

Week 13

Inheritance

Assignment 3 - Dungeons & Dragons (due Dec 12)

This assignment is a simplified version of D&D. Using concepts from inheritance create a base class of **CommonStatistics** that provides the framework for 3 derived classes of **Warrior**, **Mage**, and **Rogue**. Each class will have some statistics in common while others are unique to the class.

In D&D players commonly roll dice referred to as D and a number which represents the number of sides on the dice. For example 1 D6 means roll one six sided die thus the result will be between 1-6 . 2 D4 means roll two four sided die thus the result will be between 2-8.

Some characters are specialized in tasks and will gain *bonus modifiers* which are then added to the result of the rolls. For example when determining which character has priority in a turn rolling initiative(1-20), the speed modifier will add a constant number to the result. So if the initiative roll is 8 and the speed modifier is 4, the resulting initiativeScore is 12.

Look over the example output to better understand how the gameplay logic occurs. If you have any questions please feel free to reach me via Email.

Note: If the Warriors Health ever drops to zero the player loses the game and quits.

Grading Rubric:

5 Points Program Compiles

20 Points for Utilizing Inheritance Effectively

- Classes demonstrates use of virtual or overridden Functions
- Classes demonstrates proper ownership

10 Points Efficiency

- Well Purposed Control Flow
- Identifying Segments of Code for Reuse

15 Points for Documentation

- Well Thought Out Comments
- Descriptive Variable Names

50 Points Total

Expected Output:

**You are now Knight Timmy, a ferocious Warrior
A Mage named Wizard Gandolfo appears and is ready to battle!**

Warrior Knight Timmy's current stats:

**Health: 20
Healing Die: 2 D5
Base Attack Die: 1 D6
Armor: 5
Attack Modifier (Strength): 3
Initiative Modifier (Speed): 4**

Mage Wizard Gandolfo's current stats:

**Health: 15
Base Attack Die: 1 D4
Armor: 2
Attack Modifier (Intellect): 7**

**You rolled one dice(1-20): Initiative score of 9 + a speed modifier of 4 for a total of 13
The Mage rolled one dice(1-20): Initiative score of 17 and has no bonus speed modifier**

Wizard Gandolfo's Move:

**Wizard Gandolfo rolled one dice(1-4): Damage score of 1 + an intellect modifier of 7 for a total of 8
Knight Timmy has taken 3 damage and is now at 17 HP**

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 4 + a strength modifier of 3 for a total of 7

Wizard Gandolfo has taken 5 damage and is now at 10 HP

You rolled one dice(1-20): Initiative score of 10 + a speed modifier of 4 for a total of 14

The Mage rolled one dice(1-20): Initiative score of 10 and has no bonus speed modifier

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 1 + a strength modifier of 3 for a total of 4

Wizard Gandolfo has taken 2 damage and is now at 8 HP

Wizard Gandolfo's Move:

Wizard Gandolfo rolled one dice(1-4): Damage score of 1 + an intellect modifier of 7 for a total of 8

Knight Timmy has taken 3 damage and is now at 14 HP

You rolled one dice(1-20): Initiative score of 1 + a speed modifier of 4 for a total of 5

The Mage rolled one dice(1-20): Initiative score of 18 and has no bonus speed modifier

Wizard Gandolfo's Move:

Wizard Gandolfo rolled one dice(1-4): Damage score of 3 + an intellect modifier of 7 for a total of 10

Knight Timmy has taken 5 damage and is now at 9 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 1 + a strength modifier of 3 for a total of 4

Wizard Gandolfo has taken 2 damage and is now at 6 HP

You rolled one dice(1-20): Initiative score of 4 + a speed modifier of 4 for a total of 8

The Mage rolled one dice(1-20): Initiative score of 7 and has no bonus speed modifier

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 6 + a strength modifier of 3 for a total of 9

Wizard Gandolfo has taken 7 damage and is now at -1 HP

The Mage has been slain!

A magical fairy visits you, health has been reset to 20!

A Rogue named Assassin Jim appears and is ready to battle!

