PROJECT #2
Time Developing Flow in a Driven Cavity

Project report due on **December 1, 2014**

Solve the incompressible Navier-Stokes equations in primitive variable form for the two-dimensional, **two-sided** lid-driven cavity problem.

1. Nondimensionalize all the variables and governing equations (including initial and boundary conditions) using the length of the cavity (L) and the velocity of the plate (U_0) as scales for length and velocity, respectively.

2. Find the numerical solution using the unsteady explicit MAC method.

3. Compare with previously published results for midplane velocity. You may conduct this comparison for one-sided lid-driven cavity if previous results are not available for two-sided cavity.

4. Investigate the effect of Reynolds number.

5. Investigate accuracy and stability by considering the effects of Δt and $\Delta x = \Delta y$.

In the presentation of results, include plots of:
Velocity vectors
Streamlines