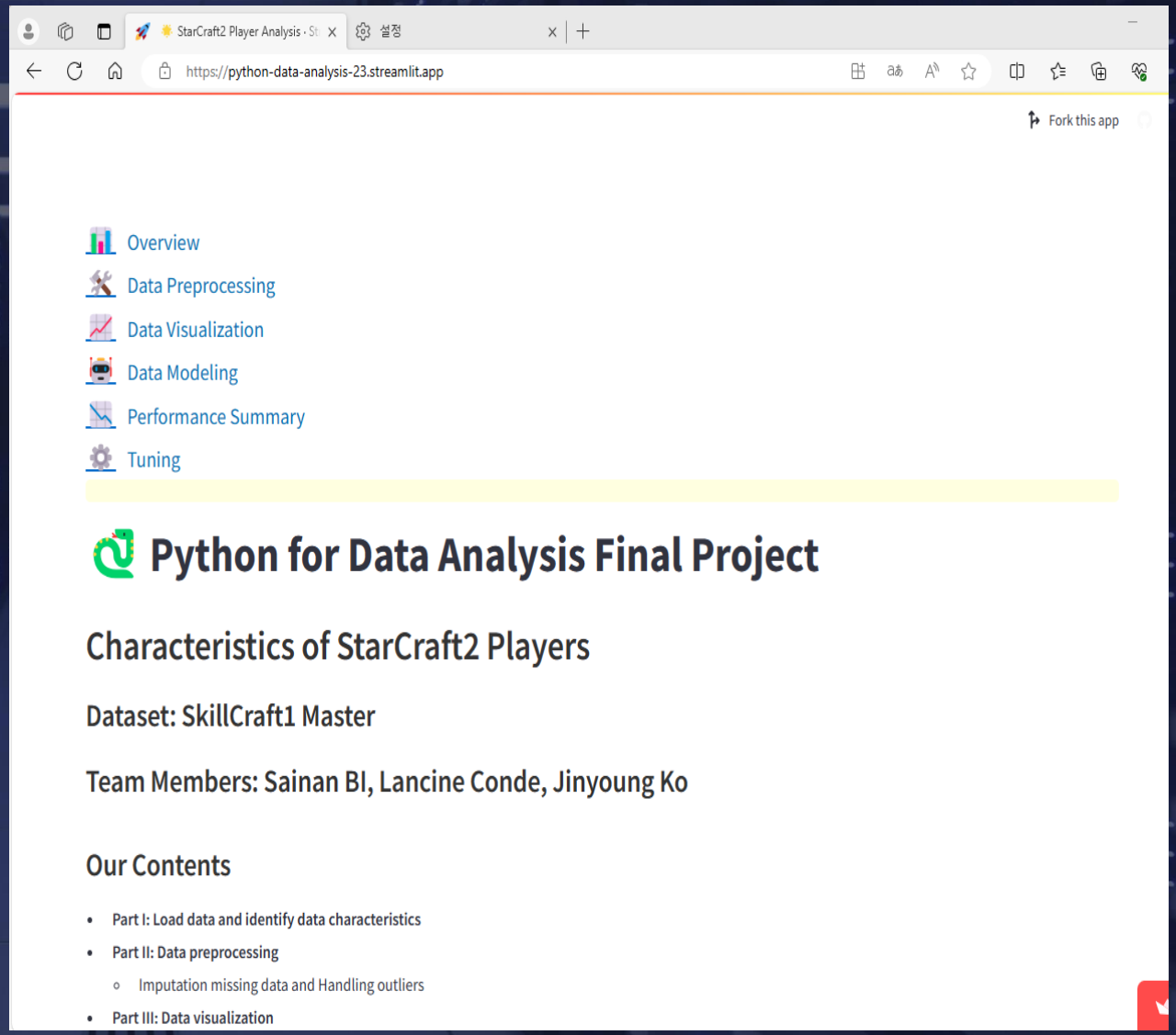
- ✓ Ratio of game players by LeagueIndex level
- ✓ histogram for multiple feature columns
- ✓ Box Plot for Columns
- ✓ correlation heatmap
- ✓ a scatter plot matrix

- ✓ Applying various models
- ✓ Performance improvement through Grid and hyperparameter tuning
- ✓ Comparison of results between models

Convert model to API

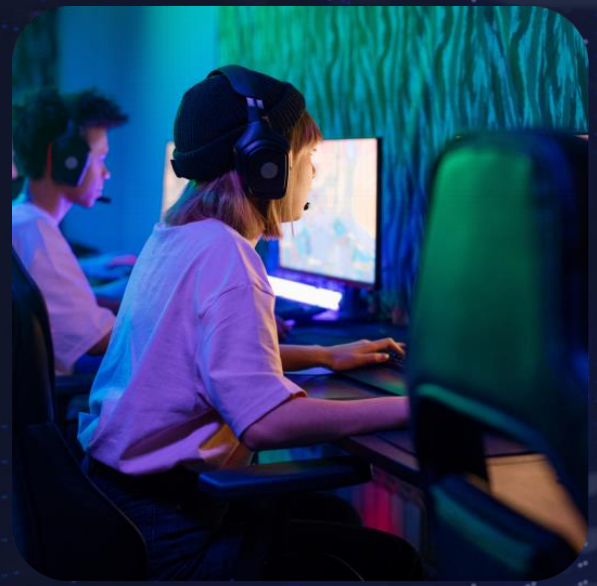
✓ Here is our streamlit link:
https://python-data-analysis-23.streamlit.app

✓ Our phython notebook :
https://github.com/jinyoung-plus/Python-data-analysis/blob/main/Python_FinalProject.ipynb



The Results of Data Analysis-

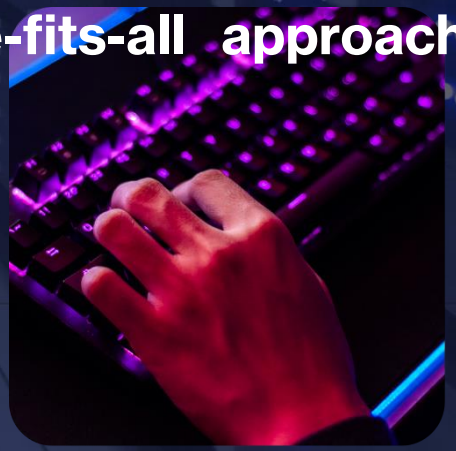
How to become a high level player of StarCraft II?



1. During the games, Action Per Minute (APM) is crucial, make extensive use of hotkeys, and have lower action latencies and better gap management.

2. Outside of games, spend more time practicing.

3. However, there is no one-size-fits-all approach to playing StarCraft II effectively.



The Results of Data Analysis-

What else for StarCraft II?

1. By analyzing gameplay data, personalized feedback and training programs could be developed to help players improve.

2. The experience gained over time by players seems to play a role in their skill development.

3. The complexity of the game's dynamics is indicated, where models need to balance between learning specific strategies and generalizing across diverse playing styles.