Tableau Notes

- A field, also known as a column, is a single piece of information from a record in a data set.
- When users connect to Tableau, the data fields in their data set are automatically assigned a *role* and a *type*.
- A field can be assigned to a *Dimension (independent variables)* role or a *Measure (dependent variables)* role. The field's data type defines if the field is, for example, a string, integer, or date.
- **Qualitative data :**
    1. Describes or categorises the data
    2. Tells us what, when, where
    3. Slices the quantitative data
    4. Cant perform calculations like sum, average, mean
- **Quantitative data :**
    1. Numerical data
    2. Can be used for calculations
    3. Provides the measurement for the qualitative category

- **Data granularity** refers to the level of detail for a piece of data, wherever you are looking. As data becomes less granular, we might describe it as an *aggregation,* or as *aggregated data*. Aggregation refers to how data is combined. The level of granularity or aggregation in a row or chart affects the questions we can ask of the data, and the discoveries we can make.

HOW CAN I DETERMINE THE LEVEL OF DETAIL CONTAINED IN A ROW OF DATA WHEN I ONLY HAVE ACCESS TO A VISUALISATION?

- You can select a mark in a visualisation, and then right-click to view underlying data, if the view's author has enabled it. You can view the row-level records of the data behind the visualisation, which is how you can determine the depth of detail the data set contains.

- When you move dimensions and measures in and out of a view, the view's level of detail changes.

- By default, measures placed in a view are aggregated by SUM, which means that the data for that field in all of the rows is combined. Measures can also be aggregated as average, median, count, or count distinct.
- Dimensions break down the aggregated total into smaller totals by category.
- **A discrete pill creates labels and continuous pill creates an axis!**
- Dimensions can only create header. Measures will create header + axis both.
- Dragging a discrete value to colour creates distinct colours for each item whereas dragging a continuous value to colour creates a gradient. (Same for Map)
- Worksheet title size can't be edited by right clicking and formatting like we do usually. Rather, double click on it and then proceed to edit.
- Quantitative fields (usually measures) create an axis which shows the range of values, whereas qualitative fields create an axis with headers. This header has labels for the categorical data.
- Bars in a bar chart are called marks (same for different types of charts)
- Default path for all supporting files, data sources, icons, logs etc is in Documents -> My Tableau Repository.
- Geographic region data type is also a String.
- Using the manage metadata, we can create custom names for columns. Herein, Remote Field Name is the original name whereas Field name is the custom name we created in Tableau. We can create aliases as well. This doesn't alter the original data source but is for our ease to identify column names.
- In the Data source window, we can filter data by adding filters. This is a Data Source filter!
- Tableau auto-generates 1 dimension (Measure names) and 4 measures for us (Latitude, Longitude, Number of records, Measure values).
- Dates can be either discrete - consolidated (blue) or can be continuous.

- We can join a maximum of 32 tables in Tableau.
- Data blending allows us to combine data from different sources. Primary data source is blue in colour and secondary is orange in colour.
- In union, sometimes we need to combine data of different tables. Eg - Jan sales sheet is coming in and for Feb its different, etc. Then we can combine these rows wise into a single sheet using union.
- Practice Dual Axis charts, creating custom calculations, parameters, sets, bins etc.
- To group dimensions or measures, in the data pane menu, first click group by folder. Then right click and create group. Then drag-drop relevant dimensions or measures into the group.
- After making changes to Data, we can save that new data source as a .tds file. To do so, go to data menu on top and then choose your current connected data source. Then next click on Add to Saved Data sources. This will save all calculated fields, changes to fields etc. It will be saved in My Tableau Repository -> Mydatasources. This will then also appear on Tableau Home Page under saved data sources like SampleSuperStore.
- If titles of fields (column names) are changed in the source data, then we need to replace the references as Tableau won't understand these changes. To fix this, right click on the broken field and click on replace references and tell Tableau which is the new field name.
- For relative date filter, the default anchor is today's date.
- For a manual sort, no matter how the data changes, the values will always stay in the sort order I kept stuff in.
- 3 ways to group data - marks and labels(visually) and dimensions shelf. When we visually group data, if we select data points directly and group - they will be grouped via colour on the chart (they remain separate marks) and a new dimension is also created but not moved into columns tab. But, if we select their labels and then click on group - a new dimension is created and the group is shown on chart as a single mark by aggregating value of all group members.
- It is possible to duplicate a field and add it to more than one hierarchy. Right click and choose duplicate
- Read about date part and date value.
- We can drop one dimension on another dimension to replace it and drop one measure on another to replace it. The opposite is not true.
- We can create custom dates when we don't want the customer to drill down below a certain level and can provide the user with a custom date to show them the required view. We can create a hierarchy of these custom dates if necessary. (Date part)
- Date part are discrete ones and Date value are continuous.
- In filter range of values, upper bound is excluded.

