

AI Systems Engineer Assessment

End-to-End MLOps System Design Task

Title: *Build a Minimal MLOps Pipeline for a Model Lifecycle*

Instructions:

You are provided with a small dataset (CSV with text and labels for sentiment classification). Within 24 hours, deliver a minimal MLOps pipeline that:

1. **Ingests data** (load & preprocess)
2. **Trains a simple model**
3. **Logs metrics and artifacts**
4. **Package the model for deployment** (e.g., FastAPI / Flask REST endpoint)
5. **Includes CI/CD automation concept** (GitHub Actions that runs the training and deployment steps)
6. **Includes README** explaining your design choices, assumptions, and trade-offs.

Deliverables:

- GitHub repository with runnable code and step-by-step guideline for execution.

Evaluation Criteria:

- Code quality and reproducibility
- Modularity and reusability
- Clarity of the pipeline flow
- Observability/logging
- Simplicity — can another engineer easily extend it?

Dataset:

- [Wine Quality Prediction dataset](#) (winequality-red.csv)

The **Wine Quality dataset** is a tabular regression dataset originating from the UCI Machine Learning Repository. It contains physicochemical test results for red and white variants of Portuguese “Vinho Verde” wine, along with human-assigned quality scores on a scale from 0 to 10.

The objective is to **predict the quality score** of wine given its chemical attributes — effectively a regression task.