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D211 PA

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## A: Data Dashboards (Part I)

*Dashboard attached:*

d211PAfinal.twbx

## A1: Datasets and Dashboard File

*Internal Dataset Attached:*

medical\_clean.csv

*External Dataset Attached:*

externaldataset.csv (Kaggle, 2024)

*Dashboard Attached:*

d211PAfinal.twbx

## A2: Dashboard Installation

I will include two alternate methods of opening a functional dashboard in the Labs on Demand virtual machine below.

*Opening file using extracted data only:*

1. Log into virtual machine as required
2. Import the d211PAfinal.twbx file that I’ve included into the virtual machine via your preferred method (e.g. emailing the file to yourself, using a cloud service, etc)
3. Navigate to the d211PAfinal.twbx file, double click it, and Tableau will open
4. If you are requested to connect to a server, simply close the pop-up window
5. The dashboard should be completely functional

*Opening file using live data:*

1. Log into the virtual machine as required
2. Import the attached .csv files into the virtual environment using your preferred method (both medical\_clean.csv and externaldataset.csv) and note their location
3. Open pgAdmin4
4. Navigate to Servers -> Databases -> medicaldata -> Tables
5. Right click Tables and select Query Tools
6. Use the SQL code shown in section A4 for the internal dataset implementation to create the initial table by copy/pasting into the query tool and clicking the Execute Script button
7. Import the data from medical\_data.csv by right clicking the newly created medical\_data table and selecting Import/Export Data tool
8. Beside Filename, navigate to where you imported the medical\_clean.csv, select it, and click Open
9. Click OK to confirm the import
10. Right click Tables and select Query Tools again
11. Use the SQL code shown in section A4 for the external dataset implementation to create the empty table
12. Import data from externaldataset.csv by right clicking the created ExternalDataset table and selecting the Import/Export tool
13. Navigate to where you saved externaldataset.csv, click it, and click Open
14. Click OK once more
15. Finally, navigate to the d211PAfinal.twbx file location and double click it
16. Tableau will open and ask for server credentials
17. If using Labs on Demand, the username is “postgres” and the password is “Passw0rd!” ; otherwise, use the credentials set up for pgAdmin access (database is “medicaldata”)
18. At this point, the dashboard should be fully functional with live data

## A3: Dashboard Navigation

If Tableau does not automatically open on the Story page, select the tab labeled ReAdmissions on the bottom of the window.

*Dashboard 1 / ReAdmissions US Map:*

The initial tab of the story shows a map of the United States as well as a bar chart underneath it. The map itself reveals readmission and income data per state and functions similarly to a heatmap with darker colors representing higher values of readmission. The bar chart below represents the same information with a differing visual, comparison of size. The top bar chart is the count of readmission per state while the bottom shows the average income per state. These all include data from both sets.

In the top map, the states themselves can be clicked on to highlight information relevant to that state for the bar charts as well as the map itself. This individual states can be selected on the bar chart for the same results. There are also sliders beside each which can be manipulated to hide / show data that fits within those parameters. For instance, if you wanted to view which states had admission above 200, you could slide the Count of ReAdmis slider to 200 at the minimum and the other graphs will react accordingly.

*Dashboard 2 / KPIs:*

The second tab in the story, KPIs, is next. There are two charts shown on this dashboard which show various KPIs to be tracked. The first chart, Gender KPIs, shows gender, average age, average BMI, average children, and a count of gender for tracking purposes from both data sets. The second chart, ReAdmis KPIs, shows information as it relates to whether a patient was readmitted or not. This shows average income, average hospital stay for the original visit, average total charges from both data sets, and a total count of readmissions.

*Dashboard 3 / Correlations in Data:*

Thirdly is the Correlations in Data dashboard. There are two scatterplots shown here. The first, ReAdmis and Initial\_days Scatterplot, examines the correlation between total charge, initial days of hospital visit, and readmission. Below is the ReAdmis and BMI Scatterplot which looks into the potential correlation between BMI, total charges, and readmissions rates. Trend lines are included for each chart and values are organized with “yes” values being orange and “no” values as blue. There are sliders for both Initial\_days and BMI beside their appropriate graph. These can be manipulated and the graphs will zoom into the range of values chosen. Also, under the legend ReAdmis, the blue No and the orange Yes can be selected to highlight only those values. This works across both graphs.

