



JOIN LIVE

MLops INTRO with LIVE DEMO

LEARN END TO END (ML MODEL CREATION TO DEPLOYMENT) USING ML-OPS WITH LIVE DEMO

LIVE ONLINE SESSION

ON 13-AUG-2022 @ 7.00 - 08.30 PM IST (SATURDAY)
@ 9.30 - 11.00 AM EST
@ 2.30 - 04.00 PM LONDON

REGISTER FREE

REGISTRATION LINK:
[HTTPS://FORMS.GLE/X7WUUXxEKAYX3Z5R9](https://forms.gle/X7WUUXxEKAYX3Z5R9)

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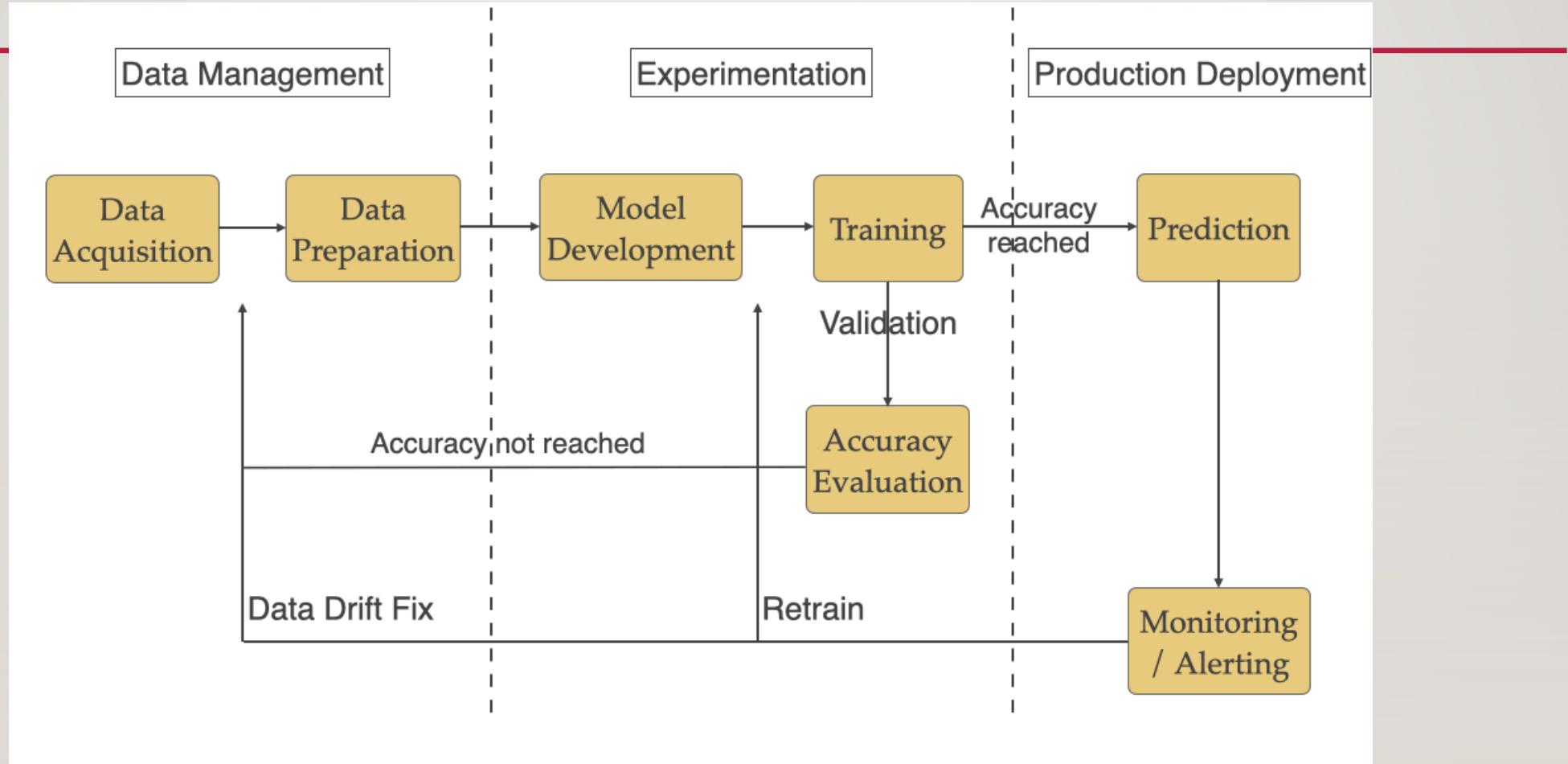
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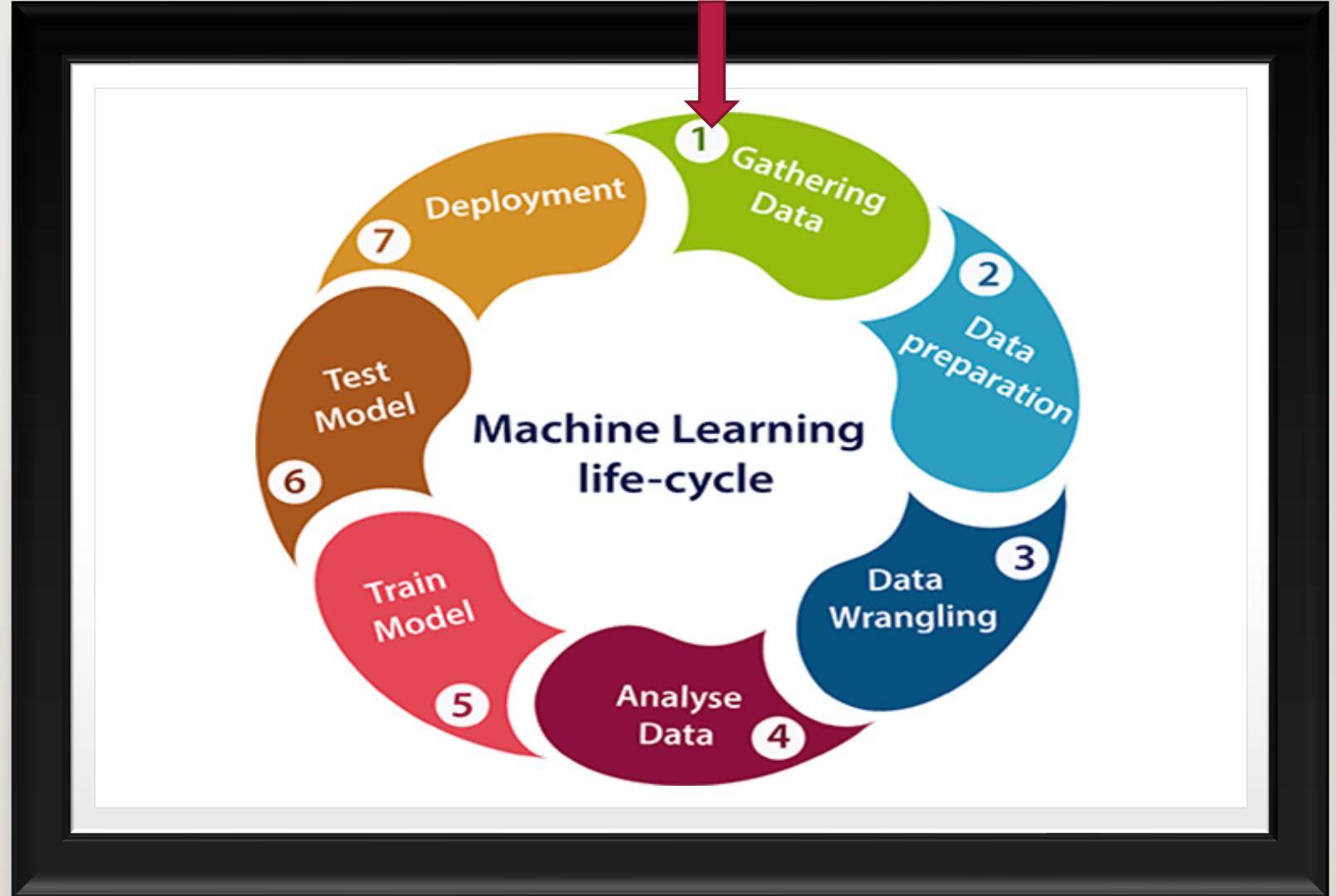
AGENDA

