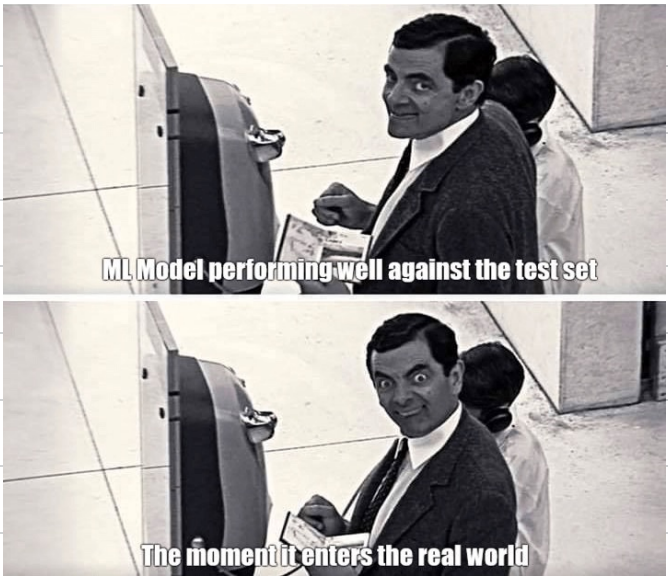
Session - 8

Experiment Tracking

June 20, 2025



Agenda

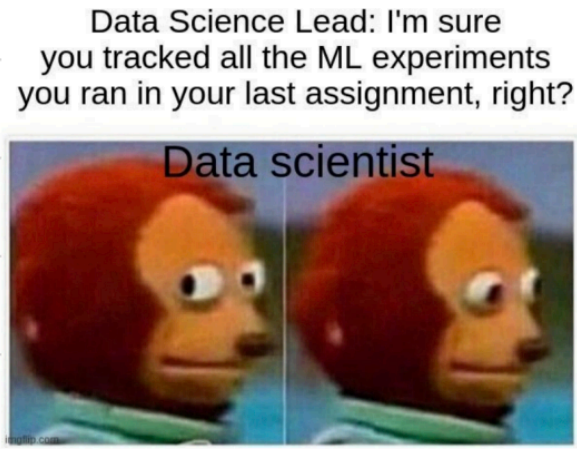
-> Discuss how to avoid 1000s of hours of torture.

Amazon / Google

10Ks

1000s of experiments

v. few of them work.



Feature → this content → Result.

PoC / MVP → minimum Viable Product

Proof of Concept

100K

(Data)

