**1. Python Backend (Jupyter Notebook)**

**📦 Data Handling & Analysis**

* pandas – for data manipulation and analysis
* numpy – for numerical operations

**📦 Machine Learning**

* scikit-learn – for model building (Logistic Regression, Decision Trees, etc.)
* xgboost – (optional) for more accurate gradient boosting models

**📦 Model Serialization**

* joblib or pickle – for saving and loading ML models

**📦 Web Framework (Backend API)**

* flask – to create an API that connects the frontend to the ML model  
  *(You’ll run Flask from Jupyter or a separate .py script.)*

**🔹 2. Frontend (HTML)**

* Basic **HTML** – for structure
* **CSS** – for styling (optional)
* **JavaScript** – for form handling or AJAX (optional)

**🔹 3. Optional Utilities**

* matplotlib / seaborn – for data visualization (exploratory data analysis)
* jupyter – to run and work within Jupyter Notebook

**✅ Sample requirements.txt**

txt

CopyEdit

pandas

numpy

scikit-learn

xgboost

flask

joblib