

Python Applications

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Introduction to Python. Spring 2020

Outline

What can you do with Python?



Easy! Useful! Powerful!

- The first step into the world of programming
- Released in 1991, has become popular in the last couple of years



Easy to read and learn

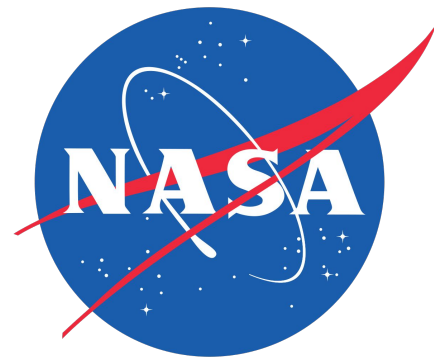


No programming skills required



Beginner or expert

Popular in big and small companies

The Google logo, featuring the word "Google" in its signature multi-colored font.The Yahoo! logo, featuring the word "YAHOO!" in a purple, outlined font.

mozilla

The IBM logo, featuring the word "IBM" in its signature blue, striped font.

Popular in big and small companies (Armenia)



Some additional features

- Open source language
- Libraries for basically everything! (What are libraries?)
- Small, medium and large projects in different spheres

Web Development



- Use python to create web applications of different complexities
- Python web frameworks include: Django, Flask and Pyramid

Are you surprised?

Google



Quora



YAHOO!



Data Analysis



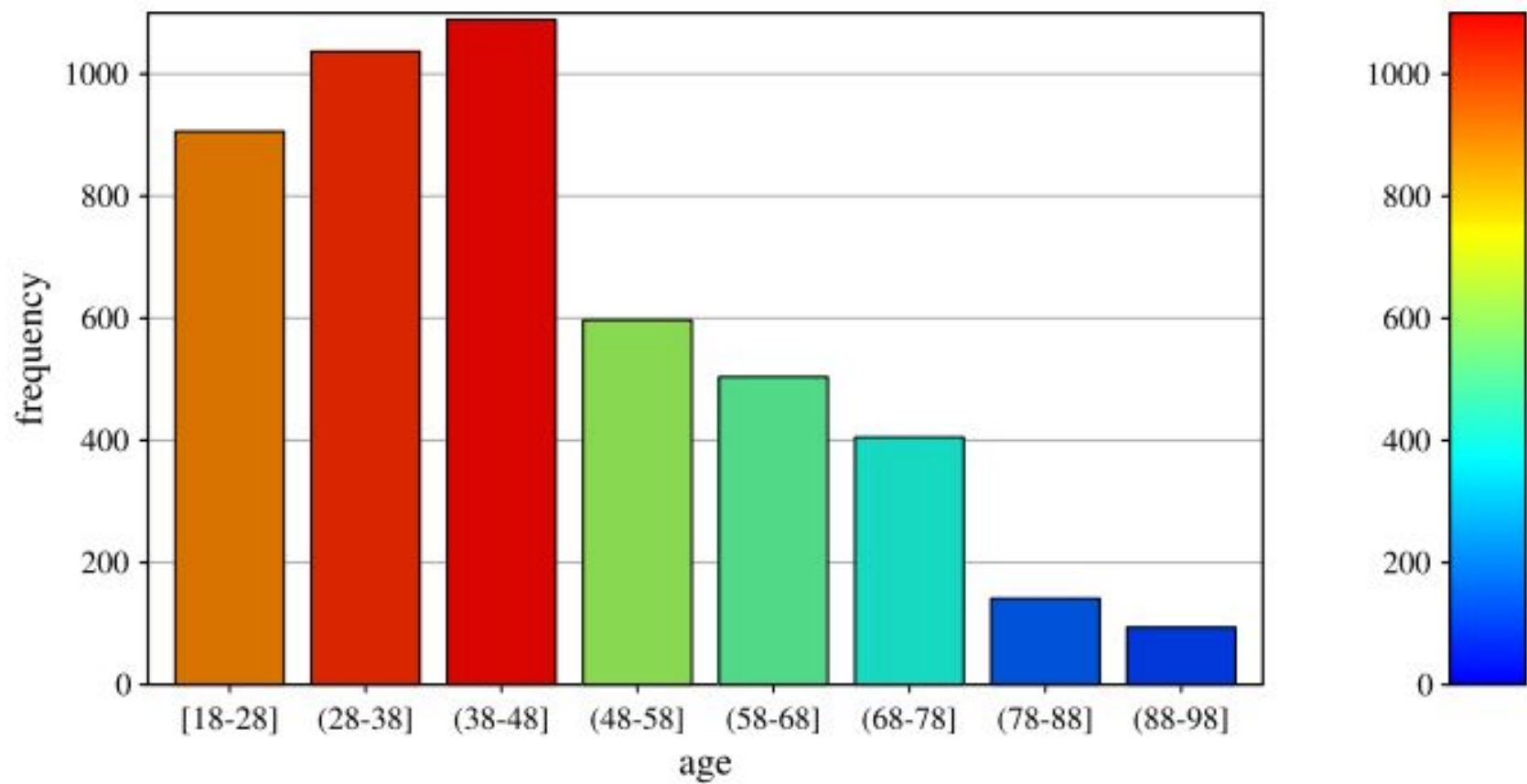
- Leading language of choice for many data scientists
- Python libraries like NumPy, Pandas and data visualization libraries Matplotlib and Seaborn.

Example: Age distribution of customers

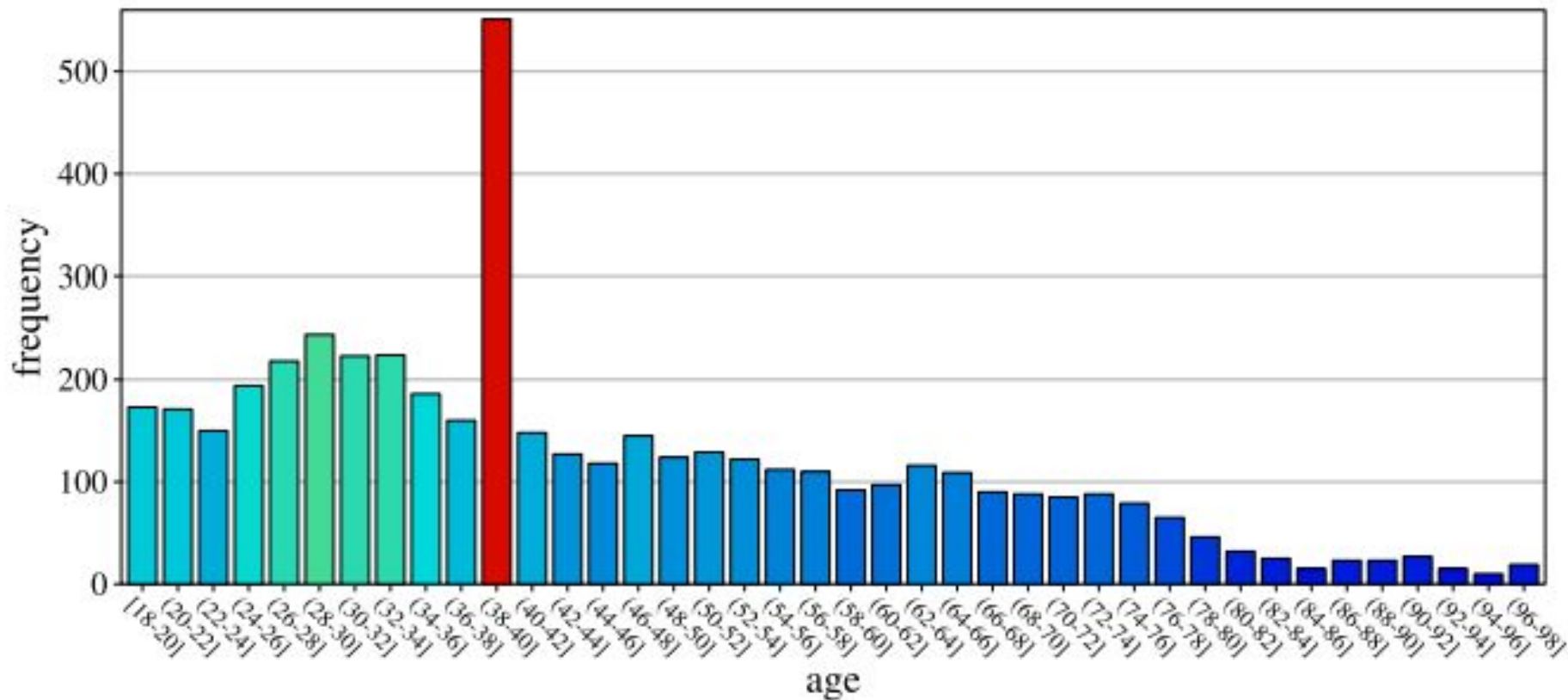
- 500000 customers -> sample 5000
- Simplest -> use a histogram



