```
import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score, classification_report, confusion_matrix
from sklearn.ensemble import AdaBoostClassifier, GradientBoostingClassifier
from xgboost import XGBClassifier

iris = load_iris()
X, y = iris.data, iris.target
X_train, X_test, y_train, y_test = train_test_split(
    X, y, test_size=0.2, random_state=42, stratify=y
)
models = {
    "AdaBoost": AdaBoostClassifier(n_estimators=100, random_state=42),
    "GradientBoosting": GradientBoostingClassifier(n_estimators=100, random_state=42),
    "XGBoost": XGBClassifier(use_label_encoder=False, eval_metric='mlogloss', random_state=42)
}
results = {}
for name, model in models.items():
    model.fit(X_train, y_train)
    y_pred = model.predict(X_test)

    acc = accuracy_score(y_test, y_pred)
    report = classification_report(y_test, y_pred, target_names=iris.target_names)
    cm = confusion_matrix(y_test, y_pred)

    results[name] = {
        "Accuracy": acc,
        "Classification Report": report,
        "Confusion Matrix": cm
    }
for model_name, metrics in results.items():
```

```
    print("="*60)
    print(f"Model: {model_name}")
    print("Accuracy:", metrics["Accuracy"])
    print("\nClassification Report:\n", metrics["Classification Report"])
    print("Confusion Matrix:\n", metrics["Confusion Matrix"])
```

Output:-

```
============================================================
Model: AdaBoost
Accuracy: 0.9333333333333333

Classification Report:
              precision    recall  f1-score   support

      setosa       1.00      1.00      1.00        10
  versicolor       0.90      0.90      0.90        10
   virginica       0.90      0.90      0.90        10

    accuracy                           0.93        30
   macro avg       0.93      0.93      0.93        30
weighted avg       0.93      0.93      0.93        30

Confusion Matrix:
 [[10  0  0]
 [ 0  9  1]
 [ 0  1  9]]
============================================================
Model: GradientBoosting
Accuracy: 0.9666666666666667

Classification Report:
              precision    recall  f1-score   support
```

setosa	1.00	1.00	1.00	10
versicolor	1.00	0.90	0.95	10
virginica	0.91	1.00	0.95	10
accuracy			0.97	30
macro avg	0.97	0.97	0.97	30
weighted avg	0.97	0.97	0.97	30

Confusion Matrix:

```
[[10  0  0]
 [ 0  9  1]
 [ 0  0 10]]
```

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Model: XGBoost

Accuracy: 0.9333333333333333

Classification Report:

	precision	recall	f1-score	support
setosa	1.00	1.00	1.00	10
versicolor	0.90	0.90	0.90	10
virginica	0.90	0.90	0.90	10
accuracy			0.93	30
macro avg	0.93	0.93	0.93	30
weighted avg	0.93	0.93	0.93	30

Confusion Matrix:

```
[[10  0  0]
 [ 0  9  1]
 [ 0  1  9]]
```