



Warm-up and Ice-breaker

Recap of Essentials

** Quick Overview of the previous two days

Learning Goals

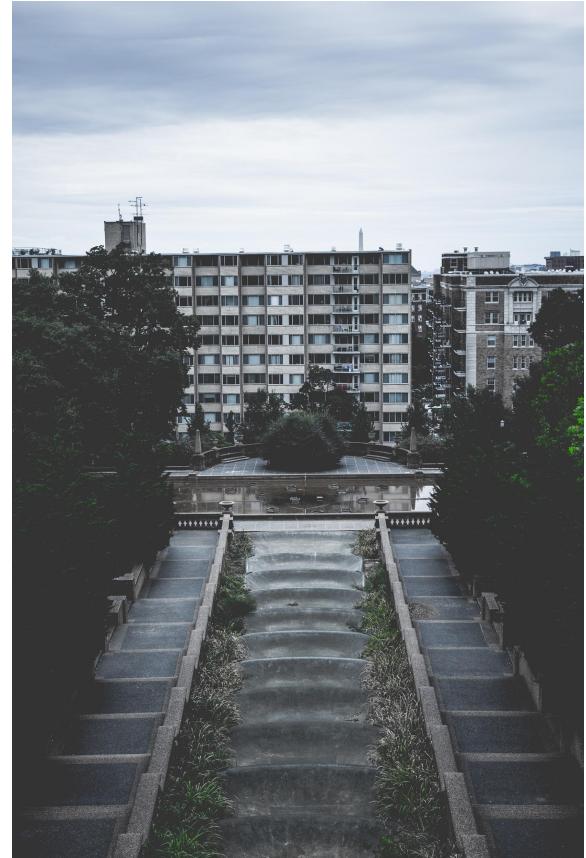


- Implement Data Analytics Tools
- Compare and Contrast Different Tools
- Brainstorm how to implement tools into daily work
- Instant Application ‘Just Add Data’

LEARNING GOALS

Lesson Plan

- Data on SG Home Prices - How much is your home worth?
- Munge, Visualise, Analyse and Communicate with three different tools - Excel, Tableau and Python
- Compare and Contrast



LESSON PLAN

Munging

- Combination of cleaning and transforming



DEFINITIONS

Visualising



- Trends
- Outliers
- Shape of the data
- Relationships
- Stories
- Aesthetic and Mathematical Aspects

