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Online C++ Compiler.

Code, Compile, Run and Debug C++ program online.

Write your code in this editor and press "Run" button to compile and execute it.

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#include <iostream>

#include <cmath>

using namespace std;

int main()

{

cout<<"Implementing Runga Kutta Method...............................................";

cout<<endl<<"As the function is of the form f(x,y)=0";

cout<<endl<<"Enter the numerator function:";

double numdegreex,numdegreey;

double numeratorx[50],numeratory[50];

cout<<endl<<"Enter degree of x part of function:";

cin>>numdegreex;

cout<<endl<<"Enter degree of y part of function:";

cin>>numdegreey;

cout<<endl<<"Enter coeffecients of x part of the polynomial:";

int i=numdegreex;

while(i>=0)

{

cout<<endl<<"Enter coeffecient for power(x) "<<i<<" :";

cin>>numeratorx[i];

i--;

}

cout<<endl<<"Enter coeffecients of y part of the polynomial:";

i=numdegreey;

while(i>=0)

{

cout<<endl<<"Enter coeffecient for power(y) "<<i<<" :";

cin>>numeratory[i];

i--;

}

cout<<endl<<"Enter the denominator function:";

double dendegreex,dendegreey;

double denominatorx[50],denominatory[50];

cout<<endl<<"Enter degree of x part of function:";

cin>>dendegreex;

cout<<endl<<"Enter degree of y part of function:";

cin>>dendegreey;

cout<<endl<<"Enter coeffecients of x part of the polynomial:";

i=dendegreex;

while(i>=0)

{

cout<<endl<<"Enter coeffecient for power(x) "<<i<<" :";

cin>>denominatorx[i];

i--;

}

cout<<endl<<"Enter coeffecients of y part of the polynomial:";

i=dendegreey;

while(i>=0)

{

cout<<endl<<"Enter coeffecient for power(y) "<<i<<" :";

cin>>denominatory[i];

i--;

}

cout<<endl<<"Enter the given value of x:";

double x,fx,reqx;

cin>>x;

cout<<endl<<"Enter the value of f(x) at given x:";

cin>>fx;

cout<<endl<<"Enter the value of x at which value needs to be calculated:";

cin>>reqx;

double actualk[4];

double h=0,k1=0;

cout<<endl<<"Caluclating value of function at x0 and y0..........................";

double numfuncvaluex=0,numfuncvaluey=0,denfuncvaluex=0,denfuncvaluey=0;

for(int i=0;i<4;i++)

{

numfuncvaluex=0;

numfuncvaluey=0;

denfuncvaluex=0;

denfuncvaluey=0;

for(int t=numdegreex;t>=0;t--)

{

numfuncvaluex=numfuncvaluex+(pow(x+h,t)\*numeratorx[t]);

}

for(int t=numdegreey;t>=0;t--)

{

numfuncvaluey=numfuncvaluey+(pow(fx+k1,t)\*numeratory[t]);

}

for(int t=dendegreex;t>=0;t--)

{

denfuncvaluex=denfuncvaluex+(pow(x+h,t)\*denominatorx[t]);

}

for(int t=dendegreey;t>=0;t--)

{

denfuncvaluey=denfuncvaluey+(pow(fx+k1,t)\*denominatory[t]);

}

actualk[i]=reqx\*((numfuncvaluey+numfuncvaluex)/(denfuncvaluey+denfuncvaluex));

h=reqx/2;

k1=actualk[i]/2;

if(i==3)

{

h=reqx;

k1=actualk[i];

}

cout<<endl<<"Value of function is:"<<((numfuncvaluey+numfuncvaluex)/(denfuncvaluey+denfuncvaluex));

}

cout<<endl<<"Checking Value:";

for(int i=0;i<4;i++)

{

cout<<endl<<"Value of k"<<i+1<<" is:"<<actualk[i];

}

cout<<endl<<"Net k=";

double s=(actualk[0]+2\*actualk[i]+2\*actualk[2]+actualk[3])/6;

cout<<s;

cout<<endl<<"Value of f(x) at required x is:";

cout<<s+fx;

cout<<endl<<"Applied Runga Kutta Method.................................... ";

return 0;

}