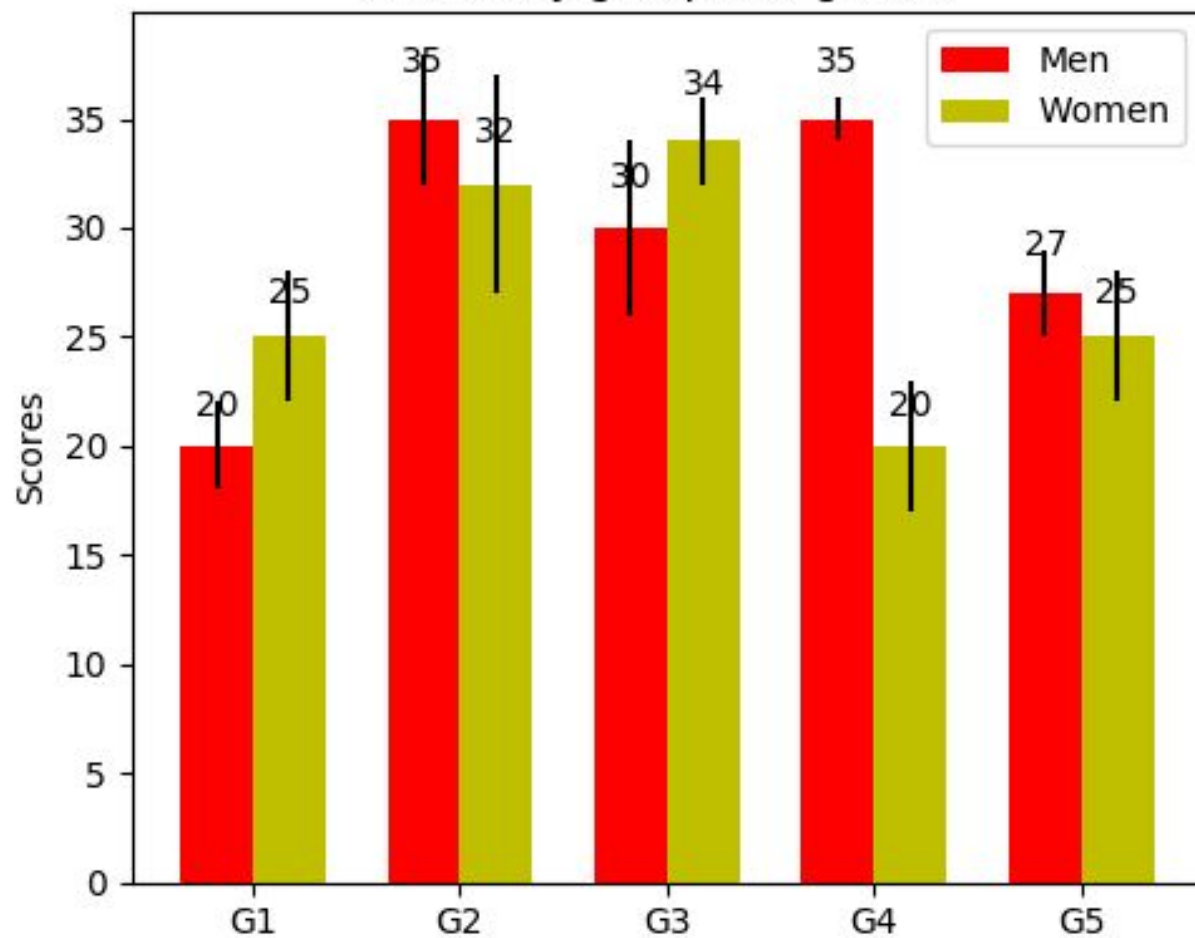
8 bins



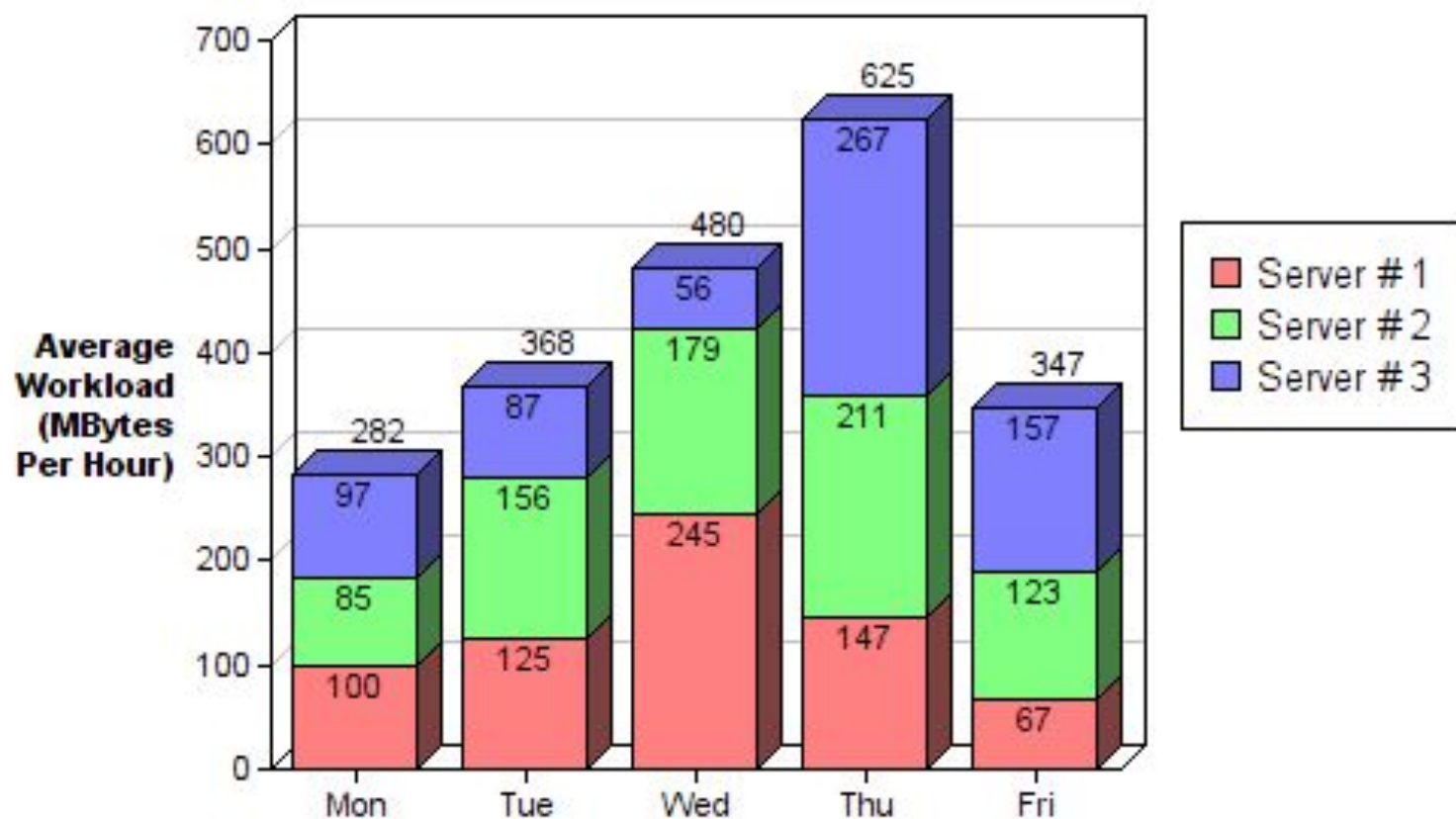
40 bins - we have limited resources



Scores by group and gender



