Bootcamp Bring ML Models into Production

Lesson 2: Batch



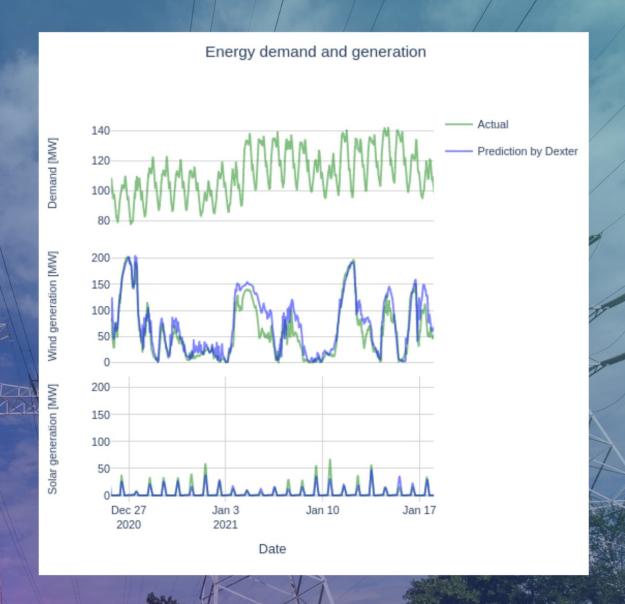




Agenda

- Recap
- Deployment setup
- Batch inference on Azure
- Exercises & Home assignment



