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Assignment 3 Reflection – CS 162

Requirements: The requirements of this assignment I understand as the following items:

Overall: Create a fight simulation program where there are 5 unique derived class fighters and a pure virtual base class of Creature. Each fighter except Barbarian has a Special that will modify Attack or Defend returns without using additional functions. In addition, each derived Creature can attack another copy of themselves. The fight will continue until one of the creatures is dead. Attack and Defend in Creature will be pure virtual. A Creature object will never be created or used, only derived Creature Classes. Fight 1 whole battle until death and end your program.

Class Design:

Creature: Creature has the default data members of strength, armor, and isDead bool. Everything else is either virtual or pure virtual. Creature contains the mersenne twister randomizer to generate random numbers. Additional Functions other than attack and defend are getStrength, setIsDead, getIsDead.

Barbarian: Barbarian is a generic cookie cutter class with nothing special and no additional data members or functions.

Baba Yaga: Baba Yaga just takes their attack and 1/3 of it goes to strength per Terry's email to us. It does not take into account defense or armor as stated. I have created a printout for the user when it occurs so they can see it happen. No additional data members or functions.

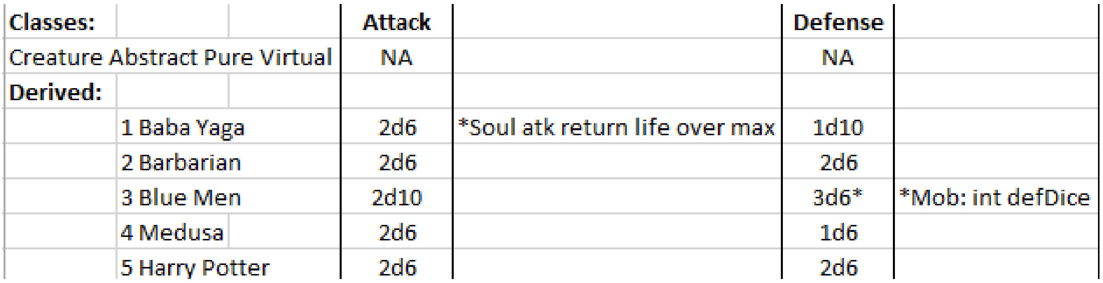
Blue Men: Blue Men have their own defense dice (int defDice) data member. This will be subtracted from when they use *Mob after taking damage greater than 4. I have created a printout for Mob when it happens and have included the number of dice after it was applied. No additional data members or functions.

Medusa: As of right now, Medusa just does a bunch of damage (99) on a pure 12 dice roll to kill any Creature she is attacking. She has no additional Data Members or Functions. Medusa will tell you when she uses Glare with a printout and it will say roll of 12. To make this happen, generally fight Medusa vs Medusa a few times and get lucky. No additional data members or functions.

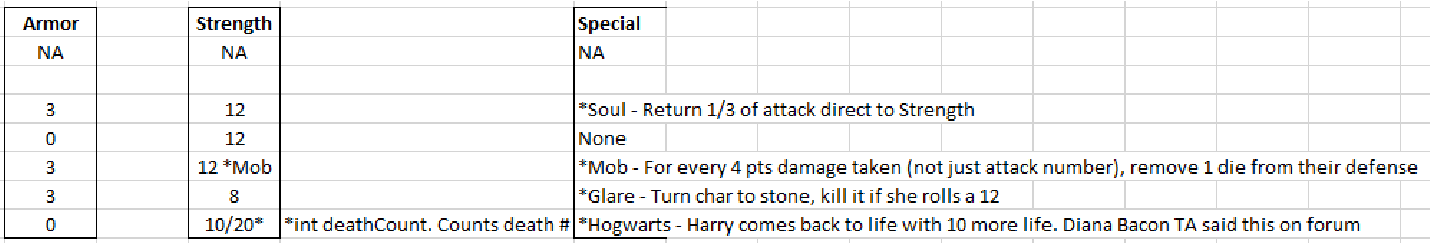
Harry Potter: The pdf states something to the effect of Harry having 20 life after death. However, Diana Bacon stated on the forum that Harry will die, recover and gain a full 10 strength again. I implemented a deathCount int for Harry that would tick over up to 1. When this is at 0, he gets an additional death per his unique defense function. This is how I chose to implement Hogwarts. No additional functions for Harry.