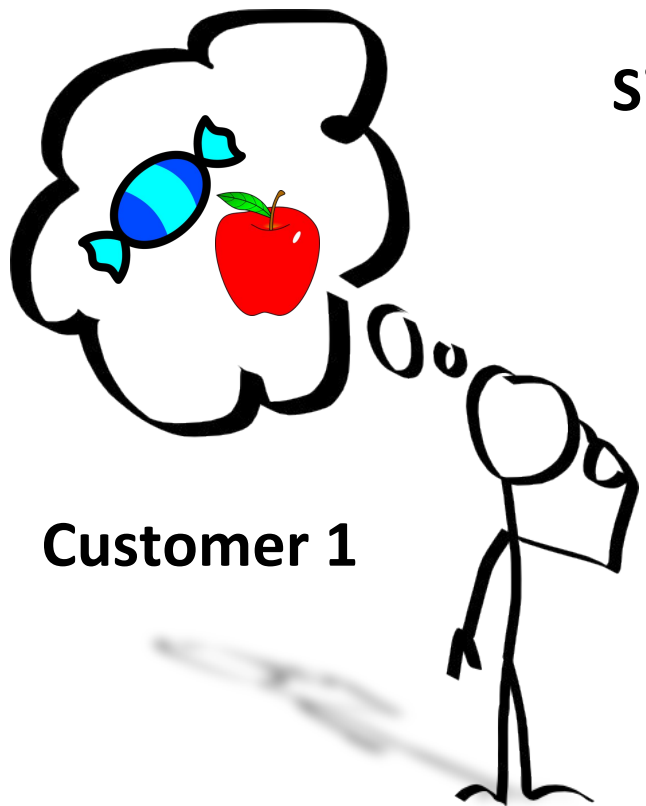
Weekday Network Load



Example: recommendation

Similarity:

- **Similar customers**
- Products that are correlated
- Etc.



