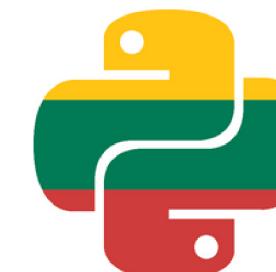


MERCURY widgets

a new way to make
an interactive web app from
Jupyter Notebook

Aleksandra Płońska, Piotr Płoński

Lithuania, 17-20 may 2023



ABOUT



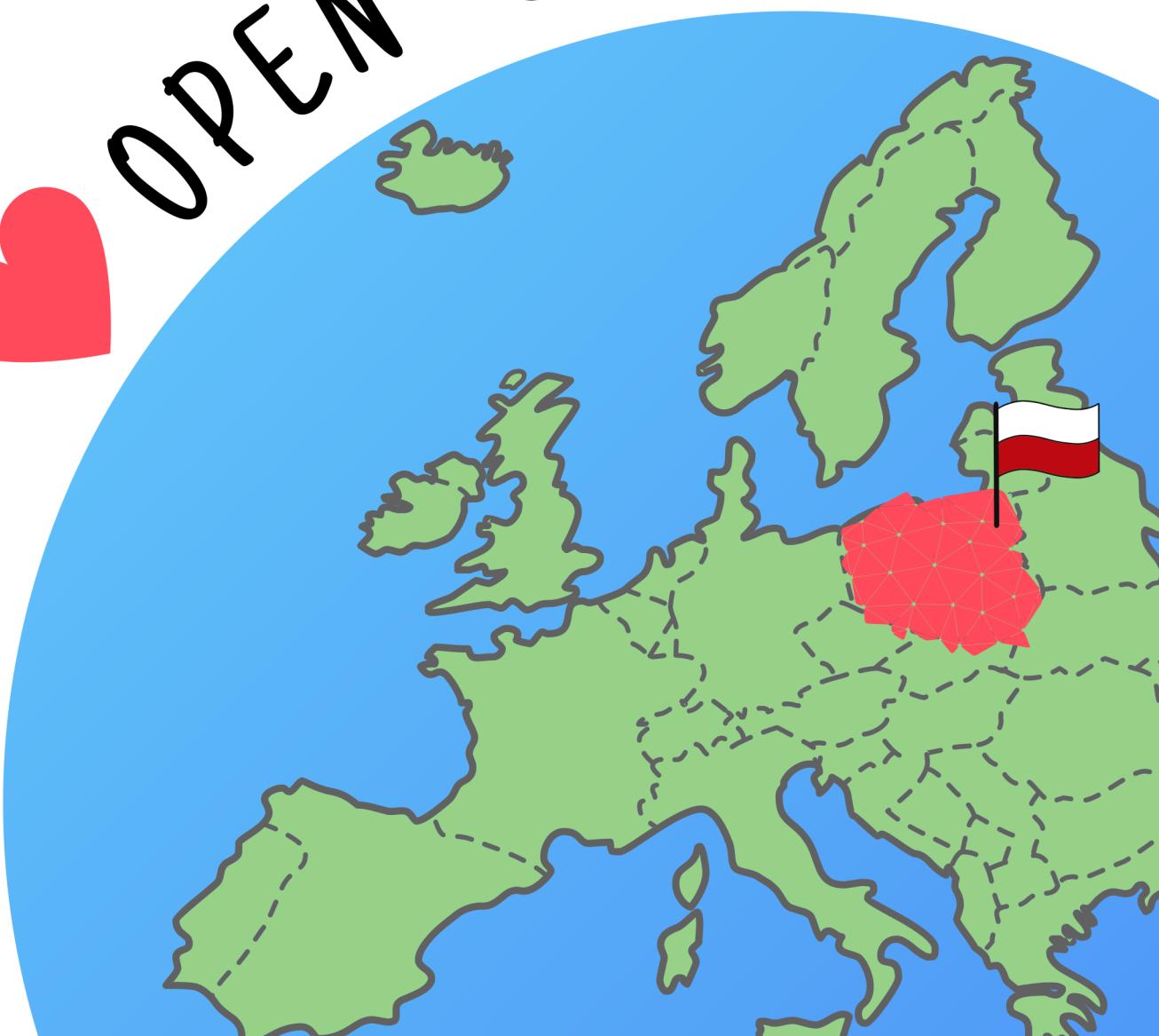
Data Science Tools
since 2016'



Based in Poland

Our mission is:
make data science accessible,
transparent, and efficient.

