

WRAPPING UP AR



What is our GOAL for this MODULE?

We revised the Augmented reality(AR) concepts learned and applied them to generate QR Code for the hosted GitHub project link and create an Augmented reality portfolio with pattern markers

What did we ACHIEVE in the class TODAY?

- We revised the Augmented reality(AR) concepts
- We learned to create an Augmented reality portfolio with pattern markers

Which CONCEPTS/CODING BLOCKS did we cover today?

- <a-entity>,<a-camera> etc
- aframe markers

How did we DO the activities?

1. Concepts we revised:

Web-based AR Framework:

- A-Frame is a framework to create Web-Based Augmented Reality scenes.
- A-Frame HTML & JavaScript-based framework.
- Source: <https://aframe.io/>

Web-based AR Library:

- A-Frame has arjs component which is built over the JavaScript library,
- AR.js, for web-based, Augmented reality.

Creating an AR scene :<a-scene embedded arjs>

The arjs component is attached to the scene to make an augmented reality scene.

```

<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8" />
  <meta http-equiv="X-UA-Compatible" content="IE=edge" />

  <!-- Import A-Frame and then AR.js -->
  <script src="https://aframe.io/releases/1.0.4/aframe.min.js"></script>

  <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>

</head>

<body style="margin : 0px; overflow: hidden;">

  <!-- A-frame scene -->
  <a-scene vr-mode-ui="enabled: false;"
    embedded
    arjs="trackingMethod: best; sourceType: webcam; debugUIEnabled: false;">

    </a-scene>

</body>
</html>

```

Marker-based AR: <a-marker>

Hiro & Kanji Markers	Barcode Markers	Pattern Markers
Standard markers	Special markers with unique values.	Custom markers
 	<p>Barcode marker with value 5</p> 	

Hiro & Kanji Markers

- `<a-marker-camera preset='hiro'></a-marker-camera>`

```
<body style="margin : 0px; overflow: hidden;">

<!-- A-frame scene -->
<a-scene vr-mode-ui="enabled: false;"
  embedded
  arjs="trackingMethod: best; sourceType: webcam; debugUIEnabled: false;"

  <!-- Define a camera which will move according to the marker position -->
  <a-marker-camera preset='hiro'>

  </a-marker-camera>

</a-scene>

</body>
</html>
```

Barcode Markers

- `<a-scene arjs='detectionMode: mono_and_matrix; matrixCodeType: 3x3;'></a-scene>`
- `<a-marker-camera type='barcode' value='5'></a-marker-camera>`

```
<!-- A-frame scene -->
<a-scene vr-mode-ui="enabled: false;"
  embedded
  arjs="detectionMode: mono_and_matrix; matrixCodeType: 3x3;"

  <a-marker-camera type='barcode' value='5'>

  </a-marker-camera>

</a-scene>
```

Pattern Markers

- `<a-marker-camera type='pattern' url='pathToMarker.patt'> </a-marker-camera>`

```
<!-- A-frame scene -->
<a-scene vr-mode-ui="enabled: false;"
  embedded
  arjs="trackingMethod: best; sourceType: webcam; debugUIEnabled: false;"
  <a-marker-camera type='pattern' url='path/to/pattern-marker.patt'>
  </a-marker-camera>
</a-scene>
```

Markerless-AR

- Web-based Location-based AR: Based on the GPS installed in the devices.

A-Frame AR.js aframe-ar-nft.js library

- arjs component
- gps-entity-place component
- gps-camera component

A-Frame aframe-look-at-component.js library:

- look-at component

```

<script src="https://aframe.io/releases/1.0.4/aframe.min.js"></script>
<script src="https://unpkg.com/aframe-look-at-component@0.8.0/dist/aframe-look-at-component.min.js"></script>
<script src="https://raw.githubusercontent.com/AR-js-org/AR.js/master/aframe/build/aframe-ar-nft.js"></script>
</head>

<body style="margin: 0; overflow: hidden;">
  <a-scene vr-mode-ui="enabled: false" embedded arjs="sourceType: webcam; debugUIEnabled: false;">

    <a-assets>
      <a-asset-item id="ballModel" src="./ball/scene.glTF">
      </a-asset-item>
    </a-assets>

    <!--NOTE: REPLACE LOCATION POINTS WITH YOUR CURRENT LOCATION-->
    <a-entity gltf-model="#ballModel" look-at="[gps-camera]" scale="1 1 1" position="0 0 0" rotation="0 0 -10"
      gps-entity-place="latitude: 22.7868542 ; longitude: 88.3643296;"></a-entity>

    <a-camera gps-camera rotation-reader minDistance="1" positionMinAccuracy="0"> </a-camera>

  </a-scene>