## A4: SQL Code

*Internal dataset implementation:*

CREATE TABLE IF NOT EXISTS public.medical\_clean

(

"Customer\_id" text COLLATE pg\_catalog."default" NOT NULL,

"State" text COLLATE pg\_catalog."default",

"Children" numeric,

"Age" numeric,

"Income" numeric,

"Marital" text COLLATE pg\_catalog."default",

"Gender" text COLLATE pg\_catalog."default",

"ReAdmis" text COLLATE pg\_catalog."default",

"Initial\_days" numeric,

"TotalCharge" numeric,

CONSTRAINT medical\_clean\_pkey PRIMARY KEY ("Customer\_id")

)

TABLESPACE pg\_default;

ALTER TABLE IF EXISTS public.medical\_clean

OWNER to postgres;

--command " "\\copy public.medical\_clean (\"Customer\_id\", \"State\", \"Children\", \"Age\", \"Income\", \"Marital\", \"Gender\", \"ReAdmis\", \"Initial\_days\", \"TotalCharge\") FROM 'C:/Users/Owner/Desktop/THEMAS~1/D211-A~1/Project/these/MEDICA~1.CSV' DELIMITER ',' CSV HEADER QUOTE '\"' ESCAPE '''';""

*External dataset implementation:*

CREATE TABLE IF NOT EXISTS public."ExternalDataset"

(

"PatientID" text COLLATE pg\_catalog."default" NOT NULL,

"State" text COLLATE pg\_catalog."default",

"Gender" text COLLATE pg\_catalog."default",

"Age" numeric,

"Children" numeric,

"BMI" numeric,

"ReAdmis" text COLLATE pg\_catalog."default",

"Total\_charges" numeric,

"Income" numeric,

CONSTRAINT "ExternalDataset\_pkey" PRIMARY KEY ("PatientID")

)

TABLESPACE pg\_default;

ALTER TABLE IF EXISTS public."ExternalDataset"

OWNER to postgres;

--command " "\\copy public.\"ExternalDataset\" (\"PatientID\", \"State\", \"Gender\", \"Age\", \"Children\", \"BMI\", \"ReAdmis\", \"Total\_charges\", \"Income\") FROM 'C:/Users/Owner/Desktop/THEMAS~1/D211-A~1/Project/these/EXTERN~1.CSV' DELIMITER ',' CSV HEADER QUOTE '\"' ESCAPE '''';""

*Dashboard*

*Data Source Union:*

*SELECT "t0"."Age" AS "Age",*

*"t0"."BMI" AS "BMI",*

*"t0"."Children" AS "Children",*

*"t0"."Customer\_id" AS "Customer\_id",*

*"t0"."Gender" AS "Gender",*

*"t0"."Income" AS "Income",*

*"t0"."Initial\_days" AS "Initial\_days",*

*"t0"."Marital" AS "Marital",*

*"t0"."PatientID" AS "PatientID",*

*"t0"."ReAdmis" AS "ReAdmis",*

*"t0"."State" AS "State",*

*"t0"."Table Name" AS "Table Name",*

*"t0"."TotalCharge" AS "TotalCharge",*

*"t0"."Total\_charges" AS "Total\_charges"*

*FROM (*

*SELECT "t1"."Age" AS "Age", "t1"."BMI" AS "BMI", "t1"."Children" AS "Children", "t1"."Customer\_id" AS "Customer\_id", "t1"."Gender" AS "Gender", "t1"."Income" AS "Income", "t1"."Initial\_days" AS "Initial\_days", "t1"."Marital" AS "Marital", "t1"."PatientID" AS "PatientID", "t1"."ReAdmis" AS "ReAdmis", "t1"."State" AS "State", "t1"."Table Name" AS "Table Name", "t1"."TotalCharge" AS "TotalCharge", "t1"."Total\_charges" AS "Total\_charges"*

*FROM (*

*SELECT "medical\_clean"."Age" AS "Age",*

*CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS "BMI",*

*"medical\_clean"."Children" AS "Children",*

*CAST("medical\_clean"."Customer\_id" AS TEXT) AS "Customer\_id",*

*CAST("medical\_clean"."Gender" AS TEXT) AS "Gender",*

*"medical\_clean"."Income" AS "Income",*

*"medical\_clean"."Initial\_days" AS "Initial\_days",*

*CAST("medical\_clean"."Marital" AS TEXT) AS "Marital",*

*CAST(NULL AS TEXT) AS "PatientID",*

*CAST("medical\_clean"."ReAdmis" AS TEXT) AS "ReAdmis",*

*CAST("medical\_clean"."State" AS TEXT) AS "State",*

*('medical\_clean'::text) AS "Table Name",*

*"medical\_clean"."TotalCharge" AS "TotalCharge",*

*CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS "Total\_charges"*

*FROM "public"."medical\_clean" "medical\_clean"*

*) "t1"*

*UNION ALL*

*SELECT "t2"."Age" AS "Age", "t2"."BMI" AS "BMI", "t2"."Children" AS "Children", "t2"."Customer\_id" AS "Customer\_id", "t2"."Gender" AS "Gender", "t2"."Income" AS "Income", "t2"."Initial\_days" AS "Initial\_days", "t2"."Marital" AS "Marital", "t2"."PatientID" AS "PatientID", "t2"."ReAdmis" AS "ReAdmis", "t2"."State" AS "State", "t2"."Table Name" AS "Table Name", "t2"."TotalCharge" AS "TotalCharge", "t2"."Total\_charges" AS "Total\_charges"*

*FROM (*

*SELECT "ExternalDataset"."Age" AS "Age",*

*"ExternalDataset"."BMI" AS "BMI",*

*"ExternalDataset"."Children" AS "Children",*

*CAST(NULL AS TEXT) AS "Customer\_id",*

*CAST("ExternalDataset"."Gender" AS TEXT) AS "Gender",*

*"ExternalDataset"."Income" AS "Income",*

*CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS "Initial\_days",*

*CAST(NULL AS TEXT) AS "Marital",*

*CAST("ExternalDataset"."PatientID" AS TEXT) AS "PatientID",*

*CAST("ExternalDataset"."ReAdmis" AS TEXT) AS "ReAdmis",*

*CAST("ExternalDataset"."State" AS TEXT) AS "State",*

*('ExternalDataset'::text) AS "Table Name",*

*CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS "TotalCharge",*

*"ExternalDataset"."Total\_charges" AS "Total\_charges"*

*FROM "public"."ExternalDataset" "ExternalDataset"*

*) "t2"*

*) "t0"*

*US Map:*

SELECT CAST(""Custom SQL Query"".""State"" AS TEXT) AS ""State"",

AVG(""Custom SQL Query"".""Income"") AS ""avg:Income:ok"",

COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) AS ""cnt:ReAdmis:ok""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

HAVING ((AVG(""Custom SQL Query"".""Income"") >= 27205.316923076651) AND (AVG(""Custom SQL Query"".""Income"") <= 45423.000000000451) AND (COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) >= 13) AND (COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) <= 577))

SELECT MIN(""t0"".""avg:Income:qk"") AS ""lower:avg:Income:qk"",

MAX(""t0"".""avg:Income:qk"") AS ""upper:avg:Income:qk""

FROM (

SELECT AVG(""Custom SQL Query"".""Income"") AS ""avg:Income:qk""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY CAST(""Custom SQL Query"".""State"" AS TEXT)

) ""t0""

SELECT CAST(""Custom SQL Query"".""State"" AS TEXT) AS ""State""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

ORDER BY 1 ASC NULLS FIRST

*Bar Chart:*

SELECT CAST(""Custom SQL Query"".""State"" AS TEXT) AS ""State"",

AVG(""Custom SQL Query"".""Income"") AS ""avg:Income:ok"",

COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) AS ""cnt:ReAdmis:ok""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

HAVING ((AVG(""Custom SQL Query"".""Income"") >= 27205.316923076651) AND (AVG(""Custom SQL Query"".""Income"") <= 45423.000000000451) AND (COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) >= 13) AND (COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) <= 577))

