**Tableau Installation and Dashboard Guide**

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D211 Advanced Data Acquisition

* Download the attached files to the “Downloads” folder on the LoD desktop or use the link (to download from folder on the CoCalc website).
  + D211\_SQL. txt or [SQL txt link](https://cocalc.com/484eea22-6e67-4fb5-ab16-4ef66d0dad44/raw/D211_SQL.txt)
  + uci\_data\_211.csv or [UCI csv link](https://cocalc.com/484eea22-6e67-4fb5-ab16-4ef66d0dad44/raw/uci_data_211.csv)
* Change the folder permission so pgAdmin4 can read and upload the external files 🡪
  + Open the “Downloads “folder 🡪 on the right-side menu choose “Downloads’ 🡪 right click 🡪 Choose “Give access to…” 🡪 choose “Specific People” 🡪 in new dialogue box choose “Everyone” from the drop-down menu 🡪 click “Add” 🡪 click “Share” 🡪 Click “No” in the new pop-up window 🡪 Exit
* Open pgAdmin4 by double-clicking on the icon on the LoD desktop
* In the upper left corner, click the down carrot, choose medical\_data

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* Scroll down to “Schemas” 🡪 open 🡪 scroll down to “Tables”
* A new query window by clicking on the query button in the upper left side menu new line

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* Open the SQL text file by clicking on the folder in the upper left corner of the query window

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* Choose the file D211\_SQL.txt 🡪 The file should import into the query window 🡪 Click the run button in the toolbar

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* Right-click on the tables in the left-hand menu and choose “Refresh” → The imported data table and the newly created WGU table for use in Tableau can now be seen.

Tableau Data Streams:

* Open the Tableau app (the white Tableau icon on the desktop).

A blue and white logo

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* On the Left side menu, under “To a Server” 🡪 More… 🡪 find and choose PostgreSQL.
* A popup asking for server data appears 🡪 server is local host 🡪 port is 5432 🡪 Database is medical\_data 🡪 Username is postgres 🡪 password is **Passw0rd!** 🡪 Sign In.

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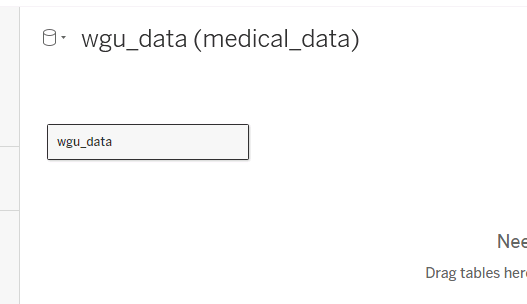
* A new workbook should open, with a screen that has the instructions to “Drag Tables Here”.
* From the left-hand column, where the data tables appear, drag wgu\_data onto the open area.

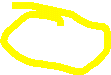
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* Double click the small grey wgu\_data box.



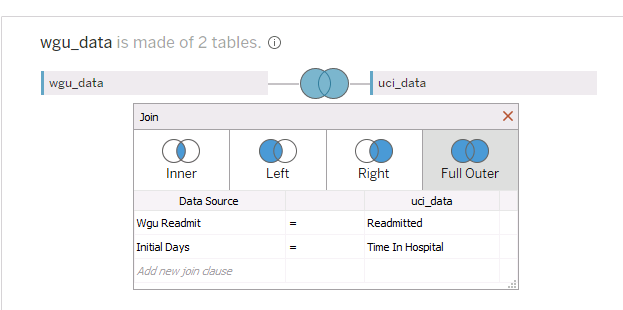


* Drag the uci\_data next to the wgu\_data box. Two joined rings should appear.

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* Click on the circles, and a new pop-up window appears 🡪 choose Full Outer 🡪 under the drop-down for the data source, choose wgu\_readmit, and choose readmitted under the uci\_data.
* Repeat the next choice for initial days under Data source and Time in hospital under uci\_data.



* Close the pop-up window and close the inner window.
* In the lower half of the page, the field data lists the columns. Make sure the “lat” and “lng” columns have a glob above them. If not, click the icon above the column to open drop down 🡪 Geographic role 🡪 choose corresponding latitude/ longitude.

A screenshot of a computer

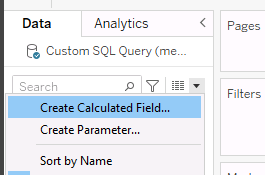
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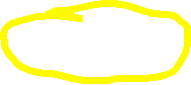
* Verify that the State Column is defined as the Geographic role of State/ Province.

