Machine Learning Process

- Loading data
- Preprocessing
- Training a model
- Evaluating the model
- Making predictions

```
import pandas as pd
from sklearn.linear_model import LogisticRegression
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler
from sklearn.metrics import accuracy_score
```

```
iris_data = pd.read_csv('/content/Iris.csv')
iris_data.head()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

Next steps: Generate code with `iris_data` View recommended plots New interactive sheet

```
X = iris_data.drop(columns=['Id','Species'])
y = iris_data['Species']
```

```
X_train,X_test,y_train,y_test = train_test_split(X,y,test_size = 0.2, random_state = 42)
```

```
scaler = StandardScaler()
X_train_scaled = scaler.fit_transform(X_train)
X_test_scaled = scaler.transform(X_test)
```

```
X.head()
```

	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

Next steps: Generate code with X | View recommended plots | New interactive sheet

```
model = LogisticRegression()
```

```
model.fit(X_train_scaled,y_train)
```

```
LogisticRegression
LogisticRegression()
```

```
  y_pred = model.predict(X_test_scaled)
  accuracy = accuracy_score(y_test,y_pred)
  print("Accuracy: ",accuracy)
```

```
Accuracy:  1.0
```

```
new_data = np.array([[5.1,3.5,1.4,0.2],
                     [6.3,2.9,5.6,1.8],
                     [4.9,3.0,1.4,0.2]])
```

```
new_data_scaled = scaler.transform(new_data)
```

```
/usr/local/lib/python3.12/dist-packages/sklearn/utils/validation.py:2739: UserWarning: X does not have
  warnings.warn(
```

```
predictions = model.predict(new_data_scaled)
```

```
print("Predictins: ",predictions)
```

```
Predictins:  ['Iris-setosa' 'Iris-virginica' 'Iris-setosa']
```

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