Customer 1



Customer 2

Example: continued

Similarity:

- Similar customers
- **Products that are correlated**
- Etc.

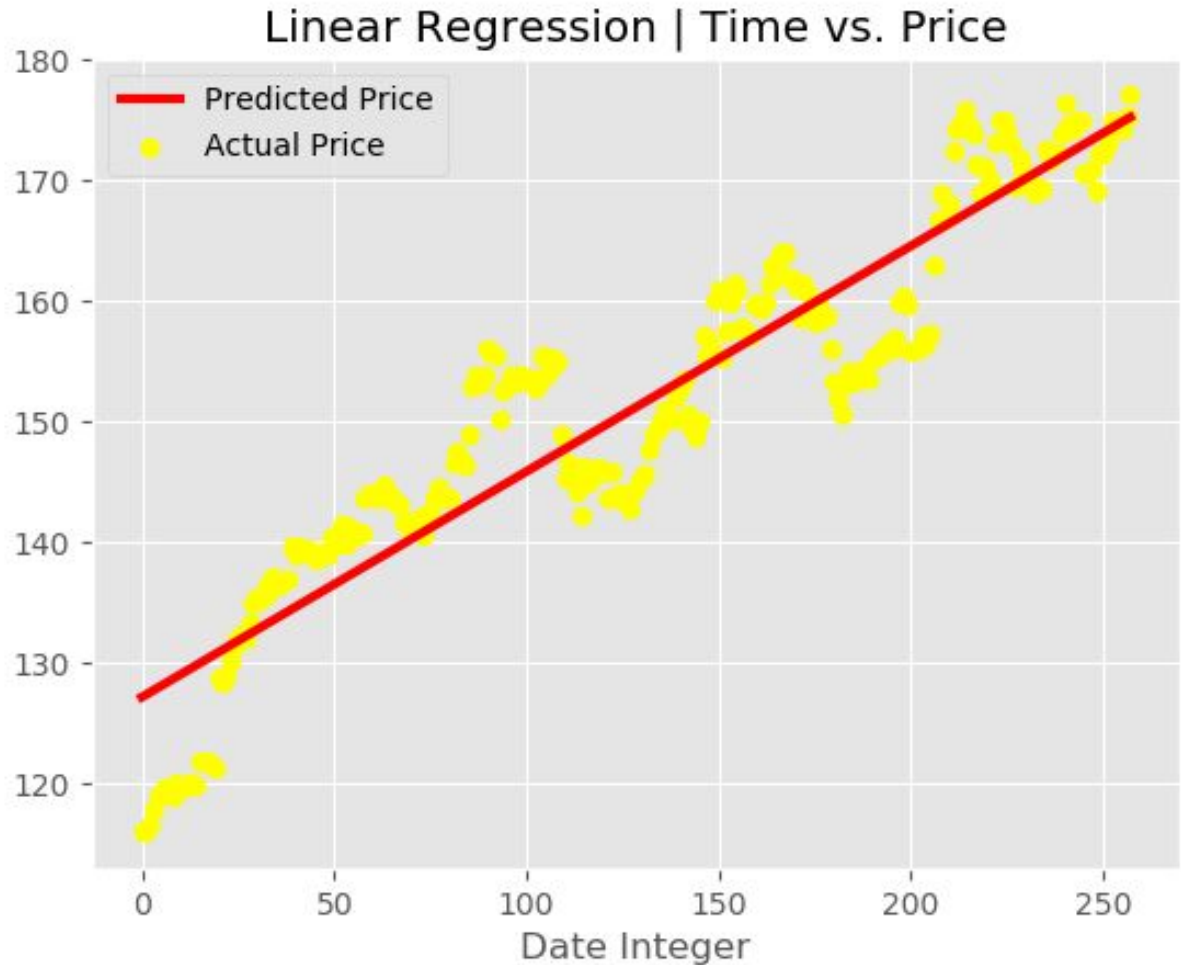


Machine Learning - the science of getting computers to learn and act like humans do, and improve their learning over time

