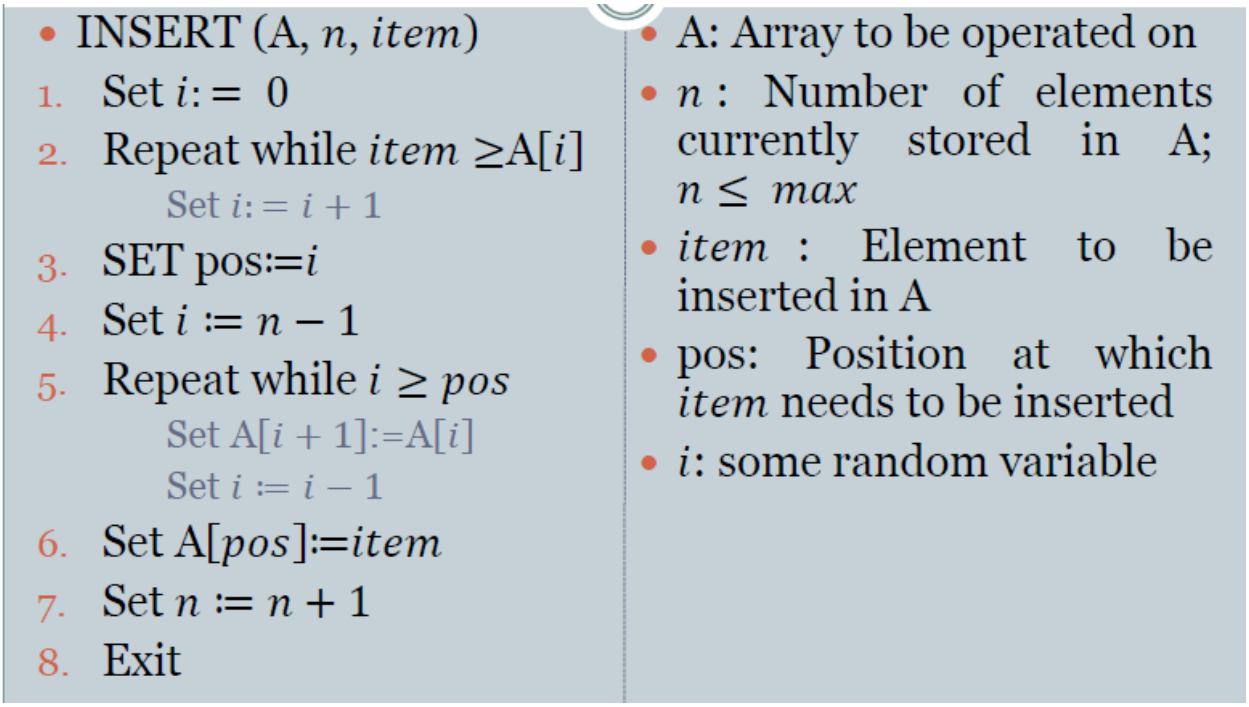
LAB ASSIGNMENT-2

Write a MENU-DRIVEN program for the following operations on Arrays:

1. Insert an element in the sorted array.
2. Insert an element at any position in an array.
3. Delete an element at any position in an array.
4. Delete an element according to a key value.
5. Merging of two sorted arrays.
6. Traversal of an array.
7. Exit

The algorithms are mentioned for each option in Menu Driven program.

1. Insert an element in the sorted array



2. Insert an element at any position in an array.

- INSERT (A, n, pos, $item$)

1. Set $i := n - 1$
2. Repeat while $i \geq pos$
   - Set A[$i + 1$]:=A[i]
   - Set $i := i - 1$
3. Set A[pos]:=$item$
4. Set $n := n + 1$
5. Exit

- A: Array to be operated on
- n : Number of elements currently stored in A; $n \leq max$
- $item$: Element to be inserted in A
- pos: Position at which $item$ needs to be inserted
- i: some random variable

3. Delete an element at any position in an array.

- DELETE (A, n, pos)

1. Set $i := pos - 1$
2. Repeat while $i \leq n - 1$
   - Set A[i]:=A[$i + 1$]
   - Set $i := i + 1$
3. Set $n := n - 1$
4. Exit

- A: Array under processing
- n : Number of elements currently stored in A; $n \leq max$
- pos : Position at which deletion is to be done
- i: some random variable

4. Delete an element according to a key value.

- DELETE (A, n, $item$)

1. Set i: =0
2. Repeat while $i \leq n-1$ && A[i]! = $item$
   Set i: = $i+1$
3. If A[i]=$item$
   Repeat while $i < n-1$
   Set A[i]:=A[$i+1$]
   Set $i := i+1$
   Set $n := n-1$
4. Else
   Print ("Element not found")
5. Exit

- A: Array under processing
- n : Number of elements currently stored in A; $n \leq max$
- $item$: Item value to be deleted
- i: some random variable

5. Merging of two sorted arrays

- MERGE (A, B, C,n, m,siz)

1. Set $i := 0$
2. Set $j := 0$
3. Set $k := 0$
4. Repeat while $k \leq n+m-1$
   If A[i] $\leq$ B[j] && $i \leq n-1$
   Set C[k]:=A[i]
   Set i: = $i+1$
   else if $j \leq m-1$
   Set C[k]:=B[j]
   Set $j := j+1$
   Set $k := k+1$
5. Set $siz := n+m$
6. Exit

- A, B: Arrays under processing
- C: Array stores elements of A and B combines
- n, m : Number of elements currently stored in A and B, respectively; $n, m \leq max$
- siz: Size of array that stores combined elements from both A and B.
- i , j , k : some random variables

6. Traversing of an array

- TRAVERSE (A, n)

1. Set $i := 0$
2. Repeat while $i \leq n - 1$

    Print(A[i])

    Set $i := i + 1$
3. Exit

- A: Array under processing
- n : Number of elements currently stored in A; $n \leq max$
- i: some random variable