Using A-frame!

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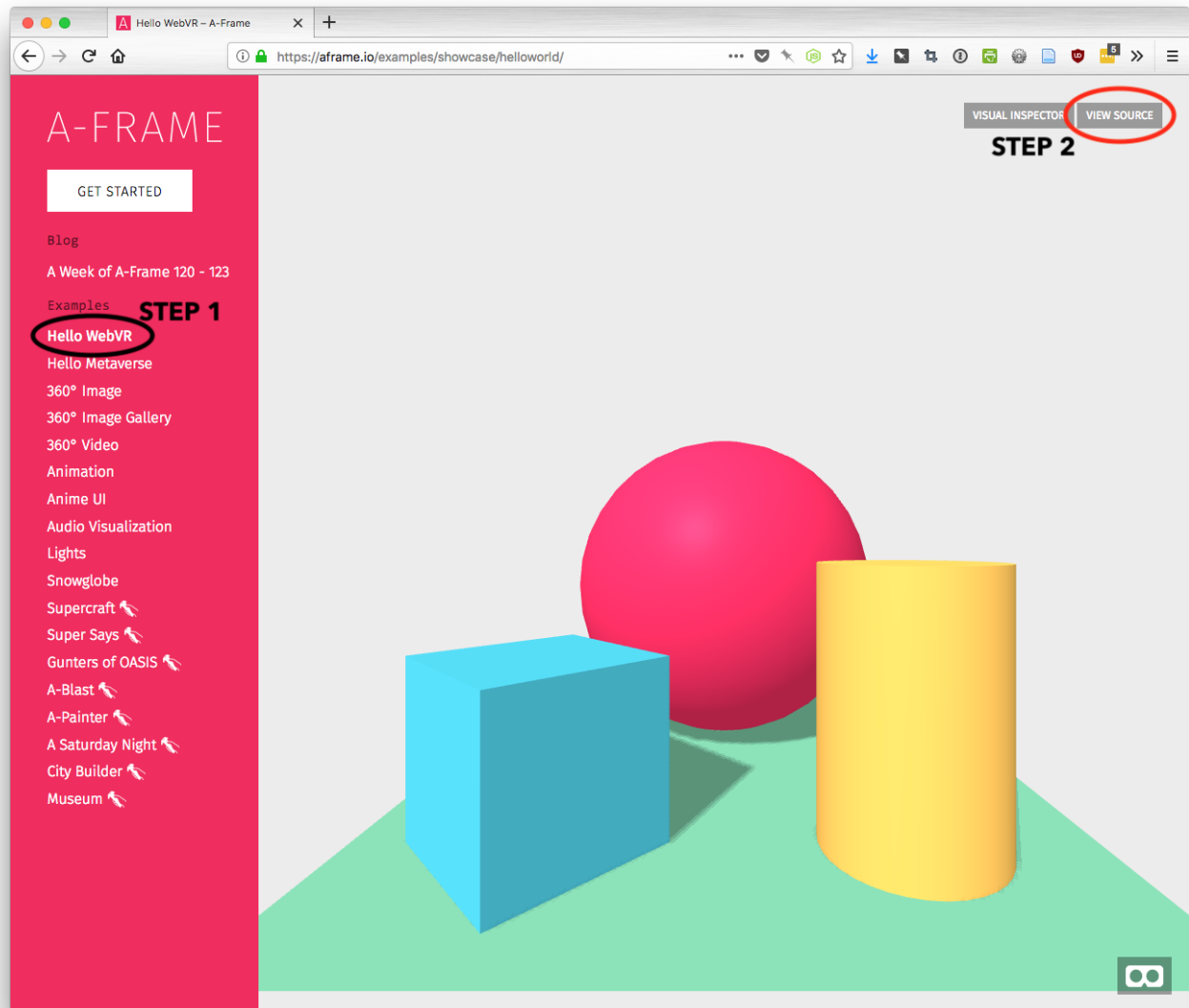