DATA SCIENCE 102: VISUALISATION

AGENDA

- Data Visualisation
  - Use Cases
  - Types of Visualisations
- Matplotlib
  - Attributes
  - Design
  - Subplots
- Pandas
  - Coded Examples
- Good Practices

LEARNING OBJECTIVES

- Able to use Pandas to build intuitive visualisation
- Understand the good practices of data visualisation
- Learn

DATA VISUALISATION

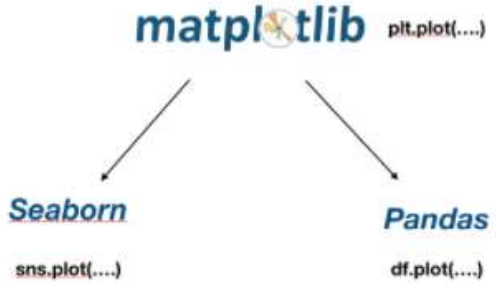
- Applications of regression

MATPLOTLIB

- Intuition
- Interpretation
- Terminologies
- Performance Measures
- Ordinary Least Squares

Matplotlib Introduction

- Matplotlib is one of the first and many visualisation libraries
- Provides a standard for other visualisation libraries
- Leveraged by many other libraries
- Documentation is difficult to understand
- Restrictive syntax



Plotting with Pandas

Plotting with Pandas

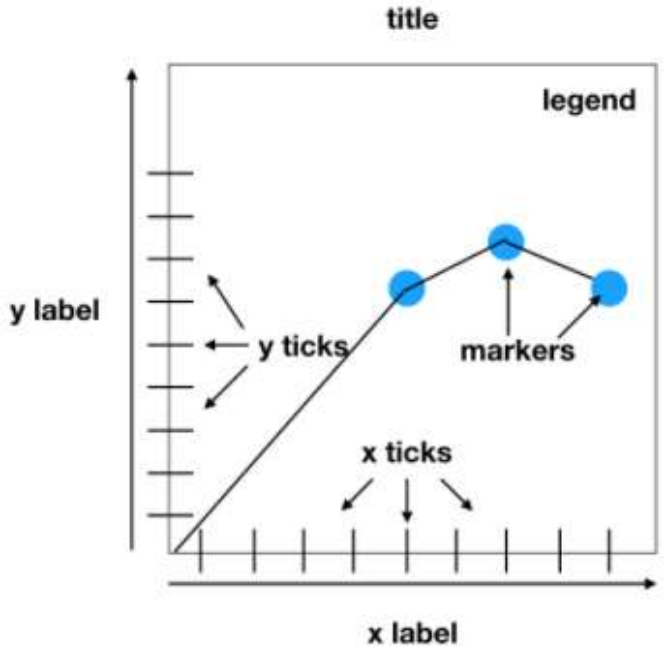
- Using Pandas, many of Matplotlib's functions are sorted within *.plot* function
- Switch between different kinds of plots easily using *kind=* parameter

```
df.plot(kind= <chart>,
        x = <column>,
        y = <column>,
    … more matplotlib settings
        )
```

