**BUBBLE SORT**

#include<stdio.h>

#include<stdlib.h>

#include<time.h>

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

{

int temp;

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

{

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

{

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

{

temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

}

void bubble\_sortTT(int arr[],int n)

{

int temp;

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

{

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

{

if(arr[i]<arr[j])

{

temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

}

}

int main()

{

clock\_t start, stop;

int n;

start = clock();

printf("Enter the number of elements:\n");

scanf("%d",&n);

int arr[n];

int r;

srand(time(NULL));

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

r = rand();

arr[i]=r;

}

bubble\_sortTT(arr,n);

printf("UnSorted array is:\n");

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

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

}

printf("\n\n\n\n\n\n\n");

start = clock();

bubble\_sort(arr,n);

stop = clock();

printf("Sorted array is:\n");

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

{

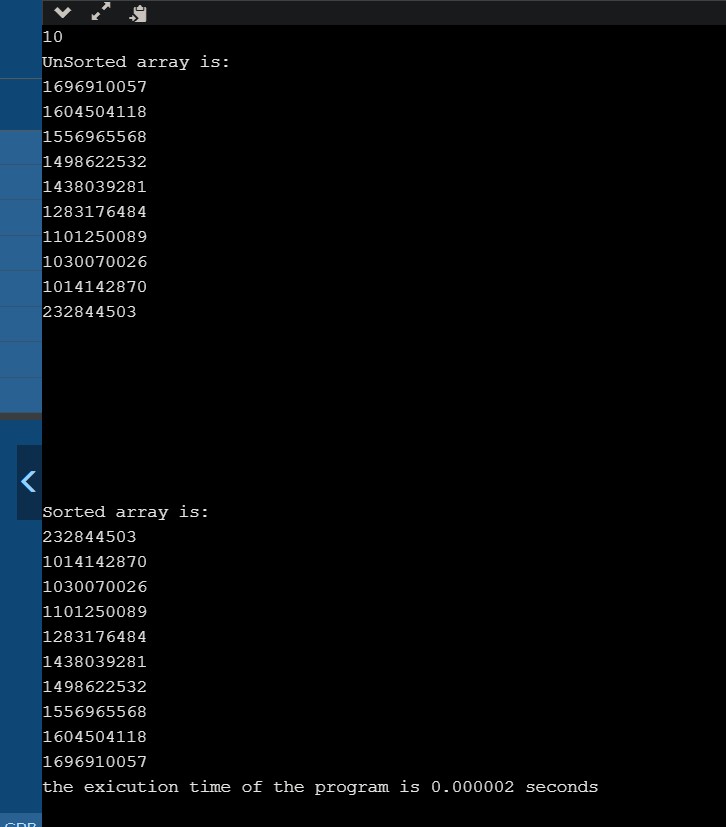
printf("%d\n",arr[i]);

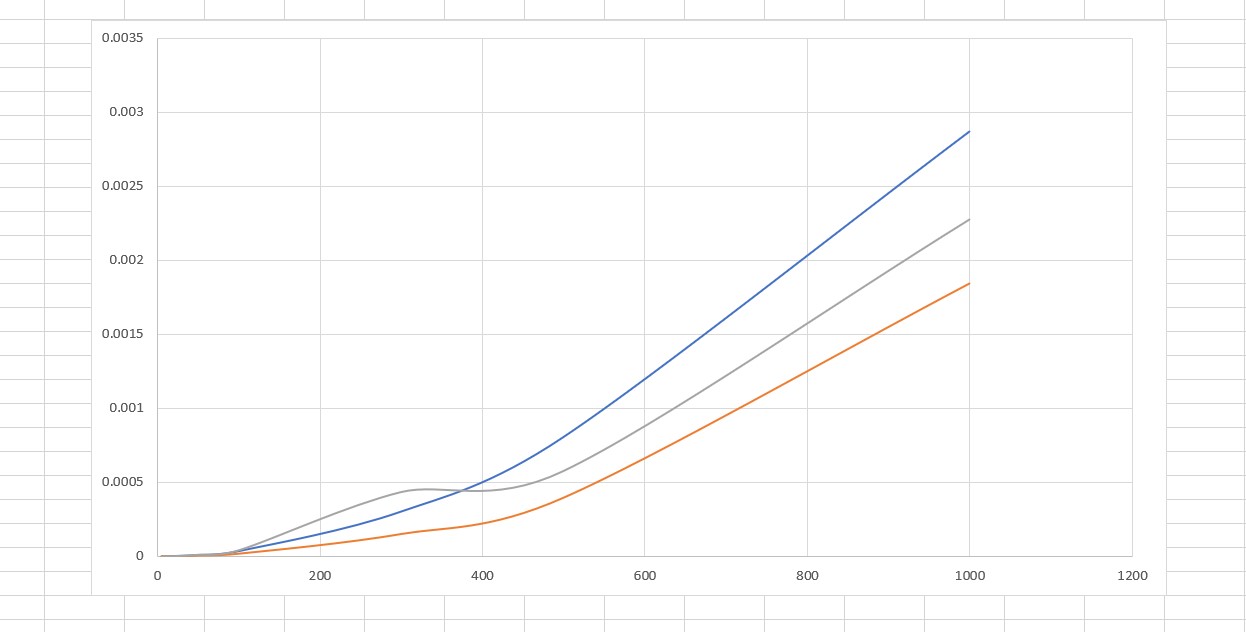
}

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

printf("the exicution time of the program is %f seconds",time);

}





**SELECTION SORT**

#include <stdio.h>

#include<stdlib.h>

#include<time.h>

void swap(int \*xp, int \*yp)

{

int temp = \*xp;

\*xp = \*yp;

\*yp = temp;

}

void selectionSort(int arr[], int n)

{

int i, j, min\_idx;

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

{

min\_idx = i;

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

if (arr[j] < arr[min\_idx])

min\_idx = j;

swap(&arr[min\_idx], &arr[i]);

}

}

void selectionSortTT(int arr[], int n)

{

int i, j, min\_idx;

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

{

min\_idx = i;

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

if (arr[j] > arr[min\_idx])

min\_idx = j;

swap(&arr[min\_idx], &arr[i]);

}

}

int main()

{

clock\_t start, stop;

int n;

printf("Enter the number of elements:\n");

scanf("%d",&n);

int arr[n];

int r;

srand(time(NULL));

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

r = rand();

arr[i]=r;

}

selectionSortTT(arr, n);

printf("UnSorted array is:\n");

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

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

}

printf("\n\n\n\n\n\n\n");

start = clock();

selectionSort(arr, n);

printf("Sorted array: \n");

stop = clock();

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

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

}

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

printf("the exicution time of the program is %f seconds",time);

return 0;

}

