Activities: Module 3 & 4

Strings again:

Python strings are delimited by the single or the double quotation mark. If you use three double quotation marks as delimiters before and after the string, then the string can contain line breaks. In this exercise, we just use several print statements to print out one line at a time.

Recall that a backslash followed by many other characters has a special meaning. We say that the backslash is an *escape character* and that the symbol itself has been escaped. If you want to put a quotation mark inside a string delimited by the same quotation mark, then you need to use the backslash. While Python is very good at divining your intention (or rather has a clever algorithm to understand strings), you sometimes need to escape the backslash itself in order for it to be represented. As a rule of thumb, when you want a backslash, always escape it by doubling it.

1   Your first task is to draw the bear's face on the right with seven print statements. (The long horizontal lines are underscores.) The second print statement is something like
```
print("   / \\.-\"\"\"\"-./ \\")
```

Using the input function:

Recall that Python uses the input function in order to obtain input from the keyboard. Using the following Furlong to Meters program as a paradigm, **create programs** that convert Cables to Meters, Acres to Square Meters, Gallons to Liters, Degrees Celsius to Degree Fahrenheit, Degrees Fahrenheit to Degrees Celsius, and Miles per gallon to liters per kilometer.

```
furlongs = float(input("Enter distance in Furlongs: "))
print('The distance is', furlongs*201.168, 'meters.')
```

Notice the following two points: The parameter of the input function is the prompt string. It looks better with white space at the end, either a space or a tab character. Second, the return value of the input function is always a string that needs to be cast with int or float.

Conditional Execution:

In the US system of grades, letter grades are given as marks. The letter grades are A, B, C, D, and F. The grading scale is >95%: A, > 90% A-, >87% B+, >83% B, > 80% B-, > 75% C+, >70% C, >65% C-, >60% D, > 50% D-, else F (for failing). Implement a program that allows me to enter a percentage and that changes it into the appropriate grade.

Create a program that has the user enter two values for x and y. It prints a value according the decision tree on the right.

Create a program that calculates the following function

$$f(x, y) = \begin{cases} \dfrac{x+y}{x^2+y^2} & \text{if } x^2 + y^2 < 1 \\ xy & \text{if } x^2 + y^2 = 1 \\ x^2 + y^2 & \text{else} \end{cases}$$