Assignment 3

Problems

1. Is it a triangle?

Write a program that accepts three numerical values and outputs a message indicating whether they could represent the lengths of the sides of a triangle or not. (Note: Not necessarily a right-angled triangle, just any triangle at all.)

A sample run might look like this,

```
=================
Is it a triangle?
-----------------
Enter your first value: 4
Enter the second value: 9
Enter the third value: 3
I'm afraid those three numbers could NOT represent the lengths of
the sides of a triangle.
```

2. Is it an Armstrong number?

An Armstrong number is an *n*-digit number that is equal to the sum of its digits each raised to the *n*th power. For example 153 equals $1^3+5^3+3^3$, so it is an Armstrong number. Write a program that inputs a three-digit number, and outputs a message saying whether it is an Armstrong number or not.

A sample run might look like this,

```
=========================
Is it an Armstrong number?
-------------------------
Enter your number: 284
I'm afraid 284 is NOT an Armstrong number.
```

Hint: You can pull apart a number to get its individual digits by dividing and modulo-ing by appropriate multiples of 10, e.g. num %10

will give you the 1s digit, i.e. the rightmost digit, and num/100 will give you the 100s digit, i.e. the leftmost digit.

3. Richter Scale

Write a program that inputs the Richter magnitude of an earthquake and outputs the corresponding description and typical effects according to the table* below.

Richter Magnitudes	Description	Earthquake Effects
Less than 2.0	Micro	Microearthquakes, not felt.
2.0-2.9	Minor	Generally not felt, but recorded.
3.0-3.9		Often felt, but rarely causes damage.
4.0-4.9	Light	Noticeable shaking of indoor items, rattling noises. Significant damage unlikely.
5.0-5.9	Moderate	Can cause major damage to poorly constructed buildings over small regions. At most slight damage to well-designed buildings.
6.0-6.9	Strong	Can be destructive in areas up to about 160 kilometres (100 mi) across in populated areas.
7.0-7.9	Major	Can cause serious damage over larger areas.
8.0-8.9	Great	Can cause serious damage in areas several hundred miles across.
9.0-9.9		Devastating in areas several thousand miles across.
10.0+	Epic	Never recorded; see below for equivalent seismic energy yield.

A sample run might look like this,

```
======================
Earthquake Interpreter
----------------------
Enter the Richter magnitude of the earthquake: 4.4
Magnitude: 4.4
Description: Light.
Effects: Noticeable shaking of indoor items, rattling noises.
Significant damage unlikely.
```

4. Should I do Laundry

Write a program that gets the users age, whether they have clean clothes, and whether they know how to do laundry. From that data the

program should tell the user if they need to do laundry based on the flow chart below. I'd also like you to add one more question to the flow chart and think about how it might change the decision (something like smell or maybe accessibility issues). I've also included a sample run (with just the base criteria).

```
======================
Should you do Laundry?
----------------------
How old are you? 21
Do you have clean clothes (y or n)? n
Do you know how to do laundry (y or n)? y
Based on your answers it is time to do laundry!
```