- Introduction to Machine Learning Workflow
- Problems faced by developers
- MLOps solution and frameworks
- Solutions by MLOps
- Prominent framework feature
- LIVE DEMO

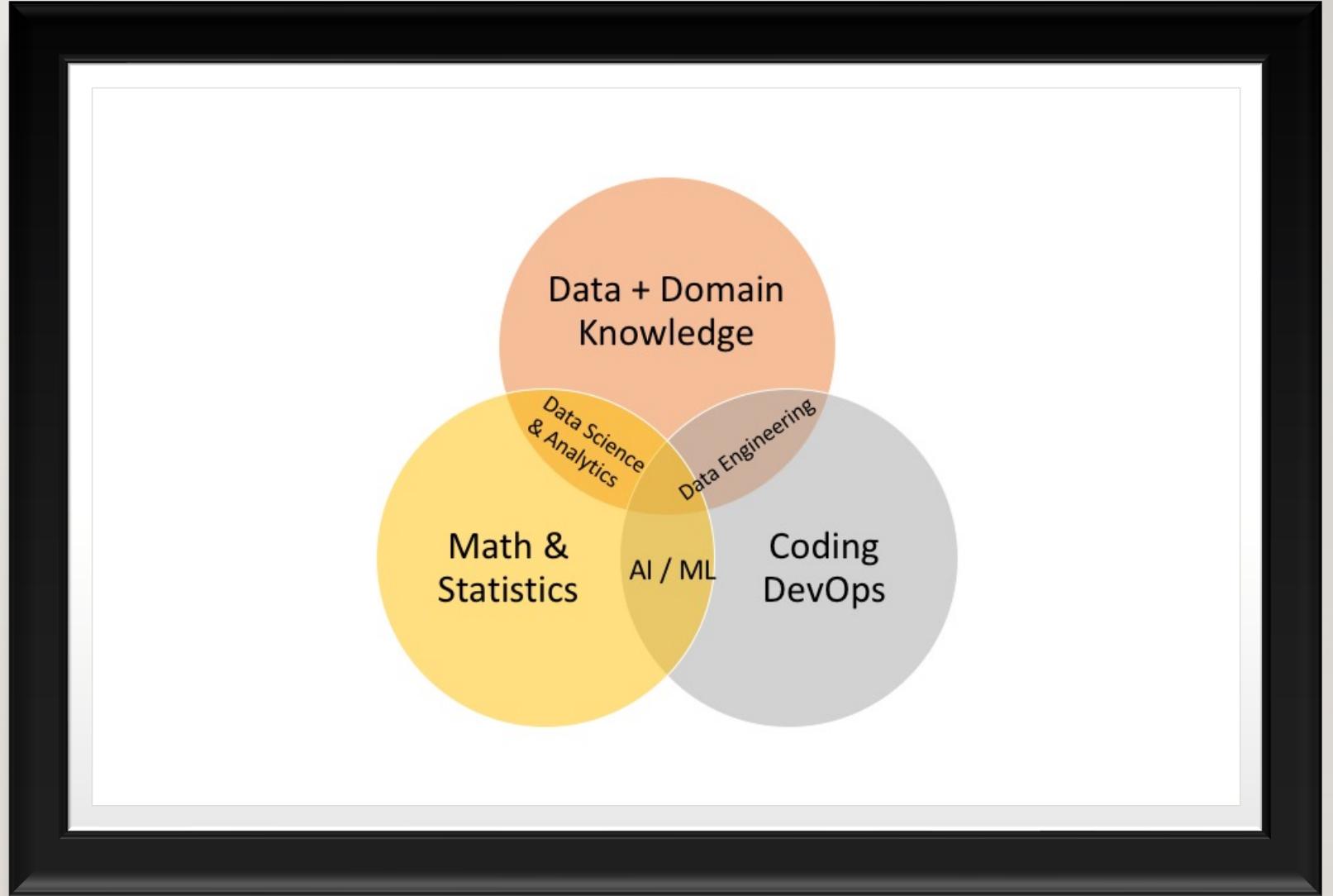
MACHINE LEARNING WORKFLOW



