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CS 162 Project 3

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Project 3 Reflections

The purpose of this project is to create a fantasy combat game based off of dice rolls. The program will contain five types of creatures that will be chosen from a menu by the user. Each creature will have its own set of statistics for the following categories: attack, defense, armor and strength. Some creatures will have special abilities. To implement this, a base Creature class will need to be created. It will contain virtual functions to roll dice for both attack and defense depending on which creature's turn it is. Each creature type: vampire, barbarian, blue men, medusa and Harry Potter will have their own class that inherits from the creature base class. These will each have their own virtual function for attack and defense rolls so that each may roll the dice using their specific statistics. Each creature subclass will also have a function to implement their special abilities. The vampire class will contain the charm function which will generate a random binary number, on a 0, the attack will proceed as normal, but on a 1, the enemy's attack will be completely negated. The Blue Men class will contain a Mob function that will decrease their defense roll for every 4 points of strength they lose. The Medusa class will contain a Glare function which will check if the medusa has rolled a 12 on its attack. If this is true, then it will alter the opponent's strength to zero, ending the match. The Harry Potter function will have a Hogwarts function which will check Harry's strength after every round. If his Strength is reduced to zero, it will reset to 20 one time. To do this, a counter will be needed to track if it is the first time he has "died". There will also be a main function to call the menu and run the game.

Testing Plan

Test	Expected Outcome	Observed Outcome	Fix
Fight any two monsters	The loser of each round should have their strength decrease by the appropriate amount and the loser will be whichever is reduced to zero first.	The amounts changed properly, but the dice rolls were off by one.	+1 was added to all rand() to put them in the proper range.
Choose a vampire	50% of attacks against the vampire should not do any damage to reflect the Charm skill	Charm is observed to activate roughly 50% of the time	n/a
Choose Blue Men	The defense roll of the Blue Men should decrease for every 4 strength points lost	The Blue Men defense rolls decrease as they lose strength.	n/a

	such that the maximum possible roll decreases by 6 each time.		
Choose a Medusa and continue until a twelve is rolled.	When the Medusa rolls a 12, the opponent should automatically lose all strength points and lose the game.	The Medusa hits the opponents such that their defense is completely overpowered.	n/a
Choose Harry Potter and play until he loses his first life.	When Harry is reduced to zero Strength, then he should reset his strength to 20.	Harry dies once and is resurrected.	n/a
Choose a Medusa and continue until a twelve is rolled, against Harry Potter.	Harry's Strength should be reduced to zero when the Medusa uses Glare, but he should then immediately reset to 20 on his first life.	Harry dies once and is resurrected.	n/a
Choose Harry Potter and play until he loses his second life.	Harry should not resurrect, remaining at 0 strength, losing the game.	Harry dies once, resurrects and then permanently dies.	n/a
Enter an invalid menu option.	Prints an error message and asks for a new input.	Prints an error message and asks for a new input.	n/a
Fight a Medusa and a Vampire until glare and charm both trigger.	Charm should overpower glare, the vampire should take no damage.	The vampire takes no damage.	n/a

Several changes were made to the original design of the program, both for organization and to fix errors. First, the original menu was split into two menus, the first to play or quit the game and the second, "fightMenu", to choose the fighters. Next, a game class was created to manage this second menu. It also contained the Fight function which was used to call creature functions, as well as, create creature objects. The special abilities of each specific creature type were moved from being separate functions to being placed inside that creature's attack or defense function as relevant. This allowed the special ability to be applied without specifically checking what monster was attacking or defending. The Medusa's glare was specifically changed to increase the Medusa's attack strength such that it would overpower any defense, save the Vampire's charm which set defense to be higher than glare's attack rating. During testing, the dice rolls were off by one, producing a roll that was one too low. To fix this, 1 was added to every rand() to put the rolls into the proper range.