



VISUALIZATION ON THE WEB

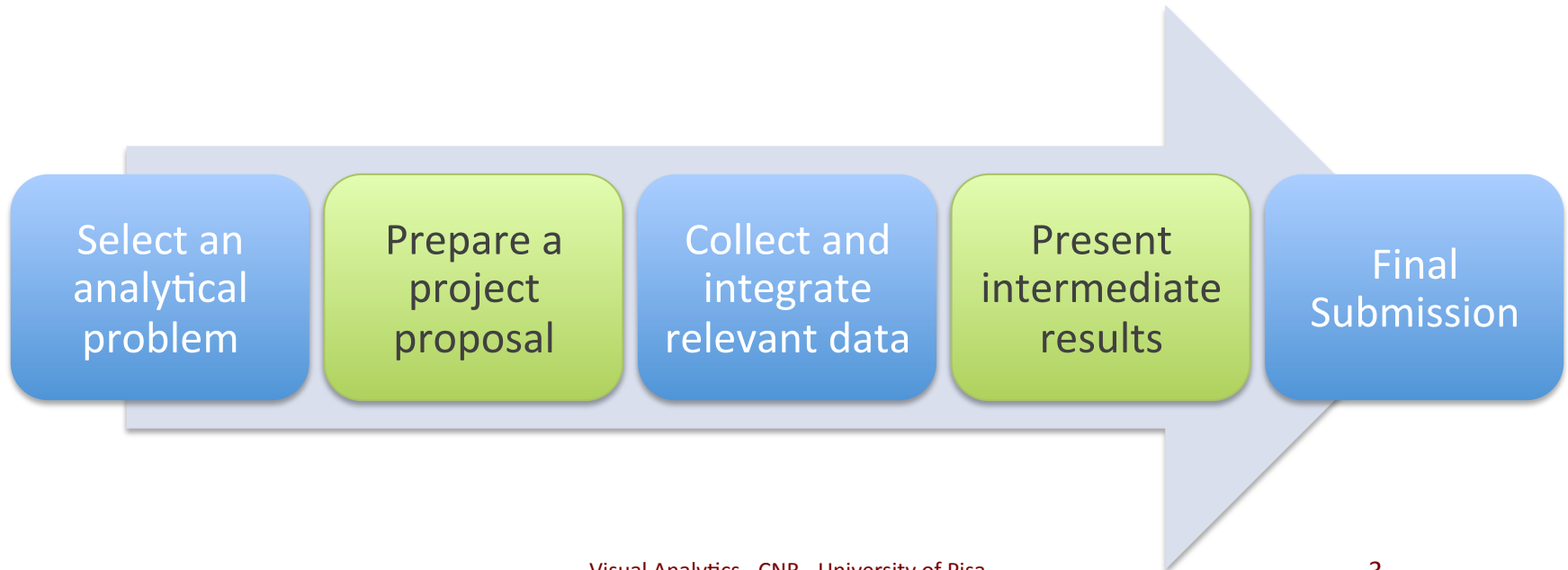
Office Hours – new timeline

- On Tuesday morning – from 9:30
 - By appointment only
 - Send an email to: rinzivillo@isti.cnr.it with tag [VA] in the subject

Grading Projects

- Objective: select and present a visual interface for an analytical problem

Deadline for proposals: 31 March 2016a



Data-Driven Documents



VISUAL ANALYTICS
D3.JS

Previously....

DATA TO ELEMENTS

Selection should correspond to data

```
svg.selectAll("circle")  
  .data(data)  
  .enter().append("circle")  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

Selection should correspond to data

```
svg.selectAll("circle")  
  .data(data)  
  .enter().append("circle")  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

Method [data](#) joins data with document elements

Selection should correspond to data

```
svg.selectAll("circle")  
  .data(data)  
  .enter().append("circle")  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

Method `enter` specifies the action for missing elements

Selection should correspond to data

```
svg.selectAll("circle")  
  .data(data)  
  .enter().append("circle")  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