MACHINE LEARNING LIFECYCLE



NEED FOR MULTI SKILLS



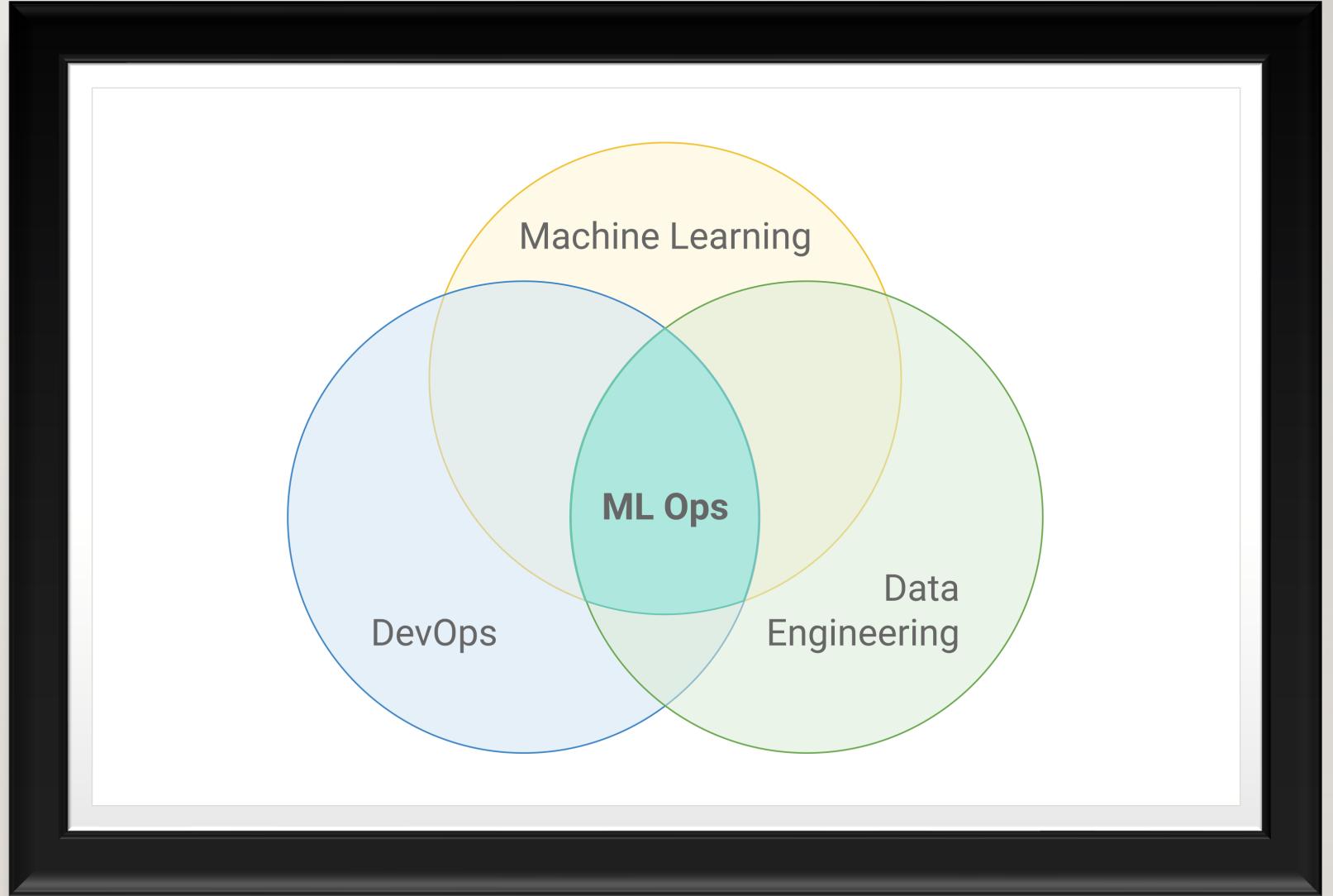
PROBLEM FACED BY DEVELOPERS

- Model drift
 - Change in requirement.
 - Change in business
- Data drift
 - Seasonality
 - Consumer preference
 - New products