```

- Mobile-based Face Recognition App: Based on the FaceDetector module from Expo React

Image Tracking:

- NFT Based image tracking markers.
- Image tracking is a technique that allows to detect/track 2D images by collecting image data.
- Once the image is detected the augmented reality can scan the image and the render objects over that.

2. Setup the basic A-Frame AR scene.

```
<!DOCTYPE html>
<html>

<head>
  <meta charset="utf-8" />
  <meta http-equiv="X-UA-Compatible" content="IE=edge" />
  <title>Marker based AR Portfolio</title>

  <!-- Import A-Frame and then AR.js -->
  <script src="https://aframe.io/releases/1.0.4/aframe.min.js"></script>

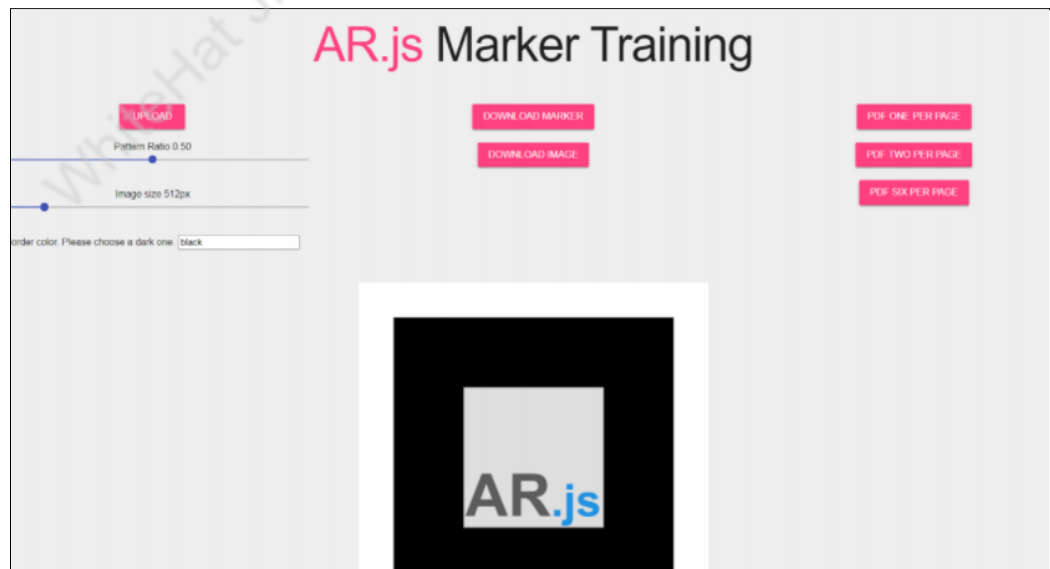
  <script src="https://jeromeetienne.github.io/AR.js/aframe/build/aframe-ar.js"></script>
</head>

<body style="margin : 0px; overflow: hidden;">

  <!-- A-frame scene -->
  <a-scene vr-mode-ui="enabled: false;" embedded
    arjs="trackingMethod: best; sourceType: webcam; debugUIEnabled: false;"

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

3. Create pattern markers of the 6 images given in the assets folder:
 - Open the link to create a pattern marker
 - Upload the first icon image to generate a pattern marker and a pattern image



- Download the pattern marker and pattern image.



- Repeat the activity for all other 5 icon images.
4. Add the pattern marker to the scene for each project using `<a-marker>` or `<a-marker-camera>` tag.

