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/*
A program for the Lagrange interpolation with the Aitken method. Programmed by Mohammad Sazzad
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*/

    # include <iostream.h>
    # include <math.h>

        float product (float num1, float num2, float num3, float num4);



    int main ()
    {
        float x[100], p[100], f[100];
        float xm = 0, fm = 0;
        int j = 0, n = 0;

    cout << "Number of pair of data : ";
    cin >> n;

    for (int i = 0; i < n; i++)
    {
    cout << "x" << i << ":";
    cin >> x[i];
    cout << "f" << i << ":";
    cin >> f[i];
    }

    cout << "The point to interpolate: ";
    cin >> xm;

    do
    {
       i = 0;
       p[j] = 1;

    do
    {
       if (i != j)
       p[j] *= product (xm, x[i], x[j], x[i]);
       i++;
    }
       while (i < n);
```

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    j++;
}
    while (j < n);

    for (i = 0; i < n; i++)
    fm += f[i] * p[i];

    cout << fm << endl;

return (0);
}

    float product (float num1, float num2, float num3, float num4)
{
    float l;

    l = (num1 - num2) / (num3 - num4);

return l;
}
```