PROBLEM FACED BY DEVELOPERS/ ML ENGINEERS / DATA SCIENTIST

- Need:
 - Learning and Iterating
 - Track Metrics
 - Source Control of code
 - Checkpoint steps in ML lifecycle.
 - Automation
 - Proper validation/ staged deployment

MLOPS INTRO



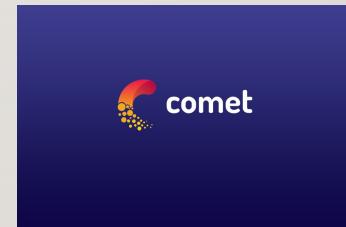
GOALS OF MLOPS

- Create model with reusable ML pipeline
- Automate mundane task
- Monitor performance
- Monitor data drift
- Automatic audit trail creation

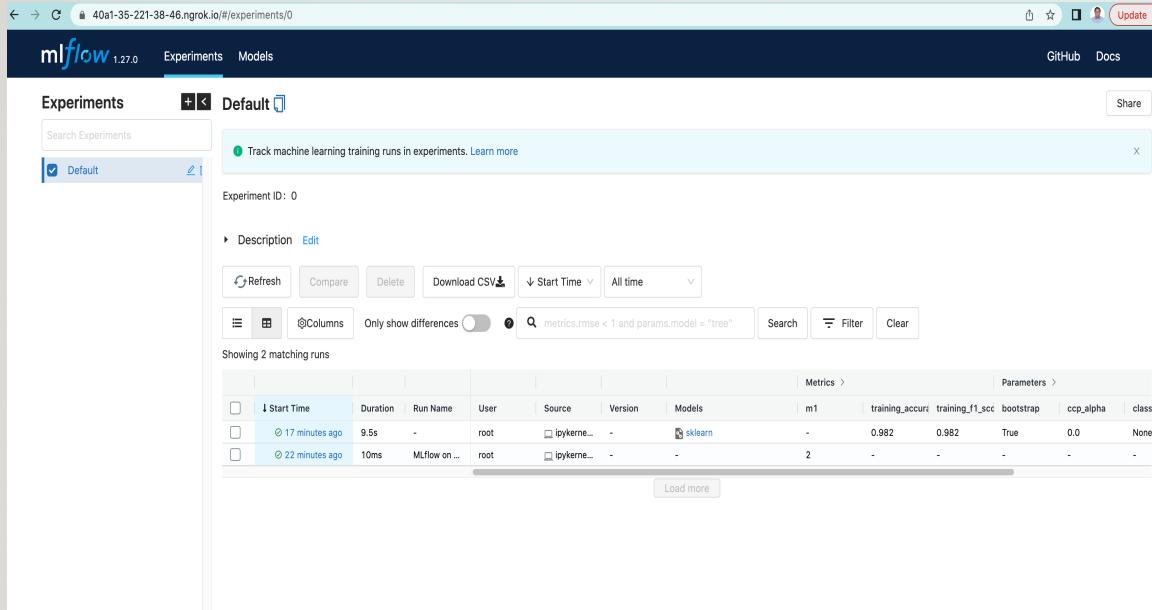
MLOPS PLATFORMS



Amazon
SageMaker



MLFLOW INTRODUCTION



- MLflow is a great open-source tool
- Track your model runs, including model parameters, metrics, results, data used, and your code.
- deploying models, packaging your code for reproducibility, and storing your models

FEATURES OF MLFLOW

MLflow Tracking

Record and query experiments: code, data, config, and results

[Read more](#)

MLflow Projects

Package data science code in a format to reproduce runs on any platform

[Read more](#)

MLflow Models

Deploy machine learning models in diverse serving environments

[Read more](#)

Model Registry

Store, annotate, discover, and manage models in a central repository

[Read more](#)

Integrations with:



Organizations using and contributing to MLflow:



Microsoft

R Studio[®]

facebook

UNIVERSITY OF WASHINGTON

virgin hyperloop one

Booking.com

TOYOTA
Southeast Toyota Finance

Zillow[®]

SK telecom

accenture

criteo[®]

