How to teach Tableau to beginners in 2 days

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Vizs made by the students

Let see How It was possible with only a 2 day class and a data challenge
What can you expect from this presentation

1. What to teach to beginners
2. How to teach Tableau efficiently
The Tableau learning curve

Skills

Discover | Learn | Struggle | Understand

Pre class assignment | 2 days Training | Post class assignment

Beginner | WOW | Master

Risk to give up
The Tableau learning curve

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Beginner | WOW | Master

Pre class assignment → 2 days Training → Post class assignment

Risk to give up
The Tableau learning curve

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Discover  Learn  Struggle  Understand

Beginner  WOW  Master

Pre class assignment  2 days Training  Post class assignment

Risk to give up
The Tableau learning curve

Skills

- Beginner
- Discover
- Learn
- Struggle
- Understand
- Master

Time

- Pre class assignment
- 2 days Training
- Post class assignment

Risk to give up

WOW
The Tableau learning curve

**Goals**
1. Provoke the WoW effect
2. Encourage them to learn by themselves

**Tools**
1. Instructions to get Tableau
2. Link to online self-learning content
3. Pre-Class Assignment

**Pre class assignment**
2 days Training
**Post class assignment**

Discover | Learn | Master

Skills

Risk to give up
WOW

Page 9
Pre-class Assignment

Publish a Dashboard on Tableau Public

1. Choose a business question to answer with the data provided

2. Build a dashboard to answer your question

3. Publish your dashboard to Tableau Public

4. Share your Tableau Public link on Google Spreadsheet
The Tableau learning curve

Skills

Discover
Learn
Struggle

WOW

Goals
1. Keep everyone onboard
2. Make them understand how Tableau works

Time

Pre class assignment → 2 days Training → Post class assignment

Risk to give up

Post class assignment

Pre class assignment

Assignment
Agenda

Why Tableau
You should not use it for Infrastructure and Vocabulary

Data types
Data interpreter
Split
Pivot

Common Viz Types
Using Multiple Measures

Tableau concepts
The 4 Pill Types
Aggregation

Four Levels of Calculation
Filters & Order of Operation

Data Visualization best practices

Dashboard & Interactivity
Using Parameters

Dashboard

Data Connection Options
Join and Union
Tableau Data Extract
Why should they learn?
Top Companies looking for Tableau Talent
# The Top Skills of 2016 on LinkedIn Global

<table>
<thead>
<tr>
<th>Rank</th>
<th>Skill</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cloud and Distributed Computing</td>
<td>+6</td>
</tr>
<tr>
<td>2</td>
<td>Statistical Analysis and Data Mining</td>
<td>+1</td>
</tr>
<tr>
<td>3</td>
<td>Web Architecture and Development Framework</td>
<td>-1</td>
</tr>
<tr>
<td>4</td>
<td>Middleware and Integration Software</td>
<td>+1</td>
</tr>
<tr>
<td>5</td>
<td>User Interface Design</td>
<td>+5</td>
</tr>
<tr>
<td>6</td>
<td>Network and Information Security</td>
<td>+1</td>
</tr>
<tr>
<td>7</td>
<td>Mobile Development</td>
<td>-1</td>
</tr>
<tr>
<td>8</td>
<td>Data Presentation</td>
<td>NR</td>
</tr>
<tr>
<td>9</td>
<td>SEO/SEM Marketing</td>
<td>-5</td>
</tr>
<tr>
<td>10</td>
<td>Storage Systems and Management</td>
<td>-2</td>
</tr>
</tbody>
</table>
The Tableau Flow

Live Demo to show the “Tableau Flow” | 20 mn to build an interactive dashboard

Same Exercise as the prerequisite Assignment
2 Days training

Why Tableau
You should not use it for
Infrastructure and Vocabulary

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Aggregation

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Using Multiple Measures

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best practice

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Dashboard
The 4 Pill Types
### Dimensions vs. Measures

How do I want to **Segment** the data?

#### Dimensions

The way you categorize / segment the data

#### Measure

Numeric data

Aggregated as a sum, average,...

<table>
<thead>
<tr>
<th>Country</th>
<th>State</th>
<th>City</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>Louisiana</td>
<td>Bossier City</td>
<td>$337</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kenner</td>
<td></td>
<td>$20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lafayette</td>
<td>$68</td>
<td>$178</td>
<td>$21</td>
<td>$775</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lake Charles</td>
<td>$22</td>
<td></td>
<td>$220</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Monroe</td>
<td>$180</td>
<td>$111</td>
<td>$47</td>
<td>$218</td>
</tr>
</tbody>
</table>
Discrete vs Continuous

How do I want to display the Data?

I want to **draw** => Continuous

- green pill = continuous = axis
- continuous axis from 2009 and ends in 2012

I want to **write** => Discrete

- blue pill = discrete = headers
- distinct year values as headers
The Four Pill Types

1. How do I want to segment the data?

2. How do I want to display the data?

- **Continuous**
  - Dimensions: Discount
  - Measures: SUM(Sales), AVG(Unit Price), Total Sales

- **Discrete**
  - Dimensions: Region
  - Measures: SUM(Sales), ATTR(Customer Name), Lookup Container

Source: Jonathan Drummey & Datablick
Aggregation

1. VizLOD
2. Aggregation calculations
Let’s practice VizLOD with a Scatter Plots graph.
Aggregation calculation challenge
With the SuperStore Data Source

Calculate the average phones Price for:
Sub-Category: Phones
Order Date: January 2016

