



Insertion /Deletion from an array

Department of CSE
Amrita Vishwa VidyaPeetham



Insert an element in the array at a position

Insert 100 at position 3 (index $i=2$), $\text{limit}=5$, index range from 0 to $\text{limit}-1$

$i=0$	$i=1$	$i=2$ (position-1)	$i=3$	$i=4$ (limit-1)	$i=5$
10	20	30	40	50	



$A[5]=A[4]$, $i=4$ $A[i+1]=A[i]$

$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
10	20	30	40	50	50



$A[4]=A[3]$, $i=3$ $A[i+1]=A[i]$

$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
10	20	30	40	40	50



$A[3]=A[2]$, $i=2$ $A[i+1]=A[i]$



i=0	i=1	i=2 (position-1)	i=3	i=4 (limit-1)	i=5
10	20	100	30	40	50



A[2]=100 (Assign 100 to A[2])

- for (int i = limit - 1; i >= position - 1; i--)
- array[i+1] = array[i]; **//Insert element at position**
- array[position-1] = value;
- limit=limit+1; **//increment the last index by 1 since we inserted one element**



Insert an element at a position

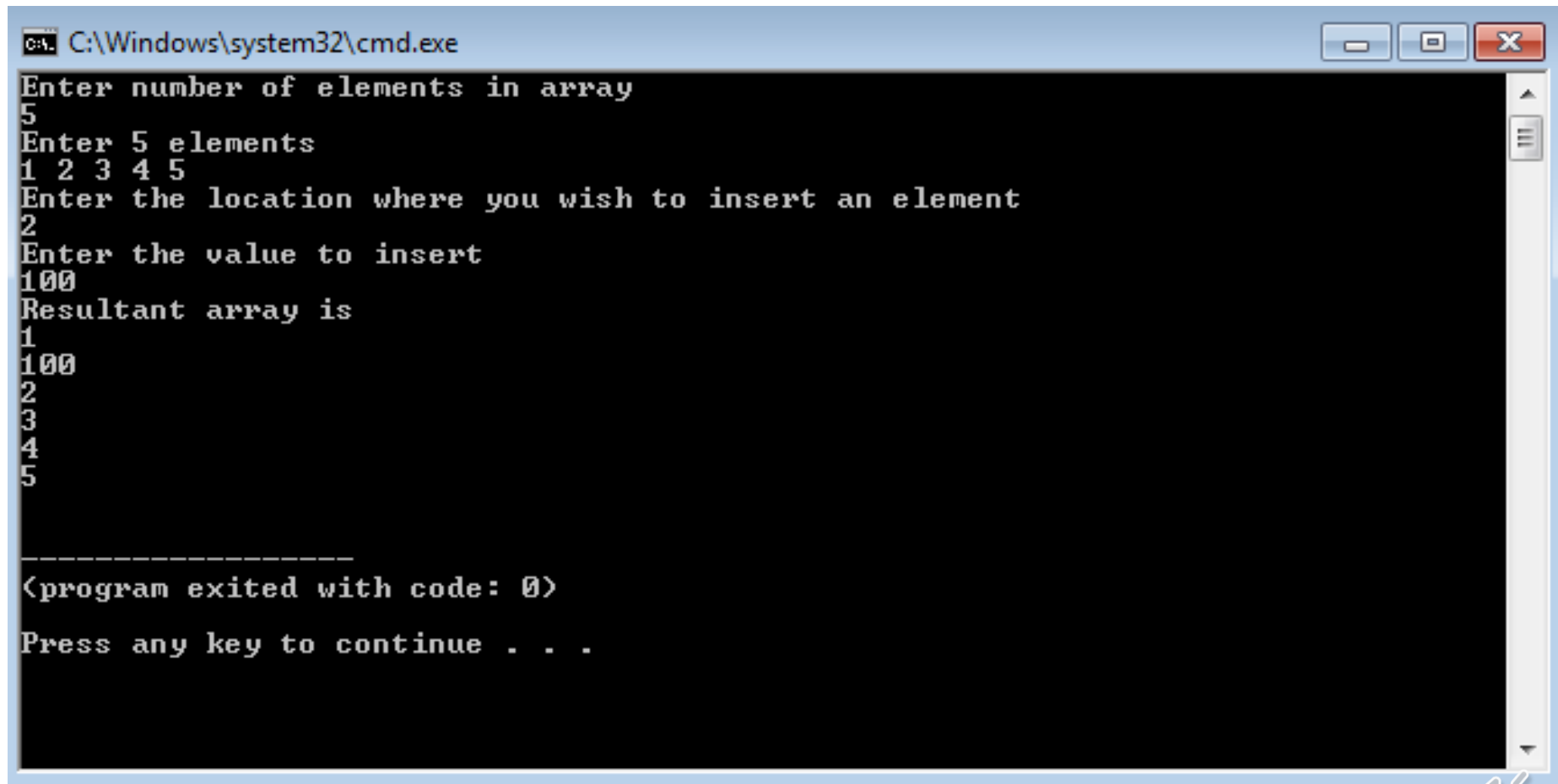
If you have an array, with name **array[]**, then the following function will insert an element **value** at position, **position** . Function **returns** the updated **limit**.

```
8  int insert(int array[],int limit,int position,int value)
9  {
10     //Code for shifting and making free the space at position
11     for (int i = limit - 1; i >= position - 1; i--)
12         array[i+1] = array[i];
13     //Insert element at position. Pls note that the statement below is outside the for loop
14     array[position-1] = value;
15     //increment the last index by 1 since we inserted one element.
16     limit=limit+1;
17
18
19     return(limit);
20 }
21
```

Pause here and do the full code on your own!!



Screen shot



A screenshot of a Windows command prompt window titled "C:\Windows\system32\cmd.exe". The window has standard Windows window controls (minimize, maximize, close) in the top right corner. The command prompt displays the following text:

```
Enter number of elements in array
5
Enter 5 elements
1 2 3 4 5
Enter the location where you wish to insert an element
2
Enter the value to insert
100
Resultant array is
1
100
2
3
4
5

-----
(program exited with code: 0)
Press any key to continue . . .
```

The output shows an array [1, 2, 3, 4, 5] with the value 100 inserted at index 2 (the second position). The resultant array is displayed as 1, 100, 2, 3, 4, 5. The program then exits with code 0 and prompts the user to press any key to continue.



Delete an element in the array – Try writing program on your own

Delete element at position 3 (index $i=2$), $\text{limit}=5$, index range from 0 to $\text{limit}-1$

$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
10	20	30	40	50	



$A[2]=A[3]$, $i=2$ $A[i]=A[i+1]$

$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
10	20	40	40	50	



$A[3]=A[4]$, $i=3$ $A[i]=A[i+1]$

$i=0$	$i=1$	$i=2$	$i=3$	$i=4$	$i=5$
10	20	30	50	50	



New Array

$\text{limit}=\text{limit}-1$, ie $\text{limit}=4$, array index is $[0..3]$



Namah Shivaya

