In [7]:

```
import numpy as np
import pandas as pd

import seaborn as sns
sns.set(rc={'figure.figsize':(6,4)})
import matplotlib.pyplot as plt
%matplotlib inline

from tqdm import tqdm
import random
import pickle
import time

from sklearn.model_selection import train_test_split
from sklearn.preprocessing import LabelEncoder

from sklearn.preprocessing import MinMaxScaler
from sklearn.preprocessing import StandardScaler
from sklearn.preprocessing import MaxAbsScaler
from sklearn.preprocessing import RobustScaler
from sklearn.preprocessing import QuantileTransformer
from sklearn.preprocessing import PowerTransformer
from sklearn.preprocessing import Normalizer

from sklearn.linear_model import LogisticRegression
from sklearn.neighbors import KNeighborsClassifier
from sklearn.naive_bayes import GaussianNB
from sklearn.tree import DecisionTreeClassifier
from sklearn.ensemble import RandomForestClassifier

from sklearn.metrics import accuracy_score
from sklearn.metrics import log_loss
from sklearn.metrics import cohen_kappa_score
from sklearn.metrics import confusion_matrix
from sklearn import metrics

# for ignore warnings
import warnings
warnings.filterwarnings("ignore")

plot_data_list = []
```

In [8]:
```
df = pd.read_csv('Dataset\df.csv')
df.head()
```

Out[8]:

	itching	skin_rash	nodal_skin_eruptions	continuous_sneezing	shivering	chills	joint_pain	stomach_pain	acidity	ulcers_on_tongue	...	skin_peeling	silver_like_dust
0	1	1	1	0	0	0	0	0	0	0	...	0	
1	0	1	1	0	0	0	0	0	0	0	...	0	
2	1	0	1	0	0	0	0	0	0	0	...	0	
3	1	1	0	0	0	0	0	0	0	0	...	0	
4	1	1	1	0	0	0	0	0	0	0	...	0	

5 rows × 135 columns

In [9]:
```
df.shape
```

Out[9]:
```
(4920, 135)
```

In [10]:
```
# print(sorted(list(df.columns)))
```

In [11]:
```
df['high_fever'] = np.random.randint(96, 106, df.shape[0])
df['age'] = np.random.randint(10, 90, df.shape[0])
df.to_csv("Dataset\df2_modified.csv", index=False)
```

In [12]:
```
# creating instance of labelencoder
le = LabelEncoder()
# Assigning numerical values and storing in another column
df['class_prognosis'] = le.fit_transform(df['prognosis'])
df.head()
```

Out[12]:

cers_on_tongue	...	silver_like_dusting	small_dents_in_nails	inflammatory_nails	blister	red_sore_around_nose	yellow_crust_ooze	prognosis	sum	class_prognosis	age
0	...	0	0	0	0	0	0	Fungal infection	4	15	68
0	...	0	0	0	0	0	0	Fungal infection	3	15	49
0	...	0	0	0	0	0	0	Fungal infection	3	15	84
0	...	0	0	0	0	0	0	Fungal infection	3	15	28
0	...	0	0	0	0	0	0	Fungal infection	3	15	36

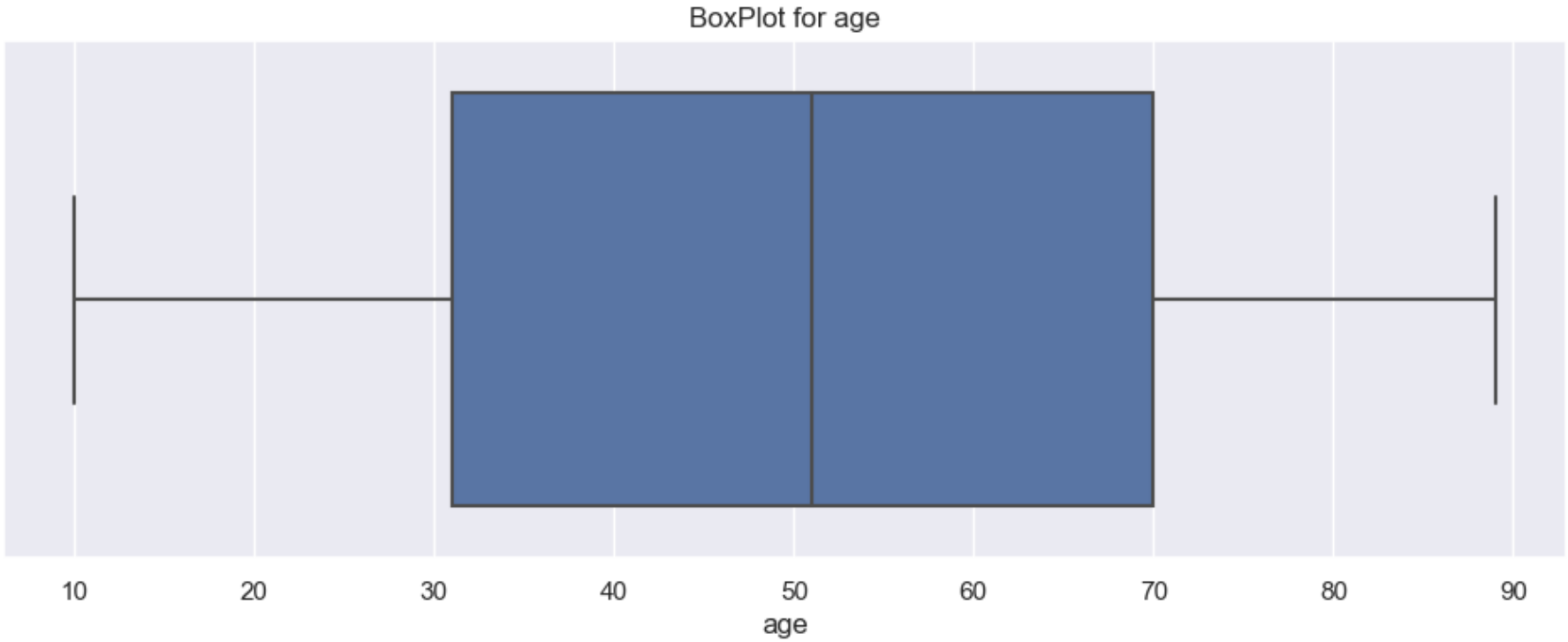
In [13]:
```
#print(sorted(list(df['class_prognosis'].unique())))
```

