Pollution, Death, Hospitals…

The Final Project!

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1. We used various data sets from California and New York centering around Health, Healthcare, and Environmentmental measures.
2. We created Extract, Transform, and Load files in R for necessary datas set to prepare the data to be uploaded to the Oracle SQL database to be accessed later in Tableau workbooks and Shiny modules.

```
source("../01 Data/Leading_Cause_Of_Death_ETL.R", echo = TRUE)
```

```
##
## > require(tidyr)
```

```
## Loading required package: tidyr
```

```
##
## > require(dplyr)
```

```
## Loading required package: dplyr
##
## Attaching package: 'dplyr'
##
## The following objects are masked from 'package:stats':
##
##     filter, lag
##
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
##
## > require(ggplot2)
```

```
## Loading required package: ggplot2
```

```
##
## > setwd("~/DataVisualizations/csv")
##
## > file_path <- "Leading_Causes_of_Death_by_Zip_Code__1999-2013.csv"
##
## > df <- read.csv(file_path, stringsAsFactors = FALSE)
##
## > names(df) <- gsub("\\.+", "_", names(df))
##
## > str(df)
## 'data.frame':    320152 obs. of  5 variables:
##  $ Year           : int  1999 1999 1999 1999 1999 1999 1999 1999 1999 1999 ...
##  $ ZIP_Code       : int  90001 90001 90001 90002 90002 90003 90003 90004 90004 90005
...
##  $ Causes_of_Death: chr  "SUI" "HYP" "NEP" "HYP" ...
##  $ Count          : int  0 0 0 0 0 0 0 0 0 0 ...
##  $ Location       : chr  "(33.973092999999999, -118.247896)" "(33.973092999999999, -11
8.247896)" "(33.973092999999999, -118.247896)" "(33.949689999999997, -118.246213)" ...
##
## > measures <- c("Year", "Zip_Code", "Count")
##
## > for (n in names(df)) {
## +     df[n] <- data.frame(lapply(df[n], gsub, pattern = "[^ -~]",
## +         replacement = ""))
## + }
##
## > dimensions <- setdiff(names(df), measures)
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         df[d] <- data.frame(lapply(df[d], gsub, pattern = "[\"']", ..." ... [TRUNCAT
ED]
##
## > library(lubridate)
##
## > write.csv(df, paste(gsub(".csv", "", file_path), ".reformatted.csv",
## +     sep = ""), row.names = FALSE, na = "")
##
## > tableName <- gsub(" +", "_", gsub("[^A-z, 0-9, ]",
## +     "", gsub(".csv", "", file_path)))
##
## > sql <- paste("CREATE TABLE", tableName, "(\n-- Change table_name to the table name y
ou want.\n")
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         sql <- paste(sql, paste(d, "varchar2(4000),\n"))
## +     }
## + .... [TRUNCATED]
##
```

```
## > if (length(measures) > 1 || !is.na(measures)) {
## +     for (m in measures) {
## +         if (m != tail(measures, n = 1))
## +             sql <- paste(sq .... [TRUNCATED]
##
## > sql <- paste(sql, ");")
##
## > cat(sql)
## CREATE TABLE Leading_Causes_of_Death_by_Zip_Code__19992013 (
## -- Change table_name to the table name you want.
##  ZIP_Code varchar2(4000),
##  Causes_of_Death varchar2(4000),
##  Location varchar2(4000),
##  Year number(38,4),
##  Zip_Code number(38,4),
##  Count number(38,4)
##  );
```

```
source("../01 Data/Zipcode_file_ETL.R", echo = TRUE)
```

```
##
## > require(tidyr)
##
## > require(dplyr)
##
## > require(ggplot2)
##
## > setwd("~/DataVisualizations/csv")
##
## > file_path <- "free-zipcode-database.csv"
##
## > df <- read.csv(file_path, stringsAsFactors = FALSE)
##
## > names(df) <- gsub("\\.+", "_", names(df))
##
## > str(df)
## 'data.frame':    81831 obs. of  20 variables:
##  $ RecordNumber       : int  1 2 3 4 5 6 7 8 9 10 ...
##  $ Zipcode            : int  704 704 704 704 704 704 704 704 705 705 ...
##  $ ZipCodeType        : chr  "STANDARD" "STANDARD" "STANDARD" "STANDARD" ...
##  $ City               : chr  "PARC PARQUE" "PASEO COSTA DEL SUR" "SECT LANAUSSE" "URB
EUGENE RICE" ...
##  $ State              : chr  "PR" "PR" "PR" "PR" ...
##  $ LocationType       : chr  "NOT ACCEPTABLE" "NOT ACCEPTABLE" "NOT ACCEPTABLE" "NOT A
CCEPTABLE" ...
##  $ Lat                : num  18 18 18 18 18 ...
##  $ Long               : num  -66.2 -66.2 -66.2 -66.2 -66.2 ...
##  $ Xaxis              : num  0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 0.38 ...
##  $ Yaxis              : num  -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.86
-0.86 ...
##  $ Zaxis              : num  0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.31 0.31 ...
##  $ WorldRegion        : chr  NA NA NA NA ...
##  $ Country            : chr  "US" "US" "US" "US" ...
##  $ LocationText       : chr  "Parc Parque, PR" "Paseo Costa Del Sur, PR" "Sect Lanauss
e, PR" "Urb Eugene Rice, PR" ...
##  $ Location           : chr  "NA-US-PR-PARC PARQUE" "NA-US-PR-PASEO COSTA DEL SUR" "N
A-US-PR-SECT LANAUSSE" "NA-US-PR-URB EUGENE RICE" ...
##  $ Decommisioned      : logi  FALSE FALSE FALSE FALSE FALSE FALSE ...
##  $ TaxReturnsFiled    : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ EstimatedPopulation: int  NA NA NA NA NA NA NA NA NA NA ...
##  $ TotalWages         : int  NA NA NA NA NA NA NA NA NA NA ...
##  $ Notes              : chr  "" "" "" "" ...
##
## > measures <- c("RecordNumber", "Zipcode")
##
## > for (n in names(df)) {
## +     df[n] <- data.frame(lapply(df[n], gsub, pattern = "[^ -~]",
## +         replacement = ""))
## + }
##
```

```
## > dimensions <- setdiff(names(df), measures)
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         df[d] <- data.frame(lapply(df[d], gsub, pattern = "[\"']", ..." ... [TRUNCAT
ED]
##
## > library(lubridate)
##
## > write.csv(df, paste(gsub(".csv", "", file_path), ".reformatted.csv",
## +     sep = ""), row.names = FALSE, na = "")
##
## > tableName <- gsub(" +", "_", gsub("[^A-z, 0-9, ]",
## +     "", gsub(".csv", "", file_path)))
##
## > sql <- paste("CREATE TABLE", tableName, "(\n-- Change table_name to the table name y
ou want.\n")
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         sql <- paste(sql, paste(d, "varchar2(4000),\n"))
## +     }
## + .... [TRUNCATED]
##
## > if (length(measures) > 1 || !is.na(measures)) {
## +     for (m in measures) {
## +         if (m != tail(measures, n = 1))
## +             sql <- paste(sq .... [TRUNCATED]
##
## > sql <- paste(sql, ");")
##
## > cat(sql)
## CREATE TABLE freezipcodedatabase (
## -- Change table_name to the table name you want.
##  ZipCodeType varchar2(4000),
##  City varchar2(4000),
##  State varchar2(4000),
##  LocationType varchar2(4000),
##  Lat varchar2(4000),
##  Long varchar2(4000),
##  Xaxis varchar2(4000),
##  Yaxis varchar2(4000),
##  Zaxis varchar2(4000),
##  WorldRegion varchar2(4000),
##  Country varchar2(4000),
##  LocationText varchar2(4000),
##  Location varchar2(4000),
##  Decommisioned varchar2(4000),
##  TaxReturnsFiled varchar2(4000),
##  EstimatedPopulation varchar2(4000),
```

```
##  TotalWages varchar2(4000),
##  Notes varchar2(4000),
##  RecordNumber number(38,4),
##  Zipcode number(38,4)
##  );
```

```
source("../01 Data/Hospital_Profitability_ETL.R", echo = TRUE)
```

```
##
## > library(stats)
##
## > require(tidyr)
##
## > require(dplyr)
##
## > require(ggplot2)
##
## > setwd("~/DataVisualizations/csv")
##
## > file_path <- "Hospital_Profitability__2009-2013.csv"
##
## > df <- read.csv(file_path, stringsAsFactors = FALSE)
##
## > names(df) <- gsub("\\.+", "_", names(df))
##
## > str(df)
## 'data.frame':    28626 obs. of  10 variables:
##  $ Year                          : int  2009 2009 2009 2009 2009 2009 2009 2009 2009
2009 ...
##  $ Facility_Number               : int  106010735 106010735 106010735 106010735 10601
0735 106010735 106010735 106010735 106010735 106010735 ...
##  $ Facility_Name                 : chr  "ALAMEDA HOSPITAL" "ALAMEDA HOSPITAL" "ALAMED
A HOSPITAL" "ALAMEDA HOSPITAL" ...
##  $ Begin_Date                    : chr  "7/1/2008" "7/1/2008" "7/1/2008" "7/1/2008"
...
##  $ End_Date                      : chr  "6/30/2009" "6/30/2009" "6/30/2009" "6/30/200
9" ...
##  $ County_Name                   : chr  "Alameda" "Alameda" "Alameda" "Alameda" ...
##  $ Type_of_Control               : chr  "District" "District" "District" "District"
...
##  $ Income_Statement_Item         : chr  "GR_PT_REV" "DED_REV_PLUS_DSH" "TOT_CAP_REV"
"NET_REV_LESS_DSH" ...
##  $ Income_Statement_Amount       : num  2.83e+08 2.20e+08 0.00 6.31e+07 1.92e+05 ...
##  $ Amount_per_Adjusted_Patient_Day: int  5220 4056 0 1164 4 1270 -103 116 0 0 ...
##
## > measures <- c("Year", "FacilityNumber", "IncAmt",
## +     "AdjAmtPerDay")
##
## > for (n in names(df)) {
## +     df[n] <- data.frame(lapply(df[n], gsub, pattern = "[^ -~]",
## +         replacement = ""))
## + }
##
## > dimensions <- setdiff(names(df), measures)
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         df[d] <- data.frame(lapply(df[d], gsub, pattern = "[\"']", ..." ... [TRUNCAT
```

```
ED]
##
## > library(lubridate)
##
## > write.csv(df, paste(gsub(".csv", "", file_path), ".reformatted.csv",
## +     sep = ""), row.names = FALSE, na = "")
##
## > tableName <- gsub(" +", "_", gsub("[^A-z, 0-9, ]",
## +     "", gsub(".csv", "", file_path)))
##
## > sql <- paste("CREATE TABLE", tableName, "(\n-- Change table_name to the table name y
ou want.\n")
##
## > if (length(measures) > 1 || !is.na(dimensions)) {
## +     for (d in dimensions) {
## +         sql <- paste(sql, paste(d, "varchar2(4000),\n"))
## +     }
## + .... [TRUNCATED]
##
## > if (length(measures) > 1 || !is.na(measures)) {
## +     for (m in measures) {
## +         if (m != tail(measures, n = 1))
## +             sql <- paste(sq .... [TRUNCATED]
##
## > sql <- paste(sql, ");")
##
## > cat(sql)
## CREATE TABLE Hospital_Profitability__20092013 (
## -- Change table_name to the table name you want.
##  Facility_Number varchar2(4000),
##  Facility_Name varchar2(4000),
##  Begin_Date varchar2(4000),
##  End_Date varchar2(4000),
##  County_Name varchar2(4000),
##  Type_of_Control varchar2(4000),
##  Income_Statement_Item varchar2(4000),
##  Income_Statement_Amount varchar2(4000),
##  Amount_per_Adjusted_Patient_Day varchar2(4000),
##  Year number(38,4),
##  FacilityNumber number(38,4),
##  IncAmt number(38,4),
##  AdjAmtPerDay number(38,4)
##  );
```