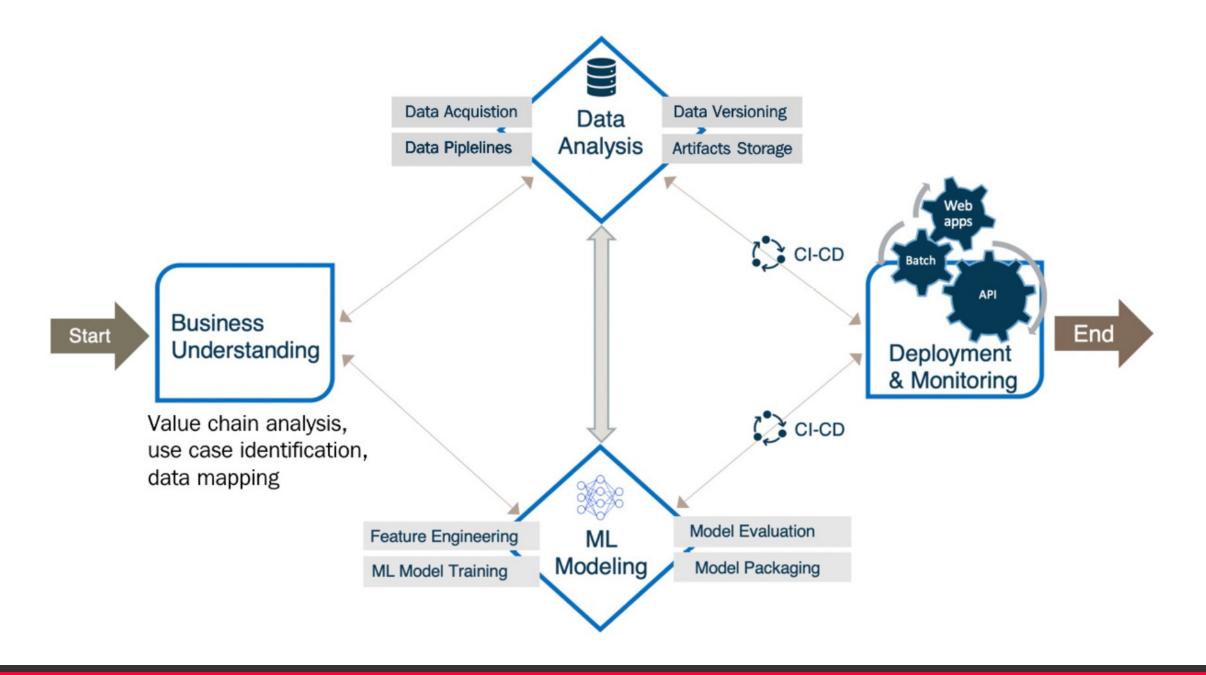


Dexter-Pyladies energy case

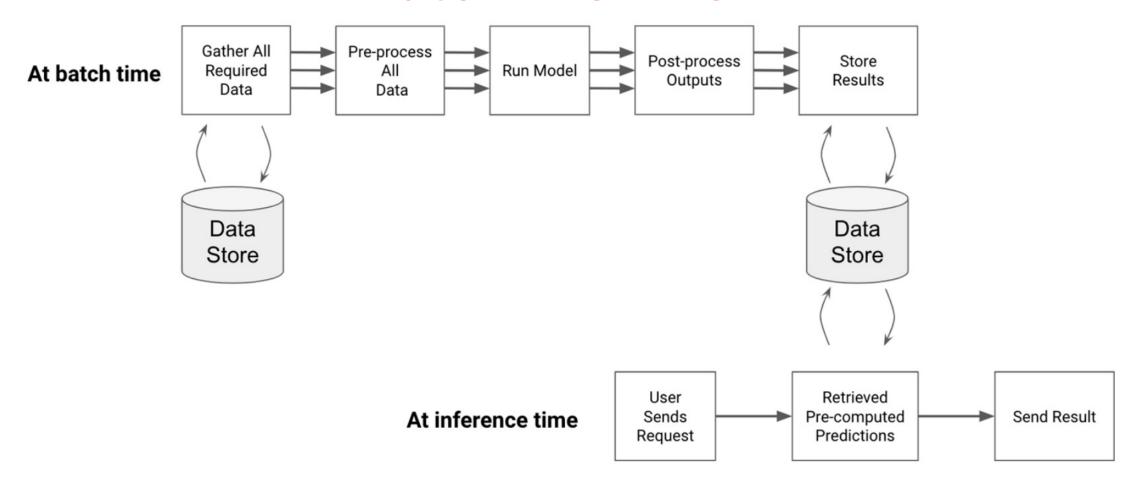
To prevent blackouts energy generation & demand have to be matched:

- The solar & wind forecast you can acquire from an external company
- Can you deploy a energy demand prediction model to solve the problem of Pytown?





Batch Workflow



Phase 1

Infrastructure Setup

- Configure and set up development and test environments.
- Ensure the necessary compute, storage, and software tools are provisioned for training and deploying ML models.

ML Development

- Developing ML models within an efficient framework that enables automation and optimization.
- Building and managing data pipelines.
- Testing model performance.

Phase 2

Transition to Operations

Pre-requisites

- Model artifacts with necessary logging and auditability to track model performance and functionality.
- Model is tested for inference and functionality and documented.

Key tasks

- Serialization and containerization of model artifacts.
- Model Serving (API or inference provisioning).
- Deployment of models to production environment using CI/CD and acceptance testing.
- Compliance with quality assurance guidelines.

Phase 3

MLOps Operations

- ML model performance monitoring (model drift, bias), incident resolution, model retraining.
- Monitor inference service telemetry.

Data Operations

 Monitoring and incident resolution of data pipelines and data and ML platform, security management.



Deployment setup

Steps

- Prerequisites
- Data preparations (EDA locally, datasets registration on Azure)
- Model training (locally, experiment tracking on Azure)
- Model evaluation and registration (locally, experiment tracking and registration - on Azure)

Tips

Never hardcode secrets in your code

- For local dev use .env (add it to .gitignore)
- For cloud dev such as Azure use Azure Key Vault

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Batch inference on Azure

Steps

- Prepare files for batch inference
- Setup and schedule Azure Machine Learning Pipeline:
 - provision inference compute
 - prepare score.py script
 - prepare conda inferencing env
 - create a pipeline
 - publish pipeline
 - schedule pipeline



Exercises & Home assignment

Exercises & Home assignment – Lesson 2

https://github.com/pyladiesams/bootcamp-bringing-ML-models-intoproduction-intermediary-junaug2021/blob/master/bootcamp/lesson2/lesson2 tasks.md



print(f"{user_name} thanks for watching")