Outreach

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MACHINE

Telia Company

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SYSTEMATIC

despegar[®].com

ModelWorks

Brandfolder

ASML

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Acerta

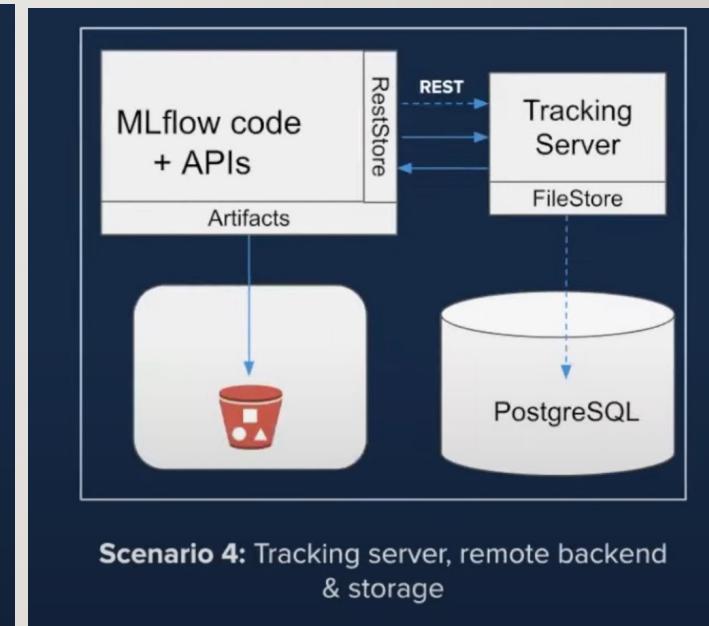
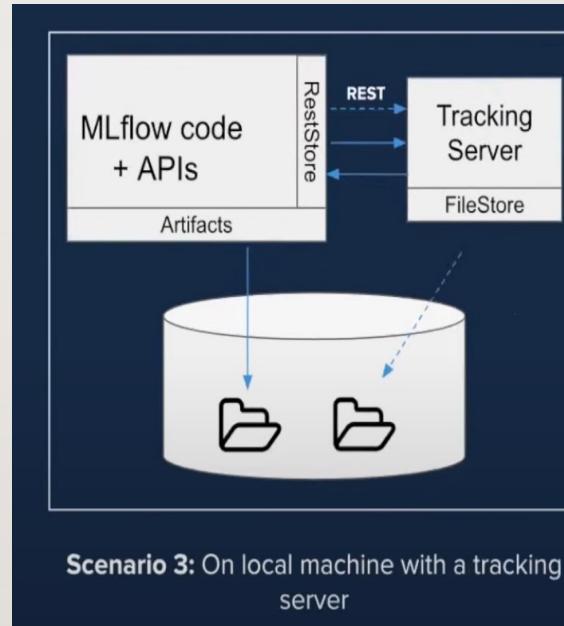
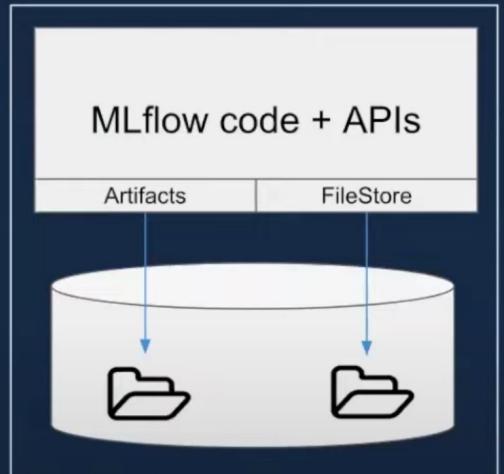
ENABLE AI
MASTER YOUR DATA

MLFLOW INSTALLATION AND SETUP

- Pip install mlflow
- For the demo following has to be installed

```
# Prerequisites
Python 3
pip install jupyter
pip install pandas
pip install scikit-learn
pip install matplotlib
pip install numpy
```

