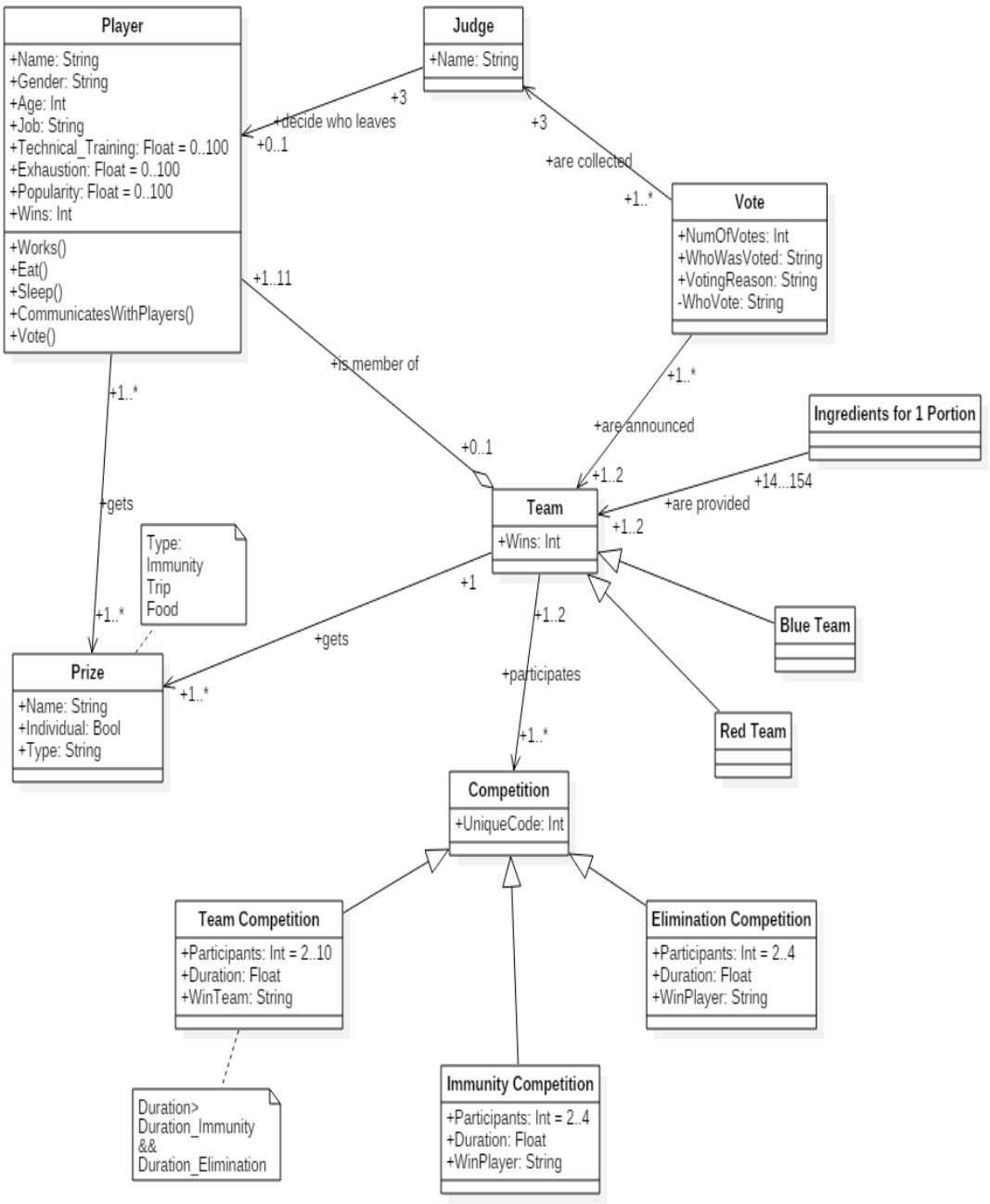
# MasterChef and OOP

The scope of this project is to recreate the popular TV show MasterChef using Object Oriented Programming (OOP) in C++. The classes that will be paart of the project and their relationships are presented in the following UML diagram.



Class **Player** contains 8 variables:

1. string name
2. string gender
3. int age
4. string job
5. float technicalTraining
6. float exhaustion
7. float popularity
8. int wins

Class **Team** contains 4 variables:

1. int wins
2. string colour
3. intportions
4. Player[11] players

Class team contains a method for showing the players it contains. An example for adding new players to the two teams (Red and Blue) is presented in *add_players_teams.cpp* file.

For the competitions that take place during the tv show 4 classes are created, one parent class (**Competition**) and 3 children classes:

- **Team Competition:** 5 playes are randomly chosen from each team and their technique score is compared. The team having the largest mean technique acroos all 5 players wins the round. At total 3 rounds are performed and the team which won on at least 2 rounds increases each victory points by 1 and receives **Food Award.**
- **Creativity Competition:** The player across all teams having the best technique score wins this competition increasing their tecnique score but decreasing their popularity . Winner get an **Excursion Award.**
- **Immunity Competition:** Only one teams takes place in this competition. The winner is the playes that has the highest score:

$$\frac{3}{4}technique + \frac{1}{4}(1 - fatigue)$$

The winner receives an Immunity award.

Examples for the 3 days where competitions take place as well as for a normal day are presented in *competition_days.cpp* file.

Finally, a **Voting** takes place where the players which player will leave from the tv show. Class **Vote** contains 2 variables, voted (name of the player that was voted) and

reason (the reason the player was voted). Class **Voting** contains two variables, vector votes and map results. Each player chooses randomly one of the 4 following criteria that they use to choose which player will leave:

- Highest technique score
- Most popular
- Least exhausted
- Highest combination of the 3 aforementioned criteria

A player that has won the Immunity Award in the latest Immunity Competition can not be voted. The voting process takes place in the Voting class.