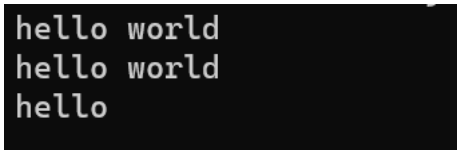
1)

```
class main {

  public static void main(String args[]) {
   char c[] = {'h', 'e', 'l', 'l','o'};
   String s=new String("hello world");
  String s1 = new String(s);
    String s2 = new String(c);
   System.out.println(s);
   System.out.println(s1);
   System.out.println(s2); }
}
```

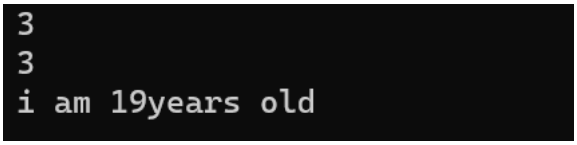
Output



2)

```
 public class main
{
        public static void main(String args[])
        {
                char c[]={'a','b','c'};
                String s=new String(c);
                System.out.println(s.length());//length
                String s1="abc";//string literal
                System.out.println(s1.length());
                int age=19;
                System.out.println("i am "+ age+ "years old");//string concat
        }
}
```

Output



3)

```
class Box {

   double width;
   double height;
   double depth;
```

```
   Box(double width, double height, double depth) {
      this.width = width;
      this.height = height;
      this.depth = depth;
   }

   public String toString() {

      return "Dimensions are " + width + " by " +depth + " by " + height + ".";

   }

}
class toStringDemoMain
{
   public static void main(String args[])
   {

      Box b = new Box(10, 12, 14);
      String s = "Box b: " + b; // concatenate Box object
      System.out.println(b); // convert Box to string
      System.out.println(s);
   }
}
```

Output

```
Dimensions are 10.0 by 14.0 by 12.0.
Box b: Dimensions are 10.0 by 14.0 by 12.0.
```

4 and 5

```
public class main
{
   public static void main (String[] a)
   {
      String s="welcome to bmsce college";
      char word[]=new char[6];
      char[] w=s.toCharArray();//tochararray
      s.getChars(11,16,word,0);//getchars
      System.out.println(word);
      System.out.println(w);
      String s1="ABC";
      byte[] b=s1.getBytes();//getbytes
      for(int i=0;i<b.length;i++)
      {
      System.out.println(b[i]);
      }
```

```
  }
}
```

output

```
bmsce
welcome to bmsce college
65
66
67
```

6)

```
class demo
{
 public static void main(String args[])
 {
  String s1="Bmsce";
  String s2="Bmsce";
  String s3="College";
  String s4="BMSCE";
  System.out.println(s1 + " equals " + s2 + " -> " +s1.equals(s2));
  System.out.println(s1 + " equals " + s3 + " -> " +s1.equals(s3));

  System.out.println(s1 + " equals " + s4 + " -> " +s1.equals(s4));

  System.out.println(s1 + " equalsIgnoreCase " + s4 + " -> " +s1.equalsIgnoreCase(s4));
 }
}
```

Output

```
Bmsce equals Bmsce -> true
Bmsce equals College -> false
Bmsce equals BMSCE -> false
Bmsce equalsIgnoreCase BMSCE -> true
```

7)

```
class region
{
 public static void main(String args[])
 {
  String s1="Bmsce College";
  String s2="Welcome to Bmsce College of engineering";
```

```
   Boolean isMatch=s2.regionMatches(11,s1,0,4);
   if(isMatch)
     System.out.println("substring is matched");
   else
     System.out.println("substring is not matched");
 }
}
```

Output

```
substring is matched
```

8 and 9

```
class demo
{
 public static void main(String args[])
 {
          String s1="welcome to bmsce college";
          System.out.println(s1.startsWith("wel"));//startswith
          System.out.println(s1.startsWith("bms"));
          System.out.println(s1.endsWith("ege"));//endwith
          System.out.println(s1.endsWith("ce"));
 }
}
```

Output

```
true
false
true
false
```

10)

```
class equal
{
 public static void main(String args[])
 {
   String s="Hello";
   String s1=new String(s);
   System.out.println(s);
   System.out.println(s1);
   System.out.println(s + " equals " + s1 + " -> " +s.equals(s1));

   System.out.println(s + " == " + s1 + " -> " + (s == s1));
 }
```