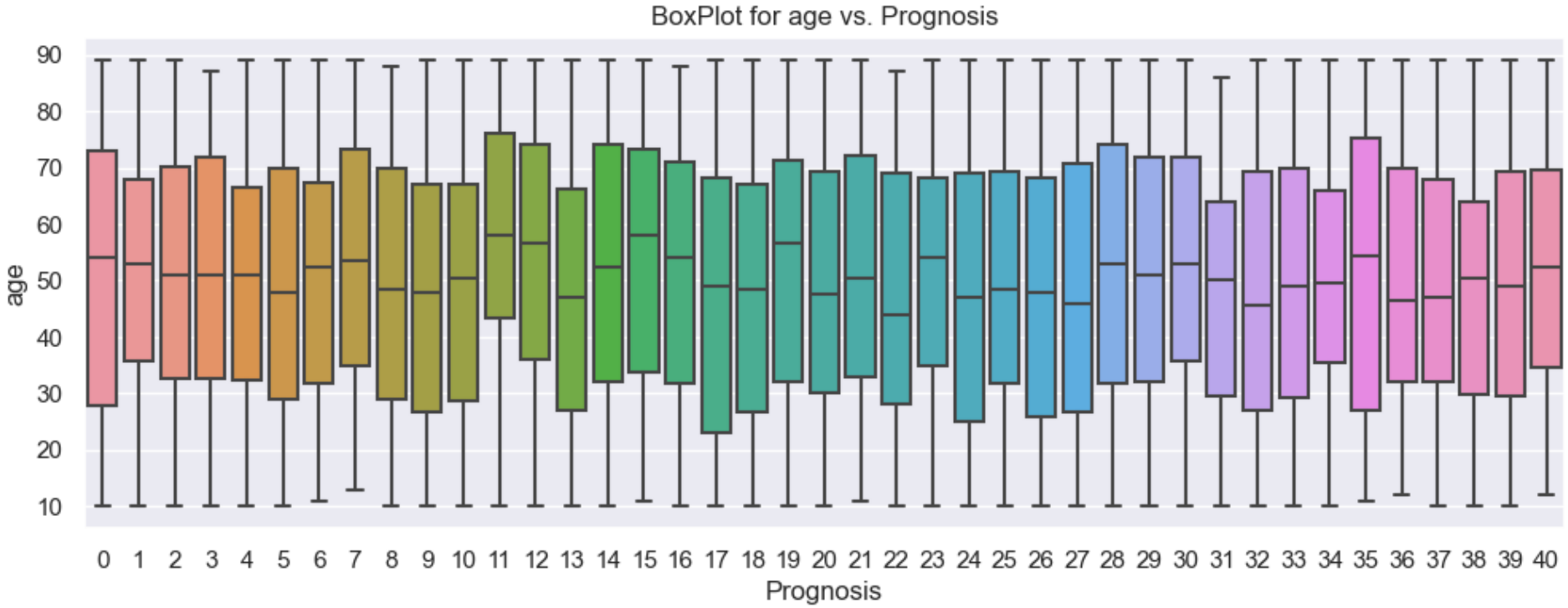
In [14]:
```
#df['class_prognosis'].value_counts()
```