SELECT MIN(""t0"".""avg:Income:qk"") AS ""lower:avg:Income:qk"",

MAX(""t0"".""avg:Income:qk"") AS ""upper:avg:Income:qk"",

MIN(""t0"".""cnt:ReAdmis:qk"") AS ""lower:cnt:ReAdmis:qk"",

MAX(""t0"".""cnt:ReAdmis:qk"") AS ""upper:cnt:ReAdmis:qk""

FROM (

SELECT AVG(""Custom SQL Query"".""Income"") AS ""avg:Income:qk"",

COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) AS ""cnt:ReAdmis:qk""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY CAST(""Custom SQL Query"".""State"" AS TEXT)

) ""t0""

SELECT CAST(""Custom SQL Query"".""State"" AS TEXT) AS ""State""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

ORDER BY 1 ASC NULLS FIRST

*Gender KPIs:*

SELECT CAST(""Custom SQL Query"".""Gender"" AS TEXT) AS ""Gender"",

AVG(""Custom SQL Query"".""Age"") AS ""avg:Age:ok"",

AVG(""Custom SQL Query"".""BMI"") AS ""avg:BMI:ok"",

AVG(""Custom SQL Query"".""Children"") AS ""avg:Children:ok"",

COUNT(CAST(""Custom SQL Query"".""Gender"" AS TEXT)) AS ""cnt:Gender:ok""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

*ReAdmis KPIs:*

SELECT CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

AVG(""Custom SQL Query"".""Income"") AS ""avg:Income:ok"",

AVG(""Custom SQL Query"".""Initial\_days"") AS ""avg:Initial\_days:ok"",

AVG(""Custom SQL Query"".""TotalCharge"") AS ""avg:TotalCharge:ok"",

AVG(""Custom SQL Query"".""Total\_charges"") AS ""avg:Total\_charges:ok"",

COUNT(CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT)) AS ""cnt:ReAdmis:ok""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

GROUP BY 1

*ReAdmis and Initial\_days Scatterplot:*

SELECT ""Custom SQL Query"".""Initial\_days"" AS ""Initial\_days"",

CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

""Custom SQL Query"".""TotalCharge"" AS ""TotalCharge""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

WHERE ((""Custom SQL Query"".""Initial\_days"" >= 1.001980919) AND (""Custom SQL Query"".""Initial\_days"" <= 71.981489999999994))

GROUP BY 1,

2,

3

SELECT MIN(""Custom SQL Query"".""Initial\_days"") AS ""lower:none:Initial\_days:qk"",

MAX(""Custom SQL Query"".""Initial\_days"") AS ""upper:none:Initial\_days:qk""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

*ReAdmis and BMI Scatterplot:*

SELECT ""Custom SQL Query"".""BMI"" AS ""BMI"",

CAST(""Custom SQL Query"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

""Custom SQL Query"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

WHERE ((""Custom SQL Query"".""BMI"" >= 15.960000000000001) AND (""Custom SQL Query"".""BMI"" <= 53.130000000000003))

GROUP BY 1,

2,

3

SELECT MIN(""Custom SQL Query"".""BMI"") AS ""lower:none:BMI:qk"",

MAX(""Custom SQL Query"".""BMI"") AS ""upper:none:BMI:qk""

FROM (

SELECT ""t0"".""Age"" AS ""Age"",

""t0"".""BMI"" AS ""BMI"",

""t0"".""Children"" AS ""Children"",

""t0"".""Customer\_id"" AS ""Customer\_id"",

""t0"".""Gender"" AS ""Gender"",

""t0"".""Income"" AS ""Income"",

""t0"".""Initial\_days"" AS ""Initial\_days"",

""t0"".""Marital"" AS ""Marital"",

""t0"".""PatientID"" AS ""PatientID"",

""t0"".""ReAdmis"" AS ""ReAdmis"",

""t0"".""State"" AS ""State"",

""t0"".""Table Name"" AS ""Table Name"",

""t0"".""TotalCharge"" AS ""TotalCharge"",

""t0"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""t1"".""Age"" AS ""Age"", ""t1"".""BMI"" AS ""BMI"", ""t1"".""Children"" AS ""Children"", ""t1"".""Customer\_id"" AS ""Customer\_id"", ""t1"".""Gender"" AS ""Gender"", ""t1"".""Income"" AS ""Income"", ""t1"".""Initial\_days"" AS ""Initial\_days"", ""t1"".""Marital"" AS ""Marital"", ""t1"".""PatientID"" AS ""PatientID"", ""t1"".""ReAdmis"" AS ""ReAdmis"", ""t1"".""State"" AS ""State"", ""t1"".""Table Name"" AS ""Table Name"", ""t1"".""TotalCharge"" AS ""TotalCharge"", ""t1"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""medical\_clean"".""Age"" AS ""Age"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""BMI"",