OPEN-SOURCE



DATA SCIENCE TOOLS



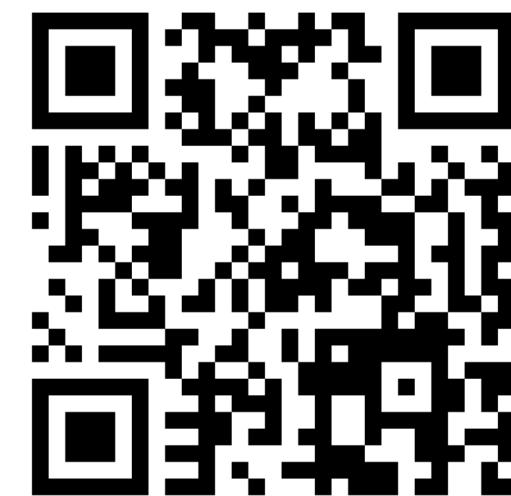
AutoML

MACHINE LEARNING FOR HUMANS



OMERCURY

Build Web Apps in
Jupyter Notebook



DATA SCIENCE TOOLS

AutoML
MACHINE LEARNING
FOR HUMANS

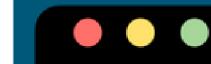


INPUT DATA FILE

Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Survived
3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171	7.25		0
1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599	71.2833	C85	1
3	Halkkinen, Miss. Laina	female	26	0	0	STON/O2. 3101282	79.25		1
1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35	1	0	113803	53.1	C123	1
3	Allen, Mr. William Henry	male	35	0	0	373450	8.05		0
3	Moran, Mr. James	male	0	0	0	330877	8.4583		0
1	McCarthy, Mr. Timothy J	male	54	0	0	131753	63.8626	84.1	0
3	Palsson, Master. Gosta Leonard	male	2	3	1				
3	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)	female	27	0	2				
2	Nasser, Mrs. Nicholas (Adele Achenbach)	female	54	1	0				
3	Sandström, Miss. Marguerite Rut	female	4	1	1				
1	Bonnell, Miss. Elizabeth	female	58	0	0	113783	26.05	C103	1
3	Saundercock, Mr. William Henry	male	20	0	0	A/5. 2151	8.05		0
3	Andersson, Mr. Anders Johān	male	39	1	5	347082	31.275		
3	Vestrom, Miss. Hilda Amanda Adelina	female	14	0	0	360406	7.8542		0
2	Hewlett, Mrs. (May D Kingcome)	female	65	0	0	248706	16		1
3	Rice, Master. Eugene	male	2	4	1	382652	29.125		0
2	Williams, Mr. Charles Eugene	male	0	0	0	244373	13		1
3	Vander Plank, Mrs. Julius (Emilia Maria Vandemoortele)	female	31	1	0	345763	18		0
3	Masselmani, Mrs. Fatima	female	0	0	0	2649	7.225		1
2	Fynnes, Mr. Joseph J	male	36	0	0	239965	26		0

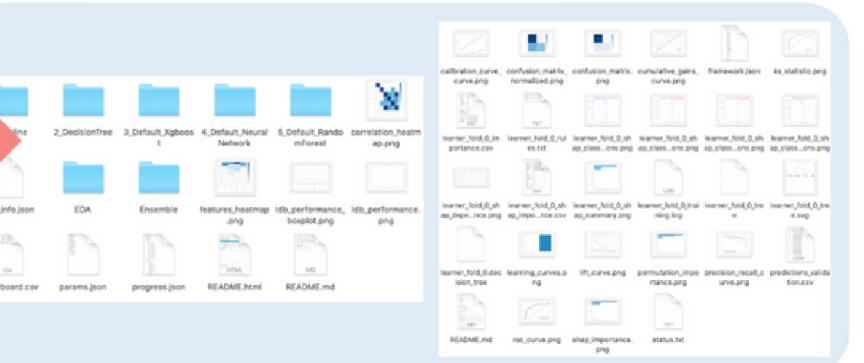


AutoML
with a
few lines of code



```
>_
from supervised import AutoML
automl=AutoML()
automl.fit(X,y)
```

