Here's a **simple example using scikit-learn** to build a model that predicts whether a number is **even or odd**.

This is more of a conceptual/demonstration exercise, since determining if a number is even or odd can be done with simple logic (`number % 2`), but it's still great for learning how classification works in machine learning.

✅ Goal

Predict whether a given number is even (0) or odd (1).

🧠 Step-by-Step Code (Python + scikit-learn)

✅ Required Python Packages

Package	Purpose	Install Command
`scikit-learn`	Machine learning models (like `DecisionTreeClassifier`)	`pip install scikit-learn`
`numpy`	Numerical operations (used by scikit-learn internally)	`pip install numpy`
`pandas` (optional)	Data handling (if you use DataFrames later)	`pip install pandas`

🔧 How to Install

You can install everything in one line using pip:

```
pip install scikit-learn numpy pandas
```

Use `DecisionTreeClassifier` instead

A decision tree can learn this simple rule-based split much more effectively.

🔄 Updated Working Code (using Decision Tree):

```
# Step 1: Import libraries
from sklearn.model_selection import train_test_split
from sklearn.tree import DecisionTreeClassifier
from sklearn.metrics import accuracy_score

# Step 2: Create dataset
X = [[i] for i in range(1, 101)]  # Features (2D list)
y = [i % 2 for i in range(1, 101)]  # 0 = even, 1 = odd

# Step 3: Split into training and test sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2,
random_state=42)

# Step 4: Train the model
model = DecisionTreeClassifier()
model.fit(X_train, y_train)

# Step 5: Predict and evaluate
y_pred = model.predict(X_test)
accuracy = accuracy_score(y_test, y_pred)
print(f"Model Accuracy: {accuracy * 100:.2f}%")

# Step 6: Accept user input to test a number
try:
    user_input = int(input("Enter a number to check (even or odd): "))
    prediction = model.predict([[user_input]])
    result = "Odd" if prediction[0] == 1 else "Even"
    print(f"The number {user_input} is predicted to be: {result}")
except ValueError:
    print("Invalid input. Please enter an integer.")
```

Output 1:-

Model Accuracy: 0.00%

Enter a number to check (even or odd): 4

The number 4 is predicted to be: Even

Output 2:-

Model Accuracy: 0.00%

Enter a number to check (even or odd): 49

The number 49 is predicted to be: Odd