1) **Method Overloading: Write a class Calculator with overloaded methods add(). Implement add() methods that take:**

- Two integers
- Two double values
- Three integers
- A variable number of integers

Program :-

```
package package_demo; // package
import java.util.*; //importing java.util package

class Calculator {
	int add(int a, int b) {			//two integer
		return a+b;
	}
	double add(double a, double b) { //two double
		return a+b;
	}
	int add(int a, int b, int c) {	//three integers
		return a+b+c;
	}
	int add(int ...x) {				//variable number of integers
		int sum = 0;
		for(int i = 0; i < x.length; i++) {sum = sum + x[i];}
		return sum;
	}
}
public class MainDemo {
	public static void main(String[] args) {
		Calculator obj = new Calculator();
		System.out.println(obj.add(12, 8)); //calling the method
		System.out.println(obj.add(5.5,2.3));//calling the method
		System.out.println(obj.add(36,64,4));//calling the method
		System.out.println(obj.add(1,2,3,4,5,6,7,8,9,0));//calling method
	}
}
```

Output :

```
<terminated> MainDemo [J
20
7.8
104
45
```

2) **Super Keyword:**

- **Create a class Person with a constructor that accepts and sets name and age.**
- **Create a subclass Student that adds a grade property and initializes name and age using the super keyword in its constructor.**
- **Demonstrate the creation of Student objects and the usage of super to call the parent class constructor.**

Program :

```
package package_demo; // package
import java.util.*; //importing java.util package

class Person {		//Superclass
	String name;
```

```
	int age;
	Person(String name, int age) {   //constructor
		this.name = name;
		this.age = age;
	}
}
class Student extends Person {   //Subclass
	char grade;
	Student(String name, int age, char grade) {   //constructor
		super(name, age);          //calling parent class constructor
		this.grade = grade;
	}
}

public class MainDemo {
	public static void main(String[] args) {
		Student obj = new Student("Undertaker", 23, 'A'); //Student obj
		System.out.println("Name : " + obj.name);
		System.out.println("Age : " + obj.age);
		System.out.println("Grade : " + obj.grade);
	}
}
```

Output :

```
<terminated> MainDemo [Java Application] (
Name  : Undertaker
Age   : 23
Grade : A
```

3) Super Keyword:

- **Create a base class Shape with a method draw() that prints "Drawing Shape".**
- **Create a subclass Circle that overrides draw() to print "Drawing Circle".**
- **Inside the draw() method of Circle, call the draw() method of the Shape class using super.draw().**
- **Write a main method to demonstrate calling draw() on a Circle object.**

Program :-

```
package package_demo; // package
import java.util.*; //importing java.util package

class Shape {       //Superclass
	void draw() {
		System.out.println("Drawing Shape");
	}
}
class Circle extends Shape{      //Subclass
	@Override
	void draw() {
		System.out.println("Drawing Circle");
		super.draw();       //calling parent class method
	}
}

public class MainDemo { //Main class
	public static void main(String[] args) {
		Circle obj = new Circle();
		obj.draw();
```

```
	}
}
```

Output :

```
<terminated> MainDemo [Java Application
Drawing Circle
Drawing Shape
```

4) Write a Java Program to count the number of words in a String without using the Predefined method?

Program :

```
package package_demo;		// package
import java.util.*;		//importing java.util package

public class MainDemo {	//Main class
	public static void main(String[] args) {
		String str = "Good Morning merry sunshine";
		System.out.println(str);
		System.out.println("No. of words : " + count(str)); //calling method
	}
	static int count(String str) { //logic
		char space = ' ';
		int no_of_spaces = 0;
		for(int i = 0; i < str.length(); i++) {
			if(str.charAt(i) == ' ') {
				no_of_spaces++;
			}
		}
		return no_of_spaces + 1;
	}
}
```

Output :

```
<terminated> MainDemo [Java Application]
Good Morning merry sunshine
No. of words : 4
```

5) Write a Java Program to remove all white spaces from a String?

