

**COE312 Software Design for Engineers**

**Homework 1: Java Programming**

**Academic Integrity Pledge**

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| --- |
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**Link to GitHub repository:**

https://github.com/COE312L/HW1.git

**Java code**

*Please add subtitles with the class names. Paste the code,* ***not*** *screenshots of the code.*

//class DiningHall

//contains look() function that describes the dining hall and mentions Dumbledore character in the room

//contains use() function that outputs a random house or a random food

//contains talk() function that prints an output of the character speaking to the user

**import** java.util.Random;

**public** **class** DiningHall {

String[] randomfood= {"Pizza", "Pasta", "Lasagna"};

String[] house = {"Gryffindor!", "Slytherin!", "Ravenclaw!","Hufflepuff!"};

Random rand = **new** Random();

**public** **void** look()

{

System.***out***.print("The dining hall is the biggest open area inside Hogwarts. Professor " +

"Dumbledore is in the hall to welcome new students.\n");

}

**public** **void** use(String useinput)

{

**if** (useinput == "sorting hat")

{

System.***out***.println("You walk towards the chair and you sit on it. You are nervous. The sorting hat is \n"+

"placed on your head. He takes his sweet time choosing a house for you..." );

System.***out***.print("Sorting Hat: "+house[rand.nextInt(4)]+"\n");

}

**if** (useinput == "plate")

{

System.***out***.println("You find a huge table filled with all sorts of food. You spot your 3 most favourite food:\n" +

"Pizza, Pasta, and Lasagna. You take your plate and decide to have " + randomfood[rand.nextInt(3)]+"\n");

}

}

**public** **void** talk()

{

System.***out***.println("Dumbledore: Welcome to the dining hall! Interact with the sorting hat to be sorted\n" +

"into a house or grab a plate and enjoy the food served in the hall!\n");

}

}

//class Library

//contains look() function that describes the Library and mentions Hermione character in the room

//contains use() function that outputs the user doing an action with the object

//contains talk() function that prints an output of the character speaking to the user

**public** **class** Library {

**public** **void** look()

{

System.***out***.print("You look around the magnificient library of Hogwarts. You are astonished looking at\n" +

"several books floating in the air. In the centre of the library, you find Hermione lost in her books.\n");

}

**public** **void** use(String useinput)

{

**if** (useinput == "book")

{

System.***out***.println("You have picked up a book. The title says 'Diary of The Half-Blood Prince'.\n"+

"You open the book and start to read the pages. You don't understand anything. You keep it down.\n");

}

**if** (useinput == "quill")

{

System.***out***.println("You have picked up a quill. You write in a piece of paper the following,"+

" 'Hermione is a nerd...' \n");

}

}

**public** **void** talk()

{

System.***out***.println("You: How do you pronounce Leviosa?");

System.***out***.println("Hermione: OMG! It's pronounced Levi'oosa. Not leviosa!");

System.***out***.println("You: \*giggles\*");

System.***out***.println("Hermione: Instead of wasting my time, read that book or take that quill and complete your essay!");

}

}

//class PotionsClassroom

//contains look() function that describes potion classroom and mentions Professor Snape character in the room

//contains use() function that makes snape teach a class and prompts you to make a mixture

//with the item used that will give an output of whether you were successful in making the mixture or not.

//contains talk() function that prints an output of the character speaking to the user

**import** java.util.Random;

**public** **class** PotionsClassroom {

**boolean**[] chance= {**true**,**false**};

Random rand = **new** Random();

**public** **void** look()

{

System.***out***.print("The Potions classroom is filled with bottles of all sizes and shapes.\n"+

"You are able to smell all kinds of funny odours in the cassroom.\n " +

"Across the room, you find Professor Snape frowning at you.\n");

}

**public** **void** use(String useinput)

{

**if** (useinput == "cauldron")

{

System.***out***.println("Professor Snape: We use a cauldron to brew large quantities of potions.\n" +

"Each and every ingredient should be very accurately measured and mixed in the cauldron. If not, you could blow your face off!\n"+

"Now I want you to create a cauldron of growth. One spoon from this mixture will make you one feet taller for a day.\n"+

"However, if you get the ingredients wrong, you will become one feet short for a day!");

System.***out***.println("\nYou look at the instruction manual. They are not clear. You mix the ingredients you feel wil get the result\n"

+"You drink a spoon from the cauldron. You instantly become one feet ");

**if**(chance[rand.nextInt(2)]) {

System.***out***.println("taller!\n");

}

**else**

{System.***out***.println("shorter!\n");}

System.***out***.println("Professor Snape: Class Dismissed!\n");

}

**if** (useinput == "potion")

{

System.***out***.println("Professor Snape: Potion making is a very dangerous procedure. If you get even one\n" +

"ingredient wrong, you could cause dangerous side effects! Now create a potion of good luck. If you prepare it right,\n"+

"you will get good luck for a day. If not, the bottle will break");

System.***out***.println("You look at the instruction manual. They are not clear. You mix the ingredients you feel wil get the result\n"

+"The bottle ");

**if**(chance[rand.nextInt(2)]) {

System.***out***.println("does not break! You have successfuly made it\n");

}

**else** {

System.***out***.print("breaks... Better luck next time.\n");

}

System.***out***.print("Professor Snape: Class Dismissed!\n");

}

}

**public** **void** talk()

{

System.***out***.println("Professor Snape: You are here to learn the subtle science and exact art of potion-making.\n"

+ "You have two choices: Use a cauldron to understand the beauty of the softly simmering cauldron OR \n"

+ "Use a potion bottle to learn the dangerous procedure of potion making\n");

}

}

//driver class with main

**import** java.util.\*;

**import** java.util.Random;

**import** java.util.Scanner;

**public** **class** Driver {

**public** **static** **void** main(String[] args) {

//Initializations

String loc;

