## **Student & Instructor Virtual Machine Setup**

**Tableau Desktop**

The Tableau Desktop executable 2020.2 version is located in the Downloads folder and needs to be executed on each instructor and student virtual machine. As part of the install process, each machine will be forced to restart. (This is subject to change based on Tableau changing the free trial requirements). After the restart, Tableau must be launched and the registration needs to be completed. The information provided in the registration should be generic and not include anyone’s personal information. After the setup is completed, every time Tableau is launched, the students/instructor will be prompted to continue the Tableau trial and should click the Continue Trial button to activate the Tableau interface.

**Tableau Prep**

The Tableau Prep executable 2020.2 version is located in the Downloads folder and needs to be executed on each instructor and student virtual machine after the Tableau Desktop install has been completed. Once Tableau Desktop has been installed for this class, Tableau Prep takes only about 2 minutes to install, with no restarts. When “register” is selected at the end, it picks up nearly all the fields from the Tableau Desktop install. Only the city and two company fields need to be filled in. (This is subject to change based on Tableau changing the free trial requirements). The information provided in the registration should be generic and not include anyone’s personal information.

## **Instructor Delivery Information**

All class files for this class are located on ONLC’s GitHub repository. To access these files:

1. Go to github.com/ONLC-ClassMaterials.
2. Find the repository named: Tableau Desktop Level 2-Advanced.
3. Click the green “Code” button and select Download ZIP menu option.
4. Extract the file folder from the zip file and copy to the Desktop for easy access.

Each chapter has a corresponding folder that contains a starter and completed workbook and any other resource files necessary to complete the topics in that chapter, including but not limited to, data sources and image files. The references at the beginning of the labs where it is stated to download any starter files (marleen.meier’s site) should be ignored. In addition, on page 3, there are code download locations referenced but they do not represent all the file locations needed. Therefore, all files needed for the class are part of the zip file that was downloaded from GitHub.

This book is divided into three sections, with multiple chapters in each section. Each topic within the chapters are illustrated nicely in an easy step-by-step fashion and should be followed by the instructor throughout each topic unless otherwise noted in this document. Any changes in content will be detailed within this document and should be followed by every instructor to provide consistency for all delivered sessions.

Throughout each topic, the book directs saved work to be overlaid to the starter document. It is recommended to not perform this so that the starter documents stay with the original content for possible future reference if necessary. **Every chapter workbook should be saved in C:\Documents\My Tableau Repository\Workbooks which is the default save location.** If students would like to take their finished workbooks, they can only use webmail or cloud service to do so. Each file should be attached or uploaded one at a time to avoid crashing the virtual machine. If they do not have the current version of Tableau, the files will not open as Tableau is not backwards compatible.

**SECTION 1 – Tableau Concepts Basics**

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**Chapter 1 – Getting Up to Speed – A Review of the Basics**

**This chapter will be SKIPPED entirely as all students attending this class should be familiar with all topics included.**

The instructor can share the below information with the students. The students are encouraged to review this chapter on their own and perform any of the topics that they may need more coverage in an attempt to be better prepared for the advanced topics to be covered within this course.

Data Used:

* There is a Starter and Solution file located in the Chapter 1 resource file on the Desktop that can be used by the students for review of topics. It is using a dataset called “core\_dataset” and has Employee/Hiring information in it.
* If any student during break or lunch wishes to go through the chapter, it would probably take around 20-30 minutes (including lab).
* If desired, the instructor could open the solution and show it. Keep in mind this class is full and the instructor may run out of time if this is done with all of the skipped chapters.

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**Chapter 2 – All About Data – Getting Your Data Ready**

Chapter 2 is very short, so you can adequately skim this chapter to exclude anything from Level 1, but also to include anything that was not discussed. Do not spend more than 15-20 minutes on this chapter.

**Timing**: 15 minutes - 20 minutes

**Skim this chapter based on the following:**

**Pages 47-49**: Discuss with the students the history of the Data Handling Engine, Hyper. Also, mention VizQL.

Open the solution for Chapter 2.

