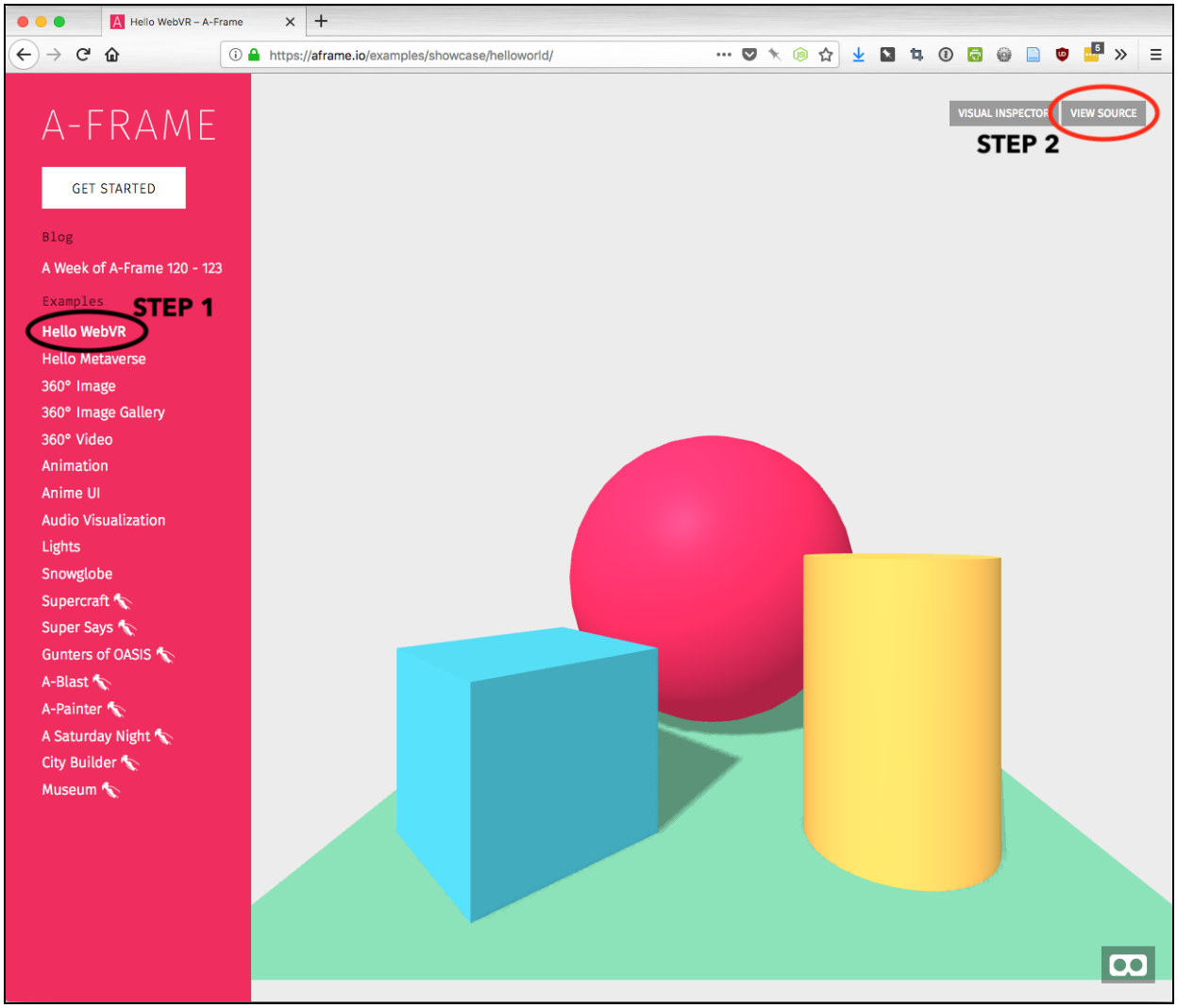
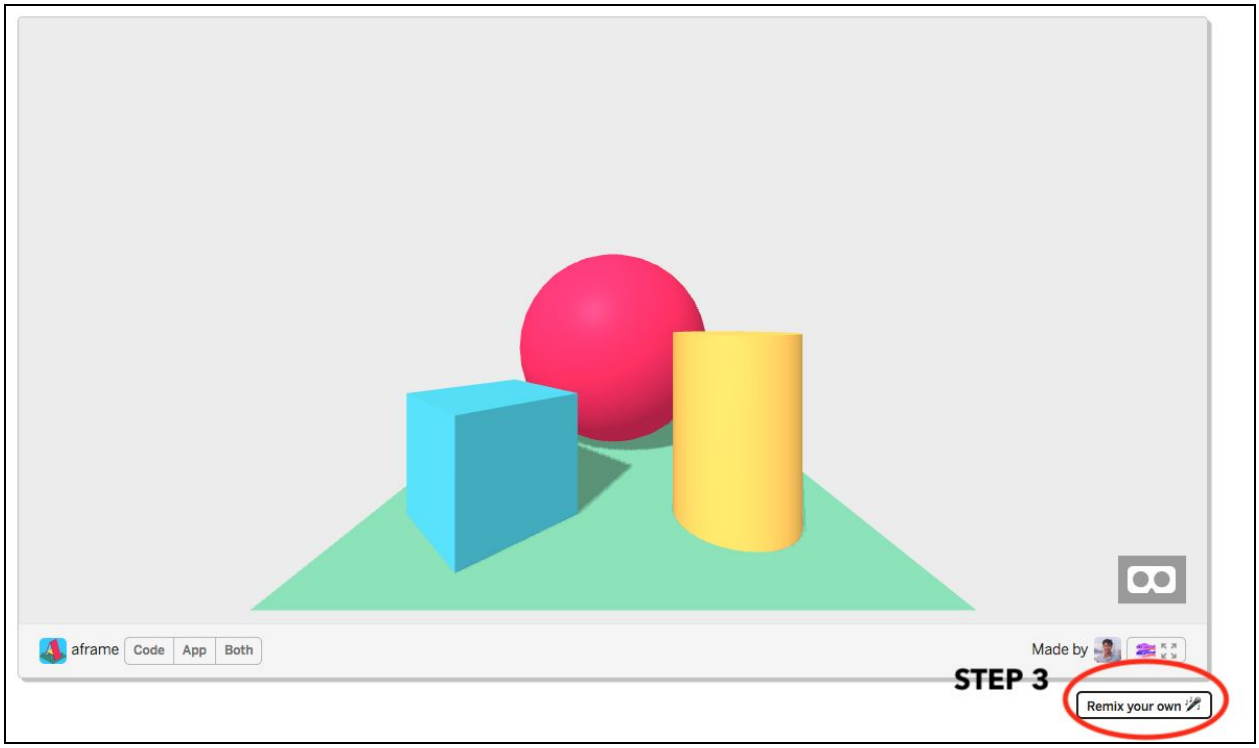
WebVR Using A-Frame

