Create a **d3_lab.html** and practice all the following svgs and d3 usage by implementing the blue colored codes.

Lab3 submission:

1. a working **d3_lab.html** with your **name** and **email** on it.
2. your answers to 1.2 to 1.4

1. SVG (Scalable Vector Graphics)

```
<BODY>
…
<svg >
  <line x1="50" y1="50" x2="100" y2="100"  stroke-width="10" stroke="red" />
  <line x1="100" y1="100" x2="200" y2="0"  stroke-width="10" stroke="black" />
</svg>
…

</BODY>
```

```
<svg width="200" height="200">
  <circle cx="50" cy="50" r="40" stroke="black" stroke-width="4" fill="yellow" />
</svg>
```

*More shapes and https://www.w3schools.com/graphics/svg_intro.asp

1.1 How do you draw a rectangle with filling color as yellow? (Hint: https://www.w3schools.com/graphics/svg_intro.asp)

```
<rect width="100" height="20" fill="yellow" stroke="black" y="120" ></rect>
```

1.2 How do you draw **3 rectangles align horizontally** but not overlapping each other, filling colors are respectively yellow orange red?

1.3 How do you draw **3 circles align vertically** but not overlapping each other, filling colors are respectively yellow orange red?

```
<text x="250" y ="320" fill="black">tutorial 1.3</text>
```

1.4 How do you duplicate the graphics in 1.2 at the coordinates (500,0)? (approximately the

middle of the screen) *Hint: group the svg shapes in <g> </g> and transform attribute*
(ref: https://www.tutorialspoint.com/d3js/d3js_svg_transformation.htm)

1.5 Include d3.js to the page, and change the background color to a color of your choice.

```
…
<head>
        <script src="https://d3js.org/d3.v5.min.js"></script>
</head>
<body>
   <script type="text/javascript">
         d3.select("body").style("background-color","#dbf6f3");
   </script>
</body>
…
```

Reference: https://github.com/d3/d3-selection

* Practice at home, draw a smiley face in SVG (submit it via Camino with assign#2 for 5 point bonus)

*Color reference http://www.w3schools.com/cssref/css_colors_legal.asp
*More other d3 tutorial: https://github.com/mbostock/d3/wiki/Tutorials

2. Selections:

```
<html>
<head>
      <script src="http://d3js.org/d3.v3.min.js"></script>
</head>
<body>
      <h2>COEN60 Lab</h2>
     <div id="viz"></div>
</body>
</html>
```

use d3 selector to change background color from white to grey

```
d3.select('body').style("background-color","#D8D8D8");
```

2.1 Use d3 selector to change header text to blue

```
d3.select('h2').style("color","blue");
```

2.2 change heading2 text to a random color
ref: https://github.com/d3/d3/blob/master/API.md#colors-d3-color

```
d3.select('h2').style("color",
        function() {
            return "rgb(" + Math.random() * 255 + ",100,50)";
        }
);
```

2.3 change heading2 text to “What?”

```
d3.select('h2').text("What?");
```

3. Using d3 to bind data:

3.1 create multiple circles from a data array

```
var dataArray = [100,50,10];

var circles = d3.select("svg")
    .selectAll("circle")
    .data(dataArray);

circles.enter()
        .append("circle")
        .attr("cx", function (d) {
                    return d;
                })
        .attr("cy", function (d) {
                    return d;
                })
        .attr("r", function (d) {
                    return d;
                })
       .style("fill", function() {
                    return "rgb(" + Math.random() * 255 + ",100,50)";
                });
```

3.2 Bind data with multiple data arrays

```
var circleData = [
                  [10,"#dbf6f3",10],
                  [30,"#5dade2",20],
                  [60,"#2874a6",25],
                  [100,"#154360",30]
                 ];
var circles = d3.select("svg")
                .selectAll("circle")
                .data(circleData);

circles.enter()
               .append("circle")
               .attr("cx", function (d) {
                   return d[0];
               })
               .attr("cy", function (d) {
                   return d[0];
               })
               .attr("r", function (d) {
                   return d[2];
               })
           .style("fill", function(d){return d[1]});
```

* Understanding D3 selections http://prcweb.co.uk/lab/selection/