**Pages 50**: Click the Score per Country tab. Discuss the aggregation on the Happiness Score pill and that Country is a dimension.

**Pages 51**: Click the Score/Rank tab. Discuss that although Happiness Rank is created as a measure, it has been changed to be a dimension, therefore, the Happiness Score is processed based on the Happiness Rank as a descriptor instead of an aggregate.

Explain that behind the scenes as they drag and drop, Tableau uses VizQL to create its views, shown at the bottom of Page 51. Notice the Group By information, because Happiness Rank is a measure.

**Pages 52-53**: Skip

**Pages 54-57**: The discussion here is to lead the students into preparation for data cleansing. The CRISP-DM Data Mining methodology is talked about here as a means for companies to get on board with Life Cycle Process and how Tableau can assist all stages, especially Data Preparation.

**Pages 58-61**: Click the Surveying and Exploring Data tab. Notice that the two fields are about NULL vs. Populated. Discuss the steps to build this as a visualization to identify the percentage of NULL values in the data set. Right click the Null & Populated Dimension in the Data Pane and choose Edit. This is the same code on page 60 and explains how if the data is populated with a value, it is labeled “Populated Values” or if it is NULL, it is labeled “Null Values”.

**Pages 61-64**: Edit the Region Extrapolated dimension to review the code. Open the Select Field parameter to show how the data list was made into a parameter so that end users can choose a field to see if the data is or is not populated. In addition, the % Populated pill shows how the percentage of each category of data.

**Pages 64-53**: Click the Cleaning the Data tab. Click the View Data button or create a new sheet to display the Diagnosis data. The Diagnosis field includes medical codes and descriptions, yet there are many that have other descriptions on them. One by one, click Edit on each of the following calculations to view the code:

**DX** dimension

**Exclude from ICD Codes** dimension

**Null Hunting** dimension

**Pages 70-73**: Click the Extracting the Data tab. Discuss how the code for regular expressions can be incorporated into a Tableau calculation. In addition, Tableau Prep Builder can now take care of these type of issues and more, with clicks and wizards. This was covered in the Tableau Prep section in the Tableau Desktop – Level 1 class.

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**Chapter 3 – Tableau Prep**

**CHAPTER 3 will be SKIPPED ENTIRELY**

Timing: 0 minutes

Chapter 3 is all about Tableau Prep Builder which we cover in the following classes:

* In the Tableau Desktop – Level 1 – Introduction class
* In the Tableau Prep class

All class information can be found at [www.onlc.com](http://www.onlc.com) and the students can call for more information.

All the data files necessary to do the labs are located in the Chapter03 folder in the Tableau Desktop Level 2 Master folder on the Desktop.

The instructor can discuss with the students a bit about Tableau Prep if desired, by explaining that it works with Flows and Data Cleansing. Of course, if the students would like to do Chapter 3 on their own, they can go to [www.tableau.com](http://www.tableau.com) and get a free trial of Tableau Prep to practice.

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**Chapter 4 – Joins, Blends, and Data Structures**

Timing: 70 minutes Total

Labs: 30 minutes

**Pages 102-105**: Introduce chapter by discussing Data Warehouse data and how dimensions describe or slice measures, which are represented in the diagrams as facts. Review the snowflake schema on Page 102 and compare to the joins diagram on page 103 with the same data in a non-snowflake architecture.

Open the Chapter 4 Starter workbook. Click Join w/o Snowflaking tab to review the query text in the caption. It states the select statement crossing an inner join. However, it is only crossing one join though there are multiple joins in the diagram on the top of page 103. This is also called Join Culling which means that Tableau will only incorporate the joins necessary based on the data selected in the visualization.

Perform numbers 1-3 on page 104, but SKIP numbers 4-7 for the Performance Recording because we will cover that in Chapter 13.

