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<!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <meta name="description" content="Data Visualisation">
  <meta name="keywords" content="HTML, CSS, D3">
  <meta name="author" content="Dhanveer Ramnauth">
  <meta name="description" content="Data Visualisation">

  <title>Task 2.2 D3 Data Binding</title>
  <script src="https://cdn.jsdelivr.net/npm/d3@7"></script>
  <link href="css/style.css" rel="stylesheet">
</head>

<body>
  <h1>The D3 Journey starts here...</h1>

  <script>
    //dataset
    let dataset = [14, 5, 26, 23, 9,
                   1, 2, 3, 4, 5,
                   6, 7, 8, 9, 10,
                   11, 12, 13, 14, 15,
                   16, 17, 18, 19, 20,
                   21, 22, 23, 24, 25,
                   26, 27, 28, 29, 30];

    //canvas size
    let w = 500;
    let h = 200;

    //ratio between width of canvas and length of the dataset
    //used to compute element spacing
    let ratio = (w / dataset.length);

    //define svg canvas
    let svg = d3.select("body") // in body element
      .append("svg") //add the svg
      .attr("width", w) //set width attribute
      .attr("height", h); //set height attribute

    //spacing between the bars (by modifying width)
    let padding = 1; // size between bar
    let height_multiplier = 4; //make bar big

    svg.selectAll("rect")
      .data(dataset) //bind data
      .enter() //creates a new placeholder for each bit of data
      .append("rect") //add svg rect
      .attr("x", function(d, i) { //X coord
        return i * ratio; // w / dataset.length - norm
      })
      .attr("y", function(d) { //Y coord
        //we need to set the y value to the top of the bar so its not upside down
        return h - d * height_multiplier; //d*height_multiplier is bar height
      })
      .attr("width", ratio - padding) //ratio is the maximum element size and padding is gap
      .attr("height", function(d) {
        return d * height_multiplier; //multiply the current data with a multiplier
      })
      .attr("fill", function(d, i)
      {
        //https://www.learnui.design/tools/data-color-picker.html
        let color_palette = [
          [ 0, 63, 92],
          [ 47, 75, 124],
          [102, 81, 145],
          [160, 81, 149],
          [212, 80, 135],
          [249, 93, 106],
          [255, 124, 67],
          [255, 166, 0]
        ];

        //-----INDEXING-----

        //Max value is 30
        //color pallete length is 8

        /*
        color_index_ratio calculation:

        30 / 8 = 3.75
        3.75 * 2 = 7.5;
        floor(7.5) = 7;

        7 is max index value so we are safe
      }
    }
  </script>

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```
*/  
  
let color_index_ratio = Math.floor( ( d / color_palette.length ) * 2 ); // BAD WAY TO DO THIS  
let element = color_palette[color_index_ratio]; // slightly cleaner than inlining this.  
  
//-----
```

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return `rgb(${element[0]}, ${element[1]}, ${element[2]})`;
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});
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</script>
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<br>
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<footer>
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```
  Data Visualisation <br>Dhanveer Ramnauth
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</footer>
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</body>
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</html>
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