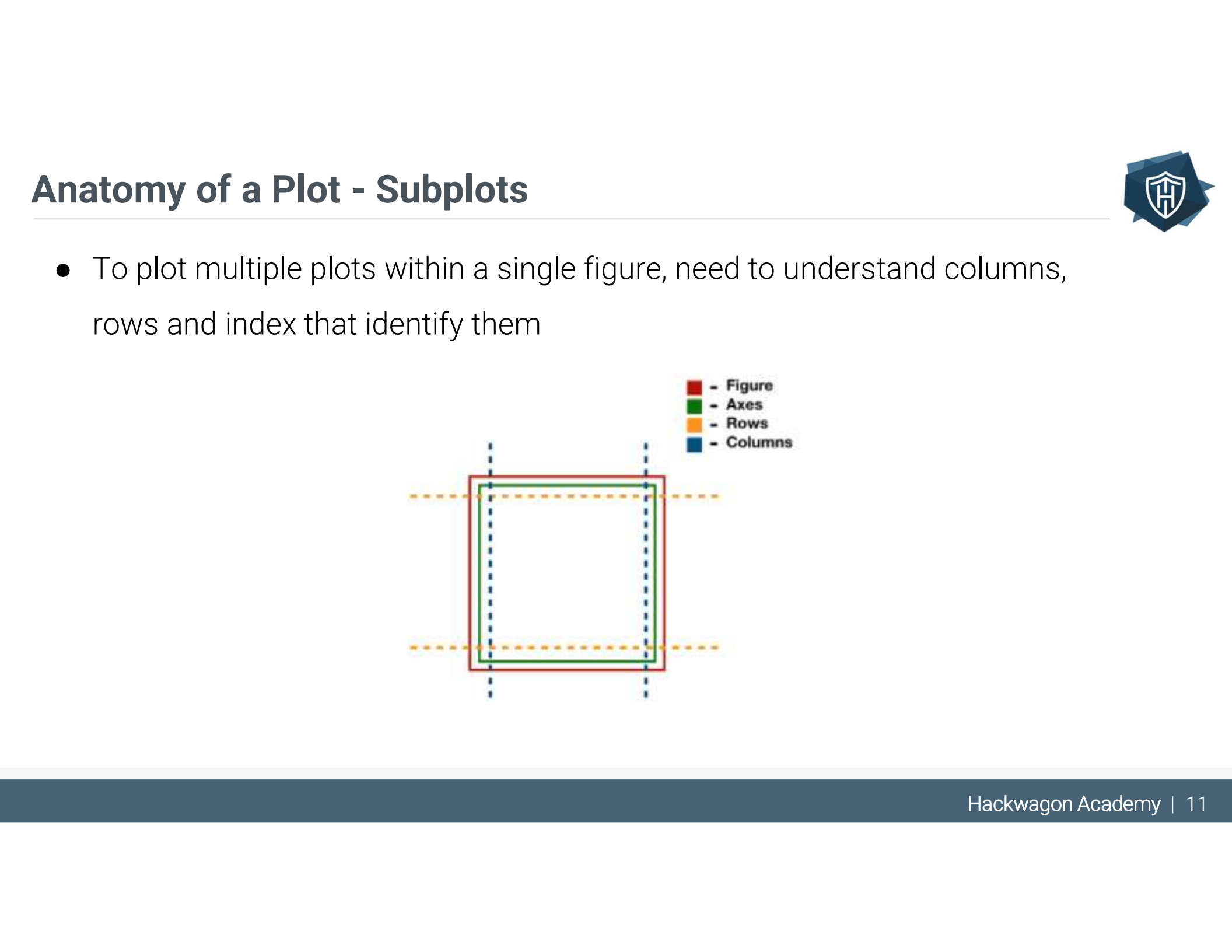
Anatomy of a Plot

Anatomy of a Plot

- Title
- Legend
- Axes Labels
- Tick Values



Anatomy of a Plot - Subplots



- To plot multiple plots within a single figure, need to understand columns, rows and index that identify them

DATA SCIENCE 102:
Text Mining

AGENDA

- Unstructured vs. Structured Data
- NLP & Definitions
- Text Mining Process
  - Simple Cleaning
  - Tokenisation
  - Stemming
  - Lemmatisation
  - Stop Word Removal
- Sentiment Analysis
  - VADER