3. We created a ui.R file and server.R file to launch the Shiny app.

```
source("../04 Shiny/ui.R", echo = TRUE)
```

```
##
## > require(shiny)
```

```
## Loading required package: shiny
```

```
##
## > require(shinydashboard)
```

```
## Loading required package: shinydashboard
##
## Attaching package: 'shinydashboard'
##
## The following object is masked from 'package:graphics':
##
##     box
```

```
##
## > require(leaflet)
```

```
## Loading required package: leaflet
```

```
##
## > dashboardPage(dashboardHeader(), dashboardSidebar(sidebarMenu(menuItem("Causes of De
ath",
## +     tabName = "crosstab", icon = icon("dashboard")), me .... [TRUNCATED]
## <body class="skin-blue" style="min-height: 611px;">
##   <div class="wrapper">
##     <header class="main-header">
##       <span class="logo"></span>
##       <nav class="navbar navbar-static-top" role="navigation">
##         <span style="display:none;">
##           <i class="fa fa-bars"></i>
##         </span>
##         <a href="#" class="sidebar-toggle" data-toggle="offcanvas" role="button">
##           <span class="sr-only">Toggle navigation</span>
##         </a>
##         <div class="navbar-custom-menu">
##           <ul class="nav navbar-nav"></ul>
##         </div>
##       </nav>
##     </header>
##     <aside class="main-sidebar">
##       <section class="sidebar">
##         <ul class="sidebar-menu">
##           <li>
##             <a href="#shiny-tab-crosstab" data-toggle="tab" data-value="crosstab">
##               <i class="fa fa-dashboard"></i>
##               <span>Causes of Death</span>
##             </a>
##           </li>
##           <li>
##             <a href="#shiny-tab-hospitalcrosstab" data-toggle="tab" data-value="hospit
alcrosstab">
##               <i class="fa fa-dashboard"></i>
##               <span>Hospital Profitability</span>
##             </a>
##           </li>
##         </ul>
##       </section>
##     </aside>
##     <div class="content-wrapper">
##       <section class="content">
##         <div class="tab-content">
##           <div role="tabpanel" class="tab-pane" id="shiny-tab-crosstab">
##             <button id="light" type="button" class="btn btn-default action-button">Lig
ht</button>
##             <button id="dark" type="button" class="btn btn-default action-button">Dar
k</button>
##             <div class="form-group shiny-input-container">
##               <label class="control-label" for="KPI1">KPI_Low_Max_value:</label>
##               <input class="js-range-slider" id="KPI1" data-min="1" data-max="200" dat
```

```
a-from="200" data-step="1" data-grid="true" data-grid-num="9.95" data-grid-snap="false" d
ata-prettify-separator="," data-keyboard="true" data-keyboard-step="0.50251256281407" dat
a-drag-interval="true" data-data-type="number"/>
##             </div>
##             <div class="form-group shiny-input-container">
##               <label class="control-label" for="KPI2">KPI_Medium_Max_value:</label>
##               <input class="js-range-slider" id="KPI2" data-min="400" data-max="2000"
data-from="2000" data-step="1" data-grid="true" data-grid-num="10" data-grid-snap="false"
data-prettify-separator="," data-keyboard="true" data-keyboard-step="0.0625" data-drag-in
terval="true" data-data-type="number"/>
##             </div>
##             <div class="form-group shiny-input-container">
##               <label for="title">Crosstab Title</label>
##               <input id="title" type="text" class="form-control" value="Cause Of Death
Count For Los Angeles"/>
##             </div>
##             <button id="clicks1" type="button" class="btn btn-default action-button">C
lick me</button>
##             <div id="distPlot1" class="shiny-plot-output" style="width: 100% ; height:
400px"></div>
##           </div>
##           <div role="tabpanel" class="tab-pane" id="shiny-tab-hospitalcrosstab">
##             <button id="light" type="button" class="btn btn-default action-button">Lig
ht</button>
##             <button id="dark" type="button" class="btn btn-default action-button">Dar
k</button>
##             <div class="form-group shiny-input-container">
##               <label class="control-label" for="OPKPI1">OPKPI_Bad_Max_value:</label>
##               <input class="js-range-slider" id="OPKPI1" data-min="-240" data-ma
x="-0.1" data-from="-0.1" data-step="2" data-grid="true" data-grid-num="9.99583333333333"
data-grid-snap="false" data-prettify-separator="," data-keyboard="true" data-keyboard-ste
p="0.833680700291788" data-drag-interval="true" data-data-type="number"/>
##             </div>
##             <div class="form-group shiny-input-container">
##               <label class="control-label" for="OPKPI2">OPKPI_Good_Min_value:</label>
##               <input class="js-range-slider" id="OPKPI2" data-min="0" data-max="320" d
ata-from="0" data-step="1" data-grid="true" data-grid-num="10" data-grid-snap="false" dat
a-prettify-separator="," data-keyboard="true" data-keyboard-step="0.3125" data-drag-inter
val="true" data-data-type="number"/>
##             </div>
##             <div class="form-group shiny-input-container">
##               <label for="title">Crosstab Title</label>
##               <input id="title" type="text" class="form-control" value="Hospital Opera
ting Margins by County and Type of Controller"/>
##             </div>
##             <button id="clicksHosp" type="button" class="btn btn-default action-butto
n">Click me</button>
##             <div id="distPlot2" class="shiny-plot-output" style="width: 100% ; height:
1200px"></div>
##           </div>
```

```
##         </div>
##       </section>
##     </div>
##   </div>
## </body>
```

```
source("../04 Shiny/server.R", echo = TRUE)
```

```
##
## > require("jsonlite")
```

```
## Loading required package: jsonlite
##
## Attaching package: 'jsonlite'
##
## The following object is masked from 'package:shiny':
##
##     validate
##
## The following object is masked from 'package:utils':
##
##     View
```

```
##
## > require("RCurl")
```

```
## Loading required package: RCurl
## Loading required package: bitops
##
## Attaching package: 'RCurl'
##
## The following object is masked from 'package:tidyr':
##
##     complete
```

