IMD033 - Probabilidade

Aula 02 - Plataforma de Desenvolvimento

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Agosto 2018

Agenda

- How to Become a Data Scientist
- Development platform
- Hello World
- Python Beginner

How to Become a **Data Scientist**

MODERN DATA SCIENTIST

Data Scientist, the sexiest job of 21th century requires a mixture of multidisciplinary skills ranging from an intersection of mathematics, statistics, computer science, communication and business. Finding a data scientist is hard. Finding people who understand who a data scientist is, is equally hard. So here is a little cheat sheet on who the modern data scientist really is.

MATH & STATISTICS

- Machine learning
- Statistical modeling
- Experiment design
- Bayesian inference
- Supervised learning: decision trees, random forests, logistic regression
- Unsupervised learning: clustering, dimensionality reduction
- Optimization: gradient descent and variants

PROGRAMMING & DATABASE

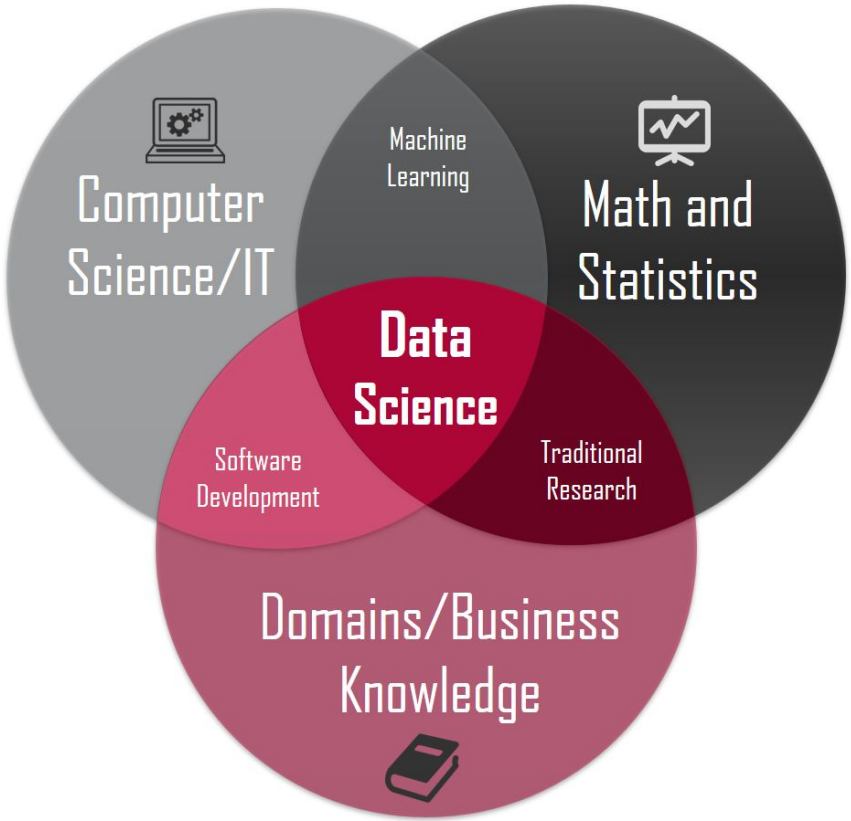
- Computer science fundamentals
- Scripting language e.g. Python
- Statistical computing package e.g. R
- Databases SQL and NoSQL
- Relational algebra
- Parallel databases and parallel query processing
- MapReduce concepts
- Hadoop and Hive/Pig
- Custom reducers
- Experience with xaaS like AWS

DOMAIN KNOWLEDGE & SOFT SKILLS

- Passionate about the business
- Curious about data
- Influence without authority
- Hacker mindset
- Problem solver
- Strategic, proactive, creative, innovative and collaborative

