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B-TECH SEMESTER 1

O12200300004003

ADVANCED CALCULATOR

\*/

#include<stdio.h>

#include<math.h>

#include<conio.h>

double sin(double);

double cos(double);

void main()

{

printf("\t \t\t\t\t\t ----------WELCOME TO THE ADVANCED CALCULATOR----------");

printf("\n \n \t \t\t\t\t\t\t PRESS ENTER TO CONTINUE");

char che;

che=fgetc(stdin);

int io;

for(io=0;io<100;io++)

{

printf("\n \n \t \t\t\t\t\t\t SELECT FROM THE OPTIONS");

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

printf("1-ADDITION 2-SUBTRACTION 3-DIVISION 4-MULTIPLICATION 5-REMAINDER 6-SQUARE ROOT 7-EXPONENTIAL 8-PERCENTAGE 9-TRIGONOMETRIC FUNCTION 10-PROGRESSIONS");

printf("\n11-QUADRATIC SOLVER 12-POLYNOMIAL DIFFERENTIATION 13-BINARY CONVERTER 14-ABSOLUTE 15-UNIT CONVERTER 16-GST CALCULATOR 17-SEVERAL MATHEMATICAL SERIES\n18-STANDARD DEVIATION 19-VARIANCE 20-LOGARITHM 21-CURRENCY CONVERTER 22-BMI CALCULATOR");

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

printf(" \n \t \t\t\t\t\t\t SELECT AND ENTER THE CHOICE:");

int select;

scanf("%d",&select);

if(select==1) //ADDTION

{

int n,i,sum=0;

printf("\n\n\n\nEnter the number of numbers to be added:");

scanf("%d",&n);

int a[n];

printf("\n\nEnter all the %d numbers\n",n);

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

{

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

sum+=a[i];

}

printf("\nThe Result is: %d",sum);

}

if(select==2) //SUBTRACTION

{

int n,i,sum=0;

printf("\n\n\n\nEnter the number of numbers to be subtracted:");

scanf("%d",&n);

int a[n];

printf("\n\nEnter all the %d numbers\n",n);

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

{

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

if(i==0)

{

sum+=a[i];

}

else

{

sum-=a[i];

}

}

printf("\nThe Result is: %d",sum);

}

if(select==3) //DIVISION

{

int n,i;

printf("\n\n\n\nEnter the number of numbers to be divided:");

scanf("%d",&n);

float a[n],sum=0.0;

printf("\n\nEnter all the %d numbers\n",n);

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

{

scanf("\n%f",&a[i]);

if(i==0)

{

sum=a[i];

}

else

{

sum/=a[i];

}

}

printf("\nThe Result is: %f",sum);

}

if(select==4) //MULTIPLICATION

{

int n,i,sum=1;

printf("\n\n\n\nEnter the number of numbers to be multiplied:");

scanf("%d",&n);

int a[n];

printf("\n\nEnter all the %d numbers\n",n);

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

{

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

sum\*=a[i];

}

printf("\nThe Result is: %d",sum);

}

if(select==5)//MODULUS

{ int a,b;

printf("\n\n\n\nEnter the two numbers to find the modulus(remainder) of:");

scanf("%d ",&a);

scanf("%d",&b);

int mod=a%b;

printf("\nThe Result is: %d",mod);

}

if(select==6)//SQUARE ROOT

{

float i,n;

printf("\n\n\n\nEnter the number to find the square root of:");

scanf("%f",&n);

for(i=0.01;i\*i<n;i=i+0.01){}

printf("\nThe Result is: %.5f",i);

}

if(select==7)//POWER

{ int a,b;

printf("\n\n\n\nEnter the two numbers a raised to the power b:");

scanf("%d ",&a);

scanf("%d",&b);

int power=pow(a,b);

printf("\nThe Result is: %d",power);

}

if(select==8)//PERCENTAGE

{ double a,b;

printf("\n\n\n\nEnter the two numbers a percent of b:");

scanf("%lf ",&a);

scanf("%lf",&b);

double per=(a/100)\*b;

printf("\nThe Result is: %lf",per);