```
<!-- Project Virtual Flight -->
<a-marker-camera type="pattern" url="./pattern-marker/virtual-flight/pattern-icon-01.patt">
</a-marker-camera>
```

```
<!-- Project Virtual Tour -->
<a-marker-camera type="pattern" url="./pattern-marker/virtual-tour/pattern-icon-04.patt">
</a-marker-camera>
```

```
<!-- Project Virtual Shooting Game -->
<a-marker-camera type="pattern" url="./pattern-marker/shooting-game/pattern-icon-03.patt">
</a-marker-camera>
```



```

<!-- Project AR Menu Card -->
<a-marker-camera type="pattern" url="./pattern-marker/ar-menu-card/pattern-icon-02.patt">

</a-marker-camera>

<!-- Project AR Navigation-->
<a-marker-camera type="pattern" url="./pattern-marker/ar-navigation/pattern-icon-03.patt">

</a-marker-camera>

<!-- Project AR Face Recognition-->
<a-marker-camera type="pattern" url="./pattern-marker/ar-face-recognition/pattern-icon-06.patt">

</a-marker-camera>

```

5. Add the video or image as a child of the <a-marker>

```

<a-assets>

</a-assets>

<!-- Project Virtual Flight -->
<a-marker type="pattern" url="pattern-marker/virtual-flight/pattern-icon-01.patt">
  <a-plane src="#card2" position="0 0 -1" width="2" height="1.5" rotation="-90 0 0"></a-plane>
</a-marker>