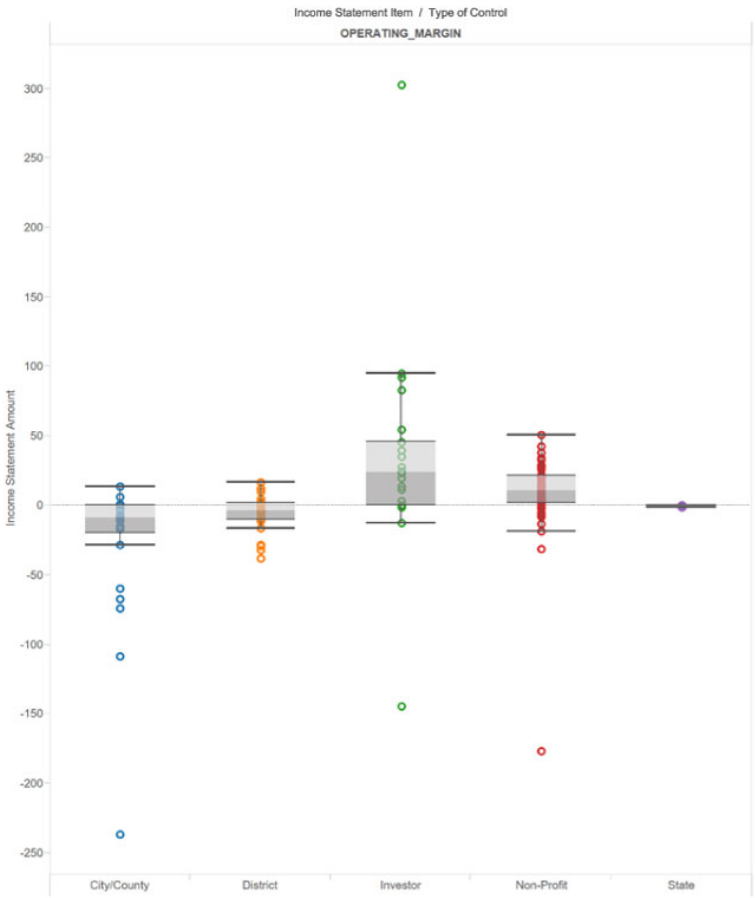
```
##
## > require(ggplot2)
##
## > require(dplyr)
##
## > require(shiny)
##
## > require(shinydashboard)
##
## > require(leaflet)
##
## > require(DT)
```

```
## Loading required package: DT
##
## Attaching package: 'DT'
##
## The following objects are masked from 'package:shiny':
##
##     dataTableOutput, renderDataTable
```

```
##
## > shinyServer(function(input, output) {
## +     KPI_Low_Max_value <- reactive({
## +         input$KPI1
## +     })
## +     KPI_Medium_Max_value <- reactive({
## + .... [TRUNCATED]
```

4. We used Tableau to create the following graphs and data visualizations on our topics.

Operating Margin by Type of Control

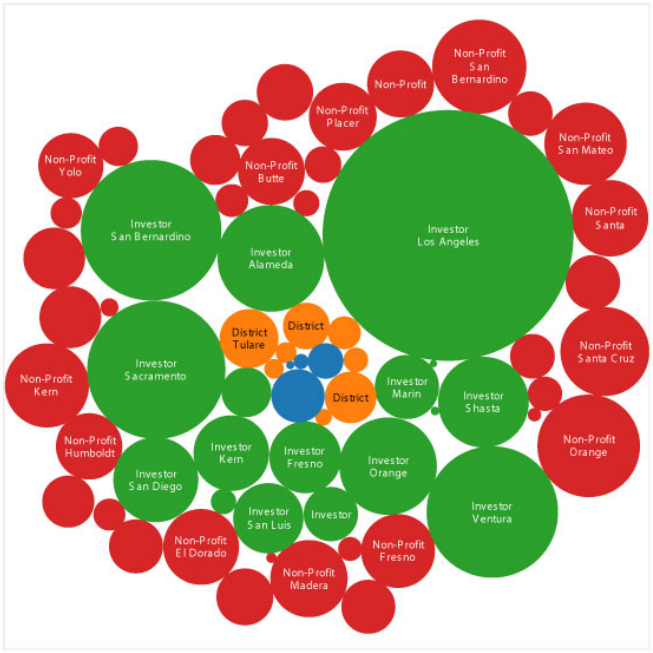


Operating Margin by Type of Control (Crosstab)