DEFINITIONS

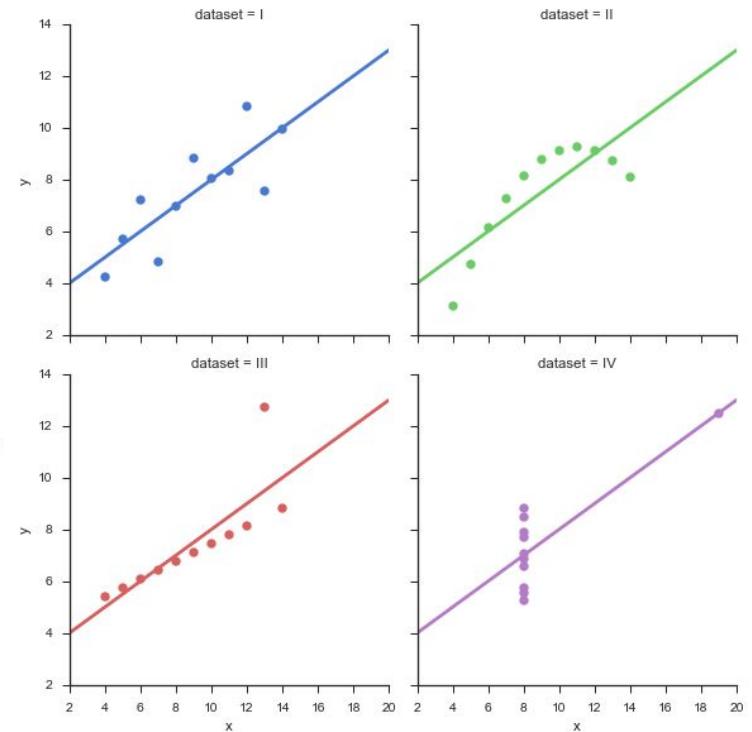
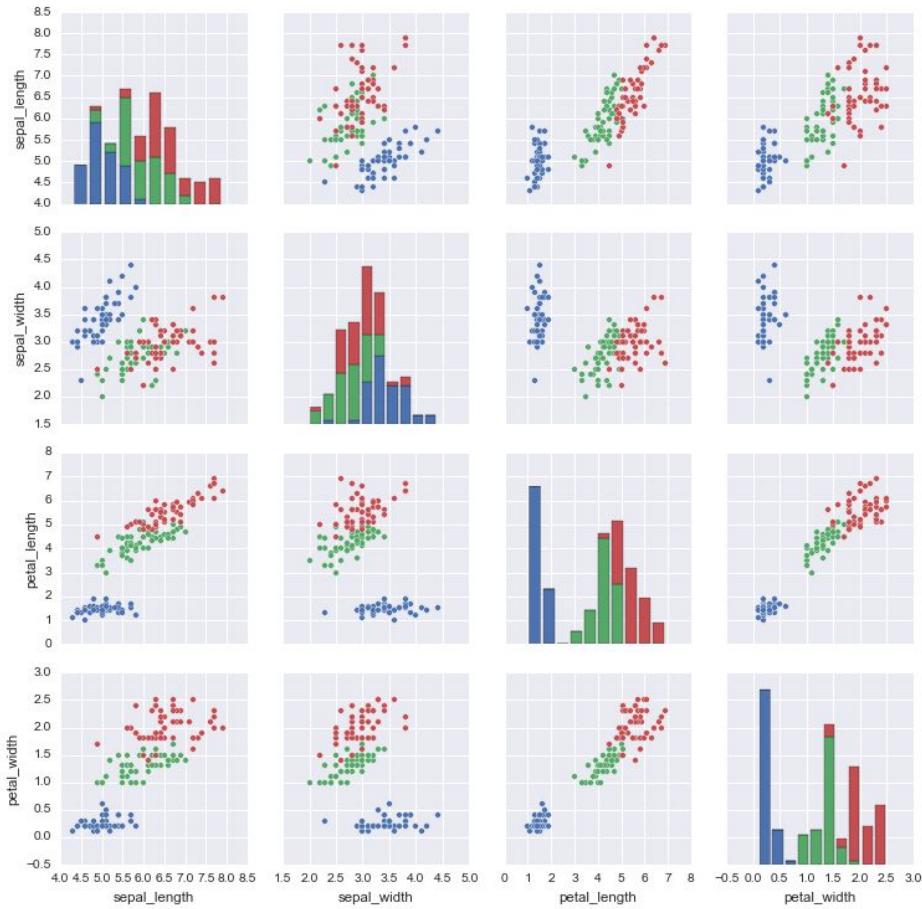
Communicating



