

Turning notebook into a web app with Mercury

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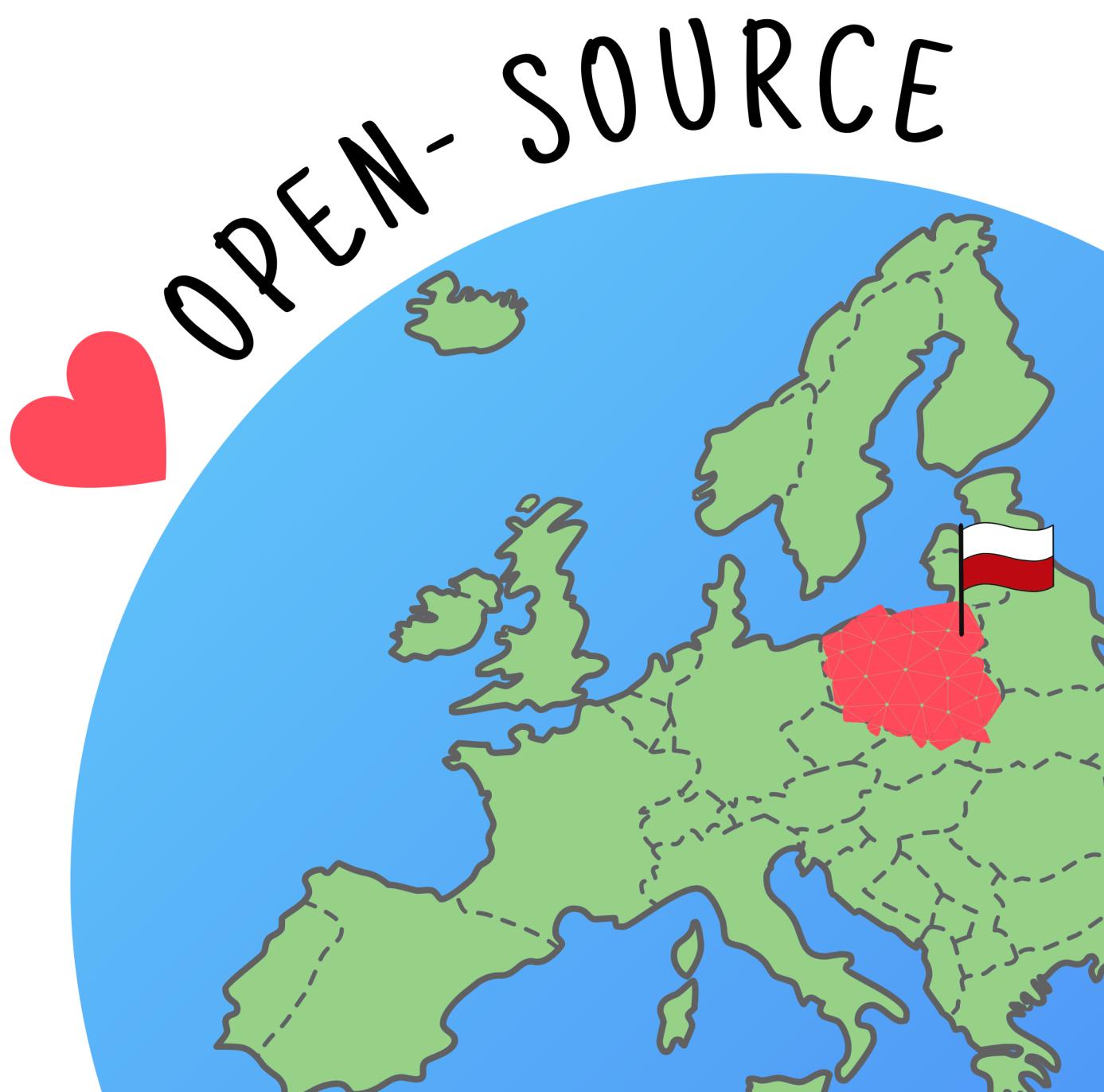
Data Science Tools

since 2016'



Based in Poland

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



TOOLS



AutoML

MLJAR AutoML builds a complete Machine Learning Pipeline. It offers:

- advanced feature engineering
- algorithms selection and tuning
- automatic documentation
- ML explanations



Mercury is a web framework for converting Python Notebooks into interactive web applications



