Design

Characters class

Virtual Attack(takes in character pointer) function

Virtual Defense(damage) function takes damage from attack function

Void setAttack

Void setDefense

Int StrengthPoints – get strength points aka hit points

Int getType

Int armor – get armor

Protected variables for all inherited classes to manipulate

Manipulate variables within the constructor class to call from the this->

Inherited classes

Attack(takes in character pointer) function = Returns damage dealt that uses defense function to calculate how much armor and defense the character rolled. Uses setAttack to set the attack roll for calling the function later.

Defense function – Returns damage – (defense + armor). setDefense for call later

Vampire ability – charm to dodge an attack 50%

Attack function of vampire – roll for charm

BlueMen – if statements starting from <=4, <=8, <=12 to go down by testing the least to the greatest. Adjusts dice to the appropriate roll

Attack function of Medusa – change attack to max damage aka 99 to guarantee death regardless of character unless HarryPotter or Vampire is using charm

Defense function of HarryPotter – Have counter set to 0, if counter != 1 and damage > 0

Activate ability to revive to 20. Set Health to 20 set counter to 1

Menu asking for user to choose from vampire, barbarian, bluemen, medusa, or harrypotter if none quit

Create class object pointer

Ask user to pick another character

Create class object pointer 2

Loop a battle that has first object as attacker and second as defender

Then second object as attacker and second as attacker

Do while loop for replay or quit

The battle is do while loop which exits when the person either exits or a character dies

If (playNum == 2)

{ exit = 0}

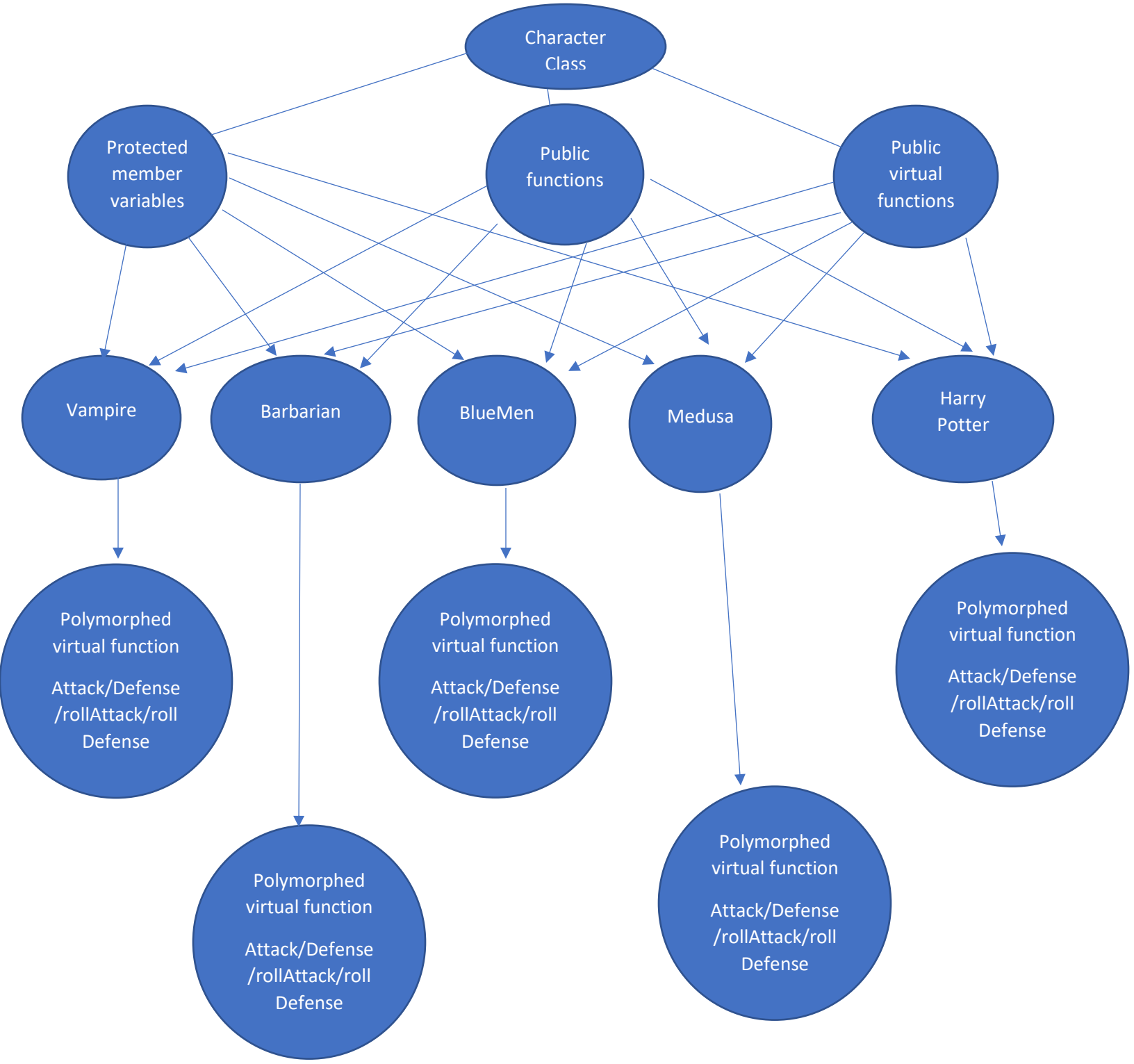
Do{}while(character != 0 && character2 != 0 && exit != 0);