Click the Joins w/Snowflaking tab to review the query text in the caption. Notice the SQL has another join and a Where NOT clause, before it groups the data together. It is using two dimension tables in the query instead of one. But because this query has only one fact table and two dimension tables, it is considered snowflaking. There are not two fact tables, but you can use any dimension available to make up the “snowflake” diagram, we saw on page 102. Whenever you write a query with one FACT table and more than one dimension table, you are going through the snowflake, or using more dimension tables, which will not allow Tableau to use Join Culling causing the query performance to be impacted.

**Pages 107-110**: Union queries are covered.

Open Adventure\_wo\_Snowflaking.xlsx file. Discuss how Tableau reads each tab as an individual table. Point out the two tabs:

--Fact Internet Sales

--Fact Internet Sales Part II

Both of these sheets have the same columns and type of data. However, it is also possible to have files like this in separate files. When these types of files need to be combined, it is called a Union Query because it adds the two separate sources together with the second one appended to the bottom of the first one as they both have the same number of column and data types.

Click the Data menu and select New Data Source. Select To A File>>Microsoft Excel and navigate to the Level 2 Master folder on the Desktop. Locate Chapter 4 folder and select AdventureWorks\_wo\_Snowflaking.xlsx.

Double click the FactInternetSales table/sheet. Drag FactInternetSalesPartII table/sheet towards where the FactInternetSales is displayed in the upper right side of the Data Source tab until the Orange Union popup box displays. Drop FactInternetSalesPartII. Now a union of BOTH tables based on name and type has been created.

**Pages 111-117**: Blended data sources are covered.

Discuss that Blends are unlike joins because data sources sometimes have different column names yet they need to be combined, so they can be manually blended for tableau to use fields from both data sources. This generally happens when you have disparate data sources.

Start on page 113-114, follow the directions to view the data sources for Pants and Shirts. Then view the Join data source discussing the difference between the three.

On page 116-117, follow the directions to show how a data blend responds when adding a Dimension from the secondary data source when that field is not blended. Covering this section is optional.

**Pages 118-125**: Have the students open the SOLUTION file and click on the Scaffolding tab, so we can explain scaffolding to them.

Read page 118 (top) with them. Walk through the pages and look at each item discussed (params, calcs)

At the end, let them play for a few minutes with the parameters, showing population forecasts, based on previous data. They have used calculations and parameters to make this happen instead of using joins of any kind.

**Pages 126-130**: Data Structure Lab

Labs: 30 minutes

While in the solution, have the students look at the Time Frames and Events Per Date tabs/worksheets. Discuss how the data structure can be adjusted based on the business questions that are asked. Review the solution briefly to explain how to create a parameter, a calculation field and a filter.

Students can copy the parameters and calcs from the solution file.

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**Chapter 5 – All About Data – Data Densification, Cubes and Big Data**

Timing: 45-60 minutes

**Pages 134-135**: Review Data Densification and Domain Completion definitions.

**Pages 135-138**: Domain Completion examples using the Blockbuster data source. Tableau, by default does not show empty rows and columns.

The book does not always clearly state exactly what the results should be for every exercise. The illustration of Domain Completion should be managed per all of the different combinations in the exercises to identify when Domain Completion is activated and when it is not. Therefore, it is recommended that the instructor complete these examples with the students.

Pages 135-138 –– Part 1

* Students can just select about 10 movies, or they can do a top 10 via a filter.
* The Year field should be set to discrete after completing #6.
* Page 137 – Step #10 – Have the Specific Dimensions option selected while adding/deleting checkboxes to Title and Year (every combination) to view the changes in the chart.

Pages 139 (Top) – Part II

* While the Index field Compute Using is set to Cell, the Table Layout>>Show Empty Columns will add all empty columns but will not activate Domain Completion.
* Compute Using must be set to Table (across) to activate Domain Completion and if Table Layout>>Show Empty Columns is selected; all empty columns will display but will not have Domain Completion activated. The Domain Completion will only be activated on those columns where there is actual data.