- Sell an idea
- Generate Reports
- Explain analysis through notebooks

DEFINITIONS

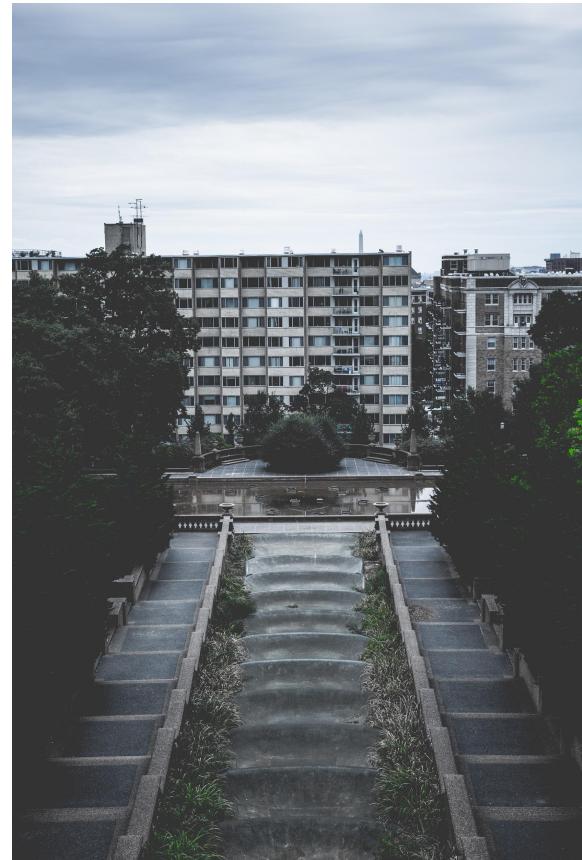
Modelling



DEFINITIONS

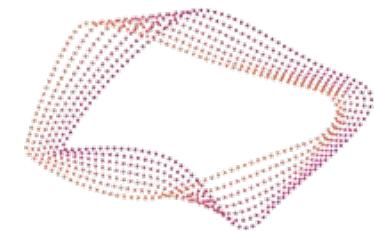
Recap Lesson Plan

- Data on SG Home Prices - How much is your home worth?
- Munge, Visualise, Analyse and Communicate with three different tools - Excel, Tableau and Python
- Compare and Contrast



LESSON PLAN

Introduction to the data



GOVTECH
SINGAPORE



EXCEL DEMO



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Discussion

How would you approach the dataset (post-it session)
What questions would you ask?

EXCEL WORKBOOK

How did you find it?

Excel Benefits



- Visual
- Point-and-click interface easy to use
- Fast Exploration - good for ideation

