Homework 1 **Deadline: 3 Apr 2019 (12:30 PM)**

A gas reservoir has the following gas composition:

Component	y_i
CO_2	0.02
N_2	0.01
C_1	0.85
C_2	0.04
C_3	0.03
i - C_4	0.03
i – C_5	0.02

the initial reservoir pressure and temperature are **3000** *psia* and **180** *°F*, respectively.

a) Calculate the density of the gas mixture under the described condition. Use Compressibility Equation of State. The Hall-Yarborough Method must be used for the calculation of the Z-factor. (preset tolerance must be taken as 10^{-12}.

b) Check the effects of changing the preset tolerance on the Compressibility Equation of State. The calculated density from the previous part should be taken as a constant.

If you have any question about the homework, you are very much welcome to have contact with me, or you can come to my place, blue building, in front of room 210.