Pages 139 (bottom) -140 (top) – Activating Domain Completion Through View Types

* Different View Types of charts will activate Domain Completion

**Pages 141-142 (top)**: Labelling Nulls has some missing steps in the directions. Complete the steps below in order to complete #3 accurately.

* Convert Worldwide Gross to be the data type: Number (decimal).
* Convert Worldwide Gross to be a Measure.
* Format the Worldwide Gross number to Currency (Custom) with no decimal places.
* Use Worldwide Gross pill in #3 when creating the No Data calculation because there is not a Sales pill.

To perform the optional Shape design in #5, perform the following:

* Change the Marks Type to Shape.
* Move the No Data pill from the Text shelf and place it onto the Shape shelf.
* Click the Shape shelf.
* Select the KPI palette.
* Change the “No Data” value to the Red X in the KPI palette.
* Be sure the Null data has the circle on it.
* Click the Color Shelf.
* Change the color to White (This will change the circle to white so it cannot be seen).

**Pages 142-144**: The instructor can lead the students or allow the students to complete as a lab to illustrate another example of managing Domain Completion. Some changes in the exercise to accurately complete:

* The Year pill needs to be changed to Discrete and Dimension.
* Year Count should be displayed on the Column.

**Page 145-147**: The instructor can lead the students or allow the students to complete as a lab to illustrate examples of managing Domain Padding.

Even though Superstore is a data source already existing in the workbook, a new data source should be added with the Orders table set as an inner join to Returns.

Step #6 on page 146 should say Show Empty Rows.

**Page 148-149: T**he instructor can lead the students or allow the students to complete as a lab to illustrate examples of managing Domain Padding.

Two things to note for this lab:

1. The lab uses the Superstore data source that is included in the Starter workbook. This is an extract so the data cannot be viewed.
2. There is already a bin for Discount in the measure section. The lab will create another bin which will become a dimension and will be listed in the Dimensions section.

**Pages 149-156 (Top): This section should be SKIPPED. It is all about cubes which are being deprecated and replaced with different resources for using BIG Data (Data Warehouses, Data Lakes, Hadoop Data Stores, etc., etc.) This should be mentioned to the students but no further demo or details should be covered.**

**Page 157**: No Demo. Quickly discuss that the Excel row limitation will be upheld within Tableau if Excel is used as a data source and that this is not considered ‘Big Data’.

**Page 159**: The diagram can be discussed for MPP and mention that Big Data is now generally processed through a CRISP processing and in many companies, this would be an entirely different department, which would set automation up for this usage.

**Page 160-161**: BigQuery/Google Sheets

NOTE: Do not follow the instructions in the book to activate a Google account as we do not want the students to get into a free trial that ends with them having to pay for anything. So, instead of doing pages 160-161 as directed, use the following details to demo this data access:

1. Activate the menu option Data>>New Data Source.
2. Select in the Server section: Google Sheets
3. Sign in with these credentials:

username: onlclearntableau@gmail.com

password: Pa55w.rd

1. Select the sheet for the Excel Superstore.
2. Click Connect.
3. Explain that Google Sheets does not have the same limitations as Excel as it is made for Big Data.

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**Chapter 6 – Table Calculations**

Chapter 6 is mostly a lab performed by the students using the Starter workbook. However, the Solution workbook will be used also to copy most calculations as to save time and provide less frustration for students.

Note: There are other data sources provided in the chapter folder, but they will not be used. They are there in case the students build the optional playground at the end.

Timing: 45-50 minutes (including lab time)

Open the Starter and Solution workbooks. Demonstrate how to copy calculations from the Solution to the Starter document, one-by-one or by using the CTRL key to select more than one at a time. Select calculation(s) in the Solution file, right click and select Copy. Then go to Starter workbook, click the worksheet tab, right click and select Paste. Explain to the students that they can type or copy the calculations but that copying will save them work and time.

Note: You may want to demonstrate dragging the Measure Values for a sheet over to TEXT and then taking away some of the fields. Also, use the CTRL key to show them they can remove more than one at a time.

