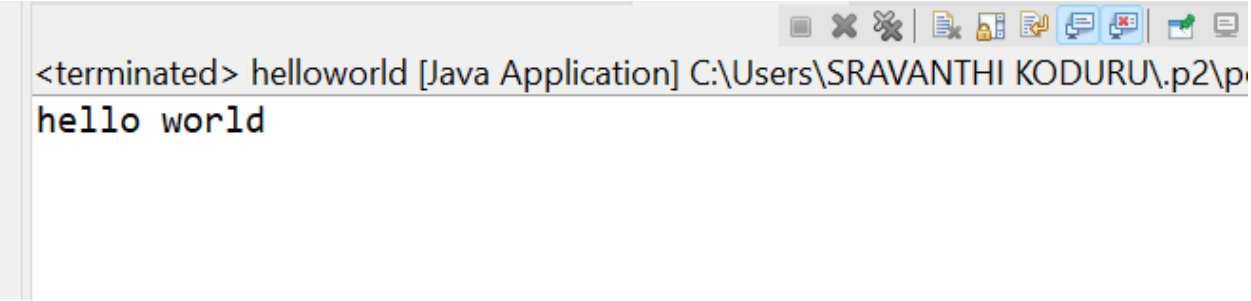
SECTION 4.1

```
package helloworlds;


public class helloworld {
        public static void main(String[] args) {
      System.out.println("hello world");
   }
}
```



SECTION 4.2

```
package students;
import java.util.*;
public class students {
        public static void main(String[] args) {
      Scanner scanner = new Scanner(System.in);
```

```
        System.out.print("Enter student's name: ");
        String name = scanner.nextLine();

        System.out.print("Enter student's roll number: ");
        int rollNumber = scanner.nextInt();

        System.out.print("Enter student's age: ");
        int age = scanner.nextInt();

        System.out.print("Enter student's grade: ");
        String grade = scanner.next();

        System.out.println("\nStudent Details:");
        System.out.println("Name: " + name);
        System.out.println("Roll Number: " + rollNumber);
        System.out.println("Age: " + age);
        System.out.println("Grade: " + grade);

        scanner.close();
    }
}
```

```
Enter student's name: SRAVANTHI
Enter student's roll number: 192372127
Enter student's age: 18
Enter student's grade: S

Student Details:
Name: SRAVANTHI
Roll Number: 192372127
Age: 18
Grade: S
```

SECTION 4.3

```
package triangle;
import java.util.Scanner;
public class triangle {
	public static void main(String[] args) {
		Scanner scanner = new Scanner(System.in);

		System.out.print("Enter the base of the triangle: ");
		double base = scanner.nextDouble();
```

```
        System.out.print("Enter the height of the triangle: ");
        double height = scanner.nextDouble();

        double area = calculateArea(base, height);

        System.out.println("The area of the triangle is: " + area);
    }

    public static double calculateArea(double base, double height) {
        return 0.5 * base * height;
    }
}
```

```
<terminated> triangle [Java Application] C:\Users\SRAVANTHI KODUR
Enter the base of the triangle: 8
Enter the height of the triangle: 7
The area of the triangle is: 28.0
```

```
package booleans;
import java.util.Scanner;
public class booleans {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```
System.out.print("Enter a value for i: ");
int i = scanner.nextInt();

System.out.print("Enter a value for j: ");
int j = scanner.nextInt();

boolean true_false;

true_false = (j < 5);
System.out.println("(j < 5) = " + true_false);

true_false = (j > 3);
System.out.println("(j > 3) = " + true_false);

true_false = (j < i);
System.out.println("(j < i) = " + true_false);

true_false = (i < 5);
System.out.println("(i < 5) = " + true_false);

true_false = (j <= 5);
```

```
        System.out.println("(j <= 5) = " + true_false);

        true_false = (6 < 6);
        System.out.println("(6 < 6) = " + true_false);

        true_false = (i!= j);
        System.out.println("(i!= j) = " + true_false);

        true_false = (i == j || i < 50);
        System.out.println("(i == j || i < 50) = " + true_false);

        true_false = (i == j && i < 50);
        System.out.println("(i == j && i < 50) = " + true_false);

        true_false = (i > j || true_false && j >= 4);
        System.out.println("(i > j || true_false && j >= 4) = " +
true_false);

        true_false = (!(i < 2 && j == 5));
        System.out.println("(i < 2 && j == 5)) = " + true_false);

        true_false =!true_false;
```

```
        System.out.println("!true_false = " + true_false);
    }
}
```

```
<terminated> booleans [Java Application] C:\Users\SRAVANTHI KODURU\.p
Enter a value for i: 6
Enter a value for j: 9
(j < 5) = false
(j > 3) = true
(j < i) = false
(i < 5) = false
(j <= 5) = false
(6 < 6) = false
(i!= j) = true
(i == j || i < 50) = true
(i == j && i < 50) = false
(i > j || true_false && j >= 4) = false
(i < 2 && j == 5)) = true
!true_false = false
```

```
package formulas;
import java.lang.Math;
public class formula {
    public static void main(String[] args) {
        double x = 10.0; // assume x is initialized
        double y = 5.0; // assume y is initialized
```

```
  double z = 3.0; // assume z is initialized

  double a = formulaA(x);
  double b = formulaB(x, y);
  double c = formulaC(z, x);
  double d = formulaD(x, y);
  double e = formulaE(x, y);
  double f = formulaF(x);

  System.out.println("a = " + a);
  System.out.println("b = " + b);
  System.out.println("c = " + c);
  System.out.println("d = " + d);
  System.out.println("e = " + e);
  System.out.println("f = " + f);
}

public static double formulaA(double x) {
  return Math.sqrt(Math.pow(x, 5)- 6 / 4);
}

public static double formulaB(double x, double y) {
```

```
        return x * y- 6 * x;
    }

    public static double formulaC(double z, double x) {
        return 4 * Math.cos(Math.PI / 5)- Math.sin(Math.PI *
Math.pow(x, 2));
    }

    public static double formulaD(double x, double y) {
        return Math.pow(x, 4)- Math.sqrt(6 * x- Math.pow(y, 3));
    }

    public static double formulaE(double x, double y) {
        return 1 / (y- 1) / (x- 2 * y);
    }

    public static double formulaF(double x) {
        return 7 * Math.cos(Math.PI * (Math.sqrt(5)-
Math.sin(Math.sqrt(3 * x- 4))));
    }
}
```

```
a = 316.226184874055
b = -10.0
c = 3.236067977499788
d = NaN
e = Infinity
f = -6.110126275965779
```

