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CSI 405

Final Project Report

**Modeling the NFL**

For my final project I decided on an object-oriented design of the NFL. While my implementation can definitely be expanded to most types of sports leagues, I focused in on just a football league. This project utilizes all of the OOP principles discussed in class. For demonstration purposes, I attempted to add some functionality with the Generate class. This was a fun way for me to test most of the features I implemented.

The focus on football is directly shown in the Position enumeration. It is an enum with string values that represent every position in football. An enum is useful for representing a position in sports because a position is always constant. An enum is just a predefined list of values.

Generics were used to give a type to an Employee. This helps distinguish between what type of employee it is. There is a difference between Team employee and League employee. An Executive or Referee are league employees while a coach can be considered a team employee.

Inheritance was largely used throughout the project. To get a better understanding of how inheritance was used, please refer to my UML Diagrams. In words, a person is the Parent class of Player and abstract class, Employee. Executive, Referee, and Coach all extend Employee. The league structure was built on inheritance with each of League, Conference and Division all extending Organization. The difference between them all came in through composition which created the necessary hierarchy between the 3 subclasses.

Polymorphism was implemented in many ways throughout the model. In an ArrayList of type Employee was created to store league employees, an Executive and Referee would be able to be stored in it.

In the NFL, there is only aloud 1 commissioner of the league and I modeled that using the Singleton design pattern. The Observer design pattern is also useful in my project to have parallel communication between the League and its Conferences and then between the Conferences and its Divisions.