**Pages 163-167 (top)**: Discuss the query process with the diagram on the top of page 165 and that calculations can be Directional and Non-Directional as mentioned on page 166.

**Page 167 (bottom)**: Walk the students through only creating the two calculations listed here.

**Page 168 (top)**: Have the students start the lab here on their own by copying and pasting the calculations.

**Pages 168-182**: Table Calculation Lab: 40 minutes.

Students will work on their own on these Table Calculation labs.

1. They will have the choice to type or copy the calculations.
2. They will have only 40 minutes to do as many as they can, so they may type and/or copy the calculations, but need to be prepared to not finish if they type all of them.
3. Students need to review the formulas as they build the visualizations to understand

STOP ON TOP OF PAGE 182!

**Pages 182-196**: This is a Playground that we will not do in class, however the instructions are provided for the students to create on their own. This is a great lab that works great, but is too time consuming for class.

**DAY TWO SHOULD START HERE**

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**Chapter 7 – Level of Detail Calculations**

Timing: 45 minutes

Chapter 7 is short and is made up of Playgrounds, which will not be completed, and Practical Exercises, which will be completed by the students.

**Pages 198-214**: There are multiple playgrounds demonstrating Level of Detail Calculations. The instructor should review the pages with the students to discuss that playgrounds are optional, but the instructions are provided for them to create on their own. Quickly point out the SELECT CASE statements to them that the playground uses. It’s nice info for them to know.

**Pages 215-228**: Labs for the students to complete. The students can choose to copy the calculations from the Solution workbook.

SUGGESTION: Students can open the solution not only for calculations, but as a checkpoint, to be sure their labs are correct.

Note: You may want to demonstrate dragging the Measure Values for a sheet over to TEXT and then taking away some of the fields. Also, use the CTRL key to show them they can remove more than one at a time.

Details/Gotchas:

* The students should not worry about any calculations in the Starter workbook that have a **RED explanation mark**. These calculations are included to accommodate the Playground and would be fixed if they perform the Playground.
* They can read the commentary or skip it, but the instructor should quickly address the commentary at the end of the lab, explaining that if you needed this behavior in a database (such as SQL in this case), the code/query would look this way.
* Some of the new worksheets are already created in the Starter workbook.

**Pages 215-217**: The students will be fixing the 100% for Afghanistan so that the percentage will show the actual value of the total.

**Pages 220-223**: The students will create a custom label for the Reference Line with <Value>. The Label should be set to Custom to enter this as stated in the book. The right arrow will be used to add the <Value> option to the label.

**Pages 224-226**: The students will learn more on how to use Measure Names and Measure Values with LOD calculations. Also, they will revisit the usage of filters with an LOD calculation.

**Pages 227-228**: The students will revisit Blending as another method to show the accurate percentage. The students should be instructed of the following changes for this exercise:

* The Data Source Superstore Blend does not need to be created as it is already included in the Starter workbook.
* There is not a pill named City Values in either the Starter or Solution workbooks so this should be ignored whenever it is referenced.
* There is not a Sales pill in the second data source. It called Sales by Region.

SECTION 2 – Advanced Calculations, Mapping, Visualizations

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**Chapter 8 – Beyond the Basic Chart Types**

Timing: 30-45 minutes

Students will perform only the five main charts at the beginning of this chapter. There is not any new topics and will just be the students practicing each chart design. All calculated fields can be copied from the Solution workbook.

**Pages 232-234**: Create a Bullet graph using the Coffee Chain data source. Pages 235-237 are optional and should only be performed if desired after the other charts are completed.

**Pages 238-239**: Create a Pie Chart using the Superstore data source. Pages 240-242 are optional and should only be performed if desired after the other charts are completed.

**Pages 240-242**: Continuation to create Donut Charts using the Superstore data source. Hint: Make the circles more transparent and it will look a bit more like book.

