Path of Exile Fatality Predictor

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What is PoE

- ARPG released by Grinding Gear Games in 2013
- MMO, very active community
- Has Leagues, which modify base game in new and interesting ways every few months.
  - Changes stay, changes go

What is the Goal?

- Make an app that predicts character deaths given level, class, account, gear, skills
  - Account optional?
  - Future versions would require character history
- Because people want it
  - Build tinkering
  - Comparisons

The Data

- PoE forums
    - 16,000 character observations across 8 leagues, 2000/league
    - Minor sampling of existing data,
        - Rank
        - Account
        - Character
        - Class
        - EXP
        - Level
        - Dead
    - Easy expansion

The Process

- Data inload was clean
- 1-hot Dead
- Dummies
    - Account
    - Class
- Ascended Class Conversion
- Clustering
- Supervised Models

Current Status of Project

- Predicts character death
- Models are highly accurate
  - Given Cluster, Level, Class, 94% with <0.01 train/test difference, comparable crossval
  - Including KNN

Future Steps

- Develop Streamlit App
- Acquire Gear/Skills data (highly experimental, high probability of failure)
- Expand Data to more leagues
- Predict cause, location of death

Known and Suspected Hurdles

- Gear, Skill data is almost certainly not easily worked with, even if found
- Fitting new characters requires fitting to a cluster
  - Untested cluster assignment accuracy
- Cause of Death requires damage/enemy data, which is probably classified
- Location of Death requires data not collected/posted on GGG forums.