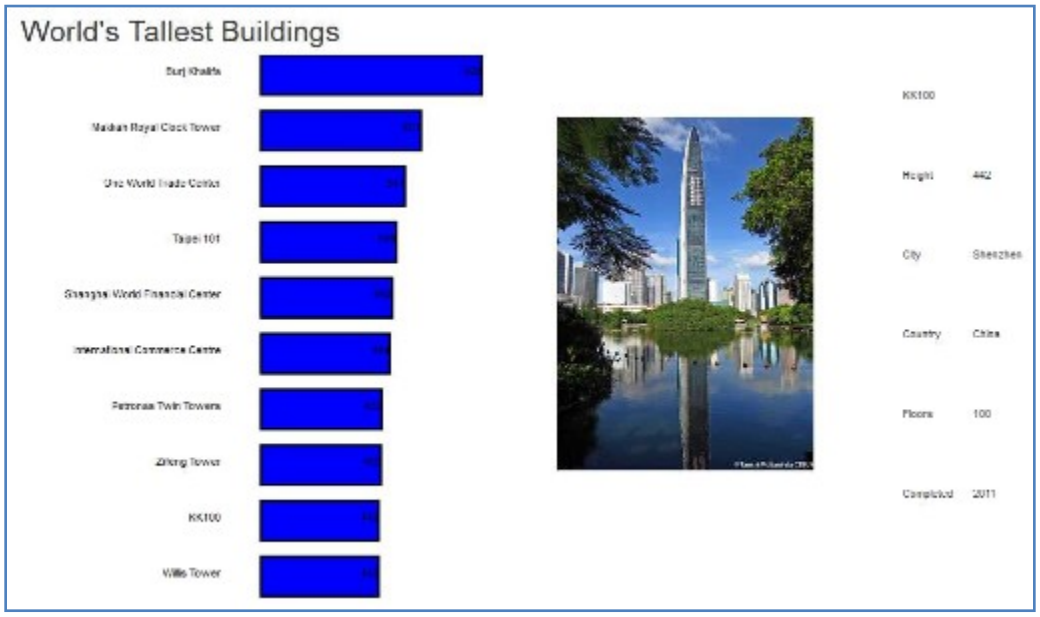
IB Computer Science

Student_____

Web Sciences

Date: _____

Demonstration: World's Tallest Building



Input Data

The input data is in "comma separated values" format in data/buildings.csv.
Notice that the first line in the file contains field headings.

```
building,country,city,height_m,height_ft,height_px,floors,completed,image
Burj Khalifa,United Arab Emirates,Dubai,828,2717,276,163,2010,1.jpg
International Commerce Centre,China,Hong Kong,484,1588,161,108,2010,6.jpg
KK100,China,Shenzhen,442,1449,147,100,2011,10.jpg
Makkah Royal Clock Tower,Saudi Arabia,Mecca,601,1972,200,120,2012,2.jpg
One World Trade Center,United States,New York City,541,1776,180,94,2014,3.jpg
Petronas Twin Towers,Malaysia,Kuala Lumpur,452,1483,151,88,1998,7.jpg
Shanghai World Financial Center,China,Shanghai,492,1614,164,101,2008,5.jpg
Taipei 101,Taiwan,Taipei,508,1667,169,101,2004,4.jpg
Willis Tower,United States,Chicago,442,1451,147,108,1974,9.jpg
Zifeng Tower,China,Nanjing,450,1476,150,66,2010,8.jpg
```

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Loading the Data

The input data is in "comma separated values" format in data/buildings.csv.
Notice that the first line in the file contains field headings.
The index.html file includes the javascript file js/main.js, which calls a function named d3.csv.
d3.csv accepts two parameters, the first parameter is the name of a file to process: in this case it is passed file name data/buildins.csv. The second parameter to d3.csv is a function.
Essentially a call to d3.csv(file, function) will:

Open the file specified by the first parameter
for each line in the input file
create an instance of an object, using the fields defined by the heading of the csv file.
call the function specified by the second parameter, passing to the function the object created.

Here is the call to d3.csv from main.js

```
d3.csv("data/buildings.csv", function(data) {
    console.log(data); // this is the first line in the function
```

Notice that the function receives one parameter, which is named data. Data is an object with the fields defined in the csv file

`building,country,city,heigh,… image`

so we could access individual fields using

```
data.building, data.country, data.city…data.image
```

The line `console.log(data)` is for web development, this will display the all of the fields in `data` in the web browser's console .

The entire main.js file is included at the end of the handout .

