

# MLOps Class Task

## Machine Learning Operations

### 1 Task Overview

This is a class assignment designed to provide hands-on experience with machine learning operations (MLOps) techniques using MLflow and deployment on AWS

### 2 Architecture Workflow

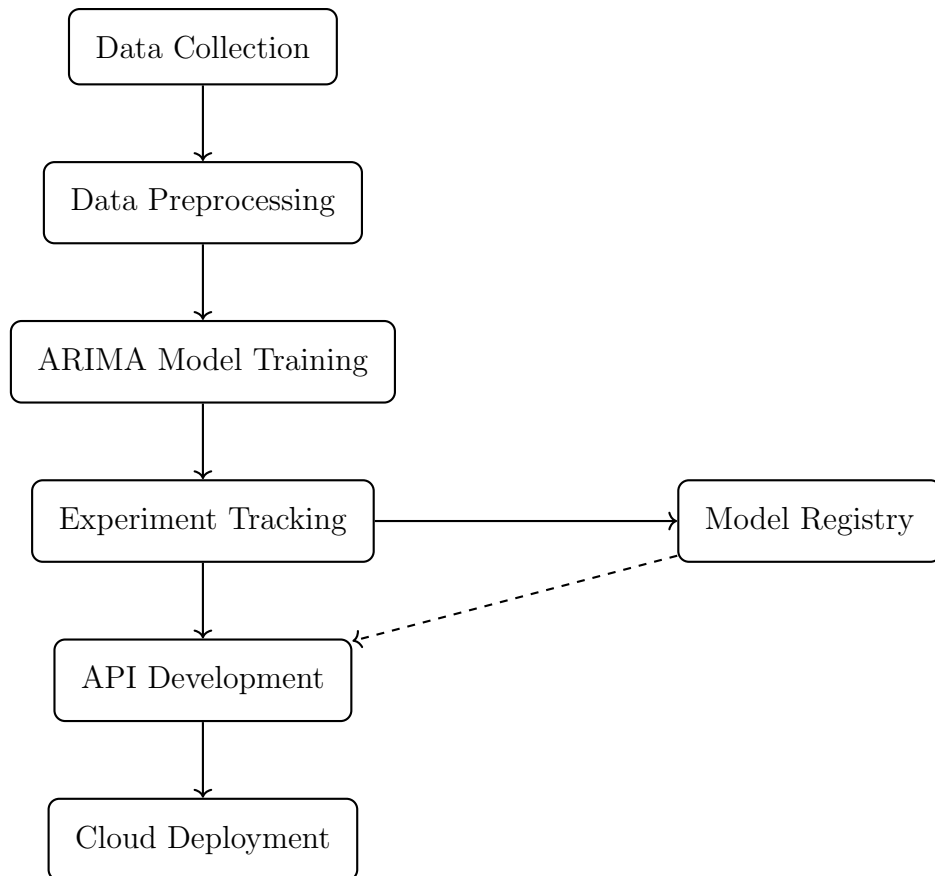


Figure 1: Workflow Diagram

### 3 Task Description

This class task involves developing a time series forecasting solution with the following components:

### **3.1 Data Collection**

- Use `yfinance` to collect Apple (AAPL) stock price data
- Retrieve minimum two years of historical closing prices

### **3.2 Model Development**

- Implement ARIMA time series forecasting model
- Perform hyperparameter tuning
- Split data into training (80%) and testing (20%)

## **4 MLflow Tracking Requirements**

- Log all model hyperparameters
- Track performance metrics (RMSE, MAE)
- Log model artifacts
- Register the best-performing model

## **5 API and Deployment**

### **5.1 FastAPI Endpoints**

- Create `/predict` endpoint
- Implement `/health` check
- Accept forecast step parameter

### **5.2 Cloud Deployment**

- Deploy on AWS EC2 t2.micro instance
- Configure security groups
- Ensure public API accessibility

## **6 Submission Requirements**

- GitHub repository with complete code
- README with setup instructions
- MLflow tracking screenshots
- Deployed API endpoint

## 7 Grading Criteria

Component	Weight
Model Accuracy	30%
MLflow Tracking	25%
API Design	20%
Cloud Deployment	15%
Documentation	10%

Table 1: Grading Breakdown