}
Output

```
Hello
Hello
Hello equals Hello -> true
Hello == Hello -> false
```

11)

```
class SortString {

static String arr[] = {"van", "watch","ball",
"cat","xmas","yatch","zee","apple","ice","jug","kite","lift","man","net","orange","dog","ent","free","
gun","hen","parrot","queen","ring","star","tree","umbrella" };

   public static void main(String args[])
   {
      for(int j = 0; j < arr.length; j++)
      {
         for(int i = j + 1; i < arr.length; i++)
         {
            if(arr[i].compareTo(arr[j]) < 0)
            {
               String t = arr[j];
               arr[j] = arr[i];
               arr[i] = t;
            }
         }
         System.out.println(arr[j]);

      }
   }
}
```

Output

```
apple
ball
cat
dog
ent
free
gun
hen
ice
jug
kite
lift
man
net
orange
parrot
queen
ring
star
tree
umbrella
van
watch
xmas
yatch
zee
```

12)

```
import java.util.Arrays;

public class NumberSorting {
   public static void main(String[]  args) {
      // Create an array of numbers from 10 to 1
      Integer[] numbers = {10, 9, 8, 7, 6, 5, 4, 3, 2, 1};
      Arrays.sort(numbers, (a, b) -> a.compareTo(b));
      System.out.println("Sorted Numbers (Ascending Order):");
      for (int number : numbers) {
         System.out.print(number + " ");
      }
   }
}
```

Output

```
Sorted Numbers (Ascending Order):
1 2 3 4 5 6 7 8 9 10
```

13)

```
class StringReplace
{
   public static void main(String args[]) {
   String org = "This is a test. This is, too.";
   String search = "is";
   String sub = "was";
   String result = "";
   int i;
  do {
          i = org.indexOf(search);
          if(i != -1) {
                                result = org.substring(0, i);
                                result = result + sub;
                                 result = result + org.substring(i + search.length());
                                 org = result;

                      }

   } while(i != -1);
   System.out.println(org);

   }

}
```

Output

```
Thwas was a test. Thwas was, too.
```

14)

```
class cc
{
          public static void main(String args[])
          {
                    String s1= "hello ";
                    String s2 = "world";
                    String s3=s1.concat(s2);
                    System.out.println(s3);
          }
}
```

Output

```
hello world
```

15)

```
class replace
```

```
{
	public static void main(String args[])
	{
		String myStr = "College";
		System.out.println(myStr.replace('l', 'm'));
	}
}
```

Output

```
Commege
```

16)

```
class trim
{
	public static void main(String args[])
	{
		String myStr = "  hello friends  ";
		System.out.println(myStr);
		System.out.println(myStr.trim());
	}
}
```

Output

```
  hello friends
hello friends
```

17)

```
import java.util.Arrays;
import java.util.Scanner;

class student {
   int regno;
   String name;
   short sem;
   float cgpa;

   student() {
      sem = 3;
   }

   student(String name, int regno, float cgpa) {
      this.name = name;
      this.regno = regno;
      this.cgpa = cgpa;
      this.sem=3;
   }
```

```
    public String toString() {
        return "name:" + name + " regno:" + regno + " sem:" + sem + " cgpa:" + cgpa;
    }
}

class studMain {
    public static void main(String args[]) {
        Scanner s = new Scanner(System.in);
        System.out.println("enter the no of students:");
        int n = s.nextInt();
        student[] stud;
        stud = new student[n];
        for (int i = 0; i < n; i++) {
            System.out.println("enter the name:");
            String name = s.next();
            System.out.println("enter the regno:");
            int regno = s.nextInt();
            System.out.println("enter the cgpa:");
            float cgpa = s.nextFloat();
            stud[i] = new student(name, regno, cgpa);
        }

        // Sorting based on cgpa
        Arrays.sort(stud, (a, b) -> Float.compare(a.cgpa, b.cgpa));
        System.out.println("Sorted by cgpa:");
        for (int i=0;i<n;i++) {
            System.out.println(stud[i]);
        }

        // Sorting based on name
        Arrays.sort(stud, (a, b) -> a.name.compareTo(b.name));
        System.out.println("Sorted by name:");
        for (int i=0;i<n;i++) {
            System.out.println(stud[i]);
        }
    }
}
```

Output

```
enter the no of students:
3
enter the name:
praneeta
enter the regno:
205
enter the cgpa:
9.6
enter the name:
praneet
enter the regno:
203
enter the cgpa:
9.4
enter the name:
dinesh
enter the regno:
122
enter the cgpa:
8.9
Sorted by cgpa:
name:dinesh regno:122 sem:3 cgpa:8.9
name:praneet regno:203 sem:3 cgpa:9.4
name:praneeta regno:205 sem:3 cgpa:9.6
Sorted by name:
name:dinesh regno:122 sem:3 cgpa:8.9
name:praneet regno:203 sem:3 cgpa:9.4
name:praneeta regno:205 sem:3 cgpa:9.6
```

