# Array

Array is a collection of similar type of elements. Array is elements in index format. Array index starts with '0' and ends with arraysize-1. Array doesn't allow to store heterogeneous elements.

**Advantages of an array:**

1. Array elements can be accessed randomly using array index.

**Disadvantages of an array:**

1. Array size is fixed, hence we cannot change arraysize at run-time.
2. Array doesn't allow to store heterogeneous elements.

**Array declaration**

Syntax:
Datatype[] Array_name;

Datatype Array_name[];

Eg:
int[]a;
int a[];

**Array object creation:**

Syntax:
Array_name=new datatype[size[;

a=new int[3]

**Initialization:**
Syntax:

Arrayname [index]=value

a[0]=100;

```
class Array2
{
public static void main(String args[])
{
int a[]; //array declaration
a=new int[4]; //array object creation
a[0]=100;// array initialization
a[3]=200;

System.out.println(" The value of array a[0] is"+a[0]);
System.out.println(" The length of array a is"+a.length);
System.out.println(" The value of array a[1] is"+a[1]);

}
}
```

1. Display of array elements using for loop

```
class Array3
{
public static void main(String args[])
{
int a[];
a=new int[4];

a[0]=100;
a[1]=300;
a[3]=200;

for(int i=0;i<a.length;i++)
{
System.out.println(" The value of array index "+ i +" is"+a[i]);
}
}
}
```

2. Write a program to display even elements in an array:

```
class Array4
{
public static void main(String args[])
{
int a[];

a=new int[4];

a[0]=100;
a[1]=31;
a[2]=21;
a[3]=200;

for(int i=0;i<a.length;i++)
{
if(a[i]%2==0)
{
System.out.println(" The value of array "+ a[i] +" is even");
}

}
}
}
```

3. Write a prog to write occurance of a character in given array.

```
class Array5
{
public static void main(String args[])
{
char a[]=new char[5];

a[0]='a';
a[1]='s';
a[2]='h';
```

```
a[3]='w';
a[4]='a';

int count=0;

for(int i=0;i<a.length;i++)
{
if(a[i]=='a')
{
count++;
}
}

System.out.println(" The count of a "+count);
}
}
```

4. Write a program to swap first index and last index elements of an array.

```
class Array6
{

public static void main(String args[])
{

int a[]=new int[4];
int temp;

a[0]=100;
a[1]=31;
a[2]=21;
a[3]=200;


System.out.println(" The value of array a[0] is"+ a[0]);
System.out.println(" The value of array a[3] is"+ a[3]);

temp=a[0];
a[0]=a[a.length-1];
a[a.length-1]=temp;

System.out.println(" **********************************");

System.out.println(" The value of array a[0] is"+ a[0]);
System.out.println(" The value of array a[3] is"+ a[3]);

}
}
```

5. Write a program to swap first index and last index elements of an array without using third element.

```
class Array7
{

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

```
int a[]=new int[4];
int temp;

a[0]=100;
a[1]=31;
a[2]=21;
a[3]=200;


System.out.println(" The value of array a[0] is"+ a[0]);
System.out.println(" The value of array a[3] is"+ a[3]);

a[0]=a[0]+a[a.length-1];
a[a.length-1]=a[0]-a[a.length-1];
a[0]=a[0]-a[a.length-1];

System.out.println(" **********************************");

System.out.println(" The value of array a[0] is"+ a[0]);
System.out.println(" The value of array a[3] is"+ a[3]);

}
}
```

6. Write a program to print factorial of 1 to 5 using an array

```
class Array8
{
public static void main(String args[])
{
int a[]=new int[5];
a[0]=1;
a[1]=2;
a[2]=3;
a[3]=4;
a[4]=5;

for(int i=0;i<a.length;i++)
{
int fact=1;
for(int j=1;j<=a[i];j++)
{
fact=fact*j;
}
System.out.println(" The factorial of"+ a[i] +" is"+fact);
}
}
}

Class Demo
{
Public static void main(String args[])
{
int a[]=new int[4];
a[0]= 2.6 //error different type of value
a[4]=6 //array out of bound exception
```

int a[]=new int[4]; //comile time error since array size is not defined
int[] a[]=new int[4];// array declaration is wrong.

Creation of array at runtime:

int a[]= {10,20,30,40};