

Programming III Assignment #1

Due: Monday, Oct. 4 by noon

Remember to include comments and to use proper programming style!

1a) Create a SC file with code to convert a temperature in degrees Fahrenheit to degrees Celsius. You should use variables and expressions. You should post the result with the statement:

"xxx degrees Fahrenheit is equal to yyy degrees Celsius."

(Don't try to prompt the user for input.) If you initialize the variable for Fahrenheit temperature to 32-degrees, the Celsius result should be 0. Also, if you initialize the Fahrenheit temperature to 212, then the Celsius temperature should be 100.

Formula: Celsius = 5/9 (Fahrenheit - 32)

1b) Write a similar program that converts frequency in Hz to the nearest MIDI note value. The result should be posted with an explanatory message. If you initialize the frequency to 440, the MIDI note value should be 69. If you initialize the frequency to 255, the MIDI note value should be rounded up to 60.

1c) An equation of the form

$$ax^2 + bx + c = 0,$$

is known as a quadratic equation. There are two solutions ('roots') to the equation given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a},$$
 where a, b and c are constants.

Write a program that solves for the two roots given values assigned to a, b and c. For example, if a = 1, b=4 and c=2, then the roots are zero and -4. Careful, not all values of a, b and c produce a simple result!

Turning In Assignments

Name your SC files with the abbreviation "assign", the number of the assignment, and your last name. As in:

assign1Kendall

Email these as attachments to g.kendall@qub.ac.uk and ngillian01@qub.ac.uk

Later on if you submit a revision of your assignment, append Rev to the name.