PROGRAM - 3

#include <stdio.h>

#include <stdlib.h>

#include <time.h>

void swap(int arr[], int i, int j)

{

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

void selectionSort(int arr[], int i, int n)

{

int min = i;

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

{

if (arr[j] < arr[min]) {

min = j;

}

}

swap(arr, min, i);

if (i + 1 < n) {

selectionSort(arr, i + 1, n);

}

}

void printArray(int arr[], int n)

{

for (int i = 0; i < n; i++) {

printf("%d\t ", arr[i]);

}

}

int main()

{

int i,n,arr[1000];

double time;

clock\_t start,end;

printf("Enter the total number of elements to be sorted:");

scanf("%d",&n);

printf("The elements to be sorted are:\n");

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

{

arr[i] = rand()%100;

printf("%d\t",arr[i]);

}

printf("\nThe sorted array is:\n");

start=clock();

selectionSort(arr, 0, n);

printArray(arr, n);

end=clock();

time = ((double)(end - start))/CLOCKS\_PER\_SEC;

printf("\nTime taken to sort the array by using Selection Sort is:%lf\n",time);

}

output:

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ gcc -o selection\_sort selection\_sort.c

[shilpa@shilpa-linux ADA\_LAB-PROG-main]$ ./selection\_sort

Enter the total number of elements to be sorted:50

The elements to be sorted are:

83 86 77 15 93 35 86 92 49 21 62 27 90 59 63 26 40 26 72 36 11 68 67 29 82 30 62 23 67 35 29 2 22 58 69 67 93 56 11 42 29 73 21 19 84 37 98 24 15 70

The sorted array is:

2 11 11 15 15 19 21 21 22 23 24 26 26 27 29 29 29 30 35 35 36 37 40 42 49 56 58 59 62 62 63 67 67 67 68 69 70 72 73 77 82 83 84 86 86 90 92 93 93 98

Time taken to sort the array by using Selection Sort is:0.000047