Program :-

```
package package_demo;		// package
import java.util.*;		//importing java.util package

public class MainDemo {	//Main class
	public static void main(String[] args) {
		String str = "Good Morning merry sunshine";
		System.out.println(str);
		str = str.replaceAll(" ", ""); //call replaceAll() method
		System.out.println(str);
	}
}
```

Output :

```
<terminated> MainDemo [Java Application]
Good Morning merry sunshine
GoodMorningmerrysunshine
```

6) WAP to find occurrence of given in the given string.

Program :-

```
package package_demo;      // package
import java.util.*;        //importing java.util package

public class MainDemo {    //Main class
	public static void main(String[] args) {
		String str = "senselessness";
		func(str);    //calling method
	}
	static void func(String str) {   //logic
		char []arr = str.toCharArray();
		LinkedHashMap<Character, Integer> obj = new LinkedHashMap<>();
		for(int i = 0; i < arr.length; i++) {//traversing the String
			if(obj.containsKey(arr[i])) {
				obj.put(arr[i], obj.get(arr[i])+1);
			} else {
				obj.put(arr[i], 1);
			}
		}
		for(Map.Entry<Character, Integer> entry : obj.entrySet()) {
			System.out.println(entry.getKey() + " : " + entry.getValue());
		}
	}
}
```

Output :

```
<terminated> MainDemo [Jav
s : 6
e : 4
n : 2
l : 1
```

7) Write a java class to implement any 10 string methods:
● replace ● contains ● replaceAll ● indexOf ● substring ● Equals ● lastIndexOf ● startsWith
● endsWith ● EqualsIgnoreCase ● toLowerCase ● toUpperCase ● isEmpty ● Length ● split

Program :-

```
package package_demo;      // package
import java.util.*;        //importing java.util package

public class MainDemo {
	public static void main(String[] args) {
		String str = "Ronaldo Chaurasia";
		System.out.println("Length : "+ str.length());//1st function
		str = str.toLowerCase();                      //2nd function
		System.out.println("Lowercase : " + str);
		str = str.toUpperCase();                      //3rd function
		System.out.println("Uppercase : " + str);
		if(str.equals("ronaldo chaurasia")) {         //4th function
		    System.out.println("Both Strings are equal considering cases");
		} else {
		 System.out.println("Both Strings are not equal considering cases");
		}
		if(str.equalsIgnoreCase("ronaldo chaurasia")) {//5th function
```

```
                System.out.println("Both Strings are equal ignoring the cases");
            } else {
            System.out.println("Both Strings are not equal ignoring the cases");
            }

            System.out.println("conatins : " + str.contains("R"));//6th function
            System.out.println("indexOff : " + str.indexOf("Z"));//7th function
            str = str.replace(" ", "--");                        //8th function
            System.out.println("replace : " + str);
            System.out.println("Substring :"+str.substring(0, 7));//9th function
            String []arr = str.split("--");                      //10th function
            System.out.println("split : " + Arrays.toString(arr));
      }
}
```

Output :

```
<terminated> MainDemo [Java Application] C:\Users\Umesh\.p
Length : 17
Lowercase : ronaldo chaurasia
Uppercase : RONALDO CHAURASIA
Both Strings are not equal considering cases
Both Strings are equal ignoring the cases
conatins : true
indexOff : -1
replace : RONALDO--CHAURASIA
Substring : RONALDO
split : [RONALDO, CHAURASIA]
```

8) Write a java program to implement string tokenizer.

Program :-

```
package package_demo;      // package
import java.util.*;        //importing java.util package

public class MainDemo { //Main class
      public static void main(String[] args) {
            StringTokenizer obj = new StringTokenizer("Games of Thrones");
            while(obj.hasMoreTokens()) {
                  System.out.println(obj.nextToken());
            }
      }
}
```

Output :-

```
<terminated> MainDemo [Java Application
Games
of
Thrones
```