Newton Raphson Method

```
#include<conio.h>
#include<iostream.h>
#include<stdlib.h>
#include<math.h>

int user_power,i=0,cnt=0,flag=0;
int coef[10]={0};
float x1=0,x2=0,t=0;
float fx1=0,fdx1=0;

void main()
{

    cout<<"\n\n\t\t\t PROGRAM FOR NEWTON RAPHSON GENERAL";

    cout<<"\n\n\n\tENTER THE TOTAL NO. OF POWER:::: ";
    cin>>user_power;

    for(i=0;i<=user_power;i++)
    {
        cout<<"\n\t x^"<<i<<"::";
        cin>>coef[i];
    }

    cout<<"\n";

    cout<<"\n\t THE POLYNOMIAL IS ::: ";
    for(i=user_power;i>=0;i--)//printing coeff.
    {
        cout<<" "<<coef[i]<<"x^"<<i<<" ";
    }

    cout<<"\n\tINTIAL X1---->";
    cin>>x1;

    cout<<"\n
*****************************************************";
    cout<<"\n ITERATION    X1    FX1    F'X1  ";
    cout<<"\n
*****************************************************";

    do
    {
            cnt++;
            fx1=fdx1=0;
            for(i=user_power;i>=1;i--)
            {
                fx1+=coef[i] * (pow(x1,i)) ;
            }
            fx1+=coef[0];
            for(i=user_power;i>=0;i--)
            {
```

```
                fdx1+=coef[i]* (i*pow(x1,(i-1)));
            }
            t=x2;
            x2=(x1-(fx1/fdx1));

            x1=x2;

            cout<<"\n "<<cnt<<"         "<<x2<<"  "<<fx1<<"
"<<fdx1<<" ";

    }while((fabs(t - x1))>=0.0001);
    cout<<"\n\t THE ROOT OF EQUATION IS "<<x2;
    getch();
}

///**********************OUTPUT*******************************/


            /*PROGRAM FOR NEWTON RAPHSON GENERAL


    ENTER THE TOTAL NO. OF POWER:::: 3

     x^0::-3

     x^1::-1

     x^2::0

     x^3::1


     THE POLYNOMIAL IS :::  1x^3 0x^2 -1x^1 -3x^0

     INTIAL X1---->3

 ************************************
 ITERATION    X1    FX1    F'X1
 ************************************
 1         2.192  21.000 26.000
 2         1.794  5.344  13.419
 3         1.681  0.980  8.656
 4         1.672  0.068  7.475
 5         1.672  0.000  7.384
 ************************************

     THE ROOT OF EQUATION IS 1.671700 */
```