WRITE-UP (LAB-3) (1BM19CS158)

1) Bubble sort using time complexity :-

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
int n;
void swap (int *x, int *y)
{
  int temp=*x;
   *x=*y;
   *y=temp;
}
void bubbleSort(int arr[])
 {
   int i,j;
  for (i=0; i<n-1; i++)
   for (j=0; j<n-i-1; j++)
    if (arr[j] > arr[j+1])
 swap( &arr[j], &arr[j+1]);
 }
  int main()
{
   int l;
   double bt;
   clock_t start, end;
printf("Enter the number of elements of the array\n");
scanf("%d", &n);
int array[n], array1[n];
for (i=0; i<n; i++)
{
   array[i] = rand()%1000;
   array1[i] = array[i];
```

```
printf("%d", array[i]);
}
printf("\n");
start = clock();
bubbleSort(array1);
end = clock();
bt = ((double)(end - start)) / CLOCKS_PER_SEC;
printf("Sorted array is: ");
for(i=0; i<n; i++)
{
printf("%d", array1[i]);
}
printf("\n");
printf("\n Time taken by Bubble Sort : %lf \n", bt);
printf("\n");
}
```

2) Selection sort using time complexity:-

```
#include <stdio.h>
# include <stdlib.h>
# include <time.h>
 int n;
void selection (int a[], int n)
{
  int min, i, j, t;
  for( i=0; i<n-2; i++)
  {
     min = i;
     for (j= i+1; j<=n; j++)
     {
        if (a[j]<a[min])
            min =j;
     }
     t=a[i];
     a[i]=a[min];
     a[min]=t;
   }
}
int main()
{
   int i;
   double st;
   clock_t start, end;
printf("Enter the number of elements of the array\n");
scanf("%d", &n);
int array[n], array1[n];
for (i=0; i<n; i++)
 {
```

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```
array[i] = rand() % 2000;
array1[i] = array[i];
printf("%d", array[i]);
}
printf("\n");
start = clock();
selection(array1, n);
end = clock();
st = ((double)(end - start)) / CLOCKS_PER_SEC;
printf("Sorted array is:");
for(i=0; i<n; i++)
{
printf("%d", array1[i]);
}
printf("\n");
printf("\n Time taken by Selection Sort: %lf \n", st);
printf("\n");
return 0;
}
```