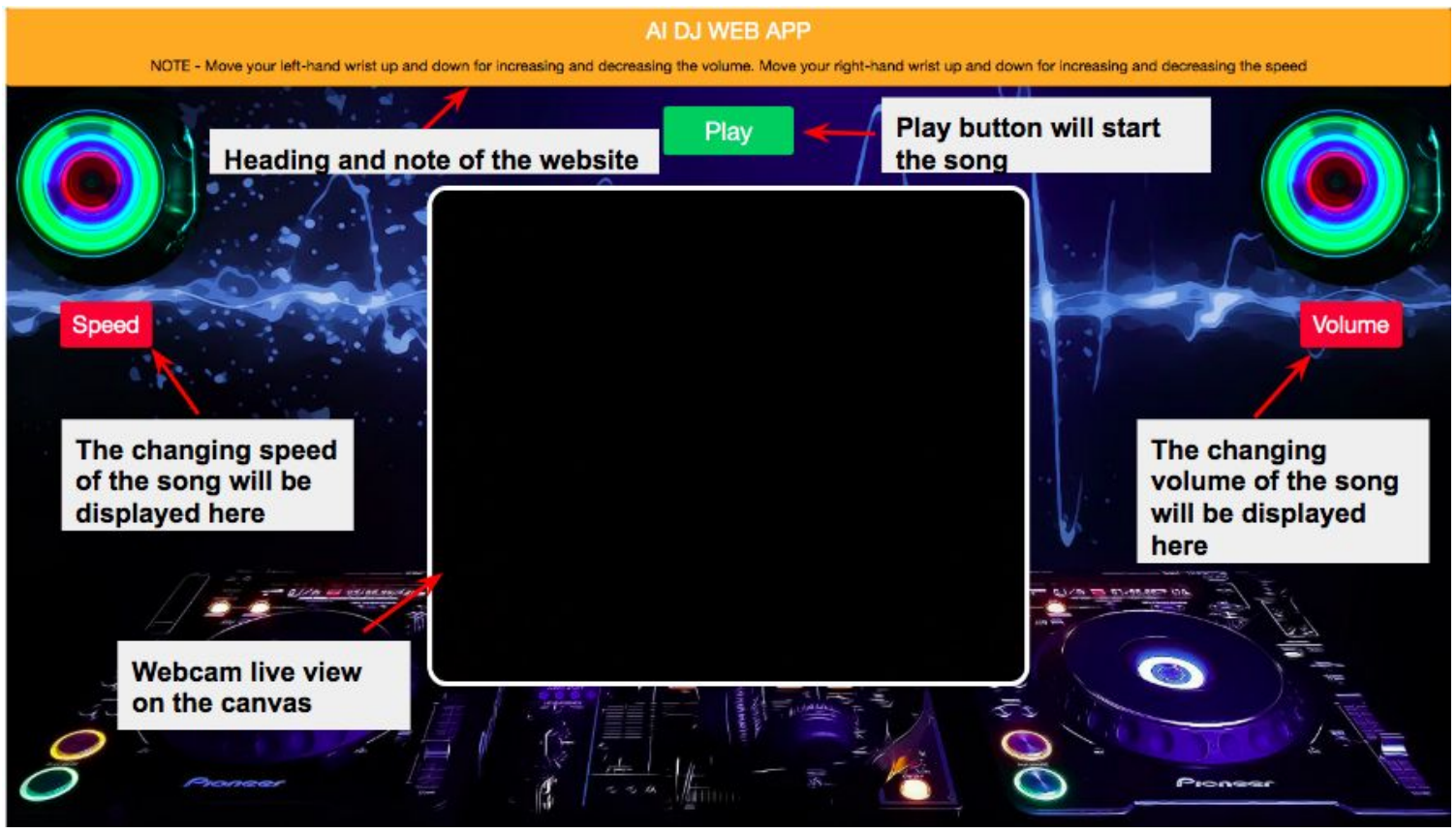
- **Code done in main.js file in previous class.**

```
song = "";
scoreLeftWrist = 0;

rightWristX = 0;
rightWristY = 0;

leftWristX = 0;
leftWristY = 0;

function preload()
{
    song = loadSound("music.mp3");
}

function setup() {
    canvas =  createCanvas(600, 500);
    canvas.center();

    video = createCapture(VIDEO);
    video.hide();

    poseNet = ml5.poseNet(video, modelLoaded);
    poseNet.on('pose', gotPoses);
}

function modelLoaded() {
  console.log('PoseNet Is Initialized');
}
```

- **UI overview**

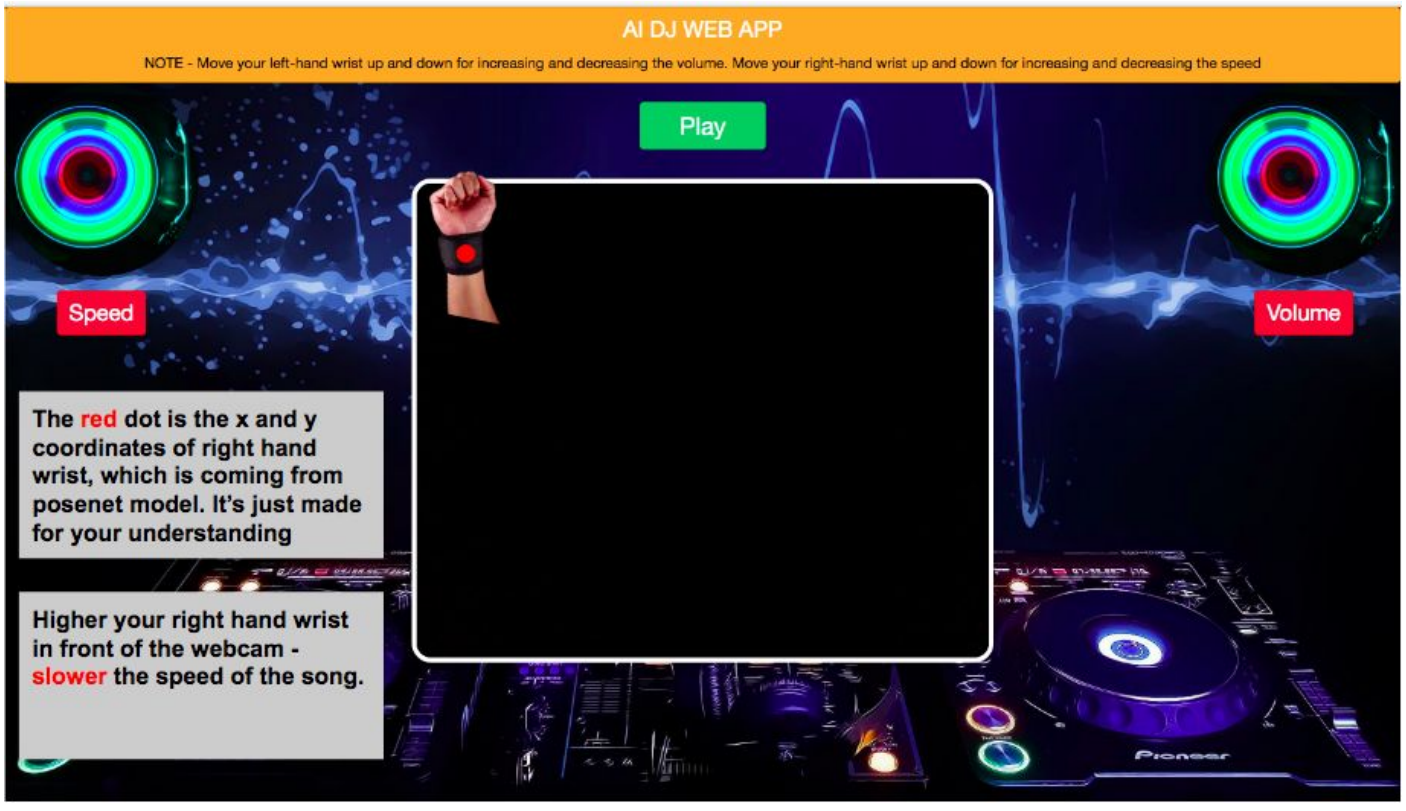


➔ Now press the play button 

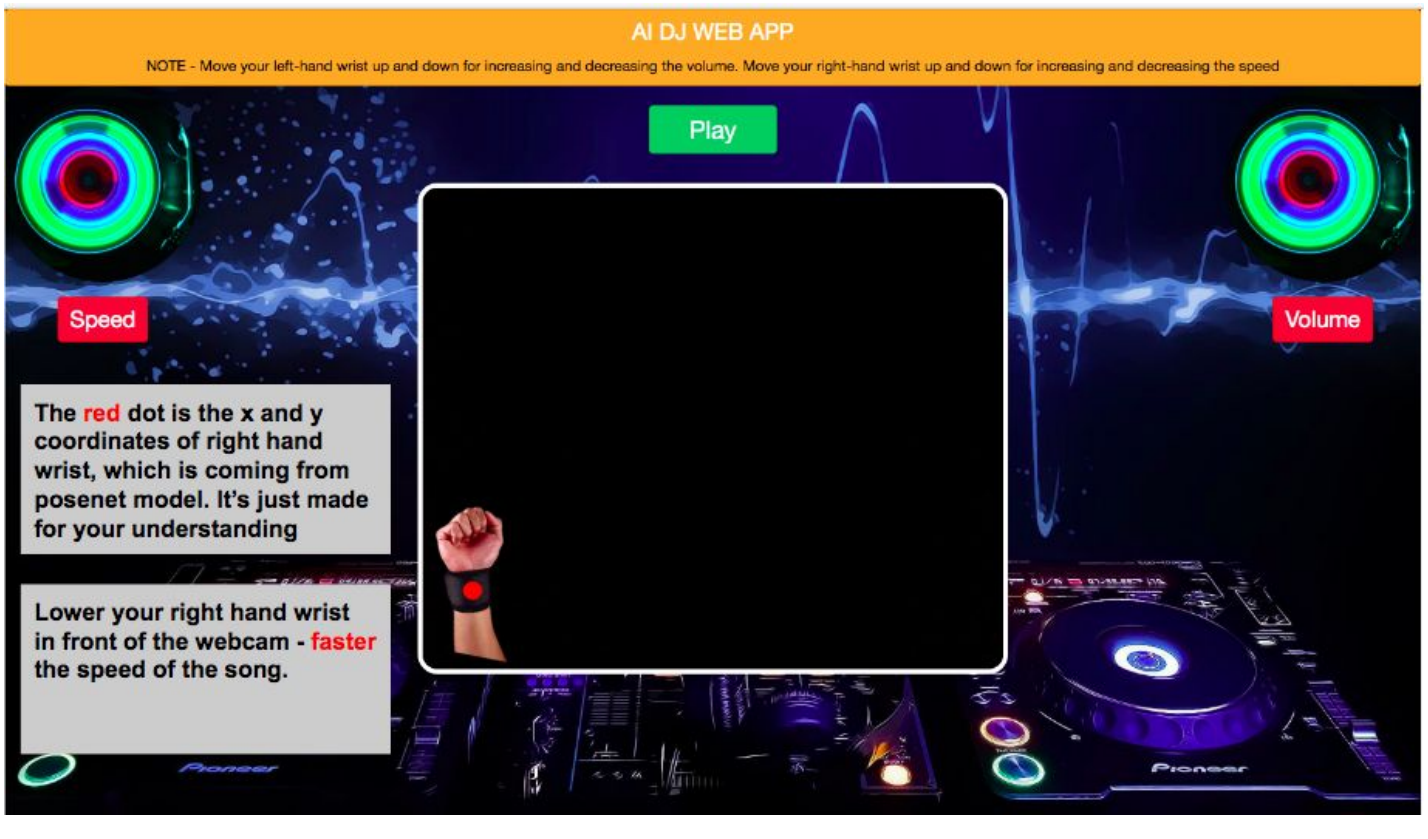
➔ Then it will start playing the song

➔ Now move your right hand wrist up and down in front of the webcam to change the speed of the song.

Higher your right hand wrist in front of the webcam - slower the speed.

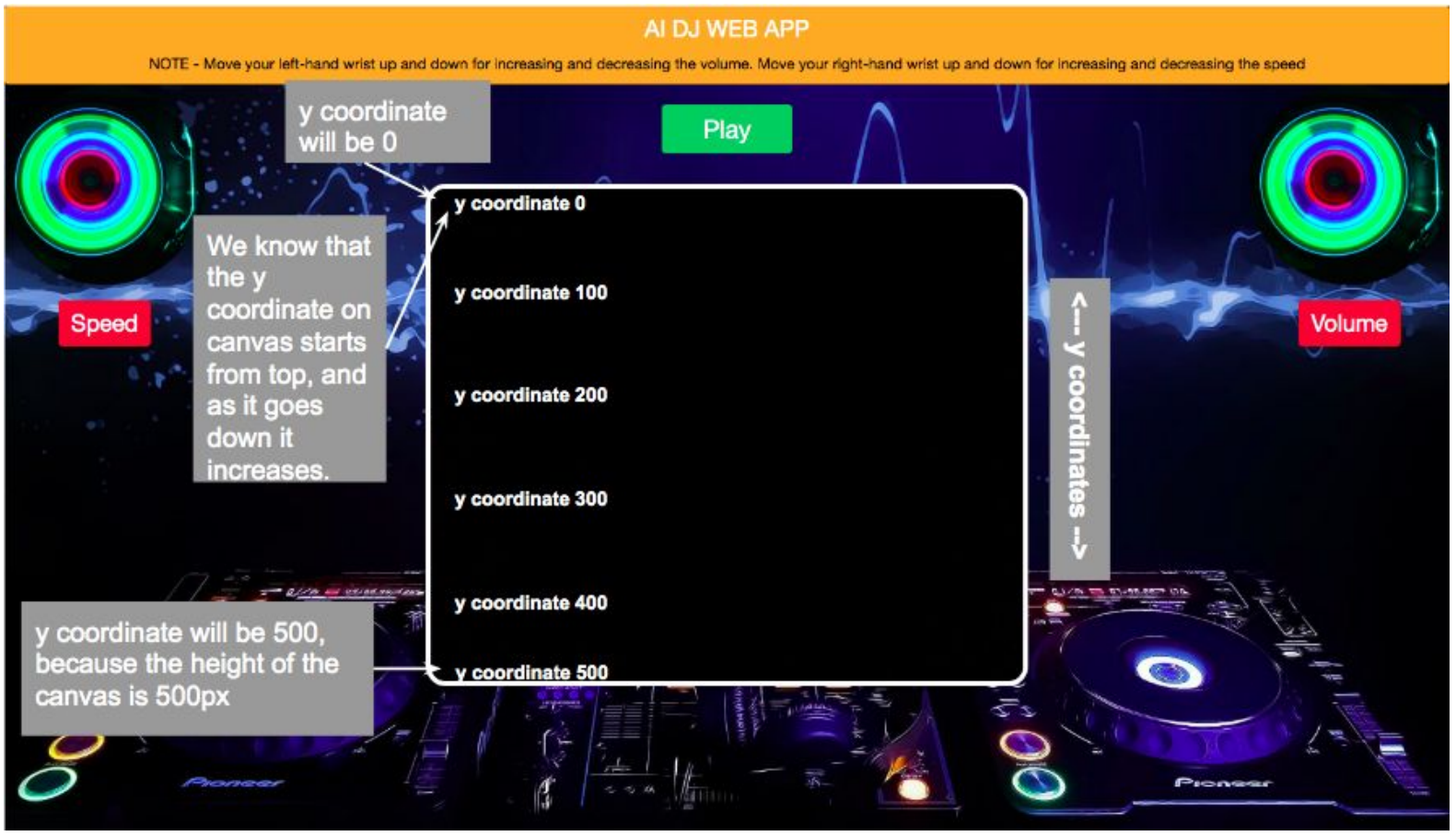


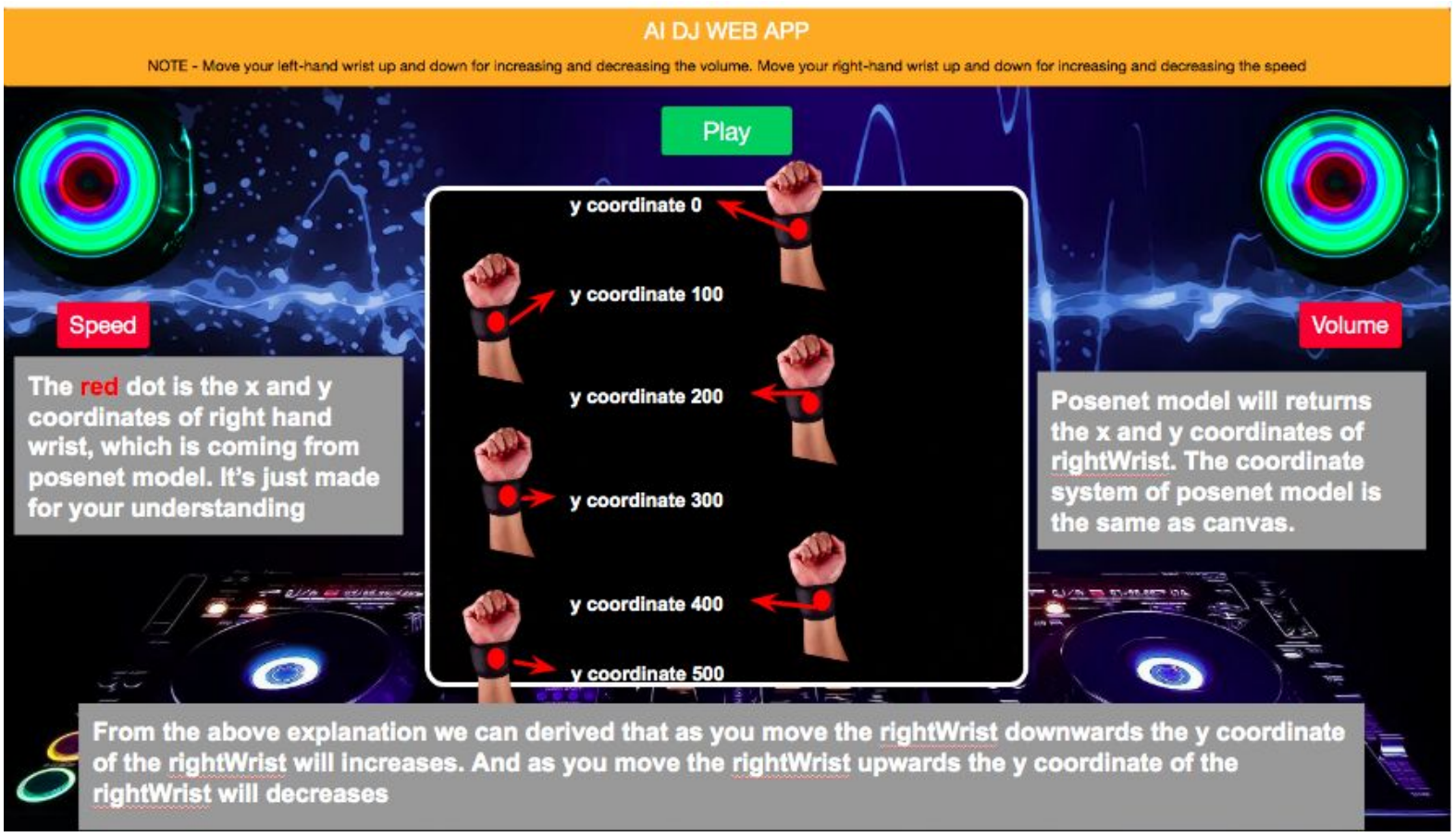
Lower your right hand wrist in front of the webcam - faster the speed.



As per the movement of your right hand wrist the speed of the song will change, meaning - as you move your right hand wrist from up to down - the speed of the song will change from slower to faster.

- **Logic for changing the speed of the song**





We will use the rate() function to keep changing the speed of the song, rate() function takes a value which is - 0.5 is half-speed, 1.0 is normal, 2.0 is twice as fast, 2.5 super fast.

And we know that the y coordinate of rightWrist will be between 0(starting point of the canvas) and 500(ending point of the canvas).
So we need to add a few "if - else conditions" to check the range of y coordinate of rightWrist and accordingly we will set the speed for the song.

- **Adding code for drawing the circle**

```
function draw() {
  image(video, 0, 0, 600, 500);

  fill("#FF0000");
  stroke("#FF0000");

  circle(rightWristX,rightWristY,20);

  if(scoreLeftWrist > 0.2)
  {
    circle(leftWristX,leftWristY,20);
    InNumberleftWristY = Number(leftWristY);
    remove_decimals = floor(InNumberleftWristY);
    volume = remove_decimals/500;
    document.getElementById("volume").innerHTML = "Volume = " + volume;
    song.setVolume(volume);
  }

}
```

- **Adding “if else condition” -**

➔ Adding **first** **“if condition”** which will check if **y coordinate of rightWrist is in between 0 and 100**, and if the condition satisfies then set the speed for the song as **0.5** and also update the h3 tag and who has an id as “**speed”** with **“Speed = 0.5x”**. This h3 tag we had defined in class no.126 for the purpose of holding the changing speed.

```
function draw() {
  image(video, 0, 0, 600, 500);

  fill("#FF0000");
  stroke("#FF0000");

  circle(rightWristX,rightWristY,20);

  if(rightWristY >0 && rightWristY <= 100)
  {
    document.getElementById("speed").innerHTML = "Speed = 0.5x";
    song.rate(0.5);
  }

  if(scoreLeftWrist > 0.2)
  {
    circle(leftWristX,leftWristY,20);
    InNumberleftWristY = Number(leftWristY);
    remove_decimals = floor(InNumberleftWristY);
    volume = remove_decimals/500;
    document.getElementById("volume").innerHTML = "Volume = " + volume;
    song.setVolume(volume);
  }

}
```

➔ Now add the **second** **“condition”** which will check if **y coordinate of rightWrist is in between 100 and 200**, and if the condition satisfies then set the speed for the song as **1** and also update the h3 tag and who has an id as “**speed”** with **“Speed = 1x”**. This h3 tag we had defined in class no.126 for the purpose of holding the changing speed.

```
function draw() {
  image(video, 0, 0, 600, 500);

  fill("#FF0000");
  stroke("#FF0000");

  circle(rightWristX,rightWristY,20);

  if(rightWristY >0 && rightWristY <= 100)
  {
    document.getElementById("speed").innerHTML = "Speed = 0.5x";
    song.rate(0.5);
  }
  else if(rightWristY >100 && rightWristY <= 200)
  {
    document.getElementById("speed").innerHTML = "Speed = 1x";
    song.rate(1);
  }

  if(scoreLeftWrist > 0.2)
  {
    circle(leftWristX,leftWristY,20);
    InNumberleftWristY = Number(leftWristY);
    remove_decimals = floor(InNumberleftWristY);
    volume = remove_decimals/500;
    document.getElementById("volume").innerHTML = "Volume = " + volume;
    song.setVolume(volume);
  }

}
```

➔ Same way add a **third** **“condition”** which will check if **y coordinate of rightWrist is in between 200 and 300**, and if the condition satisfies then set the speed for the song as **1.5** and also update the h3 tag and who has an id as “**speed”** with **“Speed = 1.5x”**. This h3 tag we had defined in class no.126 for the purpose of holding the changing speed.

```
function draw() {
  image(video, 0, 0, 600, 500);

  fill("#FF0000");
  stroke("#FF0000");

  circle(rightWristX,rightWristY,20);

  if(rightWristY >0 && rightWristY <= 100)
  {
    document.getElementById("speed").innerHTML = "Speed = 0.5x";
    song.rate(0.5);
  }
  else if(rightWristY >100 && rightWristY <= 200)
  {
    document.getElementById("speed").innerHTML = "Speed = 1x";
    song.rate(1);
  }
  else if(rightWristY >200 && rightWristY <= 300)
  {
    document.getElementById("speed").innerHTML = "Speed = 1.5x";
    song.rate(1.5);
  }

  if(scoreLeftWrist > 0.2)
  {
    circle(leftWristX,leftWristY,20);
    InNumberleftWristY = Number(leftWristY);
    remove_decimals = floor(InNumberleftWristY);
    volume = remove_decimals/500;
    document.getElementById("volume").innerHTML = "Volume = " + volume;
    song.setVolume(volume);
  }
}
```

➔ Same way add a **fourth** **“condition”** which will check if **y coordinate of rightWrist is in between 300 and 400**, and if the condition satisfies then set the speed for the song as **2** and also update the h3 tag and who has an id as “**speed”** with **“Speed = 2x”**. This h3 tag we had defined in class no.126 for the purpose of holding the changing speed.

```
circle(rightWristX,rightWristY,20);

if(rightWristY >0 && rightWristY <= 100)
{
  document.getElementById("speed").innerHTML = "Speed = 0.5x";
  song.rate(0.5);
}
else if(rightWristY >100 && rightWristY <= 200)
{
  document.getElementById("speed").innerHTML = "Speed = 1x";
  song.rate(1);
}
else if(rightWristY >200 && rightWristY <= 300)
{
  document.getElementById("speed").innerHTML = "Speed = 1.5x";
  song.rate(1.5);
}
else if(rightWristY >300 && rightWristY <= 400)
{
  document.getElementById("speed").innerHTML = "Speed = 2x";
  song.rate(2);
}
```

➔ Same way add a **fifth** **“condition”** which will check if **y coordinate of rightWrist is in between 400 and 500**, and if the condition satisfies then set the speed for the song as **2.5** and also update the h3 tag and who has an id as “**speed”** with **“Speed = 2.5x”**. This h3 tag we had defined in class no.126 for the purpose of holding the changing speed.

```
circle(rightWristX,rightWristY,20);

if(rightWristY >0 && rightWristY <= 100)
{
  document.getElementById("speed").innerHTML = "Speed = 0.5x";
  song.rate(0.5);
}
else if(rightWristY >100 && rightWristY <= 200)
{
  document.getElementById("speed").innerHTML = "Speed = 1x";
  song.rate(1);
}
else if(rightWristY >200 && rightWristY <= 300)
{
  document.getElementById("speed").innerHTML = "Speed = 1.5x";
  song.rate(1.5);
}
else if(rightWristY >300 && rightWristY <= 400)
{
  document.getElementById("speed").innerHTML = "Speed = 2x";
  song.rate(2);
}
else if(rightWristY >400 && rightWristY <= 500)
{
  document.getElementById("speed").innerHTML = "Speed = 2x";
  song.rate(2);
}
```

- **Reading results to fetch the score of rightWrist**

Run https://mahdihat791.github.io/Ai-DJ/ and open console screen -

We need to read this object and fetch the score of the rightWrist, while reading the object we will also write the code -

- **First click on the arrow to expand -**

We want to read the objects of results so first we will write `results`

- **Then click on the arrow next to** `0:` **to expand -**

We have clicked on 0 index which is inside the "results" object, so code will be `results[0]`

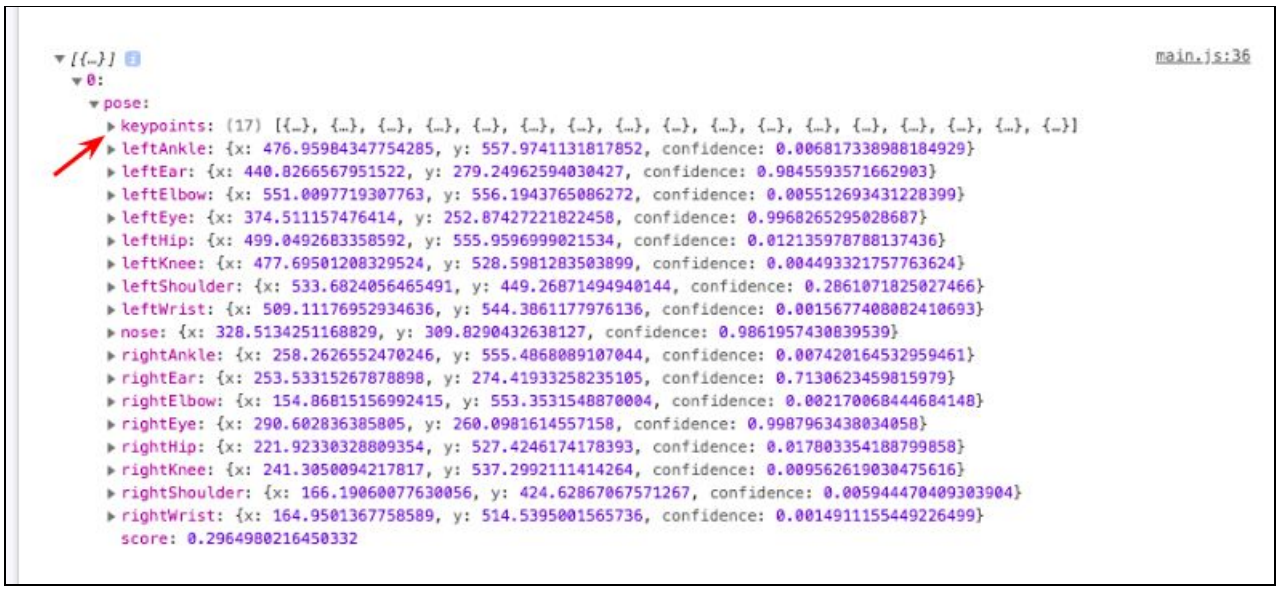
- **Then click on the arrow next to** `pose:` **to expand -**

Then inside 0 index we have clicked on pose object, so code will be - `results[0].pose`

- **Then inside the pose object there are the two important parts** `keypoints:` **and 17 body parts with x and y coordinates.**

  This time we will expand `keypoints:` **as it has the same thing which is 17 body parts with x and y coordinates. But also it contains the score for each body part.**

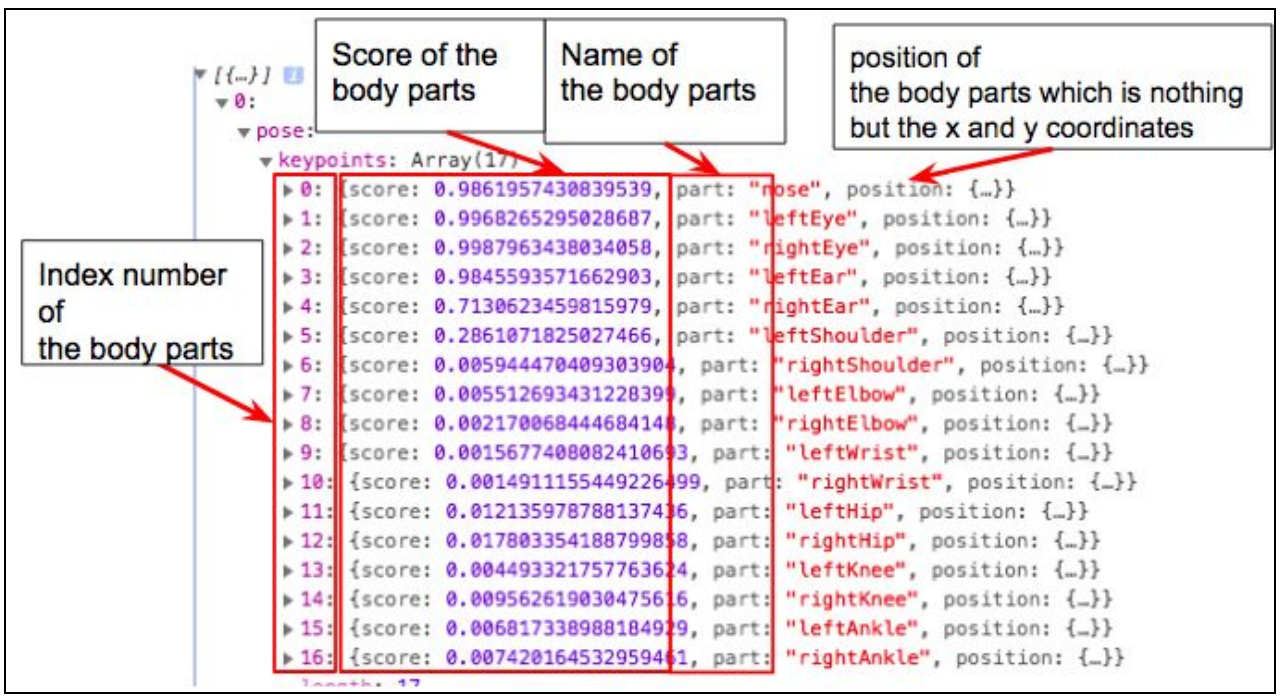
So click the arrow new to `keypoints:` **to expand**



