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1st week Assigment

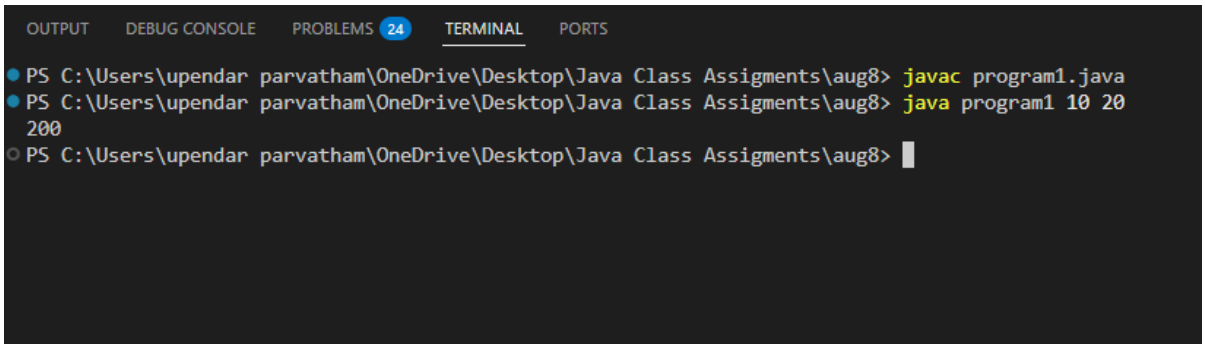
Date 10/ayg/2025

PG-DAC

1. Calculate the area of a rectangle given its length and width.

```
import java.util.*;
public class program1 {
   public static void main(String[] args) {
      int length = Integer.parseInt(args[0]);
      int breadth = Integer.parseInt(args[1]);
      System.out.println(length*breadth);
   }
}
```

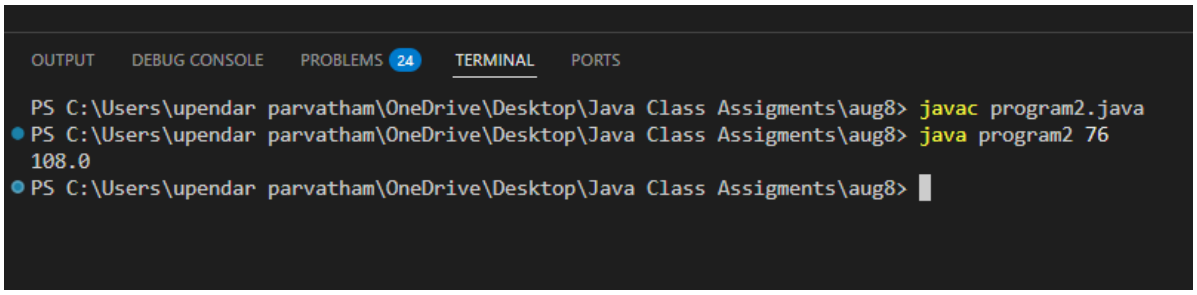
Output:



2. Convert a temperature from Celsius to Fahrenheit using the formula: F = (C * 9/5) + 32

```
import java.util.*;
public class program2 {
   public static void main(String[] args) {
      Double celsius = Double.parseDouble(args[0]);
      Double Fahrenheit = (celsius * (9/5))+ 32;
      System.out.println(Fahrenheit);
   }
}
```

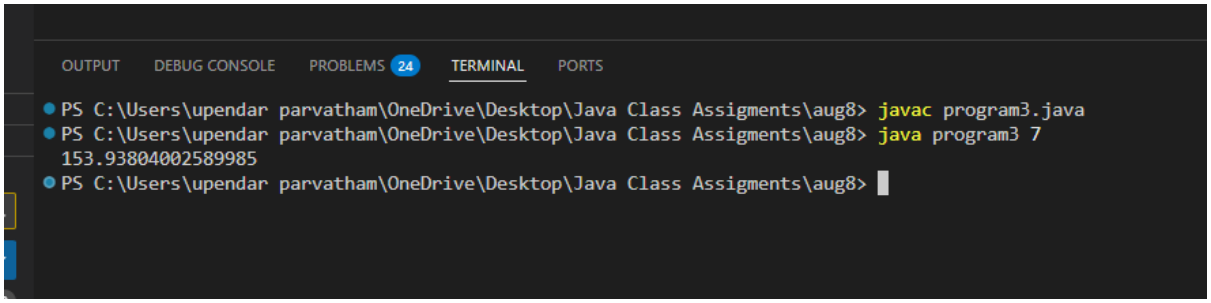
Output:


OUTPUT
DEBUG CONSOLE
PROBLEMS 24
TERMINAL
PORTS
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8> javac program2.java
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8> java program2 76
108.0
PS C:\Users\upendar parvatham\OneDrive\Desktop\Java Class Assigments\aug8>

3. Calculate the area of a circle given its radius using the formula: A = π * r^2.

```
import java.util.*;
public class program3 {
   public static void main(String[] args) {
      Double  radius = Double.parseDouble(args[0]);
      Double area = Math.PI * (radius*radius);
      System.out.println(area);
   }
}
```

Output:

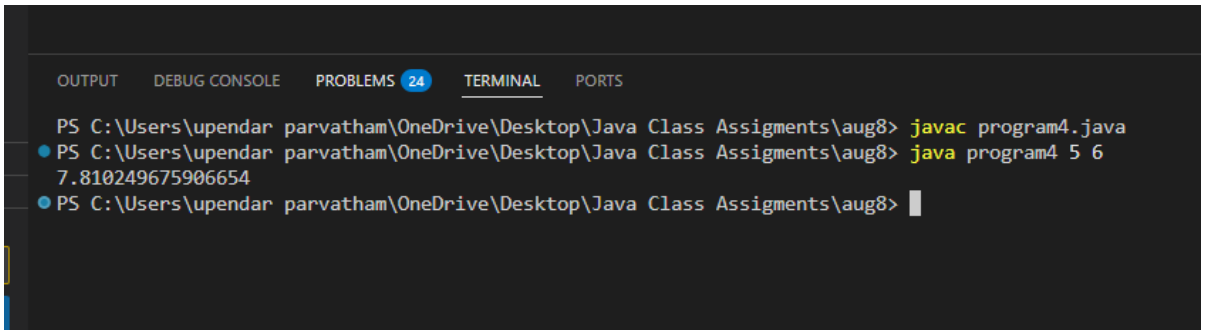


4. Compute the hypotenuse of a right triangle using the Pythagorean theorem: c = sqrt(a^2 + b^2).

```
import java.util.*;
public class program4 {
   public static void main(String[] args) {
      Double a = Double.parseDouble(args[0]);
      Double b = Double.parseDouble(args[1]);
      Double c = Math.sqrt((a*a )+ (b*b));
      System.out.println(c);

   }
}
```

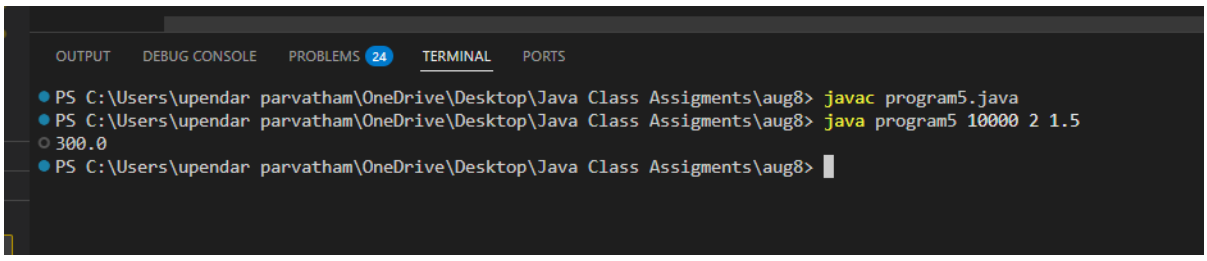
Output:



