LAB ASSIGNMENT 8

1)Write a Program for deletion of an element from the specified location from Array.

```
#include <stdio.h>
int main()
{
  int array[100], position, c, n;

  printf("Enter number of elements in array\n");
  scanf("%d", &n);

  printf("Enter %d elements\n", n);

  for (c = 0; c < n; c++)
    scanf("%d", &array[c]);

  printf("Enter the location where you wish to delete element\n");
  scanf("%d", &position);

  if (position >= n+1)
    printf("Deletion not possible.\n");
  else
  {
```

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```
    for (c = position - 1; c < n - 1; c++)
      array[c] = array[c+1];

    printf("Resultant array:\n");

    for (c = 0; c < n - 1; c++)
      printf("%d\n", array[c]);
  }

  return 0;
}
```

2) Program to print unique elements in an array.

```
#include <stdio.h>
#include <stdlib.h>
int uniq(int arr[], int n){
  int i,j;
  int count = 1;
  for(i = 0; i < n; i++){
    for(j = 0; j < n; j++){
      if(arr[i] == arr[j] && i != j)
      break;
    }
```

```
      if(j == n ){
        printf("\nunique elements in the array: %d \n",arr[i]);
         ++count;
      }
   }
   return -1;
}
int main(){
   int n,i;
   printf("\nEnter number of elements : ");
   scanf("%d",&n);
   int arr[n];
   printf("\nenter the array elements : ");
   for(i = 0; i < n; i++){
      scanf("%d",&arr[i]);
   }
   uniq(arr, n);
   return 0;
}
```

3)Find the Peak Element in an array and give the position

```
#include <stdio.h>


int main()
```

```
{
   int arr[20], i=0,j=0, size,peak = arr[0];

   printf("\nEnter array size : ");
   scanf("%d", &size);

   for (i = 0; i < size; i++) {
      printf("Enter arr[%d]: ", i);
      scanf("%d", &arr[i]);
   }

   for (i = 1; i < size; i++) {
      if (arr[i] > peak)
         peak = arr[i];

      if(peak==arr[i])
      {
         j=i;
      }
   }

   printf("\nPeak  element of array is %d ", peak);
   printf("\nPosition of peak is %d", j+1);
```

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```
    return 0;
}
```

4) Find the Kth largest and Kth smallest number in an array

```
#include <stdio.h>

int main(){
    int i,j,l,t,n,k,arr[20];

    printf("Enter size of array: \n");
    scanf("%d",&n);

    printf("Enter array elements: \n");
    for(i=0;i<n;i++)
        scanf("%d",&arr[i]);

    printf("Enter value of k: \n");
    scanf("%d",&k);

//sorting array in ascending order
    for (i=0;i<n;i++){
        for(j=0;j<n-i-1;j++){
            if (arr[j]>arr[j+1]){
```

```
            t=arr[j];
            arr[j]=arr[j+1];
            arr[j+1]=t;
        }
    }
}


 //printing sorted array
 printf("The sorted list is: ");
 for (i=0;i<n;i++){
 printf("%d ", arr[i]);
 }

 if(k>n)
{
    printf("\n k value should not be greater than %d",n);
}
else
{
 arr[l]=arr[i];
 //finding kth largest element
 for(l=0;l<n;l--){
    arr[l]=arr[n-k];
```

```
    }
    printf("\nThe %dth largest element is %d \n",k, arr[n-k]);

    //finding kth smallest element
       for(l=0;l<n;l++){
       arr[l]=arr[k-1];
    }
       printf("The %dth smallest element is %d \n",k, arr[k-1]);

   }

    return 0;
}
```

5) Find the position of the pattern in a given string.

Ex: ABABABBBABCBBBBBABCAAAAAABC

Input: ABC

Pattern found at position 8, 16, 24

```
#include <stdio.h>
#include <string.h>
int main()
{
   char text[20], pat[20];
   int a,b;

   printf("Enter the string :");
   scanf("%s",text);
```

```
    printf(" \nthe string is: %s",text);

    printf("\nEnter the pattern to find : ");
    scanf("%s",pat);
    printf("\nthe pattern to find is: %s \n", pat);

    a = strlen(pat);
    b = strlen(text);

    for (int i = 0; i <= b - a; i++) {
        int j;

        for (j = 0; j < a; j++)
            if (text[i + j] != pat[j])
                break;

        if (j == a)
            printf("Pattern found at position %d \n", i+1);
    }
    return 0;
}
```

6)Run Length Encoding,

If the input string is “wwwwaaadexxxxxx”, then the function should return “w4a3d1e1x6”

```
#include <stdio.h>

#include <string.h>

int main()

{

    char text[20];

    int i, count, leng;
```

```
    printf("Enter the string :");
    scanf("%s",text);
    printf(" \nthe string is: %s\n",text);

    leng = strlen(text)-1;

    for ( i = 0; i <= leng; i++)
    {
       count =1;
       while ( i <= leng && text[i] == text[i+1])
       {
          count++;
          i++;
          if (text[i] != text[i+1])
          {
             break;
          }

       }
        printf("%c%d", text[i],count);
    }
    return 0;
}
```

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