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# BetterML - Workflow

- Research and Study
- Pre-Process
- Model Experimentation
- Performance Evaluation
- Fine-Tuning
- Production Pipeline
- Deploy & Monitor

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# Research and Study

- Domain
- Problem
- Data
- Model Options
- Metrics
- Technology Stack

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# Pre-Process

- Exploratory Data Analysis
- Data Cleaning
- Categorical Transformation
- Split
- Feature Engineering
- Feature Selection
- Dimensionality Reduction

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# Model Experimentation

Models

Experimentation

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# Performance Evaluation

Determine how well it predicts continuous numeric values.

- Mean Absolute Error (MAE):
- Mean Squared Error (MSE):
- Root Mean Squared Error (RMSE):
- R-squared (R2) Score:
- Adjusted R-squared (Adjusted R2):
- Cross-Validation:
- Residual Analysis:
- Mean Absolute Percentage Error (MAPE):
- Theil's U Statistic:
- Huber Loss:
- Quantile Regression Loss:
- Shapiro-Wilk Test:
- Durbin-Watson Statistic:
- Heteroscedasticity Tests:

# Fine-Tuning

Improves the model's predictive performance.

MLflow helps manage and track these experiments.

- Install Required Libraries:
- Import Libraries and Load Data:
- Define a Parameter Grid:
- Fine-Tune the Model with MLflow:
- Review Experiment Results:

ML Workflow

# Production Pipeline

- Feature Pipeline
- Training Pipeline
- Inference Pipeline

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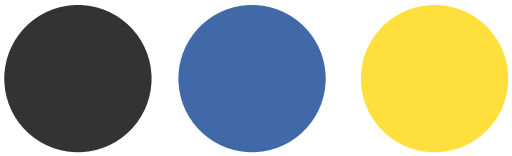
# Deploy & Monitor

Involves saving your model with MLflow, packaging it.

Deploying it to a server or cloud environment.

- ▶ Step 1: Install Required Libraries
- ▶ Step 2: Create a Bento Service
- ▶ Step 3: Save Your Bento Service
- ▶ Step 4: Deploy Your Bento Service
- ▶ Step 5: Make Predictions
- ▶ Step 6: Monitor and Scale (if needed)



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