

Functions & Conditionals Homework (Due 1/30)

Create a new project. Put your name in the title of the project.

Scene 1: Using Unity's `transform` Functions

Create a new scene (01_MovingCube) that has a textured cube in it. Don't move your camera from its initial position. Make sure your cube's rotation is `(0, 0, 0)`. Place the cube in your scene so that it appears on the left side of the game window when you run the game. Set up the cube with a script that does the following:

1. Move the cube slowly to the right on the screen. (Hint: You'll need `transform.Translate`.) The cube will move off-screen - that is completely fine.
2. Slowly rotate the cube around its x-axis. (Hint: You'll need `transform.Rotate`.)
3. Make the cube rotate at 45 degrees per second. (Hint: `Time.deltaTime`.)

Try changing the rotation so the cube rotates around the y-axis - any idea what is happening?

Scene 2: Writing Functions

Create a new scene (02_Functions). Create a new script and attach it to an empty game object in your scene. In the script, write a function that takes the temperature in °F (a parameter) and _returns_ the temperature in °C.

- The formula for conversion is: $C = (F - 32) * 5 / 9$
- What type of variable makes the most sense here?
- Test your function by converting the following temperatures:
 - 32 Fahrenheit should be 0 Celsius
 - 100 Fahrenheit should be 37.7778 Celsius

Scene 3: Interactive Lights

Create a new scene (03_Lights). Add a plane and cube to it. Create a new script and attach it to a light in your scene.

Your goal is to be able to change the color of a light at runtime based on key presses. The code snippet below demonstrates how to access a light and change its color. The script sets the color of the light to red in `Update`. Your script should change the color of the light only when either the 1, 2 or 3 keys are pressed. Each key should change the light to a unique color. E.g. pressing 1 changes the light's color to purple, pressing 2 changes the light's color to gold, etc. (Hint: look back at what we did with inputs and conditionals.)

Bonus: can you figure out a way to use the horizontal and/or vertical movement of the mouse to change the RGB color of the light? Hint, think about what we did with the rotation in the fly controls.

```
using UnityEngine;
using System.Collections;

public class LightColorSwitcher : MonoBehaviour {

    private Light LightComponent;

    void Start () {
        // Gets access to the light component on the game object. This only
        // works if the script is attached to a light!
        LightComponent = GetComponent<Light>();
    }

    void Update () {
        // Changes the light's color to red using RGB
        // - First parameter is the amount of red color (between 0f and 1f)
        // - Second parameter is the amount of green color (between 0f and 1f)
        // - Third parameter is the amount of blue color (between 0f and 1f)
        LightComponent.color = new Color(1f, 0f, 0f);
    }
}
```

```
}  
}
```

Submitting the Assignment

Before the start of class on 1/30, [direct message](#) me on Slack:

1. A zip of your Unity project folder. Note: the project folder is the one that contains `Assets`, `Project Settings`, etc. If you share a zip of the `Assets` folder itself, I won't be able to see your project - it needs to be the folder that *contains* the `Assets` folder.