To build Worksheet 1: State Map (wgu\_data)

* Click on the “Sheet 1” tab in the lower left corner.
* Rename the sheet by double-clicking on the sheet title 🡪 “State Map”.
* In the upper toolbar menu, click Format 🡪 Workbook from the dropdown menu 🡪 In the L-hand column, change the “All” fonts to Veranda (easier for people with dyslexia to read).
* Under the wgu\_data, click the carrot next to ‘State’ and choose “Add to Sheet”.
* A small box in R lower corner “1 unknown” will also appear – Right click to hide the indicator.
* Drag ‘Wgu Readmit” to the “color” Mark.
* Click the down carrot on the Wgu\_Readmit bar under the Marks 🡪change from Dimension to Measure 🡪Choose “Count” as the measure type.
* Click the “Color” tab under ”Marks” 🡪Choose “Edit Colors” 🡪Using dropdown choices, pick “Blue” scale (this is color blind-accessible).
* On the upper toolbar menu, click “Map” 🡪 Choose “Background Layers” 🡪 This opens a new click-box menu on the Left side. Choose “Coastline”. Click X to exit.
* Drag “Initial Days” to the Tooltips box 🡪 click the down carrot and change “Sum” to Average 🡪choose “Average” under Measurements.
* Re-click on “Initial days 🡪 dropdown box 🡪 Format window opens on L side 🡪 choose ‘Pane’ 🡪 under the “Default” choose “Numbers” 🡪 Numbers(custom) 🡪 change decimal places to 0.
* Drag Totalcharge to the tooltip 🡪 click the down carrot and change “Sum” to Average 🡪 choose “Average” under Measurements.
* Re-click on “Totalcharge” 🡪 dropdown box 🡪 Format window opens on L side 🡪 choose ‘Pane’ 🡪 under the ‘Default’ choose ‘Numbers’ 🡪 Currency(custom) 🡪 change decimal places to 0.
* Create a calculated field 🡪 click on the small carrot next to the search bar above the tables list.

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* In the pop-up box, label the new field “Final Charge to Patient” and add or paste the following code into the calculation field:

[Initial Days] \* [Total Charge] + [Additional Charges]

* Drag “Final Charge to Patient” to Tooltip 🡪 click the down carrot and change “Sum” to Average 🡪 choose “Average” under Measurements.
* Re-click on “Final Charge” 🡪 dropdown box 🡪 Format window opens on L side 🡪 choose ‘Pane’ 🡪 under the ‘Default” choose “Numbers” 🡪 Currency(custom) 🡪 change decimal places to 0.
* Click on the tooltip in the Mark menu🡪 tooltip edit box opens 🡪 change the setting to 🡪 10pt font, centered 🡪 Edit or paste the following into the tooltip box:

Averages for <State>

Patients:     <CNT(Re-admission)>

Days in Hospital:     <AVG(Initial Days)>

Average Daily Charge:     <AVG(Avg Daily Charge)>

Total Charge For Visit:     <AVG(Total Charge For Visit)>

* Drag “Diabetes to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on the “Diabetes” in the filter box and choose “Show Filter.” 🡪 filter should now appear on the R-hand side column.
* Drag “WGU Readmit” to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on “Wgu Readmit” in the filter box and choose “Show Filter” 🡪 filter should now appear in the right-hand column.
* Drag “State” to the “Filters box” 🡪 when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on the “State” in the filter box and choose “Show Filter” 🡪 filter should now appear on the R-hand side column.

State Maps filter column

* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot🡪choose the customize 🡪Choose the “Show Apply Button” (last option).
* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot🡪choose “Customize” 🡪Choose the “Show All Button” to de-select.
* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot 🡪 choose the “Edit Title” 🡪 change the title to “30 Day Readmission”.
* In the right-hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪choose “Customize” 🡪Choose the “Show Apply Button” (last option).
* In R hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪 choose “Customize” 🡪Choose the “Show All Button” to de-select.
* In the right-hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪 choose the “Edit Title”🡪 change the title to “Patient has Diabetes”.
* In the right-hand column, in the “State” filter, hover over the upper right corner to reveal a down carrot 🡪 choose “Customize” 🡪Choose the “Show Apply Button” (last option).
* In the right-hand column, in the “State” filter, hover over the upper right corner to reveal a down carrot 🡪 choose the customize menu 🡪 Choose the “Multiple Values (dropdown)”.
* Drag the Readmit filter to the top 🡪 drag the diabetes filter below the Readmit filter 🡪 State filter should be under the diabetes filter.

To Build Worksheet #2: Admission Level (wgu\_data):

* Using the wgu\_data for this sheet.
* Click on the icon to add another worksheet.

