DE 255, Dr. Sakalli, CSE, Marmara University. 2013.

Project1, Vectorizes Dirfields.m.

You are given matlab files, the aim is to vectorize the dirfield.m for a given first order, and figure out the results.

Commands to utilize::
Look at the example given for 1st order nonlinear using forloops dirfield.m.
Here I provide you a script whose commands are partially given,
think how to avoid using for loops, (vectorizing), in which case for example you must enter $y'(t) = t.y.^2$ instead of $y'(t) = t\,y^2$, (dot product of elements), thought this statement is not always correct.

Check dirfield.m.
http://www.math.purdue.edu/~arshak/F12/MA366/matlab/C1S1dir/dirfield.m
and other materials there if you wish..

Fill in the missing gaps in Pr1_yournameDirFieldsVectrzd.m

Rename file and function with yourownDIRfieldVectzd.m

Run your function for given functions below, and try ode45 for a new interval (choose positive values), and t0, and plot a particular solution.

plot direction fields and some pariclar solutions.

your submission must include solutions of 1st order functions,
a) $y'(t) - y^2(t) = t^2$
b) $y'(t) - t\,y^2 = 0$.
c) $y' * y^2 = x^2$, why matlab is complaining
e) how to treat the problem, (hint: introduce an infinitesimal delta increment)
f) $y'\,y = -t$.

matlab has a number solvers.. you will be given an intr on this, just to remind, s stands for stiffness ode15s for example.