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

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

Scheduled Date:	Compiled Date:	Submitted Date:
10-9-2020	10-9-2020	17-9-2020

Algorithm:

```
void selection_sort(int numbers[], int n)
{
     int pass,j,temp,min,count;
     for(pass=1; pass<=n-1; pass++)
     {
          min= pass-1;
          for (j=pass; j<array_size;j++)
          {
               if(number[j])<numbers[min])
               min=j;
          }
        temp= numbers[min];
        numbers[min]= numbers[i];
        numbers[pass-1]= temp;
     }
}
```

Program:

```
#include<stdio.h>
#include<conio.h>
int count=0;
void main(){
void input(int[],int);
void print(int[],int);
void swap(int*,int*);
void selection(int[],int);
int arr[100],n;
printf("\n Enter thye size of Array");
scanf("%d",&n);
count++;
input(arr,n);

selection(arr,n);
print(arr,n);
```

```
}

void input(int arr[],int n){                        //Taking Input
     int i;
     printf("\n Enter Element In Array");
     count++;
     for(i=0;i<n;i++){
     count++;
     scanf("%d",&arr[i]);
     count++;
     }

}

//Swapping  Value
void swap(int *element1,int *element2){
count++;
     int temp=*element1;
     *element1=*element2;
     *element2=temp;
     count++;
}
void selection(int arr[],int n){     //Selection Sort

count++;
     int i,j,t,min,count;
     for(i=0;i<n;i++){
     count++;
          min=i;
          for(j=i+1;j<n;j++){
          count++;
               if(arr[j]<arr[min]){
               min=j;
               }
               count++;
          }
          count++;
          swap(&arr[min],&arr[i]);
     }
}
void print(int arr[],int n){

int i;
     printf("Selection Sort");
     for(i=0;i<n;i++){
```

```
     printf("->%d->",arr[i]);
}
printf(" Count %d->",count);
```

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Output:

Inputs	Best Case	Average Case	Worst Case
5	23	23	23
10	43	43	43
15	63	63	63
20	83	83	83
25	103	103	103

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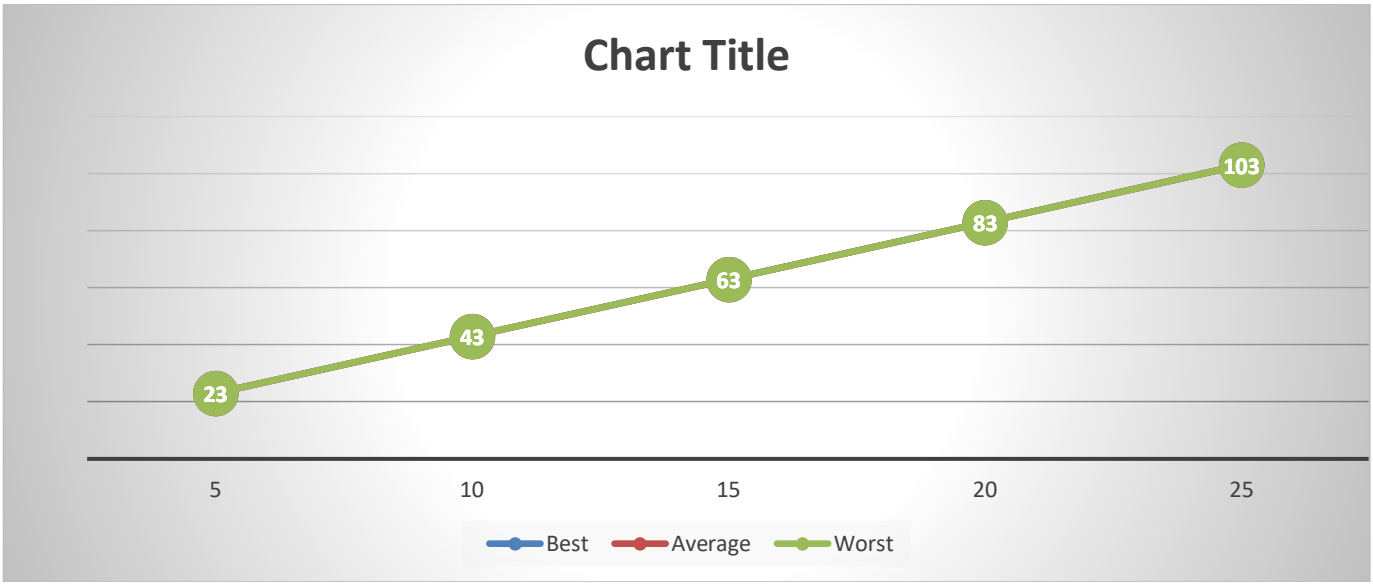
Graph:



Conclusion:

Case	Running Time : Growth of Function mathematically	Running Time : Growth of Function after observing graph
Best Case	O(n^2)	O(n^2)
Average Case	O(n^2)	O(n^2)
Worst Case	O(n^2)	O(n^2)