

NEURAL NETWORKS



What is our GOAL for this MODULE?

We trained three facial emotions for our detection web application. We also learned how to code the HTML page for our webapp.

What did we ACHIEVE in the class TODAY?

- Made a facial emotion detection model using a Teachable Machine.
- Made the HTML page for the web app.

Which CONCEPTS/ CODING did we cover today?

- Made an image model in a teachable machine with 3 faces of emotion like happy, sad, and angry.
- Wrote the HTML code for the facial emotion detection web application.

How did we DO the activities?

In the class C110 you had trained a model on a teacherable machine with various facial expressions and uploaded the model on a teacherable machine and saved the link in your system.

Reference video for -

- GATHERING IMAGES USING A TEACHABLE MACHINE VIDEO REFERENCE: [Link](#)
- TRAINING MODEL USING TEACHABLE MACHINE VIDEO REFERENCE: [Link](#)

Then in the class C110 you have downloaded **Emotion_To_Emoji** folder it has -

- **index.html** file - It has some HTML code.
- **style.css** - It has some CSS properties.
- **main.js** file - It is an empty JS file.

HTML CODE of index.html:

```

<html>
<head>
  <title>Emotion To Emoji</title>
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.0/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.0/js/bootstrap.min.js"></script>

  <script src="https://unpkg.com/ml5@0.4.3/dist/ml5.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/webcamjs@1.0.26/webcam.js"></script>

  <link rel="stylesheet" type="text/css" href="style.css">
</head>

<body>
  <div class="container">
    <center>
      <br><br>

      <p style="font-size: 22px;">Take your selfie to generate emoji
        <br>
        <b style="color: yellow">Are you Happy?</b>
        <br>
        <b style="color: black">Are you Sad?</b>
        <br>
        <b style="color: red">Are you Angry?</b>
        <br>
      </p>

      <div class="col-md-4 col-sm-12 col-xs-12">
        <label>Snapshot - </label>

        <br><br>
      </div>
    </center>
  </div>

  <script src="main.js"></script>
</body>
</html>

```

Bootstrap links

ml5.js link

Webcam.js link

Our style link

Our JS link

The above HTML code has:

- **Bootstrap links**

- Webcam.js link
- ml5.js link
- Our **style.css** file link
- Our **main.js** file link
- And some HTML tags.

Then you started adding HTML elements in **index.html** and styles in **style.css**.

1. First, you have added a **h3** tag that will be used to hold the heading.

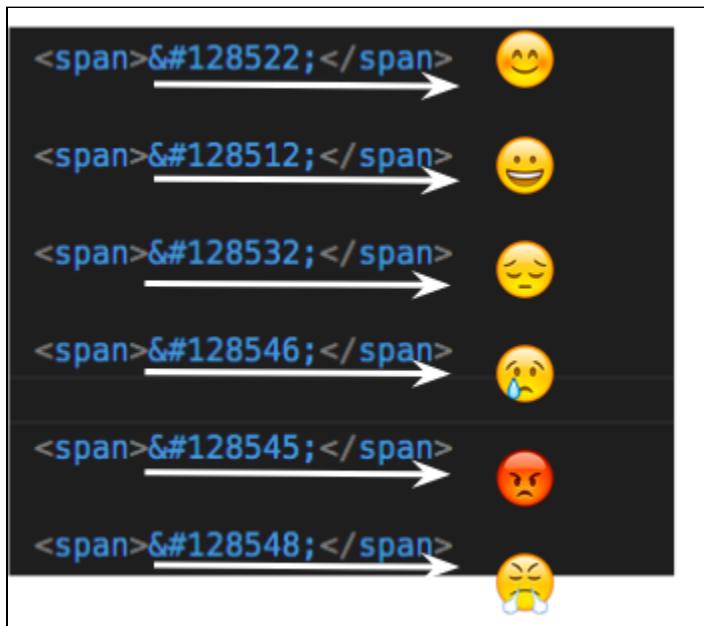
```
<body>
<div class="container">

  <center>
    <h3 class="btn btn-warning heading">EMOTION TO EMOJI APP
    <br>
    <span>#128522;</span>
    <span>#128512;</span>
    <span>#128532;</span>
    <span>#128546;</span>
    <span>#128545;</span>
    <span>#128548;</span>
  </h3>
```

- a. Then you have added a **br** tag, which will add a line break.