Income Statement Item / Type of Control

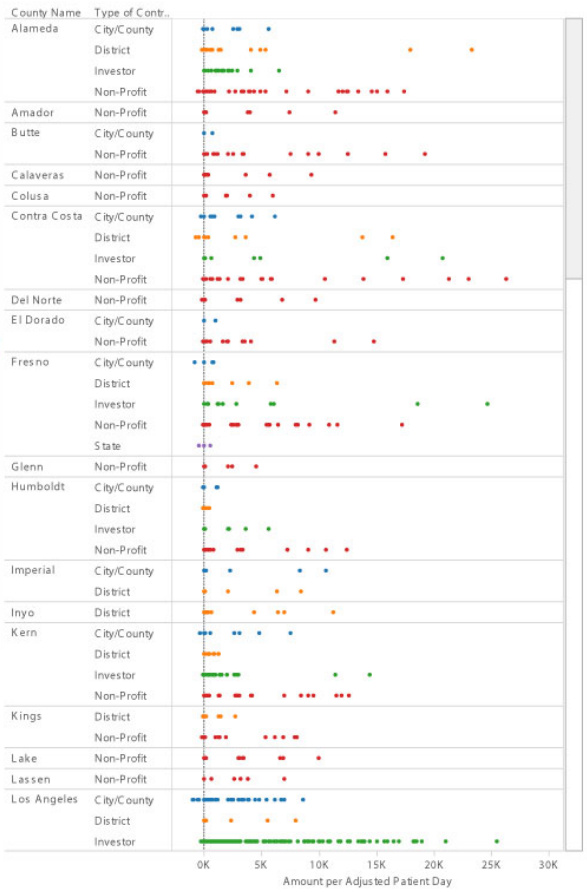
	OPERATING_MARGIN				
County Name	City/County	District	Investor	Non-Profit	State
Alameda	-2.4	-6.9	54.6	-176.8	
Amador				5.1	
Butte	1.1			21.4	
Calaveras				3.2	
Colusa				6.3	
Contra Costa	-8.4	-28.3	11.8	-2.2	
Del Norte				-6.6	
El Dorado	0.0			27.5	
Fresno		-15.9	24.7	26.1	
Glenn				2.7	
Humboldt	-9.3	-28.9	-0.1	21.0	
Imperial	6.0	2.1			
Inyo		-0.4			
Kern	-14.5	10.4	27.3	33.9	
Kings		-9.3		18.3	
Lake				1.5	
Lassen				18.2	
Los Angeles	-108.3	5.1	302.6		-1.4
Madera				28.5	
Marin		-0.4	19.7	0.5	
Mariposa		-10.3			
Mendocino		-5.0		15.5	
Merced	0.0			11.9	
Modoc	-6.6	-9.4			
Mono		2.8			
Monterey	13.6	-2.5		9.5	
Napa				5.6	0.0
Nevada		-3.2		0.8	
Orange			45.5	50.4	-0.5
Placer			-1.0	22.0	
Plumas		-9.3			
Riverside	-16.1	-4.8	-144.7	-13.1	
Sacramento	0.0		91.8	21.4	
San Benito		-2.9			
San Bernardino	-7.7	-38.3	94.8	42.5	0.0
San Diego	-67.4	12.7	34.6	-0.9	
San Francisco	-59.6			-31.5	
San Joaquin	0.3		14.1	9.4	
San Luis Obispo	-236.6		23.6	-7.6	0.0

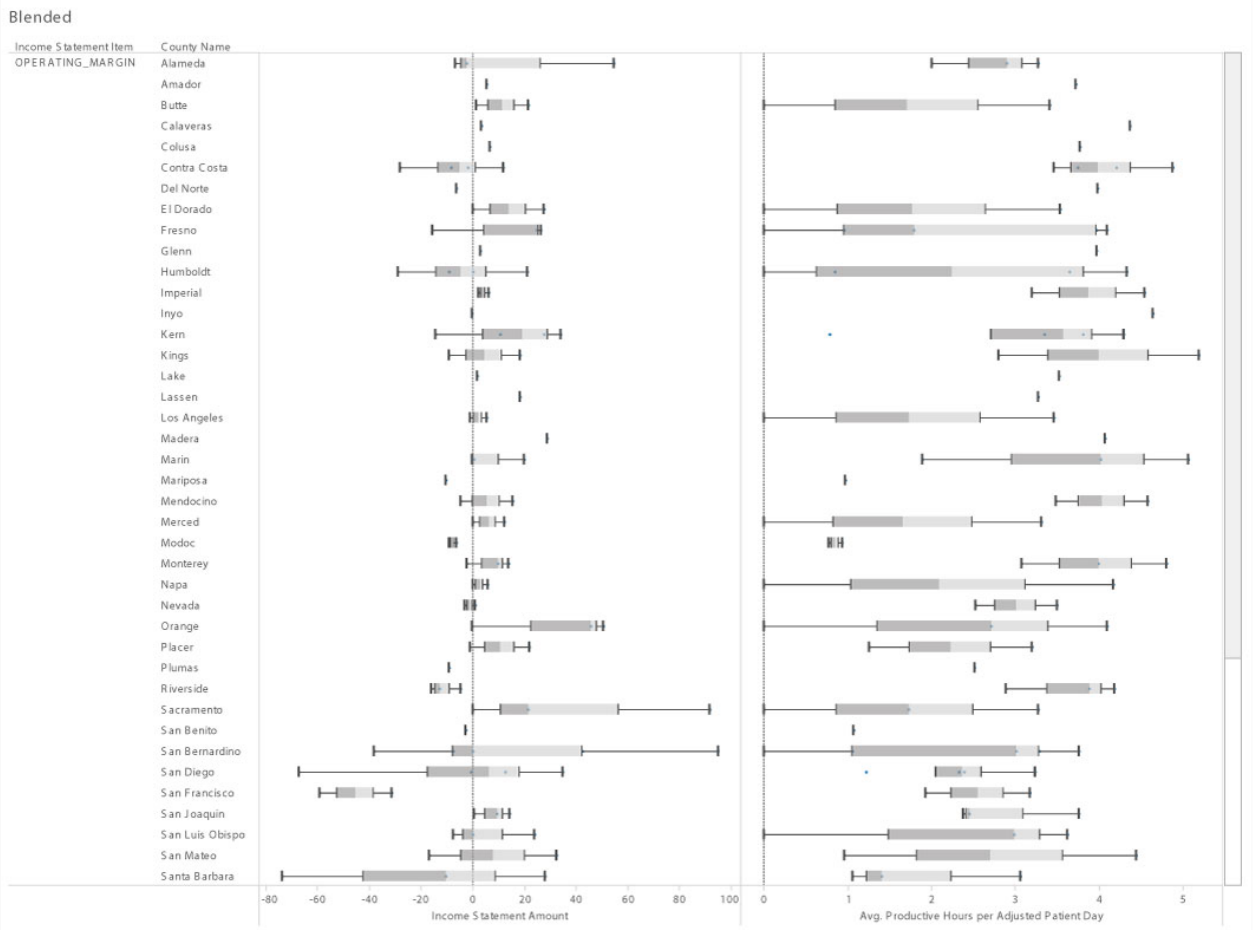
(Positive) Operating Margin by Type of Control (Color Bubbles)