}

if(select==9)//TRIGONOMETRIC CALCULATOR

{

printf("\n\n\n\t\t\t\t\t----------------WELCOME TO THE TRIGONOMETRIC CALCULATOR-----------------");

printf("\n \n \t \t\t\t\t\t\t SELECT FROM THE OPTIONS\n");

printf("\n\t \t\t---------------------------------------------------------------------------------------------------------------");

printf("\n\t\t\t1-SIN 2-COS 3-TAN 4-COT 5-SEC 6-COSEC 7-ARCSIN 8-ARCCOS 9-ARCTAN 10-ARCCOT 11-ARCSEC 12-ARCCOSEC");

printf("\n\t \t\t---------------------------------------------------------------------------------------------------------------");

printf(" \n \t \t\t\t\t\t\t SELECT AND ENTER THE CHOICE:");

int select1;

scanf("%d",&select1);

if(select1==1)

{

int a;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

a=sin(x);

printf("\nsin(%0.2lf):%lf\n",m,sin(x));

}

if(select1==2)

{

int b;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

b=cos(x);

printf("\ncos(%0.2lf):%lf\n",m,cos(x));

}

if(select1==3)

{

double c;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

c=sin(x)/cos(x);

printf("\ntan(%0.2lf):%lf\n",m,c);

}

if(select1==4)

{

double c;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

c=cos(x)/sin(x);

printf("\ncot(%0.2lf):%lf\n",m,c);

}

if(select1==5)

{

double c;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

c=1/cos(x);

printf("\nsec(%0.2lf):%lf\n",m,c);

}

if(select1==6)

{

double c;

double m;

double x;

printf("\n\n\n\nEnter the angle in degrees:");

scanf("%lf", &m);

x = (3.1415926535897931\*m)/180.0;

c=1/sin(x);

printf("\ncosec(%0.2lf):%lf\n",m,c);

}

if(select1==7)

{ double m,c;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

c=asin(m);

c=(c\*180)/(3.1415926535897931);

printf("\narcsin(%0.2lf):%lf\n",m,c);

}

if(select1==8)

{ double m,c;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

c=acos(m);

c=(c\*180)/(3.1415926535897931);

printf("\narccos(%0.2lf):%lf\n",m,c);

}

if(select1==9)

{ double m,c;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

c=atan(m);

c=(c\*180)/(3.1415926535897931);

printf("\narctan(%0.2lf):%lf\n",m,c);

}

if(select1==10)

{ double m,c,n;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

n=m;

m=1/m;

c=atan(m);

c=(c\*180)/(3.1415926535897931);

printf("\narccot(%0.4lf):%lf\n",n,c);

}

if(select1==11)

{

double m,c,n;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

n=m;

m=1/m;

c=acos(m);

c=(c\*180)/(3.1415926535897931);

printf("\narcsec(%0.4lf):%lf\n",n,c);

}

if(select1==12)

{

double m,c,n;

printf("\n\n\n\nEnter the Value:");

scanf("%lf", &m);

n=m;

m=1/m;

c=asin(m);

c=(c\*180)/(3.1415926535897931);

printf("\narccosec(%0.4lf):%lf\n",n,c);

}

}

if(select==10)

{

printf("\n\n\n\t\t\t\t\t----------------WELCOME TO THE PROGRESSIONS CALCULATOR-----------------");

printf("\n \n \t \t\t\t\t\t\t SELECT FROM THE OPTIONS\n");

printf("\n\t\t\t\t\t\t-------------------------------------------------");

printf("\n \t \t\t\t\t\t1-ARITHMETIC PROGRESSION 2-GEOMETRIC PROGRESSION\n");

printf("\t\t\t\t\t\t-------------------------------------------------");

printf(" \n\n \t \t\t\t\t\t\t SELECT AND ENTER THE CHOICE:");

int select2;

scanf("%d",&select2);

if(select2==1)

