Final group project

Names: JC, Matt, Hiral, Craig, Allen, Luke

Topic: NBA player modeling

Dataset: NBA – various (APIs)

* Front-end
  + Web site
  + Created from flask?
* Back-end
  + SQLLite
  + API (NBA)
* Web site functionality
  + User can refresh data from NBA API
    - Will go back to flask function that consumes the API
    - Update SQLLite database
  + Decide what player to choose in fantasy based on needs
  + Pages:
    - Player rankings
    - Search for 2 players for easy comparison when it comes to past performance and future prediction
    - Past performance page with real stats from previous games and seasons
    - Table displaying what teams are good to go against by position
    - Heat map of points scored across US by venue
* Database components / connections
  + Unique IDs
  + Table list
    - Teams
    - Venues
    - Players (could be by year, or a lot of columns)
    - Games
  + Tables
    - Teams
      * Unique ID: TeamId
      * Connects to:
        + Venue (many to one due to LA) by arena: name
        + Players (one to many) by Team ID
        + Games (one to many) by Team ID
      * Work to clean up
    - Venues
      * Unique ID: arena: name
      * Connects to:
        + Teams (one to many due to LA) by arena:name
        + Games (one to many) by arena: name
        + Players – not direct. Through teams to get home arena, and through games to get arena stats.
      * Work to clean up:
    - Players
      * UniqueID: personId
      * Connects to:
        + Venue – not direct. Through teams to get home arena, through games to get arena stats.
        + Teams (one to many if switching teams) by teamId
        + Games (one to many) by gameId
      * Work to clean up:
    - Games
      * UniqueID: gameId
      * Connects to:
        + Venue (one to one) by arena: name
        + Teams (one to many – 2 teams per game) by teamId
        + Players (many to many) by playerId
  + Database questions to answer
    - How to structure player information. Multiple tables or many columns for years? Probably better for multiple tables
    - Will need to divide all LA data by 2 if calculating by location (shared arena)

Predictions:

* Fantasy Draft:
  + Rank top players based on z-score for 9 categories (FG%, FT%, 3PT, PTS, REB, AST, STL, BLK, TOV)
  + Top players based on predictive model from last year’s stats, total number is based on number of teams and players per team in the league (e.g. 10 teams x 13 players = 130 top players)
  + Dynamic table to rerank based on punting categories
* H2H Matchup:
  + Predict the results for a week’s matchup between 2 teams (13v13 players)
  + Recommend lineup (max 10 players per night)
  + Recommend draft wire pick ups based on category needed.