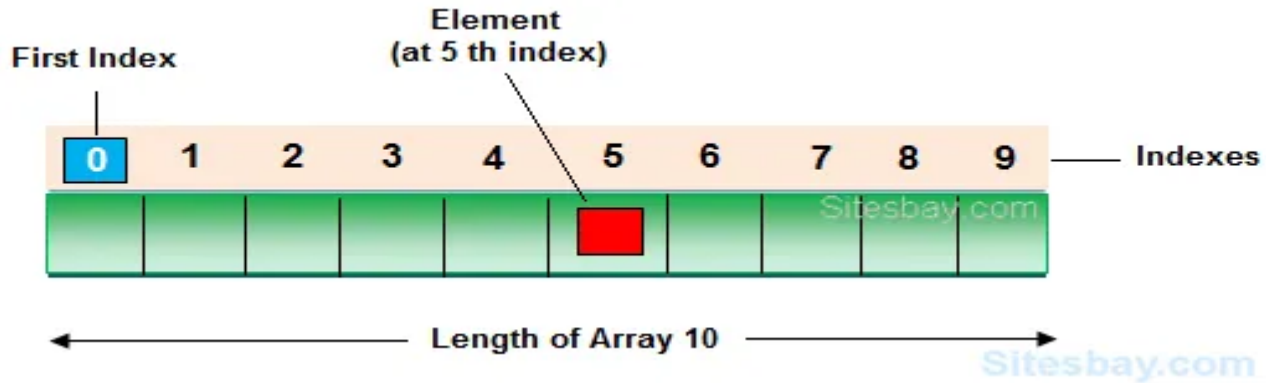
Day 2 OF 30 DAYS OF DSA IN JAVA

ARRAY:

WHAT IS AN ARRAY?
Array is the type of linear data structure which is used to store the elements of same datatype,
It's a collection of items stored at contiguous memory locations.

Elements of data Structure:
Indexes-it's a number given to every block of the array.index start from 0 till the length-1 blocks.
If someone asks for the length then the length will be L-1.



Code:

Inside the below code we will see
->how to initialize the array
After that:

1. **How to insert the elements in array as per the user choice**
2. **How to delete the elements in array**
3. **How to reverse the array**
4. **Finding the duplicates in array or print the freq of every element in java**
5. **Rotation in array**
6. **-clockwise**
7. **-anticlockwise**
8. **Swap the elements in array**
9. **Maximum and minimum element in array**
10. **Searching for an element in an array.**

11. Sorting the elements in array
12. (imp)
13. Maximum sum of all elements in array

→how to initialize the elements in array:

```java
public class Main
{
    public static void main(String[] args) {
        System.out.println("DAY 2 OF DSA IN JAVA");
        // HOW TO INTIALIZE AN ARRAY IN JAVA

    //  int ar[]=new int[10];


    //how to insert the elememnts in array:
    /**
        for(int i=0;i<10;i++)
        //code:if you want that user will add elememnts in the array


    {

        System.out.println("Enter the Number at :"+(i+1));
        ar[i]=sc.nextInt()**/


    //Method 2:

        int ar[]={1,2,3,4,5,6,7,8,9};

        //we want the elememnt at 0 index

        System.out.println(ar[0]);
}
```

1-How to insert the elements in array as per the user's choice :

```
class operations
{
int[] add_specific_ele(int n,int loc,int[] arr)
{
   //new array craete where u wanna insert but the size of new array must be Size_old+1
   int leg=arr.length;.
   int new_ar[]=new int[leg+1];//
   for(int i=0;i<arr.length+1;i++)
   {
      if(i<loc-1)
      {
         new_ar[i]=arr[i];
      }
      else if(i==loc-1)
      {
         new_ar[i]=n;
      }
      else
```

```
    {
       new_ar[i]=arr[i-1];
    }
  }return new_ar;
}
}

public class Main
{
        public static void main(String[] args) {
                System.out.println("DAY @2");
                 //craeted a sample array
  int ar[]={1,2,3,4,5,6,7,8,9,10};
  int ele,l;
  ele=50;//Element you want to insert
  l=1;//locaton at which you want to insert
  operations ob=new operations();

  ar=ob.add_specific_ele(ele,l,ar);
  for(int i=0;i<ar.length;i++)
  {

  System.out.print(ar[i]+" ");

  }
        }
}
```

2-How to delete the elements in array

```
        class operations
        {
        int[] del_specific_ele(int n,int[] arr)
        {
            int new_ar[]=new int[arr.length-1];
           for(int i=0,k=0;i<arr.length;i++)
           {
              if(n==arr[i])
              {
        continue;
              }
              else
              {
                 new_ar[k++]=arr[i];
              }

           }return new_ar;
        }
        }
        public class Main
        {
                public static void main(String[] args) {
                        System.out.println("DAY @2");
                         //craeted a sample array
           int ar[]={1,2,3,4,5,6,7,8,9,10};

           int ele,l;
           ele=2;//Element you want to del
           operations ob=new operations();

           ar=ob.del_specific_ele(ele,ar);
           for(int i=0;i<ar.length;i++)
           {
           System.out.print(ar[i]+" ");
```

```
  }
        }
}
```

3-How to reverse array:

```
class operations
{
int[] reverse_array(int[] arr)
{
   int l=arr.length;
    int new_ar[]=new int[arr.length];
   for(int i=0;i<arr.length;i++)

      {
         new_ar[i]=arr[l-1];
         l--;
      }
   return new_ar;
   }
}
public class Main
{
          public static void main(String[] args) {
                  System.out.println("DAY @2");
                   //craeted a sample array
   int ar[]={1,2,3,4,5,6,7,8,9,10};


   operations ob=new operations();

   ar=ob.reverse_array(ar);
   for(int i=0;i<ar.length;i++)
   {
   System.out.print(ar[i]+" ");
   }
        }
```

4-Finding the Frequency of every element in an array

```
class operations
{
void find_freq(int[] arr)
{
   int f=0;
   int l=arr.length;
    int new_ar[]=new int[arr.length];
   for(int i=1;i<=10;i++)
```

```
        {
            for(int j=0;j<arr.length;j++)
            {
                if(i==arr[j])
                {
                    f++;
                }
            }
            System.out.println("FREQ OF "+i+":"+f);
            f=0;
        }
    }
}
public class Main
{
            public static void main(String[] args) {
                        System.out.println("DAY @2");
                         //craeted a sample array
    int ar[]={1,2,2,6,9,7,6,3,9,8,5,3,4,5,6,7,8,9,10,10,10};


    operations ob=new operations();

    ob.find_freq(ar);

            }
}
```

5-Rotation in array

//rigtht-clockwise rotation

```
class operations
{
int[] Clockwise_rotate(int[] arr,int num_of_rotation)
{
    int temp,len;
    len=arr.length;
    while(num_of_rotation!=0)
    {
    temp=arr[len-1];
    for(int i=arr.length-1;i>0;i--)
    {
        arr[i]=arr[i-1];
}
    arr[0]=temp;
    num_of_rotation--;
}
    return arr;
}
}
public class Main
{
            public static void main(String[] args) {
                        System.out.println("DAY @2");
```

```
                        //craeted a sample array
    int ar[]={1,2,3,4,5,6,7,8,9,10};


    operations ob=new operations();

    ar=ob.Clockwise_rotate(ar,4);
    for(int i=0;i<ar.length;i++)
    {
    System.out.print(ar[i]+" ");
    }
            }
}
```