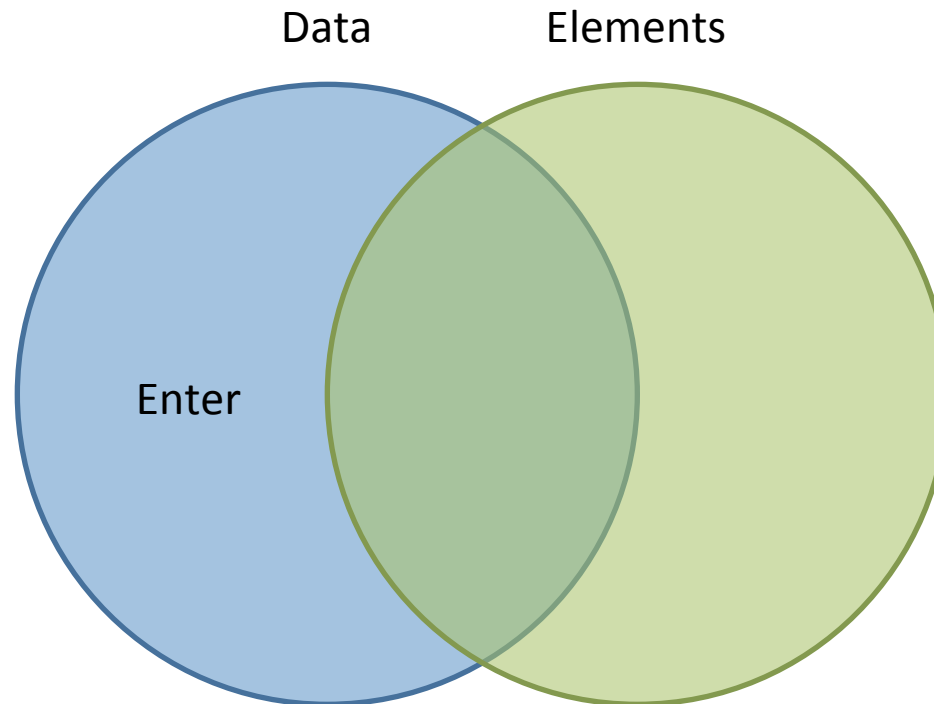
The new elements are bound to data. Data can be used to compute attributes

Thinking with Joins

ENTER, UPDATE, AND EXIT

Enter

- New data, for which there were no existing elements.

