ARRAYS

Array is a continuous block of memory which is used to store homogeneous values.
in java array is an object.
Arrays class is present in java.util package

How to create an array reference variable?
Array reference variable is used to store address or reference of the array created.

Syntax:-
datatype[] variable; or datatype variable[];
ex:- double[] a;
char c[];
int []a;
In the above example a, b, c are array reference variables.
An array reference variable can store two types of values,

1) reference of the array created
2) null

Note:- If the array reference variable is stored with null, that means it is not refering to any array.(i.e Array is not created).
Int[] a=null;
Note:- null is a keyword in java specifies nothing.

How to create an array?
We can create an array in two ways
1.Using Declaration and initialization statement
2.Using new keyword

1.Using Declaration and initialization statement

```
ex:- public class Arrayss {
        public static void main(String[] args) {
            int []a= {2,3,5,7,2,4,5};
        }
}
```

2.Using new keyword
Syntax:

```
arraytype arrayname[]=new arraytype[size];
arraytype[] arrayname=new arraytype[size];
arraytype []arrayname=new arraytype[size];
```

```
ex:- public class Arrays {
        public static void main(String[] args) {
            int []a= new int[5];
```

```
                a[0]=1;
                a[1]=6;
                a[2]=5;
                a[3]=23;
                a[4]=4;
        }
}
```

Null pointer exception

When ever array reference variable is initialised with null keyword and if we try to use the variable for accessing the value from the array then we will get Null pointer exception.

ex:-
```
public class Arrays {
        public static void main(String[] args) {
                int []a= null;
                System.out.println(a[1]);
        }
}
```

Creating an array using declaration and initialisation statement

```
public class Arrays {
        public static void main(String[] args) {
                int []a= {25,45,14,54,25};
                System.out.println(a[0]);
                System.out.println(a[1]);
                System.out.println(a[2]);
                System.out.println(a[3]);
                System.out.println(a[4]);
        }
}
```

ex2:-
```
public class Arrays {
        public static void main(String[] args) {
                double []a= {25.5,45.6,14.5,54.3,25.3};
                System.out.println(a[0]);
                System.out.println(a[1]);
                System.out.println(a[2]);
                System.out.println(a[3]);
                System.out.println(a[4]);
        }
}
```

ex:-
```
public class Arrays {
        public static void main(String[] args) {
                String []a= {"Test", "Yantra", "software", "solutions"};
                System.out.println(a[0]);
                System.out.println(a[1]);
                System.out.println(a[2]);
                System.out.println(a[3]);
```

```
        }       }
```

Creating an array using new keyword

```
ex:-    public class Arrayss {
            public static void main(String[] args) {
                String []a= new String[4];
        //          initialising the values
                    a[0]="test";
                    a[1]="yantra";
                    a[2]="software";
                    a[3]="solutions";
        //          utilising the values
                    System.out.println(a[0]);
                    System.out.println(a[1]);
                    System.out.println(a[2]);
                    System.out.println(a[3]);
            }
        }
ex:-    public class Arrayss {
            public static void main(String[] args) {
                int []a= new int[4];
        //          initialising the values
                    a[0]=25;
                    a[1]=50;
                    a[2]=46;
                    a[3]=88;
        //          utilising the values
                    System.out.println(a[0]);
                    System.out.println(a[1]);
                    System.out.println(a[2]);
                    System.out.println(a[3]);
            }
        }
```

Length variable

It provides the length of the array and length starts from 1.

```
        ex:-    public class Arrayss {
                    public static void main(String[] args) {
                    int []a= new int[4];
                    System.out.println(a.length);
                    }
            }
```

Size of the array cannot be a decimal value.

```
int a[]=new int[4.0]; //CTE
```

it is mandatory to give size of array if we did not given size, we will get CTE

```
int a[]=new int[]; //CTE
```

Printing values using for loop

```
public class Arrayss {
	public static void main(String[] args) {
		int []a= new int[4];
//		initialising the values
		a[0]=25;
		a[1]=50;
		a[2]=46;
		a[3]=88;
		System.out.println(a.length);
//		utilising the values
		for(int i=0;i<a.length;i++) {
			System.out.println(a[i]);
		}
	}
}
```

Taking values using scanner class

ex:-

```
public class Arrayss {
	public static void main(String[] args) {
		Scanner sc= new Scanner(System.in);
		System.out.println("Enter the size: ");
		int size=sc.nextInt();
		int a[]=new int[size];
		System.out.println("the size is "+size);
		System.out.println("enter the values");
		for(int i=0;i<a.length;i++) {
			a[i]=sc.nextInt();
		}
		System.out.println("The values are:");
		for(int i=0;i<a.length;i++) {
			System.out.println(a[i]);
		}
	}
}
```

Passing an Array as a method argument

ex:-

```
public class Students {
	String name;int age;float per;
	public Students(String name,int age,float per)
	{
		this.name=name;
		this.age=age;
		this.per=per;
	}
	public static void details(Students sarray[])
	{
```

```
		System.out.println("Name Age percentage");
		for(int i=0;i<sarray.length;i++) {
			System.out.println(sarray[i].name+" "+sarray[i].age+" "+sarray[i].per);
		}	}
	public static void main(String[] args) {
		Students std[]=new Students[3];//i created a students array
		std[0]=new Students("Ravi",27,81.2f);
		std[1]=new Students("Rohan",23,77.5f);
		std[2]=new Students("Riya",21,77.9f);
		details(std);//call details method and pass array as arguments
	}
}
```