Library l=**new** Library();

DiningHall d=**new** DiningHall();

PotionsClassroom p=**new** PotionsClassroom();

//we assume the user types all input in lowercase

// For password

Scanner in = **new** Scanner(System.***in***);

System.***out***.println("“Messrs Moony, Wormtail, Padfoot and Prongs Purveyors of Aids to magical Mischief-Makers are proud to present THE MARAUDER'S MAP”\n" +

"Say the magic phrase to reveal the map.\n");

String input = in.nextLine();

**while**(!input.contains("i solemnly swear that i am up for no good")) {

System.***out***.println("Wrong Password! Try Again:\n");

input = in.nextLine();

}

//while loop to continue asking user questions until user decides to exit by typing 'mischief managed'

loc = "Entrance"; //to enter switch case

**while**(!input.contains("mischief managed")) {

**switch**(loc) {

//contains 4 cases with 4 locations: Entrance, Dining Hall, Library, Potions Classroom

**case** "Entrance":

**while**(loc.contains("Entrance")) {

System.***out***.println("The Entrance\n" +

"You arrive at the doors of Hogwarts. The door on the north wall leads to the dining hall,\n"+

"the door to the east leads to the Potions class, and the door to the west leads to the Library.");

System.***out***.println("Which direction would you like to walk to? (walk north/east/west)\n");

input = in.nextLine();

**if**(input.contains("north")) {

System.***out***.print("You have entered the dining hall. (look around/talk to character)\n");

loc="Dining Hall";

**break**;

}

**else** **if**(input.contains("west")) {

System.***out***.print("You have entered the Library. (look around/talk to character)\n");

loc="Library";

**break**;

}

**else** **if**(input.contains("east")) {

System.***out***.print("You have entered the potions class. (look around/talk to character)\n");

loc="Potions Classroom";

**break**;

}

**else** **if** (input.contains("mischief managed")) {

**break**;

}

**else** {

System.***out***.print("Wrong input! Try again\n");

}

}

**case** "Dining Hall":

**while**(loc.contains("Dining Hall")) {

input = in.nextLine();

**if**(input.contains("look")) {

d.look();

}

**else** **if**(input.contains("talk")) {

**if**(input.contains("dumbledore")) {

d.talk();

}

**else** {

System.***out***.print("This character is not here.\n");

}

}

**else** **if**(input.contains("use")) {

**if**(input.contains("hat")) {

d.use("sorting hat");

}

**else** **if**(input.contains("plate")) { //changed to plate to make a meaningful sentence in output

d.use("plate");}

**else** {

System.***out***.print("You can only use a sorting hat or plate.\n");

}

}

**else** **if**(input.contains("north")||input.contains("east")||input.contains("west")) {

System.***out***.print("You find that there is only one direction to walk, south\n");

}

**else** **if** (input.contains("south")) {

loc="Entrance";

}

**else** **if** (input.contains("mischief managed")) {

**break**;

}

**else** {

System.***out***.print("Wrong input");

}

}

**break**;

**case** "Library":

**while**(loc=="Library") {

input = in.nextLine();

**if** (input.contains("look")) {

l.look();

}

**else** **if**(input.contains("talk")) {

**if**(input.contains("hermione")) {

l.talk();

}

**else** {

System.***out***.print("This character is not here!\n");}

}

**else** **if**(input.contains("use")) {

**if**(input.contains("book")) {

l.use("book");

}

**else** **if**(input.contains("quill")) {

l.use("quill");

}

**else** {

System.***out***.print("You can only use a book or quill.\n");}

}

**else** **if**(input.contains("north")||input.contains("west")||input.contains("east")) {

System.***out***.print("You find that there is only one direction to walk, south\n");

}**else** **if** (input.contains("south")) {

loc ="Entrance";

}

**else** **if** (input.contains("mischief managed")) {

**break**;

}

**else** {

System.***out***.print("Wrong input!\n");

}

}

**break**;

**case** "Potions Classroom":

**while**(loc=="Potions Classroom") {

input = in.nextLine();

**if** (input.contains("look")) {

p.look();

}

**else** **if**(input.contains("talk")) {

**if**(input.contains("snape")) {

p.talk();

}

**else** {

System.***out***.print("This character is not here!\n");

}

}

**else** **if**(input.contains("use")) {

**if**(input.contains("cauldron")) {

p.use("cauldron");

}

**else** **if**(input.contains("potion")){

p.use("potion");

}

**else** {

System.***out***.print("You can only use a cauldron or a potion bottle.\n");}

}

**else** **if**(input.contains("north")||input.contains("west")||input.contains("east")) {

System.***out***.print("You find that there is only one direction to walk, south\n");

}

**else** **if** (input.contains("south")) {

loc ="Entrance";

}

**else** **if**(input.equals("mischief managed")) {

**break**;

}

**else** {

System.***out***.print("Wrong input!\n");

}

}

**break**;

**default**: System.***out***.print("Incorrect input!\n");

}

}

in.close();

System.***out***.print("Hiding map contents...end\n");

}

}

**Sample Output**

1. Paste screenshots of output showing going to each location and interacting with all objects and characters. Show in at least 1 screenshot the start and end of the game.
   1. Dining Hall

**This screenshot also shows the beginning of game**

Graphical user interface, text, application, email

Description automatically generated

* 1. Library

**This screenshot also shows the end of game command**

Text, letter

Description automatically generated

* 1. Potions class

Text

Description automatically generated

1. Paste screenshots of output showing invalid input:
   1. incorrect command

A screenshot of a cell phone

Description automatically generated

* 1. invalid character

Graphical user interface, text, application

Description automatically generated

* 1. invalid object

Text, letter

Description automatically generated