SSN COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DATA STRUCTURES LAB

ASSIGNMENT 1

SEARCHING AND SORTING

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CLASS: CSE B

PROGRAM:

#include<stdio.h>

#include<conio.h>

void linearsearch( int ar[30],int m)

{

int i,e,flag=0;

printf("element to search");

scanf("%d",&e);

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

{

if(e==ar[i]){printf("element found at %d",i);flag=1;break;}

} if(flag==0)printf("not found");

return;

}

void selectionsort(int ar[30],int m){

int i,j,min,temp;

for(i=0;i<m-1;i++){

min=i;

for(j=i+1;j<m;j++){

if(ar[i]>ar[j])min=j;

if(min!=i){

temp=ar[min];

ar[min]=ar[i];

ar[i]=temp;

}}}

for(i=0;i<m;i++){

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

}

return;

}

void binarysearch(int ar[30],int m){

int i,j,e,temp,first=0,last=m-1,mid;

printf("element to search");

scanf("%d",&e);

selectionsort(ar,m);

while (first<=last)

{

mid=(first+last)/2;

if(e==ar[mid]){printf("found at %d",mid);break;}

else if(e>ar[mid])first=mid+1;

else if(e<ar[mid])last=mid-1;

}

return;

}

void bubblesort(int ar[30],int m){

int i,j,temp;

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

{

for(j=i+1;j<m-i-1;j++)

{

if(ar[i]>ar[j]){

temp=ar[i];

ar[i]=ar[j];

ar[j]=temp;

}

}

}

for(i=0;i<m;i++){

printf("%d",ar[i]);

}

return;

}

main()

{

int i,choice;

char option='y',option1='y';

int a[20],n;clrscr();

while(option=='y'|| option=='Y'){

printf("n:");

scanf("%d",&n);

printf("elements:");

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

{

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

}

while(option1=='y'||option1=='Y'){

printf("MENU\n1.Linearsearch\n2.Binarysearch\n3.Selectionsort\n4.Bubblesort\n");

printf("choice:");

scanf("%d",&choice);

switch(choice)

{

case 1: linearsearch(a,n);

break;

case 2:binarysearch(a,n);

break;

case 3: selectionsort(a,n);

break;

case 4: bubblesort(a,n);

break;

default: printf("Invalid option");

}printf("press y to return to MENU or n to exit");

scanf(" %c",&option1);}

printf("Press y to continue and n to exit program");

scanf(" %c",&option);

}

printf("thankyou");

getch();

return 0;

}

OUTPUT:

n:5

23

1

4

56

9

MENU

1.Linearsearch

2.Binarysearch

3.Selectionsort

4.Bubbledsort

Choice1

element to search1

element found at1

press y to return to MENU or n to exity

choice3

1 4 9 24 56 press y to return to MENU or n to exitn

Press y to continue and n to exit programn

thankyou