Technology Review

UW CSE 583
November 13, 2018
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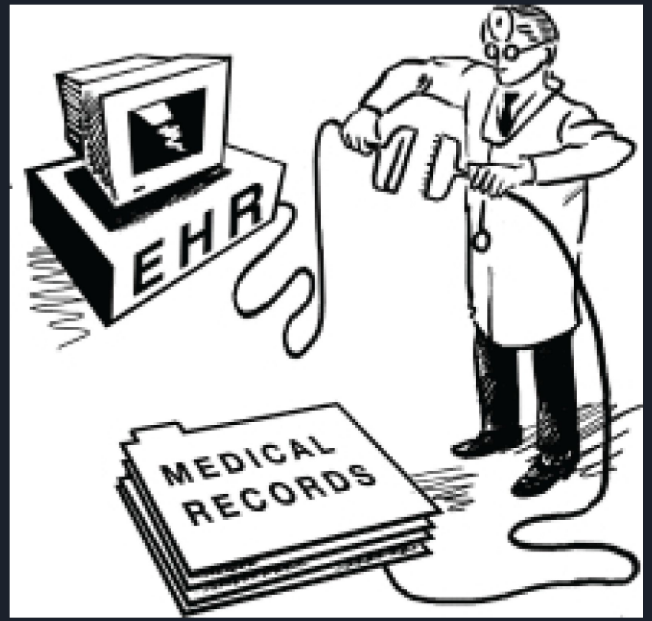
Background

- Providers are required to report notifiable conditions
- Case reports help determine:
  - Disease etiology
  - Case management steps
  - Potential sources of infection
  - Management of exposure(s)
  - Environmental measures



Background

- Electronic Case Reporting (eCR) is not yet established, despite nearly all providers using electronic health records (EHRs)
- Antibiotic resistance is an increasingly pertinent concern

- **Goal:** Develop an eCR system which incorporates antibiotic use and resistance monitoring

Database Querying System

sqlite3

More efficient

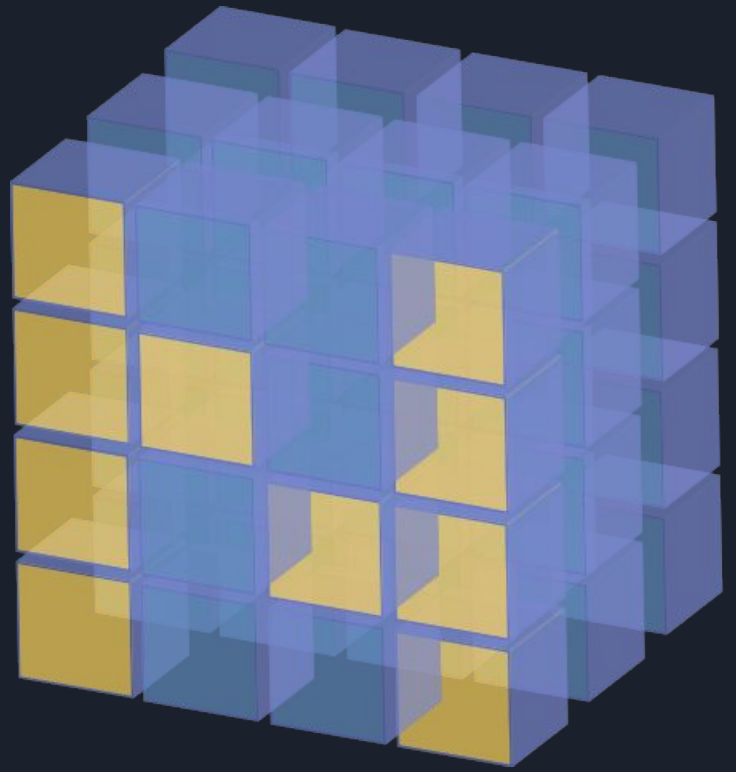
Easy to access to the cloud

Pandas.read_sql _query

Output format is pandas.dataframe

Data Analysis

- Numpy
  - Arrays
  - Indexing
  - More complex analysis
    - E.g., linear algebra
- datetime & timedelta
  - Basic conversions
  - Time differences



User Interface

PyQt	PySide
A comprehensive set of widgets	Database support and model/view features
Flexible layout managers	Support Qt4
(+) Compatible for Python 3.7	(+) More pythonic
(+) More actively developed	(+) Documentation looks better
(-) License fee for commercial use	

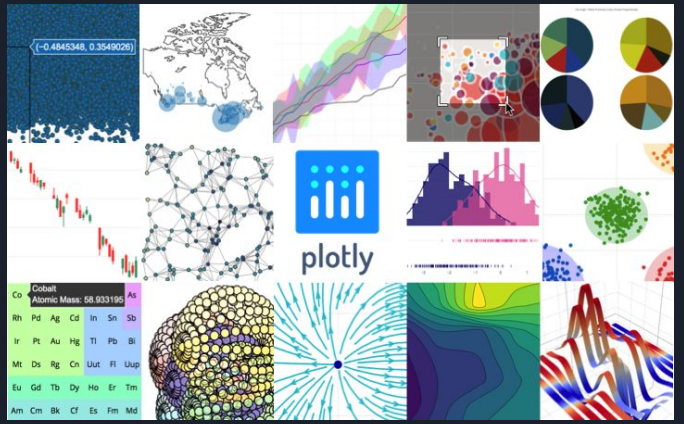
Visualization

matplotlib

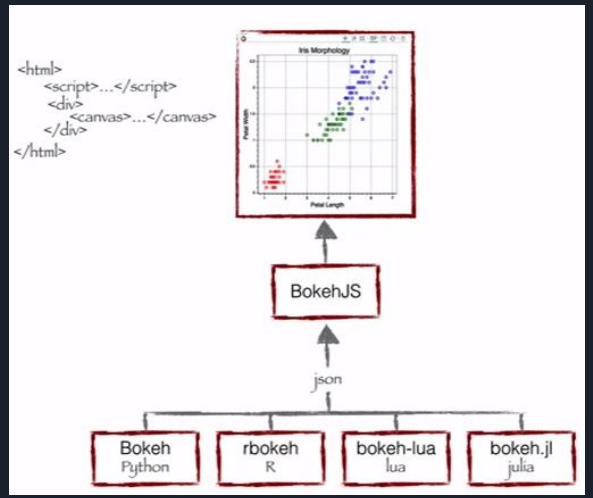
- Well-established, powerful
- Difficult to learn
- Different interfaces (State-based and object oriented) complicate referencing stackoverflow

- Built using matplotlib but is simpler
- Reads CSV files
- Further customization needs matplotlib

Visualization: plotly



- Interactivity
- Beautiful plots and easy to use
- Plotly cloud
- Workflow: Json→plotly.js→Plot



Bokeh

- Interactivity
- python R Lua or Julia
- Workflow:Json→BokehJS→Plot
- Three interface options:
  Charts Plotting Models

Our Choices