COMMUNICATION & VISUALIZATION

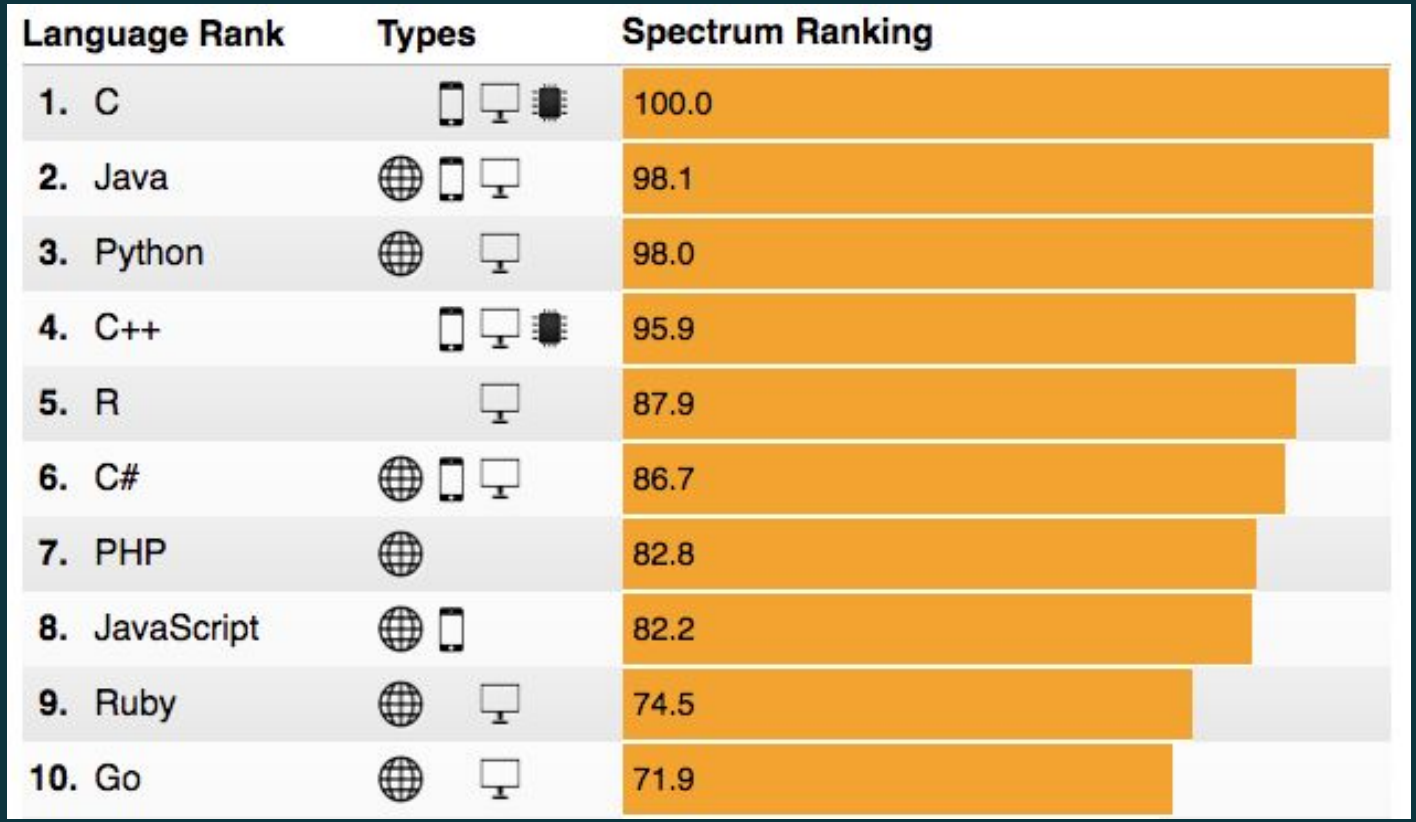
- Able to engage with senior management
- Story telling skills
- Translate data-driven insights into decisions and actions
- Visual art design
- R packages like ggplot or lattice
- Knowledge of any of visualization tools e.g. Flare, D3.js, Tableau