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Index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <title>D3 Project</title>
      <link rel="stylesheet" href="css/style.css">
      <link rel="stylesheet" href="css/bootstrap.min.css">
</head>
<body>

<script src="js/d3/d3.min.js"></script>
<h1>World's Tallest Buildings</h1>

<!-- Creates container that creates a two column layout -->
<!-- <div class="container"> j1-->

      <!-- Creates column for visualization -->
      <div class="row">
            <div class="col-sm-4" id="chart">
            </div>

            <div class="col-sm-1">
            </div>
            <div class="col-sm-4" id="graph">
                  <!-- This will create the table that will hold all of the GHI data -->
                  <table border="0" cellpadding="5" cellspacing="5" class="sortable" height="600"
width="600">
                        <tr>
                              <td class="highlight"    rowspan="6" ><div id="picture"> pict</div></td>
                              <td class="highlight" rowspan="6">  </td>
                              <td class="highlight"    colspan="3" ><div id="building"> pict</div></td>
                        </tr>
                        <tr>
                              <td class="highlight"    > Height</td>
                              <td class="highlight" >  </td>
                              <td class="highlight"    ><div id="height"> pict</div></td>
                        </tr>
```

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```
                        <tr>
                              <td class="highlight"    > City</td>
                              <td class="highlight" >  </td>
                              <td class="highlight"    ><div id="city"> pict</div></td>
                        </tr>
                        <tr>
                              <td class="highlight"    > Country</td>
                              <td class="highlight" >  </td>
                              <td class="highlight"    ><div id="country"> pict</div></td>
                        </tr>
                        <tr>
                              <td class="highlight"    > Floors</td>
                              <td class="highlight" >  </td>
                              <td class="highlight"    ><div id="floors"> pict</div></td>
                        </tr>
                        <tr>
                              <td class="highlight"    > Completed</td>
                              <td class="highlight" >  </td>
                              <td class="highlight"    ><div id="completed"> pict</div></td>
                        </tr>
                  </table>

            </div>
      </div>
      <!-- Creates column for visualization -->

<!-- </div> j1-->

<script> document.getElementById('graph').style.display = "none";</script>
<script src="js/jquery.min.js"></script>
<script src="js/bootstrap.min.js"></script>
<script src="js/d3.min.js"></script>
<script src="js/d3-tip.js"></script>
<script src="js/d3/d3.min.js"></script>
<script src="js/main.js"></script>

</body>
</html>
```

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main.js

```
d3.csv("data/buildings.csv", function(data) {
	console.log(data);

	data.sort(function (a, b) {
		return b.height_m - a.height_m;
	});

	// function getId (d) {
		// console.log(d.getAttribute("id"));
	// }

	var svg = d3.select("#chart").append("svg")
		.attr("width", 1000)
		.attr("height", 1000);

	svg.selectAll("rect")
		.data(data)
		.enter()
		.append("rect")
		.attr("fill", "blue")
		.attr("stroke", "black")
		.attr("stroke-width", 3)
		.attr("width", function(d) {
			return +d.height_px;
		})
		.attr("height", 50)
		.attr("y", function(d, index) {
			return index * 50 + index * 20;
		})
		.attr("x", 300)
		.attr("id", function (d) {
			return d.building;
		})
		.on("click", function(d) {
			document.getElementById('picture').innerHTML = "<img src=\"data/img/" + d.image + "\">";
			document.getElementById('building').innerHTML =d.building;
			document.getElementById('height').innerHTML =d.height_m;
			document.getElementById('city').innerHTML =d.city;
```

```
                document.getElementById('country').innerHTML =d.country;
                document.getElementById('floors').innerHTML =d.floors;
                document.getElementById('completed').innerHTML =d.completed;
                document.getElementById('graph').style.display = "block";


        })


svg.selectAll("text")
        .data(data)
        .enter()
        .append("text")
        .text(function(d, index) {
                return d.height_m;
        })
        .attr("x", function(d, index) {
                return +d.height_px + 300;
        })
        .attr("y", function(d, index) {
                return (index + 1) * 50 - 25 + index * 20;
        })
        .attr("text-anchor", "end")
```

```
        svg.selectAll("text.building")
              .data(data)
              .enter()
              .append("text")
              .attr("class", "building")
              .text(function(d, index) {
                    return d.building;
              })
              .attr("x", function(d, index) {
                    return +250;
              })
              .attr("y", function(d, index) {
                    return (index + 1) * 50 - 25 + index * 20;
              })
              .attr("text-anchor", "end")
              .on("click", function(d) {
                    document.getElementById('picture').innerHTML = "<img src=\"data/img/" + d.image + "\">";
                    document.getElementById('building').innerHTML =d.building;
                    document.getElementById('height').innerHTML =d.height_m;
                    document.getElementById('city').innerHTML =d.city;
                    document.getElementById('country').innerHTML =d.country;
                    document.getElementById('floors').innerHTML =d.floors;
                    document.getElementById('completed').innerHTML =d.completed;
                    document.getElementById('graph').style.display = "block";


              })

});
```