**Objective**

Today’s lab as always will cover the lecture material. You will be implementing the use of viewports and rendering to a texture to display a series of scenes on the surface of a cube, as well as in their own viewports.

**Homework Requirements**

Features you’re expected to implement:

* Three top viewports each rendering with a different background color.
* Bottom viewport showing the cube
* Cube is properly lit and textured.

**Homework Instructions**

**Viewports**

* We’ll have a total of 5 viewports. Think of it this way, we’ll have a top view and a bottom view. Then within the top view we’ll have a left, right, and center view.
* The three views in the top viewport will be separate renders of our lab1 scene. You can give each one a unique constant buffer to make them move separately, but that’s not necessary. However, each one will have a different clear color in the background. In DirectX 9 we were able to change the clear color of each viewport separately. This isn’t possible in DirectX 11, so we’ll have to create a clip space quad to draw in the background to get the same effect.

**Render To Texture**

* We’ll be rendering the 3 different 2D scenes to three viewports within one texture. That texture will also be used as our top viewport, so can you guess its dimensions?

**Cube**

* The cube is going to be a textured and lit, meaning it needs texcoords and normals.
* However the texture coords will be special. Seeing as we can access our render target as if it was a texture, we’ll be able to take our top viewport and use it as textures for our cube!