MAE 494/598 Homework 1 (4 points)
Note: 1 point ≈ 1% of the total score for the semester
Hard copy of report is due *before class* on the due date. No electronic submission.
No restriction on collaboration for this assignment. *If you receive help from other student(s), it should be acknowledged in the report.*

Task 1 (no point, no need to show result in the report)
Complete the first tutorial for Ansys-Fluent.

Task 2 (2 points)
Follow Step 7 (p. 1-54) in the tutorial to enlarge the "small pipe" for the inlet of hot water. Instead of *0.75 in*, increase the radius of the pipe to *1.0 in*. Otherwise, follow the remaining steps to complete the simulation. Reproduce the right panels of Figs. 1.41 and 1.42 (i.e., the contour/color-fill plots of the velocity and temperature in the plane of symmetry) but with the new geometry of the enlarged small pipe.
(Tip: To ensure a smooth connection between the small pipe and the main pipe, when the radius of the small pipe is increased to *1.0 in* you might need to increase the "depth" of extrusion as described in point "x." in p. 1-15 of the tutorial.)

Task 3 (2 points)
After completing task 1 and 2, obtain the profiles of temperature and velocity (normal to the outlet) along the line, *AB*, as indicated in the illustration below. This is the line on the plane of symmetry that passes through the center of the outlet. Please make two separate plots for the profiles of velocity and temperature. Each plot should show two curves, one for the standard case (with R = *0.5 in*) and one for the case with an enlarged small pipe (with R = *1.0 in*).