

Python Games



Session 3

By Declan Fox



Rules

“Above all, be cool.”

General Information

Wi-Fi Name: CoderDojo

Password: coderdojowireless

Website: <http://cdathenry.wordpress.com/>

Useful Links

Recommended reading:

<http://inventwithpython.com>

Reference Guide

<http://www.tutorialspoint.com/python/>

Social Media

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Or if you are on twitter follow us on
[@coderdojoathenr](https://twitter.com/coderdojoathenr)

Installation

As we will be moving on to graphical games we will need to install both Python and Pygame*

* If you have Python 3.x.x and Pygame installed you can ignore the next slide

Installation

We are using version 3.2 of Python go to <https://www.python.org/download/releases/3.2.5/>

Select [Windows x86 MSI Installer \(3.2.5\)](#)

To install Pygame go to

<http://pygame.org/download.shtml>

Select [pygame-1.9.2a0.win32-py3.2.msi](#)

Last Week

1. Escape characters
2. The end keyword
3. Functions
4. Boolean operators

Why are functions important?

- The program is easier to understand.
- You can reuse code easily.
- Easier to design and test code.
- Top-down design
- Build from the bottom up

What can a Function do?

1. It can perform some computational task.
2. It can return a result and/or modify parameters.
3. It can take in Data (called Arguments)

Function Variables

Variables created inside a function are forgotten after the execution leaves the function.

- Variables defined inside a function are called **Local Variables**
- Variables defined outside of a function are called **Global Variables**

Function Definitions & Function Calls

A function's definition (where we put the def statement and the def-block) has to come before you call the function.

We call our own functions the same way we call Python's built in functions.

Example- myFunction ()

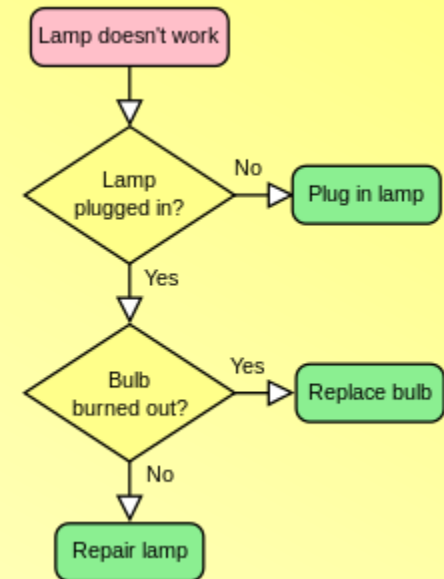
Our Next steps

Last week we came up with loads of ideas for our game so now we have to make sense of all these ideas and decide what our game is going to end up like.

There are a number of design tools we can use to help us such as Flowcharts, storyboards and pseudo code

Flowcharts

A **flowchart** is a type of diagram that represents an algorithm, workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows



Flowcharts

Flowcharts are used in designing complex processes or programs. They help visualize what is going on and thereby help the people to understand a process. The two most common types of boxes in a flowchart are:

- a processing step, usually called *activity*, and denoted as a rectangular box
- a decision, usually denoted as a diamond.

Storyboards

A storyboard is used to visualize how your Game will unfold. It is made up of a number of squares with illustrations or pictures representing each part of the game, with notes about what's going on in the scene. Think of it as sort of a comic book version of your Game.

Pseudo code

Pseudo code is an informal high-level description of the operating principle of a programme.

It uses the structural conventions of a programming language, but is intended for human reading rather than machine reading. Pseudo code typically omits details that are not essential for human understanding of the programme. The programming language is augmented with natural language description details, where convenient, or with compact mathematical notation.