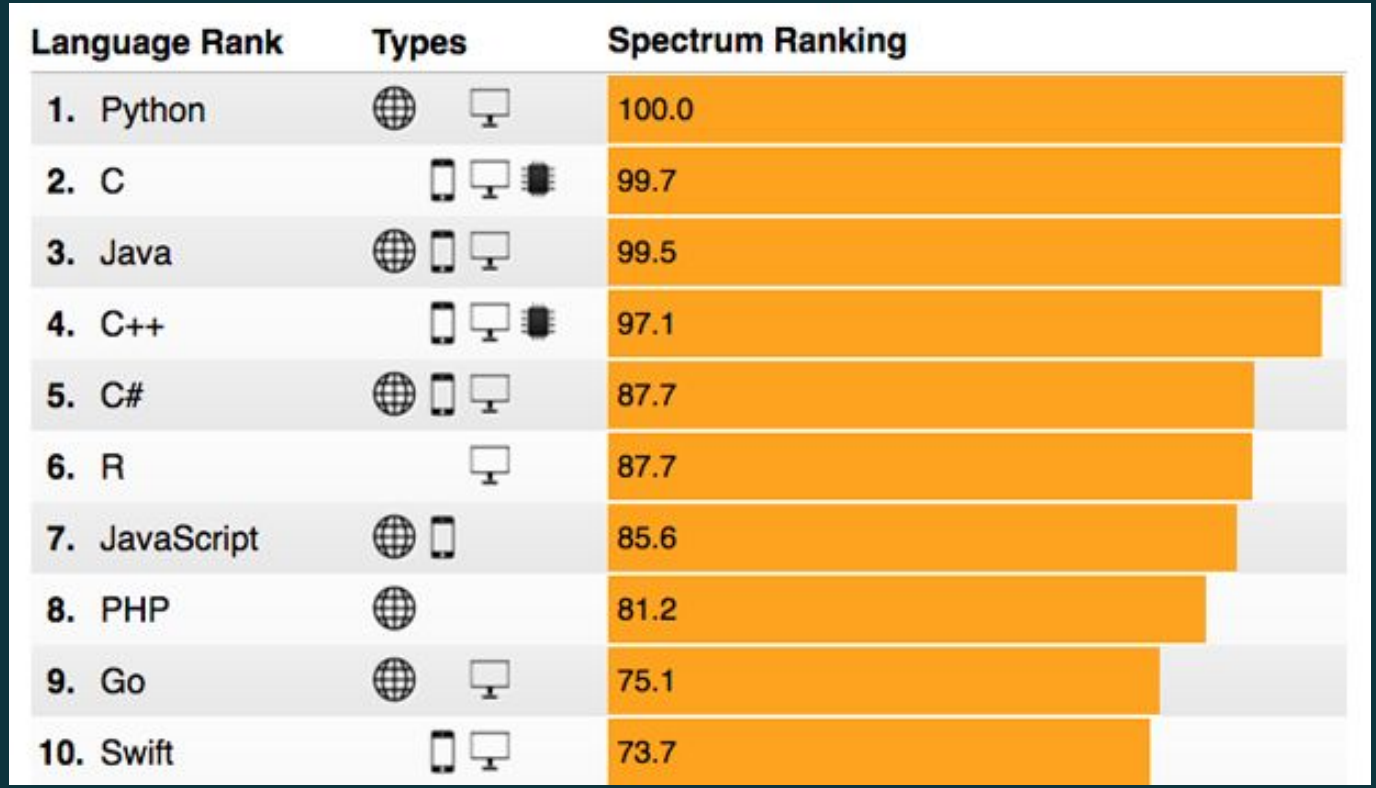
Pick ONE programming language and STICK to it. Don’t go back and constantly change your choice of language to study. If you do, you will slow your progress down.


which programming
language to learn first (DS)?

https://goo.gl/VKYfXn

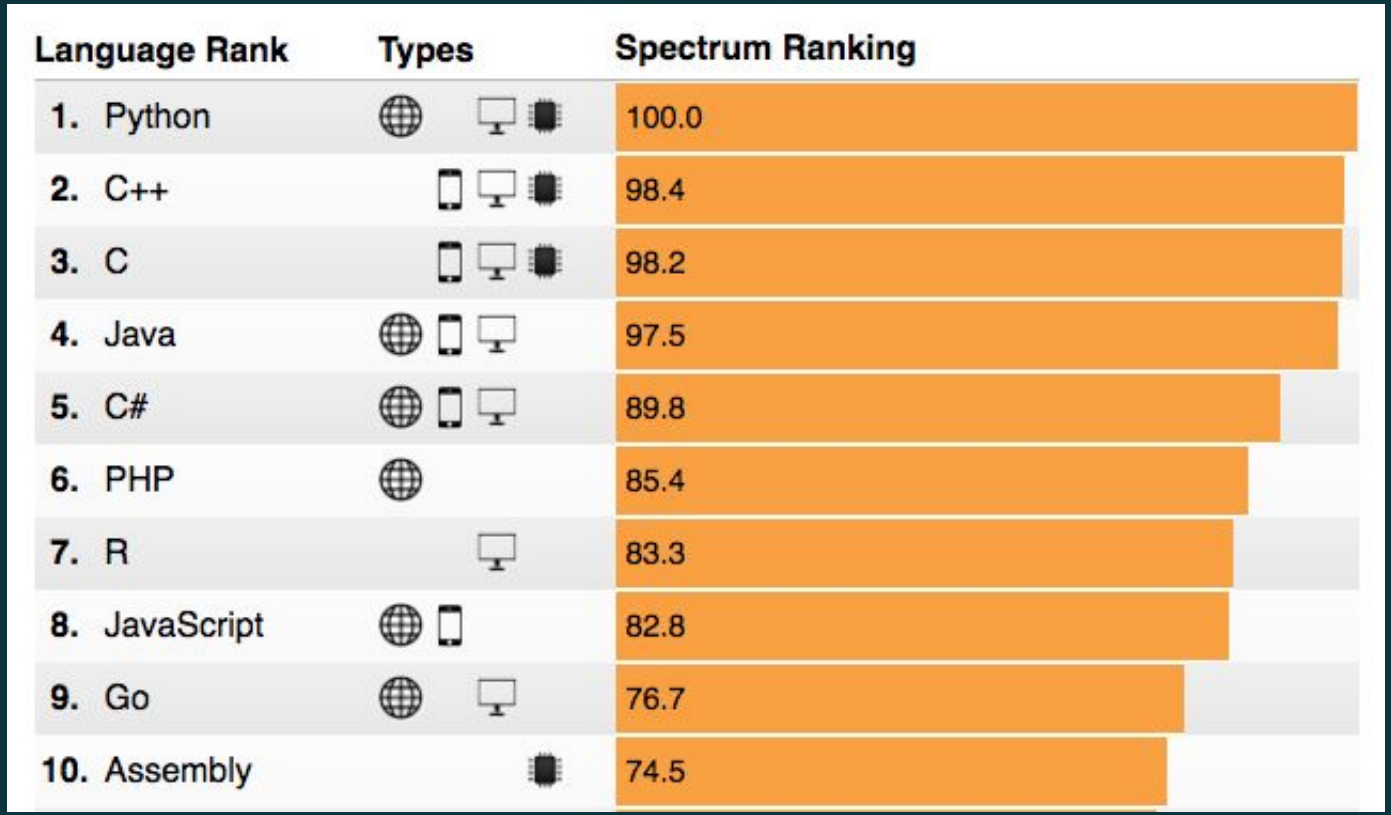


IEEE Spectrum - Jul 2016 https://goo.gl/BqrkDI



Language Rank	Types	Spectrum Ranking
1. Python		100.0
2. C		99.7
3. Java		99.5
4. C++		97.1
5. C#		87.7
6. R		87.7
7. JavaScript		85.6
8. PHP		81.2
9. Go		75.1
10. Swift		73.7