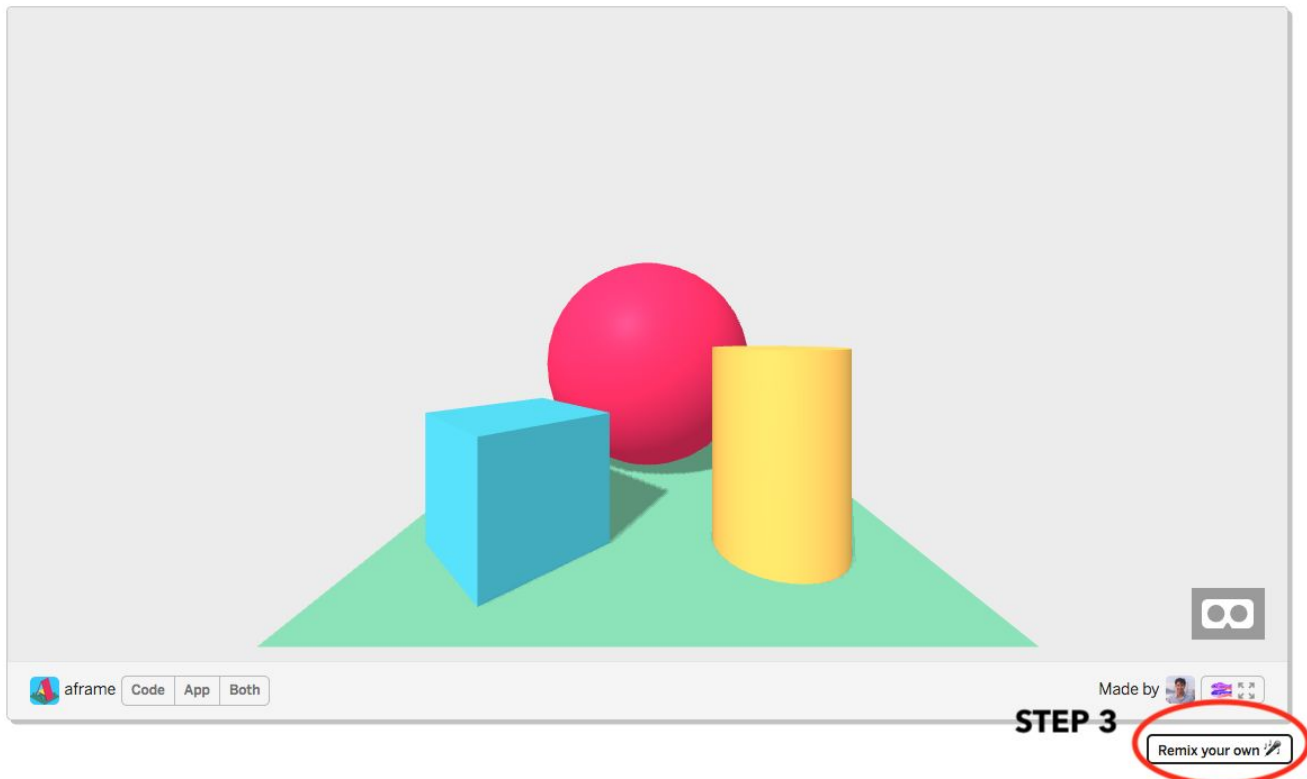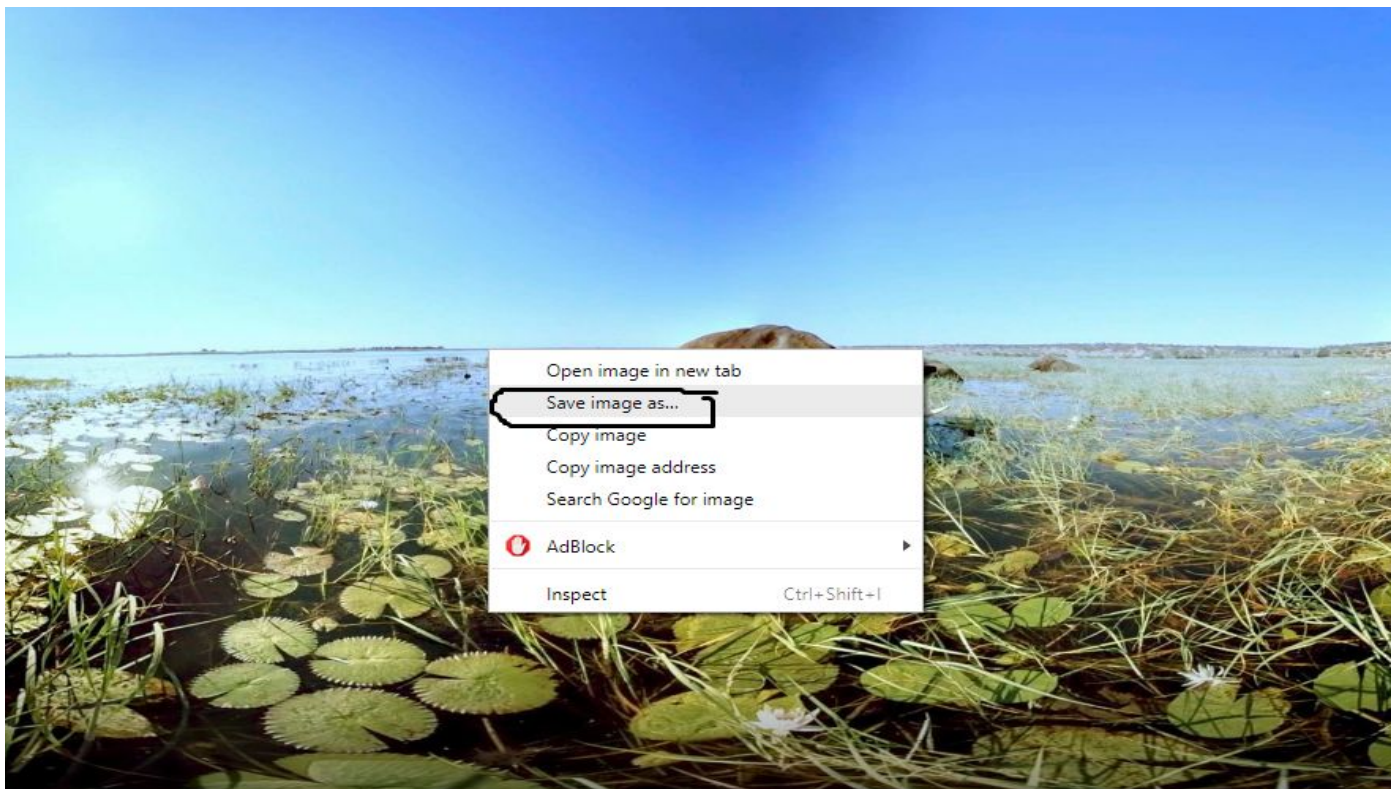
Click on "Hello webVR" in