**Pages 243-247**: Create a Pareto Chart using the Bank data source. A few tips for this lab:

* When dragging Account# onto the chart, choose Add All Members, if prompted.
* There is no “Automatic Sort”. Instead keep this on your specific field

**Pages 247-249**: Create an improved Pareto by building on the previous example.

**Pages 250-269**: These are nice charts, but WAY outside the scope of this business-level class. Students can choose to design any of these visualizations, but we won’t allow class time to do this.

NOTE: If the instructor would like to they can have the students open the Solution workbook to check out ALL the chart examples at the end of this chapter. Although the book does not give all of the directions needed, the students can view the finished visualizations and use them for future reference. The Solution can be download from GitHub when the students return to their environment of Tableau to see how these charts were created.

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**Chapter 9 - Mapping**

Timing: 45-60 minutes

**Pages 273-280 (top)**: The instructor should illustrate Mapping Techniques by following instructions in book. Lab covers the following:

1. How to use clipboard data
2. How to use the data from the Latitude and Longitude Generated data to create a Lat Long Data Source where Lat and Long will be true measures. They can then be used in separate columns and use them as separate fields.
3. How to create calculations that across data sources

Note: Students need to pay close attention to case sensitivity and the data sources being accessed when creating calculations across data sources.

**Page 281-282**: Create WMS Server as described in instructions. For the URL used in #4, navigate to the Chapter Files on the Desktop for this chapter. Open URL\_For\_Connecting\_to\_WebServer.txt and copy the text. Use this URL link when creating the WMS Server. For the instructions in #5, the menu option should read:

Map > Background Maps > Manage Maps

**Page 283-284**: TMS file structure example is covered. Demonstrate to the students where the TMS files are located in the Tableau software file on the C: drive. Right click and open in Notepad to view the code. ALL TMS files follow this coding convention.

**Page 286-287**: Explain how there are many other third-party map services.

===============================**MAPBOX TRAINER DEMO – OPTIONAL**==========================

**Page 288-291 (top)**: Mapbox Classic demonstration needs a Mapbox account. Step by step directions on pages 288-291 are using Tableau 2019 and the details have changed both in Tableau and on MapBox. Use the directions below if this demo is performed. It is optional.

1. Go to [www.mapbox.com](http://www.mapbox.com)
2. Sign in with the account below:

UserName: [github@onlc.com](mailto:github@onlc.com)

Password: Pa55w.rd

1. Click the “Start by designing a map” link.
2. Click “Find inspiration in the style gallery” link.
3. Locate a map style to use.
4. Click the Explore link/arrow. A large view of the map is displayed.
5. Click “Add Decimal to your account” link.
6. Click the Share option in the upper, right corner menu. A pop-up window will display with details on the map selected.
7. Copy the link that is displaying in the Preview Only section. Keep this page open.
8. Go back to Tableau.

To Be Performed in Tableau

1. Create a new worksheet in the Starter File.
2. Name the new tab MapBox Classic.
3. Activate the menu: Map>>Background Maps>>Manage Maps.
4. Click Add button.
5. Select Mapbox Maps.
6. Paste the copied URL in the URL field.
7. Click the TAB key on your keyboard. All other fields will auto populate.
8. Enter a desired Style Name.
9. Click OK.
10. Use the Sample Super Store.
11. Double click the State pill to create a map. The new background map that was just created should be displayed showing the State data. If not, go to the Map>>Background Maps menu and choose the map name that was just created.
12. To save the TMS file for future use, follow these steps:
    1. Click the Map>>Background Maps>>Manage Maps menu.
    2. Select the map that is to be used.
    3. Click Export.
    4. Save in the default location for future access.

NOTE: Although, Mapbox has some free background maps, overall it is no longer FREE. This demo will always work, but in a production environment, a valid license key will be needed. Still, this demo shows how many mapping sites work with free background maps and gives a good understanding about the URL and Access Key needed to use these type of products.

**Pages 291-295**: SKIPPED. Details on changing TMS file code. Students can attempt these changes on their own if they decide they want to practice XML coding.

