```matlab
function [x, t, w] = heatEquation1DFD(D, f, l, r, xdom, tdom, M, N)
% Solves the 1D heat equation in a bar using the Forward Difference Method
%   D: Material diffusion coefficient (aka diffusivity)
%   f: function (of x) describing the initial state of the bar
%   l: function (of time) describing the change in temperature at the left
 boundary of the bar
%   r: function (of time) describing the change in temperature at the right
 boundary of the bar
%   xdom: 1x2 array giving the locations of the boundaries
%   tdom: 1x2 array giving the time interval of interest
%   M: number of grid points along the bar (i.e. along x-coordinate)
%   N: number of grid points along time coordinate
% Discretize domain in time and space
x = linspace(xdom(1), xdom(2), M)';
t = linspace(tdom(1), tdom(2), N)';
%Check that initial and boundary conditions are compatible
TOL = 10^(-9);
if abs(f(x(1)) - l(t(1))) > TOL
    f(x(1))
    l(t(1))
    error('Initial condition does not agree with left boundary condition')
elseif abs(f(x(M)) - r(t(1))) > TOL
    f(x(M))
    r(t(1))
    error('Initial condition does not agree with right boundary condition')
end
% Define step sizes in space and time
h = (xdom(2) - xdom(1))/(M-1);
k = (tdom(2) - tdom(1))/(N-1);
sigma = D*k/(h*h);
if sigma >= 0.5
    warning ('Scheme is unstable for chosen discretization parameters')
end
% Initialize temperature matrix
w = zeros(N, M);
%Set the initial condition
w(1,:) = f(x);
%Set left and right boundary conditions
w(:,1) = l(t);
w(:,M) = r(t);
% %Construct the matrix A
%
% m = M - 2; %number of inner grid points along the bar
% % A = diag((1-2*sigma)*ones(m,1));
% A = (1-2*sigma)*eye(m);
%
% for i=1:m-1
%     A(i,i+1) = sigma;
%     A(i+1,i) = sigma;
% end
%
% sj = zeros(m,1);
```

```matlab
%
%
% % compute temperature at inner nodes at each time step
%
% for j=1:N-1
%     wj = w(j,2:m+1)';
%     sj(1) = sigma*w(j,1);
%     sj(m) = sigma*w(j,M);
%
%     w(j+1,2:m+1) = A*wj + sj;
% end
for j=1:N-1
    for i=2:M-1
        w(j+1,i) = sigma*w(j,i-1) + (1-2*sigma)*w(j,i) + sigma*w(j,i+1);
    end
end
end

Not enough input arguments.

Error in heatEquation1DFD (line 12)
x = linspace(xdom(1), xdom(2), M)';
```

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