

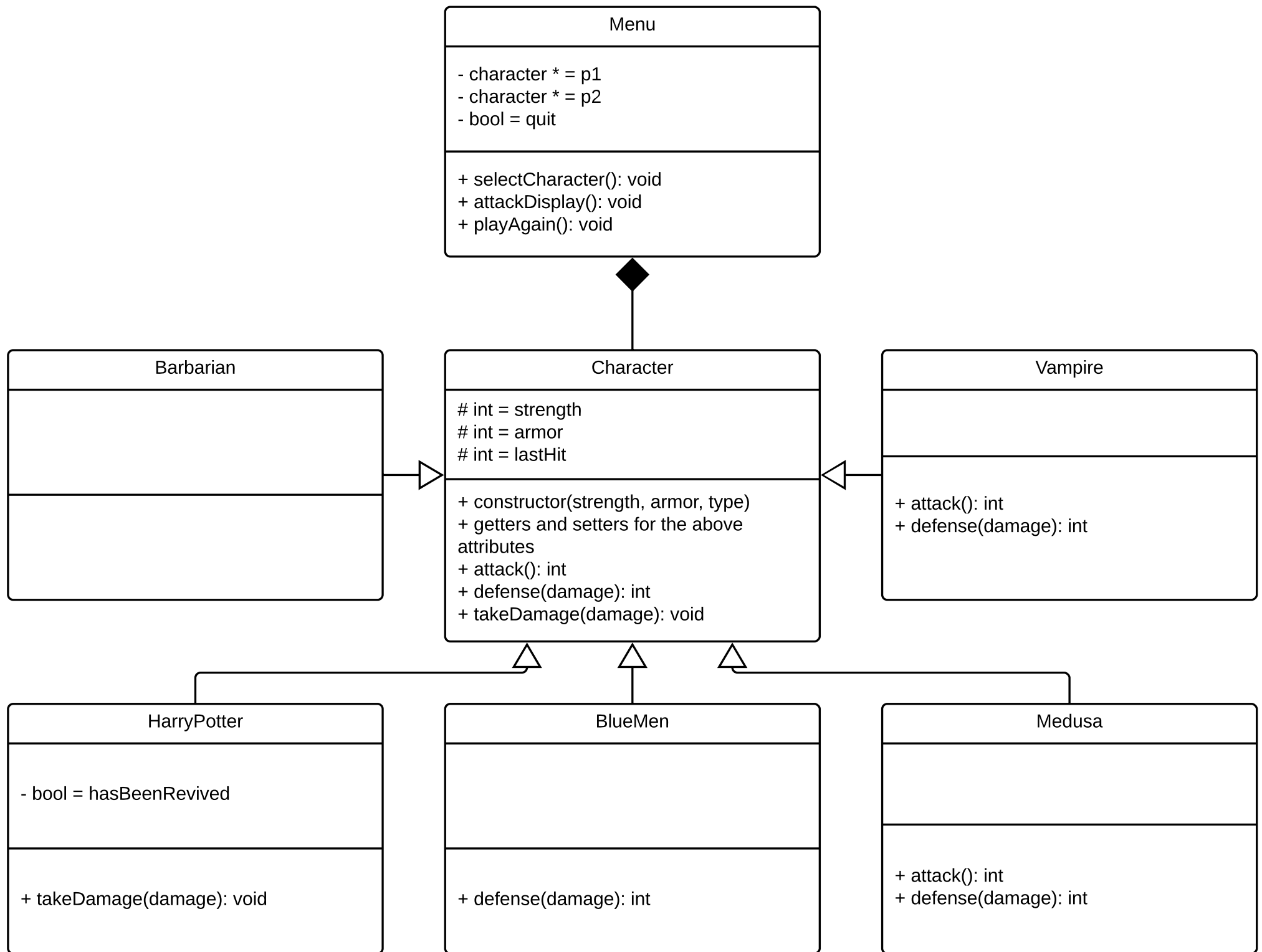
Design

The plan is to first complete the Character base class and barbarian class before creating the driver function to test the code. For the driver function, I will print player 1's attack before player 2's. All necessary information included in the project description will be listed. The program will automatically print each round without user involvement. This is because a battle could possibly last a while and this driver is just to ensure that the classes are in working order. In order to get the random rolls of the dice, I will use the rand() function from the cstdlib.

Afterwards, I will create the other special characters. Whenever I need to edit the attack/defense function I will redefine it in the class itself. The constructor for the base class will take 3 parameters: the strength of a character, the armor, and the type name. In order to handle the special abilities of each character type, I will redefine the base character functions required. The defense class of the vampire will provide a 50% chance that the attack doesn't cause damage, the attack function of Medusa will deal remove all the health of the other player if a 12 is rolled. Harry Potter will come back to life once in his takeDamage function if he has 0 strength. To make sure he doesn't come back to life more than once, his class type will have a member variable bool to reference when he has used his extra life. The special ability of the Blue will be built directly into the class defense function through an if, else if, else statement.

Testing

Test case	Driver	Input	Expected Outcome	Observed Outcome
Menu function	Tested the menu function in isolation to see if each input assigned the correct character	1-5	1 - Vampire 2. Barbarian 3. Bluemen 4. Medusa 5. Harry Potter	1 - Vampire 2. Barbarian 3. Bluemen 4. Medusa 5. Harry Potter
Checked several characters of character of the same and different type		Ran the simulation many times choosing different and same characters to check for errors	No errors	No errors
End game loop		0	Game ends	Game ends
Replay game		1	Game restarts and asks play to choose characters again	Game restarts and asks play to choose characters again
Run with valgrind to check for memory leaks		Valgrind ./output	No leaks	No leaks
Run on flip to test for errors		Run make command	Program compiles with no errors	Program compiles with no errors
Input Validation functions have already been tested				



Reflection

This was a very interesting project and although the subject matter was a bit strange, I enjoyed making it. I didn't find it too difficult but there were a few things that I changed from my design along the way. I ended up housing the takeDamage function which applies the computer damage and subtracts it from the enemy's strength. This streamlines the process and allows me to have to write less code in the driver. I also decided that in order to perform Medusa's effect, she'd essentially deal 20 damage. This would end up killing any opponent. This was the cleanest way I found to do this.