the sidebar, then the "View Source" button in the upper-right:
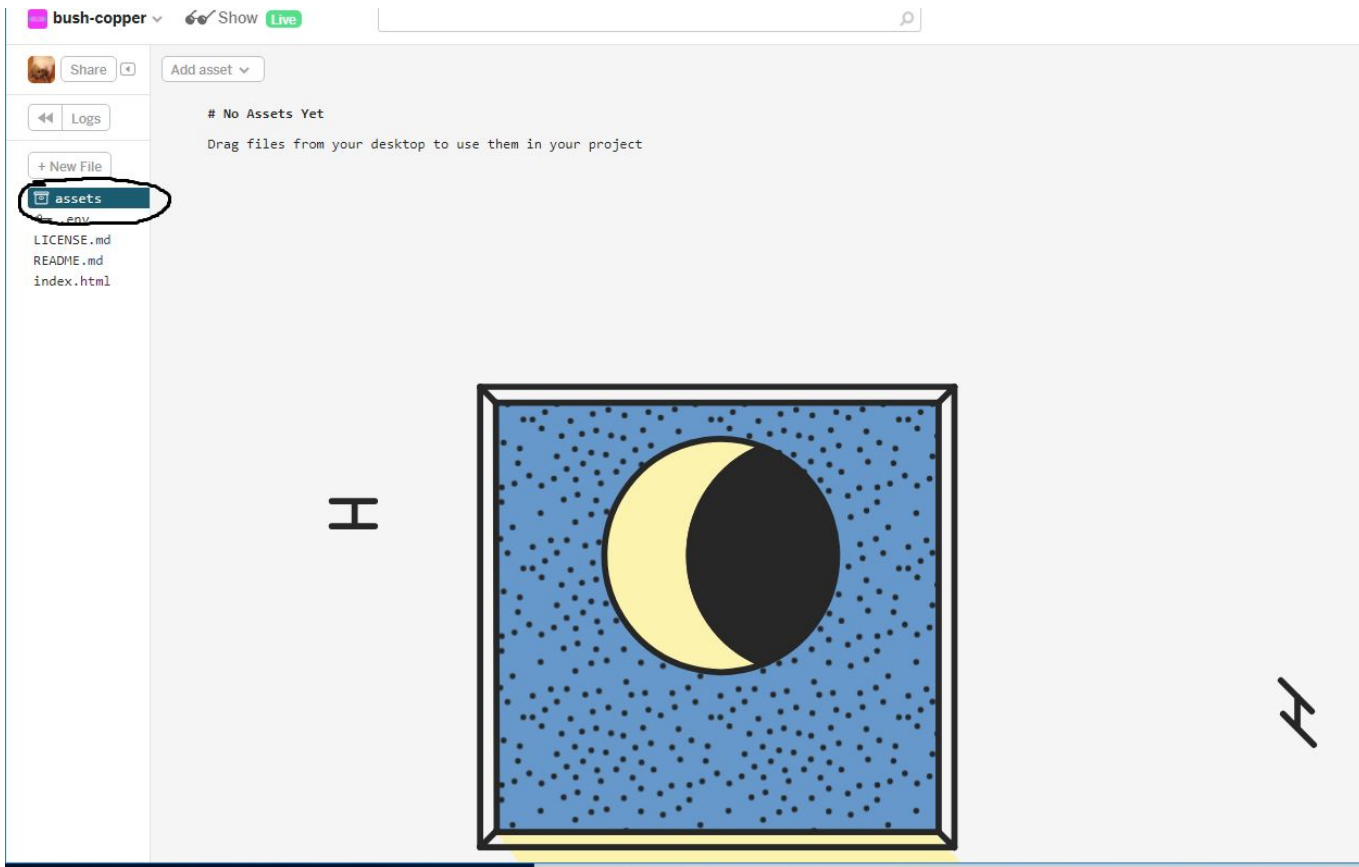