task

messenger → text one user to another

1 month

$ 120K

$ 20K

PoC

POC → 100s of model → acc

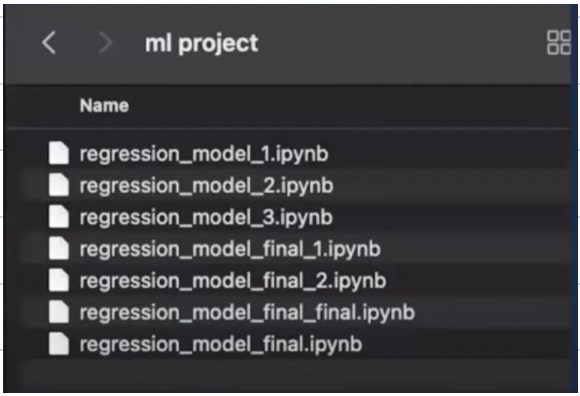
diff. metric

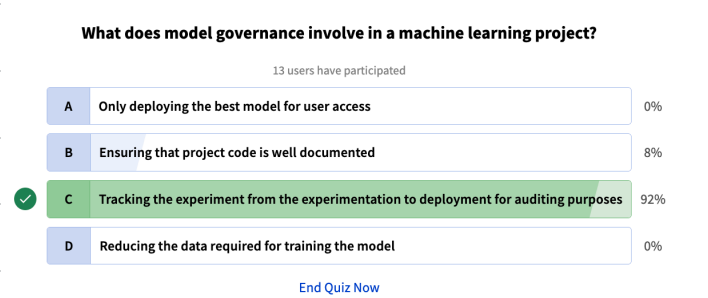
factors

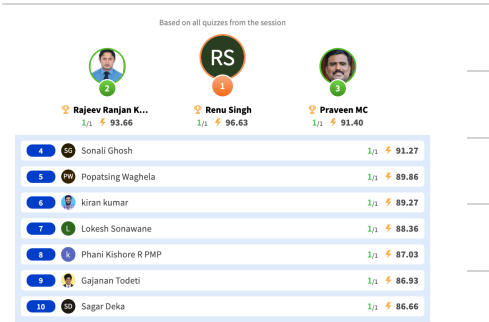
model fit

Research

① Exp with many diff models







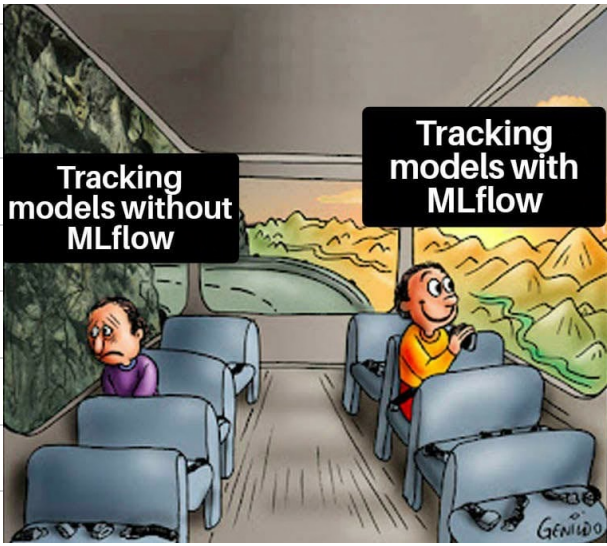
MLFLOW

EC2 instance → 24x7

mLFlow

Connect model Log will

EC2



CODECOV

↳

EC2

Why is it important to keep track of data in machine learning projects?

0 users have participated

A	Data is the code that makes machine learning models work	0%
B	Data can be sourced from multiple storage units	0%
C	Data helps in analyzing features at different steps of the project	0%
D	All of the above	0%

End Quiz Now

2	Popatsing Waghela	2/2 177.49
1	Renu Singh	2/2 190.90
3	Rajeev Ranjan K...	2/2 177.13
4	Ashwini Uday	2/2 173.26
5	Phani Kishore R PMP	2/2 171.70
6	Purnachandra	2/2 155.56
7	Manoj	2/2 135.53
8	Praveen MC	1/2 91.40
9	Sonali Ghosh	1/2 91.27
10	kiran kumar	1/2 89.27

What purpose do 'artifacts' serve in MLflow?

0 users have participated

A	To record every login attempt into the system	0%
B	To store machine learning algorithms	0%
C	To keep track of non-parameter and non-metric outputs like models and visualizations	0%
D	To track real-time changes to the source code	0%

End Quiz Now

2	Ashwini Uday	3/3 262.73
1	Rajeev Ranjan K...	3/3 264.86
3	Renu Singh	2/3 190.90
4	Sagar Deka	2/3 179.86
5	Praveen MC	2/3 179.33
6	Popatsing Waghela	2/3 177.49
7	Phani Kishore R PMP	2/3 171.70
8	Chirantan Sharma	2/3 169.30
9	Purnachandra	2/3 155.56
10	aniket	2/3 147.33

Based on all quizzes from the session

Which method is used to log parameters in MLflow?