AutoML



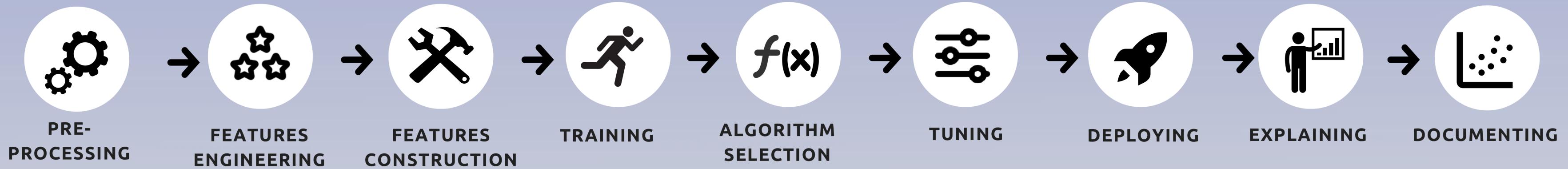
- ★ open-source
- ★ **86 citations** in research papers
- ★ around **1 million** downloads
- ★ works with **Python** with versions 3.8, 3.9, 3.10, 3.11
- ★ **MIT** license

HOW IT WORKS

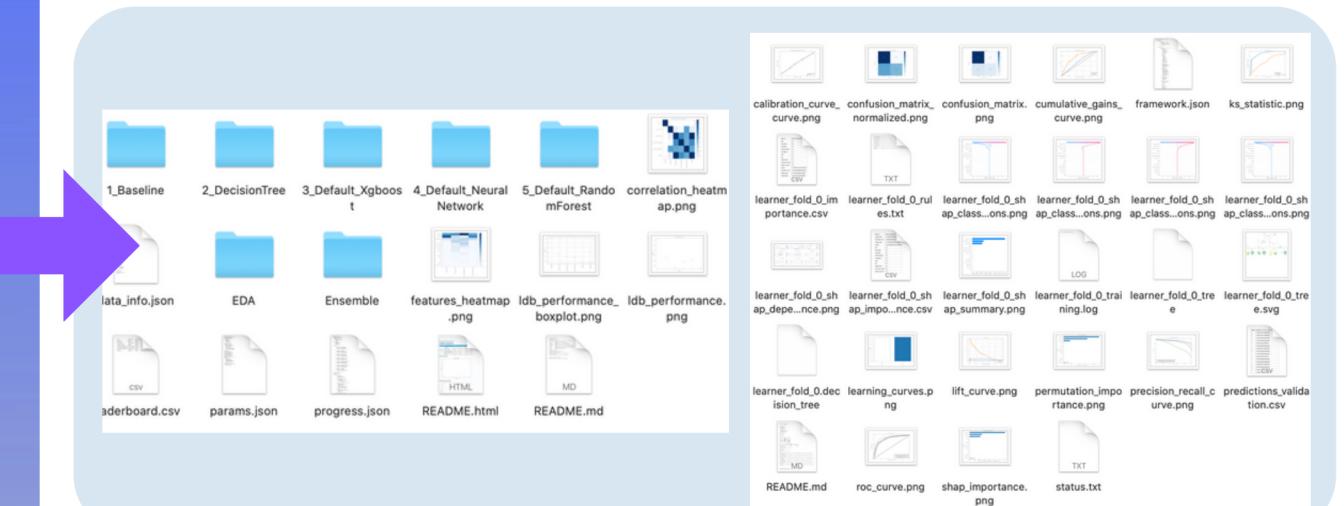
mljar-supervised
one Python package that includes



