LATTICE BOLTZMANN METHOD (MCL819)

Project 1

1st Semester, 2019-2020

Problem Statement

Solve the following problems using both finite-difference and finite-volume approaches.

a) Couette flow: Flow between two parallel plates due to shearing motion in the absence of pressure gradient.

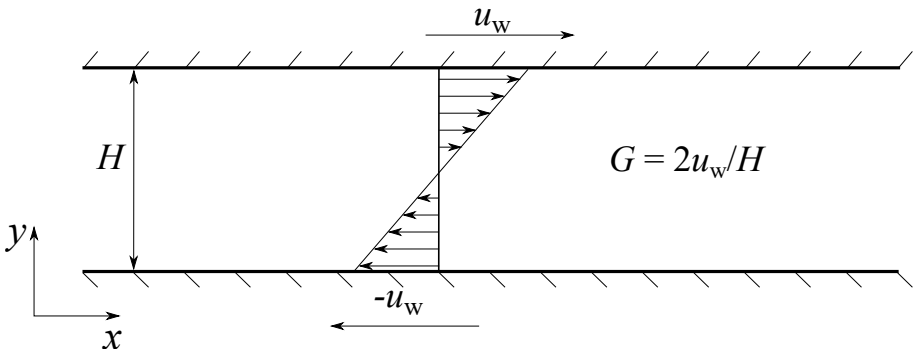

Figure 1: Couette flow

b) Poiseuille flow: Flow between two stationary parallel plates due to pressure gradient.

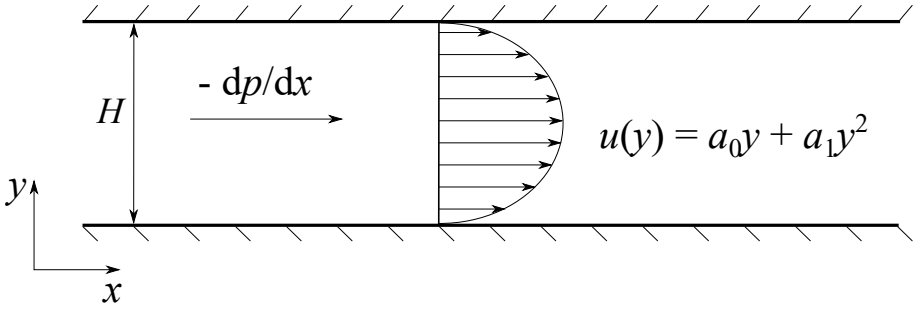

Figure 2: Poiseuille flow

You should clearly compare the numerical solution with the analytical solution. You are required to submit the report online on Moodle. The submitted report will be checked for plagiarism using Turnitin.