snowball technical workshop

Python Libraries

workshop
agenda

- Intro to Python Libraries
- Pandas
- Matplotlib + Seaborn
- Numpy + Scipy
- Statsmodels
- Demo

Python Libraries

- **set of functions**, eliminating the need to write code from scratch
- common **applications:**
    - machine learning
    - data visualizations
    - image & data manipulation
    - web scraping

Demo + Practice

Dataset

- https://www.kaggle.com/crawford/80-cereals

Jupyter Notebook (from Anaconda)

- https://www.anaconda.com/products/individual

Demo Github Repository

- https://github.com/thexinyu/Snowball-Presentation.git

Pandas
Overview + Demo

Pandas Use Cases

- Tasks that Pandas can help with

  - data cleaning
  - data fill
  - data visualization
  - merges and joins

  - loading and saving data
  - statistical analysis
  - data inspection
  - data normalization

Pandas Demo

```
pip install pandas
```

Numpy + Scipy
Overview + Demo

Numpy + Scipy Use Cases

- Numpy

  - sorting
  - indexing
  - creating arrays
  - array manipulation

- Scipy

  - linear algebra
  - statistical analysis
  - clustering algorithms
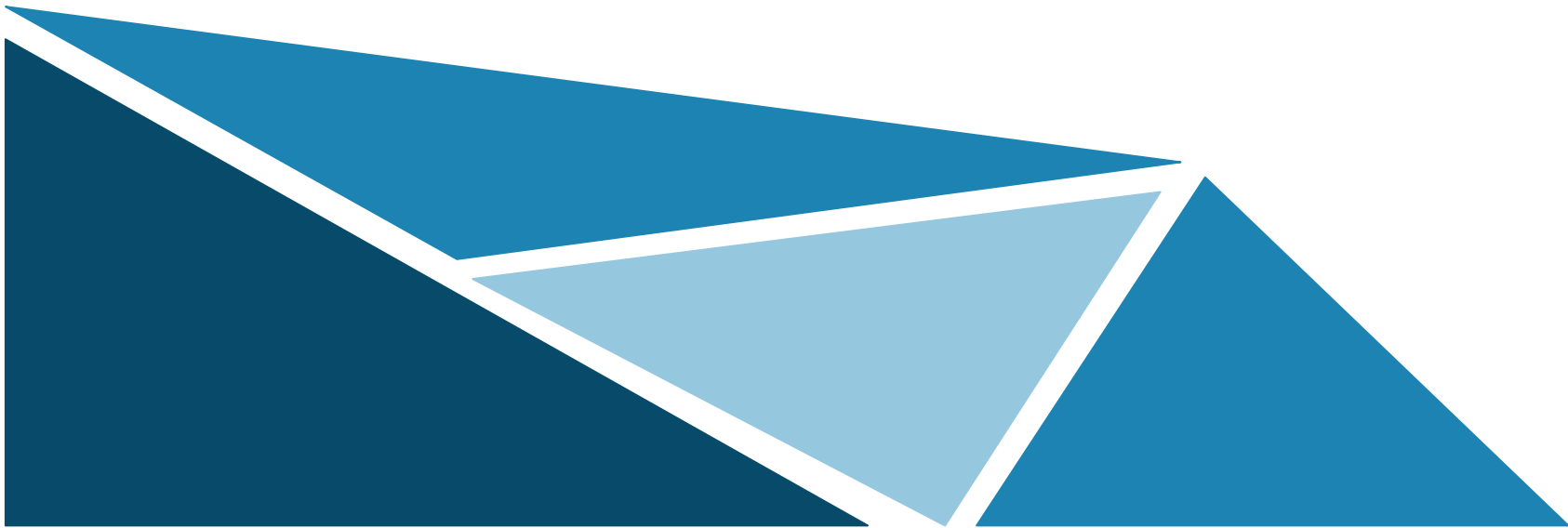 - signal processing

