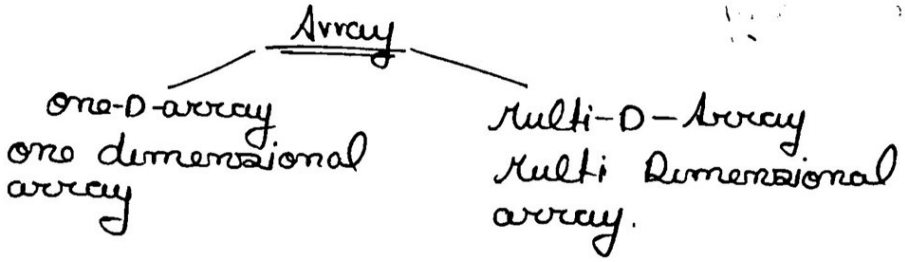
17 July

Array

Array :- An array is a group of variable of similar data types that share common Name and store in Continuous memory location.

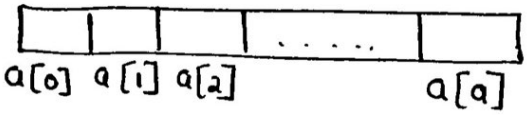
The Size of the array refer how many element an array can hold.

first element index No is 0 and last element index No is less than one of the Size of the array.



One D array.

```
int a[] = new int [10];
```



Two D array

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

a[0][0]	a[0][1]	a[0][2]
a[1][0]	a[1][1]	a[1][2]

3-D-array

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

[0][0][0] [0][0][1] [0][0][2]
[0][1][0] [0][1][1] [0][1][2]

[1][0][0] [1][0][1] [1][0][2]
[1][1][0] [1][1][1] [1][1][2]

4-D-Array

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

[0][0][0][0] [0][0][0][1] [0][0][0][2]
[0][0][1][0] [0][0][1][1] [0][0][1][2]

[0][1]

[1][0]

[1][1]

[0][1][0][0] [0][1][0][1] [0][1][0][2]
[0][1][1][0] [0][1][1][1] [0][1][1][2]

WAP that Read N number from user and displaly their Sum.

```
import java.util.*;
class A
{
  public static void main (String K[])
  { Scanner ob = new Scanner (System.in);
    System.out.println ("Enter Size");
    int N = ob.nextInt();
    int a[] = new int[N];
```

```
        Sopln ("Enter values");
        for (int i = 0 ; i < N , i++)
            a[i] = ob.nextInt ();
        int Sum = 0;
        for (int i = 0 ; i < a.length ; i++)
            Sum = Sum + a [i];
        Sopln (Sum );
    }
}
```

or

```
for(int b : a)
    Sum= Sum+b;
```

Create a method (function) that take an array as a parameter and return, Sum of array elements

```
import java.util.*;
Class arr
{
    Static int Sum (int a[])
    {   int Sum =0;
        for(int b:a)
            Sum= Sum+b;
        return Sum;
    }
}
```

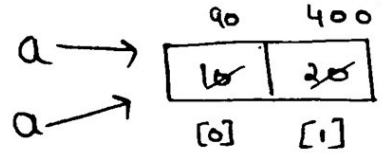
```
class T
{   public static void main (String k[]).
    {
    Scanner ob = new Scanner (System.in);
    System ("Enter array Size");
    int N = ob.nextInt();
    int a[] = new int[N];
    int i;
    System ("Enter values");
    for (i=0; i<N; i++)
        a[i] = ob.nextInt();

    int r = arr.sum(a);
    System ("Sum = "+r);
    }
}
```

Array is passed to function call - (call by Reference)

```
class arr
{
    static void show (int a[])
    {
        a[0] = 90;
        a[1] = 400;
    }
}
```

```
class T
{
    public static void main (String K[])
    {
        int a[] = {10,20};
        arr.show(a);                    Output
        Sop(a[0]);              =>      90
        Sop(a[1]);              =>      400
    }
}
```



Note :- We can Pass an array to a function by using array Name

An array is a by default Reference

Create, a method that take array as a parameter and return missing number.

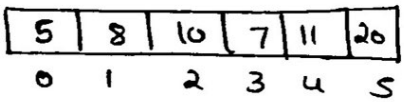
Array Size(5) [2, 1, 5, 4, 6]

```
class arr
{
    static int find (int a[])
    {   int n = a.length + 1;
        int Sum = ((n) * (n+1)) / 2 ;
```

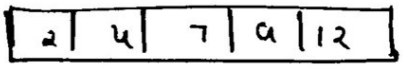
```
        for (int b : a)
        {   sum = sum - b;
        }
        return sum;
    }
}

class T
{
    public static void main(String K[])
    {
      int a[] = {1, 3, 6, 4, 2};
      int r = arr.find(a);
      System.out(r);
    }
}
```

Create a method that take an array as a parameter and return true if array is in ascending order other Return false



false



true

```
class arr
{
    static boolean check (int a[])
    {   boolean b = true;
        int i;
        for (i = 1; i < a.length ; i++)
        {   if (a[i] < a[i-1])
            {   b = false;
                break;
```

```
        }
      }
    return b;
  }
}
class T
{
  p s v m (String K[])
  {
    int a[] = {10,7,6,8,12};
    Sopln (arr.check(a));          -> false
    int b[] = {3,10,12,20,25,30};
    Sopln (arr.check(b));          -> true
  }
}
```

Create a Method that take an array as a parameter and return difference between smallest and largest value of an array.

7 July

```
class arr
{
  static int difference (int a[])
  {
    ~~int small, large~~
    int small = ~~a[0], large = a[0];~~ Integer.MAX_VALUE,
    for (int b : a)          Large = Integer.MIN_VALUE;
    {
      if ( b > Large)
          large = b;
      if (b < small)
          small = b;
    }

    int difference = large - small;
    return difference;
  }
}
class main class
{
    public static void main (String K[])
    {
      int a[] = { 5, 7, 9, 11, 2, 1};

      int ans = ~~a . difference~~
                arr. difference (a);

      SOPL (ans);
    }
}
```

create a Method that take an array as a parameter and also take a search value as a parameter and to return frequency of search value

```
class arr
{
    static int Search (int a[], int num)
    {   int count =0;
        for (int b : a)
        { if (b == num)
            count ++;
        }
    return count;
    }
}

class main class
{
    public static void main (String K[])
    {
        a int a[] = {2, 3, 2, 1, 5, 2};
        int ans = arr. Search (a, 2);
        SOPL (ans);
    }
}
```