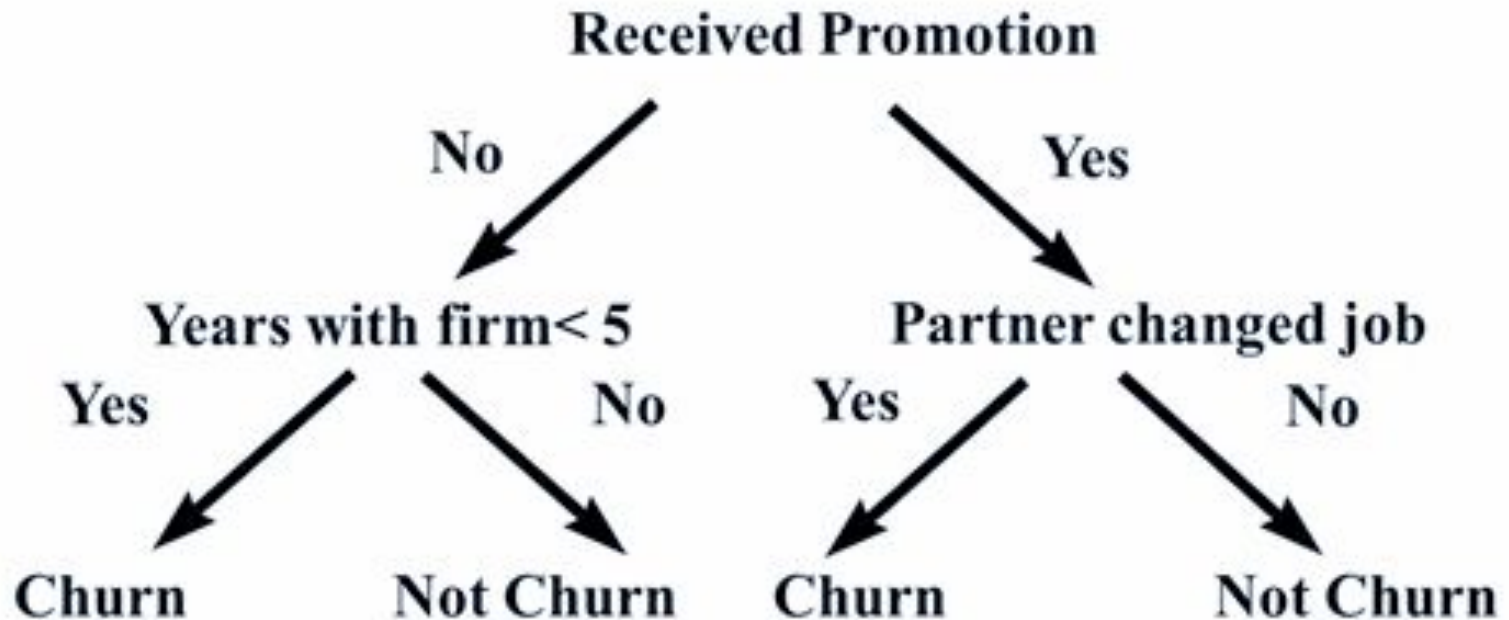


- Predict customer satisfaction
- What factors will affect the demand of the product?
- Machine learning libraries include Scikit-Learn, NLTK and TensorFlow.