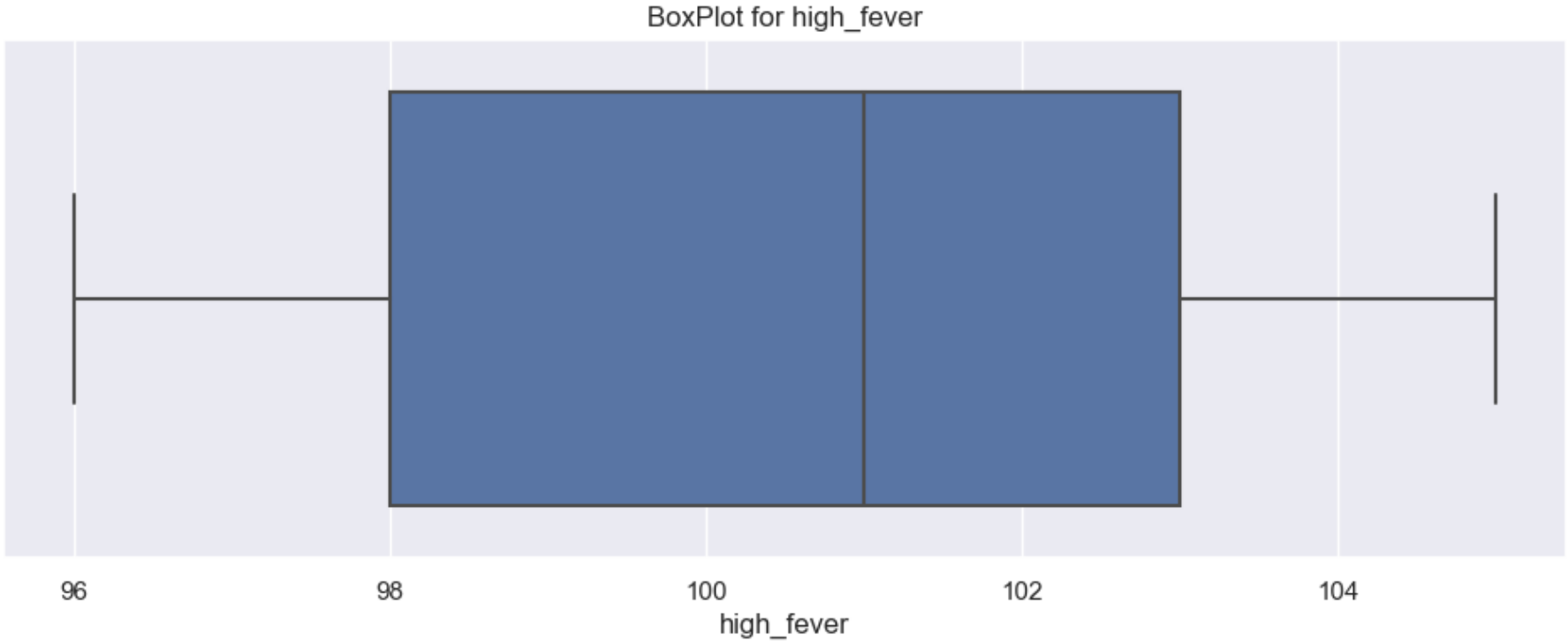
In [15]:
```
# Drop unwanted columns
df = df.drop(['prognosis','sum'], axis=1)
```

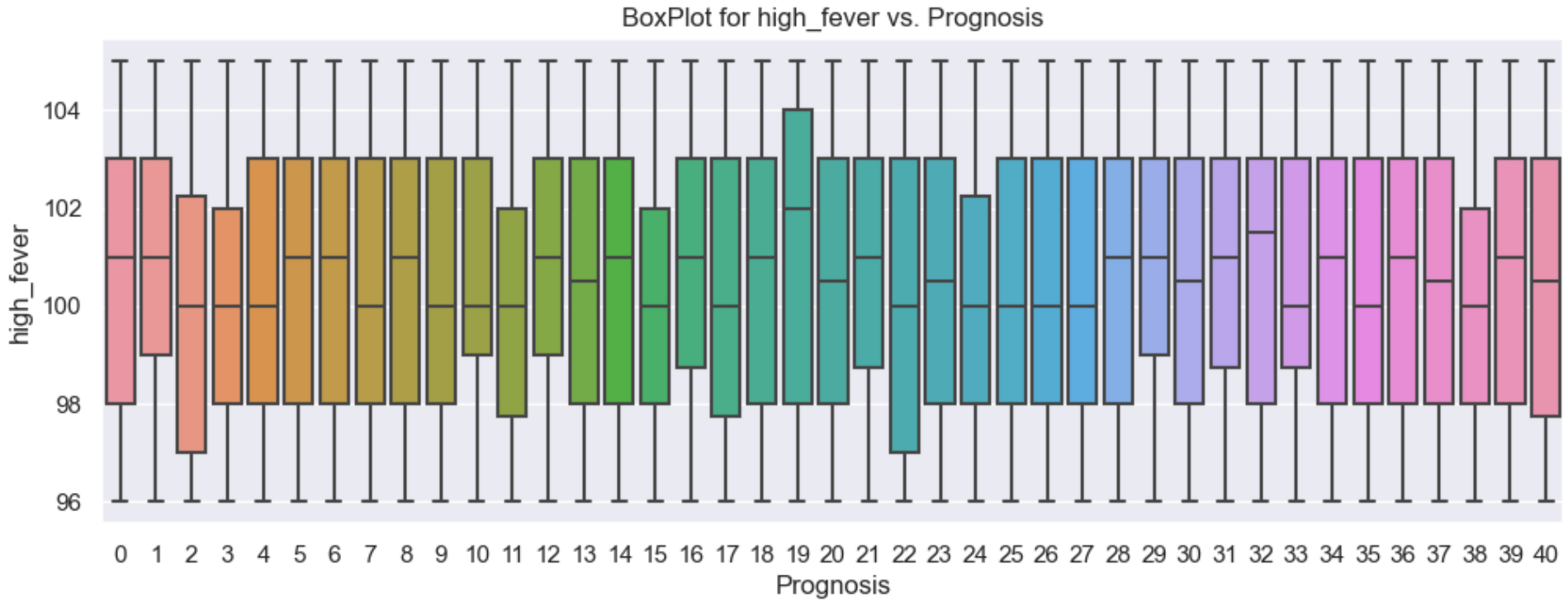
In [20]:

```
# process EDA
sns.set(rc={'figure.figsize':(12,4)})
column_list = ["age", "high_fever"]
for col in column_list:

    sns.boxplot(x=df[col])
    plt.title(f'BoxPlot for {col}')
    plt.xlabel(f'{col}')
    plt.show()

    sns.boxplot(data=df, x="class_prognosis", y=col)
    plt.title(f'BoxPlot for {col} vs. Prognosis')
    plt.ylabel(f'{col}')
    plt.xlabel(f'Prognosis')
    plt.show()

