CS1400: Using Crickets as a Thermometer

Dipper is looking for a mysterious creature in Gravity Falls forest. He read in the journal that this creature only comes out if the temperature is between 75 and 80 degrees Fahrenheit. The forest starts to cool off as the sun goes down. So, he wants to monitor the temperature. Unfortunately, he left his thermometer back at the Mystery Shack.

Dipper remembers that the crickets in the forest chirp faster when it is hot outside and slower when it is cold outside. In fact there is a formula to calculate the temperature given the number of times the cricket chirps in a 13 second interval. Take the number of chirps you count from the cricket in 13 seconds, then add 40. You will have an approximation of the temperature in Fahrenheit.

Luckily, Dipper has a stopwatch and his laptop with Python installed.

Assignment

Help Dipper by writing a program that will prompt him for the number of chirps he counted in 13 seconds, calculating the temperature, then display the temperature. Except, if the temperature is less than 55 degrees, instead display a message that states that it is too cold for crickets.

Additional Documentation

This is a real effect. Here are a few reputable websites that discuss it:

- Snoopes
- Library of Congress
- The Old Farmer's Almanac

Potential Sessions

Sample 1

================================================================================
Hey Dipper, I'll calculate the temperature for you.
Using your stopwatch, count how many times the cricket chirps in 13 seconds.

How many chirps did you count? 46

By my calculations it is about 86 degrees.
================================================================================

Sample 2

================================================================================
Hey Dipper, I'll calculate the temperature for you.
Using your stopwatch, count how many times the cricket chirps in 13 seconds.

How many chirps did you count? 13

It's too cold for crickets.
================================================================================

Show Off Your Work

To receive credit for this assignment, you must show your source code and demonstrate your running program.

Ask your instructor who they would like you to show the assignment to.