Go to https://a-frame.io
Click on “Hello webVR” in the sidebar, then the “View Source” button in the upper-right:

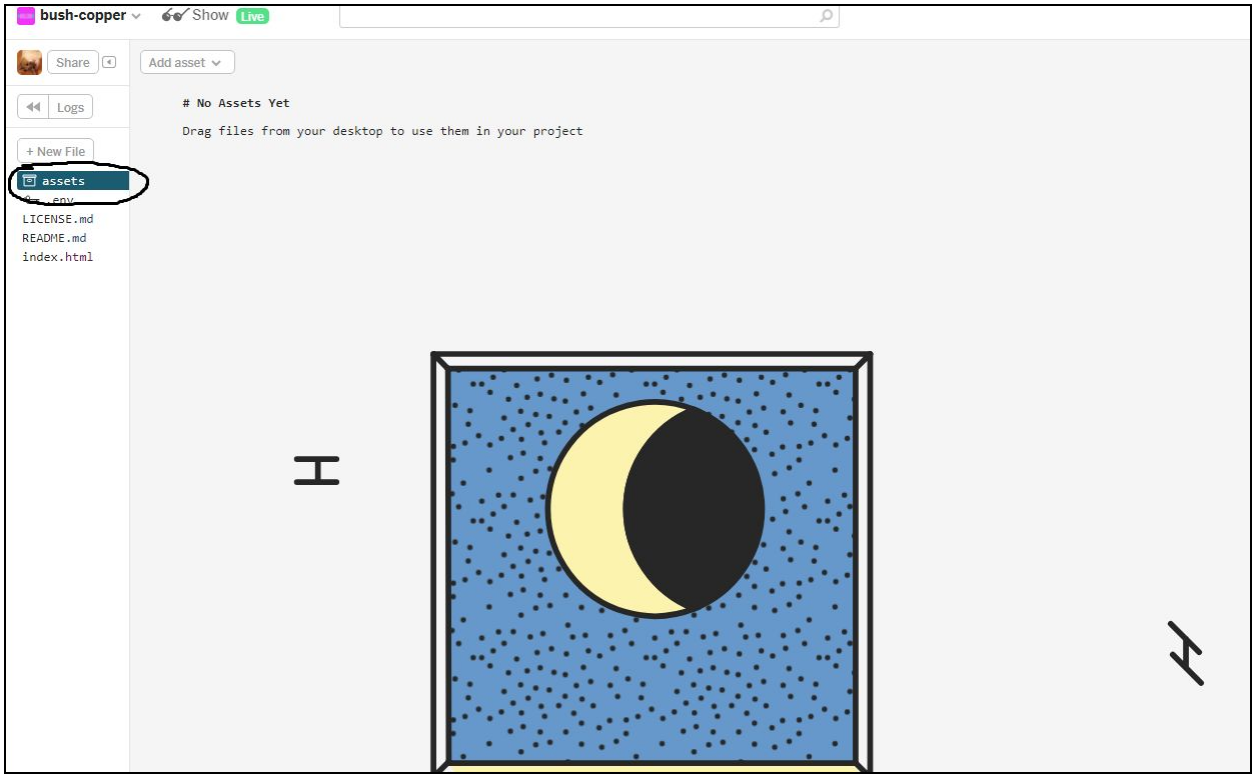


Click on “remix your own.” This will bring you to glitch.com, which collaborates with A-Frame to create WebVR content. SignIn/Create an account on glitch.com so you can start