{

printf("\n\n\n\nEnter what to calculate:");

printf("\n1-First term (A) 2-Nth Term (An) 3-Sum of N terms(Sn) 4-Number of Terms (n) 5-Common Difference(d):");

int select3;

scanf("%d",&select3);

if(select3==1)

{

printf("\nEnter the common difference:");

float di;

scanf("%f",&di);

printf("\nChoose either 1-Sum of series(Sn) or 2-Nth term(An):");

int insel;

scanf("%d",&insel);

if(insel==1)

{

printf("\nEnter the number of terms:");

int n;

scanf("%d",&n);

printf("\nEnter the Sum of series upto %d terms(Sn):",n);

float sn;

scanf("%f",&sn);

float a=((2\*sn)-((n\*n)-n)\*di)/(2\*n);

printf("\nThe First Term (a) is: %f",a);

}

if(insel==2)

{ printf("\nEnter N for the Nth term:");

int n;

scanf("%d",&n);

printf("\nEnter the %d th Term :",n);

float an;

scanf("%f",&an);

float a=an-((n-1)\*di);

printf("\nThe First Term (a) is: %.3f",a);

}

}

if(select3==2)

{

printf("\nEnter The First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter N in Nth Term (n):");

int n;

scanf("%d",&n);

printf("\nEnter the common difference (d):");

float di;

scanf("%f",&di);

float an=a+((n-1)\*di);

printf("\nThe %dth Term of the series is: %f",n,an);

}

if(select3==3)

{

printf("\nEnter The First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter the number of terms to find the sum of (n):");

int n;

scanf("%d",&n);

printf("\nEnter the common difference (d):");

float di;

scanf("%f",&di);

float sn=((a\*n)+((((n\*n)-n)\*di)/2));

printf("\nThe Result is: %f",sn);

}

if(select3==4)

{

printf("\nEnter The First Term (a):");

float a;

scanf("%f",&a);

printf("\nChoose either 1-Sum of series(Sn) or 2-Nth term(An):");

int insel1;

scanf("%d",&insel1);

if(insel1==1)

{

printf("\nEnter The Sum of the series (Sn):");

float sn;

scanf("%f",&sn);

printf("\nEnter The Last term (l):");

float l;

scanf("%f",&l);

float n=((2\*sn)/(a+l));

printf("\nThe Number of terms (n) is: %f",n);

}

if(insel1==2)

{

printf("\nEnter The Nth Term (An):");

float an;

scanf("%f",&an);

printf("\nEnter The Common Difference (d):");

float di;

scanf("%f",&di);

float n=((an-a)/di)+1.0;

printf("\nThe Number of Terms (n) is: %f",n);

}

}

if(select3==5)

{

printf("\nEnter The First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter N for the Nth term or the Number of terms (n):");

int n;

scanf("%d",&n);

printf("\nChoose either 1-Sum of series(Sn) or 2-Nth term(An):");

int insel2;

scanf("%d",&insel2);

if(insel2==1)

{

printf("\nEnter The Sum of the series (Sn):");

float sn;

scanf("%f",&sn);

float di=((2\*sn)/((n\*n)-n))-((2\*a)/(n-1));

printf("\nThe Common Difference (d) is: %f",di);

}

if(insel2==2)

{

printf("\nEnter The %dth Term (An):",n);

float an;

scanf("%f",&an);

float di=(an-a)/(n-1);

printf("\nThe Common Difference (d) is: %f",di);

}

}

}

if(select2==2)

{

printf("\n\n\n\nEnter what to calculate(G.P):");

printf("\n1-First term (A) 2-Nth Term (Tn) 3-Sum of N terms(Sn) 4-Number of Terms (n) 5-Common Ratio(r) 6-Sum Of infinite terms (S):");

int select4;

scanf("%d",&select4);

if(select4==1)

