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Group: ML_Group2

Task 6

Responsibilities



☐ Backend architecture setup (Django project & app)



Model
integration
using pickle



URL routing



Frontendtemplate connection via views



◆□ Input/output
handling and
prediction
display

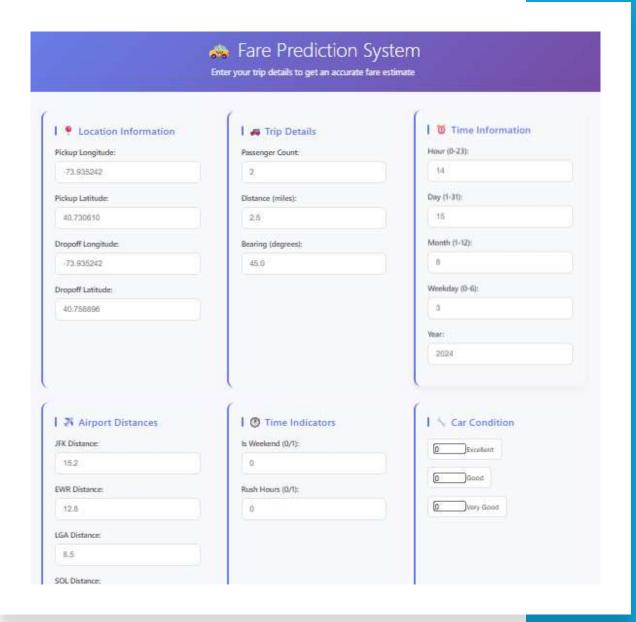
Backend Workflow

User Input → Django View
 → Model (Pickle) →
 Prediction Output → HTML
 Template



Output Preview

Predicted Fare: \$10.98



Project Overview

Taxi Fare Prediction

Unpredicted Taxi Fare

Fare amount is unknown

Machine

Learning Model
Predict fare using

Input Features

Collect

pickup/dropoff, date/time,

passengers

Django Application

Predict fare using Serve predictions via trained model web interface Predicted Taxi Fare

Fare amount is now known





Data Preprocessing & Feature Engineering

 Preprocessing ensures data quality by removing outliers, handling missing values, encoding categories, and engineering key features like trip distance — all critical for accurate fare prediction.

Import Required Libraries

Load necessary libraries for data manipulation

Drop Missing Values

Remove rows with missing data

Calculate Distance (Feature Engineering)

Create a new feature by calculating distance

Handle Categorical Variables

Convert categorical data into numerical format

Train-Test Split

Divide the data into training and testing sets

Load the Dataset

Read the dataset into the system

Remove Unrealistic or Noisy Data

Filter out outliers and errors

Drop Unnecessary Columns

Remove columns that are not needed

Split Features and Target Variable

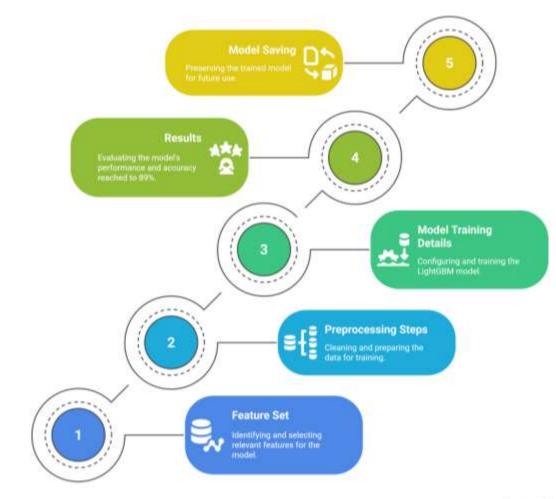
Separate features from the target variable

Normalize Features

Scale features to a standard range

Machine Learning Modeling: LightGBM Regressor

Building a LightGBM Regressor



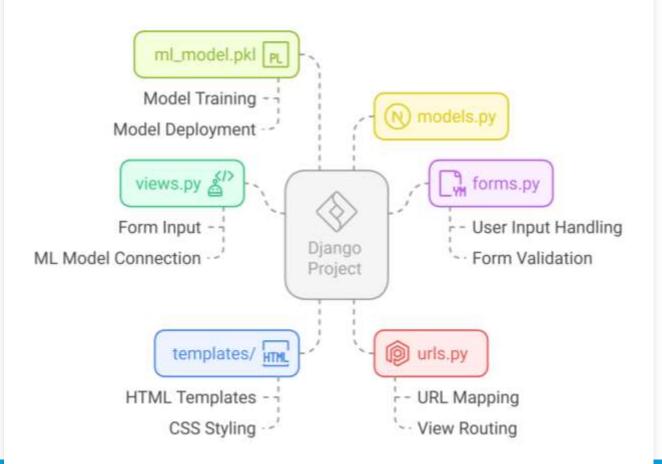
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Django Web Application

> Project Structure:

- •fare_prediction → Main Django project
- •Predictor → App that handles ML & views

Django Project Structure and Components



Web App Works (Flow Diagram)

ML Model Integration Process Data Sent to Django View User Input Fare Prediction _ Form Submission Result Displayed ML Model Loaded Made with & Neplen