- Combined axis charts are useful when I want to see multiple measures for one dimension. Eg - If i want to see a columns discount, sales etc I just have to drag and drop the extra measures to the y axis until a double green bar appears.
- It is possible to edit the map background etc using Map Layers.
- When we click on view data, a maximum of 10,000 rows will display. This can be increased.
- Totals can be calculated from either the analysis tab on top, or using analytics pane on left side.
- Orange-Blue diverging palette is an excellent choice for both colour blind and sound-vision people.
- GDP / Population = GDP Per Capita

```
SUM([GDP])/SUM([Population]) + [Parameter]
//This ratio calculates GDP/capita
```

Here Sum is a function, / and + are operators. On the bottom there are comments.

Parameters are variables which can be added. Population and GDP are fields which can either be from the data source or can be calculated fields.

- To concatenate fields, they must be of same data type.

```
[State]+", "+[City]+", "+STR([Postal Code])
```

But this can be done. This is a type conversion function provided by Tableau.

```
SUM([Profit])/SUM([Sales])
```

This formula is perfect for us because it will sum the profit and sales column and then divide them to give me the profit ratio.

SUM(Profit / Sales)	SUM(Profit) / SUM(Sales)
284.1%	57.1%

```
[Profit] / [Sales]
```

will lead to : SUM(Profit / Sales)

Therefore, Tableau will define this aggregation. But in method above, we are already defining aggregation so it will be : AGG(SUM([Profit] / SUM([Sales])

By default, aggregation is performed on row-level detail.

- Quick table calculations can be pane down / across, or table down / across.
- Pie chart is not ideal for greater than 5 dimensions. Use a tree-map instead.
- Tree maps size begins from maximum in top left to smallest in bottom right. They don't have an axis.
- A maximum of 7 colours in any view is fine, nothing above this.
- Tree chart can be changed to a text cloud or bubble chart by just changing the shape of marks.
- Reference lines can only be created for the values in the workspace (chart)
- 3 types of dashboard actions - select, hover and menu. Hover is best for highlighting, select for filtering. Menu action is added to the tooltip and user can decide whether to run that action or not (best for URL actions)
- 4 tableau file types - tds, tde, twb, twbx.
- TDS contains the information necessary to connect to the original data source and doesn't contain the actual data. It can contain groups, calculated fields etc.
- TWB contains the worksheets and dashboards. It also contains the information necessary to connect to the data source and the info needed to build the view, but not

the actual data. A link is rather established to the data source. The next time we open the TWB file, the views will automatically update wrt. to the changes in the underlying data source.

- TWBX is all in one. It contains viz, info needed to build the viz, and a copy of the data source. It doesn't contain extracts of the data but can contain both live and data extracts. Best if want to eliminate the barrier of data access.
- TDE is a snapshot of the data that Tableau stores locally. Good for very large datasets of which we only need few fields. Performance is optimised because it queries its own database engine instead of the local data source.
- Its possible to publish the viz to tableau online (hosted by Tableau) or server (hosted by our organisation). Tableau public is free and good for making public viz that contain non sensitive data. Tableau reader can also open .twbx files and view the vizzes.
- Colleagues can view, edit, interact and download the views.
- Before we can publish anything on Tableau online, we need to be invited by the admin and create a username and password. The URL for tableau online is http://online.tableau.com
- We can either embed data source in the workbook for others to use, or publish it separately. Include external files means that there are some things like custom geo encoding that the server wont have access to and would want to include those.
- What someone can do with my view will depend on the level of permissions.
- Tableau reader is free and less powerful version of Desktop with limited viewing capabilities. Doesn't have the full editing features - can sort etc only basic things. Can open .twbx files.
- Data can be exported to an MS Access DB (Data is the option name) or excel.
- Packaged workbooks have no data security and so data can be seen without any encryption.
- Blending is done on a per sheet basis.