```




BoxPlot for age vs. Prognosis
age
90
80
70
60
50
40
30
20
10
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Prognosis


BoxPlot for high_fever
96
98
100
102
104
high_fever



In [25]:

```
# Split data
# X, Y = df.iloc[:,:-1], df.iloc[:,-1]
X, Y = df.drop(['class_prognosis'], axis = 1),  df['class_prognosis']
X_train, X_test, y_train, y_test = train_test_split(X,Y, test_size = 0.3, random_state = 42, stratify = Y)
```

In [26]:

```
# Model initialization
lr_Classifier = LogisticRegression()
knn_Classifier = KNeighborsClassifier()
gnb_Classifier = GaussianNB()
dt_Classifier = DecisionTreeClassifier()
rf_Classifier = RandomForestClassifier()
model_list = [lr_Classifier, knn_Classifier, gnb_Classifier, dt_Classifier, rf_Classifier]

# Scaler initialization
MinMax_scaler = MinMaxScaler()
Standard_scaler = StandardScaler()
MaxAbs_scaler = MaxAbsScaler()
Robust_scaler = RobustScaler()
Quantile_scaler = QuantileTransformer()
Power_scaler = PowerTransformer()
Normalizer_scaler = Normalizer()
scaler_list = [MinMax_scaler, Standard_scaler, MaxAbs_scaler, Robust_scaler,
               Quantile_scaler, Power_scaler, Normalizer_scaler]
```

In [27]:

```python
def run_pipeline(X_train, X_test, y_train, y_test, scaler, classifier):
    # Model Information
    print(f"Modele name : {type(classifier).__name__}")
    print(f"Scaler name : {type(scaler).__name__}")

    # process 1 : fit and transform X_train data
    scaled_X_train = scaler.fit_transform(X_train)

    # process 2 : train model
    classifier.fit(scaled_X_train, y_train)

    # process 3 : transform X_test data
    scaled_X_test = scaler.transform(X_test)

    # process 4 : test model
    y_pred = classifier.predict(scaled_X_test)
    # print(y_pred, le.inverse_transform(y_pred))

    # process 5 : model evalution
    print("Accuracy_score:", round((accuracy_score(y_test, y_pred))*100,2),'%')
    print("Loss:", round((1-accuracy_score(y_test, y_pred))*100,2),'%')
    print("Cohen_kappa_score:", round((cohen_kappa_score(y_test, y_pred))*100,2),'%')
    print("Classification_report:\n",metrics.classification_report(y_test, y_pred))
    print("confusion_matrix:\n", confusion_matrix(y_test, y_pred))
    # plot confusion_matrix
#     fig, ax = plt.subplots()
#     fig.set_size_inches(12,8) # WH
#     sns.heatmap(confusion_matrix(y_test, y_pred),
#                 annot=True,
#                 linewidths = 2,
#                 linecolor = "blue",
#                 center=0)
#     plt.show()

    # process 6 : save model in pkl file
    filename = f'Moduls\\{str(type(classifier).__name__)}_{str(type(scaler).__name__)}_Symtoms.pkl'
    pickle.dump(classifier, open(filename, 'wb'))

    # collect data for bar plot
    global plot_data_list
    plot_data_list.append([str(type(classifier).__name__),
                           str(type(scaler).__name__),
                           round((accuracy_score(y_test, y_pred))*100,2)])

    # end
    print("==="*30)
```

```
    print("\n\n")
    time.sleep(0.5)
```

In [28]:

```
for model in model_list:
    for scaler in scaler_list:
        run_pipeline(X_train, X_test, y_train, y_test, scaler, model)

    # plot data
    plot_df = pd.DataFrame(plot_data_list, columns=['classifier', 'scaler', 'accuracy_score'])
    plot_df.to_csv(f"Dataset\\{str(type(model).__name__)}_accuracy_score_plot_data.csv", index=False)
    sns.set(rc={'figure.figsize':(18,6)})
    ax = sns.barplot(data=plot_df, x="classifier", y="accuracy_score", hue="scaler")
    plt.title('Accuracy Score Plot')
    plt.xlabel('Classifier')
    plt.ylabel('Accuracy Score')
    for i in ax.containers:
        ax.bar_label(i,)
    plt.show()

    # empty list
    plot_data_list = []
    print("\n\n")

print("Done...")
```