Numpy + Scipy Demo

```
pip install numpy

pip install scipy
```

Matplotlib + Seaborn Overview + Demo

Matplotlib + Seaborn Use Cases

- Matplotlib

  - sorting
  - indexing
  - creating arrays
  - array manipulation

- Seaborn

  - linear algebra
  - statistical analysis
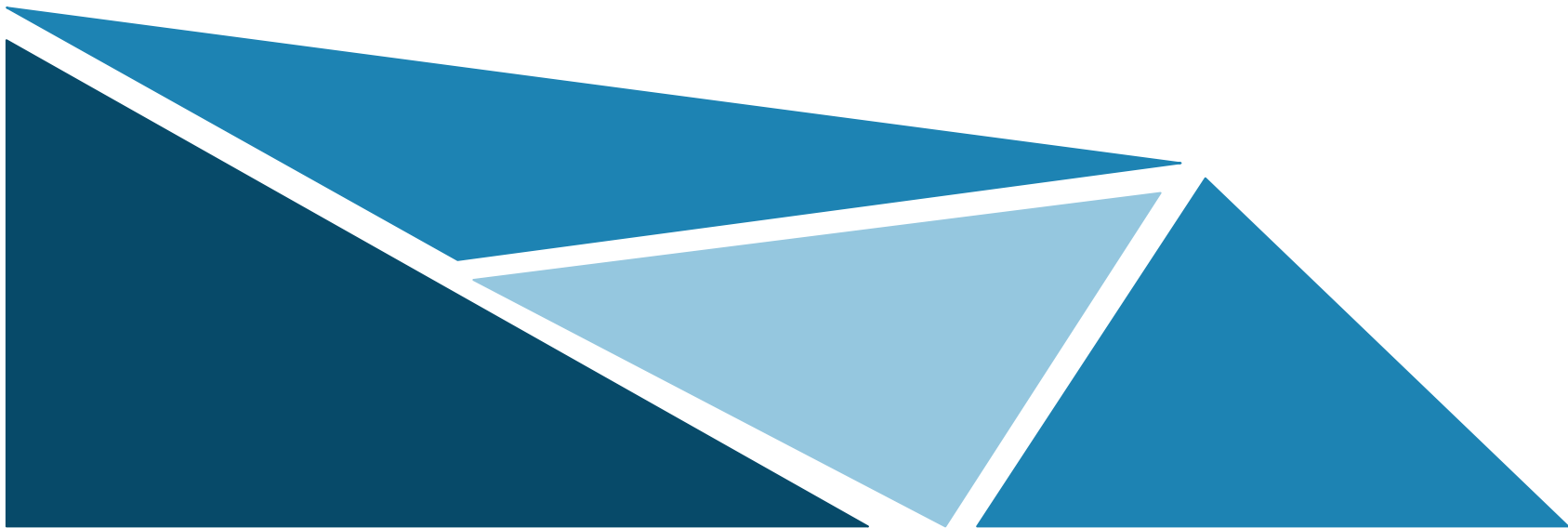 - clustering algorithms
  - signal processing

PLT + SNS Demo

```
pip install matplotlib

pip install seaborn
```

Statsmodels
Overview + Demo

Statsmodels Use Cases

- Statsmodels

  - regression and linear models
  - time series analysis
  - multivariate statistics
  - methods of moments
  - nonparametric methods

Statsmodels Demo

```
pip install statsmodels
```

Libraries Documentation

Pandas — https://pandas.pydata.org/docs/

Scipy — http://scipy.github.io/devdocs/dev/

Numpy — https://numpy.org/doc/stable/dev/

Matplotlib — https://matplotlib.org/

Seaborn — https://seaborn.pydata.org/

Statsmodels — https://www.statsmodels.org/stable/index.html

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tinyurl.com/nuDataClub

@data-club-nu

@dataclub.nu

@dataclubnu

dataclub.nu@gmail.com