**Page 296-300:** SKIPPED. The exercise using NULL Island creates an EXCEL data source and uses it for mapping. Students can attempt these changes on their own if they decide they want to practice this topic.

**Pages 300-301**: SKIPPED. The instructor can locate a listing of free shapes if desired. Use these step by step directions:

1. Google Texas City Limits Shapefile.
2. Choose Dallas Shapefile Downloads using the url: <https://gis.dallascityhall.com/shapefileDownload.aspx> (we will favorite in image)
3. Click City of Dallas Streets
4. Click Streets Shapefile link.
5. Choose Open once the file is downloaded.
6. Show the students all the files that are available to be used in Tableau or any other software that uses mapping. (we wont do anything with the files but it’s interesting how many of these are available for free on the web!)

**Page 302**: This example illustrates a Density Map and the use of Attributes. The Citylimits data source is used. The directions do not list all steps to create the Density Map, but the screen shot can be used to build the final visualization. The Name field will be turned into an Attribute.

Attribute function FROM tableau.com:

The formula behind Attribute is as follows: IF MIN ([dimension]) = MAX ([dimension]) THEN MIN ([dimension]) ELSE "\*"  END

The ATTR function evaluates all the members within the field and returns a value if 1) there is only a single value (MIN = MAX) or 2) all members are identical (MIN = MAX) else it returns "\*". Which can be interpreted as "there is more than one value".

The new Marks type called Density:

From Tableau.com:

Use density chart to visualize patterns or trends in dense data with many overlapping marks. Tableau does this by grouping overlaying marks, and color-coding them based on the number of marks in the group.

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**Chapter 10 – Tableau for Presentations**

Timing: 45-60 minutes

Only three labs will be covered:

1. Pages 308-312 – Template: Do this with students
2. Pages 322-323 – Students do this lab – 5 minutes
3. Pages 328-333 – Story: Do this with the students

LAB 1:

**Pages 308-313(top)**: Creating a Template. Instructions in book are a little confusing, but should be followed with using the hints listed below:

* Turn Floating on before you start.
* Use Containers instead of BLANKS.
* Use one Horizontal container for top.
* Use one Vertical container for the two sheets at the bottom.
* Use a Text Object as there is no Mastering-Tableau.png image. Font: Brush Script MT, Size: 36
* Take students to [www.w3schools.com](http://www.w3schools.com).
* Click LEARN COLORS. Let them know that this lab is using HEX colors, but they could also have used RGB colors. Programmers will often use RGB so they can get Hue and Saturation more detailed. But, HEX colors are perfect for use in Tableau.

Create Making the Loss Leader Dashboard using the new template. Ignore most of what is on page 312 and just assemble the dashboard as follows:

1. Title: Superstore Loss Leaders
2. Top Across ALL: Loss Leader Regions
3. Bottom Left: Loss Leader Cities
4. Bottom Right: Loss Leader Zip
5. Hide the titles for Headers and Footers

On Page 312, once you have assembled the dashboard, perform the following:

1. Click File, Print to PDF and save the file on the desktop. The PDF will open after this is performed. The students can be viewed and can be closed when complete.
2. Click File, Export as Power Point. Save to the desktop. Double click to open the file. This process is much easier than previous versions of Tableau!

**Pages 314-321**: SKIPPED. Students can practice Power Point techniques on their own if needed.

LAB 2:

**Pages 322-323**: Lab for students to complete or instructor can lead them through the steps. Should only take 5 minutes.

**Pages 324-326**: SKIPPED.

**Pages 326 -327**: Discuss Power Point vs. Tableau Stories and introduce Stories as a “Quick” way to develop a presentation. However, it won’t work for all presentation needs as it isn’t a full-blown presentation package.

LAB 3:

**Pages 326-333**: The actual LAB in the book very difficult to follow.

The instructor should perform a QUICK demo to create a story. Walk the students through an “on the fly” lab using Loss Leader Zip, Loss Leader Regions, Loss Leader Cities, Map and the ACT 1991-2015 Animation sheets.