{

printf("\nEnter the common ratio (r):");

float r;

scanf("%f",&r);

printf("\nChoose either 1-Sum of series(Sn) or 2-Nth term(Tn):");

int in2sel;

scanf("%d",&in2sel);

if(in2sel==1)

{

printf("\nEnter N in Nth term or Number of Terms (n):");

int n;

scanf("%d",&n);

printf("\nEnter the Sum of %d terms in the series (Sn):",n);

float sn;

scanf("%f",&sn);

if(r>1)

{

float a=(sn\*(r-1))/(pow(r,n)-1);

printf("\nThe First Term (a) is: %f",a);

}

if(r==1)

{

float a=sn/n;

printf("\nThe First Term (a) is: %f",a);

}

if(r<1)

{

float a=(sn\*(1-r))/(1-pow(r,n));

printf("\nThe First Term (a) is: %f",a);

}

}

if(in2sel==2)

{

printf("\nEnter N in Nth term (n):");

int n;

scanf("%d",&n);

printf("\nEnter the %dth Term (Tn):",n);

float tn;

scanf("%f",&tn);

float a=tn/(pow(r,(n-1)));

printf("\nThe First Term (a) is: %f",a);

}

}

else if(select4==2)

{

printf("\nEnter the common ratio (r):");

float r;

scanf("%f",&r);

printf("\nEnter the First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter N in Nth term (n):");

int n;

scanf("%d",&n);

float tn=a\*pow(r,(n-1));

printf("\nThe %dth Term (Tn) is: %f",n,tn);

}

else if(select4==3)

{

printf("\nEnter the common ratio (r):");

float r;

scanf("%f",&r);

printf("\nEnter the First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter N in Nth term (n):");

int n;

scanf("%d",&n);

if(r>1)

{

float sn=a\*((pow(r,n)-1)/(r-1));

printf("\nThe Sum Of the series upto %d Terms is: %f",n,sn);

}

else if(r<1)

{

float sn=a\*(1-pow(r,n))/(1-r);

printf("\nThe Sum Of the series upto %d Terms is: %f",n,sn);

}

}

else if(select4== 4)

{

printf("\nEnter the common ratio (r):");

float r;

scanf("%f",&r);

printf("\nEnter the First Term (a):");

float a;

scanf("%f",&a);

printf("\nChoose either 1-Sum of series(Sn) or 2-Nth term(Tn):");

int in2sel1;

scanf("%d",&in2sel1);

if(in2sel1==1)

{

printf("\nEnter the Sum of N terms in the Series:");

float sn;

scanf("%f",&sn);

if(r>1)

{

float temp=((sn\*(r-1))/a)+1;

float temp1=log(temp);

float n=temp1/log(r);

printf("\nThe Number Of Terms (n): %.0f",n);

}

if(r<1)

{

float temp=(-1\*(sn\*(1-r))/a)+1;

float temp1=log(temp);

float n=temp1/log(r);

printf("\nThe Number Of Terms (n): %.0f",n);

}

}

if(in2sel1==2)

{

printf("\nEnter the nth Term (Tn):");

float tn;

scanf("%f",&tn);

float temp1=tn/a;

float temp2=log(temp1);

float n=(temp2/log(r))+1;

printf("\nThe Number Of Terms (n): %.0f",n);

}

}

else if(select4==5)

{

printf("\nEnter the First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter the nth Term (Tn):");

float tn;

scanf("%f",&tn);

printf("\nEnter N in Nth term (n):");

float n;

scanf("%f",&n);

float nrev=(1/(n-1));

float temp=(tn/a);

float r=pow(temp,nrev);

printf("\nThe Common Ratio (r) is: %f",r);

}

else if(select4==6)

{

printf("\nEnter the First Term (a):");

float a;

scanf("%f",&a);

printf("\nEnter the common ratio (r):");

float r;

scanf("%f",&r);

if(r<1)

{

float sinf=a/(1-r);

printf("\nThe Sum Upto Infinite Series is: %f",sinf);

}

else if(r>1)

{

float sinf=a/(r-1);

printf("\nThe Sum Upto Infinite Series is: %f",sinf);

