KIET Group of Institutions, Ghaziabad

Department of Computer Applications

(An ISO – 9001:2015 Certified & 'A' Grade accredited Institution by NAAC)

Design and Analysis of Algorithm

RCA 352: Session 2020-21

DAA Lab

Experiment-no

Objective: Implement the **Bubble sort** algorithm to sort the given list of N numbers and plot graph

Scheduled Date	Compiled Date	Submitted Date
26-09-20	26-09-20	26-09-20

Algorithm of Bubble Sort

Bubblesort(Input: Array A, size N)

1. pass = 1
2. while(pass<=n)do:
3. j :=1;
4. while(j<=n-pass) do:
5. if(a[j]>a[j+1])
6. temp := a[j];
7. a[j] := a[j+1];
8. a[j+1] := temp;
9. j :=j+1
10. end while
11. pass :=pass+1

12. end while

Program of Bubble Sort

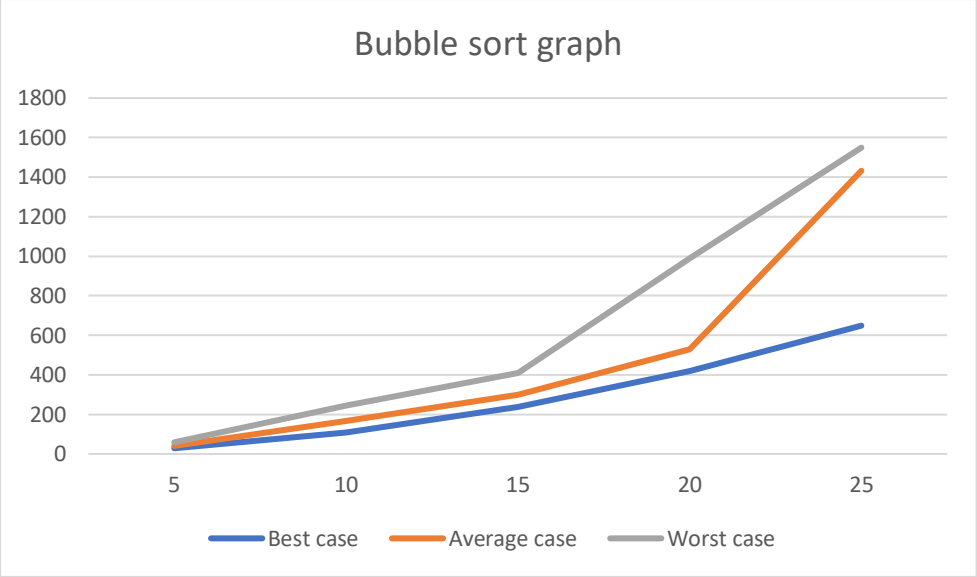
```
#include<stdio.h>
#include<process.h>
#include<conio.h>
#include<alloc.h>
int count=0;
void main()
{
  void getdata(int[20],int);
  void putdata(int[20],int);
  void bubble_sort(int[20],int);
  int i,a[100],n;
  clrscr();
   printf("enter the value of n\n");
   scanf("%d",&n);
   getdata(a,n);
   printf(" before sorting\n");
      putdata(a,n);
      bubble_sort(a,n);
   printf("\nafter sorting\n");
    putdata(a,n);
    printf("\n for n = %d value of count is %d",n,count);
     getch();
}
```

```
 void getdata(int x[20],int n)
{
  int k;
 printf("enter the value for sorting\n");
 for(k=0;k<n;k++)
  {
    scanf("%d",&x[k]);
  }
 }
 void putdata(int x[20],int n)
 {
 int k;
 for(k=0;k<n;k++)
 {
  printf("%d\t",x[k]);
 }
  printf("\n");
}
void bubble_sort(int a[],int n)
{
 int pass,j,temp;
 count++;
 for(pass=1;pass<=n-1;pass++)
 {
 count++;
 for(j=0;j<n-pass;j++)
```

```
{
  count++;
  if(a[j]>a[j+1])
  {
   count++;
   temp=a[j];
   count++;
   a[j]=a[j+1];
   count++;
   a[j+1]=temp;
   }
   count++;
   }
   count++;
   }
 }
```

Graph of Bubble Sort

Input Size	Best Case	Average Case	Worst Case
5	29	41	59
10	109	166	244
15	239	298	464
20	419	530	989
25	649	1432	1549


Bubble sort graph
1800
1600
1400
1200
1000
800
600
400
200
0
5
10
15
20
25
Best case
Average case
Worst case