MACHINE LEARNING PIPELINE - STAGES AUTOMATED WITH AUTOML



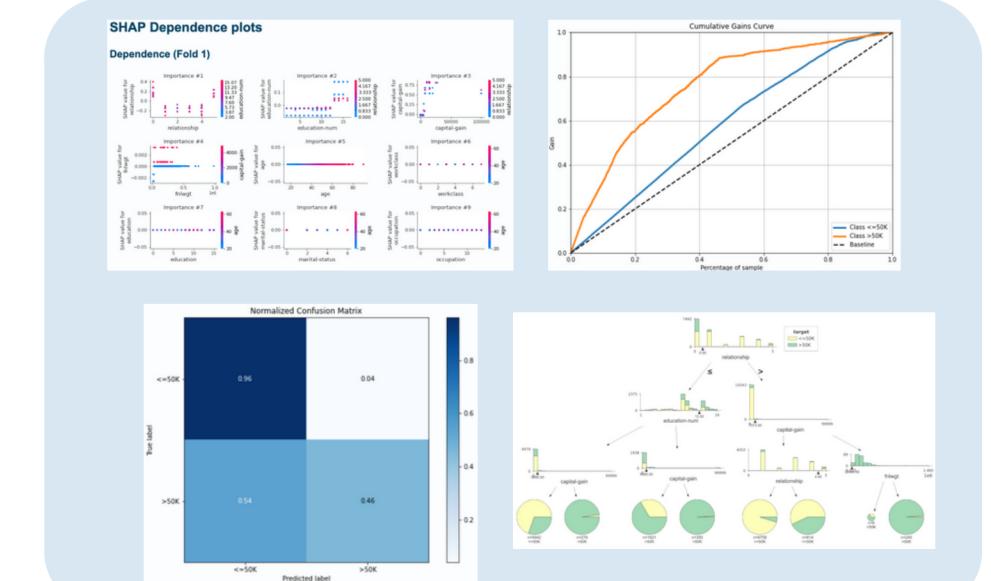
AUTO-SAVE & AUTO-DOC



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



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	Heikkinen, 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	17463	51.8625	E46	0
3	Palsson, Master. Gosta Leonard	male	2	3	1	349909	21.075		0
3	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)	female	27	0	2	347742			
2	Nasser, Mrs. Nicholas (Adèle Achem)	female	14	1	0	237736			
3	Sandstrom, Miss. Marguerite Rut	female	4	1	1	PP 9549			
1	Bonnell, Miss. Elizabeth	female	58	0	0	113783			
3	Saunderscock, Mr. William Henry	male	20	0	0	A/5. 2151	8.05		0
3	Andersson, Mr. Anders Johan	male	39	1	5	347082	31.275		0
3	Vestrom, Miss. Hulda Amanda Adolfina	female	14	0	0	350406	7.8542		0
2	Hewlett, Mrs. (Mary D Kingcome)	female	55	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 (Emelia Maria Vandemoortele)	female	31	1	0	345763	18		0
3	Masselmann, Mrs. Fatima	female	0	0	0	2649	7.225		1
2	Fynney, Mr. Joseph J	male	35	0	0	239865	26		0

AutoML
with a
few lines of code



```
from supervised import AutoML
automl=AutoML()
automl.fit(X,y)
pred = automl.predict(X_test)
```

EXPLAIN YOUR WORK

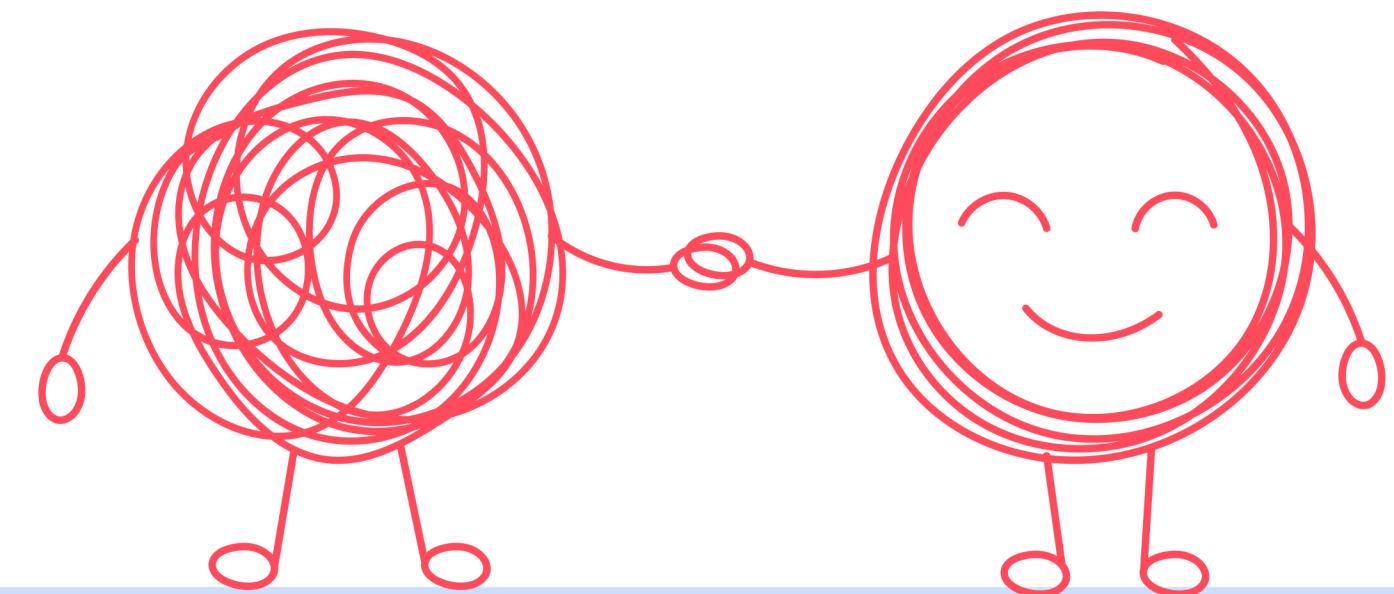
SHOW ML PIPELINE FOR BOSS

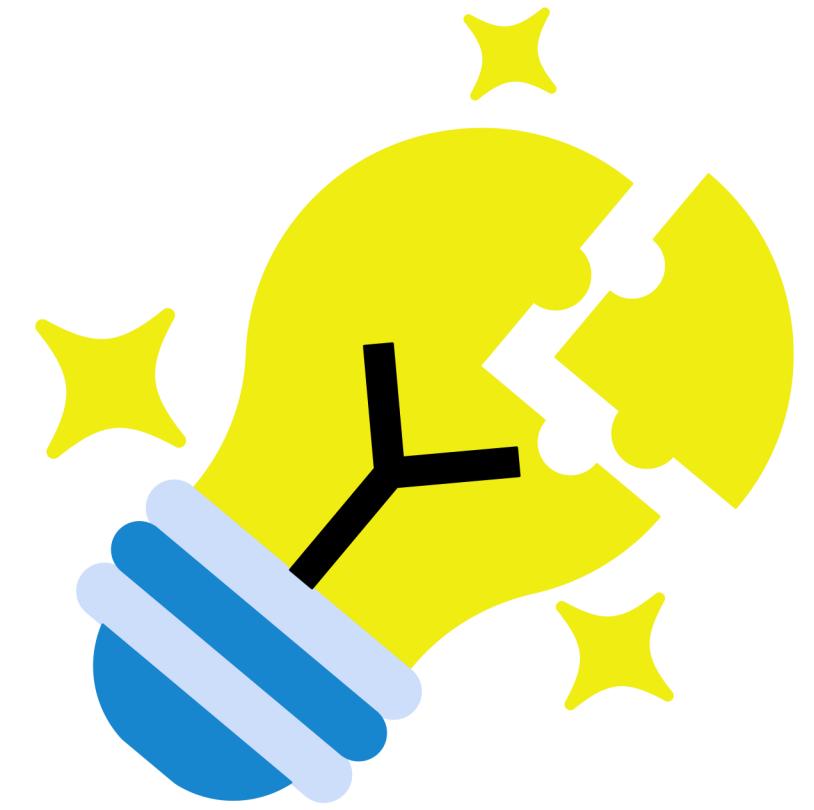


PROBLEM TO SOLVE

