// This is a program containing all the programs from assignement 1

// from 1-8 of assignment all are solved in this.

//Meet Parekh - 160470116031 - OOPC ASSIGNMENT 1

#include<iostream>

#include<cstring>

using namespace std;

int printHelloWorld();

int Calculator();

int power();

int sum();

int prime();

int palindrome();

int fibonacci();

int sort();

int main(){

char ch;

int i;

again:

cout<<"Select Assignment No.: \n\n1. Hellow World\n2.Calculator\n3.Power\n4.Sum\n5.Prime\n6.Palindrome\n7.Fibonacci Series\n8.Sort\n\n ";

cin>>i;

switch(i){

case 1: printHelloWorld();break;

case 2: Calculator();break;

case 3: power();break;

case 4: sum();break;

case 5: prime();break;

case 6: palindrome();break;

case 7: fibonacci();break;

case 8: sort();break;

default: "Enter valid choice value!!\n\nWant to try again?(y/n): ";

cin>>ch;

if(ch=='y' || ch=='Y') goto again;

else return 0;

}

}

int printHelloWorld(){

cout<<"\n\n\nHello World!\n\n\n";

}

int Calculator(){

int i,a,b;char c;

redo:

cout<<"\n\nEnter two numbers: ";cin>>a>>b;

cout<<"\n\nEnter choice: ";

cout<<"\n1.add\n2.subtract\n3.multiply\n4.division\n5.Exit"<<endl;cin>>i;

switch(i){

case 1: cout<<"\nAns= "<<a+b<<endl;

break;

case 2: cout<<"\nAns= "<<a-b<<endl;

break;

case 3: cout<<"\nAns= "<<a\*b<<endl;

break;

case 4: if(b==0) cout<<"\nInvalid INPUT!";

else cout<<"\nAns= "<<a/b<<endl;

break;

case 5: return 0;

default: cout<<"\nInvalid INPUT!\nWant to try again?(y/n)";cin>>c;

if(c=='y'||c=='Y') goto redo;

}

}

int POWER(int x,int y){

int ans=1;

while(y--){

ans=ans\*x;

}

cout<<"\nAns = "<<ans<<endl;

}

int power(){

int x,y;

cout<<"\nEnter base value: "<<endl;cin>>x;

cout<<"\nEnter power value: "<<endl;cin>>y;

POWER(x,y);

}

int SUM(int a[],int n){

int i,soae=0;

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

soae+=a[i];

}

cout<<"\n\nSum of all elements = "<<soae<<endl;

}

int sum(){

int a[100],n;

cout<<"\n\nEnter size of array: "<<endl;cin>>n;

for(int i=0;i<n;i++)cin>>a[i];

SUM(a,n);

}

int prime(){

int i,a;

cout<<"\n\nEnter number: "<<endl;

cin>>a;

for(i=2;i<a/2;i++){

if(a%i==0){cout<<"Number is not Prime"<<endl; return 0;}

}

cout<<"Number is prime";

}

int palindrome(){

char str[50];

int i,j,l;

cout<<"\nEnter a string: "<<endl;

cin>>str;

l=strlen(str);

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

if(str[i]!=str[l-i-1]){

cout<<"\nNot Palindrome\n";

return 0;

}

}

cout<<"\n\nPalindrome"<<endl;

}

int fibonacci(){

int a,b,c,n,i;

cout<<"Enter number: "<<endl;

cin>>n;

a=0,b=1;

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

cout<<" "<<a;

c=a+b;

a=b;

b=c;

}

cout<<endl;

}

int SORT(int a[]){

int i,j,temp;

for(i=0;i<5;i++){

for(j=i;j<5;j++){

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

{

temp=a[i];

a[i]=a[j];

a[j]=temp;

}

}

}

for(i=0;i<5;i++)cout<<" "<<a[i];

cout<<" "<<endl;

}

int sort(){

int a[5];

cout<<"Enter array elements: "<<endl;

for(int i=0;i<5;i++)cin>>a[i];

SORT(a);

}