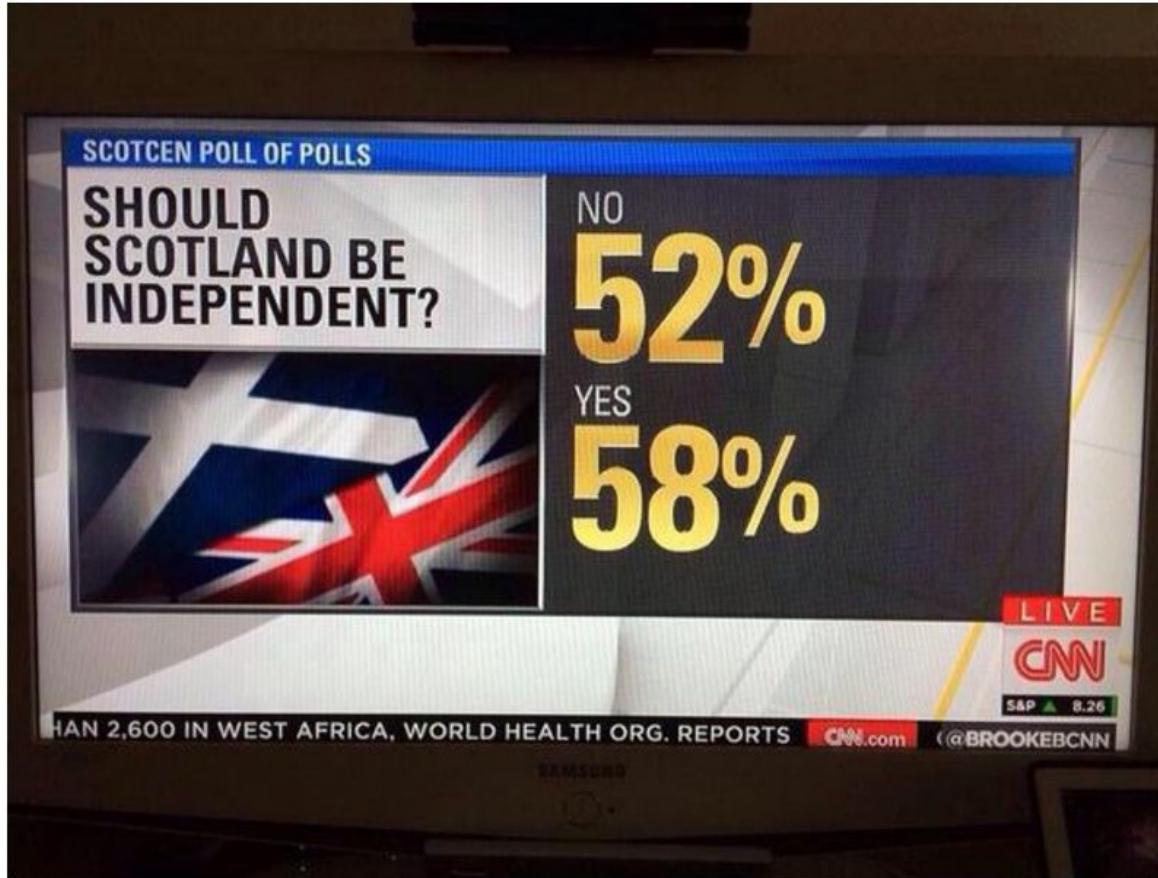
Excel Pitfalls



- Dragging and copy-pasting is prone to human error
- How would someone reproduce your point and click steps? (Reproducibility problem)
- How would someone improve on your analyses? (Collaboration problem)
- How to update spreadsheet when new data arrives and row indexes changed? (update problem)
- Available formulas are basic

PRESENTATION TITLE

Don't be these people!



Classic Data Entry
Mistake

An ideal workflow - push-button analysis

```
.  
|-- data  
|   |-- README.txt  
|   |-- sightings_tab_lg.csv  
|-- man  
|-- results  
|-- src  
|   |-- mean_sightings.py  
|   |-- sightings_tab_sm.csv  
|   |-- test_mean_sightings.py
```

Full steps in reproducible workflows are beyond the scope of this session, but for more information see swcarpentry.github.io for programming and scientific reproducibility or pachyderm.io for reproducibility figuresource: swcarpentry.github.io

```
.  
|-- data  
|   |-- README.txt  
|   |-- sightings_tab_lg.csv  
|-- man  
|-- results  
|   |-- spp_table.csv  
|   |-- spp_fig.png  
|-- src  
|   |-- mean_sightings.py  
|   |-- runall.py  
|   |-- sightings_tab_sm.csv  
|   |-- test_mean_sightings.py
```

Summary



- Simple data manipulation is possible in Excel
- Limited in capability compared to Python and Tableau
- Problems with reproducibility

Next:

- Tableau: Better looking visuals and storytelling capability
- Python: More powerful data manipulation

In your own time



- Play with Google Trends data

Introducing Tableau



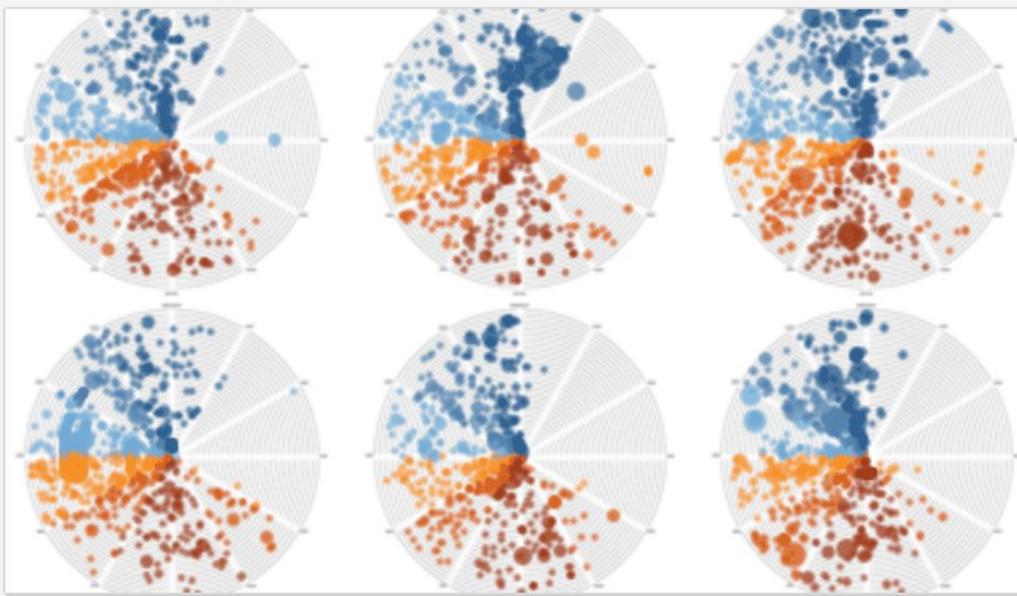
<https://www.tableau.com/learn/whitepapers/5-things-your-spreadsheets-cant-do>