Correct answer: $ 60
**Aggregation calculation challenge**

SuperStore - Row data

First you must know what each data source row (records) represent

<table>
<thead>
<tr>
<th>Order ID</th>
<th>Product Name</th>
<th>Sales</th>
<th>Quantity</th>
<th>Nb of Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-2016-128608</td>
<td>Anker 24W Portable Micro USB Car Charger</td>
<td>$26</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>GE 30524EE4</td>
<td>$235</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>LG Electronics Tone+ HBS-730 Bluetooth Headset</td>
<td>$107</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>CA-2016-146262</td>
<td>Speck Products Candyshell Flip Case</td>
<td>$63</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>CA-2016-168746</td>
<td>Nortel Meridian M5316 Digital phone</td>
<td>$155</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Polycom VVX 310 VoIP phone</td>
<td>$432</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
# Tableau Automatic aggregation calculation

## Average per Order

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<td>1</td>
</tr>
</tbody>
</table>

**Total Average Sales:** $170
Customized calculation
Average per Product

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</table>

\[ \text{AGG(SUM([Sales])}/\text{SUM([Quantity])} \]

\[ \text{\$1,019}/17 = \text{\$60} \]
2 Days training

Tableau concepts

- Why Tableau
- You should not use it for Infrastructure and Vocabulary
- Data types
  - Data interpreter
  - Split
  - Pivot
- The 4 Pill Types
  - Aggregation
- Common Viz Types
  - Using Multiple Measures
- Four Levels of Calculation
- Filters & Order of Operation
- Data Visualization best practice
- Dashboard & Interactivity
  - Using Parameters
  - Data Connection Options
  - Join and Union
  - Tableau Data Extract

Dashboard
2 Days training

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Four Levels of Calculation
Four Levels of Calculation

1. **Record level**
   - Result computed for each row of data **before** aggregation
   - Can be measure or dimension

2. **Aggregate**
   - Result computed at the granularity of the **view/Marks**
   - Must be measure

3. **Table calculations**
   - Let us perform further aggregations at different levels of detail
   - Must be measure

4. **Post-aggregations**
   - Reference Lines, Grand Totals, forecasting etc.
The 3 main calculation levels

Calculations are processed 1 after each others – This a flow

1. **Record level Calculations**
   - Revenue
   - 
     \[ \text{Quantity} \times \text{Price} \]

2. **Aggregated Calculations**
   - \( \text{SUM}([\text{Revenue}]) \)

3. **Table Calculations**
   - \( \text{RUNNING}\_\text{SUM}(\text{SUM}([\text{Revenue}])) \)

### Table Data

<table>
<thead>
<tr>
<th>Month</th>
<th>Customer</th>
<th>Price</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>A</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>2</td>
<td>150</td>
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<tr>
<td></td>
<td>D</td>
<td>4</td>
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<tr>
<td>Feb</td>
<td>A</td>
<td>2</td>
<td>80</td>
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<tr>
<td></td>
<td>B</td>
<td>3</td>
<td>12</td>
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<td></td>
<td>C</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Filters & Order of Operation
Filters & Order of Operation

- Extract Filters
- Data Source Filters
- Context Filters
- Set | Conditional | Top Filters
- Dimension Filters
- Measure Filters
- Table Calc Filters

Demo
Top & Conditional Filters are computed before regular dimension filters

SQL = Where
SQL = Having

*Extract Filters*
- DataSource Filters
- Context Filters
- Set | Conditional | Top Filters
- Dimension Filters
- Measure Filters
- Table Calc Filters
Context Filters are computed before

SQL = Where
SQL = Having
2 Days training

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Dashboard & Interactivity

The 3 golden rules
Best practices

Viz with intent...

Answer questions

Or

Test hypothesis

Lessons from Photography: Viz with intent
Keep it simple but not too much

How to build a Viz with a strong unity and at the same time that is not too simple, not boring?

• Use **2 colors** (never more than five) and play with the color shades
• Use **2 fonts** and play with the font styles
Daylight hours by day

Click on the graphic to see a map

66° | Arctic Circle
45° | 45th parallel north
23° | Tropic of Cancer
Equator
-23° | Tropic of Capricorn
-45° | 45th parallel south
-66° | Antarctic Circle

Equinox
Solstice

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

TODAY
10 h
24 h
0 h
USA, France
Cuba, India
Brazil, Kenya
Bolivia, Australia
Argentina, New Zealand
Antarctica
Alaska, Iceland
Hierarchy

Start from the overview then use more detailed charts
Practice

I do with them a dashboard | Same Exercise as the prerequisite Assignment
2 Days training

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Tableau concepts
9 Data Visualization Tips & Guidelines

1. Add context
2. Define your KPIs wisely
3. Segment to spot outliers
4. Use aggregation with caution
5. Use white space
6. Reduce chart junk
7. Use color blind colors
8. Titles and text are key
9. Use a story, do not show the data
The Tableau learning curve

**Goals**
1. Get them out of the danger zone
2. Push them to practice to become autonomous

**Tools**
1. A data viz challenge

Time

Pre class assignment
2 days Training
Post class assignment

Skills

Risk to give up

Understand
The Post Class Assignment

Answer a question with a data visualization published on Tableau Public
Teaching recommendations

- Every 15 mn, change your teaching support:
  - Presentation
  - Demo
  - Practice
  - Movie

- Adapt to the users needs (subject, data, schedule)

- Focus on the Tableau core concepts. They can learn the rest

- Explain; Illustrate; Practice
Please complete the session survey from the Session Details screen in your TC18 app.
Thank you!

@YvanFornes