ML Mini Projects and Quiz Answers

# ✅ Mini Quiz Answers

Q1: What is the difference between supervised and unsupervised learning?  
Supervised learning utilizes labeled data to train models to predict outcomes, whereas unsupervised learning employs unlabeled data to identify hidden patterns or groupings.

Q2: What is a feature?  
A feature is an individual measurable property or characteristic of a data point used as input for a model.

Q3: What is a label?  
A label is the output or target variable that the model attempts to predict based on the input features.

Q4: Which library do we use to implement ML models in Python?  
Common libraries include scikit-learn, TensorFlow, PyTorch, and XGBoost. For basic ML, scikit-learn is widely used.

# 📦 Projects

Each project is accompanied by a Jupyter Notebook. Below are the summaries.

## 🧪 Project 1: Titanic Survival Predictor

Goal: Use logistic regression to predict survival on the Titanic dataset.  
Tasks: EDA, model training, accuracy evaluation, feature importance plot.

## 🏠 Project 2: House Price Prediction

Goal: Predict California housing prices using linear regression.  
Tasks: EDA, model training, MSE and R² evaluation, actual vs predicted plot.

## 🔬 Project 3: Breast Cancer Diagnosis Classifier

Goal: Predict whether a tumor is benign or malignant using logistic regression.  
Tasks: EDA, confusion matrix, F1 score, ROC curve, feature importance.