Project Proposal

To Find Legendary Pokemon Using Machine Learning

Siddhant Acharya

Pokemon is a renowned video game played by millions of people across the world. Pokemons are different characters having different abilities that battle out with each other. Pokemons are of different types as well. The majority of them are normal (with limited abilities and strength and with no special powers), but the legendary (with special powers and abilities) ones are pretty rare. In this project, I'll be finding out these legendary Pokemons from the whole Pokedex (An index of all the pokemons) using Machine Learning algorithms like Random Forest Algorithm and Logistic Regression.

Goals:

1. Create a dataset of all the Pokemons.
2. Develop a model which can decide whether the pokemon is legendary or not?
3. Build a User Interface (UI) for the users to interact with the web-app.
4. Deploying the web-app on an open-source Cloud Platform for easier access.

Timelines:

1. April 4th: Start the project's detailed research work.
2. April 7th: Start with the Project Setup and model building.
3. April 20th: Finalize the Project model along with testing.
4. April 27th: Complete the UI creation for the web-app.
5. May 2nd: Deploy the App on the Cloud.
6. May 6th: Finalize the project.

7. <u>May 7th:</u> Start writing the final report and start working on the final presentation.

Google search for similar projects:

1. Predicting Play Calls Using a Random Forest Classifier.
2. Project of game prediction based on LeBron's stats using 3 machine learning models.
3. Logistic Regression project for loan default prediction.
4. Regression project to build a song popularity predictor.
5. Inventory stock demand forecasting.
6. Project for customer ad clicks.

Google Scholar search results:

1. Gradient boosting machine learning algorithms.
2. OpenStreetMap quality assessment using unsupervised machine learning methods.
3. Monsters, metaphors, and machine learning.
4. Augmented reality and machine learning incorporation using YOLOv3 and ARkit.
5. Using Machine Learning to Forecast and Improve clinical outcomes and health aging using sensor data.
6. Feature Engineering and Selection.

<u>Possible Complications and Points of Failures:</u>

1. Pokemon as a game is ever-evolving and with each succeeding generation of pokemons passing a new dataset of pokemons is generated. Updation of the dataset is required.
2. A lot of the Pokemons have a few similarities with the legendary pokemons concerning their abilities. So, the model has to take care of this edge case.
3. Sparse datasets could turn out to be an issue as Random Forest Algorithm is not that good at handling sparse data.
4. A large number of decisions can also make the model a bit slow.