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* Rename the worksheet “Admission Level”.
* In the Variable column 🡪 choose “Total Charge” down carrot 🡪 “Rename” 🡪 change name to “Avg Daily Charge”.
* Drag “Initial Admit” from the variables list to the “Rows” area.
* Drag “Avg Daily Charge” from the variables list to the “Column” area.

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* Click the down carrot in “Avg Daily Charge” 🡪change the “Dimension” 🡪choose “Measure” 🡪 Choose Average.
* Click the down carrot in “Avg Daily Charge” 🡪 choose “Format” 🡪 Change to “Currency” 🡪 Change decimals to zero.
* in the bar chart, right-click on the “Avg. Avg Daily Charge” and choose “Edit Axis” → Change the title to “Average Daily Charge.”
* Open the carrot menu for “Initial Admit” 🡪 choose “Sort” 🡪 in the pop-up, choose “Sort Manually” 🡪 order Emergency, Observation, and Elective as the sorting order.
* Right-click on the “Null” value 🡪 choose “Exclude.”
* Drag “Wgu Readmit” to Color box 🡪 down carrot 🡪 “Measurements 🡪 change “Sum” to “Count”.
* Click “Colors” box 🡪 “Edit Colors” 🡪 choose “Blue”.
* Drag “Wgu Readmit” to “Label” box 🡪 down carrot 🡪 change measurement to count 🡪 down carrot again 🡪 “Quick Table Calculations” 🡪 choose ‘Percentage of total” 🡪 down carrot 🡪 “Format” 🡪 choose “Percentage” 🡪 change to Zero decimal points.
* Change the sheet view 🡪 in the upper toolbar, click the down carrot next to “Standard” and choose “Entire View”.

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* Right click on the row title “Initial Admit” 🡪 Choose “Hide Field labels for Rows”.

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* Drag “WGU Readmit” to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on “Wgu Readmit” in the filter box and choose “Show Filter” 🡪 filter should now appear in the right-hand column.
* Drag “Diabetes to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on the “Diabetes” in the filter box and choose “Show Filter.” 🡪 filter should now appear on the R-hand side column.
* Click on “Tooltip” I the Marks box 🡪 edit or paste the following 🡪

Admission Type:     <Initial Admin>

Average Daily Charge:     <AVG(Avg Daily Charge)>

Number of Admissions:     <CNT(Re-admission)>

Percentage of Total Admissions:     <% of Total CNT(Re-admission)>

Admission Level filter column

* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot🡪choose the customize 🡪Choose the “Show Apply Button” (last option).
* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot🡪choose “Customize” 🡪Choose the “Show All Button” to de-select.
* In the right-hand column, in the “WGU Readmit” filter, hover over the upper right corner to reveal a down carrot 🡪 choose the “Edit Title” 🡪 change the title to “30 Day Readmission”.
* In the right-hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪choose “Customize” 🡪Choose the “Show Apply Button” (last option).
* In the right-hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪 choose “Customize” 🡪Choose the “Show All Button” to de-select.
* In the right-hand column, in the “Diabetes” filter, hover over the upper right corner to reveal a down carrot 🡪 choose the “Edit Title”🡪 change the title to “Patient has Diabetes”.
* In the right-hand column, in the “Wgu Readmit” legend 🡪 choose “Edit Title” 🡪 change to “Number of Admissions”.

To Build Worksheet #3: MD visits (wgu\_data):

* Using the wgu\_data for this sheet.
* Click on the icon next to the State Map Data tab to add another worksheet.



* Rename the worksheet “MD Visits”.
* Right Click on the “Doc Visits data 🡪 Rename “MD Visits”.
* Drag “MD Visit” into the “Columns”.
* Click the down carrot 🡪change the “Measure” to “Dimension” and “Discrete”.
* Drag “Initial Days” into the “Rows”.
* Click the down carrot 🡪change the “Measure” from “Sum” to “Average”.
* A small box in R lower corner “1 unknown” will also appear – Right click to hide the indicator.
* In the Marks box, Change “Automatic” to “Line”.

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* Right-click on the “Null” value in the visualization → choose “Exclude.”
* Drag “Wgu Readmit” to the “Color” mark box.
* Click on the “Colors” mark box 🡪 choose “Edit colors” 🡪 Change “Null” to grey, and “Yes” to blue.
* Drag “Avg Daily Charge” to the “Size” mark box.
* Click the down carrot for “Avg Daily Charge” 🡪change the “Measure” from “Sum” to “Average”.
* Right click the Size box 🡪 Increase size if the line using slider bar.

