ARRAY

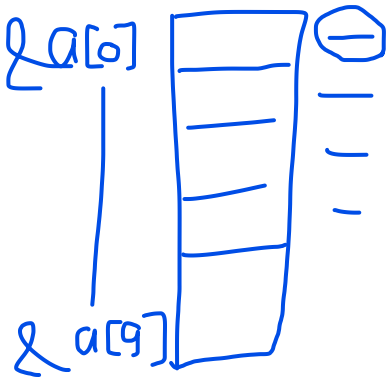
COLLECTION OF SAME DATA TYPE.

e.g. int a[10]; decleration

int a [10];

data type varibale name size

[ ] :- subscript operator



FEATURES :- CONTINUOUS , SAME DATA

a[0] a[1] a[2] a[3] a[4] .....a[9]

BENEFIT OF ARRAY

ONE VARIBLE --> STORE MORE THAN ONE VALUES

USING SUBSCRIPT [] OPERATOR TYPES OF ARRAY

1. ONE DIM. ARRAY

2. MULTI - DIM. ARRAY

---

biggest no.

```
int   a , b;

if
if
```

ONE DIM. ARRAY

INPUT AND PRINT N NOS USING ARRAY

```
#include<stdio.h>

int   main()
```

```
{
        int  a[10] , i , n ;

       printf(" ENTER SIZE \n ");

        scanf("%d", &n);

       printf(" ENTER NOS \n ");

       for( i = 0 ; i < n ; i++)
        {
              scanf("%d", &a[i] );

       } // INPUT  N  NOS.


        printf(" NOS = \n");

       for( i = 0 ; i < n ; i++ )
        {
      printf(" %d\n" , a[i] );

       } // PRINT  n  NOS
}
```

TRACE :- ENTER SIZE
n = 3

ENTER NO
for i = 0 to 2

i = 0 &a[0] = 30
i = 1 &a[1] = 20
i = 2 &a[2] = 60

NOS =

for i = 0 to 2

i = 0 30
i = 1 20
i = 2 60

---

2. printf(" REVERSE ORDER \n ");

```
for( i = n - 1 ; i >= 0 ; i-- )
 {
        printf("  %d\n " , a[i]);
 }
```

REVERSE ORDER

for i = 2 to 0 i = 2 60
i = 1 20 i = 0 30

ARRAY INITALIZATION and sum and avearage of n nos

```
#include<stdio.h>
int   main()
{
        int  a[] = { 30 , 20 , 60 };
       // ARRAY  INITALIZATION
        int  i , n = 3 ;
        float   s = 0 , p ;

       for( i = 0 ; i < n ; i++)
        {
           s = s + a[i];
```

```
        }

        p = s / n ;

        printf(" SUM = %f \n " , s);
        printf(" AVERAGE = %f \n " , p);
    }
```

---

trace:- n = 3 ; s = 0 a[ ] --> 30 , 20 , 60

for i = 0 to 2 i = 0 s = 0 + 30 = 30 i = 1 s = 30 + 20 = 50
i = 2 s = 50 + 60 = 110
p = 110 / 3 = 36.6

----- INPUT N NOS. AND PRINT >=18 NOS

```
#include<stdio.h>
int main()
{
        int a[] = { 30 , 12 , 60 , 80, 11 };
        int i , n = 5 ;

        printf(" PRINT >= 18 NOS \n" );
    for( i = 0 ; i < n ; i++ )
```

```
            {
                if(    a[i] >= 18 )
                {      printf("    %d\n" , a[i]);
                }
            }
  }
```

---

trace :- n = 5 ; a[] --> 30 , 12 , 60 , 80 , 11

for i = 0 to 4

	a[i] >= 18	
i = 0	30 >= 18	30
i = 1	12 >= 18	X
i = 2	60 >= 18	60
i = 3	80 >= 18	80
i = 4	11 >= 18	X

INPUT N NOS. AND COUNT >=18 NOS

```
#include<stdio.h>
   int   main()
   {
```

```
        int  a[] = { 30 , 12 , 60 , 80, 11 };
        int  i , n = 5 , g = 0 ;

       for( i = 0 ; i < n ; i++ )
        {
              if( a[i] >= 18 )
              {     g++;
              }
        }
        printf(" >= 18 nos = %d \n    " ,  g   );  // 3
        printf(" LESS THAN 18 = %d \n"  , (n-g));  // 2
  }
```