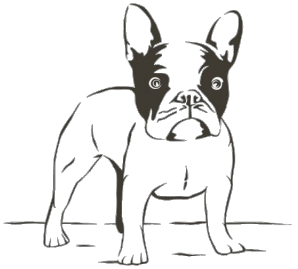
IEEE Spectrum - Jul 2017 https://goo.gl/HSPLWe



Language Rank	Types	Spectrum Ranking
1. Python		100.0
2. C++		98.4
3. C		98.2
4. Java		97.5
5. C#		89.8
6. PHP		85.4
7. R		83.3
8. JavaScript		82.8
9. Go		76.7
10. Assembly		74.5

IEEE Spectrum - Jul 2018
https://spectrum.ieee.org/at-work/innovation/the-2018-top-programming-languages

have
a pet
project

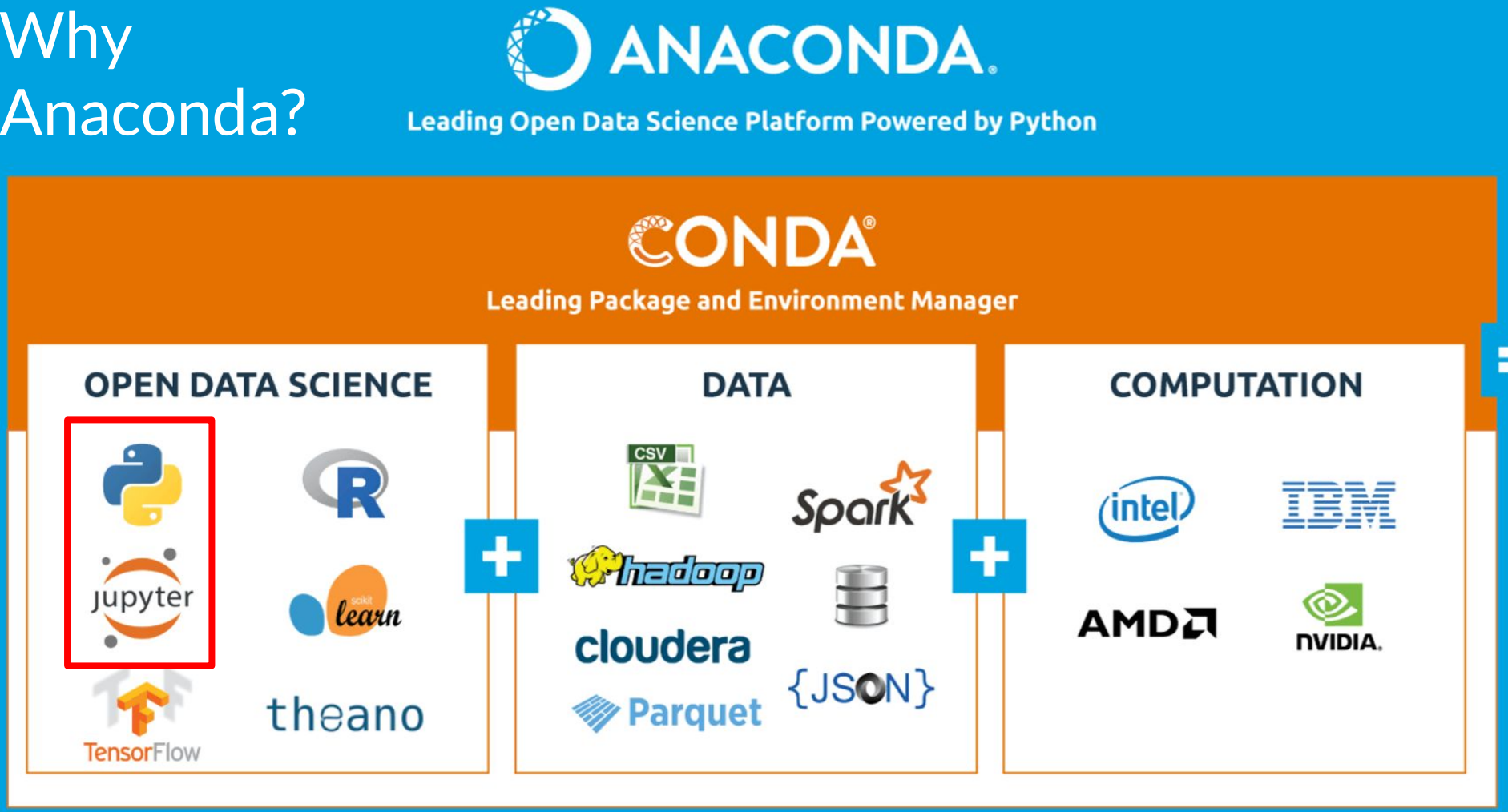


Be clear about your motivation. The reason this is important because learning Data Science is HARD. VERY HARD! So it's easy to lose motivation when on the journey.

Immerse yourself in the community (newsletters, articles, books, podcasts, youtube, hackathons and meetups)

https://www.continuum.io/downloads

Why Anaconda?



jupyter Untitled (unsaved changes)

File Edit View Insert Cell Kernel Help Python 2













Code CellToolbar

Simple Jupyter demo

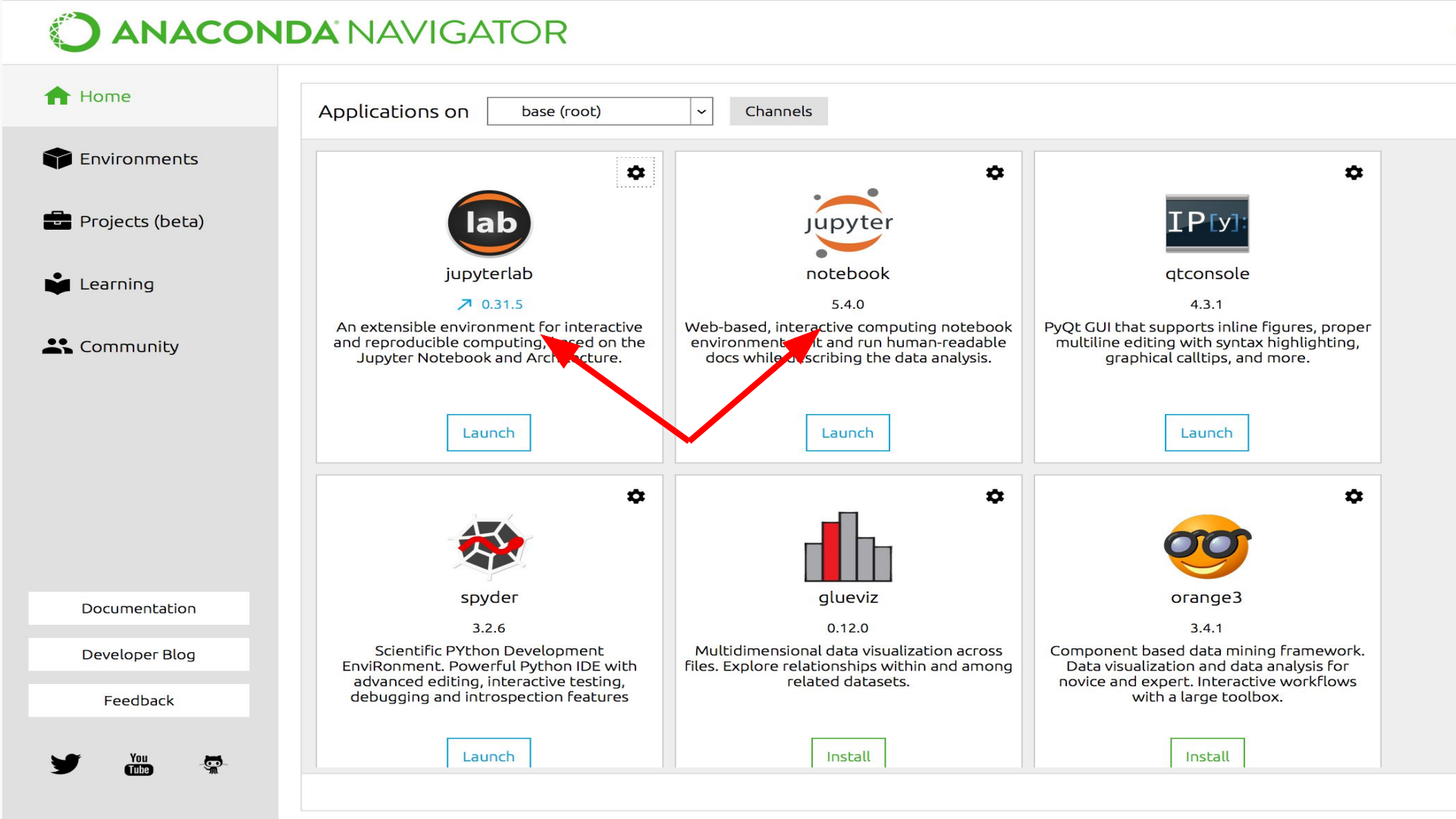
This cell has text formatted using the markdown language, which gets rendered like regular html. The next cell has some code:

In [57]:

```
import random
for i in range(3):
    print random.random()
x = 10
```

```
0.10564822904
0.153941700348
0.518503128416
```

Here is another text cell, with some *formatting*.


ANACONDA NAVIGATOR
Home
Environments
Projects (beta)
Learning
Community
Documentation
Developer Blog
Feedback
Applications on
base (root)
Channels
jupyterlab
0.31.5
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch
notebook
5.4.0
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data 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
Launch
glueviz
0.12.0
Multidimensional data visualization across files. Explore relationships within and among related datasets.
Install
orange3
3.4.1
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
Install

Sponsors

Project Jupyter receives direct funding from the following sources:

THE LEONA M. AND HARRY B. HELMSLEY CHARITABLE TRUST

ALFRED P. SLOAN FOUNDATION

GORDON AND BETTY MOORE FOUNDATION

Google

rackspace
the #1 managed cloud company

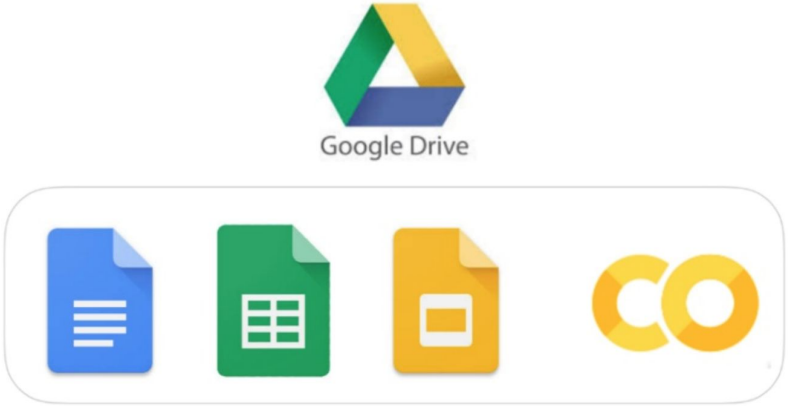
fastly

Horizon 2020
European Union funding
for Research & Innovation

Microsoft

Google Colaboratory

https://colab.research.google.com/



Colaboratory is a Google research project created to help disseminate machine learning education and research. It's a Jupyter notebook environment that requires no setup to use and runs entirely in the cloud.

Colaboratory notebooks are stored in Google Drive and can be shared just as you would with Google Docs or Sheets. Colaboratory is free to use.

Installing Git

https://git-scm.com/downloads

Atualizar o repositório

```
git clone https://github.com/ivanovitchm/imd0033_2018_2.git
```

Ou ....

```
git pull
```


MacBook Pro

Python Beginner

- Python basic
- Files and Loops
- Boolean and If statements
- List operations
- Challenges

Notebook: "Lesson #2 - Python Beginner.ipynb"

Lesson #2