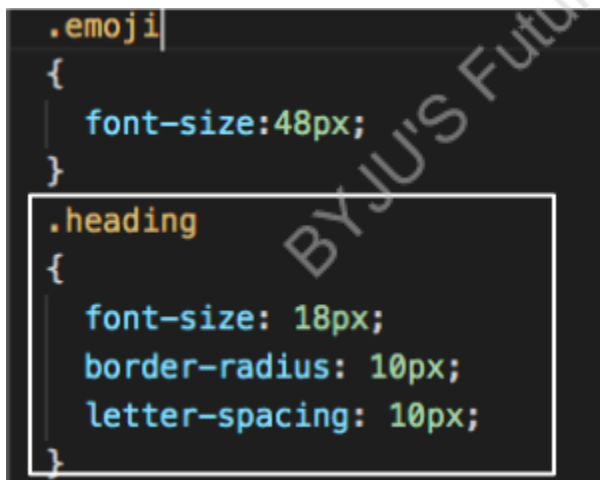
```
<h3 class="btn btn-warning heading">EMOTION TO EMOJI APP
<br>
```

- b. Then you added span tags for adding emojis. Use **decimal** values for displaying emojis.



For knowing more about emojis and using them you can refer to [Link](#)

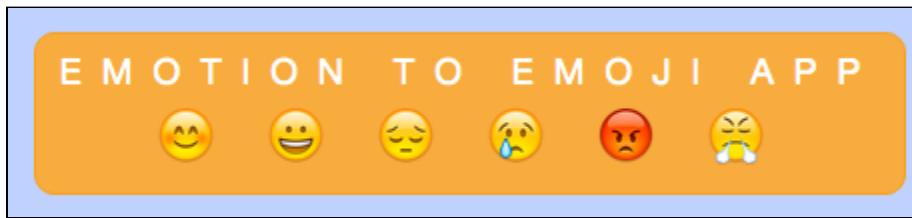
2. Then added style to the **heading** class.



- Given `font-size: 18px;` to increase the font.
- Given `border-radius: 10px;` to make the border a little round.
- Given `letter-spacing: 10px;` to increase the space between letters.

For knowing more about letter spacing you can refer to [Link](#)

- Output :



1. Then you have added a div tag which will be used to hold the live view of the webcam.

```
<p style="font-size: 22px;">Take your selfie to generate emoji
<br>
<b style="color: yellow">Are you Happy?</b>
<br>
<b style="color: black">Are you Sad?</b>
<br>
<b style="color: red">Are you Angry?</b>
<br>
</p>

<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Webcam View - </label>
  <div id="camera"></div>
  <br><br>
  <button onclick="take_snapshot();" class="btn btn-warning">Capture Image</button>
</div>
```

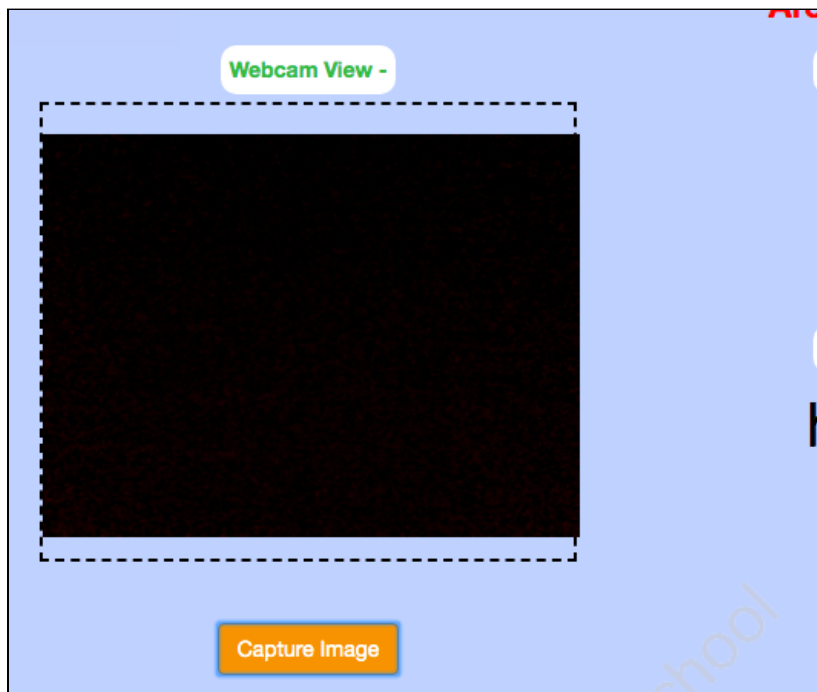
Explaining the above code:

