## ****Predicting NFL Game Outcomes Using ELO Ratings and Machine Learning Models - Installation Guide****

#### Prerequisites

* Python 3.8 or higher
* Neo4j Database
* Git (optional)

#### Required Python Libraries

Install the following dependencies using pip:

pip install pandas

pip install numpy

pip install scikit-learn

pip install torch

pip install neo4j

pip install category\_encoders

pip install matplotlib

pip install seaborn

pip install plotly

#### Neo4j Setup

1. Download and install Neo4j Desktop from [https://neo4j.com/download/](https://neo4j.com/download/" \t "https://www.perplexity.ai/search/_blank)
2. Create a new database with the following credentials:

* URI: "bolt://localhost:7687"
* Username: "neo4j"
* Password: "password"

#### Data Setup

1. Create the following directory structure:

data/

├── raw/

│ └── data.csv

├── processed/│

└── averages/

1. Place the raw NFL game data in data/raw/data.csv

#### Troubleshooting

* Ensure Neo4j database is running before executing the ELO rating system
* Check if all required Python packages are installed correctly
* Verify the data directory structure and file locations

#### Additional Notes

* The project is configured to use the last 500 games for testing
* Models are trained on data prior to 2018
* Default hyperparameters can be modified in the respective Jupyter Notebook files.