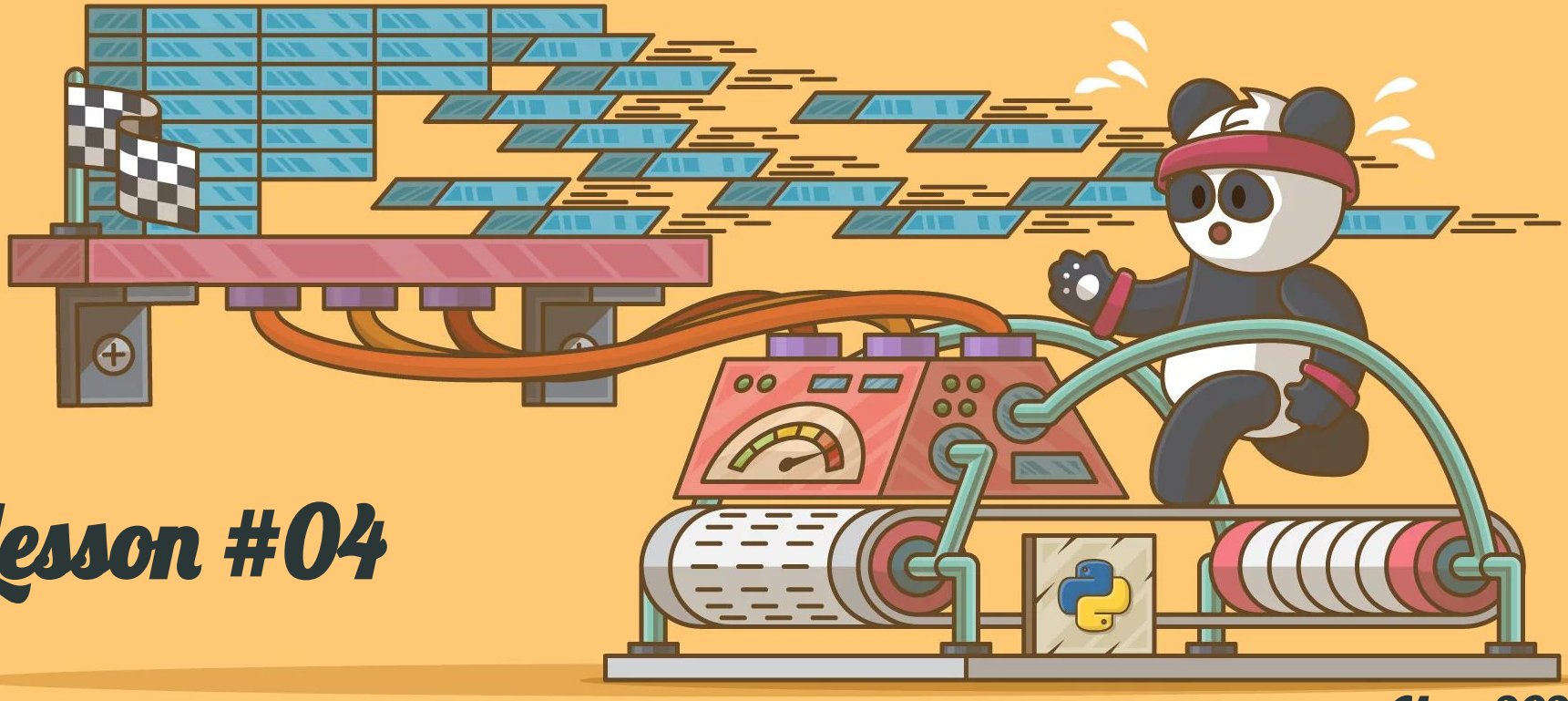


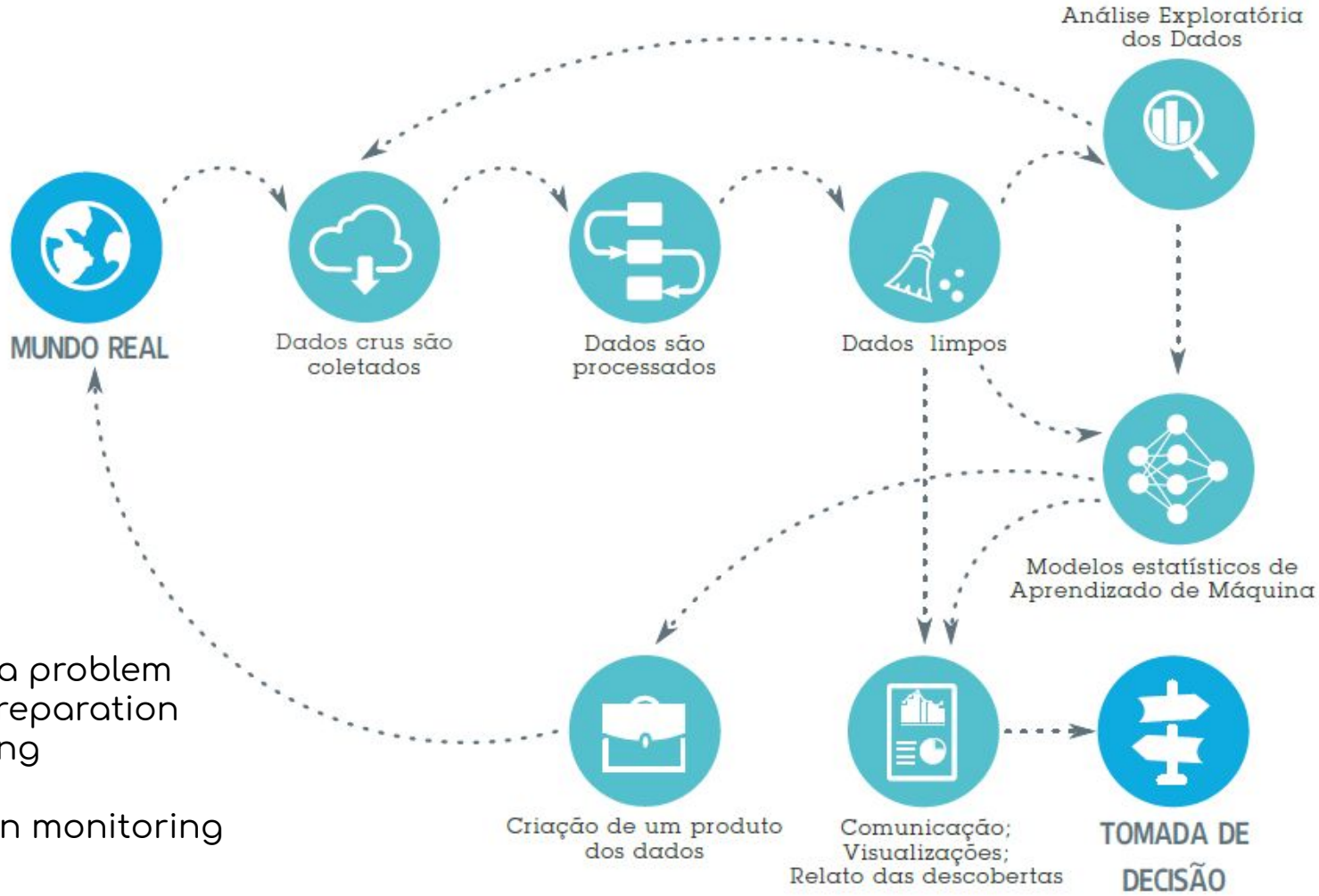
Lesson #04

Introduction to Pandas

Mar. 2020

Real Python

1. What do you think makes a good data scientist?
2. Give a few examples of “best practices” in data science.
3. Can you outline the steps in a data science project?
4. What data would you love to acquire if there were no limitations?
5. Tell me a compelling story about data that you have analyzed.