5. Calculate the simple interest on an investment using the formula: A = P * T * R / 100;

```
import java.util.*;
public class program5 {
    public static void main(String[] args) {
    Double p = Double.parseDouble(args[0]);
    Double t = Double.parseDouble(args[1]);
    Double r = Double.parseDouble(args[2]);
    Double a = (p*r*t)/100; System.out.println(a);
 }
}
```

Output:



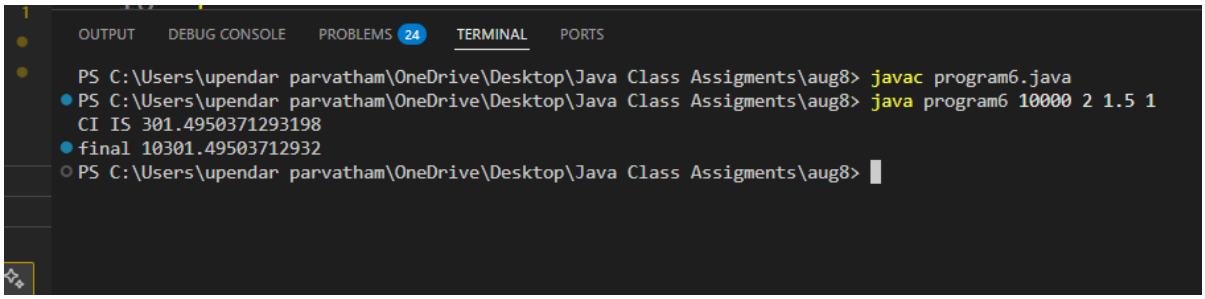
6. Calculate the compound interest on an investment

```
// using the formula: A = P * (1 + r/n)^(n*t).
import java.util.*;
public class program6 {
    public static void main(String[] args) {
        Double p = Double.parseDouble(args[0]);
```

```
        Double r = Double.parseDouble(args[1]) / 100;
        Double t = Double.parseDouble(args[2]);
        Double n = Double.parseDouble(args[3]);

        double A = p * Math.pow((1 + r / n), (n * t));
        Double CI = A - p;
        System.out.println("CI IS " + CI);
        System.out.println("final " + A);
    }
}
```

Output:

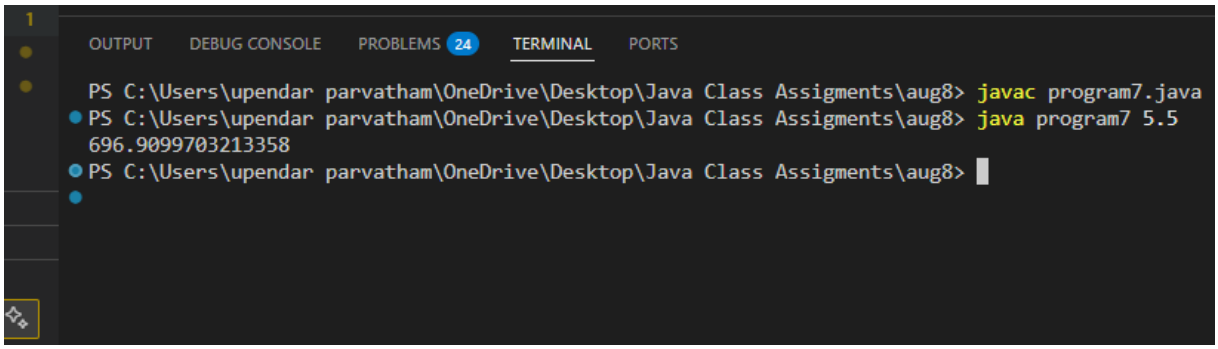


7. Determine the volume of a sphere given its radius

```
//using the formula: V = (4/3) * π * r^3.
import java.util.*;
public class program7 {
    public static void main(String[] args) {
        Double r = Double.parseDouble(args[0]);
        Double v = (4.0/3.0) * Math.PI * (r*r*r);
        System.out.println(v);

    }
}
```

