Project Title: Fairness Audit of League of Legends Competitive Matchmaking Algorithm

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Automated Decision System (ADS) for Analysis:
We selected the League of Legends Ranked Matchmaking Algorithm as our ADS for analysis due to its relevance to several topics that have been covered throughout the courses, intersecting with themes such as algorithmic decision-making, fairness, bias, and transparency.

Data Source:
We will utilize the "League of Legends Ranked Matches" dataset available on Kaggle:
https://www.kaggle.com/datasets/paololol/league-of-legends-ranked-matches
This dataset comprises data from more than 180,000 ranked games spanning several years. It includes comprehensive information on matches, player and team statistics, and bans. We will focus on “matches” for the match metadata and “stats1”, and “stats2” for player statistics.

Introduction:League of Legends Ranked Matches | Kaggle
This project aims to conduct a fairness audit of the League of Legends (LoL) ranked matchmaking algorithm by analyzing the dataset from Kaggle. We will investigate how the matchmaking system pairs players of similar skill levels across various matches and assess whether the outcomes demonstrate fairness across different player demographics. We want to be able to answer questions such as can match results be predicted based on team composition, exactly how fair / unbiased the algorithm really is, or how different factors can influence win rates.

Code Implementation
We will use Python, along with relevant libraries like Pandas, NumPy, and Scikit-Learn, for data manipulation, analysis, and model building on Google Colab.

- Group Fairness: We will apply statistical parity to examine if all player groups are equally represented in match outcomes.

Conclusion
By investigating the League of Legends Ranked Matchmaking Algorithm, we aim to deepen our understanding of algorithmic decision-making systems to contribute to ongoing discussions on fairness, bias mitigation and transparency in automated systems.