Modele name : LogisticRegression
Scaler name : MinMaxScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : LogisticRegression
Scaler name : StandardScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================


Modele name : LogisticRegression
Scaler name : MaxAbsScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
```

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			1.00	1476
macro avg	1.00	1.00	1.00	1476

```
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```

Modele name : LogisticRegression
Scaler name : RobustScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : LogisticRegression
Scaler name : QuantileTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================


Modele name : LogisticRegression
Scaler name : PowerTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
```

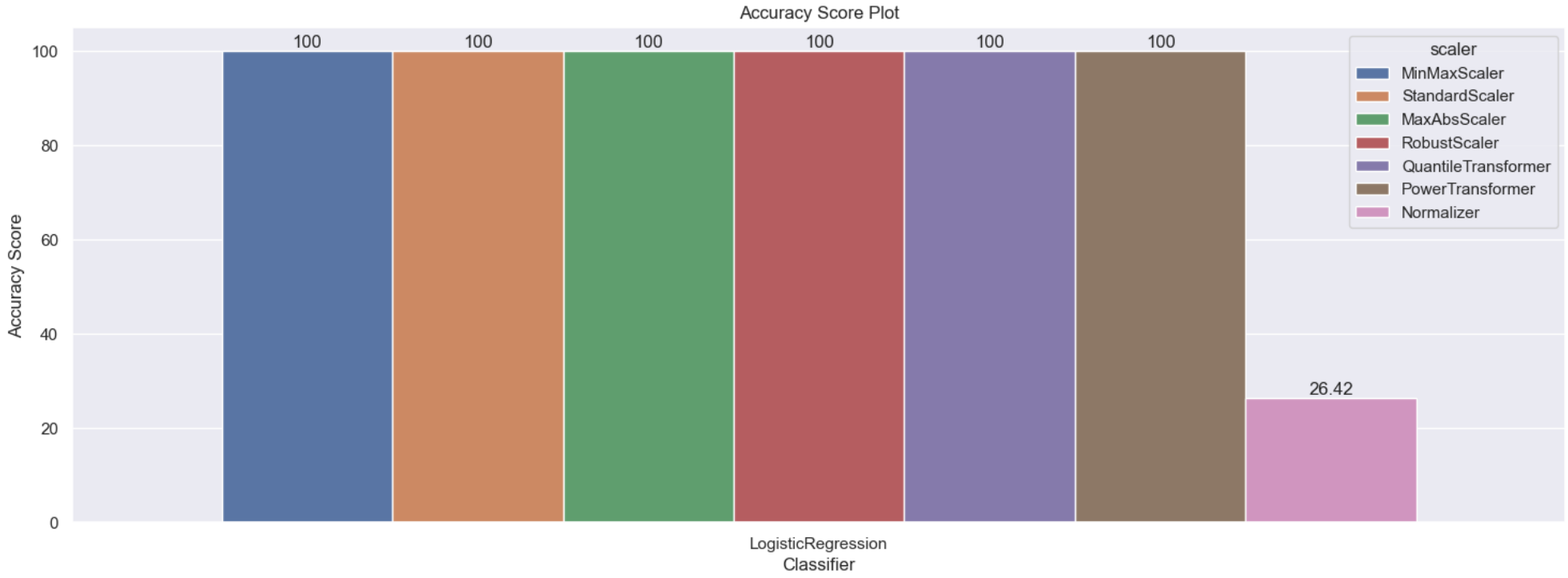
	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			1.00	1476
macro avg	1.00	1.00	1.00	1476

```
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```

Modele name : LogisticRegression
Scaler name : Normalizer
Accuracy_score: 26.42 %
Loss: 73.58 %
Cohen_kappa_score: 24.58 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	0.06	0.11	36
1	0.83	0.28	0.42	36
2	1.00	0.08	0.15	36
3	1.00	0.17	0.29	36
4	1.00	0.17	0.29	36
5	1.00	0.22	0.36	36
6	1.00	0.36	0.53	36
7	0.34	0.39	0.36	36
8	1.00	0.14	0.24	36
9	1.00	0.08	0.15	36
10	1.00	0.58	0.74	36
11	0.14	0.75	0.24	36
12	0.71	0.75	0.73	36
13	1.00	0.08	0.15	36
14	0.04	0.36	0.07	36
15	1.00	0.08	0.15	36
16	1.00	0.11	0.20	36
17	1.00	0.14	0.24	36
18	0.83	0.14	0.24	36
19	1.00	0.25	0.40	36
20	1.00	0.14	0.24	36
21	0.35	0.25	0.29	36
22	0.05	0.53	0.09	36
23	0.80	0.22	0.35	36
24	1.00	0.25	0.40	36
25	1.00	0.25	0.40	36
26	0.13	0.50	0.21	36
27	1.00	0.28	0.43	36
28	1.00	0.17	0.29	36
29	1.00	0.11	0.20	36
30	1.00	0.25	0.40	36
31	0.34	0.56	0.42	36
32	1.00	0.17	0.29	36
33	1.00	0.14	0.24	36
34	0.90	0.25	0.39	36
35	1.00	0.11	0.20	36
36	0.83	0.42	0.56	36
37	0.78	0.19	0.31	36

```
          38       0.68      0.36      0.47        36
          39       1.00      0.28      0.43        36
          40       0.73      0.22      0.34        36

    accuracy                           0.26      1476
   macro avg       0.82      0.26      0.32      1476
weighted avg       0.82      0.26      0.32      1476

confusion_matrix:
 [[ 2  0  0 ...  0  0  0]
 [ 0 10  0 ...  1  0  0]
 [ 0  0  3 ...  0  0  0]
 ...
 [ 0  0  0 ... 13  0  0]
 [ 0  0  0 ...  0 10  0]
 [ 0  0  0 ...  0  0  8]]
================================================================================
```



