

## Arrays operation

1) Insert an element into the array at begin position

The q/p's are size of the array

i)  $n=5$

$a[0] \ a[1] \ a[2] \ a[3] \ a[4]$   
10    20    30    40    50

ii) Element ele = 100

Step 1:- To increment the size of the array  
 $n++$

then  $a[0] \ a[1] \ a[2] \ a[3] \ a[4] \ a[5]$

Step 2: All the elements to be moved to right

side (i)

$a[0] \ a[1] \ a[2] \ a[3] \ a[4]$

10    20    30    40    50

$\searrow \rightarrow \rightarrow \rightarrow \downarrow$

$a[0] \ a[1] \ a[2] \ a[3] \ a[4] \ a[5]$

100    10    20    30    40    50

Program:-

```
#include <stdio.h>
```

```
main ()
```

```
{
```

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

```
printf("enter size of the array : ");
```

```
scanf("%d", &n);
```

```
printf("enter array elements:");
```

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

```
scanf("%d", &a[i]);
```

```
printf("enter elements to be inserted:");
```

```
scanf("%d", &ele);
```

```
n++;
```

```
for(i=n; i>1; i--)
```

$$a[i-1] = a[i-2]; \longleftrightarrow$$

```
a[0] = ele;
```

```
a[0] = 100
```

$$n=6$$

$$i=6$$

$$a[5] = a[4]$$

$$a[4] = a[3]$$

$$a[3] = a[2]$$

$$a[2] = a[1]$$

$$a[1] = a[0]$$

```
printf("After insertion Array elements are:");
```

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

```
printf("%d ", a[i]);
```

**Insertion of an element into the array at specified position**

The I/P's are  $n=5$  (the size of the array)

i)  $a[0] a[1] a[2] a[3] a[4]$

10 20 30 40 50

<del. add> sketch

ii) Position Pos = 3

iii) Element ele = 303

Step 1: To increment the size of the array

$n++$

(i.e)  $n=6$

$a[0] \ a[1] \ a[2] \ a[3] \ a[4] \ a[5]$

10 20 30 3 40 50

Step 2: Shifting the positions from 3 to right side.

$a[0] \ a[1] \ a[2] \ a[3] \ a[4] \ a[5]$

10 20 30 3 40 50

Program:-

```
#include <stdio.h>
```

```
main()
```

```
{
```

```
int n, a[10], pos, ele, i;
```

```
printf("Enter size of the array:");
```

```
scanf("%d", &n);
```

```
printf("Enter Array elements:");
```

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

```
scanf("%d", &a[i]);
```

```
printf("Enter the position at which element  
is inserted:");
```

```
scanf("%d", &pos);
```

```
printf("Enter the element to be inserted:");
```

```
scanf("%d", &ele);
```

```
n++;
```

for ( $i = n$ ;  $i > \underline{\text{pos}}$ ;  $i--$ )

$$a[5] = a[4]$$

and  $a[i-1] = a[i-2]$ ;

$$a[4] = a[3]$$

$$a[3] = a[2],$$

$a[\text{pos}-1] = \text{ele}$ ;

$$d = 0 \quad (8)$$

$$i = 6$$

printf ("After insertion array elements are ");

for ( $i = 0$ ;  $i < n$ ;  $i++$ )

~~step~~ printf ("%d",  $a[i]$ );

y

Injection an element into the array at end position.

1) The size of the array is  $\boxed{5 = n}$ .

$a[0] \quad a[1] \quad a[2] \quad a[3] \quad a[4]$   
10      20      30      40      50

2) Enter the element at the end

( $\text{ele} = 66$ )

Step 1: To increment the size of the array

( $i = i + 1$ )  $n++$ ;  $\boxed{n = 6}$

$a[0] \quad a[1] \quad a[2] \quad a[3] \quad a[4] \quad a[5]$   
10      20      30      40      50

Step 2: Insert the element at  $a[5]$

( $a[5] = \text{ele}$ )

**Program:-**

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

{

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

```
printf("enter array size.");
```

```
scanf("%d", &n);
```

```
printf("enter the array elements.");
```

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

```
scanf("%d", &a[i]);
```

```
printf("enter the element.");
```

```
scanf("%d", &ele);
```

```
n++;
```

```
a[n-1]=ele;
```

