Basic Machine Learning Code Examples

Here are some basic machine learning code examples in Python to get you started:

1. Linear Regression:

This code creates a simple linear regression model and fits a linear line to a dataset based on 'x' and 'y' values.

Python

```
import numpy as np
import matplotlib.pyplot as plt

# Create data
x = np.linspace(0, 10, 100)
y = 2 * x + 5 + np.random.normal(0, 1, 100)

# Create model
from sklearn.linear_model import LinearRegression
model = LinearRegression()

# Fit the model
model.fit(x[:, np.newaxis], y)

# Predict
x_new = np.linspace(0, 12, 100)
y_pred = model.predict(x_new[:, np.newaxis])

# Show results
plt.plot(x, y, 'o', label='Data')
plt.plot(x_new, y_pred, label='Prediction')
plt.xlabel('x')
plt.ylabel('y')
plt.legend()
plt.show()
```

2. K-Nearest Neighbors (KNN):

This code builds a classification model using the KNN algorithm. It predicts the 'y' value for a new data point using 'x' and 'y' values from a training dataset.

```
import numpy as np
from sklearn.neighbors import KNeighborsClassifier

# Create data
X = np.array([
    [1, 2],
```

```
    [3, 4],
    [5, 6],
    [7, 8],
])
y = np.array([0, 1, 0, 1])

# Create model
knn = KNeighborsClassifier(n_neighbors=5)

# Fit the model
knn.fit(X, y)

# Predict for a new data point
new_X = np.array([[9, 10]])
prediction = knn.predict(new_X)

print("Predicted class for new data point:", prediction)
```

3. Decision Tree:

This code creates a decision tree that predicts the 'y' value based on the 'x' values.

Python

```
from sklearn.tree import DecisionTreeClassifier

# Create data
X = np.array([
    [1, 2],
    [3, 4],
    [5, 6],
    [7, 8],
])
y = np.array([0, 1, 0, 1])

# Create model
dtree = DecisionTreeClassifier()

# Fit the model
dtree.fit(X, y)

# Predict for a new data point
new_X = np.array([[9, 10]])
prediction = dtree.predict(new_X)

print("Predicted class for new data point:", prediction)
```

Maruf Hasan
Software Engineer L-I
Vivasoft Limited