

Credit Default Predictor - Local MLOps Project

Welcome to the **Credit Default MLOps Lab!**

This project demonstrates a full local MLOps pipeline using MLflow and Streamlit.

Project Objectives

- Install MLflow and set up a local tracking server
 - Train two ML models (April and May datasets)
 - Track model experiments with MLflow
 - Serve models with MLflow Models Server
 - Test predictions with a Streamlit UI
-

Project Structure

```
api/  
  data/  
    raw/  
      april_credit_data.csv  
      may_credit_data.csv  
training/  
  train.py  
ui/  
  streamlit_app.py  
Makefile  
requirements.txt  
README.md
```

Quick Setup

1. Clone the repository:

```
git clone https://github.com/iportilla/mlops-credit-default.git  
cd mlops-credit-default
```

2. Install Python 3.11 (recommend using pyenv) See [prereq.md](#) for more details.pyenv install 3.11.4
pyenv global 3.11.4
):
-

```
pyenv install 3.11.4  
pyenv global 3.11.4
```

3. Install required Python packages:

```
pip install -r requirements.txt
```

4. Create local mlruns folder manually:

```
mkdir -p ~/mlruns
```

✅ This is required for MLflow to save experiments locally.

Commands Cheat Sheet

Task	Command
Start MLflow Tracking Server	<code>mlflow server --backend-store-uri sqlite:///mlflow.db --default-artifact-root ~/mlruns --host 0.0.0.0 --port 5000</code>
Train April Model	<code>python training/train.py api/data/raw/april_credit_data.csv</code>
Train May Model	<code>python training/train.py api/data/raw/may_credit_data.csv</code>
Serve Model Manually	<code>mlflow models serve -m mlruns/1/<run_id>/artifacts/credit_defaults_model_ -p 5001</code>
Launch Streamlit App	<code>streamlit run ui/streamlit_app.py</code>

Architecture Overview

```
Local Machine  
  ↓  
MLflow Tracking Server (localhost:5000)  
  ↓  
MLflow Model Server (localhost:5001)  
  ↓  
Streamlit Frontend (localhost:8501)
```

Learning Outcomes

- Model training and logging
- Model versioning and experiment tracking
- Serving models automatically
- UI connection for predictions

License

This project is licensed under the MIT License.

✨ Happy Predicting with MLOps!
