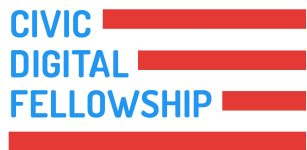# NextGen News Releases

Office of Publications

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U.S. BUREAU OF LABOR STATISTICS

Context

- The Bureau of Labor Statistics produces monthly, yearly, quarterly, or seasonal news releases that communicate the findings of their surveys.

- The news releases track important rates, indexes, and counts. For example:

    - The unemployment rate, the consumer price index, college enrollment by demographic, etc.

Current News Releases Are Formulaic

- Repetitive sentence structure— ideal for automation

- Simple net change and percent change functions

- Some data series are important and always reported

- Other data series are reported if they make large contributions

Transmission of material in this release is embargoed until 8:30 a.m. (EDT) July 11, 2019

USDL-19-1250

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CONSUMER PRICE INDEX – JUNE 2019

The Consumer Price Index for All Urban Consumers (CPI-U) increased 0.1 percent in June on a seasonally adjusted basis, the same increase as in May, the U.S. Bureau of Labor Statistics reported today. Over the last 12 months, the all items index increased 1.6 percent before seasonal adjustment.

Increases in the indexes for shelter, apparel, and used cars and trucks more than offset declines in energy indexes to result in the seasonally adjusted all items monthly increase in June. The energy index fell 2.3 percent as all of the major energy component indexes declined. The food index was unchanged as the index for food away from home rose but the index for food at home declined.

Project Goals : Automating News Releases

- Develop python software that pulls survey data from the central BLS Oracle database.

- Perform trend analysis, compute contributions with relative importances of price indexes, and calculate percent and net changes from the previous time period.

- Take the statistical and economic findings and input them to adaptive sentence templates.

- Ensure that the language of the new reports is coherent, accessible, and informative.

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My Approach

Python API allows users to interface with the database through functions that manipulate SQL queries under the hood.

Develop Python API for BLS Oracle Database

Beyond querying data, build in features that allow the API to find major index contributors; compute change across yearly, monthly, and quarterly data; add trend functions that account for multiple definitions of an economic trend.
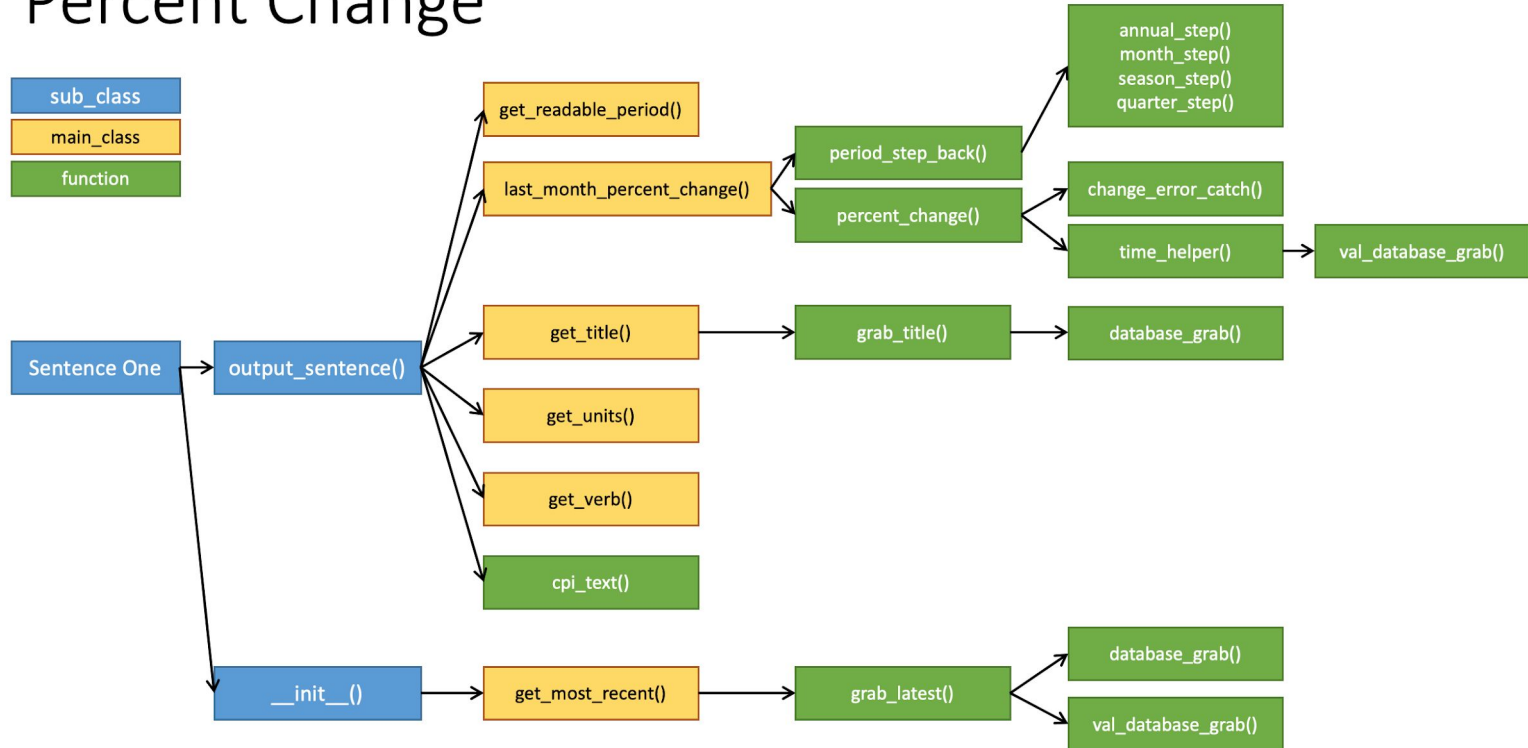
Build statistical and trend estimation functionality into the API

