NFLite

CSE 111 - Final

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Football Analytics – Project Description

- Goal
  - A lightweight web application that organizes and lists football statistics for NFL teams, divisions, and players across games
  - Allows user to quickly pull data on any group/player and view trends
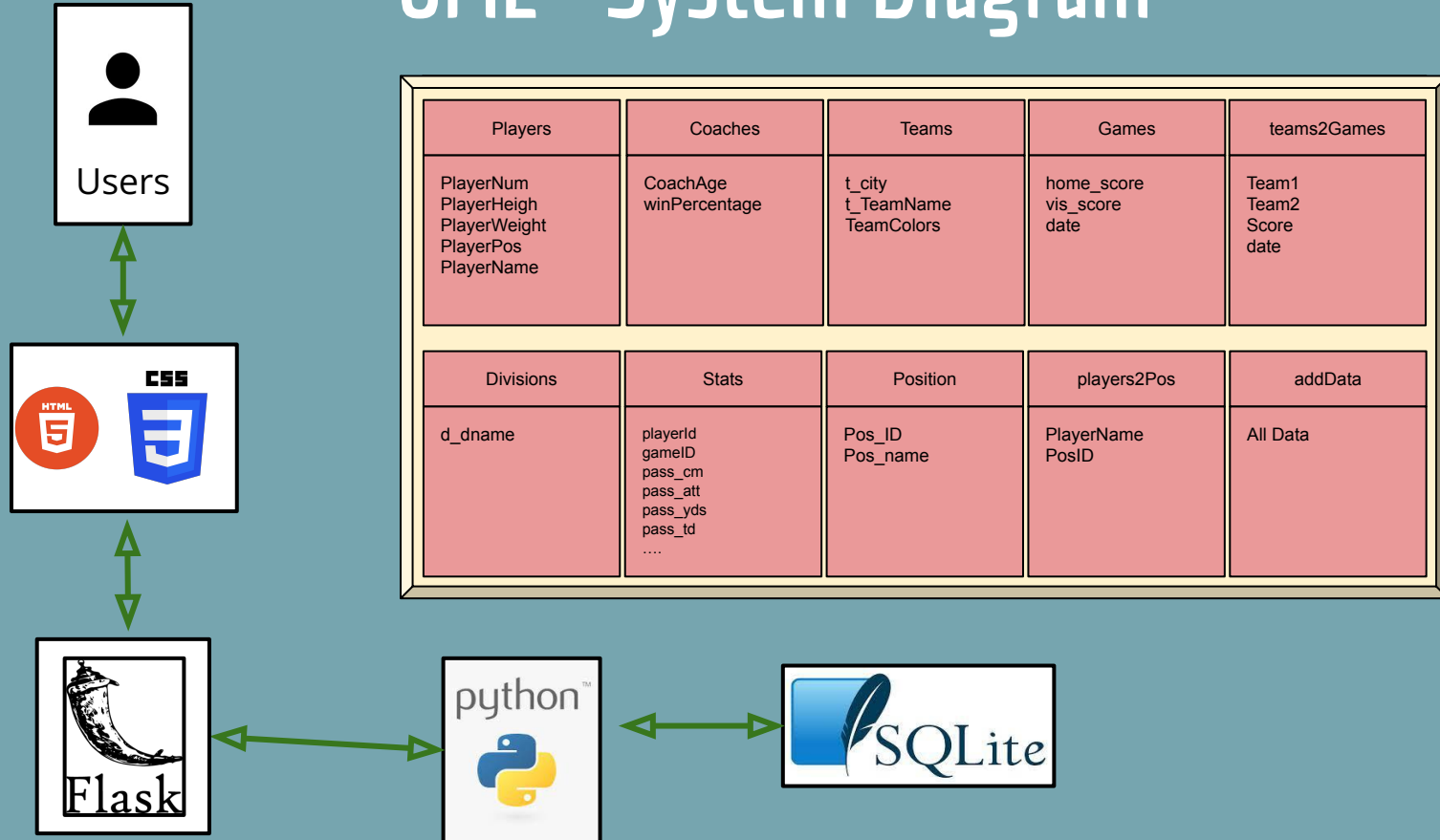
- Main Features
  - View team, division, player, game data
  - Perform quick/advanced searches on database with ease
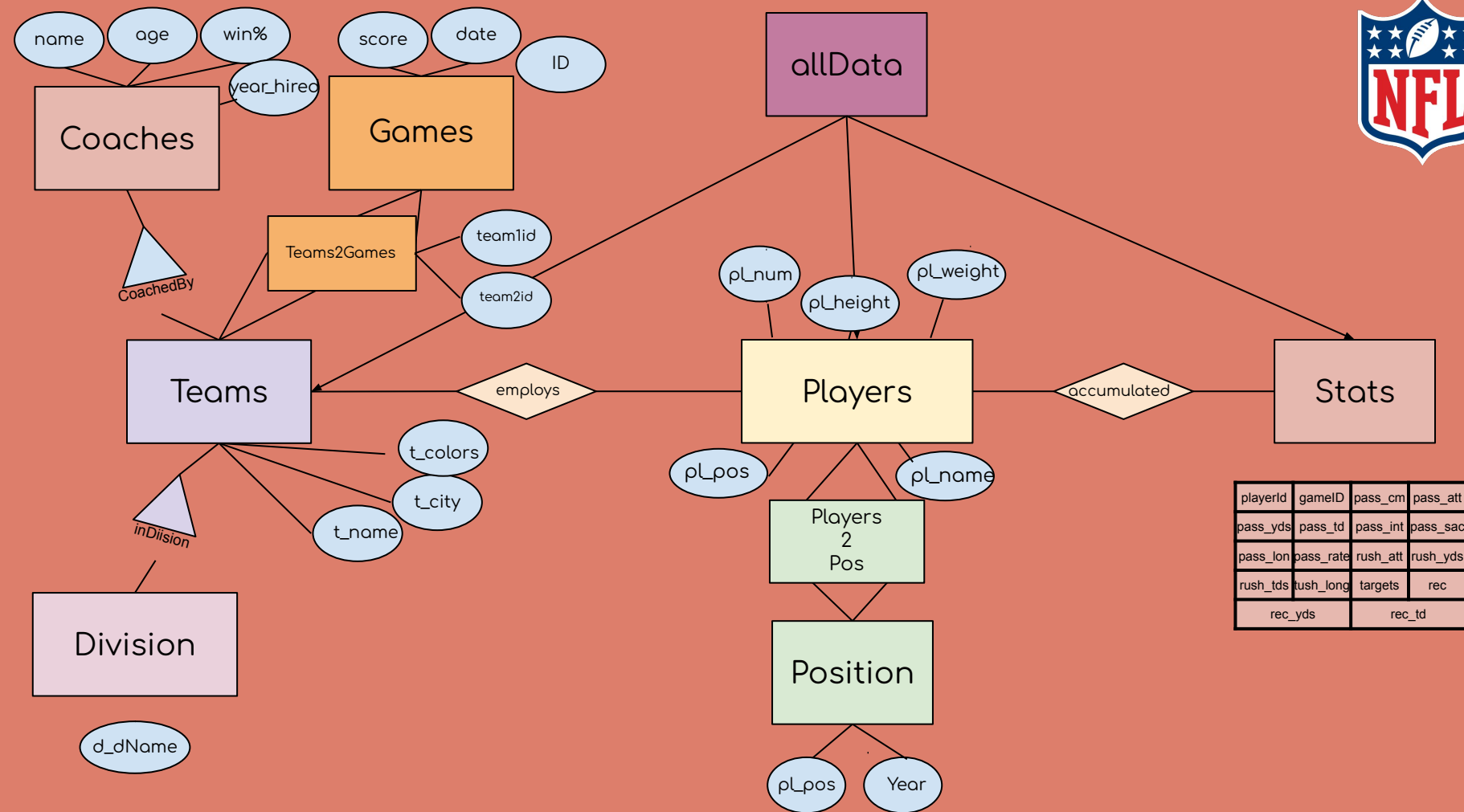 - See relationships among games, players, teams, and stats

