Chetan Hiremath

Dr. Johnson

EECS 368

March 16, 2022

EECS 368 Assignment 4

HTML Source Code:

<!DOCTYPE html>

<html>

  <head>

    <meta charset= "utf-8">

  </head>

  <title>PieChart.htm</title>

<canvas width="800" height="800"></canvas>

<script>

const results= [

{name: "Satisfied", count: 927, color: "green"},

{name: "Neutral", count: 463, color: "yellow"},

{name: "Unsatisfied", count: 510, color: "red"},

{name: "No comment", count: 102, color: "blue"}

]; //This line contains the elements of the array for Customer Satisfaction Data Set 1.

const results1= [

{name: "Very happy", count: 63, color: "silver"},

{name: "Happy", count: 104, color: "maroon"},

{name: "Neutral", count: 87, color: "purple"},

{name: "Unhappy", count: 51, color: "cyan"},

{name: "Very unhappy", count: 26, color: "black"},

{name: "No comment", count: 18, color: "pink"}

]; //This line contains the elements of the array for Customer Satisfaction Data Set 2.

let cx = document.querySelector("canvas").getContext("2d"); //This line creates a context of Data Set 1.

  let total = results.reduce(function(sum, choice) //This line defines the variable for the total value.

  {

    return sum + choice.count; //This line returns the sum of the value and the choice's value.

  } , 0); //This line runs and ends the function for the pie chart.

  let currentAngle = -0.5 \* Math.PI; //This line defines the variable for the current angle.

  let centerX = 200, centerY = 150; //This line defines the coordinates of the pie chart of Data Set 1.

  results.forEach(function(result) //This line defines the function for every result.

  {

    let sliceAngle = (result.count / total) \* 2 \* Math.PI; //This line defines the variable for the slice angle.

    cx.beginPath(); //This line will begin to draw the pie chart.

    cx.arc(centerX, centerY, 100, currentAngle, currentAngle + sliceAngle); //This line will draw the arc and the circle by the arc's center coordinates, the arc's radius, the start angle, and the end angle.

    let middleAngle = currentAngle + 0.5 \* sliceAngle; //This line defines the variable for the middle angle.

    let textX = Math.cos(middleAngle) \* 120 + centerX; //This line defines the variable for the text that is controlled by the x-axis.

    let textY = Math.sin(middleAngle) \* 120 + centerY; //This line defines the variable for the text that is controlled by the y-axis.

    cx.textBaseLine = "middle"; //This line will set the text to the middle position.

    if (Math.cos(middleAngle) > 0) //This line shows the if statement that works if the middle angle that is converted by cosine is greater than 0.

    {

      cx.textAlign = "left"; //This line will set the text to the left position if the condition is true.

    }

    else //This line shows the else statement that works if the middle angle that is converted by cosine is less than 0.

    {

      cx.textAlign = "right"; //This line will set the text to the right position if the condition is true.

    }

    cx.font = "15px sans-serif"; //This line manages the font of the text.

    cx.fillStyle = "black"; //This line manages the color of the text.

    cx.fillText(result.name, textX, textY); //This line prints the text.

    currentAngle += sliceAngle; //This line shows that the new current angle is equal to the sum of the original current angle and the slice angle.

    cx.lineTo(centerX, centerY); //This line draws the pie chart from the original point to the center point.

    cx.fillStyle = result.color; //This line manages the color of the pie chart.

    cx.fill(); //This line fills the colors of the respective slices of pie chart.

  });

  let cx1 = document.querySelector("canvas").getContext("2d"); //This line creates a context of Data Set 2.

  let total1 = results1.reduce(function(sum, choice) //This line defines the variable for the total value.

  {

    return sum + choice.count; //This line returns the sum of the value and the choice's value.

  } , 0); //This line runs and ends the function for the pie chart.

  let currentAngle1 = -0.5 \* Math.PI; //This line defines the variable for the current angle.

  let centerX1 = 600, centerY1 = 150; //This line defines the coordinates of the pie chart of Data Set 2.

  results1.forEach(function(result1) //This line defines the function for every result.

  {

    let sliceAngle1 = (result1.count / total1) \* 2 \* Math.PI; //This line defines the variable for the slice angle.

    cx1.beginPath(); //This line will begin to draw the pie chart.

    cx1.arc(centerX1, centerY1, 100, currentAngle1, currentAngle1 + sliceAngle1); //This line will draw the arc and the circle by the arc's center coordinates, the arc's radius, the start angle, and the end angle.

    let middleAngle1 = currentAngle1 + 0.5 \* sliceAngle1; //This line defines the variable for the middle angle.

    let textX1 = Math.cos(middleAngle1) \* 120 + centerX1; //This line defines the variable for the text that is controlled by the x-axis.

    let textY1 = Math.sin(middleAngle1) \* 120 + centerY1; //This line defines the variable for the text that is controlled by the y-axis.

    cx1.textBaseLine = "middle"; //This line will set the text to the middle position.

    if (Math.cos(middleAngle1) > 0) //This line shows the if statement that works if the middle angle that is converted by cosine is greater than 0.

    {

      cx1.textAlign = "left"; //This line will set the text to the left position if the condition is true.

    }

    else //This line shows the else statement that works if the middle angle that is converted by cosine is less than 0.

    {

      cx1.textAlign = "right"; //This line will set the text to the right position if the condition is true.

    }

    cx1.font = "15px sans-serif"; //This line manages the font of the text.

    cx1.fillStyle = "black"; //This line manages the color of the text.

    cx1.fillText(result1.name, textX1, textY1); //This line prints the text.

    currentAngle1 += sliceAngle1; //This line shows that the new current angle is equal to the sum of the original current angle and the slice angle.

    cx1.lineTo(centerX1, centerY1); //This line draws the pie chart from the original point to the center point.

    cx1.fillStyle = result1.color; //This line manages the color of the pie chart.

    cx1.fill(); //This line fills the colors of the respective slices of pie chart.

  });

</script>

</html>