Type of Control
City/County
District
Investor
Non-Profit
State

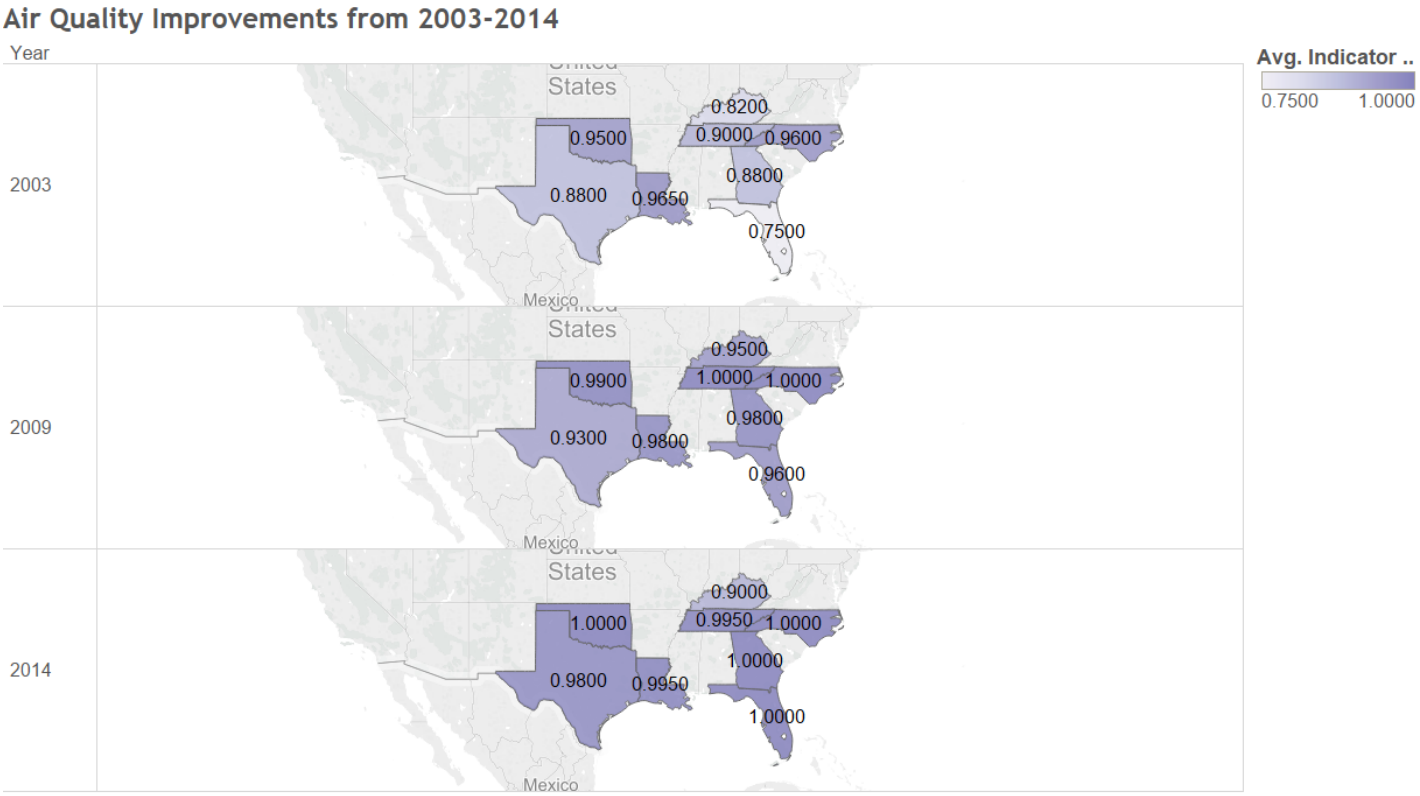
Amount per Adjusted Patient Day by County Name and Type of Control





Air Quality & Significance

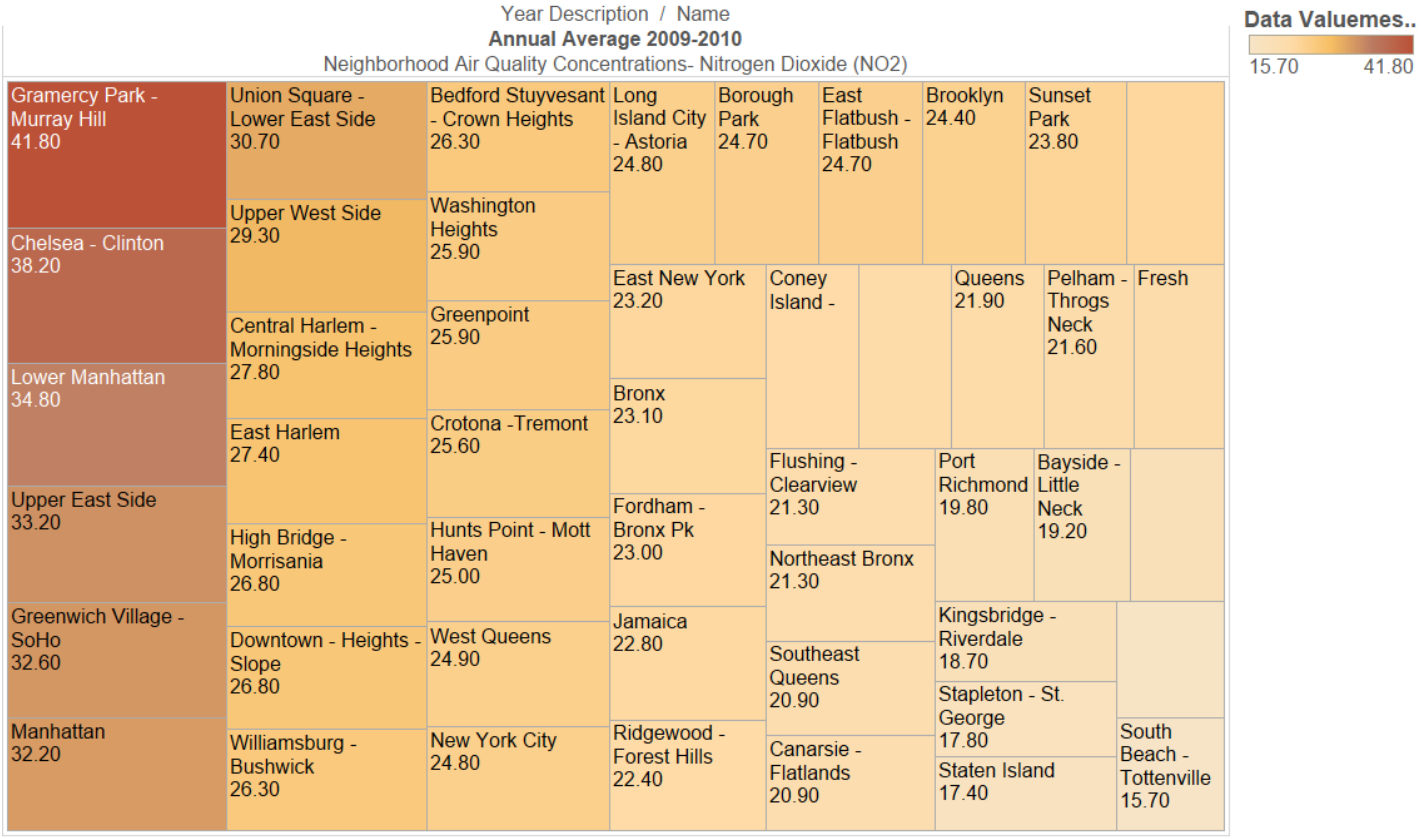
Every day, chemicals are being released into the air. At times, these are beneficial to our environment, but other times, they can be harmful. We explore the importance of maintaining a good Nitrogen Dioxide emission amount, because too much can affect the ozone levels and in turn affect the health of society. Additionally, we explored several states and how the air quality has changed over the years.



