Lab sheet-3

1. Perform the simulation in LAMMPS to obtain the following mechanical properties of Aluminum:
a. Young's modulus
b. Yield strength
c. Strain at which the plastic deformation starts.
d. Modulus of resilience from the stress-strain curve of Aluminum.

Compare the values of (a) and (b) with the reference value.
Provide the link to the reference that you followed.

Provide the following simulation details:
a. equilibration temperature
Is the equilibration temperature equal to the desired temperature. Specify the difference in two temperatures.
b. timestep used
c. strain rate
d. number of iterations
e. strain applied in each step

2. Change the input file and compute the elastic modulus in compression for Aluminum.
Specify the following:
a. Modulus of compression
b. Is there a sharp yield strength in compression?

3. Change the input file and compute the bulk modulus of Aluminum (refer to course slides for the formula).
Specify the value of bulk modulus.

Compare this value with the reference value. Provide the link to the reference that you followed.

Note:
All the specfied values should have proper units.
The reference cannot be chatGPT. It has to be a journal article.