Array chapter 5

Address of data element ,A[k]=BA(A)+w(k-lower\_bound)

Example 3.1

Int mark[]={99,67,78,56,88,90,34,85}

To calculate the address of mark[4]

Base address =1000

Mark[4]=1000+2(4-0)

=1008

Example 3.2

To represent memory of the array and find the length of age

Age[0]=2,Age[1]=5,Age[2]=3,Age[3]=1,Age[4]=7

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 | 5 | 3 | 1 | 7 |  |
|  |  |  |  |  |  |

Age[0] Age[1] Age[2] Age[3] Age[4]

Length = upper\_bound - lower\_bound+1

=4-0+1

=5

Traversal for array

Step 1: [INITINALIZE] SET I= Lower\_bound

Step 2:Repeat Step 3 and 4 while I<=Upper\_bound

Step 3: Apply process A[I]

Step 4:I=I+1

[END OF LOOP]

Step 5:EXIT

Insert value in arrays

Step 1: Set Upper\_bound=Upper\_bound+1

Step 2:Set A[Upper\_bound]=Val

Step 3:Exit

Insert vale in middle arrays

Step 1: [INITINALIZE] Set I=N

Step 2:Repeat Steps 3 and 4 while I<= POS

Step 3:Set A[I+1]=A[I]

Step 4:Set I=I-1;

[END OF LOOP]

Step 5:Set N=N+1

Step 6:Set A[POS]=VAL

Step 7:EXIT

Deleting Array’s value in end

Step 1: SET upper\_bound = upper\_bound - 1

Step 2: EXIT

Deleting Array’s value in middle

Step 1: [INITIALIZATION] SET I=POS

Step 2: Repeat Steps 3 and 4 while I <= N-1

Step 3: SET A[I]=A[I+1]

Step 4: SET I=I+1

[END OF LOOP]

Step 5: SET N=N-1

Step 6:EXIT

Finding two dimensional arrays address

M x N

Row Major order

Address(A[I][J])=Base\_Address +w{N(I-1)+(J-1)}

Column Major order

Address(A[I][J])=Base\_Address+w{M(J-1)+(I-1)}

M x N=20x5

Base\_Address=1000;

w=2

Row major order

Address(masks[18][4])=1000+2(5(18-10)+(4-1)

=1176