MAT 115E Introduction to Programming Language

Lab-3 / CRN : 21132

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1 Question 1

Read three alphabetic characters from the user in lexicographical order using at least one **scanf()** and one **getchar()**. Test whether harmonic mean of first and third character is greater than second character. Your program must print 1 if harmonic mean is greater than second one and 0 if not.

NOTE: To get 0 and 1, you should use logical and relational operators. Do not use if-else statement.

$$\text{Harmonic Mean} = \frac{2}{\frac{1}{x_1} + \frac{1}{x_2}}$$

Example Scenario:
>Enter the first character: S
>Enter the second character: C
>Enter the third character: T
>Harmonic mean of S and T is greater than C : 1 (Here, 1 means true)

2 Question 2

In the triangle shown, $a = 5$ cm, $b = 7$ cm, $\gamma = 55°$. Define a b, γ as variables, and then:

a.) Compute the length of c by substituting the variables in the Law of Cosines.

$$\text{Law of Cosines} : c^2 = a^2 + b^2 - 2ab\cos\gamma$$

b.) Compute the angles α and β in degrees using the Law of Sines.

$$\text{Law of Sines} : \frac{a}{\sin\alpha} = \frac{b}{\sin\beta} = \frac{c}{\sin\gamma}$$