---

trace:- n = 5 ; a[] --> 30 , 12 , 60 , 80 , 11

for i = 0 to 4

	a[i] >= 18	
i = 0	30 >= 18	---> g = 1
i = 1	12 >= 18	X
i = 2	60 >= 18	---> g = 2
i = 3	80 >= 18	---> g = 3
i = 4	11 >= 18	X

INPUT N NOS AND FIND BIGGEST NO. (imp)

```
#include<stdio.h>
  int    main()
  {
              int  a[10] , i , n , b ;

             printf(" ENTER SIZE \n ");
              scanf("%d" , &n);

             printf(" ENTER NO \n ");
             for( i = 0 ; i < n ; i++ )
              {
                    scanf("%d" , &a[i]);
              }

              b = a[0] ;   // first element

             for(  i = 0 ; i < n ; i++ )
              {
                    if( b < a[i] )
                    {
                          b = a[i] ;
```

```
            }
        }
        printf(" BIGGEST  NO = %d\n " , b);
    }
```

- trace:- n = 5 ; a[ ] --> 30 , 12 , 60 , 80 , 11 ; b = 30

for i = 0 to 4

b < a[i]

i = 0 30 < 30 X

i = 1 30 < 12 X

i = 2 30 < 60 --> b = 60 i = 3

60 < 80 --> b = 80

i = 4 80 < 11 X

BIGGEST NO.= 80

FIND BIGGEST NOS AND ITS POSTIONS.

```
#include<stdio.h>
int    main()
{
```

```
int  a[ ] = {   30 , 12 , 60 , 80 , 11 }  ;

int     i , n = 5 , b , p ;

b = a[0];
p = 0;

for( i = 0 ; i < n ; i++)
{
        if( b < a[i] )
        {
            b = a[i];
            p = i;
        }
}

printf(" BIGGEST  NO = %d\n " , b );

printf(" POSITION    = %d\n" , p+1);
}
```

------ trace:- n = 5; a[ ] --> 30 , 12 , 60 , 80 , 11

b = 30 ; p = 0

for i = 0 to 4

b < a[i]

i = 0 30 < 30 X
i = 1 30 < 12 X
i = 2 30 < 60 --> b = 60 , p = 2
i = 3 60 < 80 --> b = 80 , p = 3
i = 4 80 < 11 X

BIGGEST NO. = 80
POSITION = 3 + 1 = 4

FIND BIGGEST NO. AND SMALLEST NO.

```
#include<stdio.h>
 int  main()
 {
        int  a[ ] = {  30 , 12 , 60 , 80 , 11 }  ;
       int  i , n = 5 , b , s ;

       b = a[0] ;  s = a[0] ;

       for( i = 0 ; i < n ; i++)
        {
```

```
            if( b < a[i])
            {
                b = a[i];  // CHANGE  b
            }
            if( s > a[i])
            {
                s = a[i];  // CHANGE  b
            }
        }
        printf(" BIGGEST  NO    =  %d \n " , b); // 80

        printf(" SMALLEST NO  =  %d \n  " , s ); // 11

}
```

---

trace:-

1. n=5; b=30 30,12,60,80,11

for i= 0 to 4

b < a[i]

i=0 30 < 30 x
i=1 30 < 12 x
i=2 30 < 60 --> b=60
i=3 60 < 80 --> b=80
i=4 80 < 11 x
biggest no.=80

2. n = 5 ; s = 30 30,12,60,80,11

for i = 0 to 4

s > a[i]

i=0 30 > 30 x
i=1 30 > 12 --> s = 12
i=2 12 > 60 x
i=3 12 > 80 x
i=4 12 > 11 --> s = 11

smallest no.= 11

INPUT N NOS. AND COUNT EVEN NOS

```
#include<stdio.h>
int   main()
{
      int  a[] = { 30 , 12 , -60 , 80 , -11 };

        int  i , n = 5 , e= 0 ;

      for( i = 0 ; i < n ; i++ )
        {
              if(  a[i] % 2 ==  0 )
               {
                  e++;
               }
        }

   printf("  COUNT EVEN  NOS = %d \n    " ,  e   );  // 3

    printf("  COUNT ODD   NOS  = %d \n"  , (n-e)); // 2

}
```