Modele name : KNeighborsClassifier
Scaler name : MinMaxScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36

```
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : KNeighborsClassifier
Scaler name : StandardScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
```

```
           15       1.00      1.00      1.00        36
           16       1.00      1.00      1.00        36
           17       1.00      1.00      1.00        36
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : KNeighborsClassifier
Scaler name : MaxAbsScaler
Accuracy_score: 100.0 %
```

Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36

```
    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```

Modele name : KNeighborsClassifier
Scaler name : RobustScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : KNeighborsClassifier
Scaler name : QuantileTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : KNeighborsClassifier
Scaler name : PowerTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
```

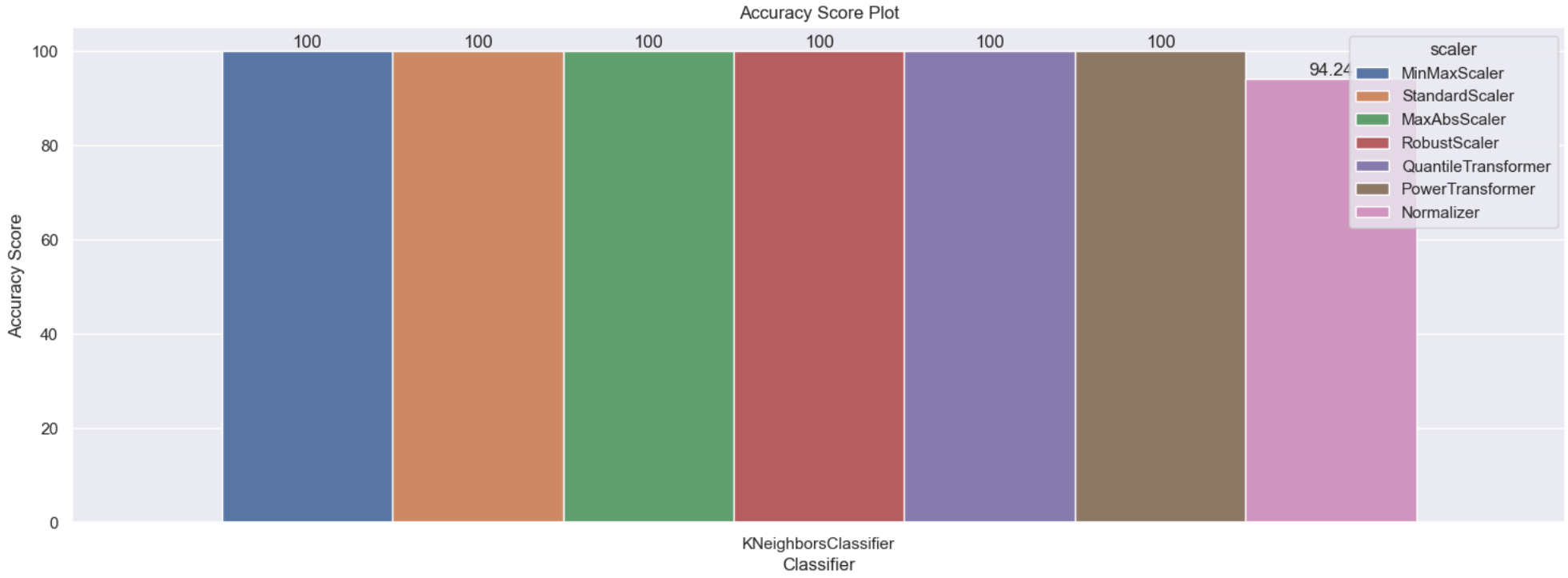
	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			1.00	1476
macro avg	1.00	1.00	1.00	1476

```
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```

Modele name : KNeighborsClassifier
Scaler name : Normalizer
Accuracy_score: 94.24 %
Loss: 5.76 %
Cohen_kappa_score: 94.1 %
Classification_report:

	precision	recall	f1-score	support
0	0.95	0.97	0.96	36
1	0.88	1.00	0.94	36
2	0.94	0.94	0.94	36
3	1.00	1.00	1.00	36
4	1.00	0.94	0.97	36
5	0.92	1.00	0.96	36
6	0.97	0.94	0.96	36
7	0.94	0.92	0.93	36
8	1.00	0.92	0.96	36
9	0.73	1.00	0.85	36
10	1.00	1.00	1.00	36
11	1.00	0.94	0.97	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	0.89	0.89	0.89	36
15	0.67	0.86	0.76	36
16	0.97	1.00	0.99	36
17	0.95	1.00	0.97	36
18	0.85	0.94	0.89	36
19	1.00	1.00	1.00	36
20	0.97	0.89	0.93	36
21	0.67	0.81	0.73	36
22	0.91	0.83	0.87	36
23	0.94	0.89	0.91	36
24	1.00	1.00	1.00	36
25	1.00	0.97	0.99	36
26	1.00	1.00	1.00	36
27	0.94	0.86	0.90	36
28	1.00	0.78	0.88	36
29	0.86	1.00	0.92	36
30	1.00	1.00	1.00	36
31	1.00	0.89	0.94	36
32	0.97	0.86	0.91	36
33	1.00	1.00	1.00	36
34	1.00	0.94	0.97	36
35	1.00	0.92	0.96	36
36	1.00	1.00	1.00	36
37	1.00	0.89	0.94	36

```
          38       1.00      0.97      0.99        36
          39       1.00      1.00      1.00        36
          40       1.00      0.86      0.93        36

    accuracy                           0.94      1476
   macro avg       0.95      0.94      0.94      1476
weighted avg       0.95      0.94      0.94      1476

confusion_matrix:
 [[35  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 34 ...  0  0  0]
 ...
 [ 0  1  0 ... 35  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 31]]
================================================================================
```



Modele name : GaussianNB
Scaler name : MinMaxScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36

```
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : GaussianNB
Scaler name : StandardScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
```

```
           15       1.00      1.00      1.00        36
           16       1.00      1.00      1.00        36
           17       1.00      1.00      1.00        36
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : GaussianNB
Scaler name : MaxAbsScaler
Accuracy_score: 100.0 %
```

Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36

```
    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```

Modele name : GaussianNB
Scaler name : RobustScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : GaussianNB
Scaler name : QuantileTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================


Modele name : GaussianNB
Scaler name : PowerTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
```

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			1.00	1476
macro avg	1.00	1.00	1.00	1476

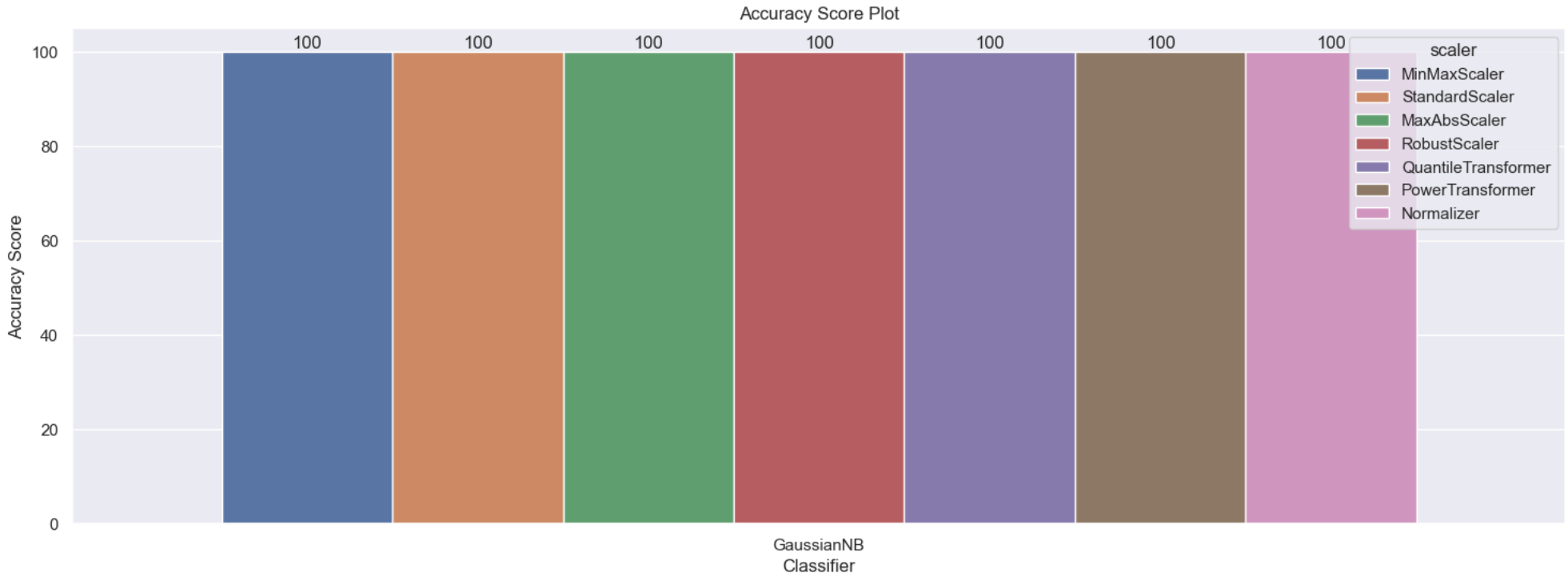
```
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
```

==========

Modele name : GaussianNB
Scaler name : Normalizer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36