Sentence Library relies on inherited methods from the Master Class to reduce the quantity of code.

Object-Oriented sentence framework built on top of the API

Percent Change Object   Trend Object   Main Contributors Object   etc.

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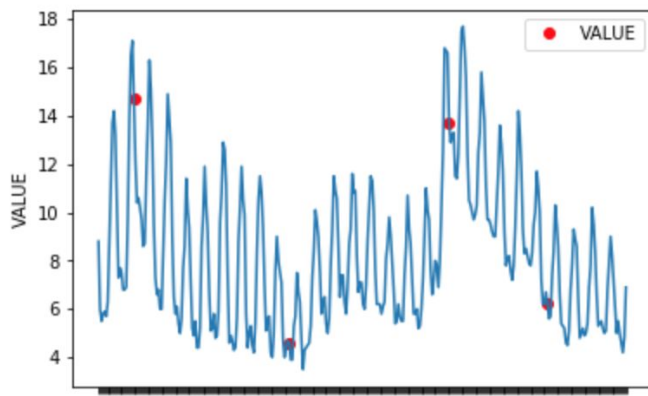# Sentence Generation Demo
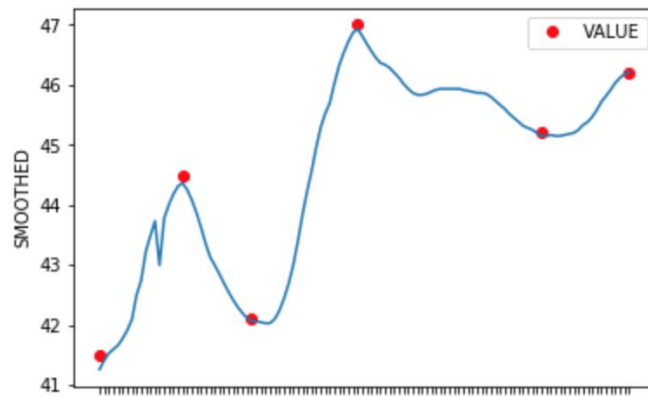
Sentence Control Structure

Percent Change

Trend Analysis

- Trends are challenging to standardize across the different economic surveys as the noise, scale, and quantity of data can vary vastly.

- The red dots indicate relative maximal and minimal regions. The algorithm ignores the noise to focus on bigger picture trends.

- There is a high level of abstraction: we can assume next to nothing about the output of a time series query based on a simple series id key.

International Price Program

Consumer Price Index

Sentence Generation Demo

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Sentence Control Structure

Trend Sentences