Design Structure Document

Primary Data Structures Needed

Teams

1. Teams will be the fundamental unit of our system. Each team needs to store:

- Basic identifiers (name, mascot, location)

- Conference affiliation

- Division affiliation (if applicable)

- Team strength rating

- Current season record

- Schedule

- Current ranking

- History of rankings throughout season

- List of quality wins

- Conference record

Conferences

2. Conferences will act as containers and organizers. Each conference needs:

- List of member teams

- Division structure (if used)

- Conference schedule

- Conference rules (number of conference games required)

- Current standings

- Championship game criteria

- Power 5 status flag

- Bowl game affiliations

Season Manager

3. This will be our primary control structure:

- Master schedule of all games

- Current week tracking

- List of all conferences

- List of independent teams

- Weekly rankings

- Playoff information

- Bowl game matchups

- History of results

Game Objects

4. Each game needs to track:

- Home and away teams

- Week number

- Score

- Winner/Loser

- Conference game status

- Playoff/Bowl game status

- Home field advantage calculation

Ranking System

5. Structure for managing the Top 25:

- Current ranked teams list

- Teams receiving votes

- Previous week's rankings

- Ranking criteria weights

- Movement restrictions (how far teams can move up/down)

Playoff System

6. Structure for the 12-team playoff:

- Qualified teams list

- Seeding order

- Bracket structure

- Bye week assignments

- Game results

- Championship tracking

Bowl Games

7. Structure for managing bowl season:

- List of all bowl games

- Conference tie-ins

- Team eligibility tracking

- Matchup criteria

- Bowl game prestige levels

Relationships Between Structures

8. Team Relationships

- Must belong to one conference (except independents)

- May belong to one division

- Has many games

- Has one current rank

- Has one season record

9. Conference Relationships

- Contains many teams

- May contain divisions

- Has one schedule

- Has one set of standings

- May have one championship game

10. Game Relationships

- Has exactly two teams

- Belongs to one week

- May belong to one conference

- May be part of playoff

- May be a bowl game

11. Rankings Relationships

- Contains subset of all teams

- Updates weekly

- Influences playoff selection

- Affects strength of schedule calculations

Required Containers

12. Primary Collections

- Vector of all FBS teams

- Vector of all conferences

- Vector of weekly games

- Vector/Map of rankings by week

- Queue of games to be played

- Map of bowl games and qualifiers

13. Secondary Collections

- Conference standings tables

- Division standings tables

- Team schedule lists

- Historical results database

- Quality wins tracker

- Head-to-head results matrix

Key Methods Needed

14. Team Class

- Record win/loss

- Calculate strength of schedule

- Update ranking

- Check playoff eligibility

- Generate season summary

15. Conference Class

- Generate conference schedule

- Update standings

- Determine champion

- Select bowl eligible teams

- Track cross-conference records

16. Season Manager

- Advance to next week

- Update all rankings

- Process conference championships

- Select playoff teams

- Assign bowl games

17. Game Manager

- Simulate individual games

- Update team records

- Calculate game statistics

- Process playoff implications

- Handle upset calculations

Would you like me to expand on any of these sections or create additional documentation for specific components?