}

}

}

}

if(select==11)

{

float a,b,c;

printf("\n\n\n\nCompare Your Quadratic with ax^2+bx+c=0 \n");

printf("And Enter |a| |b| and |c|\n");

scanf("%f %f %f",&a,&b,&c);

if(a!=0)

{

float d=(b\*b)-(4.0\*a\*c);

if(d>0)

{

printf("\nRoots are real and distinct \n");

float dis=sqrt(d);

float r1=((-b)+dis)/(2\*a);

float r2=((-b)-dis)/(2\*a);

printf("\nRoots of the equation are %f and %f",r1,r2);

}

else if(d==0)

{

printf("\nRoots are Real and Equal\n");

float dis=sqrt(d);

float root=((-b)+dis)/(2\*a);

printf("\nCommon root is %f",root);

}

else if(d<0)

{

printf("\nRoots are Imaginary");

}

}

else

{

printf("Invalid input the expression is not Quadratic");

}

}

if(select==12)

{

int n;

printf("\n\n\n\nEnter The Number Of terms in your Polynomial:");

scanf("%d",&n);

float c[n],p[n];

int i;

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

{

int count=i+1;

printf("\nEnter the %d Term in Polynomial",count);

printf("\nEnter The Coefficient:");

scanf("%f",&c[i]);

printf("Enter The Power:");

scanf("%f",&p[i]);

}

printf("\n");

printf("\nThe Polynomial Is:");

int j;

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

{

if(c[j]>0)

{

printf("+");

printf("%.0f",c[j]);

}

else

{

printf("%.0f",c[j]);

}

printf("x^");

printf("%.0f",p[j]);

}

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

{

c[i]\*=p[i];

p[i]=p[i]-1;

}

printf("\n");

printf("\nThe Differentiated Polynomial Is:");

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

{

if(c[j]>0)

{

printf("+");

printf("%.0f",c[j]);

}

else

{

printf("%.0f",c[j]);

}

printf("x^");

printf("%.0f",p[j]);

}

}

if(select==13)

{

printf("\nEnter the Number to find the Binary Equivalent Of:");

unsigned int num,a,i,sum=0;

scanf("%d",&num);

a=num;

for(i=8;i>=1;i--)

{

sum=sum+(a%2)\*pow(10,(8-i));

if(a==1)

{

break;

}

a=a/2;

}

printf("\nThe Binary Equivalent is: %d",sum);

}

if(select==14)

{

float n;

printf("\nEnter the Number To Find The Absolute Of:");

scanf("%f",&n);

if(n<0)

{

n=n\*(-1);

}

printf("\nThe Absolute is: %.1f",n);

}

else if(select==15)

{

printf("\n\n\n\n \t\t\t\t\t\t\t WELCOME TO THE UNIT CONVERTER");

printf("\n\n \t\t\t\t\t\t\t SELECT FORM THE OPTIONS:");

printf("\n\n\t\t\t ------------------------------------------------------------------------------------------------");

printf("\n\t\t\t 1-Distance Related Conversions 2-Temperature Related Conversions 3-Weight Related Conversions");

printf("\n\t\t\t ------------------------------------------------------------------------------------------------");

int in3sel;

printf("\n\n \t\t\t\t\t\t\t ENTER YOUR CHOICE:");

scanf("%d",&in3sel);

if(in3sel==1)

{

int fromUnit,toUnit;

double fromValue,meterValue,toValue;

int power=0;

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

printf("Ell: 1\n");

printf("Femi: 2\n");

printf("Foot: 3\n");

printf("Inch: 4\n");

printf("Light year: 5\n");

printf("Metre: 6\n");

printf("Mile: 7\n");

printf("Nano meter: 8\n");

printf("Pace: 9\n");

printf("Point: 10\n");

printf("Yard: 11\n");

printf("Mili meter: 12\n");

printf("Centi meter: 13\n");

printf("Deci meter: 14\n");

printf("Deca meter: 15\n");

printf("Hecto meter: 16\n");

printf("Kilo meter: 17");

printf("\nEnter From Unit As Number:");

scanf("%d",&fromUnit);

printf("\nEnter To Unit As Number:");

scanf("%d",&toUnit);

printf("\nEnter The Value To Be Converted:");

scanf("%lf",&fromValue);

switch(fromUnit)