Example: Stock price over time



Example: Employee churn analysis



Computer Vision

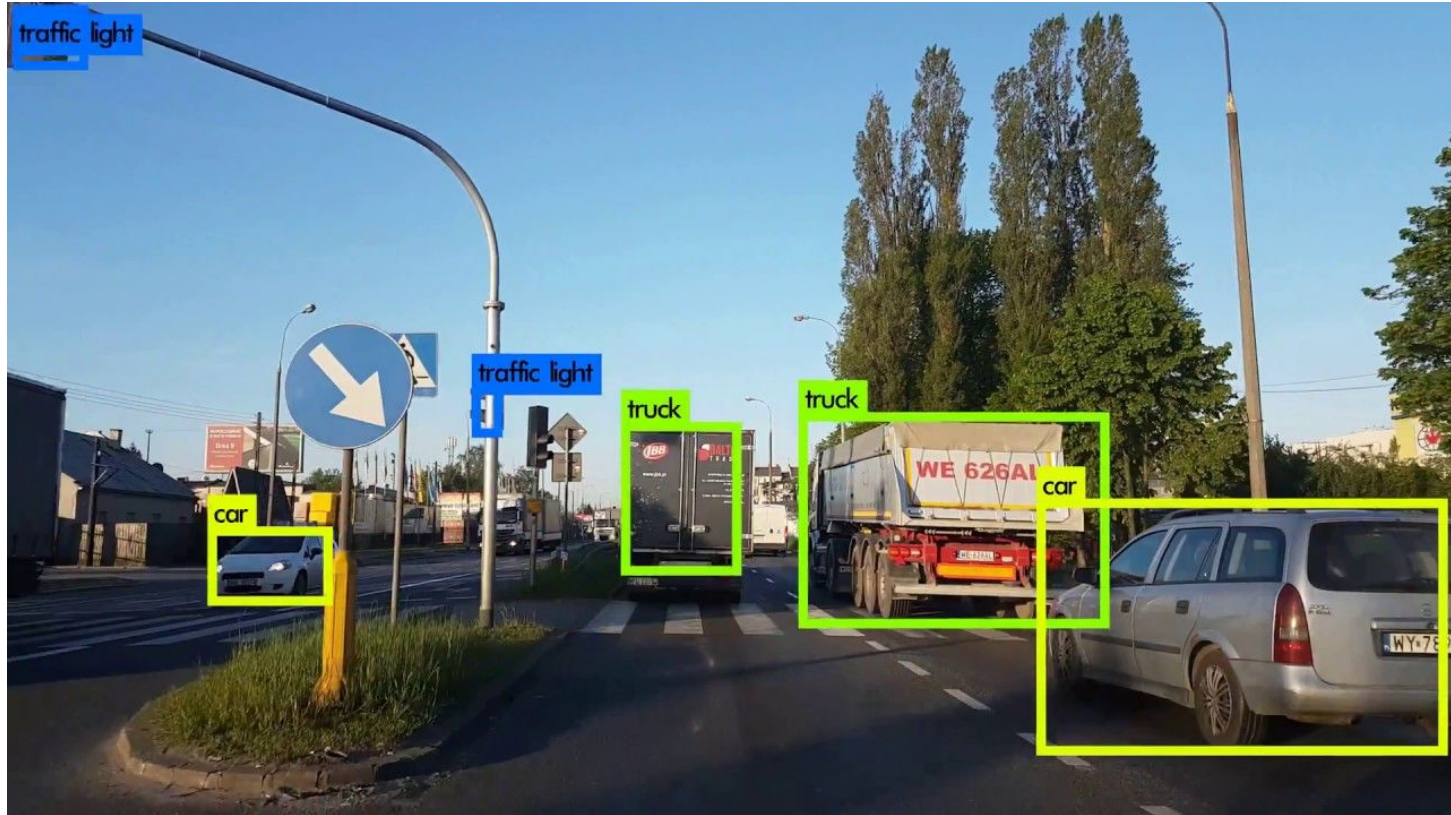


- Face detection, Color detection, Image recognition
- Using OpenCV

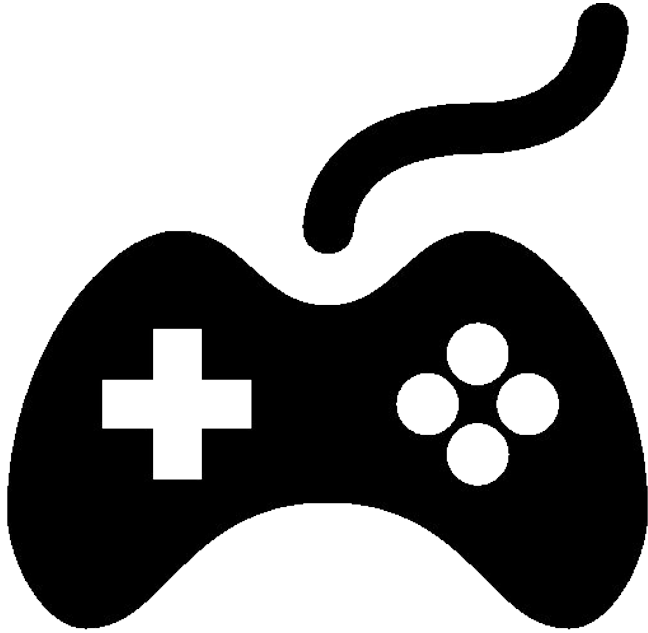
Example: Face ID on iPhone X



Example: Object recognition



Game Development



- Create a video game using the module Pygame
- Use Python to write the logic of the game
- Apps can run on Android devices