""medical\_clean"".""Children"" AS ""Children"",

CAST(""medical\_clean"".""Customer\_id"" AS TEXT) AS ""Customer\_id"",

CAST(""medical\_clean"".""Gender"" AS TEXT) AS ""Gender"",

""medical\_clean"".""Income"" AS ""Income"",

""medical\_clean"".""Initial\_days"" AS ""Initial\_days"",

CAST(""medical\_clean"".""Marital"" AS TEXT) AS ""Marital"",

CAST(NULL AS TEXT) AS ""PatientID"",

CAST(""medical\_clean"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""medical\_clean"".""State"" AS TEXT) AS ""State"",

('medical\_clean'::text) AS ""Table Name"",

""medical\_clean"".""TotalCharge"" AS ""TotalCharge"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Total\_charges""

FROM ""public"".""medical\_clean"" ""medical\_clean""

) ""t1""

UNION ALL

SELECT ""t2"".""Age"" AS ""Age"", ""t2"".""BMI"" AS ""BMI"", ""t2"".""Children"" AS ""Children"", ""t2"".""Customer\_id"" AS ""Customer\_id"", ""t2"".""Gender"" AS ""Gender"", ""t2"".""Income"" AS ""Income"", ""t2"".""Initial\_days"" AS ""Initial\_days"", ""t2"".""Marital"" AS ""Marital"", ""t2"".""PatientID"" AS ""PatientID"", ""t2"".""ReAdmis"" AS ""ReAdmis"", ""t2"".""State"" AS ""State"", ""t2"".""Table Name"" AS ""Table Name"", ""t2"".""TotalCharge"" AS ""TotalCharge"", ""t2"".""Total\_charges"" AS ""Total\_charges""

FROM (

SELECT ""ExternalDataset"".""Age"" AS ""Age"",

""ExternalDataset"".""BMI"" AS ""BMI"",

""ExternalDataset"".""Children"" AS ""Children"",

CAST(NULL AS TEXT) AS ""Customer\_id"",

CAST(""ExternalDataset"".""Gender"" AS TEXT) AS ""Gender"",

""ExternalDataset"".""Income"" AS ""Income"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""Initial\_days"",

CAST(NULL AS TEXT) AS ""Marital"",

CAST(""ExternalDataset"".""PatientID"" AS TEXT) AS ""PatientID"",

CAST(""ExternalDataset"".""ReAdmis"" AS TEXT) AS ""ReAdmis"",

CAST(""ExternalDataset"".""State"" AS TEXT) AS ""State"",

('ExternalDataset'::text) AS ""Table Name"",

CAST(CAST(NULL AS TEXT) AS DOUBLE PRECISION) AS ""TotalCharge"",

""ExternalDataset"".""Total\_charges"" AS ""Total\_charges""

FROM ""public"".""ExternalDataset"" ""ExternalDataset""

) ""t2""

) ""t0""

) ""Custom SQL Query""

## B: Panopto Presentation (Part 2: Demonstration)

*Panopto Link:* https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=5d094e29-920f-4985-afe6-b19201420552

## C: Written Report (Part 3: Report)

## C1: Dashboard Alignment

The prompt calls for the rates of readmission to be decreased. This is a necessary cost-saving effort. Utilizing both data sets, data is presented in a few different ways in order to show possible actions to take. Locations of highest rates, KPIs to track and consider, and possible data correlations with readmission rates based on the internal and external datasets allow for greater insight for stakeholders and decision makers with easily manipulable and understandable representations.