Press F7 or go into Presentation Mode to “play” the story.

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**Chapter 11 – Visualization Best Practices and Dashboard Design**

Timing: 30 minutes

**Page 338**: Instructor can quickly demonstrate how to achieve row banding. This exercise does not have to be completed as formatting was discussed in Chapter 10.

**Page 338**: Instructor can skip this section as formatting was discussed in Chapter 10 and many times prior to this exercise.

**Page 342**: Instructor should demonstrate how to use shapes effectively. It is important because it shows the students how to use custom picture files, how to make a directory in the Shapes folder, and to load them into Tableau for usage.

**Page 355-357**: Instructor can demonstrate sheet swapping by following the exercise directions. To make the demonstration easier/faster, skip step #22 to avoid putting additional visualizations on the dashboard. This will allow the swapping to be conducted between the Pie Chart and Treemap only.

**Page 358-363**: Instructor can skip this section as it will take a bit of time. Direct the students to do the work on their own if this is a technique that they may need in the future.

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**Chapter 12 – Advanced Analytics**

Timing: 30 minutes

The chapter has two case studies with a fictitious manager asking for a dashboard with specific analytics displayed. Suggestion on how to handle the chapter:

* The instructor and the students should open the solution for the chapter.
* Read thoroughly with the students all the pages and walk through the solution with them.
* Page 366 talks about Tableau Prep. The students can see a picture of “Flow” here, which the instructor can discuss (use triggers as an example).
* Pages 385-388 are also about Tableau Prep. Go at this like a “process” and talk about the steps an organization would take when working with analytics.
* Pages 389-394 take place back in Tableau. Click on the corresponding sheets as you explain.
* Pages 395-396 you are back in Tableau Prep and the chapter ends.

Case studies are important because they help the Tableau designer understand the “lingo” that the business will use, and it will help them associate what they need to do in Tableau.

For more information, the students should sign up for a Tableau Prep Class at [www.onlc.com](http://www.onlc.com)

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**Chapter 13 – Improving Performance**

Timing: 30 minutes

Instructors should do all the exercises (outlined below) as a demo, then allow the students to do the exercises themselves, optionally.

BEFORE you move on with Chapter 13, explain all about Section 3 in the book and how you will NOT be covering this. This is your last opportunity to do so, because all the labs in Chapter 13 will be optional.

The chapter is mostly preventative measures to mitigate issues on performance before they happen. It is really a best practice chapter.

Below are suggestions on demos for the labs (instructors can use Starter or Solution):

**Pages 400-402**: Do this demo WITH the students. The Performance dashboard is easy and instant, yet the instructor might want to mention to the students to wait for the performance dashboard to open as it automatically opens. Reference page 402 to discuss the statistics/information that is in the dashboard. Keep the discussion short as this is used more often by administrators, but it will help to test performance on their own dashboards/queries.

**Page 406-408**: Discuss pausing/resuming as it relates to speed

**Page 408**: Demo creating an extract (keep the record count low)

**Pages 409-414**: These topics have already been discussed in great detail throughout this book, so this should just be a review or could be skipped all together.

**Pages 415-418**: Discuss that DBA’s would be the ones to ensure this happens and these practices are some of what they would use.

**Pages 418-420**: Demo an extract for the students if desired since they may do this lab or could be skipped all together.

**Pages 421-426**: Demo aggregate functions within an aggregate or could be skipped all together.

**Page 428-439**: Many performance topics and activities are discussed. The instructor should be prepared to discuss each of them and can choose whether they would like to perform a demonstration on each. The students could conduct the exercises on their own too.

**SECTION 3 – Connecting Tableau to R, Python and Matlab**

ENTIRE SECTION 3 WILL BE SKIPPED.

There are separate classes for Tableau Server, R, Python and Matlab. The schedule for these classes can be found at [www.onlc.com](http://www.onlc.com).