Can't share notebooks with non-technical users

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



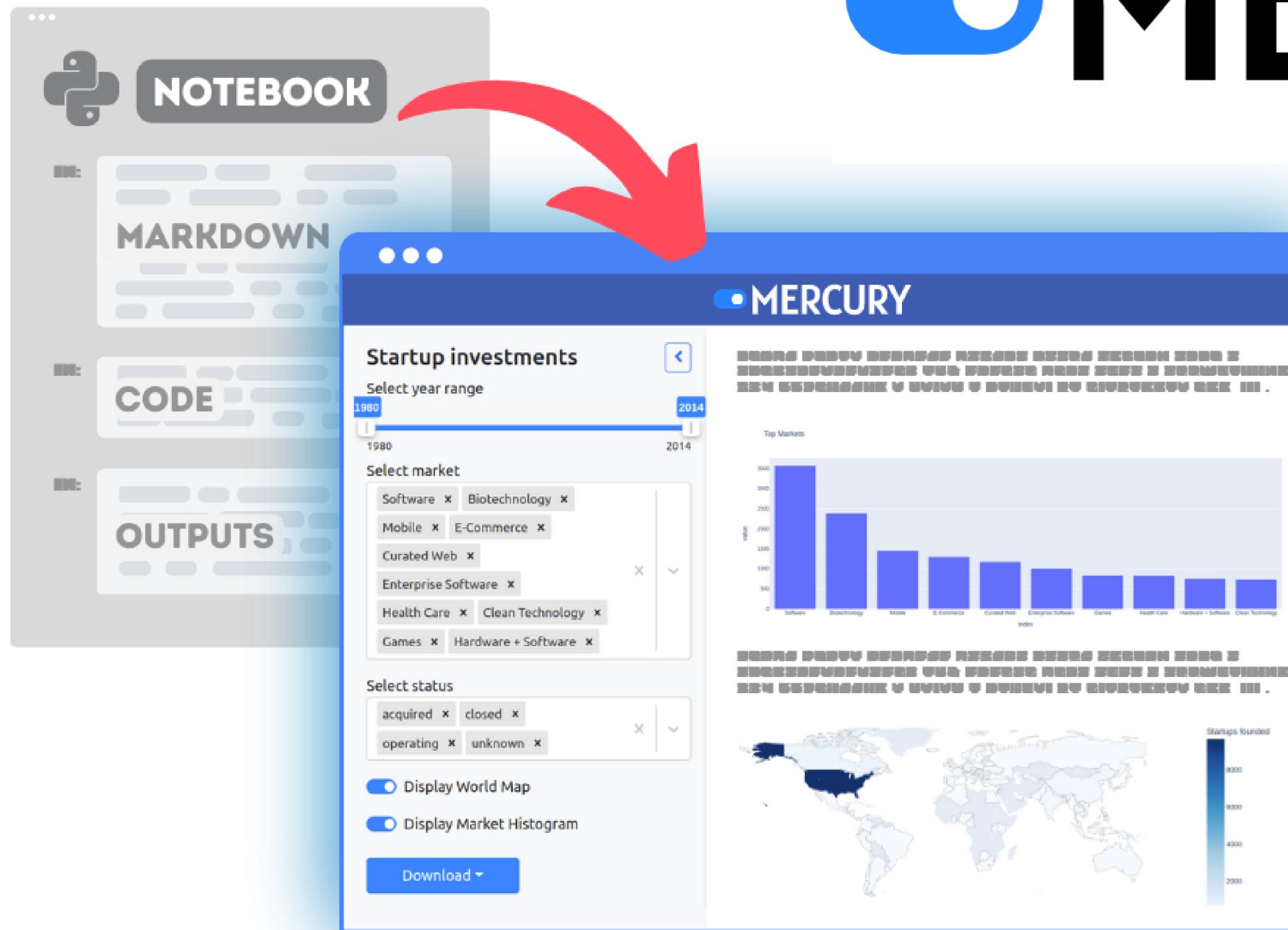


PROBLEM TO SOLVE

You can share your results:

- E-MAIL
- POWERPOINT
- REWRITE TO WEB APP

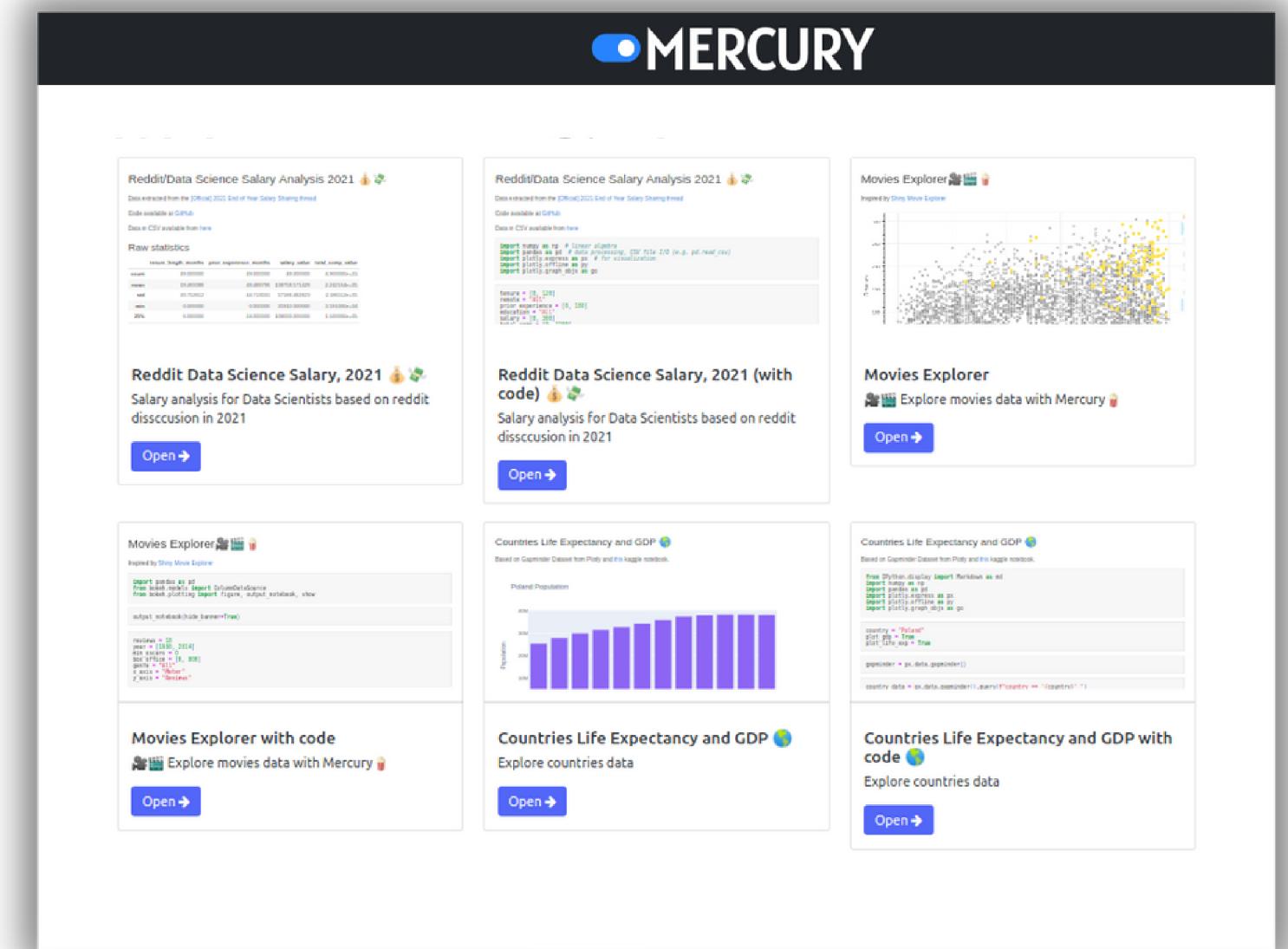
•MERCURY



Framework for
sharing notebooks

WHY IT IS DIFFERENT?

- NO CALLBACKS!
- NO LAYOUT WIDGETS

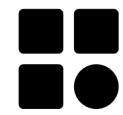




LET'S CODE

github.com/mljar/pydata-nyc-2023

FEATURES



multiple apps

Share as many notebooks as you want.



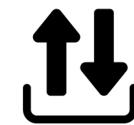
authentication

Decide with whom to share your notebooks.



export to PDF or HTML

Users can easily export the executed notebook as a PDF or HTML



output files

Produce files in notebook and make the downloadable for users



embedding

Run notebook with Mercury and embed it on any website



hide or show code

Decide whether you want to show or hide code in the app

YOU CAN BUILD

REPORT

WEB APP

PDF

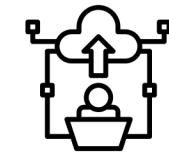
This block displays two main components: a 'REPORT' section on the left featuring a 'SELECT' button and a 'PDF' icon, and a 'WEB APP' section on the right containing several different types of charts and graphs.

PRESENTATION

This block shows a 'PRESENTATION' section with a variety of data visualizations, including a pie chart, a line graph, and several bar charts.



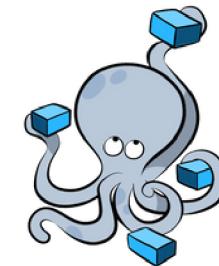
DEPLOYING



self-hosted

with

Docker-Compose



Ngrok

ngrok



Hugging Face



self-hosted

Commercial

Deployment dashboard to manage notebooks and users, and:

- User analytics
- Private forks
- Style customization
- Email support



mercury cloud

Create your site

- choose from many domains & set your custom domain:

YOUR NAME.isDataScientist.com

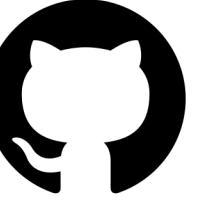
.PreviewReport.com

.RunMercury.com

.DataInAdvance.com

- or use your custom domain

THANK YOU!



github.com/mljar/mercury

