**Show and Tell 3:**

**Viewport: to restrict player’s position in screen;**

1. Creat a Singleton class for viewport, cause viewport only have one instance in game;

A screenshot of a computer

Description automatically generated with medium confidence

1. Creat a Viewport class and implement Singleton, limit camera in viewport

Add Viewport script to Environment

A picture containing text, screenshot, scoreboard

Description automatically generated

Text

Description automatically generated

Write a function for player to limit positon

1. Add a Coroutine to update player’s position and limit it by moveable position function, start this coroutine when player move, stop it when player stop move.

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

Then the player can be limited in screen

Graphical user interface

Description automatically generated with medium confidence

1. Add offset to position make player’s position more accurate

Text

Description automatically generated

Text

Description automatically generated

Now player’s position is more accurate

Graphical user interface

Description automatically generated

**Movement improvement: make player accelerate and slow down when moving, add rotation**

Diagram

Description automatically generated

1. Add a coroutine to make speed increase evenly by time

Text

Description automatically generated

And same thing for decelerate

Text

Description automatically generated

I combined them together

Text

Description automatically generated

And start/ stop routine when move/stop move

Text

Description automatically generated

1. Add rotation

Text

Description automatically generated

Use an angle and user input to calculate axis

Text

Description automatically generated

Then the player can rotate

A picture containing text, monitor, display, screenshot

Description automatically generated

**Post Processing Volume, Bullet**

1. Set camera, enable post processing

Graphical user interface, text, application

Description automatically generated

1. Add a bloom post processing

Graphical user interface, application

Description automatically generated

1. Add some other post processing:

Graphical user interface

Description automatically generated

1. After post processing:

A screenshot of a computer

Description automatically generated with low confidence

1. Create a projectile object, add bullet mesh and material to it

Graphical user interface

Description automatically generated

Change the start speed to 0, its speed will control by script

Graphical user interface

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Change color and rotation by time

A picture containing text, monitor, indoor, screen

Description automatically generated

Add a trail to bullet

Graphical user interface

Description automatically generated

1. Create a projectile class, we have player projectile and enemy projectile, so we need to extend this class for player.

Text

Description automatically generated

Text

Description automatically generated

**Bullet shooting**

1. Add Fire to input system

Graphical user interface, text, application

Description automatically generated

Text

Description automatically generated

Add Fire and StopFire to OnEnable

Text

Description automatically generated

Create projectile object and muzzle object for player

A screenshot of a computer

Description automatically generated with medium confidence

Add another script to auto destroy bullet after a lifttime

Text

Description automatically generated

Use a coroutine to keep fire when press keyboard

Text

Description automatically generated

**Object pool**

Why object pool? Performance improvement, less GC

Diagram

Description automatically generated

Diagram

Description automatically generated

Create a pool class

Text

Description automatically generated

Create a pool manager with a array of pool

Text

Description automatically generated

Create dictionary for more prefabs

Text

Description automatically generated

Text

Description automatically generated

Create weapon power and more muzzle, more projectile

Text

Description automatically generated

Graphical user interface, text

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

Now player can release more projectile!!

A screenshot of a computer

Description automatically generated with medium confidence

**Enemy**

Create function for enemy born point and moving range in view port

Text

Description automatically generated

Create a controller for enemy, move function

A screenshot of a computer

Description automatically generated with medium confidence

Enemy fire function

Text

Description automatically generated

Add enemy projectile

Text

Description automatically generated

**Health System**

Diagram

Description automatically generated

Create a Character class for player and enemy, it has take damage, restore health and die.

Text

Description automatically generatedPlayer can take damage by time  
Text

Description automatically generated

Create different Enemy Projectile

Text

Description automatically generated

Tracking projectile which can track player

Text

Description automatically generated