

**Euler.c**

```
1 #include <stdio.h>
2
3 // Function to calculate the value of dy/dx
4 double derivative(double x, double y) {
5     return x * x + y;
6 }
7
8 // Function to solve ODE using Euler's method
9 void eulerMethod(double x0, double y0, double h, double xn) {
10     double x = x0;
11     double y = y0;
12     while (x < xn) {
13         printf("x = %.2lf, y = %.6lf\n", x, y);
14         y = y + h * derivative(x, y);
15         x = x + h;
16     }
17 }
18
19 int main() {
20     double x0, y0, h, xn;
21
22     printf("Enter the initial value of x: ");
23     scanf("%lf", &x0);
24
25     printf("Enter the initial value of y: ");
26     scanf("%lf", &y0);
27
28     printf("Enter the step size (h): ");
29     scanf("%lf", &h);
30
31     printf("Enter the final value of x: ");
32     scanf("%lf", &xn);
33
34     printf("Solving ODE using Euler's method:\n");
35     eulerMethod(x0, y0, h, xn);
36
37     return 0;
38 }
```