

```

window.onload = init;

function init() {
  wombatChart();
  petsChart2019();
  petsChart2021();
}

/*-----GEN CHARTS-----*/

function wombatChart() {
  d3.csv("res/wombat.csv").then(function(data) {
    wombatSightings = data;

    //bar chart settings
    let w = 500;
    let h = 200;
    let gap = 1;
    let h_padding = 10;
    barChart(wombatSightings, "wombats", gap, w, h, h_padding, "Wombat Sightings");
  });
}

function petsChart2019() {
  d3.csv("res/pet_ownership.csv").then(function(data) {
    ownership = data;
    //bar chart settings
    let w = 600;
    let h = 300;
    let gap = 15;
    let h_padding = 25;
    barChart(ownership, "pets2019", gap, w, h, h_padding, "Pet Ownership 2019", "animal", "Pet Ownership in 2019");
  })
}

function petsChart2021() {
  d3.csv("res/pet_ownership.csv").then(function(data) {
    ownership = data;
    //bar chart settings
    let w = 600;
    let h = 300;
    let gap = 15;
    let h_padding = 25;
    barChart(ownership, "pets2021", gap, w, h, h_padding, "Pet Ownership 2021", "animal", "Pet Ownership in 2021");
  })
}

/*-----*/

//dataset - full dataset,
//columnName - columnName of the thing we are plotting
//gap - the gap between the bars
//v_padding - the vertical space between the bottom of the svg and the graph (used for labels)
//title - title of the graph
//labelColName - the column name in which the labels are stored
//figCaption - the caption of the figure
function barChart(dataset, columnName, gap, w, h, v_padding, title, labelColName = "", figCaption = "") {

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

  //add linebreak
  d3.select("#charts").append("hr");

  let figure = d3.select("#charts").append("figure"); //append figure to charts

  //define svg canvas inside figure
  let svg = figure.append("svg") //add the svg
    .attr("width", w) //set width attribute
    .attr("height", h); //set height attribute

  //Figure
  //use fig caption if not available just use title
  let num_figures = d3.select("#charts").selectAll("figure").size();
  figure.append("figcaption").text(function() {
    let caption = `Figure ${num_figures}`
    if (figCaption)
      caption += `: ${figCaption}`;
    else
      caption += `: ${title}`;

    return caption;
  });

  //spacing between the bars (by modifying width)
  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 * w_ratio; //spacing relative to width of canvas
})
.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 - v_padding - d[columnName] * height_multiplier; //d*height_multiplier is bar height
})
.attr("width", w_ratio - gap) //ratio is the maximum element size and padding is gap
.attr("height", function(d) {
    return d[columnName] * height_multiplier; //multiply the current data with a multiplier
})
.attr("fill", (d, i) => setColor(d, i, columnName, dataset)); //color setting

```

//ADD THE LABELS IF THEY EXIST!!!

```

if (labelColName) {
    console.log(dataset);
    svg.selectAll("text")
        .data(dataset)
        .enter()
        .append("text")
        .text(function(d) { return d[labelColName] })
        .attr("x", function(d, i) { //X coord
            console.log(i);
            return i * w_ratio;
        })
        .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 - v_padding / 2;
        })
        .attr("font-size", "11");
}

```

//add title last

```

svg.append("text")
    .attr("x", (w / 2)) //center title
    .attr("y", 20) //20pixels down
    .attr("text-anchor", "middle") //middle text anchor
    .style("font-size", "16px")
    .style("text-decoration", "underline") //underline
    .text(title); //finally set the text

```

```

function setColor(data, index, columnName, dataset) {
    //https://www.learnui.design/tools/data-color-picker.html

```

//easier to store as hex instead of rgb.

```

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]
];

```

//I am not sure of a better way to do this

//gets the minimum and maximum value of the array

//use plus here to convert the column into a number?

//Without the + operator, d[columnName] would be treated as a string,

```

let min = d3.min(dataset, function(d) { return +d[columnName]; });
let max = d3.max(dataset, function(d) { return +d[columnName]; });

```

```

let val = data[columnName];

```

//https://d3js.org/d3-scale/linear

//d3.ScaleLinear maps an input domain to an output domain using linear transformation

//different scaling functions - https://d3js.org/d3-scale

//preserves proportional differences

//using it here to convert the data value to an accurate array index

```

let color_palette_index_calc = d3.scaleLinear([min, max], [0, color_palette.length - 1]); //mapping function

```

```

let color_palette_index = Math.round(color_palette_index_calc(val)); // calculating the index

```

```

let element = color_palette[color_palette_index]; //indexing into the element

```

//cleanliness

```

let r = element[0];

```

```

let g = element[1];

```

```
let b = element[2];  
  
return `rgb(${r}, ${g}, ${b})`;  
}
```