INSPIRATION FROM THE TABLEAU GALLERY



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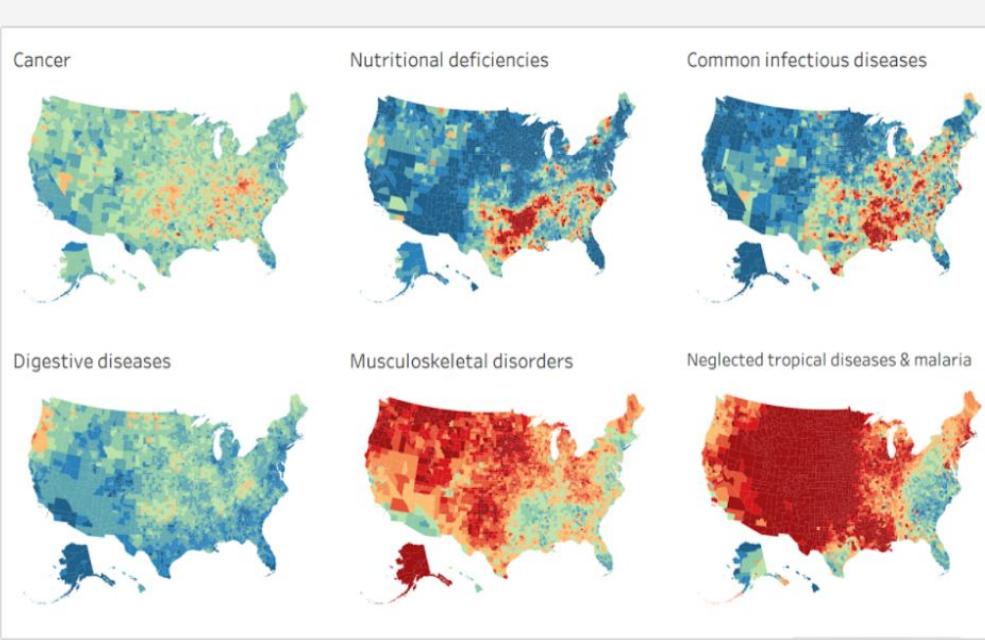
Beautiful Graphics



How Najib Razak Spends His Day on Twitter

Shokyee innovatively visualizes how Malaysian Prime Minister Najib Razak spends his time on Twitter.