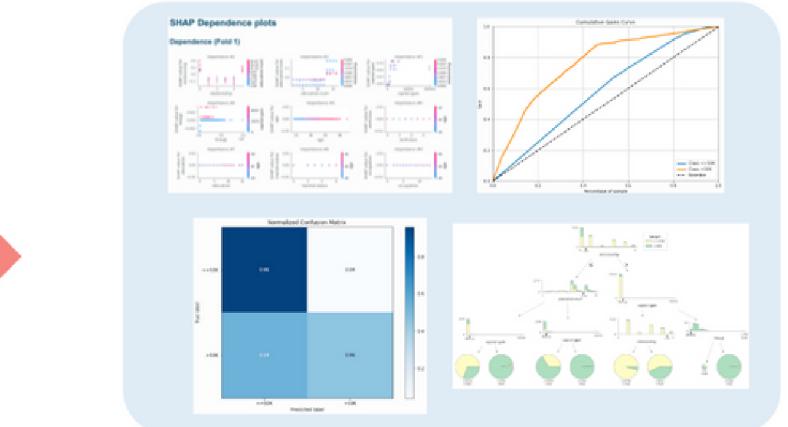
AUTO-SAVE & AUTO-DOC



MODEL LEADERBOARD

Best model	name	model_type	metric_type	metric_value	train_time
1_Baseline		Baseline	logloss	0.555532	0.74
2_DecisionTree		Decision Tree	logloss	0.376732	10.99
the best 3_Default_Xgboost		Xgboost	logloss	0.285863	7.57
4_Default_NeuralNetwork		Neural Network	logloss	0.341575	6.63
5_Default_RandomForest		Random Forest	logloss	0.353436	6.95
Ensemble		Ensemble	logloss	0.285863	1.2

MANY VISUALIZATIONS



DATA SCIENCE TOOLS



The image shows a Jupyter Notebook interface with a title bar "STARTUP INVESTMENTS". Below the title, there's a Python code cell showing data filtering and merging steps. A large red arrow points from the right side of the Jupyter interface towards the left, where a screenshot of the MERCURY web application is displayed.

Jupyter Notebook Code:

```
In [10]: df = df[(df.founded_year >= year.value[0]) & (df.founded_year <= year.value[1])]  
In [11]: df = df[df['market'].isin(market.value)]  
In [12]: df = df[df['status'].isin(status.value)]  
In [13]: countries = pd.read_csv('https://raw.githubusercontent.com/plotly/datasets/master/2014_world_gdp_with_codes.csv')  
# countries = countries.drop('GDP (BILLIONS)', 1)  
countries = countries.rename(columns={'CODE': 'country_code'})  
  
In [14]: df = pd.merge(df, countries, on='country_code')  
  
In [15]: fig_country_map = go.Figure()
```

MERCURY Application Screenshot:

The MERCURY application interface includes a sidebar with filters for "Select year range" (1980-2014), "Select market" (Software, Biotechnology, Mobile, E-Commerce, Curated Web, Enterprise Software, Health Care, Clean Technology, Games, Hardware + Software), and "Select status" (acquired, closed, operating, unknown). The main area displays a world map titled "Number of Startups per Country" with a color scale indicating the number of startups founded, ranging from 2000 to 8000. The map shows higher concentrations in North America and Europe.

MERCURY

Build Web Apps in
Jupyter Notebook



Explaining my analysis to my boss.