Menu: This was a total Menu system that would loop based one death originally and let you keep playing. For now, I dropped it back down to only running once. It has User Input validation and you must choose Menu items or it will complain to the User. Menu does all of the work with the objects based on User input. In the real world, you would probably have an additional Class do this. We already had enough on this project haha!

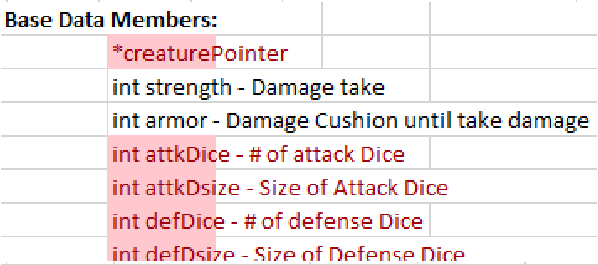
Below is a portion of my excel design sheet. Everything marked in Red is modified or taken out. Everything marked in Green is added:



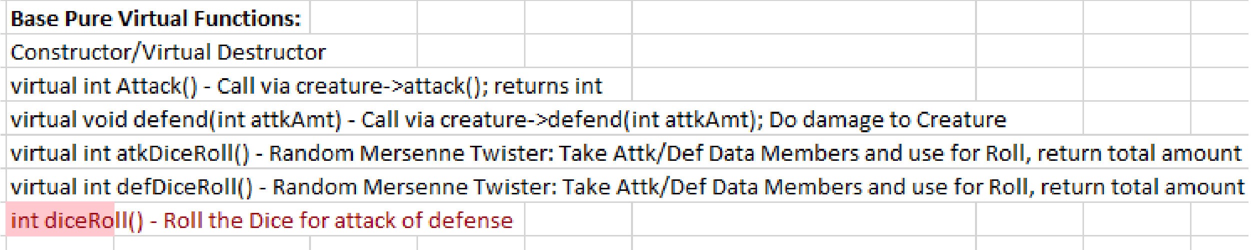
Classes:		Attack		Defense	
Creature Abstract Pure Virtual		NA		NA	
Derived:					
	1 Baba Yaga	2d6	*Soul atk return life over max	1d10	
	2 Barbarian	2d6		2d6	
	3 Blue Men	2d10		3d6*	*Mob: int defDice
	4 Medusa	2d6		1d6	
	5 Harry Potter	2d6		2d6	



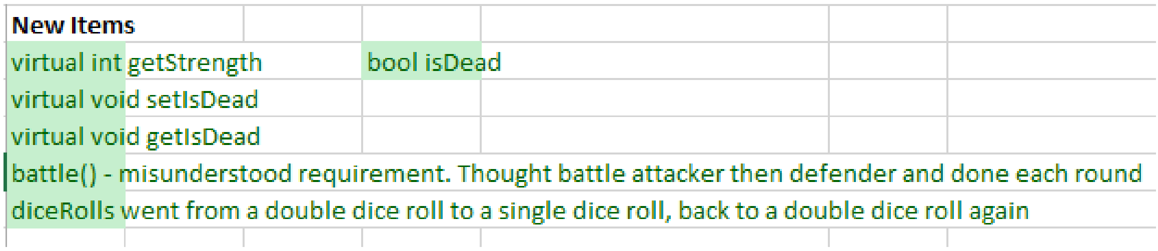
Armor		Strength		Special
NA		NA		NA
3		12		*Soul - Return 1/3 of attack direct to Strength
0		12		None
3		12 *Mob		*Mob - For every 4 pts damage taken (not just attack number), remove 1 die from their defense
3		8		*Glare - Turn char to stone, kill it if she rolls a 12
0		10/20*	*int deathCount. Counts death #	*Hogwarts - Harry comes back to life with 10 more life. Diana Bacon TA said this on forum



Base Data Members:	
	*creaturePointer
	int strength - Damage take
	int armor - Damage Cushion until take damage
	int attkDice - # of attack Dice
	int attkDsize - Size of Attack Dice
	int defDice - # of defense Dice
	int defDsize - Size of Defense Dice



