Team Panda
Ryan K., Tim M., Sean R.

APCS1 pd02
Jan. 02, 2018

Final Project Proposal

Pandamonium Football

What's more fun than watching your favorite sport? Playing a game of your favorite sport! For our project we are creating a simulation of a football team's season with **YOU** as its newly appointed coach! Here are some aspects to be implemented:

- Class Hierarchy **(Customizable Teams)**
  - Superclasses/Subclasses **(Diverse Player Types)**
    - <> extends <>
  - Abstract Classes **(Shared Abilities and Plays)**
- Accessors/Mutators **(Getting and Improving Player Stats)**
  - this() **(Defaulting Stats)**
- Loops **(Making and Calling Plays)**
  - Recursion/Iteration
  - For/Foreach
  - While
- Overwriting methods
  - ToString() **(Track Your Team's Progress)**
  - Constructors **(Special Players)**
- Data Storage
  - Strings **(Shout Code Names for Plays)**
  - 1D/2D Arrays **(Tracking Individual and Team Scores)**
  - Sorting **(See How Players Line Up in by Stats)**
- Random **(Randomization… Yardage!)**
- Exception throwing/catching **(ILLEGAL PLAYS)**
- Protection
  - Private
  - Public
  - Protected

The simulator game starts off with an option to choose what team you want to coach out of several options. Each team has their own unique players with different types of **attributes** such as *speed, catching, strength, agility, awareness, etc.* Each of these attributes will be leveled at on a scale of **1-100** based on the player and they will average out into the *player rating*. The team starts off with mediocre players with mediocre stats but with each game won, the team earns money with which **equipment** such as *helmets, pads, cleats, and others* can be used to enhance individual player stats. Another option available is that the team can spend a large amount of money to draft a really good player with higher stats.

Once the team is chosen, a **menu** will show up for the user to interact with. There will be **options** such as *"List Players"* and there would be **sub-options** such as *"alphabetical"* or *"by stats"*. Other **categories** would be *"View Team Budget", "Shop for Equipment", "Draft Players"*, and of course, the *"Play a Game"* option. The actual playing portion of the simulator game would be **randomized**, but of course if the team has players with a higher rating, the randomization leverages towards the team having more success with completing plays.

The team that gets possession of the ball first would be considered by a *virtual coin toss* and if the user wins the toss, they get the **option** to either *kickoff the ball* (play defense first) or *receive the ball* (play offense first). When the team is on **offense**, there is going to be a **message** such as *"You are at 1st & 10"* or *"You are at 3rd & 4"*, etc. Based on the knowledge of where the ball is located and how many yards are needed to convert the first down, the user needs to wisely make a **decision** between a *"Long Pass"* which would be riskier but if completed, a larger amount of yards would be gained, a *"Short Pass"* which is less risky but wouldn't give as many yards, a *"Run"*, which is usually the least risky option, but has a chance of causing the team to lose yards if the running back gets tackled behind the line of scrimmage. There is also going to be an **option** *"Special Teams"*, which would make the most amount of sense when the user is on 4th down and doesn't want to risk trying to convert the first down or trying to score the touchdown, they can instead **choose the option** to either *punt the ball* and give the other team possession of the ball, or *kick a field goal* if they are close enough (40 yards or closer). The chance of the kicker scoring the field goal will also be **random** but of course would have a higher chance the closer the ball is to the goalposts. With better players and better equipment, the over team rating will go up and the team will have higher chances of getting more yards per drive.

When the team is on **defense**, the user is going to have three **options**: *"Zone Coverage"*, which is the least risky and will have the highest chance of preventing the opposing team (AI) from advancing yards. The second option is *"Man coverage"* and is more risky than zone coverage because if a defensive player on your team doesn't have high enough stats or messes up on a play, the offense has a higher chance of blowing up the defense and getting more yards. However, with the risk that the user will take choosing man coverage, there can be a rare possibility that one of the defensive players intercepts the ball and starts running the ball back in the other direction. This completely brings the user onto offense again and the AI just ruined its

chance to score on that drive. The last option to choose on defense is *"Blitz"* which will send defensive players into the backfield to try to disrupt the quarterback from passing or to even try to sack him. This is the riskiest option because now that there are defensive players running into the backfield, there are less players on the defensive side of the line of scrimmage to actually cover zones against the offense. This can completely blow up on the defense and can potentially cause the offense to gain massive amount of yards or even a touchdown, but there's a pretty decent chance that the blitzers will sack the quarterback and waste a down for the offense.

The game will be split into **four quarters**. Each quarter will consist of a *drive* from each team (One offensive possession). Once both teams were on offense, whether or not they scored, the game will go on to the next quarter. There is going to be a constant update of the score before each quarter and after every time one of the teams score.

To sum it up, the user has to be smart with their decisions on how to play against the AI until the team has enough money to draft the most expensive players and become the best team in the league.