Click on "remix your own" Sign in onto glitch.com with facebook or Github and you can start to edit the code!
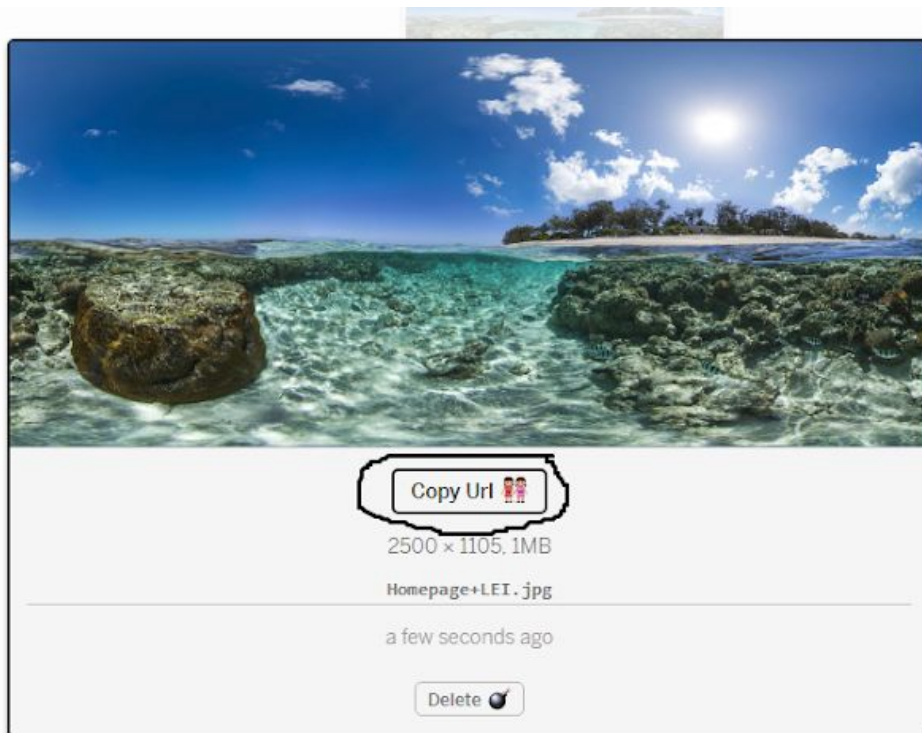
Now after you made an account with glitch, lets download a 360 image off of google search