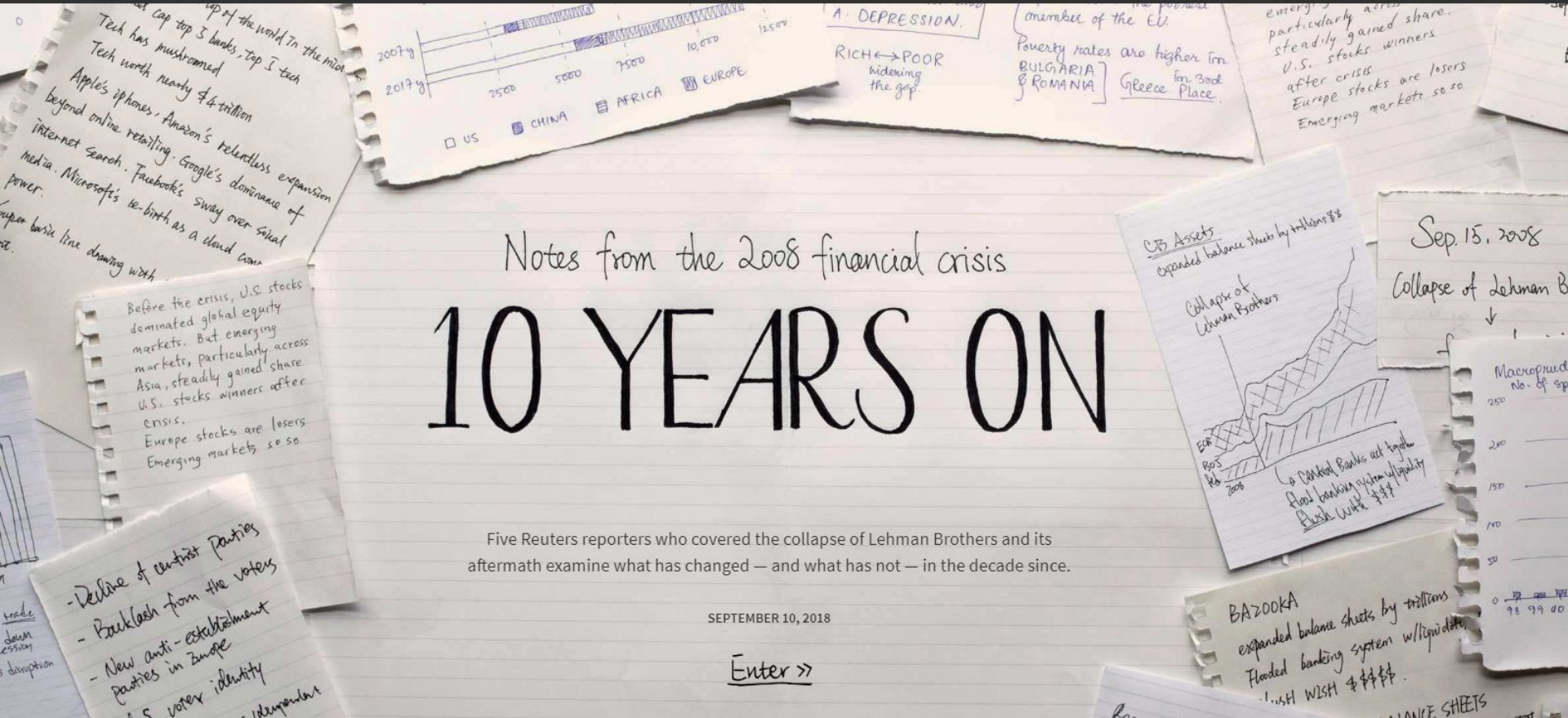
1. Define a problem
2. Data preparation
3. Modeling
4. Deploy
5. Solution monitoring

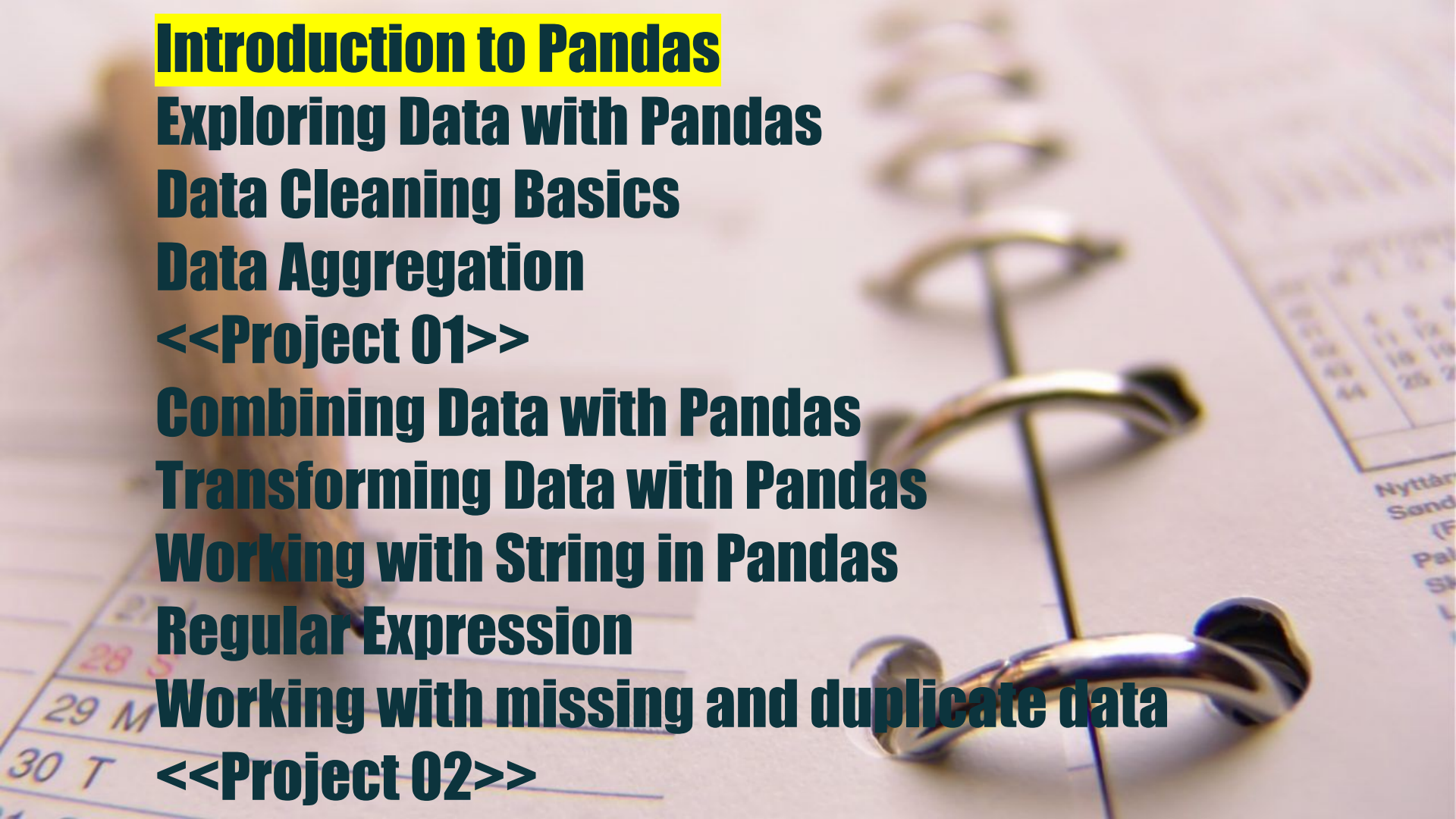
Gisliany Alves et al. Uma abordagem orientada a dados para a criação de um indicador de habitabilidade baseado na API da UBER

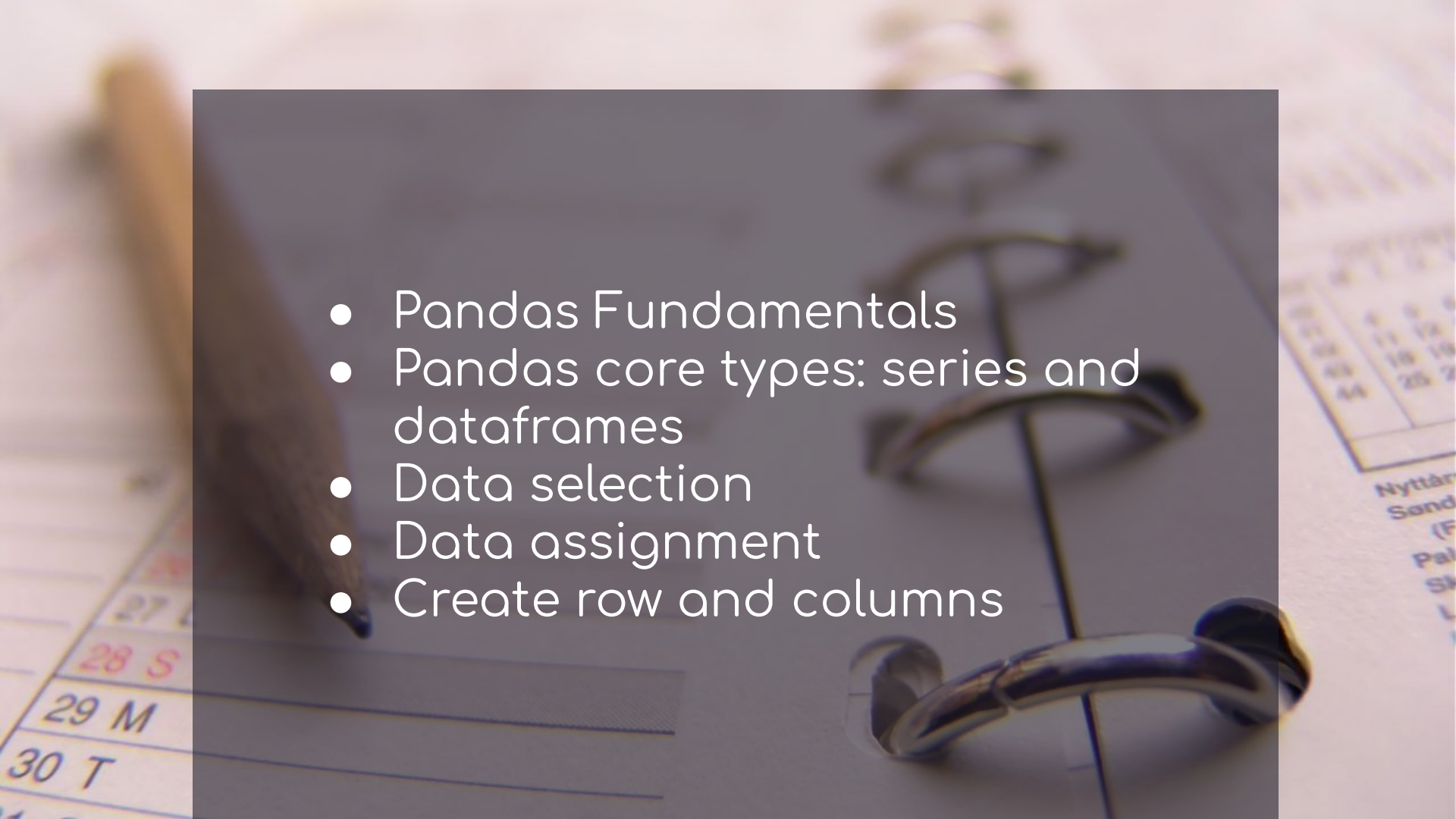
1. **Plan the experiment:** this involves answering questions like:
   a. What is the objective of the project
   b. What kind of data
   c. What is the desired accuracy ....
2. **Gather raw data:** make sure that we have the right kind of data and large enough data set for the desired accuracy.
3. **Gather tools:** use standard libraries, and aims for reproducibility
4. **Execute experiments**
5. **Analyze**
6. **Comunicate:** this involves preparing summaries of Experimental results, plots, publication, ...

