# Overview

Create a program to assist with the process of ranking CFB teams each week. Short-term the program will collate the data and perform basic rankings. Long-term the program may be a standalone ranking system.

# Minimum Viable Product

* Obtain data necessary for basic ranking calculation (win loss record)
* Store the data
* Output the data in a .csv file

# Long-term Enhancements

* Web-server to host a front-end for managing data collection and distribution
* Increase complexity of ranking algorithm so that can provide definitive ranking
* Containerized so that the entire system can be hosted on any server
* Include outside polls for comparison/use

# Application

## Workflow

1. Obtain game data for all games and store in DB
2. For each team, pull out game data specific to them
3. Update win/loss record for team in DB, return updated win loss record to object attribute
4. Add opponent played in most recent week to DB (array or dict) and return updated list of all opponents played to object attribute
5. Get wins/losses for each opponent from DB
6. Calculate opponent win/loss %
7. Store overall win % in object attribute and in DB (along with win-loss record for given week)
8. Output win-loss record and opponent win % as csv

### Output

* Write calculated ranking to database
* Write calculated win-loss to database
* Write complete rankings for current week to .csv file

### Classes

#### Team

* Attributes
  + ID, Name, Wins, Losses, Opponents
* Methods
  + Update Wins
  + Update Losses
  + Get wins
  + Get losses
  + Update opponent list
  + Get opponent list

### Modules

#### Storage Manager?

* Open connection
* Method that accepts sql statement, executes it and returns result
* Method that accepts sql statement, executes it (redundant?)

#### Game Fetcher

* Get game info from API
* Write to DB

#### 

## Database

### Tables

Teams - Generic, mostly static team information

|  |  |  |  |
| --- | --- | --- | --- |
| TeamID | Name | Conference | Location Capacity |
| 001 | Michigan | Big10 | 100000 |
| 002 | Rutgers | Big10 | 50000 |

Games - Details for each game of the week

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| GameID | Week | Date | HomeTeam | AwayTeam | HomeTeam Points | AwayTeam Points | NeutralSite | Overtime |
| 456 | 1 | 9/14/2020 | 001 | 002 | 24 | 7 | false | true |
| 457 | 1 | 9/14/2020 | 003 | 004 | 13 | 30 | false | false |

Ranking - Output of my weekly rankings for each team

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TeamID | Year | Week | MyRanking | Wins | Losses | Opponents win % |
| 001 | 2020 | 1 | 5 | 1 | 0 | 100% |
| 001 | 2020 | 2 | 20 | 1 | 1 | 75% |