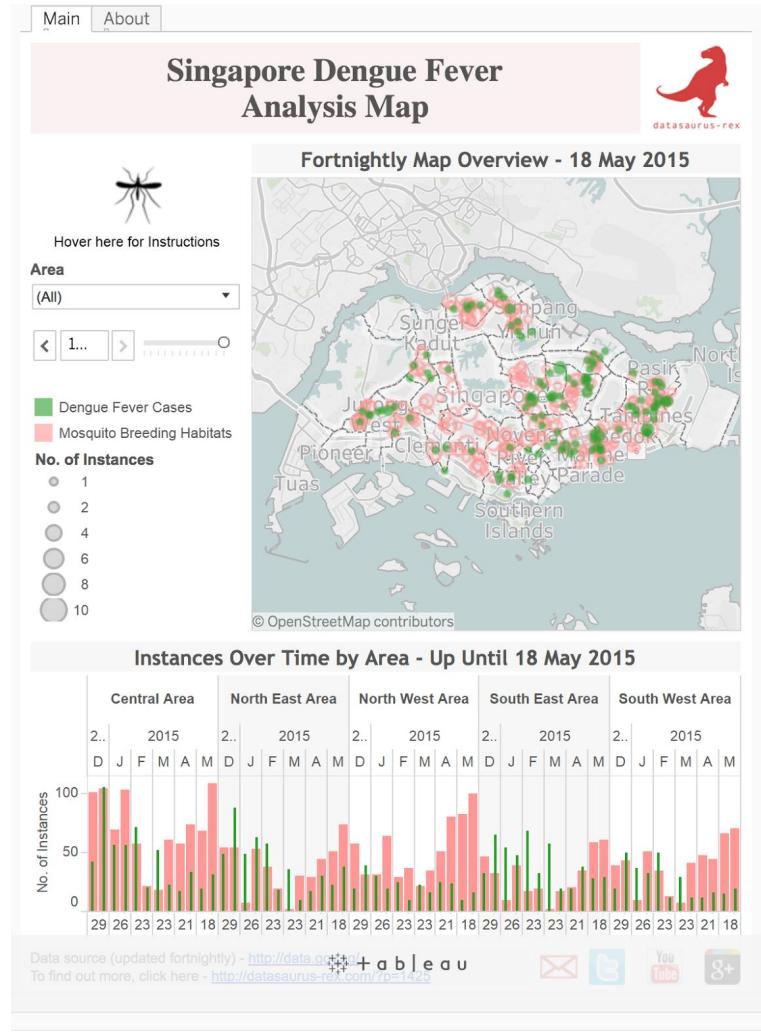
Maps



Changing diseases

Josh Tapley and Jake Riley look at the changes in disease-related fatalities in the US

Dashboards



<https://public.tableau.com/en-us/s/gallery/dengue-fever-singapore>

Stories

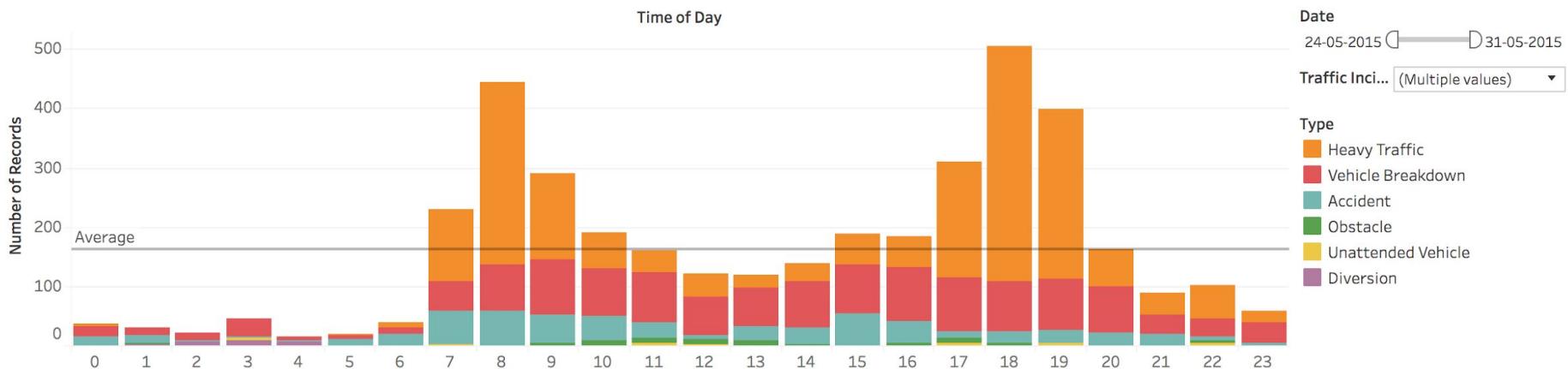
LTA Traffic Patterns in Singapore

What type of incidents are occur...

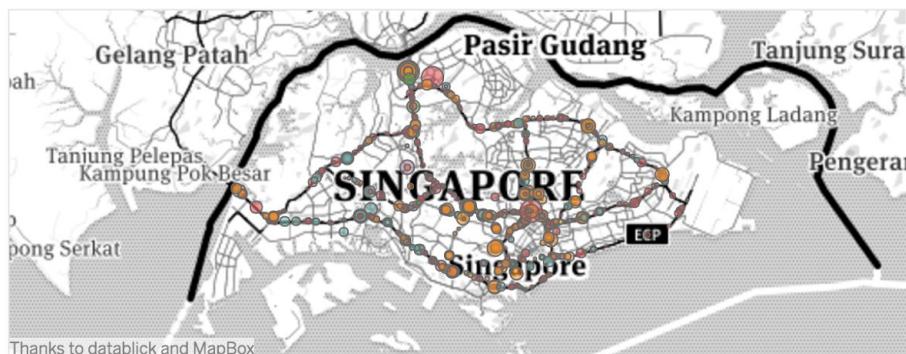
How long do traffic incidents last?