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

Click on the assets button and upload your image here. Once you have image in assets, click on the picture and click on "copy url"

Click off the screen and go back to the index.html page located on the far left of the sidebar. This is a very important for those who are new to HTML.

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 tag and closing tags
- All the content are contained in little boxes that are not visible.
- In order to manipulate those boxes, they need to be in some kind of tag.
- In this example we have a lot of nested tags. Think of a box within a box within a box.

Brief description on the head, body, a-scene, a-assets
- ❏ Don't worry about what goes in the <head>blah blah javascript stuff </head>
- ❏ <body> This is the area you'll be working in </body> all the content is coming from the body tags.
- ❏ <a-scene> This is inside the body tag </a-scene>

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 finish the closing tag. It should pop into place and be highlighted yellow and then you can put attributes on the tag. This is important in order to see your code. Glitch needs the tags to be connected this way, it's annoying. If your line of code is correct and there is still an error, then try typing out the tags again and have glitch complete the in order to reboot and work.

```
17
18 ˅          <a-entity obj-model="obj: #obj; mtl:#mtl" position="0 0 -10" sc
19
20 ˅      <a-sky></a-sky>
21
22
23 ˅          <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4CC3D9" sh
24 ˅          <a-sphere position="0 1.25 -5" radius="1.25" color="#EF2D5E" sha
25 ˅          <a-cylinder position="1 0.75 -3" radius="0.5" height="1.5" color
26 ˅          <a-plane position="0 0 -4" rotation="-90 0 0" width="4" height="
27 ˅          <a-sky src="https://cdn.glitch.com/f65fd2f3-3164-4816-91e4-59cf7
28
29
30      </a-scene>
31    </body>
32  </html>
```

Look on the next page for reference.

It needs to be inside the nested tags.

Add this tag: `<a-sky src=""></a-sky>` Make sure this line is right above the `</a-scene>`

Once you finished typing out the tag, in between the quotes "" paste the url of the image you uploaded. Remember from earlier steps. Go to the image in a assets folder and click on the button "copy url".
It will look something like this:

```
1   <!DOCTYPE html>
2 ∨ <html>
3 ∨   <head>
4       <meta charset="utf-8">
5 ∨     <title>Hello, WebVR! • A-Frame</title>
6       <meta name="description" content="Hello, WebVR! • A-Frame">
7 ∨     <script src="https://aframe.io/releases/0.8.2/aframe.min.js"></script>
8     </head>
9 ∨   <body>
10 ∨    <a-scene background="color: #ECECEC">
11
12
13 ∨       <a-assets>
14 ∨           <a-asset-item id="island-obj" src=""></a-asset-item>
15 ∨           <a-asset-item id="island-obj2" src=""></a-asset-item>
16        </a-assets>
17
18
19
20
21 ∨       <a-box position="-1 0.5 -3" rotation="0 45 0" color="#4CC3D9" shadow></a-box>
22 ∨       <a-sphere position="0 1.25 -5" radius="1.25" color="#EF2D5E" shadow></a-sphere>
23 ∨       <a-cylinder position="1 0.75 -3" radius="0.5" height="1.5" color="#FFC65D" shadow></a-cylinder>
24 ∨       <a-plane position="0 0 -4" rotation="-90 0 0" width="4" height="4" color="#7BC8A4" shadow></a-plane>
25 ∨       <a-sky src="https://cdn.glitch.com/f65fd2f3-3164-4816-91e4-59cf7e9ef383%2FHomepage%2BLEI.jpg?1536862434369"></a-sky>
26        </a-scene>
27      </body>
28    </html>
```

Then click on show live button and checkout your new VR scene!

Now adding 3D shapes
This part can get tricky so pay attention!!!!!

First lets go to google blocks and pick up a 3D object.
Go here for the link to the model:https://poly.google.com/view/d6Xadlg51aC

