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#include <iostream>
#include <cmath>
#include <random>

#include <cppqt.h>

using namespace std;

// zeichnet eine Linie von p1 nach p2 (Algorithmus ist verbesserungsfähig)
void zeichneLinie(Drawing& pic, IPoint2D p1, IPoint2D p2, DrawColour c)
{
    // bestimme Abstand von p1 und p2 und male entsprechend viele Punkte
    // dazwischen
    int len = round(norm(p2 - p1));
    IPoint2D r = (p2-p1);

    IPoint2D q;
    double delta;
    for(int k = 0; k <= len; ++k)
    {
        delta = static_cast<double>(k) / len;
        q = round(static_cast<DPoint2D>(p1) + delta * static_cast<DPoint2D>(r) );
        pic.drawPoint(q, c, false);
    }
}

int maindraw()
{
```

```
Drawing pic(400, 400);
pic.show();
pic.setZoom(2);

IPoint2D p1, p2;

while(true)
{
    DrawColour c(255, 0, 0);
    cout << "Eingabe von p1, p2: ";
    cin >> p1 >> p2;

    if (p1.x < 0 || p1.y < 0 || p2.x < 0 || p2.y < 0)
        break;

    zeichneLinie(pic, p1, p2, c);
}

cout << endl;
IOThread::waitForWindow(60); //to close

return 0;
}
```