

UE4 Worksheet 1: Building an FPS

Version 1.0
Creative Computing
COMP280

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Introduction

In this worksheet you will follow an Unreal Tutorial in order to become familiar with UE4 and C++.

Final Product

By the end of the workshop, we are going to have a basic FPS with the following features

- A typical FPS Controller
- The ability to shoot a gun
- Projectiles which will hit targets
- Targets will have health values, when health hits zero it dies
- Targets will change colour when hit
- You have a limited amount of ammo, when you are out, you can't shoot
- An Ammo Pack pickup
- You will have a bomb which destroys targets in a radius. You only have a limited supply of bombs.
- A timer which counts down from 2 minutes
- A UI which displays ammo and time
- If you use the bomb it will knock some time off
- The level will end when all targets are destroyed, or the timer reaches zero

Setup

You will start by creating a **C++ First Person Project**

1. Open the Unreal Engine
2. Select the **New Project Tab**
3. Select **First Person**, ensure that the folder is the **scratch** drive
4. Name the **Project** as **COMP280-FPS**
5. Hit the **Create Project** button

Session

Depending on your experience with UE4 you can complete the tasks above or you can follow the tutor's live demonstration or complete the tasks above.

If you are a beginner, it might be worth completing the UE4 Quick start first before tackling the tasks.

Stretch Goals

If you complete the task before the allocated time, then please consider completing the following stretch goals

1. Have a new level which displays the time and the number of targets destroyed
2. The damage of the bomb falls off over distance i.e. in any objects caught in the centre of the blast received more damage than those in the outer
3. Add additional Weapons with different rate of fire
4. Add a grenade
5. Add different type of enemies
6. Have the bomb and grenade give damage to the player

Resources

These resources have been collected together in order to support the completion of the workshop.

UE4 Quickstart

<https://docs.unrealengine.com/en-US/Engine/QuickStart/index.html>

C++ and Unreal

<https://learn.unrealengine.com/home/LearningPath/90587?r=False&ts=637056209158467820>

C++ and Blueprints

<https://www.raywenderlich.com/185-unreal-engine-4-c-tutorial>

C++ FPS Tutorial

<https://www.youtube.com/watch?v=NyXq0Hy9xQs>