



```
public Moon (String name, double radius, double density, double distance) {
    this.name = name;
    this.radius = radius;
    this.density = density;
    this.distance = distance;
}

// generate getters and setters

/**
 * to string thing description
 */
public String toString () {
    String forUser = String.format("%s %.2f %.2f %.2f", this.name, this.radius, this.density,
    this.distance);
    return forUser;
}
}
```

MoonAttributes.java

```

/*
 * MoonAttributes Enumerated Type - Project 7
 *
 * an enum type that has the values radius, density and distance
 * Jackie Vishton
 * version 11/13/2021
 * CMSC255
 */

```

```
public enum MoonAttributes {
    RADIUS, DENSITY, DISTANCE
}
```

MoonStudy.java

```

/*
 * Moon Study - Project 7
 *
 * A program that
 * Jackie Vishton
 * version 11/13/2021
 * CMSC255
 */

```

```
import java.io.File;
import java.io.FileNotFoundException;
import java.io.PrintWriter;
import java.util.Scanner;
```

```

import java.util.ArrayList;

public class MoonStudy {

    public static ArrayList<String> openFile (File inputFile) throws FileNotFoundException {
        ArrayList<String> forUser = new ArrayList<String>();
        Scanner in = new Scanner(System.in);

        while (in.hasNextLine()) {
            forUser.add(in.nextLine());
        }
        return forUser;
    }

    public static ArrayList<Moon> createObjects(ArrayList<String> lines) {

        ArrayList<Moon> forUser = new ArrayList<Moon>();

        for (int i = 0; i < lines.length; i++) {
            String [] temp = lines.get(i).split("\t");
            // code that catches if the doubles are negative or incorrect
            Moon moon = new Moon(temp[0], Double.parseDouble(temp[1]),
                Double.parseDouble(temp[2]), Double.parseDouble(temp[3]));
            forUser.add(moon);
        }
        return forUser;
    }

    public static double findMean(ArrayList<Moon> moons, MoonAttributes attribute) {
        for loop that goes through each numerical value for the attribute given and returns the avg
    }

    public static double findHighValue() {ArrayList<Moon> moons, MoonAttributes attribute) {
        same for loop as findMean but finds highest value
    }

    public static double findMeanMoon() {ArrayList<Moon> moons, MoonAttributes attribute, double
meanValue) {
        same for loop as findMean but finds value that is the closest to the mean value
        checks abs value of difference between them and compares
    }

    public static double findMeanMoon() {ArrayList<Moon> moons, MoonAttributes attribute, double
value) {
        same for loop as findMean but finds moons that have values that are below the value given are
        added to an array
    }
}

```

```
public static void outputToFile(String outputMessage, ArrayList<Moon> moons, PrintWriter out) {  
    prints the message and the moons  
}
```

```
public static void outputToFile(String outputMessage, Moon moon, PrintWriter out) {  
    prints the message and the moon  
}
```

```
public static void outputToFile(String outputMessage, double value, PrintWriter out) {  
    prints the message and the double  
}
```

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

PrintWriter and Scanner

openFile in try catch block

array list from open file is passed to createObjects

findMean() findHighValue() findMeanMoon() findLowestMoons()

writeOutData method / output to file method

```
}
```

```
}
```