System Overview + Implementation Details

- **Web Application**
  - Built in Flask, Python, SQLAlchemy
  - Simple to use, both of us have familiarity
  - Wanted to keep it contained in Python
- **Database built in SQLite**
  - Handled through SQLAlchemy and traditional Python SQLite tools
    - Makes it significantly easier to implement queries
    - Better for diagnosing issues

UML + System Diagram

Players	Coaches	Teams	Games	teams2Games
PlayerNum PlayerHeigh PlayerWeight PlayerPos PlayerName	CoachAge winPercentage	t_city t_TeamName TeamColors	home_score vis_score date	Team1 Team2 Score date

Divisions	Stats	Position	players2Pos	addData
d_dname	playerId gameID pass_cm pass_att pass_yds pass_td ….	Pos_ID Pos_name	PlayerName PosID	All Data

Users

python

SQLite

Flask

Coaches — name, age, win%, year_hired

Games — score, date, ID

allData

CoachedBy

Teams2Games — team1id, team2id

Teams — t_colors, t_city, t_name

inDiision

Division — d_dName

employs

Players — pl_num, pl_height, pl_weight, pl_pos, pl_name

Players 2 Pos

Position — pl_pos, Year

accumulated

Stats

NFL

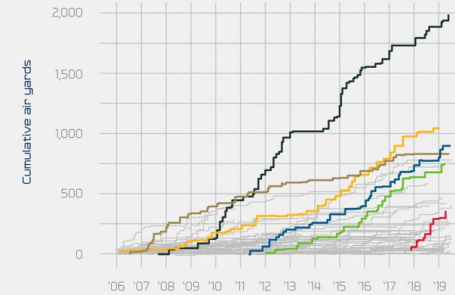| playerId	gameID	pass_cm	pass_att
pass_yds	pass_td	pass_int	pass_sac
pass_lon	pass_rate	rush_att	rush_yds
rush_tds	rush_long	targets	rec
rec_yds		rec_td	

Use-Cases

Cumulative Air Yards on Free Plays

1. User wants to pull stats of a certain player
   a. User can scale the statistical information by years, seasons, or games
   b. User can compare to other players of same position or team
2. User wants to pull team stats
   a. Pull stats of entire team in an ordered list
   b. See stats of a team in a certain year/season or game
   c. Compare to other teams based on a condition
3. User can produce a list of active players for a given game/team
   a. Pull all stats of a team, player, or coach through games

Demo

https://github.com/MadSuleiman/FootballAnalytics