Delete object class pointers;

Test Table

Character 1	Character 2	Type, attack, defense, armor, health, damage dealt, remaining	Health <= 0	What is supposed to happen	What happened	What I changed
Vampire	Barbarian	Nothing showed	Nothing showed	Stats were supposed to show and calculate if health was less than 0 to exit out of loop	No stats were showed everything was at 0 and type was blank	Deleted protected member variables in other classes except for characters so that the inherited classes can initialize the variables within class through inheritance and grab them through the this-> function
Vampire	Vampire	Type: Vampire Vampire Attack: 5 Defense: 2 Damage: 0 Remaining: 18	N/A	Damage was supposed to be 2 since vampires have 1 armor	0 Damage occurred when 2	Changed when the charm statement was going to print to let the user know if it was casted.
BlueMen	BlueMen	Type: BlueMen BlueMen Attack:16 Defense:0 Damage: 0 Remaining 12		Defense has to be a number that was rolled by 3d6 dice and damage if defense was 0 was supposed to be 16 killing the BlueMen defending	Defense is 0 and damage occurred was also 0	Changed the last else if statement to check if dice needs to be removed to compensate for health. Instead of ==12 changed to <=12.
Vampire	Barbarian	Type: Vampire Barbarian Attack: 8 Defense:4 Remaining: 4 Multiple times to test death	Health <= 0	Prints that the barbarian has died	Nothing prints and game continues	Changed logic if the person is equal to or lower than 0 cause when at 0 game does not recognize as death
Medusa	HarryPotter		Health<=0	Harry Potter revives with 20 health	Health less than 0 nothing changes	Changed placement of if statement

Exit out of loop	N/A	N/A		Exits out of loop and says thank you	Segmentation fault	Changed brackets to when the for loop ended. Had the brackets cover parts of another loop
Exit out of the loop after initiating a fight	N/A	N/A		Exits out of loop and says thank you	Prints out that both characters has died	Created a new variable to be used in the argument of the while loop to exit out of the loop when the variable != 1


Character Class
Protected member variables
Public functions
Public virtual functions
Vampire
Barbarian
BlueMen
Medusa
Harry Potter
Polymorphed virtual function
Attack/Defense /rollAttack/roll Defense
Polymorphed virtual function
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Attack/Defense /rollAttack/roll Defense

Reflection

This project was much more straightforward for me than the last one. I was able to come up with the main ideas of what to start with when creating the design of the project. I did run into a few problems since I did not comprehend polymorphism very well. However, after watching and reading up on polymorphism as well as finally understanding the comment placed on a previous assignment by the TA. I was able to manipulate the other classes that inherited from the characters class appropriately. At least that is what I thought until I tested out the program and it gave me a whole list of errors. After fixing the errors I came to the problem that none of my variables worked and it kept spitting out nothing despite using this appropriately. Came to find out that you aren't suppose to have variables in your inherited classes if you are planning to use them and manipulate them when using polymorphism. After that change everything else were minor changes. Such as Harry Potter not activating his ability appropriately which mainly stemmed from my if statement returning a value before it can activate therefore not working at all so I changed where the return value was located so that the program would test for the revive then if it didn't work return the value aka the damage dealt and how much health that Harry Potter had left. Another issue that arose that took me a while to figure out was why my vampire vs vampire would never lose health and when it did it would be off. Like the damage would be 0 despite it should be 8. This was another if statement issue in which I didn't appropriately change the armor and the function did not print out when charm was activated to let me know when the damage was going to be zero instead of thinking it was a glitch since it happened 7 times in a row. This turned out to just be the fact that since it was 50 percent chance I got the charm 7 times in a row coincidently. BlueMen issue arose because I did not appropriately use my if else statement correctly to accommodate for numbers in between 8 and 12 and resulted in no damage being dealt. After changing the parameters of the == 12 to <=12 everything was working to how it should. I came across a problem in which the abilities would be printed out before the attack rolls and defense rolls were shown so I made 2 new virtual classes that would roll the dice and set it to the member variable beforehand in order for the attack and defense functions to print out the damage done without it being the ones that would set the member variables. When battling each other and a monster went down to 0 health the game did not recognize it as a death so I had to redo the if statement to include 0 instead of it being less than 0. This included the Harry Potter ability which did not activate when he was at 0 so I had to change the if statement to include 0 to revive himself. Overall, I felt like I had a much better grasp on this assignment despite it working with polymorphism which previously on the lab I had a lot of trouble figuring out. After understanding the concept after hours of bug testing and figuring out errors everything fell into place rather quickly.