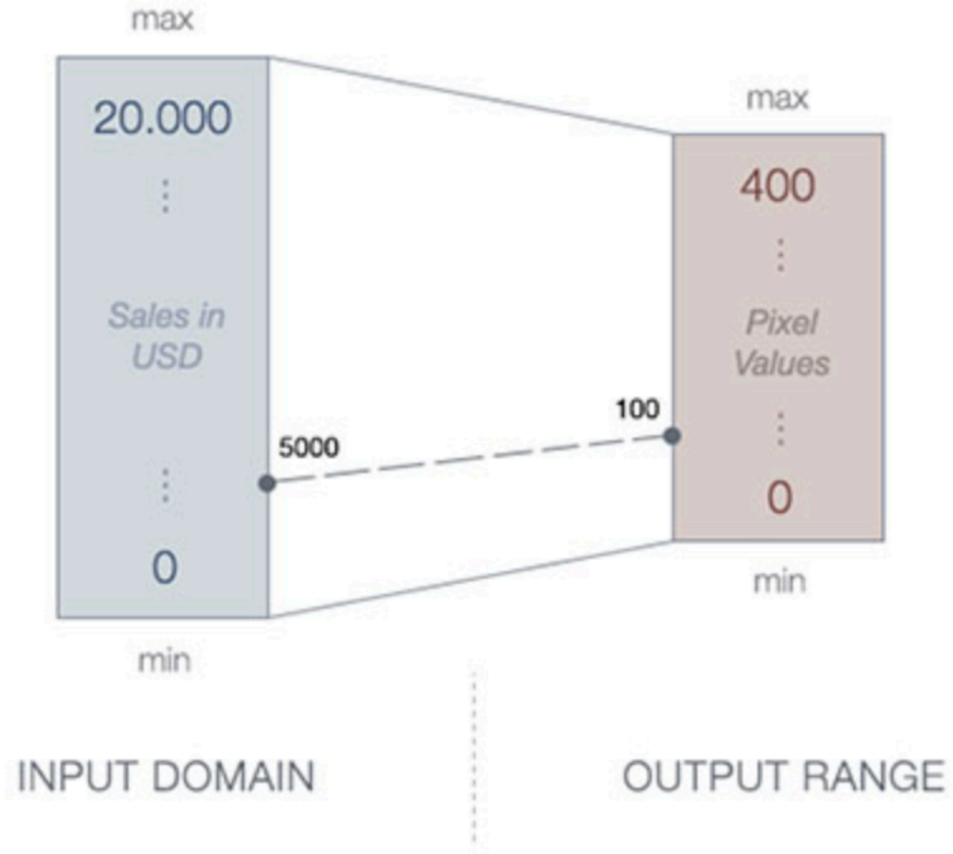
LAB 4

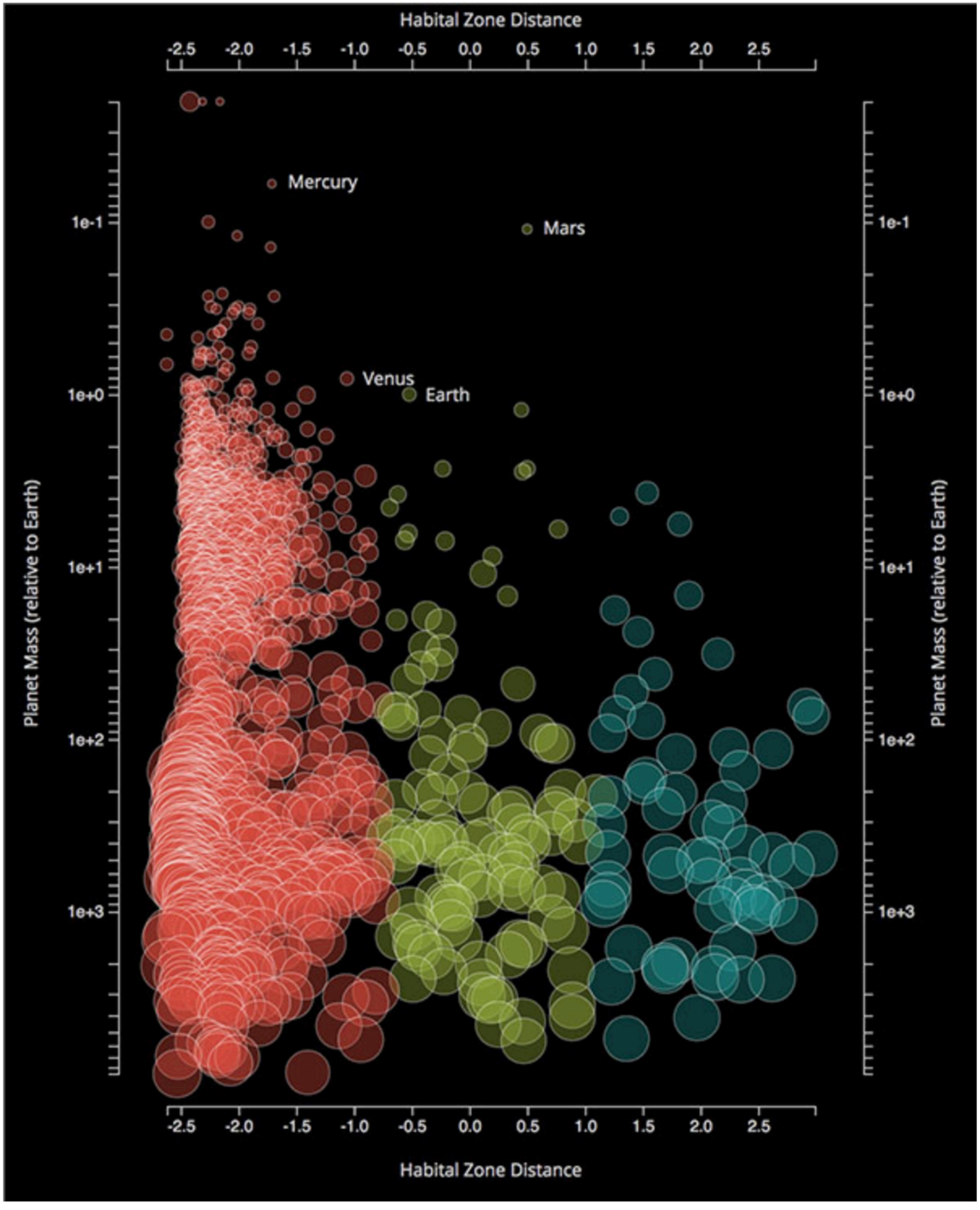
D3 SCALES AND AXES

SCALES

- Why Scales ?
  - Values in your dataset are unlikely to correspond exactly to pixel measurements.
  - Scales transform values in an interval(domain) to another interval(range).



GOAL


Habital Zone Distance
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
Mercury
Mars
Venus
Earth
1e-1
1e+0
1e+1
1e+2
1e+3
Planet Mass (relative to Earth)
Habital Zone Distance

TASKS

- **Activity 0 - Creating and using scales**
  - Load the CSV file, using:
    d3.csv('./exoplanets.csv', function(error, dataset){…})
  - Append a circle for each exoplanet
  - Create and use your scales
- **Activity 1 - Creating axes from scales**
  - Create your axes
  - Append and call your axes
  - Append labels

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WORKFLOW

- Create scales:
  - **xScale** - a “d3.scaleLinear” for the “habital_zone_distance” with output range of [100,500], use min and max value for domain.
  - **yScale** - a “d3.scaleLog” for the “mass” with output range of [60,660], use min and max value for domain.
  - **radiusScale** - a “d3.scaleSqrt” for the “radius” with output range of [0,20], use 0 and max value for domain.
  - **colorScale** - a “scaleQuantize” for the “habital_zone_distance” with output range of ['#d64d3f', '#96ac3d', ‘#208d8d’], use min and max value for domain.

```
Example code:

var hzdExtent = d3.extent(dataset, function(d){
    return d['habital_zone_distance'];
});

var xScale = d3.scaleLinear()
    .domain(hzdExtent)
    .range([100,500]);
```

  - The ‘cx’ ‘cy’ and ‘r’ values of your circles will be values that use these scales.

WORKFLOW

- Create axes:
  - 4 axes: top, right, bottom, left
  - Top and bottom use xScale, left and right use yScale.
  - Append the axes to the canvas using the call function.

    Example code:

```
var xAxis = d3.axisBottom(xScale);
svg.append('g')
   .attr('class', 'x axis')
   .attr('transform', 'translate(80,250)')
   .call(xAxis);
```

- Append labels by appending text elements to the canvas. Use “transform” to position them correctly.

GENERAL INSTRUCTIONS

- Start an http python server before running your code:
  python -m SimpleHTTPServer 8080
- DO NOT open your html file directly without running the server.