

```

1 function u = backward(xend, nstep, f, g, c, dx, dt)
2
3 x = 0:dx:xend; t = (0:1:nstep)*dt;
4 J = length(x);
5
6 u = zeros(J, nstep+1);
7 u(:, 1) = f(x);
8 u(1, :) = g(t);
9
10 for n = 1:nstep
11     j = 2:J;
12     u(j, n+1) = u(j, n) - dt/dx*(c(x(j)))'.*u(j, n)-c(x(j-1))'.*u(j-1, n))
13     ;
14 end

```

```

1 f = @(x) 1;
2 g = @(t) exp(-.1*t);
3
4 xend = 10;
5 nstep = 40;
6 dt = 0.05;
7 dx = 0.1;
8
9 u = backward(xend, nstep, f, g, @c, dx, dt);
10
11 x = 0:dx:xend;
12
13 for i = 1:10:(nstep+1)
14     plot(x, u(:, i));
15     hold on;
16 end
17
18 legend('t=0', 't=0.5', 't=1.0', 't=1.5', 't=2.0');

```