0 users have participated

A	mlflow.log_param()	0%
B	mlflow.log_metric()	0%
C	mlflow.log_artifact()	0%
D	mlflow.log_user()	0%

End Quiz Now

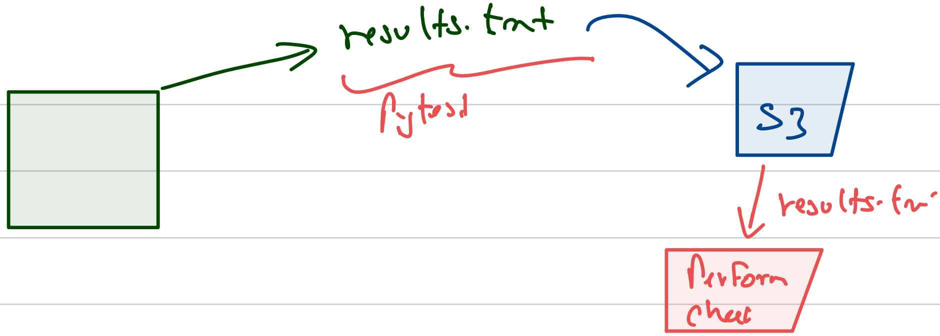
2	Rajeev Ranjan K...	4/4 354.13
1	Ashwini Uday	4/4 355.33
3	Renu Singh	3/4 275.86
4	Sagar Deka	3/4 274.93
5	Praveen MC	3/4 272.33
6	Popatsing Waghela	3/4 271.19
7	Phani Kishore R PMP	3/4 259.83
8	aniket	3/4 226.09
9	Chirantan Sharma	2/4 169.30
10	Purnachandra	2/4 155.56

results.txt

S3 Docker

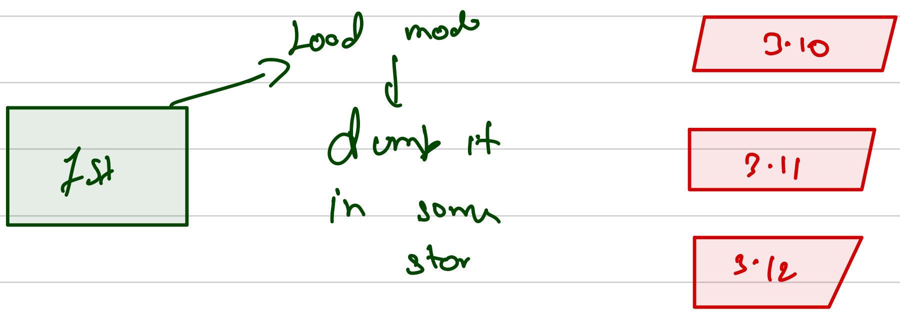
```yaml
obs:

  job1:
    runs-on: ubuntu-latest # can even have macos-latest or windows-latest
    steps:
      - name: Checkout code
        uses: actions/checkout@v4  # v4 is the version of the action we're using, not the branch of
        the code; https://github.com/actions/checkout
    # purpose of checkout code is to get the code from the repository, and put it in the runner
    machine

      - name: Set up Python
        uses: actions/setup-python@v5  # v4 is the version of the action we're using, not the
        branch of the code;
        with:
          python-version: '3.10'  # Specify the Python version you want to use

      - name: Install dependencies
        run: |
          python -m pip install --upgrade pip
          pip install -r session_6_CI/requirements.txt  # Install dependencies from requirements.txt

      - name: Run tests
        run: |
          pytest
```

Load results.txt & send email to people



model train → model file RF.pkl → 3.10, 3.9, 3.7

→ ubuntu os
→ Install python
→ train model / load model
→ test → 3.9
test → 3.10
test → 3.11



Action storage → 5 GB upto 90 days

Pytest

Codecov.yml → Action Store → Upload to Codecov web

aws EC2 instance types

	General Purpose		Compute Optimized	Memory Optimized		Accelerated Computing	Storage Optimized		
Type	t2	m5	c5	r4	x1e	p3	h1	i3	d2
Description	Burstable, good for changing workloads	Balanced, good for consistent workloads	High ratio of compute to memory	Good for in-memory databases	Good for full in-memory applications	Good for graphics processing and other GPU uses	HDD backed, balance of compute and memory	SDD backed, balance of compute and memory	Highest disk ratio
Mnemonic	**t** is for **tiny** or **turbo**	**m** is for **main** or happy **medium**	**c** is for **compute**	**r** is for **RAM**	**x** is for **xtreme**	**p** is for **pictures**	**h** is for **HDD**	**i** is for **IOPS**	**d** is for **dense**

ParkMyCloud