Array Operations

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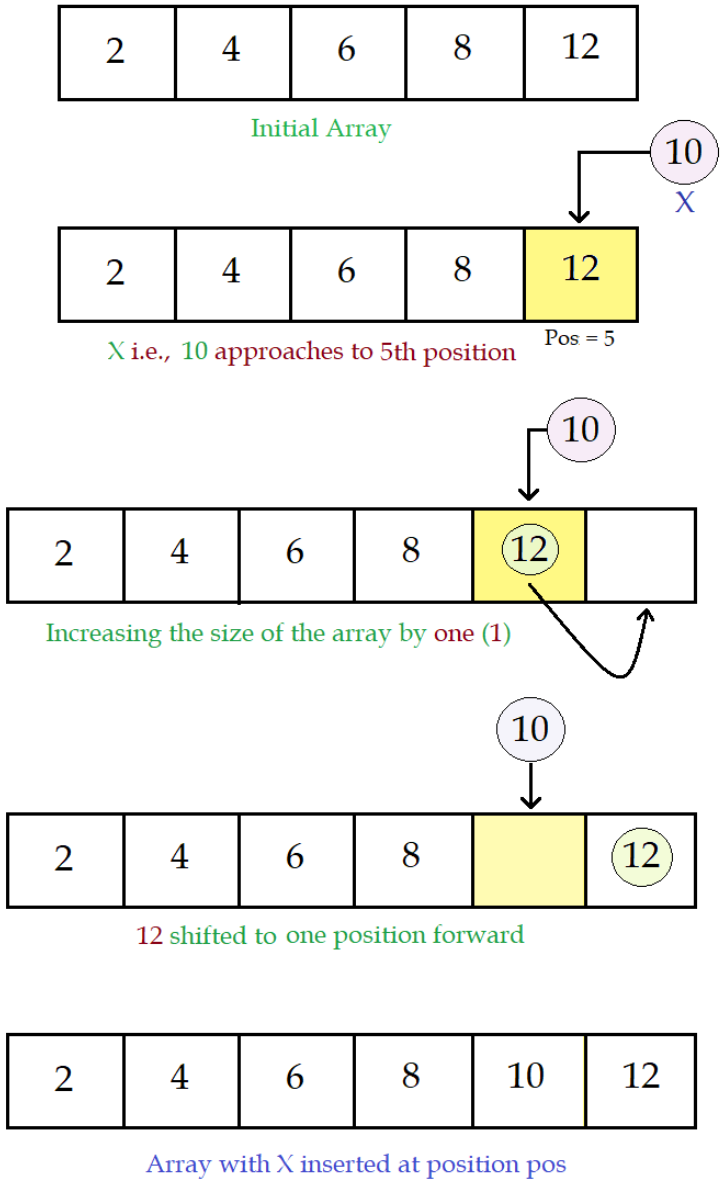
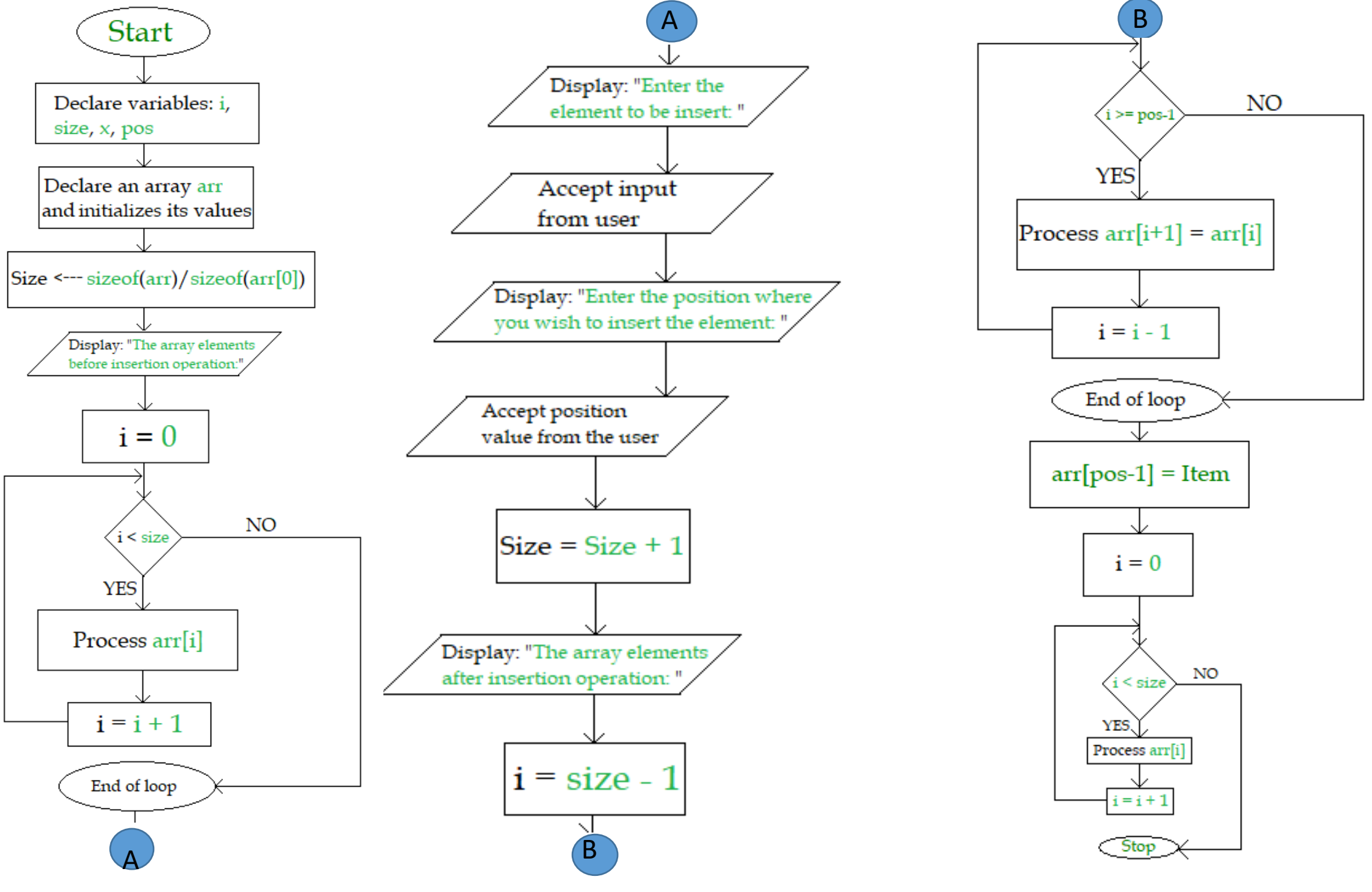
DOCSE, SVNIT, Surat