Base Pure Virtual Functions:
Constructor/Virtual Destructor
virtual int Attack() - Call via creature->attack(); returns int
virtual void defend(int attkAmt) - Call via creature->defend(int attkAmt); Do damage to Creature
virtual int atkDiceRoll() - Random Mersenne Twister: Take Attk/Def Data Members and use for Roll, return total amount
virtual int defDiceRoll() - Random Mersenne Twister: Take Attk/Def Data Members and use for Roll, return total amount
int diceRoll() - Roll the Dice for attack of defense



New Items	
virtual int getStrength	bool isDead
virtual void setIsDead	
virtual void getIsDead	
battle() - misunderstood requirement. Thought battle attacker then defender and done each round	
diceRolls went from a double dice roll to a single dice roll, back to a double dice roll again	

Test Plan: Here is my test plan in table form:

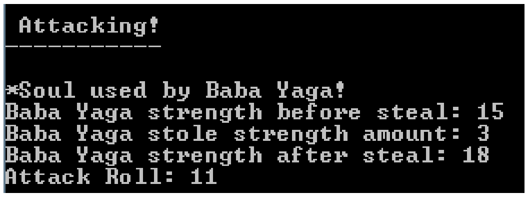
Test Runs	**Action**	**Expected**	**Pass/Fail**
Menu System	Press 1 - Begin	Go to Game Menu, display game menu	Initial: Pass! (previous saved code)
	Press 2 - Quit	Quit the program	Initial: Pass! (previous saved code)
Fighter 1: 1st Attacker Screen	Press 1-5 and get desired Creature	When 1-5 is pressed, user will see Derived Class statement pertaining to that class Name	Init: FAIL: I had some of the names copied over from other Classes, this said a Barbarian was a Baba Yaga 2nd: Pass: Fixed Naming
Fighter 2: 1st Defender Screen	Press 1-5 and get desired Creature	When 1-5 is pressed, user will see Derived Class statement pertaining to that class Name	Init: FAIL: I had some of the names copied over from other Classes, this said a Barbarian was a Baba Yaga 2nd: Pass: Fixed Naming
Attack Dice	Baba Yaga	Roll greater than 6, max 12 (2d6)	Init: Pass!
	Barbarian	Roll greater than 6, max 12 (2d6)	Init: Pass!
	Blue Men	Roll greater than 10, max 20 (2d10)	Init: Pass!
	Medusa	Roll greater than 6, max 12 (2d6)	Init: Pass!
	Harry Potter	Roll greater than 6, max 12 (2d6)	Init: Pass!
Defend Dice	Baba Yaga	Roll less than 11 (1d10)	Init: Pass!
	Barbarian	Roll greater than 6, max 12 (2d6)	Init: Pass!
	Blue Men	Roll greater than 12, max 18 (3d6)	Init: FAIL! Was a copy from another class missed change 2nd: Pass
	Medusa	Roll less than 6 (1d6)	Init: Pass!

	Harry Potter	Roll greater than 6, max 12 (2d6)	Init: FAIL Potter was setup for 1d10 from a copy paste Class 2nd: Pass – Fixed Dice roll
Specials	**Please see testing for Specials below (easier screenshots)		

__Specials Testing__

Barbarian: N/A

Baba Yaga:



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 Attacking!
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*Soul used by Baba Yaga!
Baba Yaga strength before steal: 15
Baba Yaga stole strength amount: 3
Baba Yaga strength after steal: 18
Attack Roll: 11
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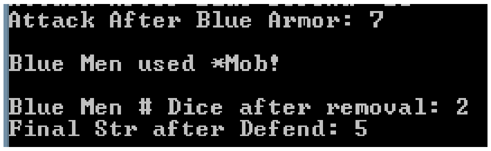
Blue Men: *Mob



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Attack After Blue Armor: 7

Blue Men used *Mob!