to edit the code! (Glitch allows you to create accounts with Facebook, Gmail…)



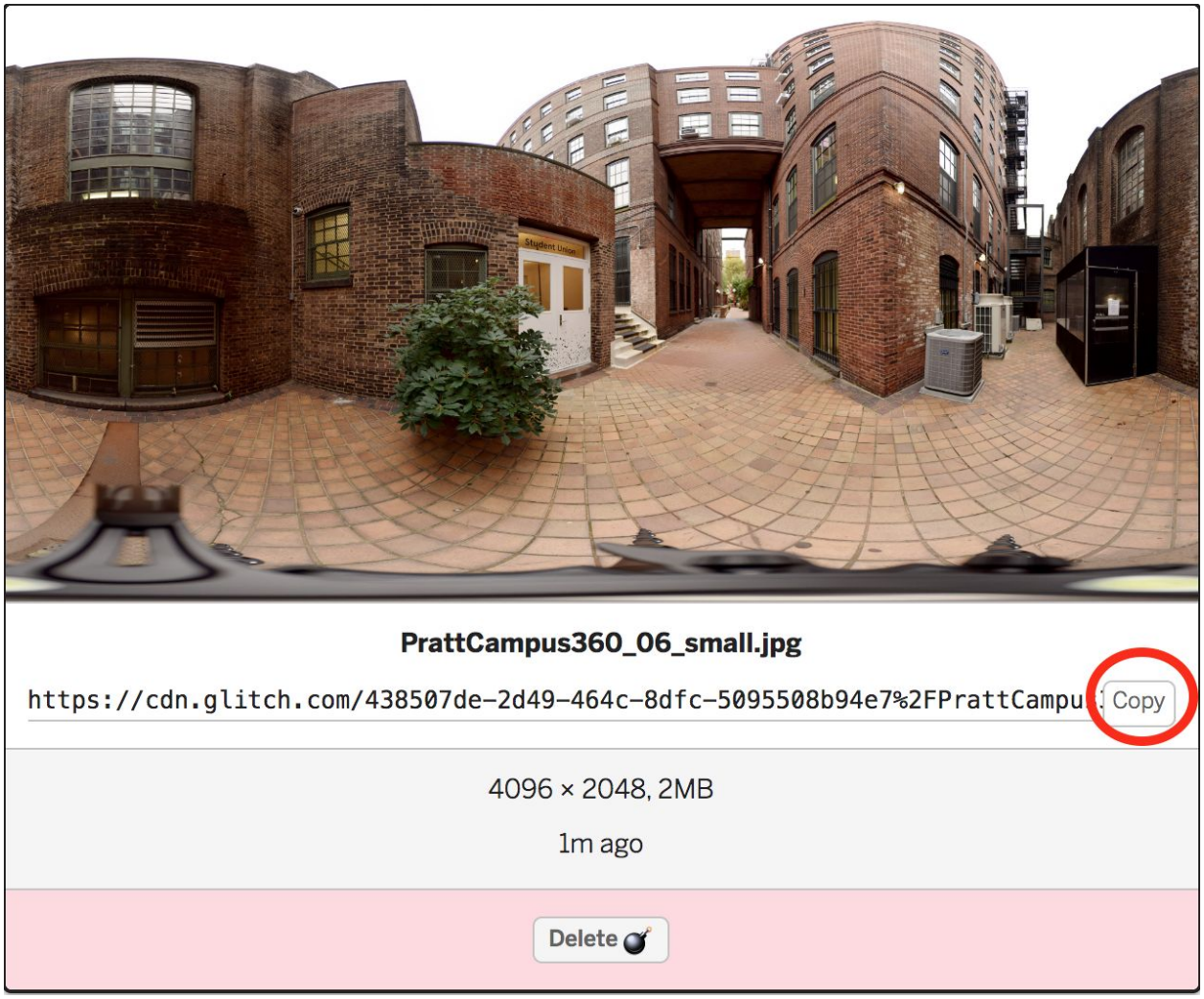
Now after you made an account with glitch, download a 360 image off of google search. Literally, just google “360 image” and many panoramas should appear. Here we’ve chosen a panoramic view of the Pratt.