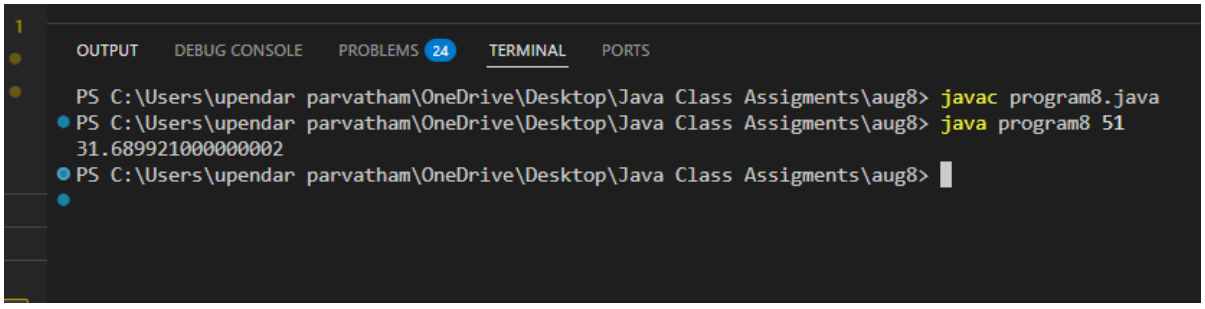
Output:



8. Convert a distance from kilometers to miles

```
// using the formula: miles = kilometers * 0.621371.
import java.util.*;
public class program8 {
   public static void main(String[] args) {
      Double km = Double.parseDouble(args[0]);
      Double miles = km * 0.621371;
      System.out.println(miles);
   }
}
```

Output



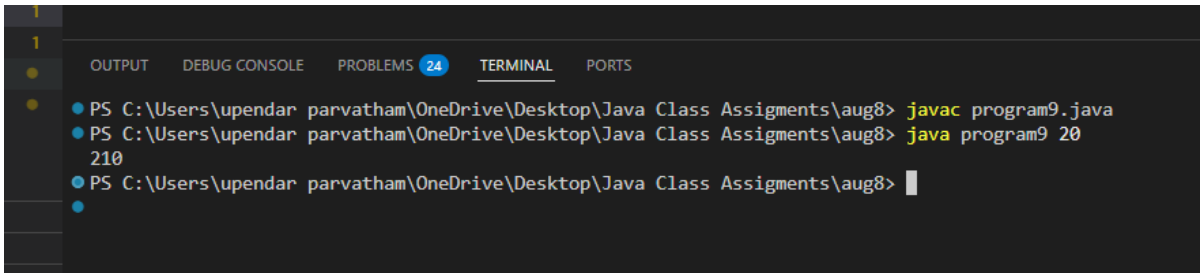
9. //Calculate the sum of the first n natural numbers

```
//using the formula: sum = (n * (n + 1)) / 2.

import java.util.*;
public class program9 {
   public static void main(String[] args) {
```

```
        int n = Integer.parseInt(args[0]);
        int sum = (n * (n+1))/2;
        System.out.println(sum);
    }
}
```

Output:



10. Compute the area of a triangle given the lengths of its three sides

```
// using Heron's formula.
//The formula is as follows:
//s = (a + b + c) / 2
//A = sqrt(s * (s - a) * (s - b) * (s - c))
//where:
//a, b, and c are the lengths of the triangle's sides.
//s is the semi perimeter (half of the perimeter) of the triangle.
//A is the area of triangle
import java.util.*;

public class program10 {
    public static void main(String[] args) {
        Double a = Double.parseDouble(args[0]);
        Double b = Double.parseDouble(args[1]);
        Double c = Double.parseDouble(args[2]);
        if (a + b <= c || a + c <= b || b + c <= a) {
            System.out.println("Invalid triangle sides.");
```

```
            return;
        }
        Double s = (a + b + c) / 2;
        Double A = Math.sqrt(s * (s - a) * (s - b) * (s - c));
        System.out.println(A);
    }
}
```

Output: