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# Python

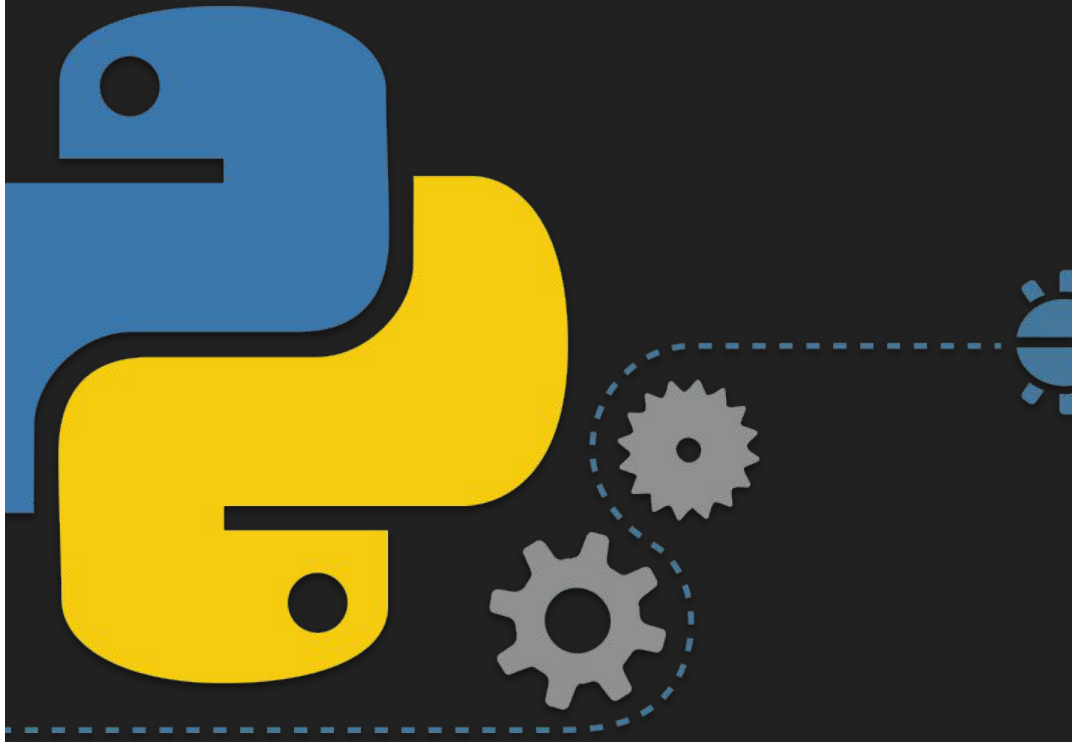
## Data Science

workshop

2018

# Contents





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# BRIEF INTRODUCTION OF PYTHON

01 Easiest language

02 Open source & free

03 powerful & fast

04 Interpreted

05 Object Oriented

06 Easily Debuggable

**Python 3.7**
**June 2018.**

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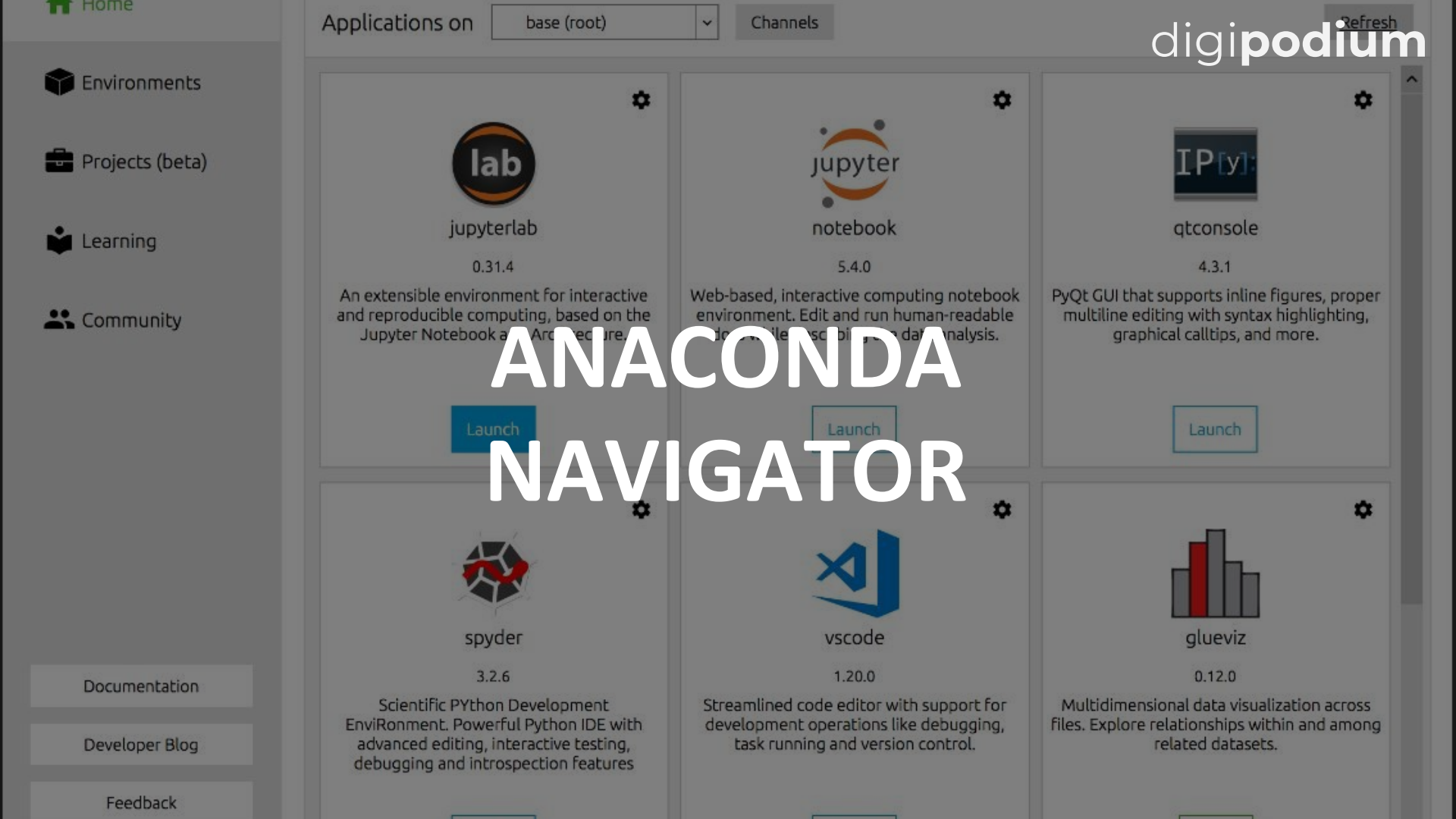
**Guido van Rossum**

Quora YouTube DISQUS Dropbox

NASA Prezi


Home
Environments
Projects (beta)
Learning
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jupyterlab
0.31.4
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook a
Launch
notebook
5.4.0
Web-based, interactive computing notebook environment. Edit and run human-readable
analysis.
Launch
qtconsole
4.3.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
Launch
spyder
3.2.6
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features
vscode
1.20.0
Streamlined code editor with support for development operations like debugging, task running and version control.
glueviz
0.12.0
Multidimensional data visualization across files. Explore relationships within and among related datasets.
ANACONDA
NAVIGATOR
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# Jupyter Notebook

About

# Welcome to the JupyterLab alpha preview

This demo gives an alpha-level preview of the JupyterLab environment. Here is a brief description of some of the things you'll find in this demo.

## File Browser

Clicking the "Files" tab, located on the left, will toggle the file browser. Navigate into directories by double-clicking, and use the breadcrumbs at the top to navigate out. Create a new file/directory by clicking the plus icon at the top. Click the middle icon to upload files,and click the last icon to reload the file listing. Drag and drop files to move them to subdirectories. Click on a selected file to rename it. Sort the list by clicking on a column header. Open a file by double-clicking it or dragging it into the main area. Opening an image displays the image. Opening a code file opens a code editor. Opening a notebook opens a very preliminary proof-of-concept **non-executable** view of the notebook.