Project Inspiration

REUTERS GRAPHICS




Introduction to Pandas
Exploring Data with Pandas
Data Cleaning Basics
Data Aggregation
<<Project 01>>
Combining Data with Pandas
Transforming Data with Pandas
Working with String in Pandas
Regular Expression
Working with missing and duplicate data
<<Project 02>>



- Pandas Fundamentals
- Pandas core types: series and dataframes
- Data selection
- Data assignment
- Create row and columns

Update from repository

```
git clone https://github.com/ivanovitchm/datascience2020
```

Or ....

```
git pull
```

S&P 500 Index · 1M · TVC O2974.3 H3096.5 L2945.2 C3066.8 +112.6 (+3.81%)
Vol (20): No volume is provided by the data vendor.
WMA 24 close
https://www.tradingview.com/
2006
2008
2010
2012
2014
2016
2018
2020

Global 500

The world's 500 largest companies generated $32.7 trillion in revenues and $2.15 trillion in profits in 2018. Together, this year's Fortune Global 500 companies employ 69.3 million people worldwide and are represented by 34 countries. Click here to view

The Top 10		Revenues ($M)
1	Walmart	$514,405
2	Sinopec Group	$414,649
3	Royal Dutch Shell	$396,556
4	China National Petroleum	$392,976
5	State Grid	$387,056
6	Saudi Aramco	$355,905
7	BP	$303,738
8	Exxon Mobil	$290,212
9	Volkswagen	$278,341
10	Toyota Motor	$272,612

Fortune 500

This year's *Fortune* 500 marks the 65th running of the list. In total, *Fortune* 500 companies represent two-thirds of the U.S. GDP with $13.7 trillion in revenues, $1.1 trillion in profits, $22.6 trillion in market value, and employ 28.7 million people worldwide.

https://fortune.com/global500/

Search or jump to... / Pull requests Issues Marketplace Explore

https://github.com/cmusam/fortune500

cmusam / fortune500

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Branch: master ▾ | fortune500 / csv /

Create new file | Upload files | Find file | History

cmusam add 2019 data — Latest commit 618f7ac on 4 Dec 2019

..

fortune500-1955.csv	upload HTML sources and csv files	14 months ago
fortune500-1956.csv	upload HTML sources and csv files	14 months ago
fortune500-1957.csv	upload HTML sources and csv files	14 months ago
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fortune500-1965.csv	upload HTML sources and csv files	14 months ago
fortune500-1966.csv	upload HTML sources and csv files	14 months ago
fortune500-1967.csv	upload HTML sources and csv files	14 months ago

https://towardsdatascience.com/bar-chart-race-in-python-with-matplotlib-8e687a5c8a41

f500.csv

company	rank	revenues	revenue_change	profits	assets	profit_change	ceo	industry
Walmart	1	485873	0.8	13643.0	198825	-7.2	C. Douglas McMillon	General Merchandisers
State Grid	2	315199	-4.4	9571.3	489838	-6.2	Kou Wei	Utilities
Sinopec Group	3	267518	-9.1	1257.9	310726	-65.0	Wang Yupu	Petroleum Refining
China National Petroleum	4	262573	-12.3	1867.5	585619	-73.7	Zhang Jianhua	Petroleum Refining
Toyota Motor	5	254694	7.7	16899.3	437575	-12.3	Akio Toyoda	Motor Vehicles and Parts

PANDAS PROFILING

https://github.com/pandas-profiling/pandas-profiling

https://plot.ly/python/plotly-express/

Navigation

Plotly Express

A single import with built-in datasets

Scatter and Line plots

Visualize Distributions

Ternary Coordinates

Images

3D Coordinates

Polar Coordinates

Maps

Back To Python

Plotly Express in Python

Plotly Express is a terse, consistent, high-level API for rapid data exploration and figure generation.

Python

▶ New to Plotly?

Plotly Express

Plotly Express is the easy-to-use, high-level interface to Plotly, which operates on "tidy" data and produces easy-to-style figures. Every Plotly Express function returns a `graph_objects.Figure` object whose `data` and `layout` has been pre-populated according to the provided arguments.

> **Note**: Plotly Express was previously its own separately-installed `plotly_express` package but is now part of `plotly` and importable via `import plotly.express as px`.

This notebook demonstrates various `plotly.express` features. Reference documentation is also available, as well as a tutorial on input argument types and one on how to style figures made with Plotly Express.

You can also read our original Medium announcement article for more information on this library.

https://medium.com/better-programming/the-data-science-interview-study-guide-c3824cb76c2e

The Data Science Interview Study Guide

Top highlight

121 resources to help you land your data science dream job

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