LEARNING OBJECTIVES

- How to process textual data
- Applications of text mining libraries and tools

STRUCTURED VS. UNSTRUCTURED DATA

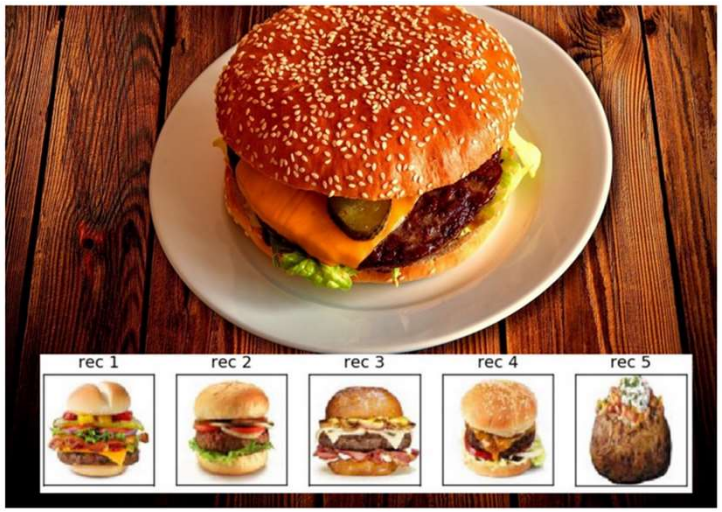
STRUCTURED DATA

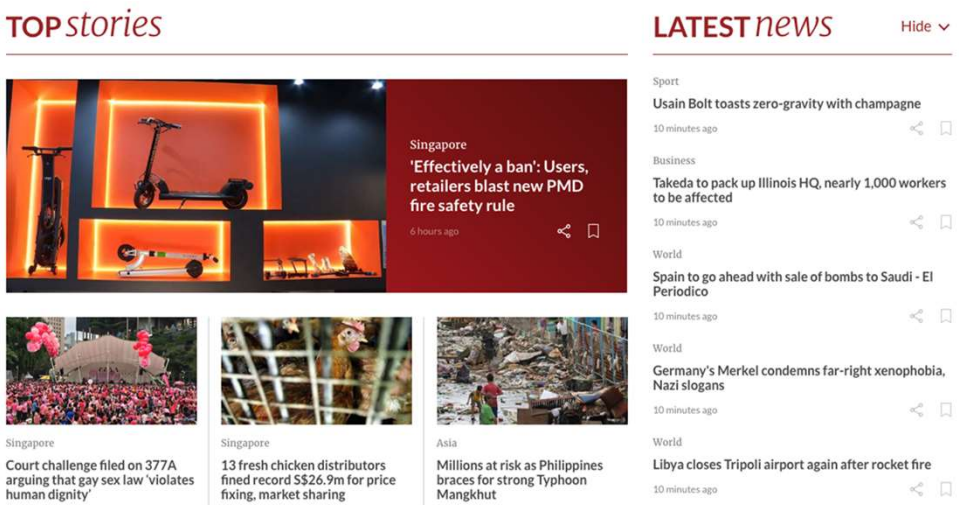
- Structured data can be put into table format with rows and columns
- This kind of representation is called a schema representation
- Simple statistical analysis can be performed
  - such as mean, median, mode

	country	points	price
0	France	91	48.0
1	Australia	82	10.0
2	US	92	48.0
3	Italy	88	68.0
4	New Zealand	89	17.0
5	US	86	32.0
6	Austria	89	25.0
7	US	89	50.0
8	US	86	10.0
9	US	92	65.0

UNSTRUCTURED DATA

- Unstructured data cannot simply be stored in a table format and immediately analysed
- Examples of these includes images, videos and text
  - Images may vary in size and resolution
  - Text may vary in number of words and variety of words





NLP & DEFINITIONS

- What is NLP
- Corpus
- Document
- Term

WHAT IS NLP

- NLP is Natural Language Processing
- Finding useful insights from unstructured textual data
- Use cases include
  - Sentiment Analysis
  - News Categorisation
  - Title Inference
  - Search Engine Optimisation
  - Spam/Non-spam Filter
  - Questions & Answers

TEXT MINING PROCESS

- Simple Cleaning
- Tokenisation
- Stemming
- Lemmatisation
- Stop Word Removal

SENTIMENT ANALYSIS

- Sentiment Analysis
- VADER

THANK YOU!

HACKWAGON

• ACADEMY •