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* Right click on the Title for the rows 🡪 choose “Edit Axis” 🡪 Change to “Average Days in Hospital”.
* Click on the tooltip in the Mark menu🡪 tooltip edit box opens 🡪 change the setting to 🡪 Edit or paste the following into the tooltip box:

Average MD Visits:     <Doc Visits>

Readmitted?:     <Re-admission>

Average Days in Hospital:     <AVG(Initial Days)>

Average Daily Charge:     <AVG(Avg Daily Charge)>

* Drag “WGU Readmit” to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on “Wgu Readmit” in the filter box and choose “Show Filter” 🡪 filter should now appear in the right-hand column.
* Drag “Diabetes to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on the “Diabetes” in the filter box and choose “Show Filter.” 🡪 filter should now appear on the R-hand side column.
* Drag “Initial Days” to the “Filters box” 🡪 when the pop-up opens, change the range of values from 1 to 72.
* Right-click on the “Initial Days” in the filter box and choose “Show Filter” 🡪 filter should now appear on the R-hand side column.

Build Worksheet #4: Day Between (wgu\_data)

* Using wgu\_data 🡪
* Click on icon to add another worksheet.

A screenshot of a computer

Description automatically generated.

* Rename the worksheet “Days Between”
* In the variables list, right click “MD Visits” 🡪 choose “Create” 🡪 “Calculated Field”
* In pop up Name new calculation “Days Between MD”.
* In calculation field enter or paste:

1/ ([Doc Visits]/[Initial Days])

* Drag “Days Between MD” into “Label” 🡪 down carrot 🡪 “measure”🡪 “average”.
* Click the down carrot in “Days Between MD” 🡪 choose “Format” 🡪 Change to “Number(custom)” 🡪 Change decimals to one.
* Drag “Days Between MD” into “Label” 🡪 down carrot 🡪 “measure”🡪 “Minimum”.
* Click the down carrot in “Days Between MD” 🡪 choose “Format” 🡪 Change to “Number(custom)” 🡪 Change decimals to one.
* Drag “Days Between MD” into “Label” 🡪 down carrot 🡪 “measure”🡪 “Maximum”.
* Click the down carrot in “Days Between MD” 🡪 choose “Format” 🡪 Change to “Number(custom)” 🡪 Change decimals to one.
* Right click on Title 🡪 choose “edit Title” 🡪 change to “MD was last seen”.
* Right click on the “Text” tooltip 🡪 Edit the tooltip to read:

<AVG(Days Between MD)> Days Ago

Average days since an

MD was at bedside.

<MIN(Days Between MD)> Minimum

<MAX(Days Between MD)> Maximum

Build Worksheet #5: Lab Procedures (uci\_data)

* Using uci\_data
* Click on icon to add another worksheet

A screenshot of a computer

Description automatically generated

* Rename the worksheet “Lab Procedures”
* Right Click on “Age Bins” 🡪 Change name to “Age Group”.
* Drag “Age Group” to columns.
* Drag “Time in Hospital” to rows 🡪 down carrot 🡪 measure 🡪 “Average”.
* Right-click on the “Null value” → choose “Exclude.”
* Under the “Marks“ box, change from “Bars” to “Line”
* Drag “Readmitted” to “Colors”.
* Click on the “Colors” mark box 🡪 choose “Edit colors” 🡪 Change “Null” to grey, and “Yes” to blue.
* Drag “Time in hospital" to “Tooltip” 🡪 down carrot 🡪 “measure” 🡪 “Average”.
* Right click on “Num Lab Procedures” 🡪 “Create” 🡪 “Calculated field” 🡪 in the pop up rename field to “Labs per day” 🡪 in calculation field put:

[Num Lab Procedures]/[Time In Hospital]

* Drag “Lab per day” to “Label “ 🡪 down carrot 🡪 “Measure” 🡪 “Average”.
* Click the down carrot in “Labs per Day 🡪 choose “Format” 🡪 Change to “Number(custom)” 🡪 Change decimals to Zero.
* Right click on the “Text” tooltip 🡪 Edit or paste the tooltip to read:

Age Bins:     <Age Group>

Readmitted:     <Readmitted>

Average Labs Tests per Day:     <AVG(Labs per Day)>

Average Days In Hospital:     <AVG(Time In Hospital)>

Build Worksheet #6: Age of Readmissions (uci\_data):

