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In [1]: # Import necessary libraries
from sklearn.datasets import load_iris
from sklearn.linear_model import LogisticRegression
from sklearn.model_selection import train_test_split
import joblib

# Step 1: Load dataset and split
iris = load_iris()
X_train, X_test, y_train, y_test = train_test_split(
    iris.data, iris.target, test_size=0.2, random_state=42
)

# Step 2: Train a Logistic Regression model
model = LogisticRegression(max_iter=200) # increased max_iter for convergence
model.fit(X_train, y_train)

# Evaluate the model
accuracy = model.score(X_test, y_test)
print(f"Model accuracy: {accuracy:.2f}")

# Step 3: Save the model
joblib.dump(model, 'logistic_regression_model.pkl')
print("Model saved successfully!")

# Step 4: Reuse the model (Load and predict)
loaded_model = joblib.load('logistic_regression_model.pkl')

# Predict using the loaded model
sample_input = [[6.1, 2.8, 4.7, 1.2]] # Example input
prediction = loaded_model.predict(sample_input)

print(f"Predicted class: {iris.target_names[prediction][0]}")

```

Model accuracy: 1.00

Model saved successfully!

Predicted class: versicolor