{

case 1: meterValue = fromValue \* 1.143; break;

case 2: meterValue = fromValue ; power = -15; break;

case 3: meterValue = fromValue \* 0.3048; break;

case 4: meterValue = fromValue \* 0.0254; break;

case 5: meterValue = fromValue \* 9.4607304725808; power =15; break;

case 6: meterValue = fromValue;break;

case 7: meterValue = fromValue \* 1609.344; ; break;

case 8: meterValue = fromValue; power=-9; break;

case 9: meterValue = fromValue \* 0.762 ; break;

case 10: meterValue = fromValue \* 0.000351450; break;

case 11: meterValue = fromValue \* 0.9144; break;

case 12: meterValue = fromValue \* 0.001; break;

case 13: meterValue = fromValue \* 0.01; break;

case 14: meterValue = fromValue \* 0.1; break;

case 15: meterValue = fromValue \* 10; break;

case 16: meterValue = fromValue \* 100; break;

case 17: meterValue = fromValue \* 1000; break;

default:printf("Invalid input");break;

}

switch(toUnit){

case 1: toValue = meterValue/1.143; break;

case 2: toValue = meterValue; break;

case 3: toValue = meterValue/0.3048; break;

case 4: toValue = meterValue/0.0254; break;

case 5: toValue = meterValue/9.4607304725808; break;

case 6: toValue = meterValue;break;

case 7: toValue = meterValue/1609.344; break;

case 8: toValue = meterValue;power=9; break;

case 9: toValue = meterValue/0.762; break;

case 10: toValue = meterValue/0.000351450; break;

case 11: toValue = meterValue/0.9144; break;

case 12: toValue = meterValue/0.001; break;

case 13: toValue = meterValue/0.01; break;

case 14: toValue = meterValue/0.1; break;

case 15: toValue = meterValue/10; break;

case 16: toValue = meterValue/100; break;

case 17: toValue = meterValue/1000; break;

default:printf("Invalid input");break;

}

if(power==0)

printf("\nThe Result is: %.4lf ",toValue);

else{

printf("\nThe Result Is: %.4lf \* 10^%d",toValue,power);

}

}

else if(in3sel==2)

{

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

int f,t;

double kel,fv,tv;

printf("Kelvin: 1");

printf("\nDegree Celcius: 2");

printf("\nFarenheit: 3");

printf("\nEnter From Unit As Number:");

scanf("%d",&f);

printf("\nEnter To Unit As Number:");

scanf("%d",&t);

printf("\nEnter The Value To Be Converted:");

scanf("%lf",&fv);

switch(f)

{

case 1:kel=fv;break;

case 2:kel=fv+273.15;break;

case 3:kel=((fv-32)\*0.555555)+273.15;break;

default:printf("Invalid input");break;

}

switch(t)

{

case 1:tv=kel;break;

case 2:tv=kel-273.15;break;

case 3:tv=((kel-273.15)/0.5555)+32;break;

default:printf("Invalid input");break;

}

printf("\nThe Result is: %.4lf ",tv);

}

else if(in3sel==3)

{

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

int f,t;

double kg,fv,tv;

printf("Kilogram: 1");

printf("\nPound: 2");

printf("\nGrams: 3");

printf("\nEnter From Unit As Number:");

scanf("%d",&f);

printf("\nEnter To Unit As Number:");

scanf("%d",&t);

printf("\nEnter The Value To Be Converted:");

scanf("%lf",&fv);

switch(f)

{

case 1:kg=fv;break;

case 2:kg=fv/2.205;break;

case 3:kg=fv/1000;break;

default:printf("Invalid input");break;