<!-- Project Virtual Tour -->
<a-marker type="pattern" url="pattern-marker/virtual-tour/pattern-icon-04.patt">
  <a-plane src="#card3" position="0 0 -1" width="2" height="1.5" rotation="-90 0 0"></a-plane>
</a-marker>

```


6. Host the project by creating a new repo and get the hosted link.

Create a new repository


A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Owner *

Repository name *

 PreetiSharma15

 /

AR Portfolio 

Great repository names are short and unique. Your new repository will be created as AR-Portfolio. turbo-octo-fortnight?

Description (optional)

☒ Public

Anyone on the internet can see this repository. You choose who can commit.

☐ Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☒ Add a README file

This is where you can write a long description for your project. [Learn more.](#)

☐ Add .gitignore

Choose which files not to track from a list of templates. [Learn more.](#)

☐ Choose a license

A license tells others what they can and can't do with your code. [Learn more.](#)

Options

Manage access

Security & analysis

Branches

Webhooks

Notifications

Integrations


Deploy keys

Actions

Environments

GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

 Your site is published at <https://preetisharma15.github.io/AR-Portfolio/>

Source

Your GitHub Pages site is currently being built from the `main` branch. [Learn more.](#)

Branch: main

/ (root)

Save

Theme Chooser

Select a theme to publish your site with a Jekyll theme. [Learn more.](#)

