YBI Project – Machine Learning-Based Model Deployment

# Introduction

The YBI Project is a machine learning-based application designed to demonstrate the full pipeline of a data science project — including data preprocessing, model training, evaluation, and deployment. It is intended to be an end-to-end solution that not only builds a predictive model but also enables its use in real-world scenarios.  
  
This project may be used for academic purposes, portfolio demonstration, or as a foundational block for further development in data-driven solutions.

# Features

- Data loading and preprocessing  
- Exploratory data analysis (EDA)  
- Machine learning model training and evaluation  
- Model serialization (using pickle or joblib)  
- Web deployment using Flask or Streamlit  
- Input-based prediction interface  
- Clean and structured project workflow

# Technologies Used

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| --- | --- |
| Category | Tools/Technologies |
| Language | Python |
| Data Libraries | pandas, numpy, seaborn, matplotlib |
| ML Libraries | scikit-learn |
| Deployment | Flask / Streamlit |
| Model Storage | pickle / joblib |
| Visualization | matplotlib, seaborn |

# Project Structure (Inside YBI.zip)

YBI-Project/  
│  
├── data/ # Dataset files  
├── model/ # Trained model files (.pkl/.sav)  
├── app.py # Main application script (Flask/Streamlit)  
├── utils.py # Helper functions  
├── requirements.txt # List of required Python libraries  
├── README.md # Project documentation  
└── notebooks/ # Jupyter Notebooks for analysis and training

# Installation & Setup

1. Extract the ZIP file:  
 unzip YBI.zip  
 cd YBI-Project  
  
2. Create a virtual environment (optional but recommended):  
 python -m venv venv  
 source venv/bin/activate # On Windows: venv\Scripts\activate  
  
3. Install the required libraries:  
 pip install -r requirements.txt  
  
4. Run the application (if Flask):  
 python app.py  
  
 Or for Streamlit:  
 streamlit run app.py

# How to Use

1. Open the app in your browser (usually http://127.0.0.1:5000/).  
2. Input required features into the form.  
3. Click “Predict” to get the model’s prediction.  
4. See result/output displayed on screen.

# Output / Screenshots

You can insert screenshots here showing:  
- The web interface  
- A sample prediction  
- Charts from EDA

# Credits

Developed by Mukesh as part of a learning and deployment project.  
Support and guidance provided by YBI Foundation.

# License

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