## Command Palette

Clicking the "Commands" tab, located on the left, will toggle the command palette. Execute a command by clicking, or navigating with your arrow keys and pressing Enter. Filter commands by typing in the text box at the top of the palette. The palette is organized into categories, and you can filter on a single category by clicking on the category header or by typing the header surrounded by colons in the search input (e.g., `:file:`).

You can try these things out from the command palette:

- Open a new terminal (requires OS X or Linux)
- Open a new file
- Save a file
- Open up a help panel on the right

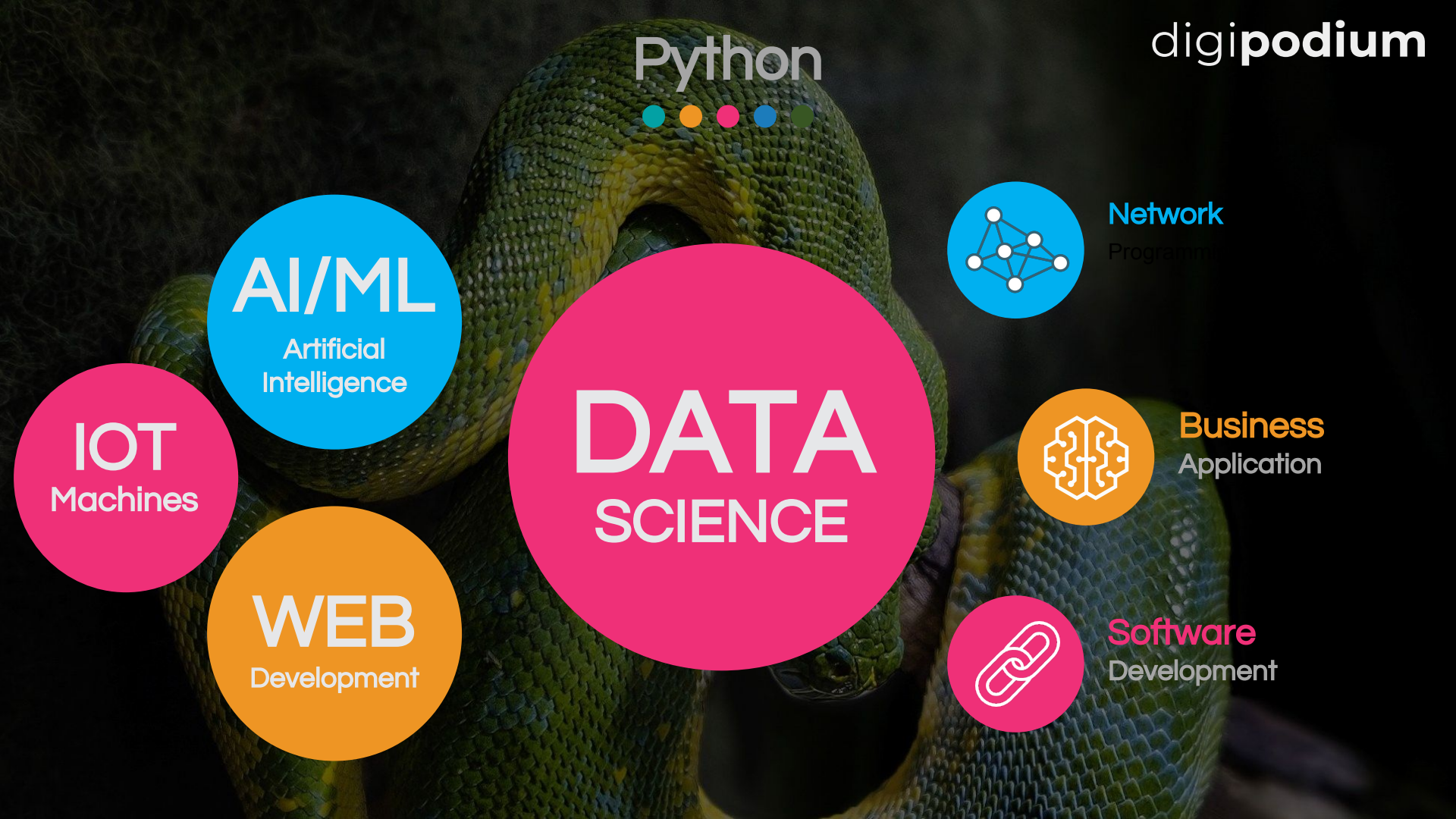
Jupyter Lab

## Main Area

The main area is divided into panels of tabs. Drag a tab around the area to split the main area in different ways. Drag a tab to the center of a panel to move a tab without splitting the panel (in this case, the whole panel will highlight, instead of just a portion). Resize panels by dragging their borders (be aware that panels and sidebars also have a minimum width). A file that contains changes to be saved has a star for a close icon.

## Notebook

Opening a notebook will open a minimally featured notebook. Code execution, Markdown rendering, and basic cell toolbar actions are supported. Future versions will add more features from the existing Jupyter notebook.


Python
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AI/ML
Artificial Intelligence
IOT
Machines
WEB
Development
DATA
SCIENCE
Network
Programming
Business
Application
Software
Development

# The Python Quiz

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| | |
|---|---|
| 1 | |
| 2 | |
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| 6 | |
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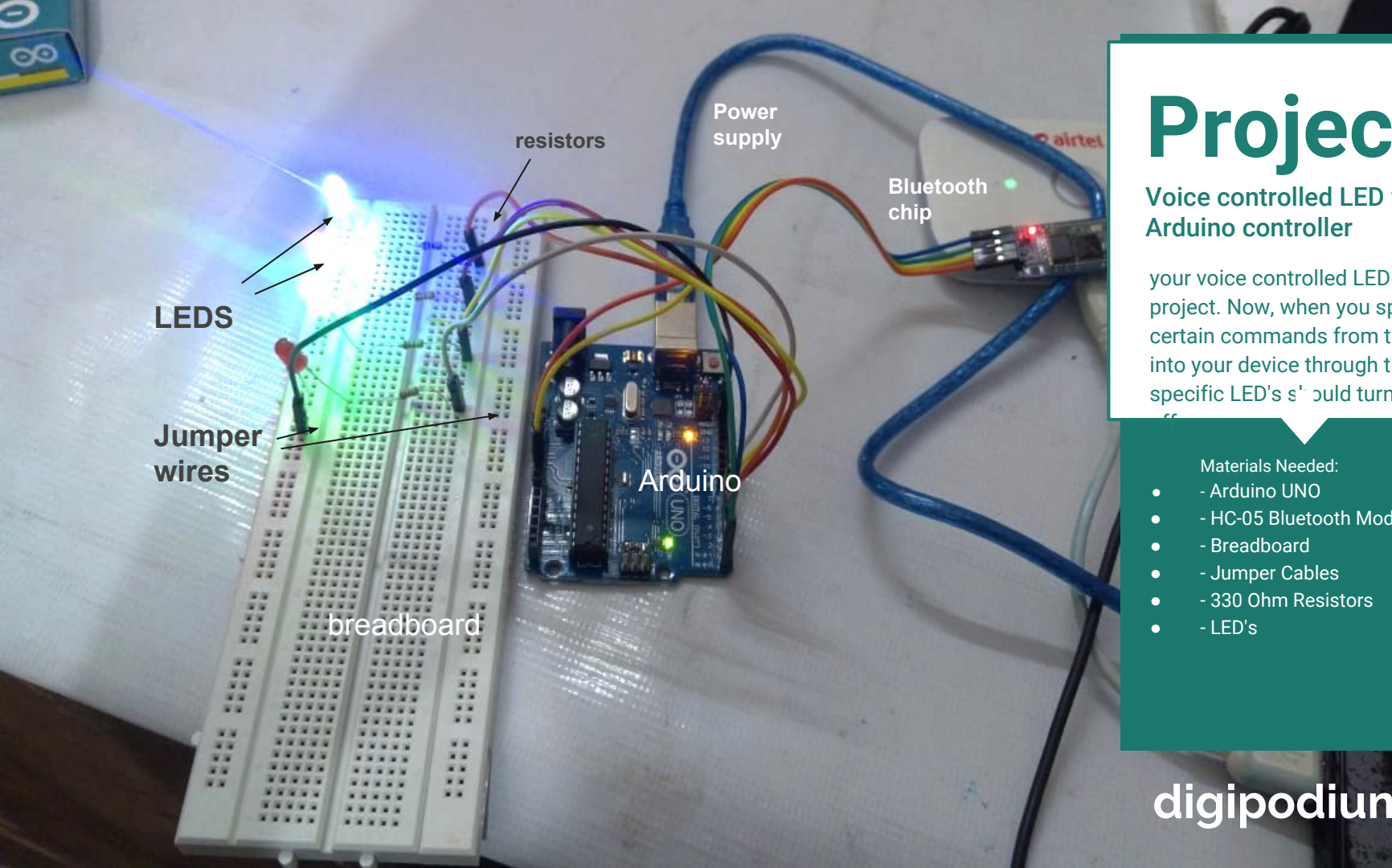
| 10 | |




# Project

## Voice controlled LED with Arduino controller

your voice controlled LED Arduino project. Now, when you speak certain commands from the code into your device through the app, specific LED's s' ould turn on and

Materials Needed:

- - Arduino UNO
- - HC-05 Bluetooth Module
- - Breadboard
- - Jumper Cables
- - 330 Ohm Resistors
- - LED's

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NETFLIX

data mines movie viewing patterns to understand what drives user interest

facebook

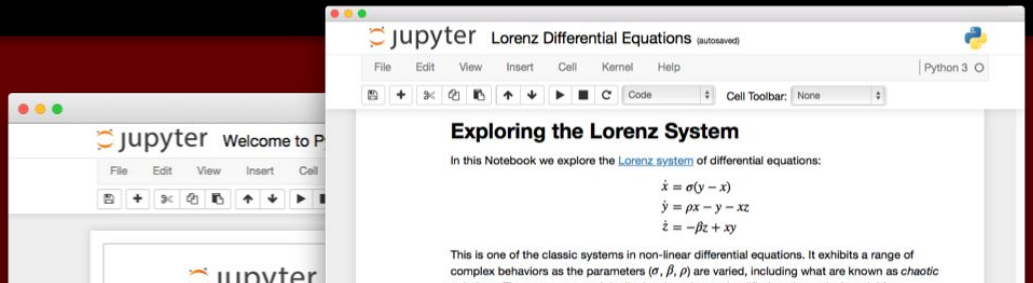
\+ Data scientists at Facebook conduct large-scale, global research

amazon.com

\+ recommendations, fraud and fake review detection, inventory and sales forecasting

# What is data science

It is all about uncovering facts & findings from data
finding hidden insights that can help enable companies to make smarter business decisions



# Scrape, collect data Using Python

**Web scraping** is the extraction of data from a website, typically through HTML files

Python libs

Scrapy Beautifulsoup

Request LXML

**Web crawling** is simply what a search engine like Google does, looking for any information it can find and displaying that.

Terminal

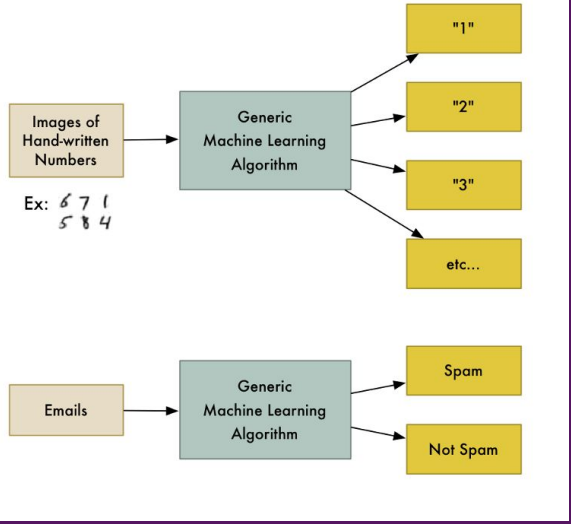
```
$ pip install scrapy
$ cat > myspider.py <<EOF
import scrapy

class BlogSpider(scrapy.Spider):
    name = 'blogspider'
    start_urls = ['https://blog.scrapinghub.com']

    def parse(self, response):
        for title in response.css('.post-header>h2'):
            yield {'title': title.css('a ::text').extract_first()}

        for next_page in response.css('div.prev-post > a'):
            yield response.follow(next_page, self.parse)
EOF
$ scrapy runspider myspider.py
```

# Artificial Intelligence/Machine Learning

The idea that there are generic algorithms that can tell you something interesting about a set of data without you having to write any custom code specific to the problem

Instead of writing code, you feed data to the generic algorithm and it builds its own logic based on the data.

