ASSIGNMENT-1 :

1).
```
public class Main
{
public static void main(String[] args)
{
   int occurrences = 0;
   for (int a = 97; a<=121; a++) {
       if (occurrences % 3 == 2)
       {
           System.out.println("Third occurrence of " +(char)a+"
"+"is at position: " + (occurrences + 1));
       }
       occurrences++;
   }
}
}
```

OUTPUT :
```
Third occurrence of c is at position: 3
Third occurrence of f is at position: 6
Third occurrence of i is at position: 9
Third occurrence of l is at position: 12
Third occurrence of o is at position: 15
Third occurrence of r is at position: 18
Third occurrence of u is at position: 21
Third occurrence of x is at position: 24
```

2).
```
import java.util.*;
public class Main
{
 public static void main(String[] args)
{
   Scanner obj = new Scanner(System.in);
   System.out.println("Enter a float and double value :");
   float f = obj.nextFloat();
   double d = obj.nextDouble();
   float nextF = Math.nextUp(f);
   float nextFN = Math.nextDown(f);
   double nextD = Math.nextUp(d);
   double nextDN = Math.nextDown(d);
   System.out.println("Float number: " + f);
   System.out.println("Next float positive: " + nextF);
   System.out.println("Next float negative: " + nextFN);
   System.out.println("Double number: " + d);
   System.out.println("Next double positive: " + nextD);
   System.out.println("Next double negative: " + nextDN);
}
}
```

OUTPUT :
```
Enter a float and double value :
1.0 2.00
Float number: 1.0
Next float positive: 1.0000001
Next float negative: 0.99999994
Double number: 2.0
Next double positive: 2.0000000000000004
Next double negative: 1.9999999999999998
```

3).
```
import java.time.ZonedDateTime;
import java.time.format.DateTimeFormatter;
import java.time.ZoneId;
public class Main
{
public static void main(String[] args)
{
   ZonedDateTime gmtTime = ZonedDateTime.now(ZoneId.of("GMT"));
   DateTimeFormatter formatter =
DateTimeFormatter.ofPattern("HH:mm:ss z");
   String formattedTime = gmtTime.format(formatter);
   System.out.println("Current time in GMT: " + formattedTime);
}
}
```

OUTPUT :
Current time in GMT: 15:16:00 GMT

4). Find the output:

```
 public class Main
{
    public static int a;
    public Main(){
        a=10;
    }
    public static void printMe(){
        System.out.println(a);
    }
    public static void main(String[] args) {
       printMe();
  }
}
```

OUTPUT:
0

5).
```
import java.util.Scanner;
class Main
{
public static void main(String[] args)
{
   Scanner obj = new Scanner(System.in);
   System.out.println("Enter the number of miles you have driven
:");
   float miles=obj.nextFloat();
   System.out.println("Enter the amount of gas you have driven(in
gallons):");
   float gas=obj.nextFloat();
   System.out.println("MILES PER GALLON :"+" "+(miles/gas));
    }
}
```

OUTPUT:
Enter the number of miles you have driven :
100
Enter the amount of gas you have driven(in gallons:
50
MILES PER GALLON : 2.0

6).
```
import java.util.Scanner;
class Main
{
public static void main(String[] args)
{
    Scanner obj = new Scanner(System.in);
    System.out.println("Enter a sentence :");
    String sent=obj.nextLine();
    System.out.println("Enter a word from the sentence whose index
you have to find :");
    String word=obj.nextLine();
    int in=sent.indexOf(word);
    System.out.println("The index of the word"+" "+word+" "+"in the
sentence"+" "+sent+" "+"is"+" "+in);
    System.out.println("Enter the sentence again without the word:");
    String sent1=obj.nextLine();
    System.out.println("Enter the word from the sentence whose index
you have to find :");
    String word1=obj.nextLine();
    int i=sent1.indexOf(word1);
    if(i>0)
    {
        System.out.println("THE WORD IS FOUND AT INDEX"+" "+i);
    }
    else
    {
        System.out.println("THE WORD IS NOT FOUND");
    }

}
}
```

```
OUTPUT:
Enter a sentence :
India is a beautiful country
Enter a word from the sentence whose index you have to find :
beautiful
The index of the word beautiful in the sentence India is a beautiful
country is 11
Enter the sentence again without the word:
India is a country
Enter the word from the sentence whose index you have to find :
beautiful
THE WORD IS NOT FOUND
```