Save the image to where ever you want on your computer. And go back to glitch html webpage.



Click on the assets tab, and drag and drop your image onto the webpage. This will upload your image onto glitch.

Click on the image, and a smaller window will pop up on the webpage with the image and url. Click “copy” at the bottom right of the pop-up, and then click out of the window, and go back to the index.html page located on the far left of the sidebar. This is very important for those who are new to HTML.



This should be the existing code on your page. Notice the structure of the document.

There are `<html> </html>` these are called tags. `<this is an open tag> </this is a closing tag>` Any time you want to add something in `<body>` or `<a-scene>` make sure you do it in between the sandwich of the opening and closing tags. All

the content is contained in “boxes” and in order to manipulate those boxes, they need to be in some kind of tag. Think of a box within a box within a box. We will mainly be working in between the `<body></body>` tags. The `<a-scene></a-scene>` tags will be inside of the `<body></body>` tags. It’s important to keep in mind the tag hierarchy. All tags are containers for. Imagine it like a sandwich.

```
<html>
      <body>
            <a-scene>
                  <a-assets>
                        <this is where the 3D objects will
go></a-assets>
                  <a-sky this is where the 360 image will go> </a-sky>
            </a-scene>
      </body>
</html>
```

When you are typing in the tags make sure to have glitch automatically generates the closing tag for you. It should pop into place and be highlighted. This is important in order to see your code, as Glitch wants the tags to be connected this way. If your line of code is correct and there is still an error, then try retyping it, with glitch completing the tags to reboot work.

```
10        <a-scene></a-scene>
```

Certain lines of code text needs to be inside the nested tags. Add this tag right above the closing `</a-scene>` tag.

```
<a-sky src=""></a-sky>
```

Once you finished typing out the tag, paste the url of the 360 image you uploaded in between the quotes `src=””`. Remember from earlier steps. Go to the image in the assets folder and copy + paste the url.The tag with the url inside of the quotes will look like this:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Hello, WebVR! • A-Frame</title>
    <meta name="description" content="Hello, WebVR! • A-Frame">
    <script src="https://aframe.io/releases/0.9.2/aframe.min.js"></script>
  </head>
  <body>
    <a-scene background="color: #FAFAFA">

      <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4CC3D9" shadow></a-box>
      <a-sphere position="0 1.25 -5" radius="1.25" color="#EF2D5E" shadow></a-sphere>
      <a-cylinder position="1 0.75 -3" radius="0.5" height="1.5" color="#FFC65D" shadow></a-cylinder>
      <a-plane position="0 0 -4" rotation="-90 0 0" width="4" height="4" color="#7BC8A4" shadow></a-plane>

      <a-sky src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FPrattCampus360_06_small.jpg?v=1569959389133"></a-sky>