Blue Men # Dice after removal: 2
Final Str after Defend: 5
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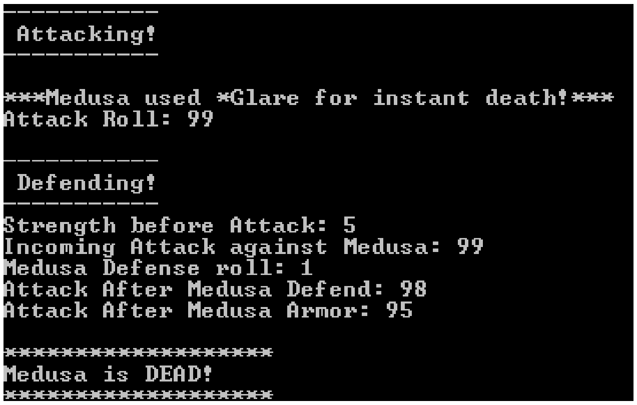
Medusa: *Glare took a bunch of Medusa vs Medusa runs but got it!



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 Attacking!
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***Medusa used *Glare for instant death!***
Attack Roll: 99

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 Defending!
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Strength before Attack: 5
Incoming Attack against Medusa: 99
Medusa Defense roll: 1
Attack After Medusa Defend: 98
Attack After Medusa Armor: 95

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Medusa is DEAD!
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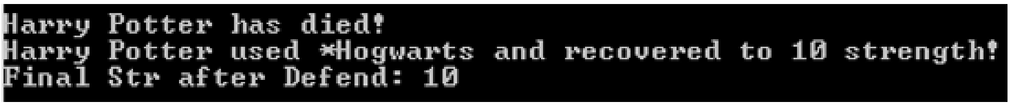
Harry: *Hogwarts *Per Diana Bacon Forum post, Harry Potter works like the above.



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Harry Potter has died!
Harry Potter used *Hogwarts and recovered to 10 strength!
Final Str after Defend: 10
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Reflections:

Oh boy where do I start? I spent massive amounts of time on this project due to some confusion. Let's go through some things below!

Dynamic Issues: I wrote the entire Assignment and had it finished on Wednesday. After working on Mod E for a bit I went and checked the forum and found that Terry had posted and intended that we use dynamic creatures. This is not mentioned in the pdf. I had initially created the entire project using objects already created in my main. It worked great. So I went through and rewrote it all to fit with the way Terry had intended.

Design Issues: I initially thought that the attacker and defender were to be chosen each time. I didn't realize that it was a fight to the finish where each would battle until one died. I thought each singular round was to be chosen 1 at a time with attacker and defender. I ended up creating a battle() function to deal with this where the attacker and defender will swap each run until death happens.

I spent a lot of time on a nice Menu system that would loop through and check for death and make sure you could not choose someone who had died. The battles would continue until 1 Champion remained. I read on the forum that it was supposed to be just a singular battle and have the program end. I kept a copy of what I had written saved locally and modified the program to remove all of my checkers for death and repeating menus to keep it the way it was requested. Yes this may have been a bit extreme on my part, but I thought I could see where the future was going with the project so I built it!

Deviating from my original design, I added 4 new functions to the Creatures, 1 new data member and messed around with different dice roll functions. I chose to go with two dice roll functions. One for defense and one for attack. This made it easy to differentiate between dice number and type for each derived class. The Menu system became the parent of all the working data. Menu has a choice int and a finishRun bool to mark the finish of the program to help with my Menus. attackCheck and defendCheck were used as functions to check for death originally, now they just call the next menu.

User Input issues: I spent a lot of time messing with those recurring menus before I realized none of that mattered. I had to fix a lot of issues with Death showing and recurring wrong menus. Now the only thing it does it run once and quits. It will check to make sure you enter a digit on the menu and give you another try.

Segmentation Fault: I had a segmentation fault on flip. This was because I failed to initialize pointers I was using to NULL. It took me a while but I used gdb and found what the problem was eventually. It was definitely a learning experience. Setting those in the Constructor resolved that issue.

Ultimately: It's interesting. I started early this time and got a lot done, only to have to go back and rewrite a lot of it. I think that for the next assignment I am literally going to write down every single question I can think of in the first two days of the week that need clarification and post all of them in one fell swoop to the forum. Even though I spent a lot of time on this assignment, it was my favorite of the class by far. I really enjoyed this assignment and had a lot of fun on it.