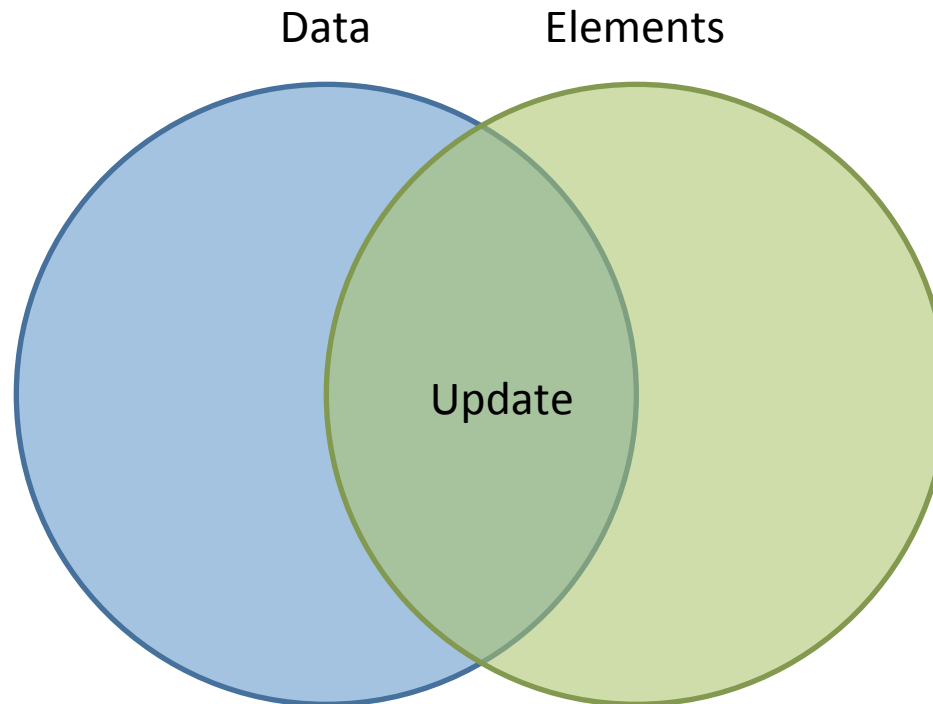


Entering new elements

```
svg.selectAll("circle")  
  .data(data)  
  .enter().append("circle")  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

Update

- Data that was joined previously to an existing element

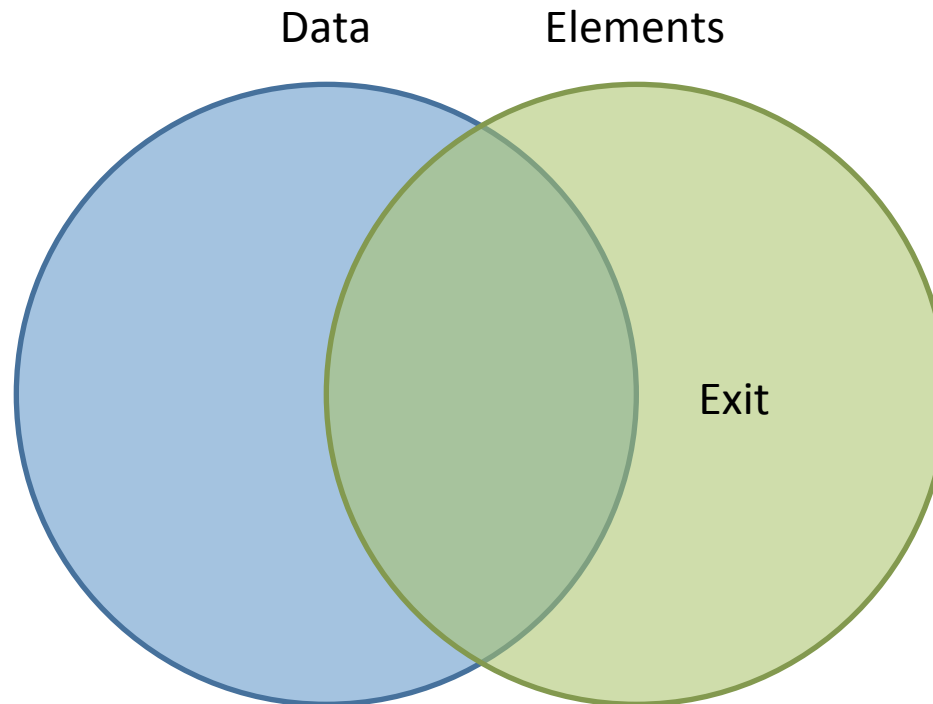


Updating existing elements

```
svg.selectAll("circle")  
  .data(data)  
  .attr("cx", x)  
  .attr("cy", y)  
  .attr("r", 2.5);
```

Exit

- Data that is not associated to any data

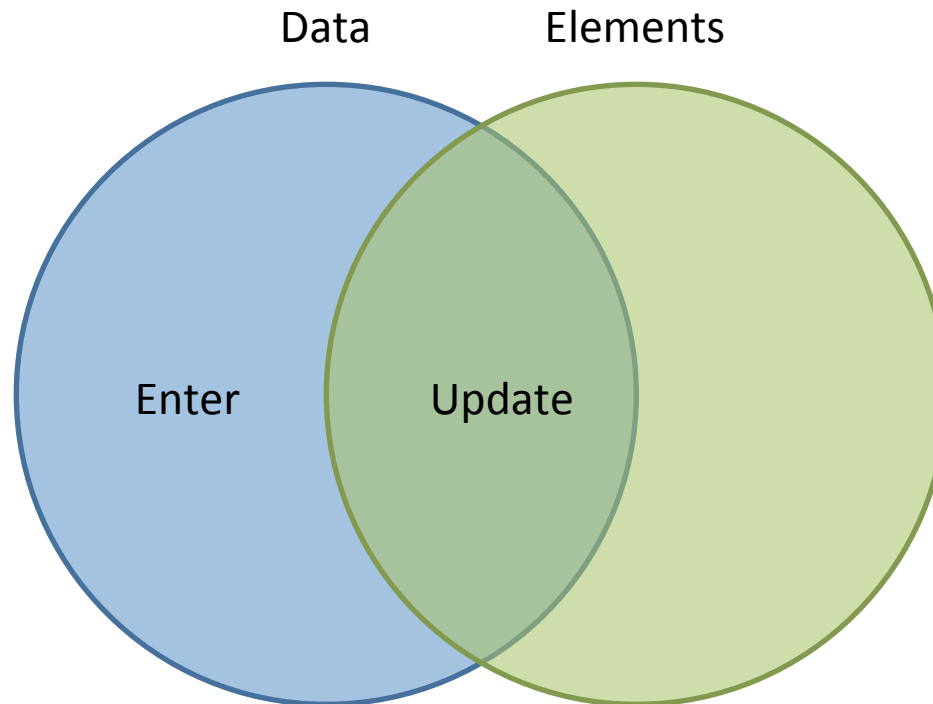


Removing unlinked elements

```
svg.selectAll("circle")  
  .data(data)  
  .exit().remove();
```


Enter + Update

- Often, we need to perform both Enter and Update



Entering and then update

```
// perform join and add missing elements
var circles = svg.selectAll("circle")
    .data(data)
    .enter().append("circle");
// Update previous and new elements at
once
svg.selectAll("circle")
    .attr("cx", x)
    .attr("cy", y)
    .attr("r", 2.5);
```

Bar Chart

Exercise

Scatterplot Chart

Exercise