```
import numpy as np
import matplotlib.pyplot as plt
from sklearn.ensemble import IsolationForest
# Generate random data
np.random.seed(42)
X = 0.3 * np.random.randn(100, 2)
X \text{ train} = \text{np.r} [X + 2, X - 2] \# Inliers
X outliers = np.random.uniform(low=-4, high=4, size=(20, 2)) #
Outliers
# Fit the model
clf = IsolationForest(contamination=0.1, random state=42)
clf.fit(X train)
# Predict outliers
y pred train = clf.predict(X train)
y pred outliers = clf.predict(X outliers)
# Plot
plt.figure(figsize=(10, 6))
# Inliers
plt.scatter(X_train[:, 0], X_train[:, 1], c='white', edgecolors='k',
label='Inliers')
# Outliers
plt.scatter(X_outliers[:, 0], X_outliers[:, 1], c='red',
edgecolors='k', label='Outliers')
# Anomalies detected
plt.scatter(X_outliers[y_pred_outliers == -1][:, 0],
X outliers[y pred outliers == -1][:, 1], c='blue', edgecolors='k',
            label='Detected Anomalies')
plt.title('Isolation Forest')
plt.xlabel('Feature 1')
plt.ylabel('Feature 2')
plt.legend()
plt.show()
```

Isolation Forest

