DOTA 2 Game Balance
Capstone 1 – Proposal
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Introduction

The objective of this project is to identify balance issues within the matchmaking process for DOTA 2. Improvements to matchmaking would allow DOTA 2 publisher, Valve, to improve overall game experience 700,000+ active players.

Problem

As the video games industry continues to move heavily towards a "software as a service" model, publishers and developers rely on a consistent active user-base. The immediate and constant feedback from active users can have a direct impact on the development, ongoing maintenance and success of a title. It's imperative that the online matchmaking system continues to ensure game balance post-launch and through constant maintenance.

Data

The data for this analysis represents ingame data from the first five minutes of 31,947 DOTA 2 matches, including kills, damage, item purchases, gold and experience earned and final match results. The data has been separated into two comma delimited sets, (training and testing).
https://www.kaggle.com/c/dota-2-prediction/data

Exploring Data Analysis (EDA)

My analysis will focus on determining which factors result in the highest winning percentage so that matchmaking can include more complete team comparison.

I will also examine the hero characters used by each team to ensure that individual hero skills and attributes are balanced.

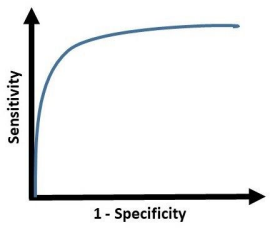
Solution

The project's outcome will be to ensure that the comparison system used to match team vs. team and player vs. player is as balanced as possible and that no single hero or combination of heroes create an unfair advantage.

Evaluation of the model

I'll be using the Receiver operating characteristic, or ROC Curve, as well as Area Under the Curve, or AUC, to evaluate overall model performance.

$$\text{TPR /Recall / Sensitivity} = \frac{TP}{TP + FN}$$



Deliverables

A model to predict DOTA 2 match outcomes presented in a Jupyter Notebook and supplemented with a slide presentation.