Wave Equation Example on solving 2nd order Partial Differential Equations (PDEs)

First run this MATLAB function **wave_equation** that implements the finite difference method to numerically solve a Wave equation of the form $u_{xx} - u_{yy} = 0$; subject to initial conditions dx , dy;as step sizes , spatial domain **x**, time domain **t**, solution array **u**, **u(:,1)** the first initial condition and **u(:,2)** the second initial condition.

Then run the example script **wave_example** after adjusting the inputs as you want.

Input Arguments in the example script:

- **Nx**: number of spatial grid points.
- **Ny**: number of time steps.
- **L** : length of the domain.
- **T** : total time.
- **c** : wave speed.

Output Arguments:

- **A plot of the solution.**

The Plot for the Wave Equation Example: