Prewritten code -

```
img = "";
noseX = 0;
noseY = 0;
marioX = 325;
marioY = 325;

function preload()
{
  img = loadImage("mario05.png");
}

function setup() {
  createCanvas(650, 400);
}

function draw() {
  background("#D3D3D3");
  image(img,marioX, marioY, 40,70);
}
```

Q - The values 650 and 400 inside createCanvas() stands for what?
Q - The values 40 and 70 inside image() stands for what?

1. **Adding code for accessing webcam and setting the size for it.**

```
function setup() {
  createCanvas(650, 400);
  video = createCapture(VIDEO);
  video.size(600,300);
}
```

2. **Code for initializing the posenet model**

```
function setup() {
  createCanvas(650, 400);
  video = createCapture(VIDEO);
  video.size(600,300);

  poseNet = ml5.poseNet(video, modelLoaded);

}
```

3. **Code for modalLoaded() function**

```
function setup() {
  createCanvas(650, 400);
  video = createCapture(VIDEO);
  video.size(600,300);

  poseNet = ml5.poseNet(video, modelLoaded);
}

function modelLoaded() {
  console.log('Model Loaded!');
}
```

Output -

```
Console

    Model Loaded!
```

4. **Code for executing posenet modal**

```
function setup() {
  createCanvas(650, 400);
  video = createCapture(VIDEO);
  video.size(600,300);

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

5. Code for gotResult() function and fetching x and y coordinates of the nose

```
function gotPoses(results)
{
  if(results.length > 0)
  {
    noseX = results[0].pose.nose.x;
    noseY = results[0].pose.nose.y;
    console.log("noseX = " + noseX +", noseY = " + noseY);
  }
}
```

Output -

```
noseX = 313.1686935647886, noseY = 226.43560387
237727

noseX = 313.0641234548468, noseY = 226.89102797
480354
```

6. Understanding the coordinate system of the canvas.

X coordinate - 0
Y coordinate - 0

X coordinates on canvas starts from left and as we **move right, x coordinates increases**

<--- X coordinates -->

X coordinate - 650
Y coordinate - 0

X coordinate 650
because the width of
the canvas is 650

Y coordinates
on canvas
starts from
top, and as it
move down it
increases.

Press Any Arrow Keys to Start and Play

X coordinate - 0
Y coordinate - 400

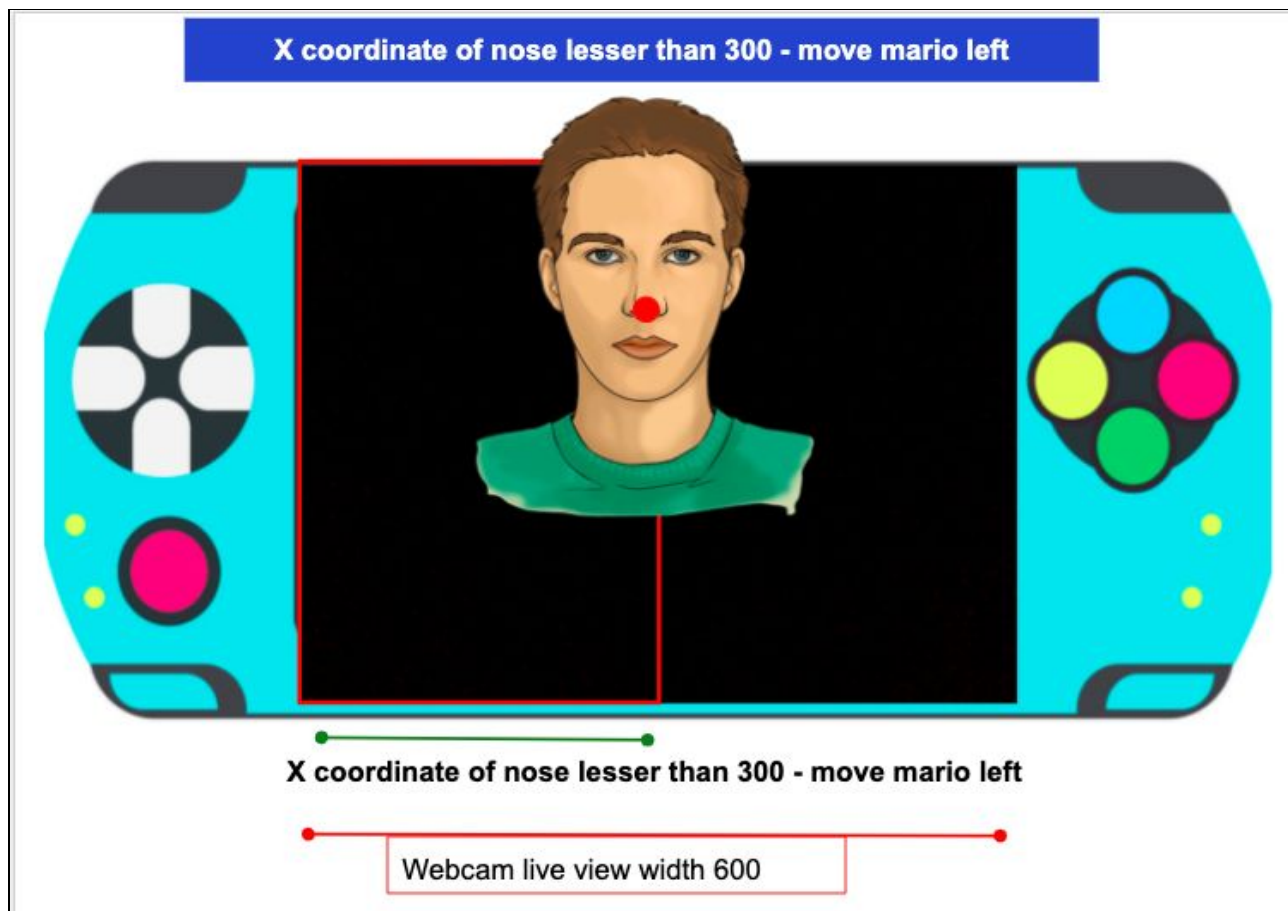Y coordinate 400
because the height of
the canvas is 400

X coordinate - 650
Y coordinate - 400

X coordinate 650
because the width of
the canvas is 650.

Y coordinate 400
because the height of
the canvas is 400

Looking at the above explanation
1. We can derive that if mario wants to move **left** we have to **decrease** the **x-coordinates** for the mario image

2. We derive that if mario wants to move **right** we have to **increase** the **x-coordinates** for the mario image

3. We derive that if mario wants to move **up** we have to **decrease** the **y-coordinates** for the mario image

Understanding the logic of the movement of mario
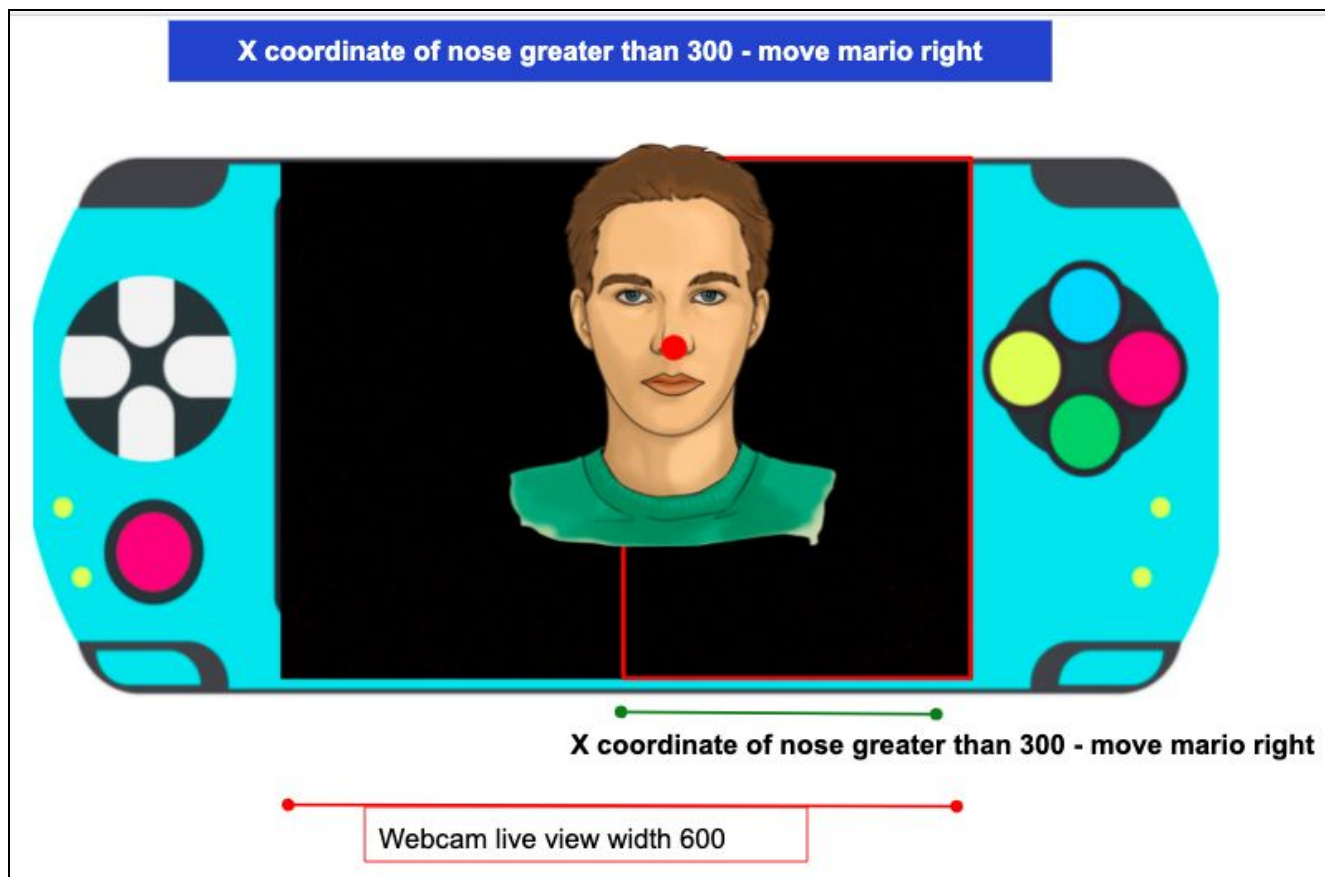
1. To move Mario left -

The "if condition" will be -

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
  }

  image(img,marioX, marioY, 40,70);
}
```

Decreasing x coordinate of mario by 1

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
    marioX = marioX - 1;
  }

  image(img,marioX, marioY, 40,70);
}
```

2. To move Mario right

X coordinate of nose greater than 300 - move mario right

X coordinate of nose greater than 300 - move mario right

Webcam live view width 600

The "if condition" will be -

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
    marioX = marioX - 1;
  }
  if(noseX > 300)
  {
  }

  image(img,marioX, marioY, 40,70);
}
```
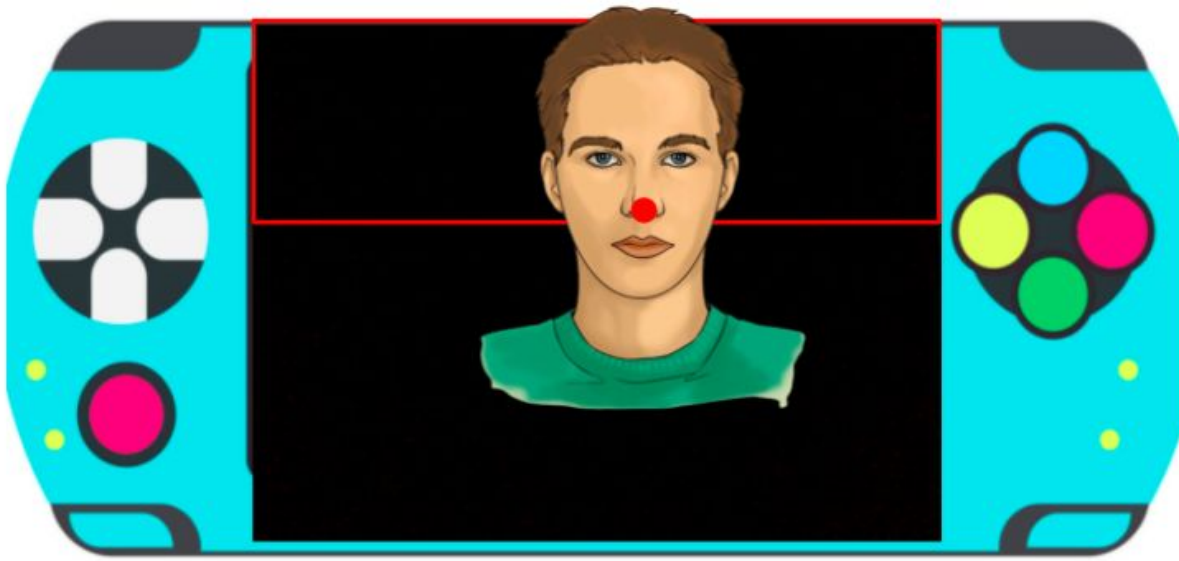
Decreasing x coordinate of mario by 1

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
    marioX = marioX - 1;
  }
  if(noseX > 300)
  {
    marioX = marioX + 1;
  }

  image(img,marioX, marioY, 40,70);
}
```

3. To move Mario up

Y coordinate of nose lesser than 150 - move mario up

Y coordinate of nose lesser than 150 - move mario up

Webcam live view height 300

The "if condition" will be -

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
    marioX = marioX - 1;
  }
  if(noseX > 300)
  {
    marioX = marioX + 1;
  }
  if(noseY < 150)
  {
  }

  image(img,marioX, marioY, 40,70);
}
```

Decreasing x coordinate of mario by 1

```
function draw() {
background("#D3D3D3");
  if(noseX < 300)
  {
    marioX = marioX - 1;
  }
  if(noseX > 300)
  {
    marioX = marioX + 1;
  }
  if(noseY < 150)
  {
    marioY = marioY - 1;
  }

  image(img,marioX, marioY, 40,70);
}
```