I WANT ANSWERS



**CALL THE DATA SCIENTIST.
RIGHT NOW!**

PROBLEM

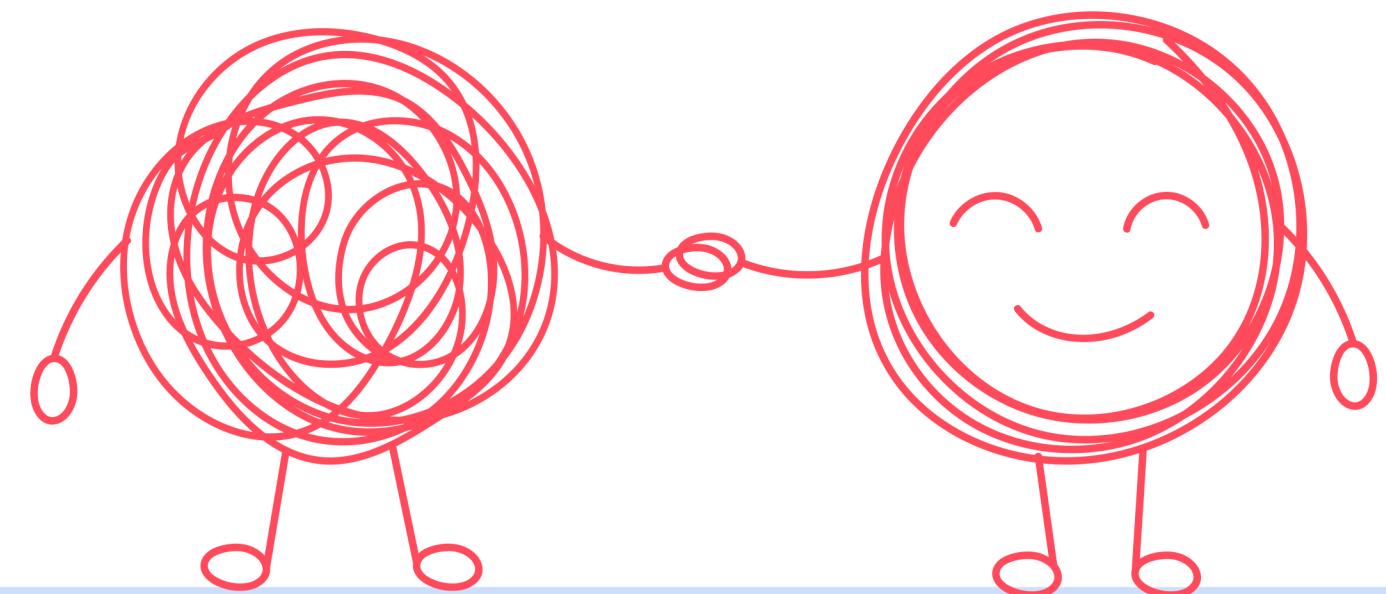
You wrote perfect code,
done a sophisticated analysis
with complicated algorithms...

and want to share it with
non-technical users.

PROBLEM TO SOLVE

Can't share notebooks with non-technical users.
They have lack of:

- PYTHON KNOWLEDGE
- INSTALLING & UPDATING PACKAGES
- SOMETIMES SPECIAL HARDWARE
- DATA ACCESS



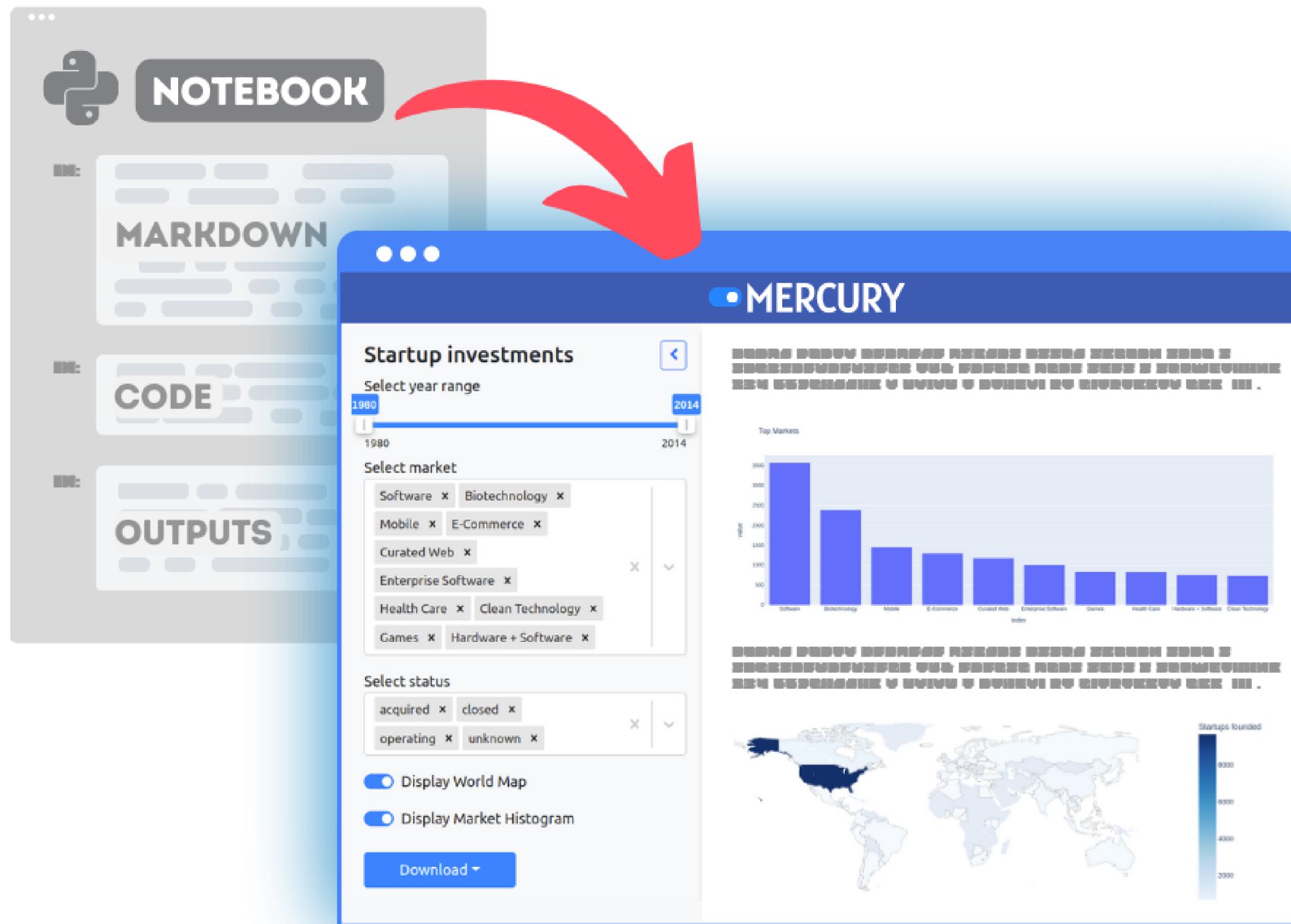


PROBLEM TO SOLVE

You can share your results:

- E-MAIL
- POWERPOINT
- REWRITE TO WEB APP

MERCURY



Framework for sharing notebooks as web apps

- VERY SIMPLE
- AUTH BUILT-IN
- EASY DEPLOYMENT

HOW IT WORKS?

- NO CALLBACKS!
- AUTOMATIC CELLS RE-EXECUTION
- REWRITE YOUR NOTEBOOK
- FRONTEND TECHNOLOGIES KNOWLEDGE REQUIRED

The screenshot displays the Mercury platform's user interface, featuring a dark header with the logo and a light-colored main area. The main area is titled "Welcome to my Site!" and contains several project cards:

- Reddit/Data Science Salary Analysis 2021**: A card showing raw statistics from a Reddit thread. It includes a snippet of Python code for reading CSV files and calculating statistics.
- Reddit Data Science Salary, 2021**: A card showing salary analysis for Data Scientists based on reddit discussion in 2021. It includes an "Open" button.
- Movies Explorer**: A card showing a scatter plot of movie data. It includes a snippet of code for exploring movies with Mercury and an "Open" button.
- Movies Explorer with code**: A card showing a histogram of population. It includes a snippet of code for exploring movies with Mercury and an "Open" button.
- Countries Life Expectancy and GDP**: A card showing a bar chart of life expectancy and GDP. It includes a snippet of code for exploring countries data and an "Open" button.
- Countries Life Expectancy and GDP with code**: A card showing a bar chart of life expectancy and GDP. It includes a snippet of code for exploring countries data and an "Open" button.