## C2: Business Intelligence Tool

Tableau was used as the business intelligence tool for this project. Business intelligence is defined by Tableau themselves as a combination of “business analytics, data mining, data visualization, data tools and infrastructure, and best practices to help organizations make more data-driven decisions.” (Tableau, n.d.) As a BI tool, Tableau has an excellent interface with a simple-to-use UI. It connects directly with the database used in this project and is exceptional for creating complex visualizations for data analysis from large amounts of data quickly. Furthermore, custom SQL can still be used allowing for greater versatility.

## C3: Data Cleaning

1. Data was extracted from the medicaldata database
2. Ensured data matched data dictionary
3. Data was checked for duplicates, NAs, outliers, and other potential issues
4. Removed all unnecessary data for this analysis leaving only a table including the columns CustomerID, State, Children, Age, Income, Marital, Gender, ReAdmis, Initial\_days, and TotalCharge
5. Data for the external file was already prepared and used as it was after being checked for issues
6. Datasets were then imported into the medicaldata database as tables in pgAdmin4
7. Data at this point was prepared for live access via Tableau connection to PostgreSQL database
8. Within Tableau, the custom SQL shown in section A4 was used to create a Full Union between the tables for greater analysis

## C4: Dashboard Creation

Below are the instructions for creating the dashboard used in this project organized by each sheet and dashboard.

*US Map:*

1. Under Marks select Map from the drop-down menu
2. Drag ReAdmis to under Marks and change to Measure(Count) by right-clicking -> Measure -> Count
3. Drag State to under Marks
4. Click on the symbol beside CNT(ReAdmis) and change it to Color
5. Right click CNT(ReAdmis) and select Filter then OK.
6. Right click on CNT(ReAdmis) under Filters and select Show Filter
7. Drag Income underneath Marks then change to Average by right clicking -> Measure -> Average
8. Right click AVG(Income) under Marks and select Show Filter

*Bar Chart:*

1. Drag State from the left side to Columns
2. Drag ReAdmis to Rows
3. Right click ReAdmis and select Measure -> Count
4. Right click CNT(ReAdmis) and select Show Filter
5. Drag Income from the left side to Rows
6. Right click Income and select Measure -> Average
7. Right click AVG(Income) and select Show Filter

*Dashboard 1:*

1. Drag US Map from under Sheets on the left side of the screen to the dashboard
2. Right click inside and select Floating
3. Move and resize the map on the top half of the screen
4. Right click in the filter for Avg. Income and select Floating
5. Move Avg. Income beside the resized map
6. Right click Count of ReAdmis and select Floating
7. Move Count of ReAdmis near the map
8. Drag Bar Chart from Sheets and drag it into the dashboard
9. Right click inside of Bar Chart and select Floating
10. Move and resize the Bar Chart box underneath the map
11. Right click inside of the filter for Avg. Income that appeared with Bar Chart and select Floating
12. Move Avg. Income above Bar Chart but below US Map
13. Right click inside the newly shown Count of ReAdmis and select Floating
14. Move Count of ReAdmis beside the just moved Avg. Income
15. Select “Use As Filter” for each section so they will all interact

*Gender KPIs:*

1. Drag Gender to Rows
2. Drag another instance of Gender beside the one you just moved into Rows
3. Right click the newly placed Gender and right click -> Measure -> Count
4. Drag BMI to Rows
5. Right click BMI in Rows -> Measure -> Average
6. Drag Children to Rows
7. Right click Children in Rows -> Measure -> Average
8. Click on Show Me in the top-right corner of the screen and select the top-left icon called Text Tables
9. Right click AVG(Children) underneath Measure Values and select Format
10. On the left side of the window expand the drop-down menu from Numbers then click on Number (Custom) and change decimal places to 1
11. Right click AVG(BMI) underneath Missing Values and select Format
12. Then click beside Numbers -> click Number (Custom) and change decimal places to 2
13. Right click AVG(Age) underneath Missing Values and select Format
14. Then click beside Numbers -> click Number (Custom) and change decimal places to 2