7). Do the following conversions using java program:

a). Byte to string

```
public class ByteToStringExample
{
    public static void main(String[] args)
{
    byte[] byteArray = "Java programming!".getBytes();
    String str = new String(byteArray);
    System.out.println(str);
}
}
```

```
OUTPUT:
Java programming!
```

b). short integer to string

```
public class ShortToString
{
    public static void main(String[] args)
    {
        short shortValue = 123;
        String stringValue = "" + shortValue;
        System.out.println("String value: " + stringValue);
    }
}
```

OUTPUT:
String value: 123

c). string to float

```
public class StringToFloat
{
    public static void main(String[] args)
    {
        String stringValue = "123.45";
        float floatValue = Float.parseFloat(stringValue);
        System.out.println("Float value: " + floatValue);
    }
}
```

OUTPUT:
Float value: 123.45

d). string to long

```
class StringToLong
{
    public static void main(String[] args)
    {
        String stringvalue="123876";
        long longvalue=Long.parseLong(stringvalue);
        System.out.print("The strong to long is: " +longvalue);
    }
}
```

OUTPUT:
The strong to long is: 123876

8). Find the output of the following program.

```
import java.util.Scanner;
public class Main
{
  public static void main(String[] args)
  {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number: ");
        double d=sc.nextDouble();
        float f=(float)d;
        long l = (long)d;
        int i = (int)l;
        System.out.println("After narrowing or explicit type conversion
values are: ");
```

```
        System.out.println("Double value: "+d);
        System.out.println("Float value: "+f);
        System.out.println("Long value: "+l);
        System.out.println("Int value: "+i);
  }
}
```

```
OUTPUT:
Enter the number:
56
After narrowing or explicit type conversion values are:
Double value: 56.0
Float value: 56.0

Long value: 56
Int value: 56
```

9). Consider the following code snippet:

```
int i = 10;
int n = i++%5;
```

a). What are the values of i and n after the code is executed?

i=11
n=0

b). What are the final values of i and n if instead of using the postfix increment operator (i++), you use the prefix version (++i))?

i=11
n=1

10).

```
        import java.util.Scanner;
        public class TestZero
  {
    public static void main(String[] args)
    {
        float val =0.00f;
        Scanner scanner = new Scanner(System.in);
        System.out.println("Enter a floating point number:");
        double number = scanner.nextDouble();
        if (Math.abs(number) <=val)
        {
            System.out.println("The number is considered zero.");
        }
        else
        {
            System.out.println("The number is not zero.");
        }
    }
}
```

```
OUTPUT:
Enter a floating point number:
4
The number is not zero.
```

11).

```
public class S
{
    public static void main (String [] args)
    {
        int status = 5;
```

```
        String [] s =
        {
            "Bit 0: Status A",
            "Bit 1: Status B",
            "Bit 2: Status C",
            "Bit 3: Status D",
            "Bit 4: Status E",
            "Bit 5: Status F",
            "Bit 6: Status G",
            "Bit 7: Status H"
        };
        System.out.println("Status value: " + status);
        System.out.println("Meaning of status:");
        for (int i = 0; i < s.length; i++)
        {
            if ((status & (1 << I))! = 0)
            {
                System.out.println(statusMeanings[i]);
            }
        }
    }
}
```

a. What is the output when status is 8?

```
Status value: 8
Meaning of status:
Bit 3: Status D
```

b. What is the output when status is 7?

```
Status value: 7
Meaning of status:
Bit 0: Status A
Bit 1: Status B
Bit 2: Status C
```