Assignment-1

1. Swap two numbers using temporary variable

Output:

--Before swap--

First number = 1.2

Second number = 2.45

--After swap--

First number = 2.45

Second number = 1.2

```
public class SwapNumbers {

   public static void main(String[] args) {

      float first = 1.20f, second = 2.45f;

      System.out.println("|| Before Swapping ||");
      System.out.println("First number = " + first);
      System.out.println("Second number = " + second);

      // Value of first is assigned to temporary
      float temporary = first;

      // Value of second is assigned to first
      first = second;

      // Value of temporary__num
      second = temporary;

      System.out.println("|| After Swapping ||");
      System.out.println("First number = " + first);
      System.out.println("Second number = " + second);
   }
}
```

---

2. Swap two numbers without using temporary variable

--Before swap--

First number = 12.0

Second number = 24.5

--After swap--

First number = 24.5

Second number = 12.0

```
public class SwapNumbers {

   public static void main(String[] args) {

      float first = 12.0f, second = 24.5f;

      System.out.println("|| Before swap ||");
      System.out.println("First number = " + first);
      System.out.println("Second number = " + second);

      first = first - second;
      second = first + second;
      first = second - first;

      System.out.println("|| After swap ||");
      System.out.println("First number = " + first);
      System.out.println("Second number = " + second);
   }
}
```

---

3. Check whether a number is even or odd using ternary operator

Enter a number: 13

13 is odd

```
import java.util.Scanner;
public class OddEven {
	public static void main(String[] args) {
		Scanner scan = new Scanner(System.in);
		System.out.println("Enter number to test");
		int number = scan.nextInt();
		scan.close();

		//ternary operator to check number
		String result = number%2==0 ? "Even" : "Odd";

		System.out.println(number +" is "+ result);
	}
}
```

---

4. Check whether an alphabet is vowel or consonant using if.. else statement

Enter a character : i

i is vowel

```
public class VowelConsonant {

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

```
    char ch = 'i';

    if(ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' )
      System.out.println(ch + " is vowel");
    else
      System.out.println(ch + " is consonant");

  }
}
```

---

5. Check whether an alphabet is vowel or consonant using switch statement

Enter a character : i

i is vowel

```
public class VowelConsonant {

  public static void main(String[] args) {

    char ch = 'i';

    switch (ch) {
      case 'a':
      case 'e':
      case 'i':
      case 'o':
      case 'u':
        System.out.println(ch + " is vowel");
        break;
      default:
        System.out.println(ch + " is consonant");
    }
  }
}
```

---

6. Find Largest Among three numbers using if..else statement

Enter Number 1 : 1.2

Enter Number 2 : 1.8

Enter Number 3 : 3.9

3.9 is the largest number.

```
public class Largest {

  public static void main(String[] args) {

    double n1 = -4.5, n2 = 3.9, n3 = 2.5;
```

```
      if( n1 >= n2 && n1 >= n3)
         System.out.println(n1 + " is the largest number.");

      else if (n2 >= n1 && n2 >= n3)
         System.out.println(n2 + " is the largest number.");

      else
         System.out.println(n3 + " is the largest number.");
   }
}
```

---

7. Find the largest number among three using nested if..else statement

Enter Number 1 : 1.2

Enter Number 2 : 1.8

Enter Number 3 : 3.9

3.9 is the largest number.

```
public class Largest {

   public static void main(String[] args) {

      double n1 = -4.5, n2 = 3.9, n3 = 5.5;

      if(n1 >= n2) {
         if(n1 >= n3)
            System.out.println(n1 + " is the largest number.");
         else
            System.out.println(n3 + " is the largest number.");
      } else {
         if(n2 >= n3)
            System.out.println(n2 + " is the largest number.");
         else
            System.out.println(n3 + " is the largest number.");
      }
   }
}
```

---

8. Java Program to Find Roots of a Quadratic Equation

Enter Value of A : 2.3

Enter Value of B : 4

Enter Value of C : 5.6

root1 = -0.87+1.30i and

root2 = -0.87-1.30i

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

    double a = 2.3, b = 4, c = 5.6;
    double root1, root2;

    double determinant = b * b - 4 * a * c;  // calculate the determinant (b2 - 4ac)


    if (determinant > 0) {
      // two real and distinct roots
      root1 = (-b + Math.sqrt(determinant)) / (2 * a);
      root2 = (-b - Math.sqrt(determinant)) / (2 * a);

      System.out.format("root1 = %.2f and root2 = %.2f", root1, root2);
    }

    else if (determinant == 0) {

      // two real and equal roots
      // determinant is equal to 0
      // so -b + 0 == -b
      root1 = root2 = -b / (2 * a);
      System.out.format("root1 = root2 = %.2f;", root1);
    }
    else { // if determinant is less than zero

      // roots are complex number and distinct
      double real = -b / (2 * a);
      double imaginary = Math.sqrt(-determinant) / (2 * a);
      System.out.format("root1 = %.2f+%.2fi", real, imaginary);
      System.out.format("\nroot2 = %.2f-%.2fi", real, imaginary);
    }
  }
}
```

---

9. Check if a Number is Positive or Negative using if else

Enter a Number : 12.3

12.3 is a positive number.

```
public class PositiveNegative {

    public static void main(String[] args) {

        double number = 12.3;

        // true if number is less than 0
```

```
      if (number < 0.0)
         System.out.println(number + " is a negative number.");

      // true if number is greater than 0
      else if ( number > 0.0)
         System.out.println(number + " is a positive number.");

      // if both test expression is evaluated to false
      else
         System.out.println(number + " is 0.");
   }
}
```

---

10. Java Program to Check Alphabet using if else

Enter a character : *

* is not an alphabet

Enter a character : a

a is an alphabet

```
public class Alphabet {
   public static void main(String[] args) {
      char c = 'x';
      if( (c >= 'a' && c <= 'z') || (c >= 'A' && c <= 'Z'))
         System.out.println(c + " is an alphabet.");
      else
         System.out.println(c + " is not an alphabet.");
   }
}
```
