## الجانب العملي

# 1- Insertion Operation

Following is the implementation of the above algorithm –

```
#include
<stdio.h
>main()
{
  int LA[] = {1,3,5,7,8};
  int item = 10,
  k = 3, n = 5;int
  i = 0, j = n;
  cout<<"The original array elements are :\n";

  for(i = 0; i<n; i++) {
        cout<<"LA["<<i<<"] ="<< LA[i]<<"\n";
  }

  n = n + 1; while( j >= k) {
    LA[j+1] = LA[j];
    j = j - 1;
  }

  LA[k] = item;

  cout<<"The array elements after

  insertion :\n";for(i = 0; i<n; i++)

  {
        cout<<"LA["<<i<<"] ="<< LA[i]<<"\n";
  }
}
```

When we compile and execute the above program, it produces the following result −

**Output**

**The original array**
**elements are :**
**LA[0] = 1**
**LA[1] = 3**
**LA[2] = 5**
**LA[3] = 7**
**LA[4] = 8**
**The array elements**
**after insertion :**
**LA[0] = 1**
**LA[1] = 3**
**LA[2] = 5**
**LA[3] = 10**
**LA[4] = 7**
**LA[5] = 8**

## 2- Deletion Operation

**Example**

Following is the implementation of the

above algorithm –#include <stdio.h>
void main() {

```
 int LA[] = {1,3,5,7,8};
 int k = 3, n = 5;int i, j;

  cout<<"The original array elements are :\n";for(i = 0; i<n; i++) {
    cout<<"LA["<<i<<"] ="<< LA[i]<<"\n";
  }

  j = k;
  while( j < n) { LA[j-1] = LA[j];
    j = j + 1;
  }
  n = n -1;
    cout<<"The array elements
```

```
  after deletion :\n";for(i = 0; i<n;
  i++) {
        cout<<"LA["<<i<<"] ="<< LA[i]<<"\n";
  }
}
```

**Output**

```
The original array elements are :
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
The array elements after deletion :
LA[0] = 1
LA[1] = 3
LA[2] = 7
LA[3] = 8
```

## 3- Search Operation

**Example**

Following is the implementation of the

above algorithm –#include <stdio.h>

```
void main() {
  int LA[] = {1,3,5,7,8};
  int item = 5, n = 5;int i = 0, j = 0;
    cout<<"The original array elements are :\n";
 for(i = 0; i<n; i++) {
    cout<<"LA["<<i<<"] ="<< LA[i]<<"\n";

  }

  while( j < n){
```

```
    if( LA[j]
      == item
      ) {
      break;
    }

    j = j + 1;
  }

  Cout<<"Found element "<<item<<"at position"<<j+1<<"\n";
}
```

When we compile and execute the above program, it produces the following result −

**Output**

The original array elements are :

```
LA[0] = 1
LA[1] = 3
LA[2] = 5
LA[3] = 7
LA[4] = 8
Found element 5 at position 3
```