Choose a theme

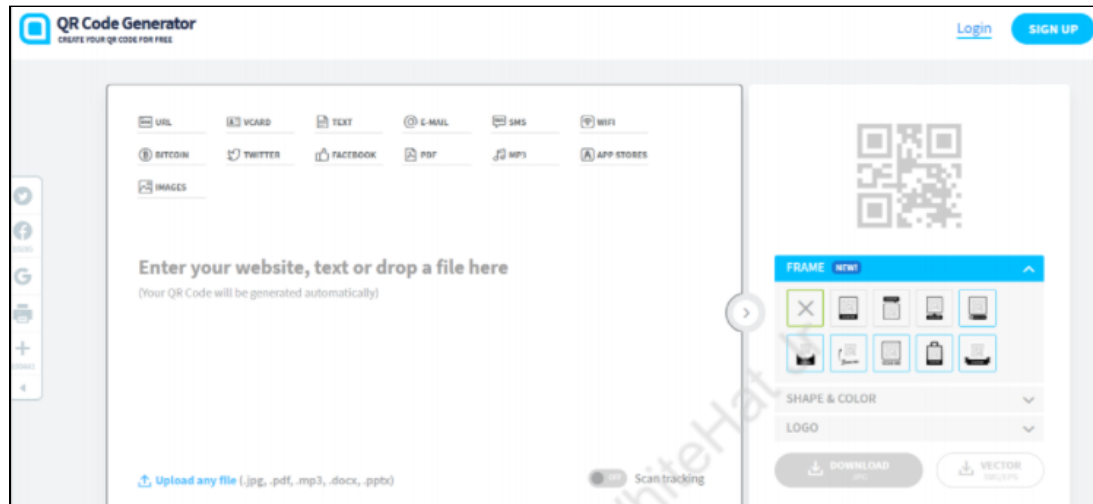
Custom domain

Custom domains allow you to serve your site from a domain other than preetisharma15.github.io. [Learn more.](#)

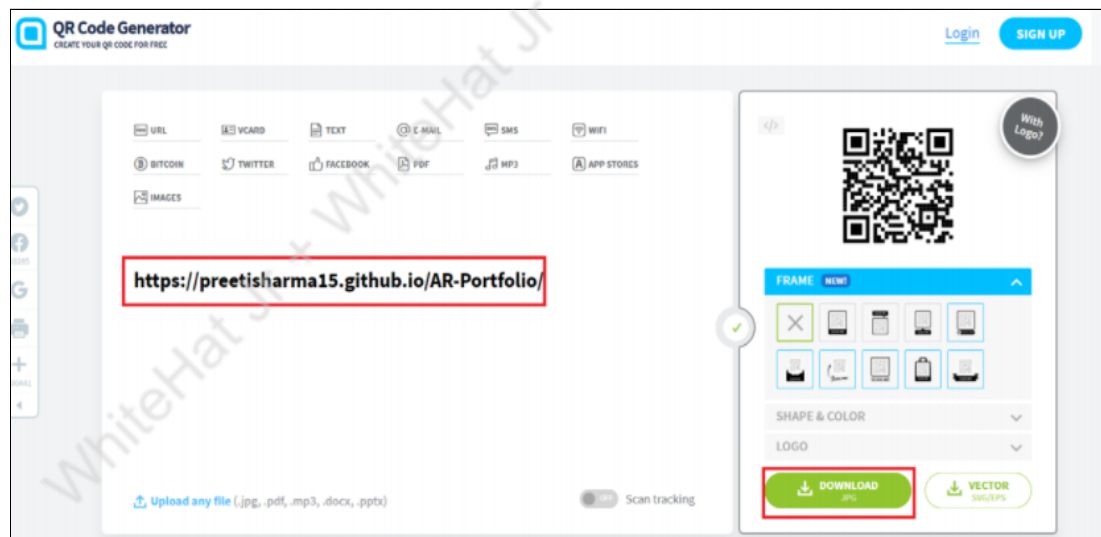
© 2020 The content of this email is confidential and intended for the recipient specified in the message only. It is strictly forbidden to share any part of this message with any third party without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

7. Get the QR Code for the hosted link of this project:

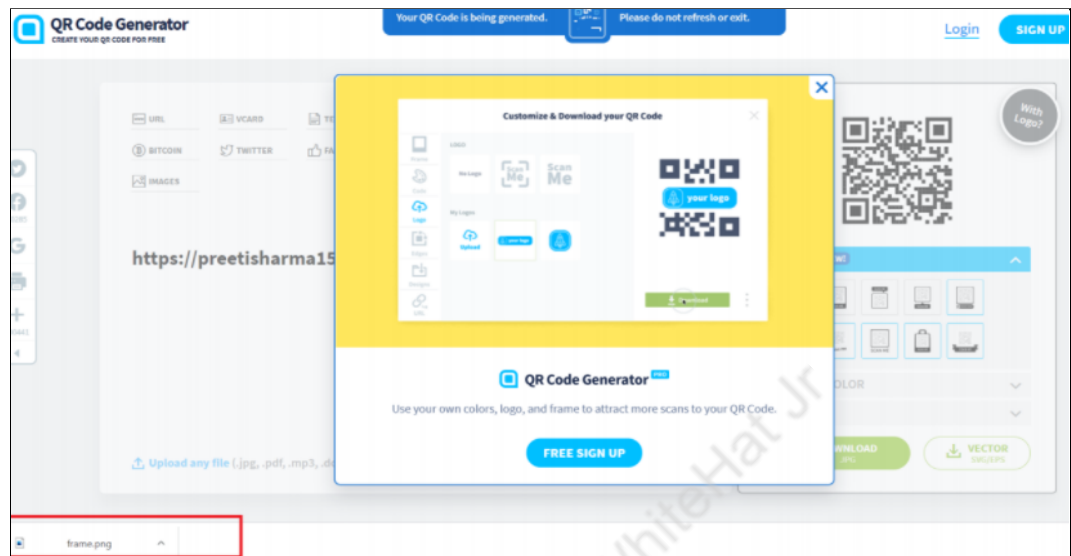
- Open QR Generator link



- Paste the GitHub hosted Link



- Click download.

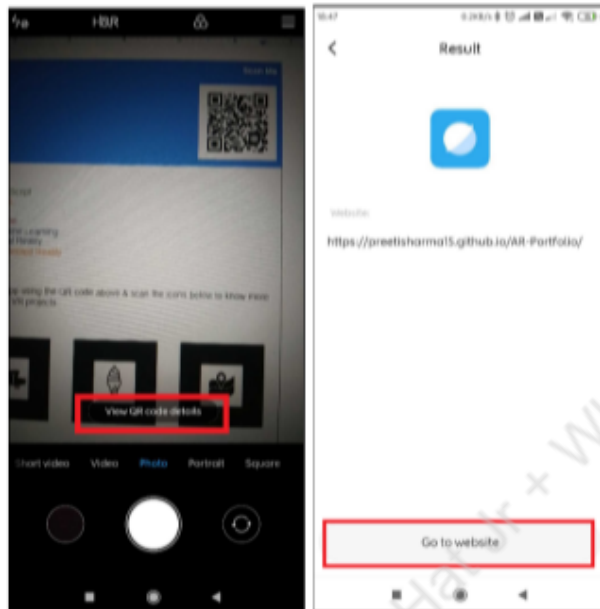


8. Design the portfolio page in the Google docs/Microsoft Docs

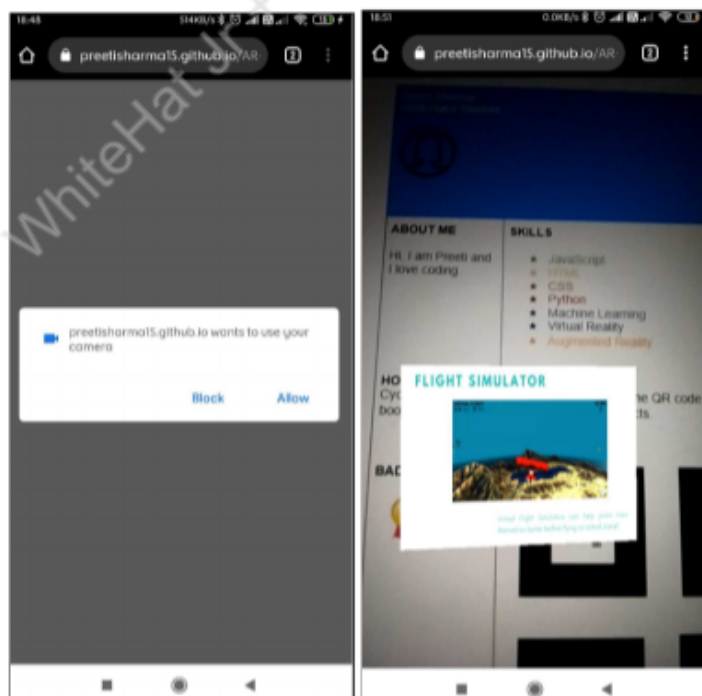


9. Test the output:

- Scan the QR marker at top with the QR Scanner app(download the app if it is not available in your phone.)
- Click on Go to the website



- Scan the markers in the portfolio to see the image/video content over the respective pattern markers.



We have successfully learned to generate QR Code for the hosted GitHub project link and create an Augmented reality portfolio with pattern markers.

What's NEXT?

In the next class, you will work on your projects and I will guide you to design your own projects.

EXTEND YOUR KNOWLEDGE:

- You can refer to the link below to explore more about A-Frame
[A-Frame](#)