I chose an x-wing from star wars. Select OBJFile!!!
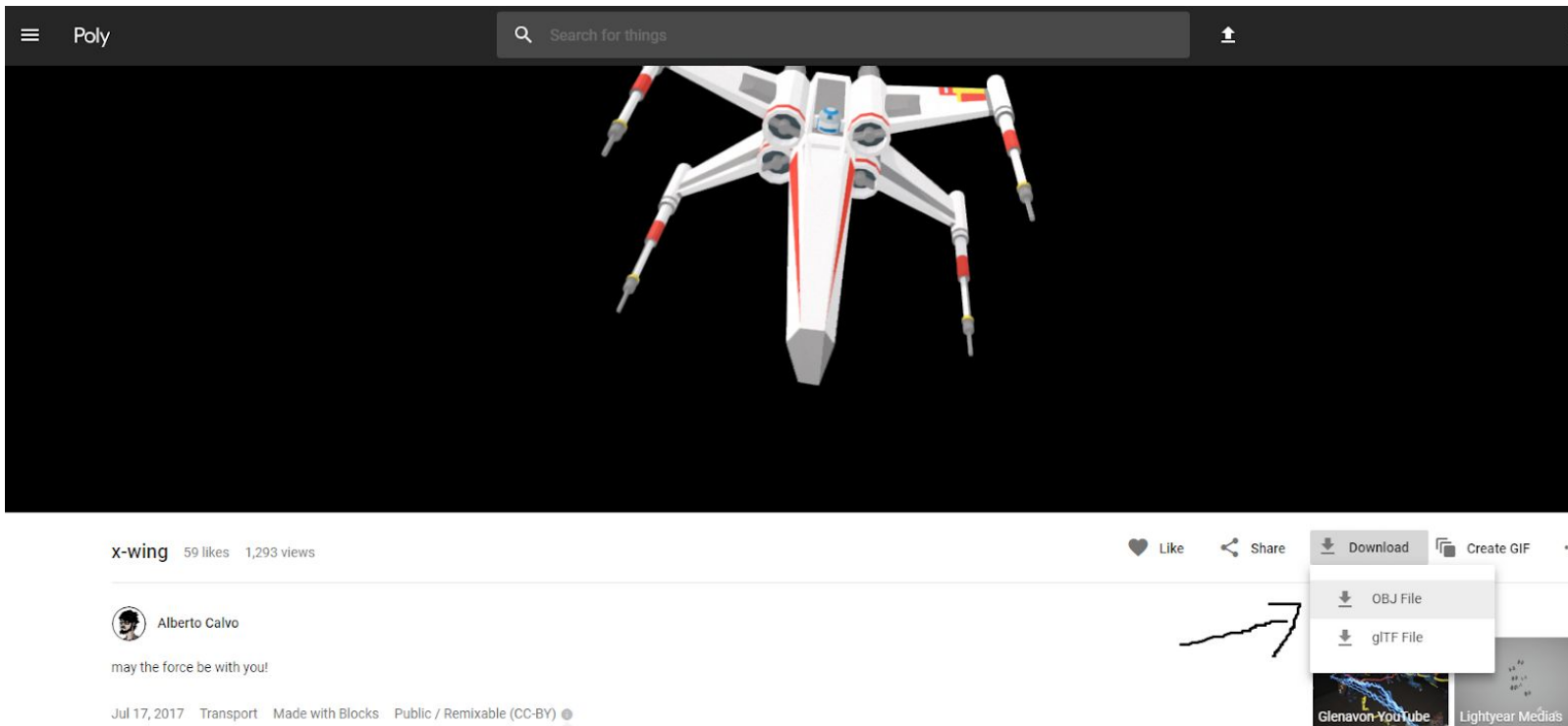
Make sure to download the obj file!!! It will come as a zip file so you need to extract it and open the folder somewhere, the file folder should contain a obj file and a mtl file, you will need both of these files later. One is the 3D model the other is the texture.

Now go back to the glitch index.html page and upload the obj file and mtl in the assets bin just like for the picture.

Once you have the the two files uploaded let's go to the index.html and write more code!!!!!

Let's write this line of code:

```
<a-assets>
          <a-asset-item id="obj" src=""></a-asset-item>
          <a-asset-item id="mtl" src=""></a-asset-item>
</a-assets>
```