Warrior Knight Timmy's current stats:

Health: 20

Healing Die: 2 D5

Base Attack Die: 1 D6

Armor: 5

Attack Modifier (Strength): 3

Initiative Modifier (Speed): 4

Rogue Assassin Jim's current stats:

Health: 10

Base Attack Die: 2 D4

Armor: 3

Attack Modifier (Agility): 4

Initiative Modifier (Speed): 5

Dodge: 50% chance to dodge an incoming attack

You rolled one dice(1-20): Initiative score of 18 + a speed modifier of 4 for a total of 22

The Rogue rolled one dice(1-20): Initiative score of 14 + a speed modifier of 5 for a total of 19

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 3 + a strength modifier of 3 for a total of 6

Assassin Jim Dodged the attack!

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 5 + an agility modifier of 4 for a total of 9

Knight Timmy has taken 4 damage and is now at 16 HP

You rolled one dice(1-20): Initiative score of 19 + a speed modifier of 4 for a total of 23

The Rogue rolled one dice(1-20): Initiative score of 19 + a speed modifier of 5 for a total of 24

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 10 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 9 hit points!

Total HP now at: 19

You rolled one dice(1-20): Initiative score of 11 + a speed modifier of 4 for a total of 15

The Rogue rolled one dice(1-20): Initiative score of 20 + a speed modifier of 5 for a total of 25

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 13 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 4 hit points!

Total HP now at: 17

You rolled one dice(1-20): Initiative score of 15 + a speed modifier of 4 for a total of 19

The Rogue rolled one dice(1-20): Initiative score of 17 + a speed modifier of 5 for a total of 22

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 3 + an agility modifier of 4 for a total of 7

Knight Timmy has taken 2 damage and is now at 15 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 4 + a strength modifier of 3 for a total of 7

Assassin Jim Dodged the attack!

You rolled one dice(1-20): Initiative score of 1 + a speed modifier of 4 for a total of 5

The Rogue rolled one dice(1-20): Initiative score of 13 + a speed modifier of 5 for a total of 18

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 5 + an agility modifier of 4 for a total of 9

Knight Timmy has taken 4 damage and is now at 11 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 11 hit points!

Total HP Capped at: 20

You rolled one dice(1-20): Initiative score of 2 + a speed modifier of 4 for a total of 6

The Rogue rolled one dice(1-20): Initiative score of 6 + a speed modifier of 5 for a total of 11

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 14 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 2 + a strength modifier of 3 for a total of 5

The Rogue has taken 2 damage and is now at 8 HP

You rolled one dice(1-20): Initiative score of 11 + a speed modifier of 4 for a total of 15

The Rogue rolled one dice(1-20): Initiative score of 11 + a speed modifier of 5 for a total of 16

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 8 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 4 hit points!

Total HP now at: 12

You rolled one dice(1-20): Initiative score of 7 + a speed modifier of 4 for a total of 11

The Rogue rolled one dice(1-20): Initiative score of 11 + a speed modifier of 5 for a total of 16

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 7 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 6 hit points!

Total HP now at: 13

You rolled one dice(1-20): Initiative score of 3 + a speed modifier of 4 for a total of 7

The Rogue rolled one dice(1-20): Initiative score of 17 + a speed modifier of 5 for a total of 22

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 8 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 5 hit points!

Total HP now at: 13

You rolled one dice(1-20): Initiative score of 14 + a speed modifier of 4 for a total of 18

The Rogue rolled one dice(1-20): Initiative score of 10 + a speed modifier of 5 for a total of 15

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 4 hit points!

Total HP now at: 17

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 12 HP

You rolled one dice(1-20): Initiative score of 12 + a speed modifier of 4 for a total of 16

The Rogue rolled one dice(1-20): Initiative score of 11 + a speed modifier of 5 for a total of 16

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 6 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 7 hit points!

Total HP now at: 13

You rolled one dice(1-20): Initiative score of 18 + a speed modifier of 4 for a total of 22

The Rogue rolled one dice(1-20): Initiative score of 13 + a speed modifier of 5 for a total of 18

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 6 hit points!

Total HP now at: 19

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 14 HP

You rolled one dice(1-20): Initiative score of 5 + a speed modifier of 4 for a total of 9

The Rogue rolled one dice(1-20): Initiative score of 16 + a speed modifier of 5 for a total of 21

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 7 + an agility modifier of 4 for a total of 11

Knight Timmy has taken 6 damage and is now at 8 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 4 hit points!