    </a-scene>
  </body>
</html>
```

Then click on the drop down “Show” button and checkout your new VR environment!

Adding Three-Dimensional Shapes:

Upload your OBJ and PNG files into the assets folder (the same way we did it for the 360 image, just drag and drop). Once you have your two OBJ and PNG files uploaded and copied, write this line of code within the `<a-scene></a-scene>` tags:

```
<a-assets>
            <a-asset-item id="my-stuff" src=""></a-asset-item>
            <a-asset img id="my-texture" src=””></a-asset-item>
</a-assets>
```

Then paste the OBJ file url in between the src quotations on the line with your asset item. Then paste the PNG file url in between the src quotations on the line with your asset image. It should look something like this

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Hello, WebVR! • A-Frame</title>
    <meta name="description" content="Hello, WebVR! • A-Frame">
    <script src="https://aframe.io/releases/0.9.2/aframe.min.js"></script>
  </head>
  <body>
    <a-scene background="color: #FAFAFA">

     <a-assets>
      <a-asset-item id="mystuff" src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FMaralina%20(1).obj?v=1569960169959"></a-asset-item>
        <a-asset img id="my-texture" src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FMaralina_0%20(1).png?v=1569959913466"></a-asset>
    </a-assets>


      <a-sky src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FPrattCampus360_06_small.jpg?v=1569959389133"></a-sky>


    </a-scene>
  </body>
</html>
```

Copy + Paste this line of code into the index.html:

```
<a-entity obj-model="obj:#mystuff" material="src: #my-texture"
position="0 0 -20" scale=".051 .051 .051" rotation="0 0 0"
animation="property: rotation; to: 0 360 0; loop: true; dur:
10000"></a-entity>
```

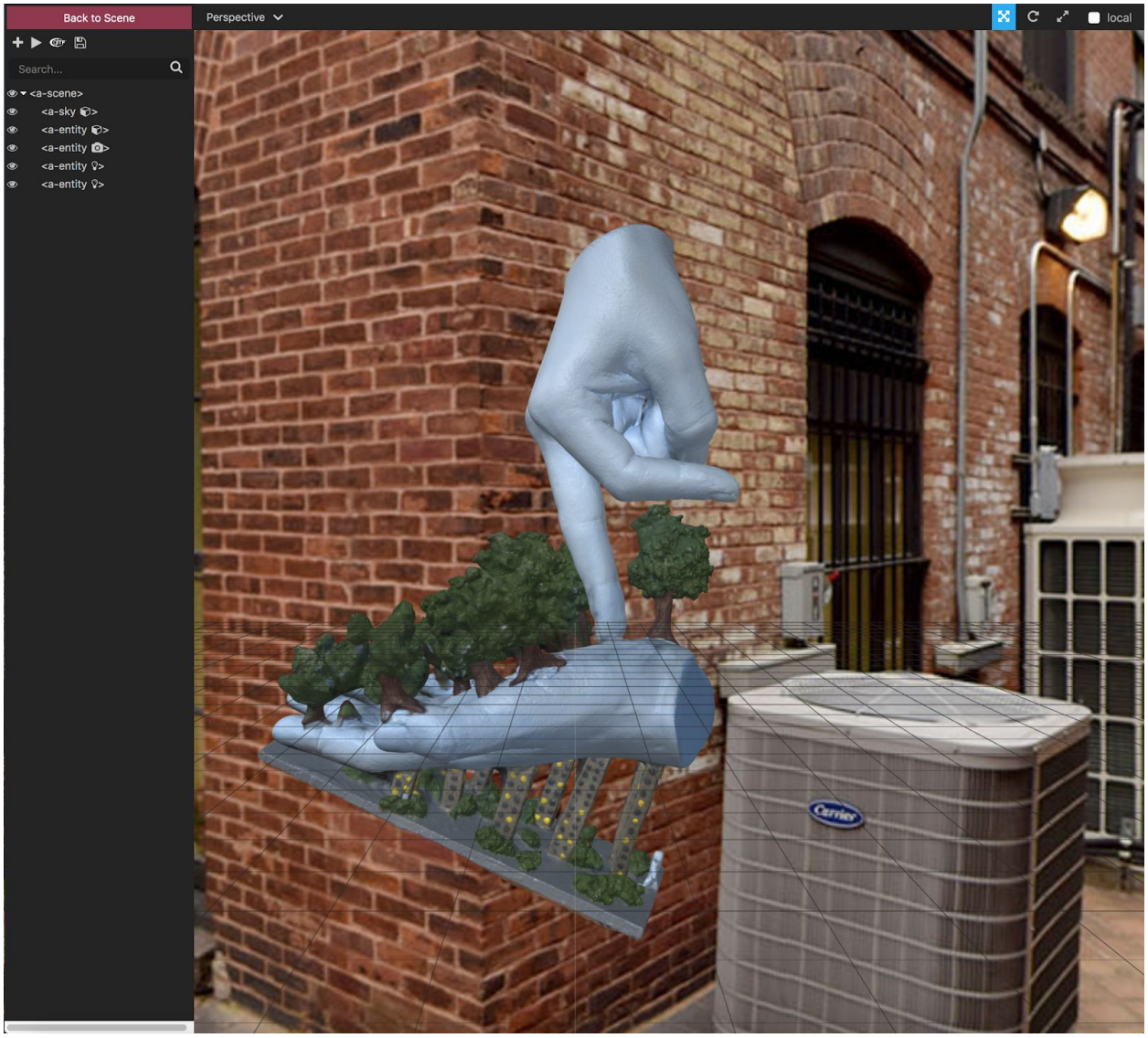
Visual reference on the next page:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>Hello, WebVR! • A-Frame</title>
    <meta name="description" content="Hello, WebVR! • A-Frame">
    <script src="https://aframe.io/releases/0.9.2/aframe.min.js"></script>
  </head>
  <body>
    <a-scene background="color: #FAFAFA">