Star Trek: Bridge Commander



Civilization IV



With over 6 million units sold and unprecedented critical acclaim from fans and press around the world, Sid Meier's Civilization is recognized as one of the greatest PC game franchises of all-time. Now, Sid Meier and Firaxis Games will take this incredibly fun and addictive game to new heights by adding new

RECENT REVIEWS: [Very Positive](#) (16)
ALL REVIEWS: [Very Positive](#) (931)

RELEASE DATE: 25 Oct, 2005

DEVELOPER: [Firaxis Games](#)
PUBLISHER: [2K Games](#)

Popular user-defined tags for this product:

[Strategy](#) [Turn-Based Strategy](#) [Turn-Based](#) [4X](#) [+](#)



Web Scraping



- Grab some data from a website that doesn't allow convenient export
- BeautifulSoup, Selenium

Example: Business uses

- Gathering email addresses from social networks
- Product review scraps
- Scraping data from other websites

e.g.

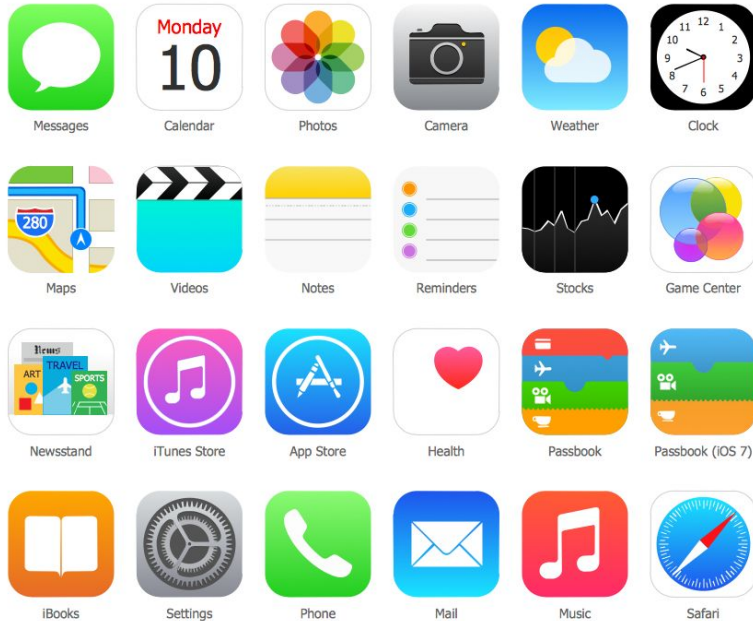
- Scraping of funny video titles with more than 1 million views in YouTube to understand what kind of titles are doing well.
- Scraping Amazon for specific category of books.

Browser Automation



- Use Selenium with Python

GUI (Graphical User Interface) Development



- Create a Desktop application
- Use modules Tkinter and PyQt to support it

Share Your Screenshots Using Dropbox



Share your screenshots in a snap

Whenever you take a screenshot, we'll save it to your Dropbox and copy a link to your clipboard so you can quickly share it.

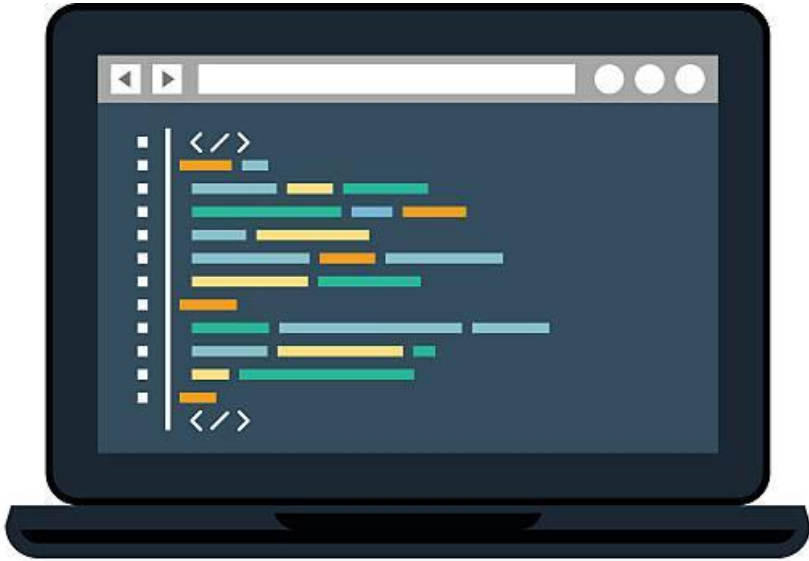
No, Thanks

Save Screenshots to Dropbox



Dropbox

Writing Scripts



- Just as in any other language

Thank you!