EXPERIMENT – 20

Implement Future Sales Prediction using a suitable machine learning algorithm

CODE :

```
# Future Sales Prediction using Linear Regression

import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_absolute_error, mean_squared_error, r2_score
import numpy as np

# Sample dataset: Month vs Sales
data = {
    "Month": [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12],
    "Sales": [200, 220, 250, 270, 300, 320, 340, 360, 380, 400, 420, 450]
}

df = pd.DataFrame(data)

# Features and target
X = df[["Month"]]  # Predictor: Month
y = df["Sales"]    # Target: Sales

# Train-test split
X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.25, random_state=42
)

# Model
model = LinearRegression()
model.fit(X_train, y_train)

# Prediction
y_pred = model.predict(X_test)

# Evaluation
print("MAE:", mean_absolute_error(y_test, y_pred))
print("MSE:", mean_squared_error(y_test, y_pred))
print("R2 Score:", r2_score(y_test, y_pred))
```

```
# Predict future sales (e.g., Month 13)
future_month = pd.DataFrame([[13]], columns=["Month"])
future_sales = model.predict(future_month)
print("Predicted Sales for Month 13:", int(future_sales[0]))
```

OUTPUT :