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#include <stdio.h> // for printf & scanf
#include <math.h> // for sqrt & M_PI

double k = 0.1; // global variables
double m = 1.0;

double ComputeEnergy(double x, double v)
{
    return 0.5*m*v*v + 0.5*k*x*x;
}

int main(void)
{
    double x = 0.0; // local variables
    double v = 1.0;
    double t = 0.0;

    double omega = sqrt(k/m);
    double period = 2*M_PI/omega;
    double dt = 0.01*period; // integration time step

    double energyInitial = ComputeEnergy(x, v);

    while(t < 3*period)
    {
        double f = -k*x; // Hooke's Law
        double a = f/m; // Newton's law

        v += a*dt; // Euler-Cromer integration
        x += v*dt;
        t += dt;

        double energy = ComputeEnergy(x, v);
        double perCentChange = 100*(energy - energyInitial)/energyInitial;

        printf("%.2lf\n", perCentChange); // output 2 decimal places
    }
    return 0; // normal exit
}
```