Visual representation for Insertion in array on nth position




Start
Declare variables: i, size, x, pos
Declare an array arr and initializes its values
Size <--- sizeof(arr)/sizeof(arr[0])
Display: "The array elements before insertion operation:"
i = 0
i < size
NO
YES
Process arr[i]
i = i + 1
End of loop
A
A
Display: "Enter the element to be insert: "
Accept input from user
Display: "Enter the position where you wish to insert the element: "
Accept position value from the user
Size = Size + 1
Display: "The array elements after insertion operation: "
i = size - 1
B
B
i >= pos-1
NO
YES
Process arr[i+1] = arr[i]
i = i - 1
End of loop
arr[pos-1] = Item
i = 0
i < size
NO
YES
Process arr[i]
i = i + 1
Stop

Insert into an Array: Algorithm

Variables we are using here:

arr : Name of the array.

size : Size of the array (i.e., total number of elements in the array)

i : Loop counter or counter variable for the for loop.

x : The data element to be insert.

pos : The position where we wish to insert the element

Insert(arr[], pos,x)

Step 01: Begin

Step 02: [Reset size of the array.]

set size = size + 1

Step 03: [Initialize counter variable.]

Set i = size - 1

Step 04:

Repeat Step 05 and 06 for i = size - 1 to i >= pos - 1

Step 05: [Move i^{th} element forward.]

set arr[i+1] = arr[i]

Step 06: [Decrease counter.]

Set i = i - 1

Step 07: [Insert element.]

Set arr[pos-1] = x

Step 09: End

Algorithm for Append an element in the array

Variables we are using here:

arr : Name of the array.
size : Size of the array (i.e., total number of elements in the array)
i : Loop counter or counter variable for the for loop.
x : The data element to be insert.

Append (arr[], x)
Step 01: Begin
Step 02: [Reset size of the array.]
set size = size + 1 //Increase the array size by 1 to append
Step 03: [Insert element.]
Set arr[size] = x
Step 04: End

Delete an element on nth position from Array

Variables we are using here:

arr : Name of the array.

size : Size of the array (i.e., total number of elements in the array)

i : Loop counter or counter variable for the for loop.

pos : The position where we wish to insert the element

Delete(arr[], pos)

Step 01: Begin

Step 02: [Initialize counter variable.]

Set i = pos

Step 03:

Repeat Step 04 and 05 for i = pos+1 to i < size

Step 04: [Move i^{th} element backward]

set arr[i] = arr[i+1]

Step 05: [Increase counter.]

Set i = i + 1

Step 06: [Reset size of the array.]

set size = size – 1 // Decrease the array size by 1 as deleted the element

Step 07: End

Traverse the array

Variables we are using here:

arr : Name of the array.

size : Size of the array (i.e., total number of elements in the array)

i : Loop counter or counter variable for the for loop.

Traverse(arr[])

Step 01: Begin

Step 02: [Initialize counter variable.]

Set i = 1

Step 03:

Repeat Step 04 and 05 for i = 1 to i <= size

Step 04: [Move i^{th} element backward]

display arr[i]

Step 05: [Increase counter.]

Set i = i + 1

Step 07: End

Numeric array

- Write Algorithm to delete the element
- Write Algorithm to update the element
- Write algorithm to reverse the element