- div with bootstrap classes. `<div class="col-md-4 col-sm-12 col-xs-12">`
- label to hold the Webcam View - `<label>Webcam View - </label>`
- div to hold the live view of the webcam. `<div id="camera"></div>`
- br tags `

` for giving break lines
- Then added a button to capture the image.

```
<button onclick="take_snapshot();" class="btn btn-warning">Capture Image</button>
```

- Output:



2. Then added a **div** that will be used to hold the predictions.

```
<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Webcam View - </label>
  <div id="camera"></div>
  <br><br>
  <button onclick="take_snapshot();" class="btn btn-warning">Capture Image</button>
</div>

<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Prediction 1 - </label>
  <p class="emotion_name" id="result_emotion_name"></p>
  <p class="emoji" id="update_emoji"></p>

  <label>Prediction 2 - </label>
  <p class="emotion_name" id="result_emotion_name2"></p>
  <p class="emoji" id="update_emoji2"></p>
</div>
```

Explaining the above code:

- **div** with bootstrap classes. `<div class="col-md-4 col-sm-12 col-xs-12">`
- **label** to hold **Prediction 1** - `<label>Prediction 1 - </label>`
- **p tag** to hold the emotion name coming from the model.

```
<p class="emotion_name" id="result_emotion_name"></p>
```

- **p tag** to hold the emoji

```
<p class="emoji" id="update_emoji"></p>
```

Now the same way coded for Prediction 2.

```
<label>Prediction 2 - </label>  
<p class="emotion_name" id="result_emotion_name2"></p>  
<p class="emoji" id="update_emoji2"></p>
```

- Output - when the page loads:



3. Then added a div that will be used to hold the image captured by the webcam:

```

<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Prediction 1 - </label>
  <p class="emotion_name" id="result_emotion_name"></p>
  <p class="emoji" id="update_emoji"></p>

  <label>Prediction 2 - </label>
  <p class="emotion_name" id="result_emotion_name2"></p>
  <p class="emoji" id="update_emoji2"></p>
</div>

<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Snapshot - </label>
  <div id="result"></div>
  <br><br>
</div>

```

4. Then added a button that will be used to compare the captured image against the model.

```

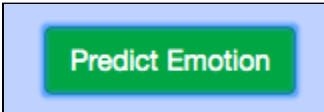
<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Prediction 1 - </label>
  <p class="emotion_name" id="result_emotion_name"></p>
  <p class="emoji" id="update_emoji"></p>

  <label>Prediction 2 - </label>
  <p class="emotion_name" id="result_emotion_name2"></p>
  <p class="emoji" id="update_emoji2"></p>
</div>

<div class="col-md-4 col-sm-12 col-xs-12">
  <label>Snapshot - </label>
  <div id="result"></div>
  <br><br>
  <button onclick="check();" class="btn btn-success">Predict Emotion</button>
</div>

```

- Output:



5. Then added CSS for the label in **style.css**.

```
.heading
{
  font-size: 18px;
  border-radius: 10px;
  letter-spacing: 10px;
}

label
{
  font-size: 14px;
  color: #62b33a;
  padding: 6px;
  border-radius: 10px;
  background-color: white;
}
```

What's NEXT?

In the next classes we will continue making our facial emotion detection web application by starting with the JS code part of it.