Arrays in java:--

----to hold multiple data of the same type.

--In Java arrays are treated as a special type of object whose class is non-existance.

```
int[] arr= new int[5];
//5 int variable is created with thier default value as an array obj.


System.out.println(arr);// [I@42343243
```

Note: array variable is a reference variable which will hold object of an array.

```
int[] arr= new int[5];

System.out.println(arr);// [I@42343243
System.out.println(arr[0]);//0
System.out.println(arr[3]);//0
System.out.println(arr.length);
System.out.println(arr[6]);//AIOBE
```

example2:

```
//declaring an integer array
int[] arr= new int[5];

//reassinging value to the each element of an array
arr[0] =10;
arr[1] =20;
arr[4] =40;

//              for(int i=0; i<arr.length;i++) {
//
//                      System.out.println(arr[i]);
//              }


              for(int i:arr) {
                      System.out.println(i);
```

```
}
```

another syntax:
==========

```
int[] arr= {10,20,30,40,50};

for(int i:arr) {
        System.out.println(i);
}
```

difference:

```
int[] arr1;
arr1=new int[5];  //valid


int[] arr2;
arr2= {10,20,30,40,50};  //invalid
```

example2:

```
int[] arr= new int[3];
// in this single statement we have created total 4 variables

1. arr --ref variable
2.arr[0] -- primitive variable int type
3.arr[1] -- primitive variable int type
4.arr[2] -- primitive variable int type
```

Array of object:
==========

```
A[] arr = new A[5];
```

```
		//A a1, a2, a3;

		1.arr --ref variable of array type object
		2.arr[0] -- ref variable A type with default value = null
		3.arr[1] -- ref variable A type with default value = null
		4.arr[2] -- ref variable A type with default value = null
```

example1:

```
//		A[] arr = new A[3];
//
//		arr[0] = new A();
//		arr[1] = new A();
//		arr[2] = new A();
//
//		for(A a1:arr) {
//			a1.funA();
//		}
//
		//shortcut approach
		A[] arr = {new A(),new A(), new A(),new A()};

		for(A a1:arr) {

			a1.funA();
		}
```

exmaple2:

```
		String[] cities= {"Delhi","pune","mumbai","chennai"};


		for(String city: cities) {

			System.out.println(city.toUpperCase());
		}
```

array as a method parameter:

---

ex1:

```
package com.masai;

public class Demo {

	void fun1(int[] arr) {

		System.out.println("inside fun1 of Demo");
	}

	public static void main(String[] args) {

		Demo d1= new Demo();

		//here we can pass 2 possible value
		//1. null default value for any ref variable
		//2. int array object, (loaded or without loaded)
		d1.fun1(10);


	}

}
```

example2:

```
package com.masai;

public class Demo {

	void fun1(int[] arr) {

		if(arr != null) {
		System.out.println("inside fun1 of Demo");
```

```
		for(int i:arr) {
			System.out.println(i);
		}
		}
		else
			System.out.println("null is not allowed");


	}


	public static void main(String[] args) {

		Demo d1= new Demo();

		//int[] arr5= new int[3];

		int[] arr5= {20,30,40,50};

		d1.fun1(arr5);
		//d1.fun1(null);


	}

}
```

example3:

```
package com.masai;

public class Demo {


	void fun1(int[] marks) {

		if(marks != null) {

		System.out.println("inside fun1() of Demo");
```

```
		int total =0;

		for(int m:marks) {
			total += m;
		}


		System.out.println("Total is :"+total);
		}
		else
			System.out.println("null is not allowed");


	}


	public static void main(String[] args) {

		Demo d1= new Demo();

		int[] nums= {100,120,150,180,200};

		d1.fun1(nums);







	}

}
```

Exampl4:
========

```
package com.masai;

import java.util.Scanner;

public class Demo {
```

```
void fun1(Student[] students) {

	if(students != null) {

	System.out.println("inside fun1() of Demo");

		for(Student student:students) {

			System.out.println("Roll is :"+student.getRoll());
			System.out.println("Name is :"+student.getName());
			System.out.println("Marks is :"+student.getMarks());

			System.out.println("================================");
		}


	}else
		System.out.println("null not allowed...");

}


public static void main(String[] args) {

	Demo d1= new Demo();

	Scanner sc= new Scanner(System.in);

	System.out.println("How many Student ?");
	int num= sc.nextInt();

	Student[] students = new Student[num];//3


	for(int i=0;i<students.length;i++) {

		System.out.println("Enter Details of Student "+(i+1));

		System.out.println("Enter roll:");
		int roll= sc.nextInt();

		System.out.println("Enter Name");
		String name= sc.next();
```

```
                System.out.println("Enter Marks");
                int marks= sc.nextInt();

                //students[i]= new Student(roll, name, marks);
                students[i] = new Student();
                students[i].setRoll(roll);
                students[i].setName(name);
                students[i].setMarks(marks);

            }



            d1.fun1(students);


        }

}
```

array as return type:
==========

```
package com.masai;

public class Demo {


    Student[] getStudents(String username, String password){

        if(username.equals("admin") && password.equals("123")) {

            //we can connect with DB and get multiple Student object from the
DB and return them
            //in the form an array.

            //Student array is created with size 3
            Student[] students= new Student[3];


            //each student variable is initialized with Student class object
```

```
                students[0]=new Student(10, "N1", 780);
                students[1]=new Student(12, "N2", 680);
                students[2]=new Student(14, "N3", 880);

                return students;

        }
        else
                return null;


}



public static void main(String[] args) {


        Demo d1 = new Demo();

        //Object obj=  d1.getStudents("admin", "123");

        Student[] students=  d1.getStudents("admin", "123");

        if(students !=null) {


                for(Student student: students) {

                        System.out.println("Roll is :"+student.getRoll());
                        System.out.println("Name is :"+student.getName());
                        System.out.println("Marks is :"+student.getMarks());

                        System.out.println("======================");
                }




        }else
                System.out.println("invalid username or password..");
```

```
	}

}
```

A[] arr= new A[10]; // class A 10 variable, with null value
//total 11 variable created 1.arr and 10. A class variable

2d Array:
========

--In Java multi-dimentional array is treated as array of array.

example:

```
		int[][] arr= new int[3][2];

		System.out.println(arr);//[[I@

		System.out.println(arr.length);//3

		System.out.println(arr[0]);//[I@3432432

		System.out.println(arr[0].length);

		System.out.println(arr[0][1]);//0
```

example :

```
package com.masai;

public class Demo {

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

```
		int[][] arr= new int[4][4];

		for(int i=0;i<arr.length;i++) {

			for(int j=0;j<arr[i].length;j++) {

				arr[i][j]=j;

			}
		}


		for(int[] ar:arr) {

			for(int i:ar) {
				System.out.print(i);
			}
			System.out.println();
		}




	}

}
```

Command Line Arguments:
==========

--JVM will call the main method initialy by suppying empty String array object.

--at the time of running our application though the CLA what ever value we will supply (space seperated), that value will be loaded into that String array object.

--and that argument is called as CLA, which is available to our application in the form of String array.

ex:

```
		//loaded string array obj
```

```
//String[] names= {"Ram","Amit","Ravi"};

//default value of any ref variable
//String[] names= null;


//empty String array
String[] names= {};   // jvm will pass this obj
or
//String[] names= new String[0];
```

example:

```
System.out.println(args);//address of String array obj
System.out.println(args.length);//0

System.out.println(args[0]);//AIOBE
```