* Using the UCI data set
* Click on icon to add another worksheet

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* Rename the worksheet “Age of Readmissions”
* Drag “Age Group” to columns
* Drag “Readmitted” to Rows.
* Right-click on the “Null” value → choose “Exclude.”
* Drag “Readmitted” to “Text” mark box 🡪 down carrot 🡪 change “Measure” to “Count”
* Click the “Show me” button in upper R corner 🡪 choose the heat map (top row, far Right choice)

A screenshot of a computer

Description automatically generated

* Click “Color”🡪 “edit colors” 🡪 choose “Blue” 🡪
* Drag Readmitted to “Tooltip” 🡪 down carrot 🡪 change “Measure” to “Count” 🡪 down carrot 🡪 choose “Quick table calculations” 🡪 “Percentage of total”
* Drag “Age Group” to the “Filters box” 🡪when the pop-up opens, click the “All” box and then click “ok”.
* Right-click on the “Age Group” in the filter box and choose “Show Filter.” 🡪 filter should now appear on the R-hand side column.
* In the right-hand column, in the “Age Group” filter, hover over the upper right corner to reveal a down carrot🡪choose the customize 🡪Choose the “Show Apply Button” (last option).
* Right click on the “Text” tooltip 🡪 Edit or paste the tooltip to read:

Age Bins:     <Age Group>

Readmitted:     <Readmitted>

Number of <Readmitted> Readmissions:     <CNT(Readmitted)>

Percent of Total <Readmitted> Readmissions:     <% of Total CNT(Readmitted)>

* In the top tool bar, choose “Worksheet” 🡪 choose “Show Caption”.
* On the sheet, right click on the caption box 🡪 “edit Caption 🡪 Change or paste:

Readmissions

Number of readmitted patients broken down by Age Group. The color shows the count of readmissions.

* In the Columns bar “Age Group” 🡪 Choose down carrot 🡪 Choose “Show Header” to de-select.

Set Filters for Dashboard build:

* Return to State map workbook:
* In the Filters columns choose “Diabetes 🡪 down Carrot 🡪 choose “Apply to worksheets” 🡪 choose “Selected Worksheets” 🡪 choose Admission level, MD visits, and Days Between.
* Repeat this for the “Wgu Readmit” filter.

Building Dashboard –

* Click on the “New Dashboard” icon.



* Rename to “Readmits”.
* In L hand column, change “Size” to “Automatic”.

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* Drag “State Map Data” main area.
* Drag “MD visits” to R hand side.
* Drag “Admission Level” and drop under “State Map”.
* Drag “Age of Readmissions” under “Lab Procedures”.
* Adjust sizes to approximately 1/3 size of this R hand side of page.
* In each box (Worksheet), click the add as filter option.

A screenshot of a computer

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Formatting Titles:

* Click “State Map” title 🡪 “Edit Title” 🡪 Change or paste to:

State Data (click or lasso to filter)

* Click “MD Visits” 🡪 “Edit Title” 🡪 Change or paste :

Number of visits from an MD (click to filter)

* Click “Admission Level” title 🡪 “Edit Title” 🡪 change or paste:

Admission Level (Click to Filter)

* Right click in the Age of readmissions box 🡪 choose “Hide Title”.
* Right click in the Age of readmissions box 🡪 choose “Show Captions”.

Legends and Filter column

* Working top to bottom 🡪
* Keep the top two filters.
* Click the “State” filter box, 🡪 choose “More options” 🡪 change to “floating” 🡪 drag to upper R corner of State box.
* Remove the “Wgu Readmit” filter.
* Right click the “Wgu Readmit” legend 🡪 “Edit Title “ 🡪 change to “Readmission”.
* Click the new “Readmission” box, 🡪 choose “More options” 🡪 change to “floating” 🡪 drag to upper R corner of MD visits box.
* Remove the remaining filters or legends EXCEPT the “Initial Days” filter/ slide bar.
* From the left side menu “Objects” drag a “Vertical Box” underneath “MD visits”.

A screenshot of a computer

Description automatically generated

* Click the “Initial Days” box, 🡪 choose “More options” 🡪 change to “floating” 🡪 drag under the chart of MD visits box.
* The boxes will have to be resized to fit.
* Drag the MD visits the Legend / Filter column and position in top position in the column.
* From the left side menu “Objects” drag a “Text” box underneath “MD visits”.
* In the text box enter or paste:

Use the filters below to narrow down information.

Click inside the visualizations to filter information for deeper insights.

* From the left side menu “Objects” drag a “Text” box underneath “Patient has Diabetes” Filter.
* In the text box enter or paste:

To end filtering, click on the same point or use the re-set view button in the bottom right corner of the dashboard

* Adjust sizing of individual boxes as needed.