If we want to get the score of the rightWrist, so inside results -> inside 0 index -> inside pose -> inside keypoints.

So we will write - `results[0].pose.keypoints`

Inside `keypoints:`
there will -
Index numbers of the body parts
Score for the body parts
Name of the body parts
Position of the body parts - this is nothing but x and y coordinates of the body parts



Now we want to get the score of rightWrist. The index of rightWrist is 10, so inside results -> inside 0 index -> inside pose -> inside keypoints ->inside 10

So the code will be - `results[0].pose.keypoints[10]`

Now we have the index number of rightWrist, so we can get the score inside of rightWrist, so inside results -> inside 0 index -> inside pose -> inside keypoints ->inside 10 ->there is score.

So the code will be - `results[0].pose.keypoints[10].score`

- **Now add code for fetching score of rightWrist and store it inside a variable.**

```
function gotPoses(results)
{
  if(results.length > 0)
  {
    console.log(results);
    scoreRightWrist =  results[0].pose.keypoints[10].score;
    scoreLeftWrist =  results[0].pose.keypoints[9].score;
    console.log("scoreLeftWrist = " + scoreLeftWrist);

    rightWristX = results[0].pose.rightWrist.x;
    rightWristY = results[0].pose.rightWrist.y;
    console.log("rightWristX = " + rightWristX +" rightWristY = "+ rightWristY);

    leftWristX = results[0].pose.leftWrist.x;
    leftWristY = results[0].pose.leftWrist.y;
    console.log("leftWristX = " + leftWristX +" leftWristY = "+ leftWristY);

  }
}
```

- **Code to console this variable.**

```
function gotPoses(results)
{
  if(results.length > 0)
  {
    console.log(results);
    scoreRightWrist =  results[0].pose.keypoints[10].score;
    scoreLeftWrist =  results[0].pose.keypoints[9].score;
    console.log("scoreRightWrist = " + scoreRightWrist + "scoreLeftWrist = " + scoreLeftWrist);

    rightWristX = results[0].pose.rightWrist.x;
    rightWristY = results[0].pose.rightWrist.y;
    console.log("rightWristX = " + rightWristX +" rightWristY = "+ rightWristY);

    leftWristX = results[0].pose.leftWrist.x;
    leftWristY = results[0].pose.leftWrist.y;
    console.log("leftWristX = " + leftWristX +" leftWristY = "+ leftWristY);

  }
}
```

- **Add a if condition to check if scoreRightWrist is greater than 0.2 then only draw circle and change speed of the song**

```
fill("#FF0000");
stroke("#FF0000");

if(scoreRightWrist > 0.2)
{
    circle(rightWristX,rightWristY,20);

    if(rightWristY >0 && rightWristY <= 100)
    {
        document.getElementById("speed").innerHTML = "Speed = 0.5x";
        song.rate(0.5);
    }
    else if(rightWristY >100 && rightWristY <= 200)
    {
        document.getElementById("speed").innerHTML = "Speed = 1x";
        song.rate(1);
    }
    else if(rightWristY >200 && rightWristY <= 300)
    {
        document.getElementById("speed").innerHTML = "Speed = 1.5x";
        song.rate(1.5);
    }
    else if(rightWristY >300 && rightWristY <= 400)
    {
        document.getElementById("speed").innerHTML = "Speed = 2x";
        song.rate(2);
    }
    else if(rightWristY >400 && rightWristY <= 500)
    {
        document.getElementById("speed").innerHTML = "Speed = 2.5x";
        song.rate(2.5);
    }
}
```