Exactly where are these incident...

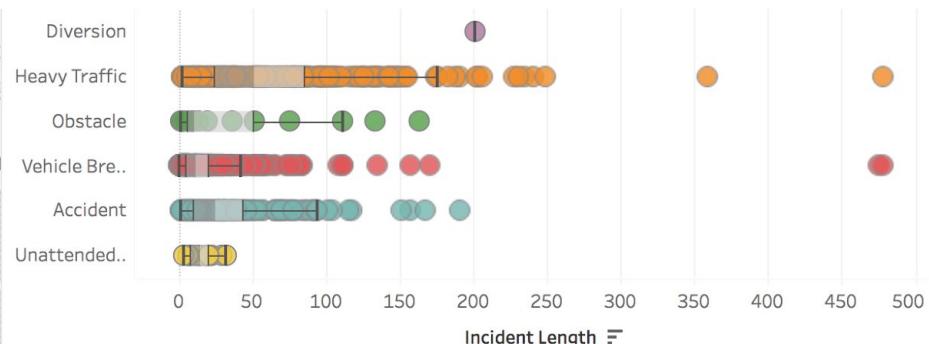
What type of incidents are occurring and during what hour?



Exactly where are these incidents occurring?



How long do traffic incidents last?



<https://www.tableau.com/solutions/workbook/define-sales-regions-or-other-custom-areas-make-geospatial-analysis-easier>

TABLEAU LAB

Dashboard Best Practice

What's your goal?

- [Know your purpose and audience](#)
- [Leverage the most-viewed spot](#)

Design for the real world

- [Author at your final display size](#)
- [Limit the number of views](#)
- [Be security-savvy](#)

Add interactivity to encourage exploration

- [Show filters](#)
- [Enable highlighting](#)

Save time

- [Use the Go to Sheet command](#)
- [Hide sheets as you go](#)

Storytelling Best Practice

Frame the story

Build the story

- Create a story worksheet
- State the question
- Start big
- Drill down
- Highlight outliers
- Show a trend
- Offer your analysis
- Answer the question

Summary

Introducing Python



A screenshot of a GitHub repository page for 'jupyter / jupyter'. The page has a dark header with a GitHub icon, 'This repository', 'Search', 'Pull requests', 'Issues', 'Marketplace', and 'Gist' buttons. Below the header, the repository name 'jupyter / jupyter' is shown in blue. To the right is a 'Watch' button with a dropdown arrow. Underneath the repository name are links for 'Code', 'Issues 64', 'Pull requests 0', 'Projects 0', 'Wiki' (which is highlighted with an orange border), and 'Insights'. The main content area is titled 'A gallery of interesting Jupyter Notebooks'.

A gallery of interesting Jupyter Notebooks

Andres Marrugo edited this page 6 hours ago · 13 revisions

This page is a curated collection of Jupyter/Python notebooks that are notable for some reason (the page was created before the Jupyter name transition, and renaming the page would break all links). Feel free to add new content here, but please try to only include links to notebooks that include interesting visual or technical content; this should *not* simply be a dump of a Google search on every ipynb file out there.

Important contribution instructions: If you add new content, please ensure that for any notebook you link to, the link is to the rendered version using [nbviewer](#), rather than the raw file. Simply paste the notebook URL in the nbviewer box and copy the resulting URL of the rendered version. This will make it much easier for visitors to be able to immediately access the new content.

Note that [Matt Davis](#) has conveniently written a set of [bookmarklets and extensions](#) to make it a one-click affair to load a Notebook URL into your browser of choice, directly opening into nbviewer.

Jupyter Notebook Demo