Total HP now at: 12

You rolled one dice(1-20): Initiative score of 13 + a speed modifier of 4 for a total of 17

The Rogue rolled one dice(1-20): Initiative score of 8 + a speed modifier of 5 for a total of 13

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 2 + a strength modifier of 3 for a total of 5

Assassin Jim Dodged the attack!

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 3 + an agility modifier of 4 for a total of 7

Knight Timmy has taken 2 damage and is now at 10 HP

You rolled one dice(1-20): Initiative score of 7 + a speed modifier of 4 for a total of 11

The Rogue rolled one dice(1-20): Initiative score of 15 + a speed modifier of 5 for a total of 20

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 5 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 4 hit points!

Total HP now at: 9

You rolled one dice(1-20): Initiative score of 17 + a speed modifier of 4 for a total of 21

The Rogue rolled one dice(1-20): Initiative score of 8 + a speed modifier of 5 for a total of 13

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 10 hit points!

Total HP now at: 19

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 4 + an agility modifier of 4 for a total of 8

Knight Timmy has taken 3 damage and is now at 16 HP

You rolled one dice(1-20): Initiative score of 4 + a speed modifier of 4 for a total of 8

The Rogue rolled one dice(1-20): Initiative score of 5 + a speed modifier of 5 for a total of 10

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 4 + an agility modifier of 4 for a total of 8

Knight Timmy has taken 3 damage and is now at 13 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 11 hit points!

Total HP Capped at: 20

You rolled one dice(1-20): Initiative score of 1 + a speed modifier of 4 for a total of 5

The Rogue rolled one dice(1-20): Initiative score of 1 + a speed modifier of 5 for a total of 6

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 3 + an agility modifier of 4 for a total of 7

Knight Timmy has taken 2 damage and is now at 18 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 3 + a strength modifier of 3 for a total of 6

Assassin Jim Dodged the attack!

You rolled one dice(1-20): Initiative score of 13 + a speed modifier of 4 for a total of 17

The Rogue rolled one dice(1-20): Initiative score of 10 + a speed modifier of 5 for a total of 15

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 3 + a strength modifier of 3 for a total of 6

The Rogue has taken 3 damage and is now at 5 HP

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 3 + an agility modifier of 4 for a total of 7

Knight Timmy has taken 2 damage and is now at 16 HP

You rolled one dice(1-20): Initiative score of 12 + a speed modifier of 4 for a total of 16

The Rogue rolled one dice(1-20): Initiative score of 14 + a speed modifier of 5 for a total of 19

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 11 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 6 hit points!

Total HP now at: 17

You rolled one dice(1-20): Initiative score of 6 + a speed modifier of 4 for a total of 10

The Rogue rolled one dice(1-20): Initiative score of 13 + a speed modifier of 5 for a total of 18

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 4 + an agility modifier of 4 for a total of 8

Knight Timmy has taken 3 damage and is now at 14 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 1 + a strength modifier of 3 for a total of 4

Assassin Jim Dodged the attack!

You rolled one dice(1-20): Initiative score of 8 + a speed modifier of 4 for a total of 12

The Rogue rolled one dice(1-20): Initiative score of 12 + a speed modifier of 5 for a total of 17

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 9 HP

Your Move:

What will you do?

1: Attack

2: Heal

2

You heal yourself for 9 hit points!

Total HP now at: 18

You rolled one dice(1-20): Initiative score of 3 + a speed modifier of 4 for a total of 7

The Rogue rolled one dice(1-20): Initiative score of 8 + a speed modifier of 5 for a total of 13

Assassin Jim's Move:

Assassin Jim rolled two dice(1-4): Damage score of 6 + an agility modifier of 4 for a total of 10

Knight Timmy has taken 5 damage and is now at 13 HP

Your Move:

What will you do?

1: Attack

2: Heal

1

You rolled one dice(1-6): Damage score of 5 + a strength modifier of 3 for a total of 8

The Rogue has taken 5 damage and is now at 0 HP

The Rogue has been slain!

You Won the Video Game!!!

Press any key to continue . . .