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

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| --- | --- | --- |
| Compiled Date | Scheduled Date | Submission Date |
| 18-09-20 | 18-09-20 | 22-09-20 |

Algorithm

Selection Sort(A)

1. n<-length[A]
2. for j<-1 to n-1
3. do
4. smallest <-j
5. for i<- j+1 to n
6. do if A[i]<-A[smallest]
7. then smallest <-i
8. exchange A[j] <->A[smallest]

Selection Sort program

#include<stdio.h>

#include<conio.h>

int count=0;

void main()

{

void getdata(int[10],int);

void putdata(int[10],int);

void selection\_sort(int a[],int);

int i,a[100],n;

clrscr();

printf("enter the size of array:");

scanf("%d",&n);

getdata(a,n);

printf("\nbefore sorting\n");

putdata(a,n);

selection\_sort(a,n);

printf("\nafter sorting\n");

putdata(a,n);

printf("count=%d",count);

getch();

}

void getdata(int a[10],int n)

{

int k;

printf("enter the element in array:");

for(k=1;k<=n;k++)

{

scanf("%d",&a[k]);

}

}

void putdata(int a[10], int n)

{

int k;

for(k=1;k<=n;k++)

{

printf("%d\t",a[k]);

}

printf("\n");

}

void selection\_sort(int arr[],int n)

{

int j,i,position,t;

count++;

for(i=0;i<n-1;i++)

{

count++;

position=i;

count++;

for(j=i+1;j<n;j++)

{

count++;

if(arr[position]>arr[j])

{

position=j;

}

count++;

}

if(position!=i)

{

t=arr[i];

arr[i]=arr[position];

arr[position]=t;

}

}

}

Selection Graph

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  | | --- | --- | --- | --- | | Input size | Best Case | Average Case | Worst Case | | 5 | 29 | 29 | 29 | | 10 | 109 | 109 | 109 | | 15 | 239 | 239 | 239 | | 20 | 419 | 419 | 419 | | 25 | 649 | 649 | 649 | |