/\*bubble sort,insertion sort,selection sort\*/

#include<stdio.h>

#include<stdlib.h>

void bubble\_sort(int a[],int n);

void insertion\_sort(int a[],int n);

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

void display(int a[],int n);

int main()

{

int n,i,ch;

printf("enter the size of array\n");

scanf("%d",&n);

int a[n];

printf("enter the values of array\n");

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

{

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

}

printf("your entered array is\n");

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

{

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

}

while(ch!=5)

{

printf("\*\*main menu\*\*\n");

printf("1.bubble sort\n2.insertion sort\n3.selection sort\n4.display array\n5.exit\n");

printf("enter your choice:\n");

scanf("%d",&ch);

switch(ch)

{

case 1:bubble\_sort(a,n);

break;

case 2:insertion\_sort(a,n);

break;

case 3:selection\_sort(a,n);

break;

case 4:display(a,n);

break;

case 5:exit(0);

default:

printf("invalid ch\n");

}

}

}

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

{

int i,j,temp; //sorting using 3rd variable

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

{

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

{

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

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

printf("array sorted\n");

/\*

without using 3rd variable

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

{

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

{

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

{

a[i]=a[i]+a[j];

a[j]=a[i]-a[j];

a[i]=a[i]-a[j];

}

}

}

\*/

}

void insertion\_sort(int a[],int n)

{

int i,j,temp;

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

{

j=i-1;

while(j>=0 && a[j]>a[i])

{

temp=a[j];

a[j]=a[i];

a[i]=temp;

j--;

}

}

printf("array sorted\n");

}

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

{

int i,j,temp,min;

min=a[0];

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

{

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

{

if(a[i]<=min)

{

min=a[i];

}

}

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

{

if(a[i]!=min)

{

temp=a[i];

a[i]=min;

min=temp;

}

}

}

printf("array sorted\n");

}

void display(int a[],int n)

{

printf("Sorted list in ascending order:\n");

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

{

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

}

}

