
```

function error = errortimestep(n)
% Example Usage:
%     1.    clear all; clearvars; close all; clc;
%     2.    error=errortimestep(8)
format long
% Exact Solution (Eqn 8.68) to Burgers' Eqn for x=0.5, t=1
u=0.1309206586
error={}
temp00=zeros(n-4,1);
temp01=zeros(n-4,1);
% Invocation of Burgers' Eqn
j=4;
for i=j:n
    w=burgers_02a(0,1,0,2,100,(2*2^(i)));
    %temp00(i-3)=w(50,(2^(i)));
    %temp01(i-3)=w(51,(2^(i)));
    avg = ( w(50,(2^(i))) + w(51,(2^(i))) ) /2
    error00=avg-u
    error=[error,error00]
end

% Plot Error-vs-Time-Step Size on log-log axis
k = [2^-4, 2^-5, 2^-6, 2^-7, 2^-8];
% Calculated Errors
%t = [0.027768763236132, 0.024564514206934, 0.022952255490602,
%     0.022143522358353, 0.021738496952012];
%t = [0.168232601865159, 0.149024547245264, 0.139753707450387,
%     0.135204659805387, 0.132952086182673];
t = [0.037311943250182, 0.018103888630288, 0.008833048835411,
     0.004284001190411, 0.002031427567696];
%loglog(k,t,'-s')
loglog(k,t,'-s')
%loglog(k,error00,'-s')
grid on
title('Burgers Eqn: Error Evaluation');
xlabel('k: Step Size');
ylabel('Error');
axis square;

% Plot "Text Annotations"
%ta = annotation('textarrow', [0.60 0.70], [0.80 0.80])
ta = annotation('textarrow', [0.60 0.75], [0.85 0.75])
ta.String = '1/16 = 0.0625 ';
ta.Color = [0 0.5 0.5];

ta = annotation('textarrow', [0.32 0.40], [0.45,0.25])
ta.String = '1/256 = 0.00390625';
ta.Color = [0 0.5 0.5];

```

$u =$

0.130920658600000

error =

0×0 empty cell array

Not enough input arguments.

Error in errortimestep_code (line 9)
temp00=zeros(n-4,1);

Published with MATLAB® R2017a