18)

```
class StringBufferDemo {
   public static void main(String[] args) {
      // Creating a StringBuffer
      StringBuffer stringBuffer = new StringBuffer("Hello World");

      // Set length of the buffer
      stringBuffer.setLength(5);
      System.out.println("Set Length: " + stringBuffer);

      // charAt()
      char charAtIndex = stringBuffer.charAt(1);
      System.out.println("Char at index 1: " + charAtIndex);

      // setCharAt()
      stringBuffer.setCharAt(1, 'i');
      System.out.println("After setCharAt: " + stringBuffer);

      // getChars()
      char[] charArray = new char[4];
      stringBuffer.getChars(0, 4, charArray, 0);
      System.out.print("getChars: ");
      System.out.println(charArray);
```

```
        // append()
        stringBuffer.append(" How are you?");
        System.out.println("After append: " + stringBuffer);

        // insert()
        stringBuffer.insert(5, "Awesome ");
        System.out.println("After insert: " + stringBuffer);

            // delete()
        stringBuffer.delete(5, 13);
        System.out.println("After delete: " + stringBuffer);

        // deleteCharAt()
        stringBuffer.deleteCharAt(0);
        System.out.println("After deleteCharAt: " + stringBuffer);

        // replace()
        stringBuffer.replace(0, 4, "Hola");
        System.out.println("After replace: " + stringBuffer);

        // substring()
        String substring = stringBuffer.substring(0, 4);
        System.out.println("Substring: " + substring);

        // reverse()
        stringBuffer.reverse();
        System.out.println("After reverse: " + stringBuffer);

    }
}
```

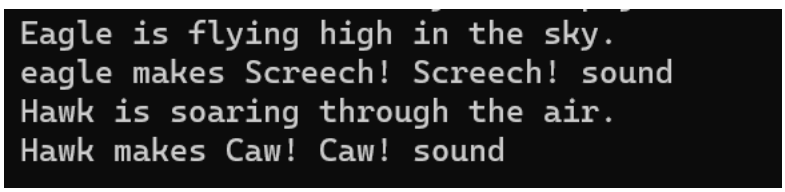
Output

```
Set Length: Hello
Char at index 1: e
After setCharAt: Hillo
getChars: Hill
After append: Hillo How are you?
After insert: HilloAwesome  How are you?
After delete: Hillo How are you?
After deleteCharAt: illo How are you?
After replace: Hola How are you?
Substring: Hola
After reverse: ?uoy era woH aloH
```

19)

```
abstract class bird {
	public abstract void fly();
	public abstract void makeSound();
}

class eagle extends bird {
	public void fly() {
		System.out.println("Eagle is flying high in the sky.");
	}

	public void makeSound() {
		System.out.println("eagle makes Screech! Screech! sound");
	}
}

class hawk extends bird {

	public void fly() {
		System.out.println("Hawk is soaring through the air.");
	}

	public void makeSound() {
		System.out.println("Hawk makes Caw! Caw! sound");
	}
}

class birdMain {
	public static void main(String[] args) {
		bird Eagle = new eagle();
		bird Hawk = new hawk();
		Eagle.fly();
		Eagle.makeSound();
		Hawk.fly();
		Hawk.makeSound();
	}
}
```

Output



20)

```
abstract class shape
{
   double s1,s2,s3,radius;
   shape(double s1,double s2,double s3)
   {
      this.s1=s1;
      this.s2=s2;
      this.s3=s3;
   }
   shape(double radius)
   {
      this.radius=radius;
   }
   abstract void calarea();
   abstract void calperimeter();
}
class circle extends shape{
   circle(double radius)
   {
      super(radius);
   }
   void calarea()
   {
      System.out.println("area of circle:"+(3.14*radius*radius));
   }
   void calperimeter()
   {
      System.out.println("perimeter of circle:"+(2*3.14*radius));
   }
}
class triangle extends shape{
   triangle(double s1,double s2,double s3)
   {
      super(s1,s2,s3);
   }
   void calperimeter()
   {
      System.out.println("perimeter of triangle:"+(s1+s2+s3));
   }
   void calarea()
   {
      double s = (s1 + s2 + s3) / 2;
      System.out.println("perimeter of triangle:"+Math.sqrt(s * (s - s1) * (s - s2) * (s - s3)));
   }

}
```

```
class shapesMain
{
   public static void main(String[] a)
   {
      circle c= new circle(5.0);
      c.calarea();
      c.calperimeter();
      triangle t=new triangle(3.0, 4.0, 5.0);
      t.calarea();
      t.calperimeter();
   }



}
```

Output