}

switch(t)

{

case 1:tv=kg;break;

case 2:tv=kg\*2.205;break;

case 3:tv=kg\*1000;break;

default:printf("Invalid input");break;

}

printf("\nThe Result is: %.4lf ",tv);

}

}

if(select==16)

{

printf("\n\nEnter The Base Amount:");

float b;

scanf("%f",&b);

printf("\nEnter The GST Percentage:");

float p;

scanf("%f",&p);

float xt=(p/100)\*b;

float ig=xt/2;

float cg=ig;

float fp=b+xt;

printf("\nThe Final Amount To Be Paid Is: %.3f",fp);

printf("\nThe IGST: %.3f and SGST: %.3f",ig,cg);

}

if(select==17)

{

printf("\n\n\n\t\t\t\t\t----------------WELCOME TO THE SERIES CALCULATOR-----------------");

printf("\n \n \t \t\t\t\t\t\t SELECT FROM THE OPTIONS\n");

printf("\n\t\t\t\t-------------------------------------------------------------------------------------");

printf("\n \t \t\t\t1-SUM OF(1+2+3+4...+N) 2-SUM OF(1^2+2^2+3^2+...+N^2) 3-SUM OF(1^3+2^3+3^3+....+N^3)\n");

printf("\t\t\t\t-------------------------------------------------------------------------------------");

printf(" \n\n \t \t\t\t\t\t\t SELECT AND ENTER THE CHOICE:");

int select5;

scanf("%d",&select5);

if(select5==1)

{

printf("\nEnter the Upto which term do you want the sum:");

int n;

scanf("%d",&n);

float sum=(n\*(n+1))/2;

printf("\nThe Sum is: %f",sum);

}

else if(select5==2)

{

printf("\nEnter the Upto which term do you want the sum:");

int n;

scanf("%d",&n);

float sum=(n\*(n+1)\*((2\*n)+1))/6;

printf("\nThe Sum is: %f",sum);

}

if(select5==3)

{

printf("\nEnter the Upto which term do you want the sum:");

int n;

scanf("%d",&n);

float sum=(n\*(n+1))/2;

sum=pow(sum,2);

printf("\nThe Sum is: %f",sum);

}

}

else if(select==18)

{

int n;

printf("\nEnter The Number Of Data Entries:");

scanf("%d",&n);

float a[n];

float s[n];

float num,a1=0;

float s1=0.0,m1;

int i,j;

printf("Enter the Data");

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

{

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

}

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

{

s1+=a[i];

}

m1=s1/n;

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

{ num=m1-a[i];

s[i]=num\*num;

}

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

{

a1=a1+s[i];

}

a1=a1/n;

a1=sqrt(a1);

printf("\nThe Standard Deviation is: %f",a1);

}

else if(select==19)

{

int n;

printf("\nEnter The Number Of Data Entries:");

scanf("%d",&n);

float a[n];

float s[n];

float num,a1=0;

float s1=0.0,m1;

int i,j;

printf("Enter the Data");

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

{

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

}

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

{

s1+=a[i];

}

m1=s1/n;

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

{ num=m1-a[i];

s[i]=num\*num;

}

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

{

a1=a1+s[i];

}

a1=a1/n;

printf("\nThe Variance is: %f",a1);

}

else if(select==20)

{

printf("\n\nEnter The Value to find Logarithm of:");

float n;

scanf("%f",&n);

float l=log(n);

printf("\nThe Log Value is: %.5f",l);

}

else if(select==21)

{

float amount;

float rupee, dollar, pound, euro;

int choice;

printf("\n\n\nFollowing are the Choices:");

printf("\nEnter 1: Ruppe");

printf("\nEnter 2: Dollar");

printf("\nEnter 3: Pound");

printf("\nEnter 4: Euro");

printf("\nEnter your choice: ");

scanf("%d", &choice);

printf("Enter the amount you want to convert?\n");

scanf("%f", &amount);

switch (choice)