SECTION 4.4

```
package mystring;

public class mystring {
        public static void main(String[] args) {
      String myString1 = "abc";
      System.out.println("Method 1: " + myString1);

      String myString2 = new String("abc");
      System.out.println("Method 2: " + myString2);

      String myString3 = String.valueOf("abc");
      System.out.println("Method 3: " + myString3);
   }
```

```
}
```

```
<terminated> mystring [Java Application] C:\Users\SF
Method 1: abc
Method 2: abc
Method 3: abc
```

```
package stringcompare;


public class stringcompare {
        public static void main(String[] args) {
      String s1 = "ABC";
      String s2 = new String("DEF");
      String s3 = "AB" + "C";


      System.out.println("a. s1.compareTo(s2): " + s1.compareTo(s2));
      System.out.println("b. s2.equals(s3): " + s2.equals(s3));
      System.out.println("c. s3 == s1: " + (s3 == s1));
      System.out.println("d. s2.compareTo(s3): " + s2.compareTo(s3));
      System.out.println("e. s3.equals(s1): " + s3.equals(s1));
   }
}
```

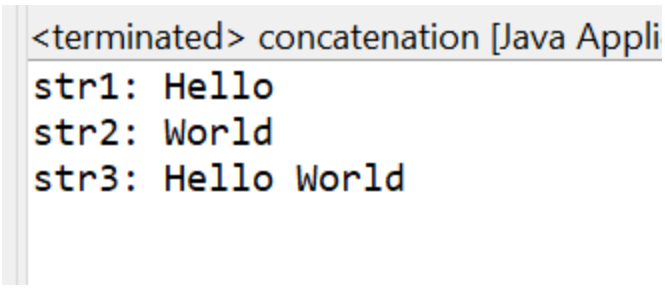
```
a. s1.compareTo(s2): -3
b. s2.equals(s3): false
c. s3 == s1: true
d. s2.compareTo(s3): 3
e. s3.equals(s1): true
```

```
package concatenation;


public class concatenation {
	public static void main(String[] args) {
		// Declare and instantiate two separate String objects
		String str1 = "Hello";
		String str2 = "World";

		// Concatenate them together and assign to a third String object
		String str3 = str1 + " " + str2;

		// Print the result
		System.out.println("str1: " + str1);
		System.out.println("str2: " + str2);
		System.out.println("str3: " + str3);
	}
}
```


<terminated> concatenation [Java Appli
str1: Hello
str2: World
str3: Hello World