CSE 1321L: Programming and Problem Solving I Lab

Assignment 1

Module 1

What students will learn

- o Problem Solving
- o Terminology
- o Basic Program Structure
- o Input and Output with the user
- o Basic calculations and calculations that require an intermediate solution

Content

- o Overview
- o Assignment1A: Alert
- o Assignment1B: Ideal Gas Law Calculator
- o Assignment1C: Centimeters to feet and inches

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Temp1 = m1 * m2
Temp2 = r * r
Temp3 = temp1 / temp2
F1 = g * temp3
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Final note: Do not cheat

Assignment 1B Ideal Gas Law Calculator

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$$2 = \frac{J\,46}{8}$$

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- o   P: Pressure (in atm)
- o   n: Number of moles of the gas (in moles)
- o   R: Ideal gas constant = 0.0821 $\frac{Ô\,ç\,à\mathscr{A}}{à\,â\,\mathscr{A}}$
- o   T: Temperature (in Kelvin)
- o   V: Volume (in Liters)

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$$PI = 3.14 \quad \text{\#pi constant}$$

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For this assignment:
- o   Prompt and read from the user the input values for the required values to calculate Pressure in ATM
  - o   Number of moles of the gas
  - o   The temperature in Celsius
  - o   The volume in Liters
- o   Make sure to read these three inputs as floats
- o   Create a constant variable for the Ideal Gas Constant.
- o   Convert the temperature in Celsius to Kelvin. Use this formula:

  6 - A H J-E 6 %A ⬩E Q+ 273.15

- o   Use the user input values and the Ideal Gas Constant (R) to calculate the pressure
- o   Output the pressure calculated in atm rounded to 2 decimal places

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Sample Output #1:
[Ideal Gas Law Calculator]
Enter the number of moles of the gas:
Enter the temperature of the gas in Celsius:
Enter the volume of the gas in Liters:

The pressure of the gas is 1.49 atm

Sample Output #2:
[Ideal Gas Law Calculator]
Enter the number of moles of the gas:

Enter the temperature of the gas in Celsius:
Enter the volume of the gas in Liters:

The pressure of the gas is 72.72 atm

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