APPROACH TO WORK WITH MLFLOW



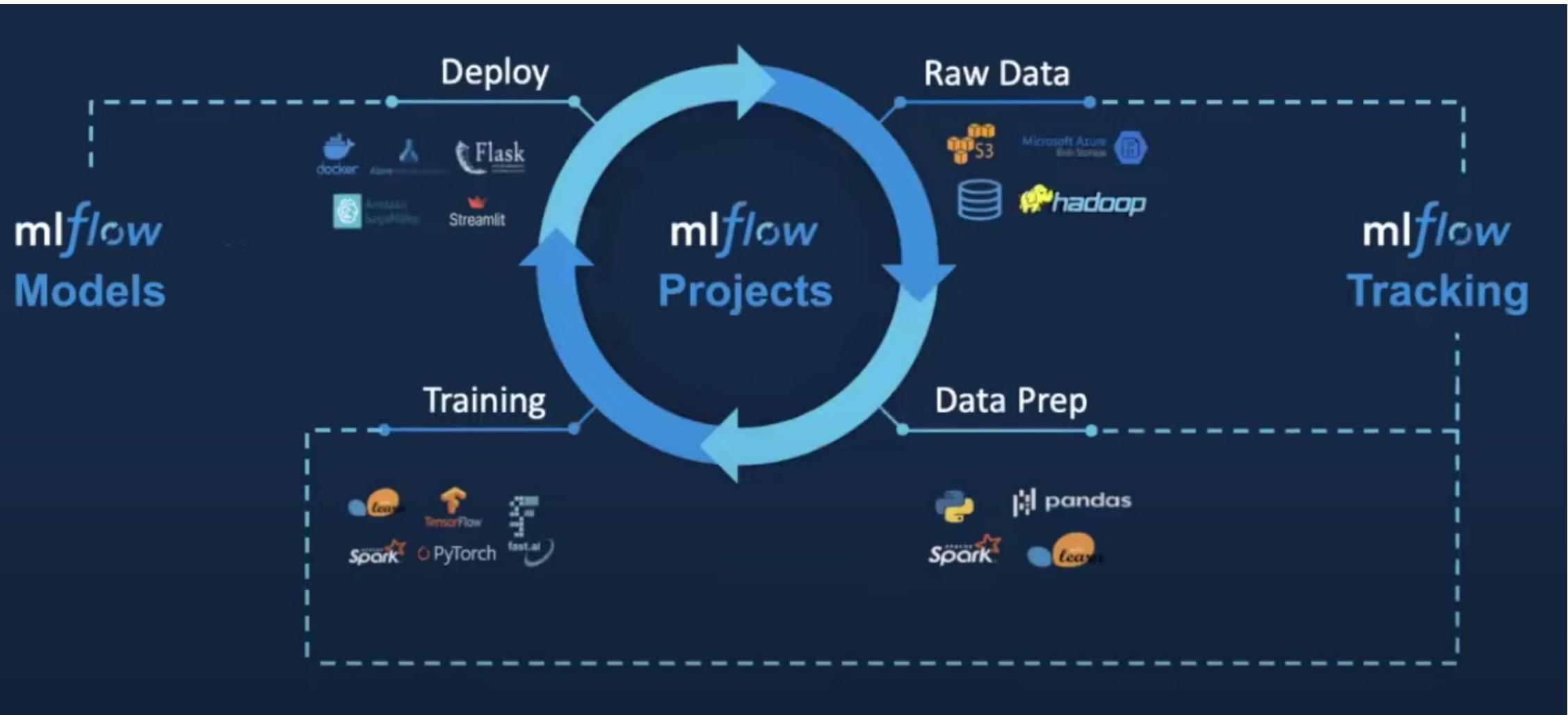


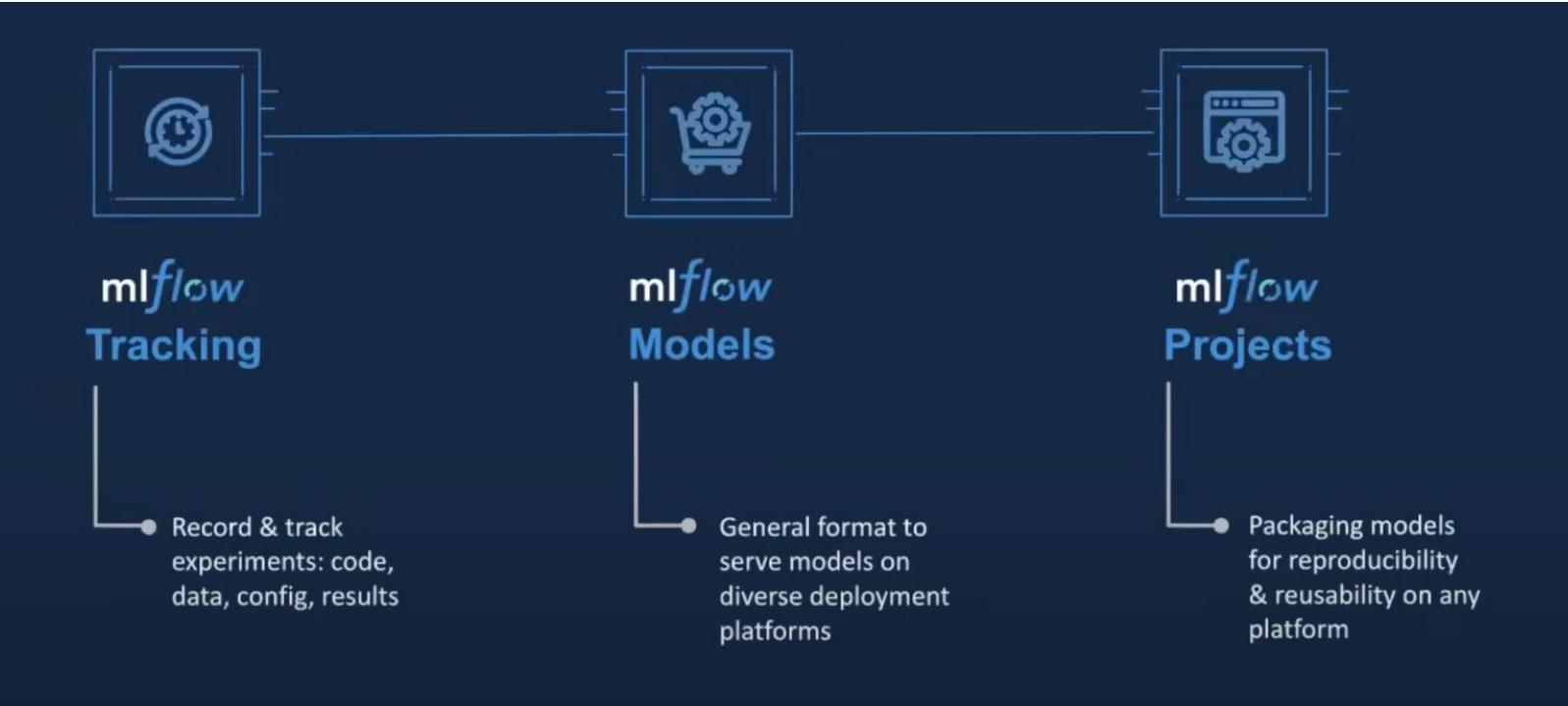
MLFLOW KEY CONCEPTS

Key concept	Description
RUN	Execution of code and tracking the details on local, database or remote tracking server
Code Version	Managing multiple versions of the run
Source	Managing multiple source code changes
Parameters	Logging and tracking the parameters
Metrics	Logging and tracking the metrics
Artifacts	Logging and tracking artifacts and data
Search	Search and filter the details as part of ML workflow.

MLFLOW TRACKING







MLFLOW SAMPLE COMMANDS



`mlflow.start_run()` : It is used to start a new *run* (a session) within an **experiment** (collection of *runs*).



`mlflow.log_param(key, value)` : It is used to log a key-value pair. key being a **hyperparameter** name or any parameter's name.



`mlflow.sklearn.autolog()` : It automatically logs **hyperparameters**



`mlflow.sklearn.eval_and_log_metrics(model, X_test, y_test, prefix='val_')` : It evaluates the model on the test set and logs the **computed metrics**.



`mlflow.sklearn.load_model()` : It loads a saved model, given the **run_id** (id given to a run) and the name with which the model was saved.



`mlflow.end_run()` : It is used to end a current *run*.

MLFLOW LIVE DEMO

- Source code for sample Mlflow Live demo – Github link
- <https://github.com/prasannavj/MLOPS>