Coding Club: Meeting #1

Introductions

Welcome/Warm-up activity: Try out some Python Programs (~30 mins)

- Room was set up with six laptops each running a program.
    - Rock-Paper-Scissors (rps.py)
    - Craps (craps.py)
    - Guessing Game (guessing_game_1.0.py)
    - Super Hero name generator (super_hero.py)
    - Wordle (wordle.py)
    - Square Root finder (sqrt.py)
- When participants arrived they were encouraged to run the program and shown how to restart it.
- After ~10 mins a second program was loaded, and after ~20 mins a third.
- Participants were shown the code and asked to guess how it related to what happened when the program ran.

Presentation (using white board): The BIG Picture - Computers and programming (~30 mins)

(Resource: A simplified presentation of the material in Week 1 at https://www.timtopper.com/CPSC128.W15/)

- What is coding? Writing computer programs to make the computer behave the way we want.
- What is a computer program? A written series of commands to the computer.
- Programming languages (vs 'natural' or human languages)
- Our programming language: Python
- What is a computer? The simple world of the computer: Input, Processor, Memory, Output
- There are only six key concepts in programming here are the first four: input, processing, output, sequence. (To come later: selection and repetition.)

Hands-on: Issuing Python commands directly in IDLE (~30 mins)

- Pair Programming and why we will work in pairs.
- Processing in Python using **=**
    - Do some arithmetic with big numbers in the terminal. How large a number can Python handle?
    - Calculate your age in dog years (your age x 7, e.g. **12*7**)
    - Gotcha #1: Can't use x for multiplication. Why not? Because it looks like a variable name. Use * instead.
    - So far we have just been using the processor. Let's put memory to work: Store your age in memory using the name age (**age = 12**)

- Output using **print()**
  - **print(age*7)**
- Input using **input()**
  - **print(‘ How old are you?’)**
  - **age = input()**
- The IDLE Terminal (don’t present this, just mention them as they arise naturally through their activities).
  - The prompt: >>>
  - Angry Red Text

Hands-on: First program (commands in a file) (~30 mins)

- Putting your commands into a file (i.e. creating your first program)
  - File -> New (or Ctrl-N) to create a new program file
  - File -> Save (or Ctrl-S) to save it (give it the extension .py)
  - Run -> Run Module (or F5) to run it
  - Use the Window menu (or Alt-Tab) to switch between windows
- Writing a program to calculate the:
  - User’s age in dog years (**age * 7**)
  - User’s weight on the moon (**weight/6**) Notice what the output looks like for some numbers! #yuck We’ll see how to control that later.
  - User’s weight on the sun (**weight * 27.9**)
  - Don’t tell them about **int()** up front. The error they will get when they try **age/6** is a teachable moment.
  - See: **trivia.py** for a tidied version.

```
# trivia.py

print('Trivia Generator')
print('----------------')

# Input
print('What is your name?')
name = input()

print('Hi', name, ' I have some questions for you:')
print('How old are you?')
age = input()
age = int(age)

print('How much do you weigh? (in pounds)')
weight = input()
weight = int(weight)

# Processing
dog_years = age * 7
moon_weight = weight / 6
sun_weight = weight * 27.9

# Output
print('You are', dog_years, 'years old in dog-years.')
print('On the moon you would only weigh', moon_weight, 'pounds.')
print('While on the sun you would weigh', sun_weight, 'pounds (but not for long!).')
```