Pseudo code

Pseudo code example

Set total to zero

Set grade counter to one

While grade counter is less than or equal to ten

 Input the next grade

 Add the grade into the total

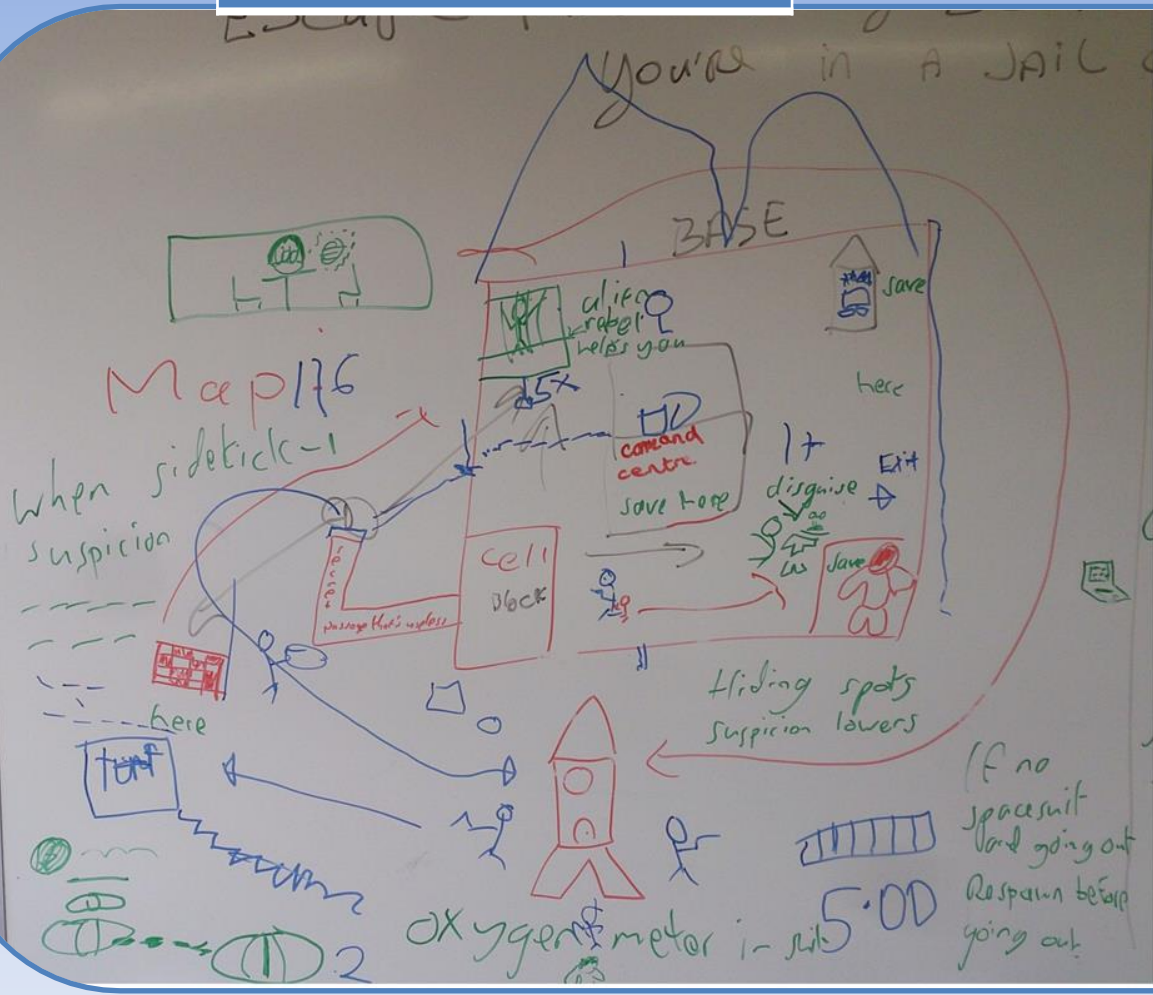
Set the class average to the total divided by ten

Print the class average.

Pseudo code

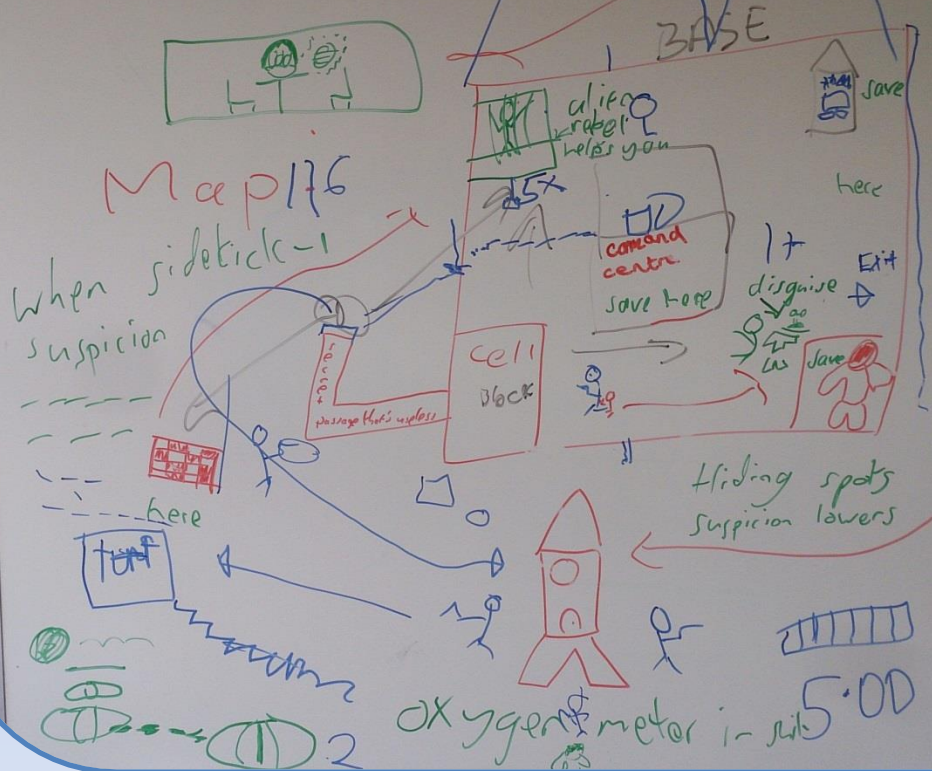
There are few rules for Pseudo code but all code that would be indented in Python should be indented. Terms such as set, reset, increment, compute, calculate, add, sum, multiply should make your pseudo code easier to understand

Our ideas



- Secret Passage
- Control Panel to open door/kill light
- Stealing a locker room key (random)
- Getting a spare suit
- Snaking past guard
- Subverting spaceship with a bomb
- Escape
- Guessing the launch for your ship (panel)
- Suspicion meter hidden/visible
- (if caught, the whole thing repeats)
- Checkpoint system?
- saving station)
- For every failure and minute passing, Suspicion + 1

ESCAPE PLAN
You're in a JAIL



(If no spacesuit
don't go out
Respawn before
going out)

Secret Passage

Control Panel to open door / kill light

Stealing a locker room key (random)

Getting a spare suit

Snaking past guard

Sabotaging spaceship with a bomb

Checkpoint
system?

Escape

Guessing the launch for your ship
/ panel

Suspicion meter
hidden / visible

(if caught, the whole thing repeats)

saving
station)

For every failure and minute
passing,

Suspicion + 1

Next session

No Coderdojo next Saturday.

We will resume on the 8th of November when we will finish our adventure game and start looking at Pygame