*ReAdmis KPIs:*

1. Drag ReAdmis to Rows
2. Drag another instance of ReAdmis beside the one you just placed in Rows
3. Right click the newly placed ReAdmis and select Measure -> Count
4. Drag Income to Rows
5. Right click Income then select Measure -> Average
6. Drag Initial\_days to Rows
7. Right click Initial\_days and select Measure -> Average
8. Drag Total\_charges to Rows
9. Right click Total\_charges and select Measure -> Average
10. Drag TotalCharge to Rows
11. Right click TotalCharge and select Measure -> Average
12. Click Show Me in the top-right corner of the screen and select Text Tables in the top-left
13. Right click AVG(Income) underneath Measure Values and select Format
14. Click on the drop-down box beside Numbers and select Currency (Standard)
15. Right click AVG(Initial\_days) under Measure Values and select Format
16. Select the menu beside Numbers and choose Number (Custom) and ensure there are 2 decimal places
17. Right click AVG(Total\_charges) and select Format
18. Click the drop-down menu beside Numbers and select Currency (Standard)
19. Right click on AVG(TotalCharge) and select Format
20. Click the drop-down menu beside Numbers and select Currency (Standard)

*Dashboard 2:*

1. Drag Gender KPIs from the left side into the Dashboard then right click and select Floating
2. Resize and move as desired (In my case, I moved it to the top of the dashboard)
3. Drag ReAdmis KPIs from the left side into the Dashboard then right click and select Floating
4. Resize and move as desired (I set it below Gender KPIs)

*ReAdmis and Initial\_days Scatterplot:*

1. Drag Initial\_days to Columns
2. Right click Initial\_days and select Dimension
3. Drag TotalCharge to Rows
4. Right click TotalCharge and select Dimension
5. Right click within the graph and select Trend Lines -> Show Trend Lines
6. Drag ReAdmis under Marks
7. Click the symbol beside ReAdmis and change it to Color
8. Right click on Initial\_days and select Show Filter

*ReAdmis and BMI Scatterplot:*

1. Drag BMI to Columns
2. Right click BMI and select Dimension
3. Drag Total\_charges to Rows
4. Right click on Total\_charges and select Dimension
5. Right click within the graph and select Trend Lines -> Show Trend Lines
6. Drag ReAdmis under Marks
7. Select the symbol beside ReAdmis and select Color
8. Right click on BMI and select Show Filter

*Dashboard 3:*

1. Drag ReAdmis and Initial\_days Scatterplot from under Sheet to the dashboard
2. Right click within the sheet and select Floating
3. Move and resize the graph in the top left portion of the dashboard
4. Right click the filter for Initial\_days and select Floating
5. Move Initial\_days slider beside the plot
6. Right click the filter for ReAdmis and select Floating
7. Move ReAdmis legend beside the plot
8. Drag ReAdmis and BMI Scatterplot into the dashboard
9. Right click within the graph and select Floating
10. Move and resize this scatterplot in the bottom left portion of the dashboard
11. Right click on the BMI slider filter and select Floating
12. Move the BMI slider to the right of the scatterplot

## C5: Data Analysis Results

The main focus of this project is to examine the available data to try to find ways to possibly reduce readmission rates for hospital patients. Based on the representations used, firstly, some states have wildly higher rates of readmission than others. Granted, this requires further analysis as it doesn’t take into account factors like population to hospital density, but it certainly warrants further investigation. Conversely, states with lesser rates of readmission need to be investigated deeper to determine possible strategies. Secondly, the KPIs themselves show that more points of data need to be tracked and compiled in order to be able to better understand the causes of and therefore ways to mitigate readmission rates. Thirdly, there needs to be greater focus on data that shows correlations, such as initial hospitalization time and BMI, and attempts to gather similar information to further root cause analysis.

## C6: Analysis Limitations

The primary limitations encountered during this project were that it was difficult to find data sets that would be compatible with the given medical data and that the data itself is greatly limited both in quantity and topics. With an even smaller external data set, there wasn’t much additional information to be gained through this analysis than had been discovered through the internal medical database. It provided an interesting additional data point but again, with a low row count, it’s hard to say if there is actually any meaning to be found.

## D: Web Sources

Kaggle. (2024) https://kaggle.com/datasets/9aa2326a2eb796bcfc8bf72fdda55374a1ec83fc72f93aa8806be8580d1257ae

## E: Sources

Tableau. (n.d.). *Business intelligence: A complete overview*. Tableau. https://www.tableau.com/learn/articles/business-intelligence#what-is