Map based on Longitude (generated) and Latitude (generated) broken down by Year. Color shows average of Indicator Value. Details are shown for State. The view is filtered on Year, Latitude (generated), Longitude (generated) and State. The Year filter keeps 2003, 2009 and 2014. The Latitude (generated) filter keeps non-Null values only. The Longitude (generated) filter keeps non-Null values only. The State filter excludes Null and LF.

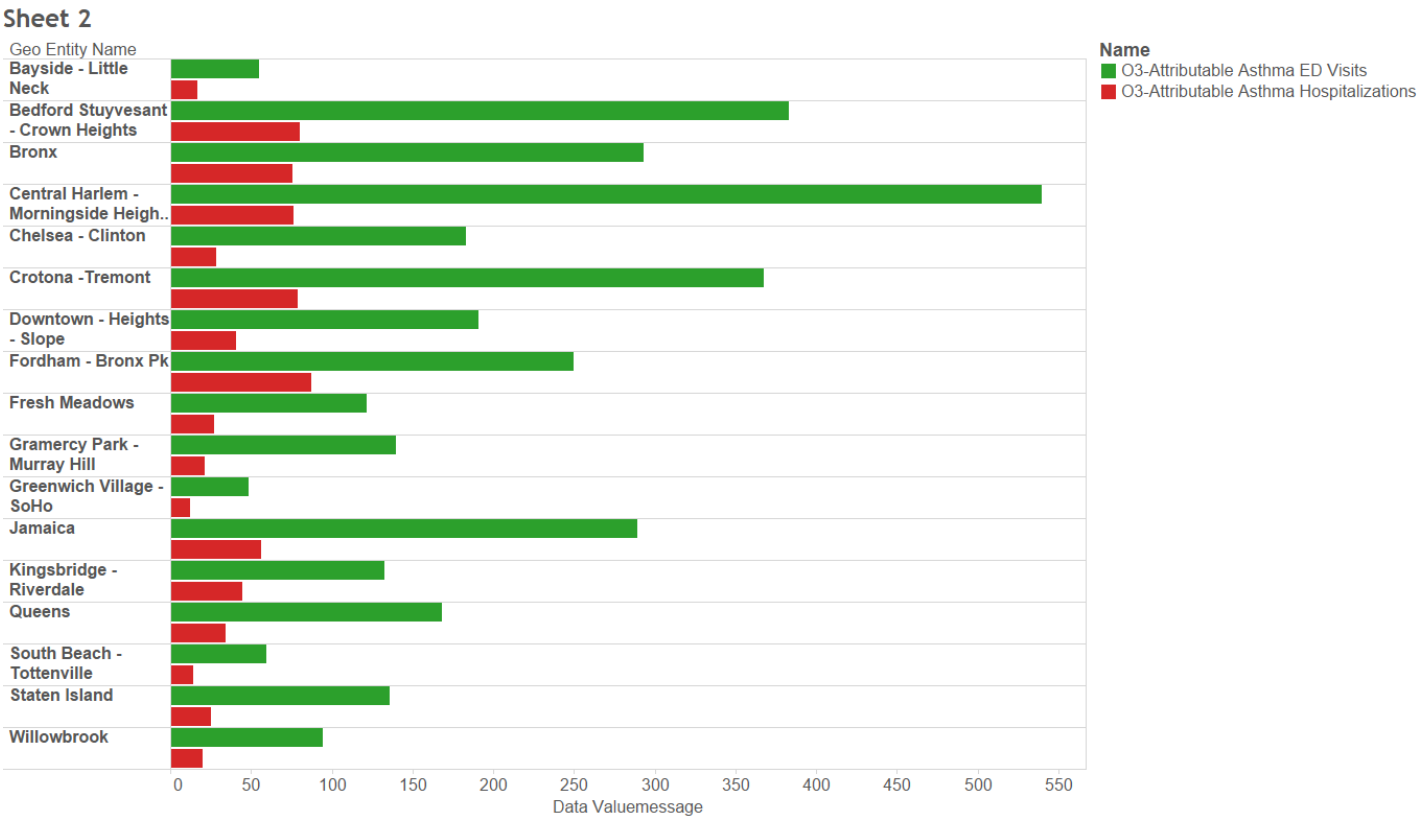
It's very interesting to compare the air quality over time amongst these selected states. From 2003 to 2014, each state's air quality has improved. However, there are a few states that received better air quality in 2009 than they had in 2014. Still, overall, it's a nice thing to note that the air quality in these states has only gotten better since a decade ago.

Average NO2 Concentrations In New York



Geo Entity Name and Data Valuemessage broken down by Year Description and Name. Color shows Data Valuemessage. Size shows Data Valuemessage. The marks are labeled by Geo Entity Name and Data Valuemessage. The view is filtered on Year Description and Name. The Year Description filter keeps Annual Average 2009-2010. The Name filter keeps Neighborhood Air Quality Concentrations- Nitrogen Dioxide (NO2).

