



FALMOUTH
UNIVERSITY

COMP140-GAM160: Creative Computing: Hacking &
Further Game Programming

1: Introduction to Object Orientated Programming

Learning outcomes

- ▶ **Understand** Object Orientated principles
- ▶ **Understand** the Single Responsibility principle
- ▶ **Implement** a simple class hierarchy

Assignments



Assignment 1

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- ▶ You will have series of worksheets which are part of the course work

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- ▶ For the controller, there is an expectation that you will buy some additional components
- ▶ Finally, you will lose marks if you submit a controller which is a bare breadboard
- ▶ We expect for you to build something or embedded the controller into an item

Examples from Last Session

- ▶ Safe - <https://youtu.be/X4wB3AakSvA>
- ▶ Tank - <https://youtu.be/AL3LrcRskig>
- ▶ Skateboard - <https://youtu.be/Wj4Eb0yUejE>
- ▶ Powerglove - <https://youtu.be/dp9xM55eZUM>
- ▶ Snooker - <https://youtu.be/4XFZ4PMoPTE>

Alt-Controller



Notable Alt-Controller Games

- ▶ Steel Battalion - <https://www.youtube.com/watch?v=rGgxRsaGdcA>
- ▶ Deep VR - <https://www.polygon.com/2015/3/2/8133675/deep-vr-meditation>
- ▶ Space Box - https://www.gamasutra.com/view/news/290700/ALTCTRLGDC_Showcase_Spacebox.php
- ▶ Line Wobbler - <http://wobblylabs.com/projects/wobbler>
- ▶ GDC Alt-Ctrl 2017 Roundup <https://www.youtube.com/watch?v=IoqAJ7ynuhw>
- ▶ Nintendo Labo - <https://www.nintendo.co.uk/Nintendo-Labo/Nintendo-Labo-1328637.html>

Object Orientated Principles



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- ▶ Classes are a collection of data and functions which operate on the data
- ▶ We can then use these classes like any built-in data type

Class Examples - C++

```
class Player
{
public:
    Player()
    {
        Health=100;
    };

    void TakeDamage(int health)
    {
        Health-=health;
    };

    void HealDamage(int health)
    {
        Health+=health;
    };

    ~Player(){};
private:
    int Health;
};
```

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- ▶ Comments! You should add comments before each function!

Coding Standards

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- ▶ UE4 Coding Standards -
[https://docs.unrealengine.com/en-us/
Programming/Development/CodingStandard](https://docs.unrealengine.com/en-us/Programming/Development/CodingStandard)

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- ▶ Google C++ Coding Standards - <https://google.github.io/styleguide/cppguide.html>

Single Responsibility Principle



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- ▶ Take for example a Player class which handles input, physics, weapons, health and inventory
- ▶ This should probably be split into several classes (Remember Class naming from previous slide)

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- ▶ C++ Starter Project Live Coding - <https://github.com/Falmouth-Games-Academy/COMP140-Examples>

Exercises



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- ▶ **Keep this document, it will feed into your coursework!**

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bsc-course-materials/raw/2017-18/COMP140/
01/GAM160-Ex1.zip`

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