Lagrange's Interpolation

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
  float x[10],y[10],temp=1,f[10],sum,p;
  int i,n,j,k=0,c;
  cout<<"\nhow many record you will be enter: ";
  cin>>n;
  for(i=0; i<n; i++)
  {
   cout<<"\n\nenter the value of x"<<i<<": ";
   cin>>x[i];
   cout<<"\n\nenter the value of f(x"<<i<<"): ";
   cin>>y[i];
  }
  cout<<"\n\nEnter X for finding f(x): ";
  cin>>p;

  for(i=0;i<n;i++)
  {
    temp = 1;
    k = i;
    for(j=0;j<n;j++)
    {
      if(k==j)
      {
        continue;
      }
      else
      {
        temp = temp * ((p-x[j])/(x[k]-x[j]));
      }
    }
    f[i]=y[i]*temp;
  }

  for(i=0;i<n;i++)
  {
     sum = sum + f[i];
  }
  cout<<"\n\n f("<<p<<") = "<<sum;
  getch();
  }
```

```
/*
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how many record you will be enter: 4

enter the value of x0: 0

enter the value of f(x0): 0

enter the value of x1: 1

enter the value of f(x1): 2

enter the value of x2: 2

enter the value of f(x2): 8

enter the value of x3: 3

enter the value of f(x3): 27

Enter X for finding f(x): 2.5

 f(2.5) = 15.312500

*/
```