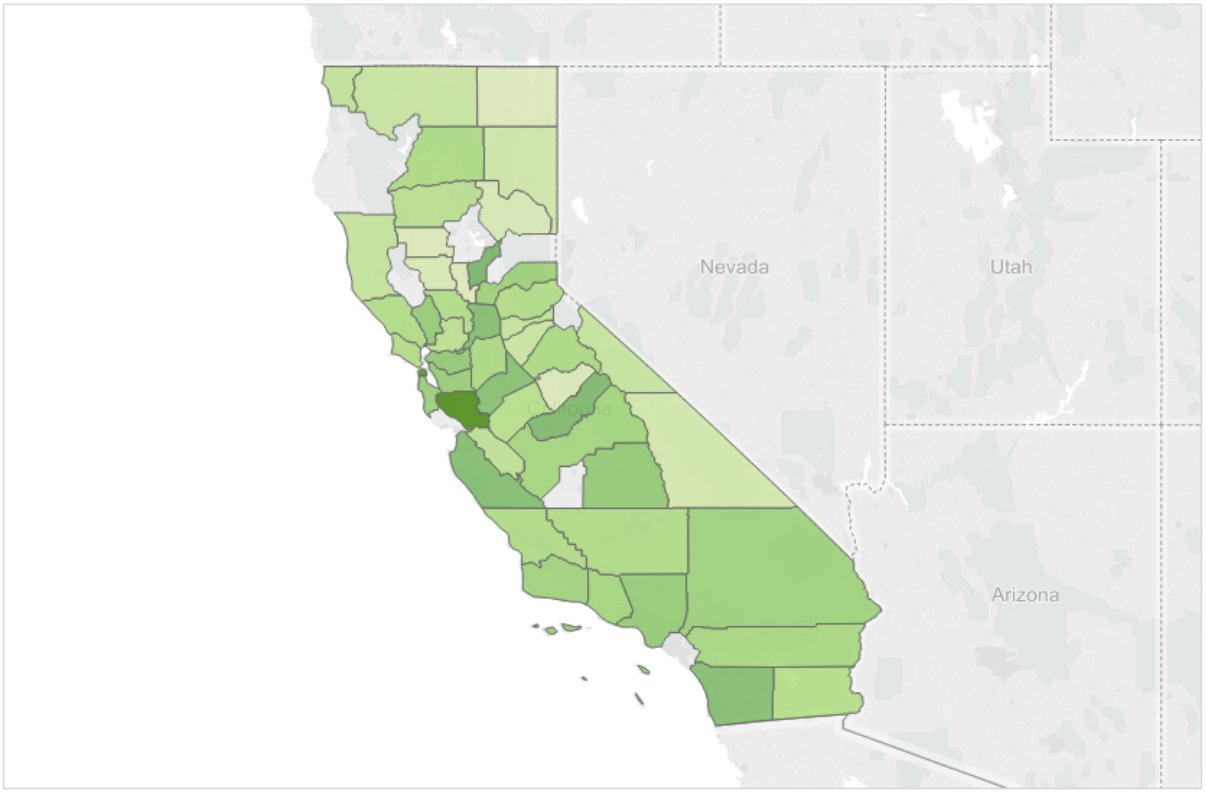
In this graph, the darker boxes indicate the neighborhoods of New York City which are exposed to higher concentrations of Nitrogen Dioxide. It's interesting to note how different the Nitrogen Dioxide Levels are throughout the city of New York. Nitrogen Dioxide has potential to be very harmful when its concentration is too high. NO2 is emitted through road traffic as well as other fossil fuels, and takes a part in forming pollutants like O3. NO2 is hazardous as it can decrease lung function, lead to illnesses such as bronchitis, and most importantly, it can trigger asthma attacks amongst people with asthma and even children with or without it. Additionally, it has been shown that NO2 exposure enhances allergens' effects.



Sum of Data Valuemessage for each Name broken down by Geo Entity Name. Color shows details about Name. The data is filtered on Measure and Year Description. The Measure filter keeps Rate- Children 0 to 17 Yrs Old. The Year Description filter keeps 2009-2011. The view is filtered on Geo Entity Name and Name. The Geo Entity Name filter keeps 17 of 99 members. The Name filter keeps O3-Attributable Asthma ED Visits and O3-Attributable Asthma Hospitalizations.

As noted above, NO2 helps form O3, which increasingly adds to poor air quality. In this graph, the red bars indicate ED visits and the green bars indicate Hospitalizations–both of which are due to O3 induced asthma related incidents. We found an interesting correlation between the neighborhoods with higher concentrations of NO2 and these hospital visits. It seems as though Central Harlem was of the highest O3 induced asthma hospitalization, and in the higher range of ED visits. Additionally, Central Harlem was in the top of the NO2 concentration graph. A similar match up between the two graphs is seen from Bayside, which had the lowest O3 induced asthma hospitalizations and ED visits. In the NO2 graph, Bayside was amongst the lowest amounts of NO2 concentrations

Sheet 1



Map based on Longitude (generated) and Latitude (generated). Color shows average of Income Statement Amount. Details are shown for County Name. The data is filtered on Income Statement Item, which keeps NET_REV_LESS_DSH. The view is filtered on average of Income Statement Amount, which ranges from 7,575,138 to 610,687,281.

Sheet 3

Count KPI
High
Low
Medium

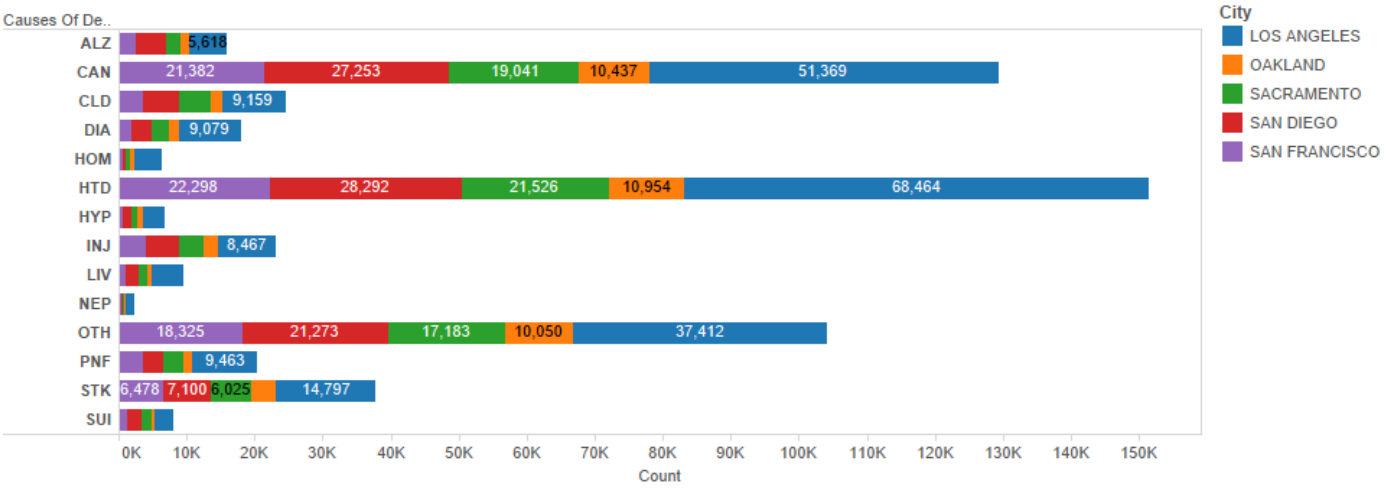
Causes Of D..	City															
ALZ	LOS ANGELES	191	211	230	227	301	331	371	329	355	461	473	476	570	560	532
	OAKLAND	48	73	77	65	70	58	74	83	82	94	83	101	70	50	107
	SACRAMENTO	81	91	104	105	143	152	171	166	145	167	166	176	153	124	210
	SAN DIEGO	227	266	246	285	343	383	353	318	358	364	359	379	124	117	401
	SAN FRANCISCO	123	126	153	133	118	131	148	172	177	218	212	202	156	133	330
CAN	LOS ANGELES	3,516	3,473	3,450	3,500	3,454	3,406	3,544	3,383	3,375	3,311	3,420	3,375	3,440	3,415	3,307
	OAKLAND	788	739	731	734	726	701	701	646	688	654	650	691	590	715	683
	SACRAMENTO	1,223	1,265	1,290	1,265	1,274	1,234	1,224	1,227	1,233	1,251	1,248	1,297	1,304	1,384	1,322
	SAN DIEGO	1,817	1,852	1,759	1,825	1,844	1,767	1,764	1,781	1,845	1,791	1,824	1,812	1,848	1,904	1,820
	SAN FRANCISCO	1,531	1,484	1,482	1,411	1,496	1,437	1,467	1,395	1,412	1,393	1,352	1,406	1,402	1,353	1,361
CLD	LOS ANGELES	661	627	645	622	637	614	643	589	552	621	643	525	593	572	615
	OAKLAND	149	123	116	114	121	109	115	103	111	130	115	109	111	126	134
	SACRAMENTO	330	309	324	305	327	290	305	331	273	303	287	344	298	300	339
	SAN DIEGO	364	374	414	324	361	382	342	361	310	347	309	345	337	303	380
	SAN FRANCISCO	314	306	275	283	274	237	241	241	220	228	208	201	210	204	206
DIA	LOS ANGELES	564	548	586	656	662	625	671	587	646	606	538	534	633	624	599
	OAKLAND	107	104	104	96	116	108	107	97	108	93	72	89	104	119	106
	SACRAMENTO	150	136	159	138	160	161	158	148	160	185	163	172	197	190	234
	SAN DIEGO	161	211	213	175	185	216	222	231	186	216	219	210	221	242	227
	SAN FRANCISCO	143	113	151	126	144	141	123	115	109	110	92	110	98	129	115
HOM	LOS ANGELES	356	431	485	508	443	458	460	413	346	0	0	0	0	0	0
	OAKLAND	67	81	73	98	97	76	81	114	99	0	0	0	0	0	0
	SACRAMENTO	55	57	45	66	62	70	89	84	79	0	0	0	0	0	0
	SAN DIEGO	47	50	52	40	60	66	50	62	54	0	0	0	0	0	0
	SAN FRANCISCO	49	48	59	49	57	69	73	70	70	0	0	0	0	0	0
HTD	LOS ANGELES	5,347	5,111	5,066	4,964	4,992	4,557	4,678	4,678	4,358	4,174	4,089	4,084	4,166	4,010	4,190
	OAKLAND	949	903	908	819	746	773	756	722	689	694	624	583	597	600	591
	SACRAMENTO	1,591	1,567	1,551	1,571	1,547	1,460	1,410	1,513	1,374	1,359	1,319	1,303	1,318	1,316	1,327
	SAN DIEGO	2,227	2,186	2,082	2,007	1,951	2,000	1,922	1,764	1,692	1,728	1,754	1,662	1,723	1,747	1,847
	SAN FRANCISCO	1,867	1,774	1,763	1,726	1,581	1,470	1,543	1,512	1,386	1,365	1,423	1,327	1,199	1,269	1,093
HYP	LOS ANGELES	0	0	207	0	205	260	261	286	272	255	262	249	301	335	329
	OAKLAND	0	0	36	0	52	51	50	55	56	65	61	65	56	85	75
	SACRAMENTO	0	0	58	0	65	60	70	69	70	83	88	103	113	112	111