And put this code right here: On next page!
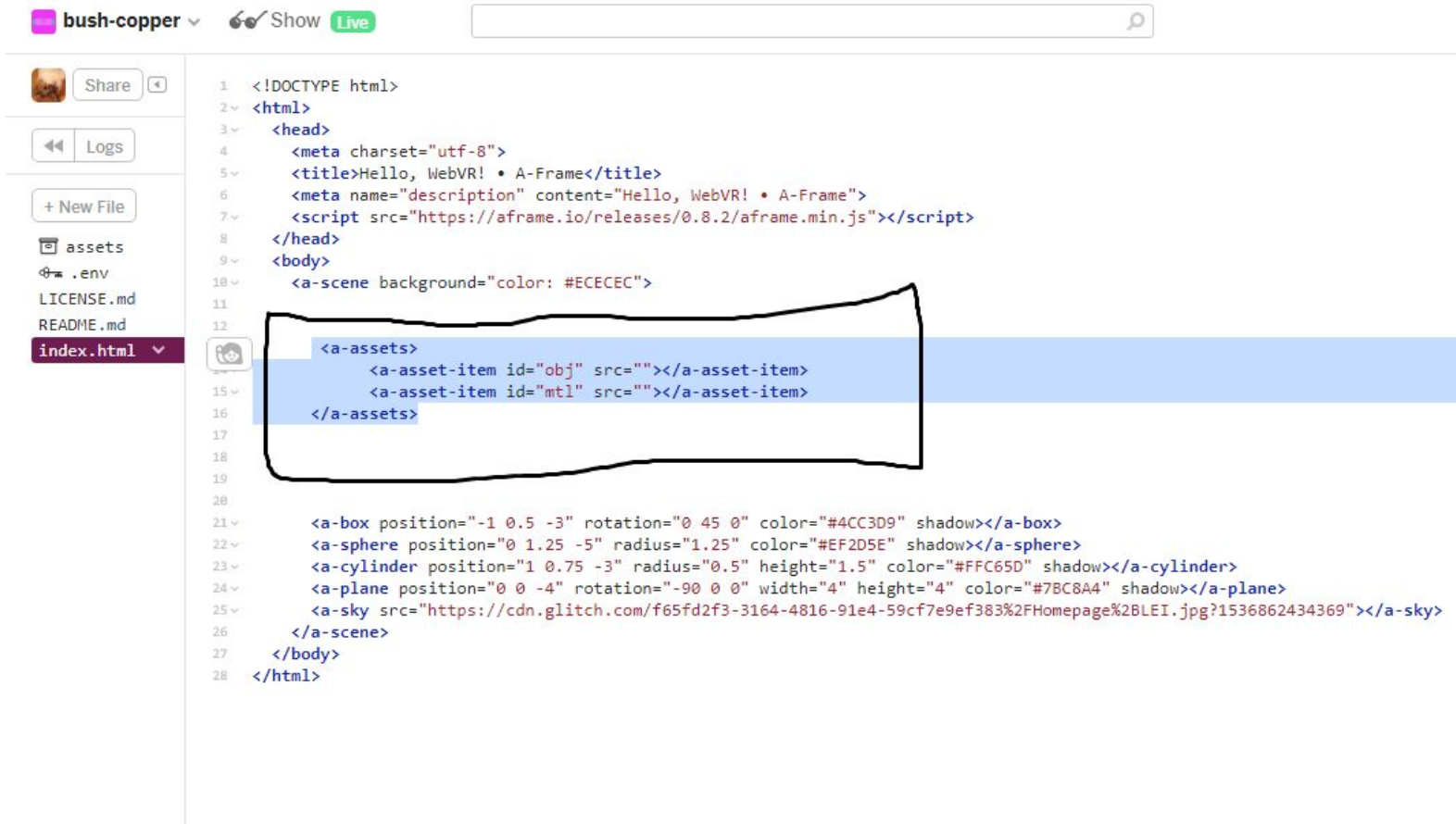
Ok good glad you got that set up. Make sure spelling and placement of tags are all EXACTLY the same as the picture. So to see the object in your scene in between the quotes for the obj asset item paste the url of the obj file and the mtl file from your assets folder in glitch. And paste the url in between the "" after the src=
And then right under </a-assets> tag

Paste this line of code into the index.html:

```
<a-entity obj-model="obj: #obj; mtl:#mtl" position="0 0 -10" scale="17 17 17" rotation="0 100
0" shadow="cast:true"></a-entity>
```

Look on the next page to see where.

```html
<!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/0.8.2/aframe.min.js"></script>
  </head>
  <body>
    <a-scene background="color: #ECECEC">

        <a-assets>
            <a-asset-item id="obj" src="https://cdn.glitch.com/f65fd2f3-3164-4816-91e4-59cf7e9ef383%2Fmodel.obj?1536865839365"></a-asset-item>
            <a-asset-item id="mtl" src="https://cdn.glitch.com/f65fd2f3-3164-4816-91e4-59cf7e9ef383%2Fmaterials.mtl?1536865839254"></a-asset-item>
        </a-assets>

        <a-entity obj-model="obj: #obj; mtl:#mtl" position="0 0 -10" scale="17 17 17" rotation="0 100 0" shadow="cast:true"></a-entity>


        <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/f65fd2f3-3164-4816-91e4-59cf7e9ef383%2FHomepage%2BLEI.jpg?1536862434369"></a-sky>
    </a-scene>
  </body>
</html>
```

Then click "show live" and you should be able to see the object!