DEMO

FEATURES



AUTHENTICATION



MULTIPLE APPS



EXPORT TO PDF OR HTML



EMBEDDING

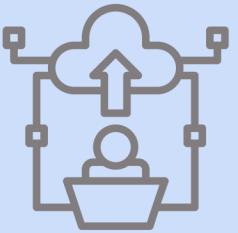


HIDE OR SHOW CODE



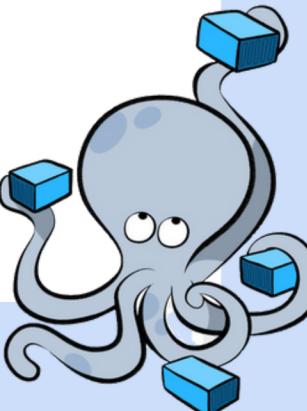
OUTPUTFILES

DEPLOYMENT



SELF-HOSTED

- DOCKER-COMPOSE
- HUGGINGFACE SPACES,
- NGROK



MERCURY CLOUD

- THE EASIEST WAY
- DEPLOY WITH A FEW CLICKS

DEPLOYMENT

Choose one of provided domain and create
your subdomain

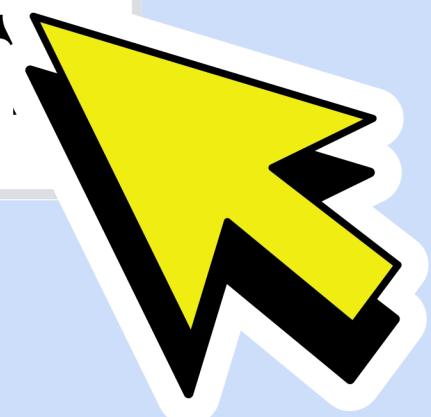
*.isDataScientist.com

COMPANY NAME

*.PreviewReport.com

*.RunMercury.com

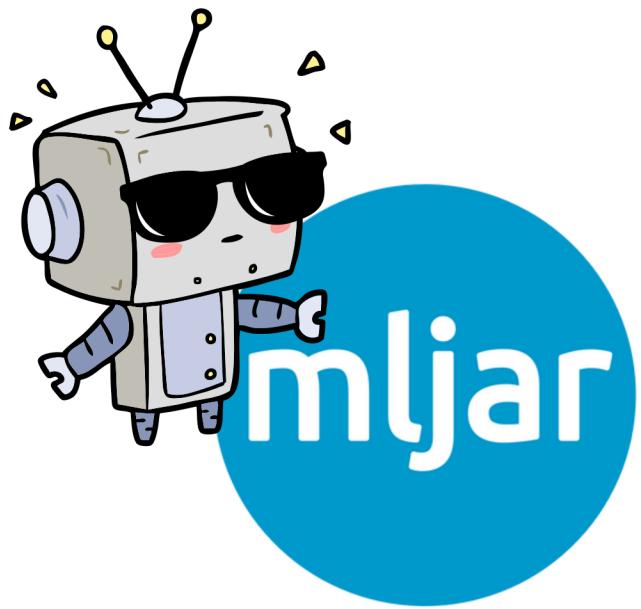
*.DataInAdvance.com



DEPLOYMENT DEMO

SUMMARY

- SHARE NOTEBOOKS AS WEB APPS
- MERCURY IS SIMPLE FRAMEWORK
- EASY DEPLOYMENT
- NEED MORE WAYS TO SHARE NOTEBOOKS



THANK YOU!

contact@mljar.com



<https://mljar.com>
<https://RunMercury.com>