**n=6**

```
printf("after insertion array elements are.");
```

**a[5]=66**

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

```
printf("%d ", a[i]);
```

**Delete an element from the array at begin position.**

**[n=5]**

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

**[10]**

20

30

40

50

**Delete an**

**element**

**n=4**

**[a[0]**

**a[1]**

**a[2]**

**a[3]**

**20 30 40 50**

```

#include <stdio.h>
main()
{
    int n, a[10], i;
    printf("Enter size of the array");
    scanf("%d", &n);
    printf("Enter array elements");
    for(i=0; i<n; i++)
        scanf("%d", &a[i]);
}

```

n = 5  
 $a[0] \ a[1] \ a[2] \ a[3] \ a[4]$   
 $10 \ 20 \ 30 \ 40 \ 50$

$n--$ ; (i trends at entry)  $n=4$

for( $i=0; i<n; i++$ )

$a[i] = a[i+1];$

$a[0] = a[1] \quad / \backslash 1$

printf("After Deletion Array")

elements are");

$a[1] = a[2] \quad / \backslash 2$

$a[2] = a[3] \quad / \backslash 3$

$a[3] = a[4] \quad / \backslash 4$

for( $i=0; i<n; i++$ )

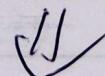
printf("%d", &a[i]);

Delete an element from the array at specified position.

array assigned to you at entry  $n=5$ , pos=3

$a[0] \ a[1] \ a[2] \ a[3] \ a[4]$

$10 \ 20 \ 30 \ 40 \ 50$



1) Delete this element  
2) operation

$n--$

$n=4$

$i=3$

$a[3-1] = a[2] \quad / \backslash$



NHCE, BANGALORE.

```

#include <stdio.h>
main()
{
    int n, a[10], pos, i;
    printf("enter size of the array:");
    scanf("%d", &n); n=5
    printf("enter Array elements:");
    for(i=0; i<n; i++)
        scanf("%d", &a[i]); a[0] a[1] a[2] a[3] a[4]
    printf("enter the position:");
    scanf("%d", &pos);
    n--;
    for(i=pos; i<=n; i++)
        a[i-1] = a[i]; i=2 a[2]=a[3] a[3]=a[4]
    a[2] = a[3];
    a[3] = a[4];
    printf("After deletion Array elements are:");
    for(i=0; i<n; i++)
        printf(" %d", a[i]);
}

```

Delete an element from the array at end position.

n=5

a[0]	a[1]	a[2]	a[3]	a[4]
10	20	30	40	50

1) n--

~~then move the element~~

#include <stdio.h>

main()

{  
int n, a[10], i;

```

printf("Enter size of the array");
scanf("%d", &n);
printf("Enter elements of the array:");
for(i=0; i<n; i++)
    scanf("%d", &a[i]);
printf("After deletion array elements are:");
for(i=0; i<n-1; i++)
    printf("%d ", a[i]);

```

To update an array element at Specified position.

```

#include<stdio.h>
main()
{
    int n, a[10], pos, ele;
    printf("enter size of the array:");
    scanf("%d", &n);
    printf("enter array elements:");
    for(i=0; i<n; i++)
        scanf("%d", &a[i]);
    printf("enter the position:");
    scanf("%d", &pos);
    printf("enter element to be updated:");
    scanf("%d", &ele);
}
```

```

    pos = 3
    a[0] a[1] a[2] a[3] a[4]
    10 20 30 40 50
    333

```

```

    pos = 3
    a[0] a[1] a[2] a[3] a[4]
    10 20 30 40 50
    333

```

Pointf ("enter element to be updated:");

```
scanf ("%d", &ele);
```

```
a[pos - 1] = ele;
```

```
printf ("After updation Array elements are : ");
```

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

```
    printf ("%d ", a[i]);
```

**String:-** A String can be defined as collection of characters which are enclosed in double quotations.  
it may be character, digit, symbols.

eg:- " name"

" rag"

" ra\$".

Every string ends with null character (ie) ' \0'

### Declaration:-

Syntax: char arryname [size]

Name must be followed by some rules.

1) Alphabets, digits, - (underscore)

2) The variable name must be starts with Alphabet

3) Keywords not allowed

4) Blank spaces are not allowed

5) LC Variable & UC Variables are different

eg:- ~~B~~ char Str[10];