# C-Lab Programs

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CSE-F

1) C program for Insertion sort algorithm

```
#include <stdio.h>
 int main( )
{
    int i, m, ele_n, temp, Val[25];
    printf(" Enter the number of elements:");
     scanf("%d", & ele_n);
     printf(" Enter the elements: ");
     for(i=0; i<ele_n; i++)
       scanf("%d", & Val[i]);
     ~~for(i=k; i<ele~~
     for (i=1; i< ele_n; i++)
      {
         temp=Val[i];
        m=i-1;
        while ((temp<Val[m]) && (m>=0))
         {
           Val[m+1]=Val[m];
            m=m-1
         }
        Val [m+1]=temp;
      }
    printf("sorted elements in ascending order: ");
       for (i=0; i<ele_n; i++)
         printf("%d\t", Val[i]);
       return0;
   }
```

2) C Program for selection sort algorithm

```
#include<stdio.h>
 int main()
```

```
{
  int i,j, mum, temp, Val[25];
   printf(" Enter the number of elements:");
   Scanf ("%d", &num);
   printf(" Enter the elements:");
   for(i=0; i<num; i++)
    {  for (j= i+1; j<num; j++)
       {  if (val[i] > Val [j])
           {
             temp= Val [i];
              val[i] = Val [j];
            Val [j] = temp;
           }
        }
     }
  printf(" sorted elements in ascending order:");
   for (i=0;i<num;i++)
     printf ("%d", val[i]);
  return 0;
}
```

3) C program for bubble sort algorithm

```
 # include<stdio h>
  int main()
 {
  int Count, temp, i, h, Val [30];
    printf(" Enter the number of elements:");
    Scanf( "%d", &count);
   printf("Enter %d numbers:", count);
    for(i=0; i<count; i++)
```

```
scanf ("%d",&val[i]);
 for(i= count -2 ;i>=0;i--)
   { for (h=0;h<=i; h++)
       { if(val[h]>val[h+1])
           { temp=val[h];
             val[h]= val[h+1];
             val[h+1]=temp;
           }
       }
   }
 printf("sorted elements:");
   for(i=0; i<count ;i++)
   printf("%d", val[i]);

   return 0;
}
```

4) C program for Merge sort

```
#include <stdlib.h>
 #include <stdio.h>
Void merge (int arr[],int L,int m, int r)
 { int i,j,k;
   int n1 =m-L+1;
    int n2 =r-m;
   int L[n1], R[n2],
   for(i=0;i<n1;i++)
    L[i]= arr [L+i];
     for(j=0;j<n2;j++)
     R[j] =arr [m+1+j]);
```

```
  i=0;
  j=0;
  k=1;
 while (i<n1 && j<n2)
 {   if (L[i]<=R[j]);
       {  arr[k]=L[i];
          i++
       }
       else
        {  arr[k]=R[j];
           j++;
        }
        k++;
    }
    while(i<n1)
    {  arr[k]=L[i],
       i++;
       k++;
    }
   while(j<n2)

  {  arr[k]= R[j];
     j++;
     k++;
   }
 }
Void  merge sort(int  arr[], int l,int r)
 {  if (l<r)
     { int m=l+(r-1)/2;
          mergesort(arr, l, m);
           merge sort (arr, m+1, r);
          merge(arr,l,m,r,));
    }
  }
  void printArray(int A[], int size)
  { int i;
     for(i=0; i<size; i++)
    printf("%d", A[i]);
   printf("\n");
  }
  int main()
  { int size, v;
     printf(" Enter array size:");
     scanf("%d", &size);
      int val[siz];
      for(v=0; v<siz; v++)
   {
       printf(" Enter value:");
         scanf("%d", &val[v]);
   }
  printf(" Given array is \n");
       printArray(val, siz);
  mergesort(val, 0, siz-1);

   printf("\n sorted array is \n");
   printArray(val, siz);
```