		1998	2000	2002	2004	2006	2008	2010	2012	2014
	SAN DIEGO	0	0	95	0	90	89	99	99	82	98	118	93	96	116	129
	SAN FRANCISCO	0	0	42	0	37	61	51	60	59	45	50	47	57	63	76
INJ	LOS ANGELES	537	536	560	576	615	592	583	593	624	572	546	525	499	524	585
	OAKLAND	146	118	134	128	136	134	166	159	145	152	110	111	107	99	145
	SACRAMENTO	188	175	206	232	239	279	299	314	291	294	284	252	177	168	278
	SAN DIEGO	311	299	264	293	287	314	333	324	348	340	349	346	406	372	372
	SAN FRANCISCO	262	247	262	218	217	211	253	275	338	306	299	296	279	273	250
LIV	LOS ANGELES	293	323	302	329	295	299	275	315	307	293	355	328	345	367	363
	OAKLAND	42	55	44	41	42	40	37	30	44	40	37	41	42	43	39
	SACRAMENTO	83	75	87	82	84	86	103	78	88	100	96	84	106	92	94
	SAN DIEGO	100	112	135	135	121	98	97	100	118	132	127	112	125	135	109
	SAN FRANCISCO	87	79	86	71	70	75	78	68	80	60	80	72	84	70	66
NEP	LOS ANGELES	0	0	0	0	0	0	0	0	0	243	246	271	246	0	271
	OAKLAND	0	0	0	0	0	0	0	0	0	35	36	34	22	0	45
	SACRAMENTO	0	0	0	0	0	0	0	0	0	76	74	62	54	0	44
	SAN DIEGO	0	0	0	0	0	0	0	0	0	74	63	42	45	0	34
	SAN FRANCISCO	0	0	0	0	0	0	0	0	0	61	84	71	79	0	58
OTH	LOS ANGELES	2,721	2,512	2,429	2,556	2,555	2,496	2,538	2,570	2,499	2,580	2,421	2,344	2,321	2,357	2,513
	OAKLAND	626	672	674	735	665	626	628	670	620	713	674	635	687	724	701
	SACRAMENTO	1,003	1,038	1,028	1,057	1,015	1,010	1,111	1,158	1,104	1,169	1,161	1,220	1,395	1,361	1,353
	SAN DIEGO	1,282	1,340	1,331	1,395	1,305	1,328	1,384	1,476	1,417	1,442	1,444	1,430	1,520	1,555	1,624
	SAN FRANCISCO	1,188	1,206	1,179	1,245	1,192	1,148	1,220	1,104	1,180	1,214	1,126	1,154	1,270	1,383	1,516
PNF	LOS ANGELES	665	736	699	715	713	647	660	644	614	606	582	529	469	570	614
	OAKLAND	109	91	102	96	88	98	85	67	69	72	73	64	129	125	63
	SACRAMENTO	231	201	208	208	195	173	194	186	144	173	158	163	239	280	127
	SAN DIEGO	227	275	272	214	206	152	141	134	112	143	119	110	372	365	141
	SAN FRANCISCO	303	299	279	297	258	246	268	257	213	209	182	151	289	275	146
STK	LOS ANGELES	1,255	1,199	1,178	1,119	1,116	1,069	979	924	919	925	839	813	813	818	831
	OAKLAND	313	307	308	271	295	234	223	223	186	185	173	196	197	161	162
	SACRAMENTO	457	481	483	523	472	480	474	382	359	336	299	318	309	335	317
	SAN DIEGO	585	613	642	535	561	533	475	424	406	394	419	370	378	348	417
	SAN FRANCISCO	601	584	529	563	525	500	407	401	365	347	299	331	369	321	336
SUI	LOS ANGELES	189	171	177	182	189	152	164	147	161	205	193	190	178	163	165
	OAKLAND	37	32	33	44	33	35	36	31	39	33	42	35	36	31	54
	SACRAMENTO	76	67	77	84	84	90	112	90	94	110	99	97	100	88	126
	SAN DIEGO	132	152	141	110	139	120	133	119	132	138	160	143	156	175	168
	SAN FRANCISCO	77	90	102	82	100	96	80	97	106	88	92	84	103	73	71

Year1

Year1 for each City (free-zipcode-database (free-zipcode-database)) broken down by Causes Of Death. Color shows details about Count KPI. The view is filtered on City (free-zipcode-database (free-zipcode-database)), which keeps LOS ANGELES, OAKLAND, SACRAMENTO, SAN DIEGO and SAN FRANCISCO.

Sheet 2



Sum of Count for each Causes Of Death. Color shows details about City (free-zipcode-database (free-zipcode-database)). The marks are labeled by sum of Count. The view is filtered on City (free-zipcode-database (free-zipcode-database)), which keeps LOS ANGELES, OAKLAND, SACRAMENTO, SAN DIEGO and SAN FRANCISCO.

5. We deployed the finished shiny app(s) onto the shinyapp.io server after recreating or drawing inspiration from some of the more interesting Tableau graphs and outputs:

URL: https://addison.shinyapps.io/Health (https://addison.shinyapps.io/Health)