Week 0 - before the lectures

210CT

2015/16

1 Week 0

Since many of you have a lab slot before the lecture, we will be using the first week's lab time to re-familiarise ourselves with programming and the development environments we will be using.

The module does not require any particular language, so it is up to you how you complete most things. However, the examples will be presented in Python and C++, so for this week I'd like you to try these out.

You have four hours of labs in the week and in that time you should be able to complete the following tasks. If you complete them all and have time spare, there is a challenge at the bottom for you.

2 Tasks

1. Find out where the editor/compiler/interperter is for your preference between C++ and Python. Write a program that prints your name 10 times.

2. Now find the same for the language you didn't pick for part one. Write the same program. You can look up examples and copy/paste anything that might help as long as it works.

3. Now in whichever language you prefer:

   (a) Write a program that counts up from 1 to 50, printing the numbers.

   (b) Now make the same program play "fizz-buzz" from 1 to 50. Look up the rules...

(c) Write a program that asks the user for a year and then determines if the year is a leap-year or not. You can find the algorithm online.

(d) Write a program that plays a guessing game with the user. A random number is selected and not revealed. The user can guess a number and will be told if it is higher or lower. If the user guesses correctly, a message is displayed.

3 Challenge

Because the experience and skill range in programming is quite broad, each week I will also set a "challenge". Since following weeks contribute to assessment, the challenges will too.

Your challenge this week is: write a program to predict the number of creatures in a fictional alien invasion. An alien lays X eggs each day (there are genders in this species) and the eggs hatch after Y days. If X is 3 and Y is 5, how many aliens will there be 30 days after a single alien invades?

Hint: make an array/list and use each slot to represent a day. Put a 1 in the first position and then calculate how many eggs are laid and when they will hatch. Put this value in the correct cell and then add the value for the current day to the following one (they don't die off) and move along.