

## Setup DT8999 Lab Test      Computer Games Programming      15th December 2014

### Setup

- Create a new Unity project and name it as your **NAME & STUDENT NUMBER**
  - Save your scene as Lab Test
  - Select the **Main Camera** and change it's Projection to '**Orthographic**'
  - It's default position should be (0, 1, -10)
  - Change the **Background** color of the camera to black
  - Create a Directional Light
  - Create 4 scripts - Entities, Santa, Presents and Chimneys
  - Create an empty GameObject called Entites and attach the Entities script to it
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### Entities.cs

- This is the base class that all other classes should inherit from
- Create common variables for inherited classes, eg. xPosition, yPosition, scale, speed, color
- Create a **public static list** called chimneys (put **.Generic** after **Using Systems.Collections** to access list functionality)

*Revisit the below points after completing each of the other classes*

- **Write functions** to create instances of the other classes
  - **eg. CreateSanta()** - Make a Santa GameObject with a cube primitive, attach the Santa script, access the script and run the setup function passing over the parameters
- **Santa** should be created at runtime
- **Presents** should be created via **player input** at Santa's position
- **Chimneys** should be created at repeat intervals using **InvokeRepeating** or a **simple timer**
- Add each newly created chimney gameobject to the chimney list
- Make sure to name the gameobjects after you create them in their respective functions

**NB.** Make sure you don't delete the **Start()** or **Update()** functions from any of the 4 scripts, otherwise they will inherit those functions from their base class!

**NB.** Make sure your constructor functions in the below scripts are **public**

### Santa.cs

- Inherit from Entities
- Write a SetupSanta function with parameters matching the base variables inherited from Entities
- In the function body, assign these parameters to their matching base variables
- In the function body, create a new position and scale for the santa
- Santa should be controllable on the X (Horizontal) axis via **player input**, using an inherited speed variable to control speed

## Presents.cs

- Inherit from Entities
- Write a SetupPresents function with parameters matching the base variables inherited from Entities
- In the function body, assign these parameters to their matching base variables
- In the function body, create a new position and scale for the present
- Presents should move down the screen on the Y (Vertical) axis, using an inherited speed variable to control speed

## Chimneys.cs

- Inherit from Entities
- Write a SetupChimneys function with parameters matching the base variables inherited from Entities
- In the function body, assign these parameters to their matching base variables
- In the function body, create a new position and scale for the chimney
- Chimneys should move across on the X axis, using an inherited speed variable to control speed

## Presents Colliding with Chimneys

- We want each new present created to check the distance between itself and the chimneys in the scene
- Use a **for loop** in the Update() of Presents.cs to achieve this
- Use the chimneys list count as the conditional for the loop
- Loop through the chimneys and check the distance of the presents against the chimneys and destroy a present when it's within 0.5 units of a chimney.

## That's it! Some ideas for extra marks ;)

Create snow using a for loop and have it fall down the screen

Create random sizes and colors for the presents

Have chimneys remove from the chimneys list and destroy themselves if they leave the screen

Have Santa's x position clamped to the screen width

Create a rooftop for the chimneys

Create a score and add a score to it if you successfully drop a present on the chimney

Create a limit to how many presents you have and have presents randomly spawn in and collectable by Santa, increasing your present stock

Create a timer for the level

Create an effect for when the presents hit the chimneys