Machine learning algorithm is a black box that can be reused for lots of different classification problems



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# Where Artificial Intelligence is used

## Finance and Banking

- Credit scoring
- Fraud detection
- Risk analysis
- Client analysis
- Trading exchange forecasting

## Retail and E-commerce

- Demand forecasting
- Price optimization
- Recommendations
- Fraud detection
- Customer segmentation

## Marketing and Sales

- Market and customer segmentation
- Price optimization
- Churn rate analysis
- Customer lifetime value prediction
- Upsell opportunity analysis
- Sentiment analysis in social networks

## Travel and Booking

- Demand forecasting
- Price optimization
- Price forecasting (for dynamically changing prices)

## Healthcare and Life Sciences

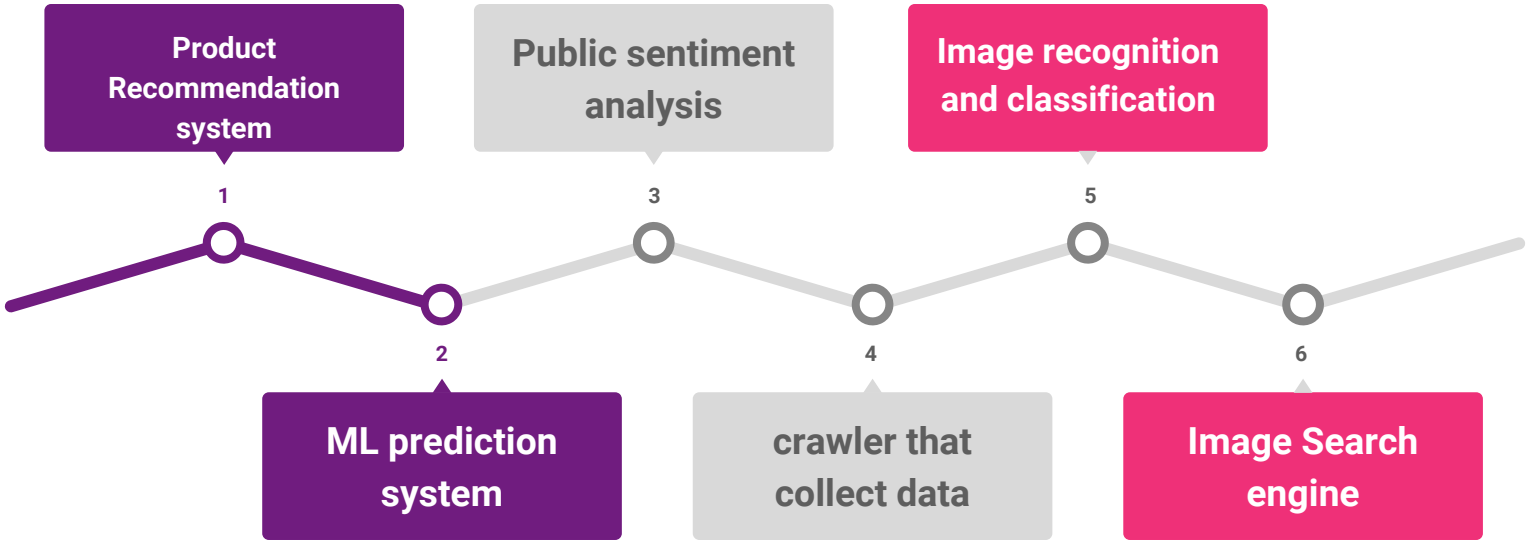
- Increase in diagnostic accuracy
- Identifying at-risk patients
- Insurance product cost optimization

## Other

- Object recognition (photo and video)
- Content recommendations (movies, music, articles and news)
- And more

altexsoft

# Types Of Project in Python



# Introduction to Programming Using Python

## Exam 98-381


**Certification**

**Badge**

# THANK YOU

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