     <a-assets>
      <a-asset-item id="mystuff" src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FMaralina%20(1).obj?v=1569960169959"></a-asset-item>
        <a-asset img id="my-texture" src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FMaralina_0%20(1).png?v=1569959913466"></a-asset>
    </a-assets>



      <a-sky src="https://cdn.glitch.com/438507de-2d49-464c-8dfc-5095508b94e7%2FPrattCampus360_06_small.jpg?v=1569959389133"></a-sky>

   <a-entity obj-model="obj:#mystuff" material="src: #my-texture" position="0 0 -20" scale=".051 .051 .051" rotation="0 0 0"
             animation="property: rotation; to: 0 360 0; loop: true; dur: 10000"></a-entity>


    </a-scene>
  </body>
</html>
```

Then click on the drop down “Show” button and checkout your 3D model in it’s Virtual Reality environment! If the model is too big for the view, play with it’s position and scale in the code via the “x y z” coordinates. Your Show View (in Another Window) should look something like this!

Use the inspector tool to scale and position the model to a value that suits you (Press **“Ctrl + Alt + i”** all at once). This function won't save your values, so be cautious, you will need to just remember the values and input them back into the attributes area in the a-entity tag.

Now once you have your scene up after pressing show live, you can start to use the url on your phone's browser and see what your VR scene looks like.



Make sure that you are logged into your glitch.com account so that the code will be accessible and automatically save itself on the platform. The project can be shared with others to edit or view your project via the share button on the upper left-hand corner of the page.

Congrats you are done!

Animation:

The animation component lets us animate and tween values including component values (e.g., position, visible) and component property values (e.g., light.intensity).

We can also tween values directly for better performance versus going through .setAttribute, such as by animating values on the object3D (e.g., object3D.position.y, object3D.rotation.z) and directly within a component (e.g., components.material.material.color, components.text.material.uniforms.opacity.value),

For example, translating a box:

```
<a-box position="0 1.6 0" animation="property: position; to: 5 1.6 0; dur: 1500; easing: linear"></a-box>
```

Or orbiting a sphere in a 5-meter radius:

```
<a-entity rotation="0 0 0" animation="property: rotation; to: 0 360 0; loop: true; dur: 10000">
<a-entity position="5 0 0"></a-entity>
</a-entity>
MULTIPLE ANIMATIONS:
```

The component's base name is animation. We can attach multiple animations to one entity by name-spacing the component with double underscores (__):

```
<a-entity animation="property: rotation"
          animation__2="property: position"
          animation__color="property: material.color"></a-entity>
```

FOR MORE ON ANIMATION & A-FRAMES OTHER FEATURES, CHECK OUT THE COMPLETE DOCUMENTATION AT:
https://aframe.io/docs/0.9.0/introduction/