In [2]:
```
import os
import pandas as pd
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error
import joblib
import mlflow
```

In [3]:
```
# MLflow experiment tracking
mlflow.start_run()
```

Out[3]:
```
<ActiveRun: >
```

In [4]:
```
# Load data from the CSV file
data_path = 'data.csv'
data = pd.read_csv(data_path)
```

In [5]:
```
# Check if the necessary columns are present
if not all(col in data.columns for col in ['Date', 'Temperature', 'Ice Cream
    raise ValueError("The dataset must contain 'Date', 'Temperature', and 'I
```

In [6]:
```
# Prepare the features and target variable
X = data[['Temperature']]
y = data['Ice Cream Sales']
```

In [7]:
```
# Create and train the model
model = LinearRegression()
model.fit(X, y)
```

Out[7]:
```
▾  LinearRegression i ?

LinearRegression()
```

In [8]:
```
# Make predictions and calculate mean squared error
predictions = model.predict(X)
mse = mean_squared_error(y, predictions)
print("Mean Squared Error:", mse)
```

```
Mean Squared Error: 100.39083020236505
```

In [9]:
```
# Log parameters and metrics
mlflow.log_param("model_type", "Linear Regression")
mlflow.log_metric("mse", mse)
```

In [10]:
```
# Save the model in the outputs folder
output_dir = os.path.join(".", "outputs")
os.makedirs(output_dir, exist_ok=True)
model_path = os.path.join(output_dir, "model.pkl")
joblib.dump(model, model_path)
```

Out[10]:
```
['./outputs/model.pkl']
```

In [11]:
```
mlflow.end_run()
print("Model saved in:", model_path)
```

```
2025/04/19 11:23:05 INFO mlflow.tracking._tracking_service.client: 🏃 View ru
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scriptions/0b7224b2-2731-4e2c-9cb1-50079e20e2bf/resourceGroups/icecreamworksp
ace/providers/Microsoft.MachineLearningServices/workspaces/icecreamworkspace/
#/experiments/36f17282-4dfc-4794-bff8-c5c2da8e5206/runs/d86d4397-db6f-4dbd-9b
43-3d2964f2f86e.
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periment at: https://southindia.api.azureml.ms/mlflow/v2.0/subscriptions/0b72
24b2-2731-4e2c-9cb1-50079e20e2bf/resourceGroups/icecreamworkspace/providers/M
icrosoft.MachineLearningServices/workspaces/icecreamworkspace/#/experiments/3
6f17282-4dfc-4794-bff8-c5c2da8e5206.
Model saved in: ./outputs/model.pkl
```