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.
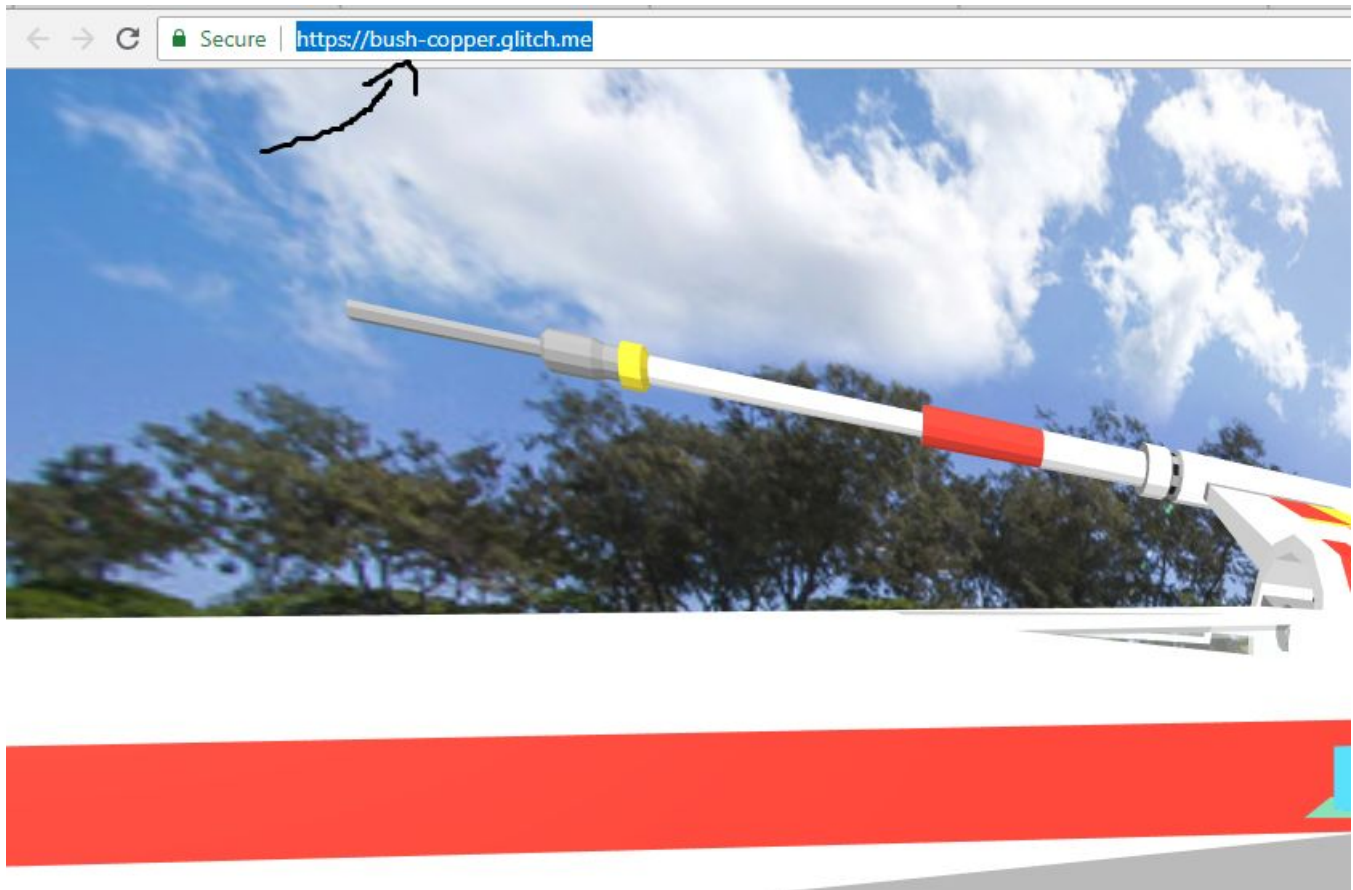
Congrats you are done!

ANIMATION:

The animation component lets us animate and tween values including:

- Component values (e.g., position, visible)
- 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)
- 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/