{

case 1: // Ruppe Conversion

dollar = amount / 80;

printf("%.2f Rupee = %.2f dollar", amount, dollar);

pound = amount / 100.15;

printf("\n%.2f Rupee = %.2f pound", amount, pound);

euro = amount / 85.80;

printf("\n%.2f Rupee = %.2f euro", amount, euro);

break;

case 2: // Dollar Conversion

rupee = amount \* 80;

printf("\n%.2f Dollar = %.2f rupee", amount, rupee);

pound = amount \*0.81;

printf("\n%.2f Dollar = %.2f pound", amount, pound);

euro = amount \*0.95;

printf("\n%.2f Dollar = %.2f euro", amount, euro);

break;

case 3: // Pound Conversion

rupee = amount \* 100.15;

printf("\n%.2f Pound = %.2f rupee", amount, rupee);

dollar = amount \*1.23;

printf("\n%.2f Pound = %.2f dollar", amount, dollar);

euro = amount \*1.17;

printf("\n%.2f Pound = %.2f euro", amount, euro);

break;

case 4: // Euro Conversion

rupee = amount\*85.40;

printf("\n%.2f Euro = %.2f rupee", amount, rupee);

dollar = amount \*1.05;

printf("\n%.2f Euro = %.2f dollar", amount, dollar);

pound = amount \*0.86;

printf("\n%.2f Euro = %.2f pound", amount, pound);

break;

//Default case

default:

printf("\nInvalid Input");

}

}

else if(select==22)

{

float height, weight, bmi;

printf("\n\n\n \t\t\t\t\t\t\t WELCOME TO THE BMI CALCULATOR");

printf("\n\n\n\nEnter height in meter:");

scanf("%f", &height);

printf("\nEnter weight in kg:");

scanf("%f", &weight);

bmi = weight / (height \* height);

printf("\nYour Body Mass Index(BMI) is: %f\n", bmi);

if(bmi < 15)

{

printf("Your BMI category is: Starvation\n");

}

else if(bmi >= 15.1 && bmi <= 17.5)

{

printf("Your BMI category is: Anorexic\n");

}

else if(bmi >= 17.6 && bmi <= 18.5)

{

printf("Your BMI category is: Underweight\n");

}

else if(bmi >= 18.6 && bmi <= 24.9)

{

printf("Your BMI category is: Ideal\n");

}

else if(bmi >= 25 && bmi <= 25.9)

{

printf("Your BMI category is: Overweight\n");

}

else if(bmi >= 30 && bmi <= 30.9)

{

printf("Your BMI category is: Obese\n");

}

else if(bmi >= 40)

{

printf("Your BMI category is: Morbidly Obese\n");

}

else

{

printf("Wrong entry\n");

}

}

printf("\n\n\n \t\t\t\t\t \t\tDO YOU WANT TO REPEAT(Enter Y or N):");

char che;

scanf("%c",&che);

scanf("%c",&che);

if(che=='N'||che=='n')

{

break;

}

else if(che=='Y'||che=='y')

{

continue;

}

else

{

printf("\n\n\t\t\t\t\tInvalid Input");

break;

}

}

printf("\n\n\n\t \t\t\t\t\t\t------------THANK YOU-------------");

}

double sin(double x)

{

double sum;

double fa;

double pow;

sum = 0.0;

int i;

for(i = 0; i <=20; i++)

{

fa = 1.0;

pow = 1.0;

int j;

for(j = 1; j <= 2\*i+1; j++)

{

fa \*= j;

pow \*= x;

}

sum += ((i%2?-1.0:1.0)/fa)\*pow;

}

return sum;

}

double cos(double x)

{

double sum;

double fa;

double pow;

sum = 0.0;

int i;

for(i = 0; i <=20; i++)

{

fa = 1.0;

pow = 1.0;

int j;

for(j = 1; j <= 2\*i; j++)

{

fa \*= j;

pow \*= x;

}

sum += ((i%2?-1.0:1.0)/fa)\*pow;

}

return sum;

}