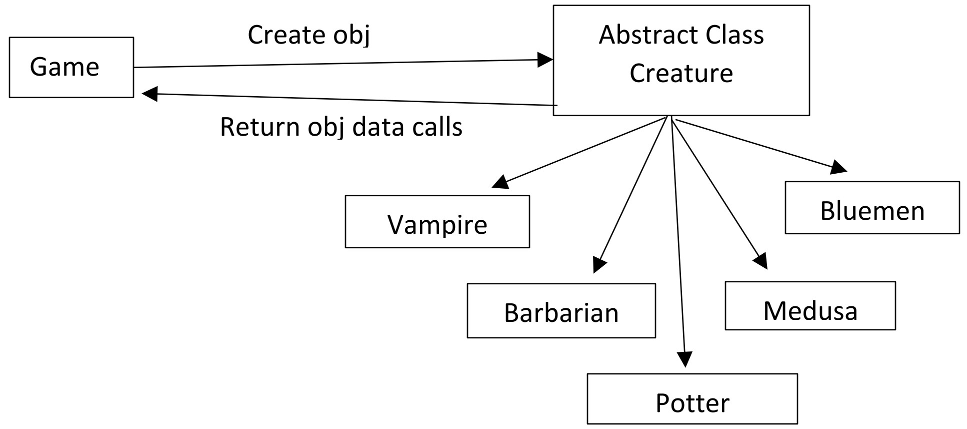
Stephen Townsend

CS 162 – Assignment 4

Design

For the design of Assignment 4 I kept what I had for Assignment 3. For the Tournament rules, I decided to recuse my lab 6 as the assignment stated. I had to do little modification to make it work. I added just a few more functions that would allow me to output what I had in either the Stack or Queue

Assignment 3 Hierarchy



Drivers

Main

menu

1. Vampire
2. Barbarian
3. Blue Men
4. Medusa
5. Harry Potter

Player1.loadCreature();
Player2.loadCreature();
play(player1, plaer2)

Game

Play()
Display()
LoadCreature()

Class

Virtual void attack() = 0;
Virtual void defend() = 0;
Virtual void diceRoll() = 0;

Test Plan

Number of creatures	Team 1	Team 1	Outcome
<Blank>			A default value of 1 will be used.
2			Continue and choose Team names
2a			Please input an integer
3	Red	Blue	The program will use these for names

Reflection

There was not a testing that I needed to perform. My assignment 3 worked as I wanted and made this Assignment a lot easier to finish. All I needed to do was figure a way to implement my lab 6 for the Queue and Stack.

I decided to deal with the Queue and Stack in my main. I did this because This is where I had created the objects. It would be long to have to point them into my game.cpp file. As a result, I did not need to modify much besides my main.cpp. The issues I had was figuring a way to move a creature from the Queue to Stack and also how to push a creature into the back of the Queue after a battle.

To achieve these two issues, I decided that I could just create two Stack objects; as I had for the Queue. This allowed each player to have their own loser pile. From there I could just push the corresponding looser into the stack using an if statement. If player1 or player 2 is dead, then push into stack and delete from Queue. To place the winning creatures into the back of the queue, I decided the easiest option is to remove the node that held the Creature and then push them back in with their current stats and strength in tacked.

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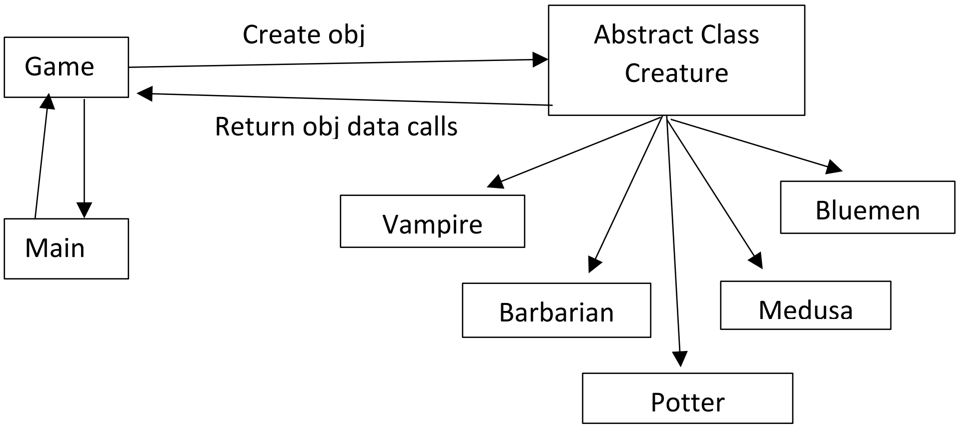
Overall, for the program, I kept the overall general layout of my design and Assignment 3 as described above.

Final

Hierarchy



Drivers

**Changes from original (added) are in blue

```
Main
Enter lineup total

          menu
        1. Vampire
        2. Barbarian
        3. Blue Men
        4. Medusa
        5. Harry Potter
choice = inputVal(choice)
add to queue - Loop
Player1.loadCreature();
Player2.loadCreature();
dead = play(player1, plaer2)
add looser to stack
play again loop
Output looing Stack
Output Winner and winner
loosing pile.
```

```
Game
        Creature *loadCreature(string creature);
        void storyLine(string);
        void play(Creature *player1, Creature *player2);
        void getTombStone(Creature *player);
        void display(Creature*, Creature*);
        string inputVal(string);
        void closeGameData(Creature *. Creature *):
```

```
Class
        virtual string getCreature() = 0;
        virtual int attack() = 0;
        virtual int defense() = 0;
        virtual int getArmor() = 0;
        virtual void isAlive() = 0;
        virtual STATUS getState() = 0;
        virtual int getStrength() = 0;
        virtual int damage(int) = 0;
        virtual int rollDice(int, int, int) = 0;
        virtual int combatRestHealth() = 0;
        virtual SPECIAL special() = 0;
        Creature(); //Default constructor
        Creature(string, int, int, int, int, int, int);
```