```
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```


Accuracy Score Plot
100
100
100
100
100
100
100
scaler
MinMaxScaler
StandardScaler
MaxAbsScaler
RobustScaler
QuantileTransformer
PowerTransformer
Normalizer
Accuracy Score
0
20
40
60
80
100
GaussianNB
Classifier

Modele name : DecisionTreeClassifier
Scaler name : MinMaxScaler
Accuracy_score: 99.8 %
Loss: 0.2 %
Cohen_kappa_score: 99.79 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	0.97	0.94	0.96	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	0.95	0.97	0.96	36
34	1.00	1.00	1.00	36

```
          35       1.00      1.00      1.00        36
          36       1.00      1.00      1.00        36
          37       1.00      1.00      1.00        36
          38       1.00      1.00      1.00        36
          39       1.00      1.00      1.00        36
          40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : DecisionTreeClassifier
Scaler name : StandardScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
```

```
           15       1.00      1.00      1.00        36
           16       1.00      1.00      1.00        36
           17       1.00      1.00      1.00        36
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : DecisionTreeClassifier
Scaler name : MaxAbsScaler
Accuracy_score: 100.0 %
```

Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36

```
    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```

Modele name : DecisionTreeClassifier
Scaler name : RobustScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : DecisionTreeClassifier
Scaler name : QuantileTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : DecisionTreeClassifier
Scaler name : PowerTransformer
Accuracy_score: 99.46 %
Loss: 0.54 %
Cohen_kappa_score: 99.44 %
Classification_report:
```

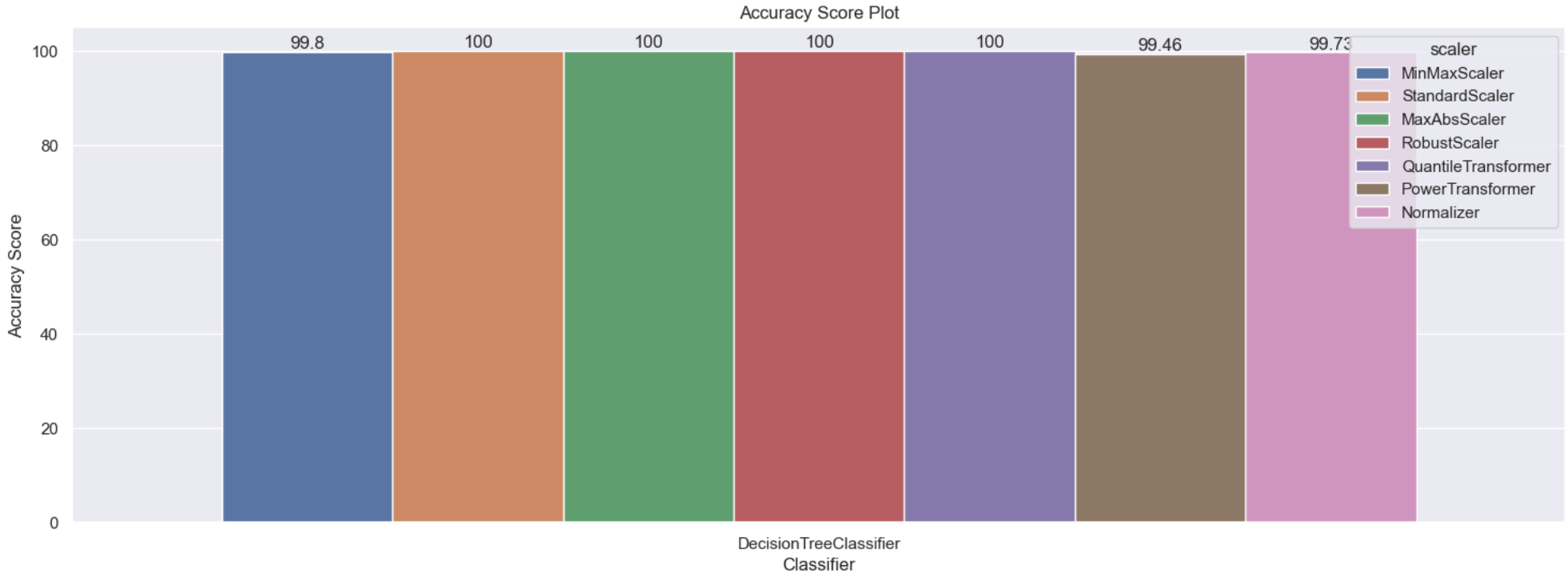
	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	0.92	0.96	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	0.94	0.97	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	0.87	0.92	0.89	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	0.92	1.00	0.96	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			0.99	1476
macro avg	0.99	0.99	0.99	1476

```
weighted avg       0.99      0.99      0.99      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```

Modele name : DecisionTreeClassifier
Scaler name : Normalizer
Accuracy_score: 99.73 %
Loss: 0.27 %
Cohen_kappa_score: 99.72 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	0.97	1.00	0.99	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	0.92	0.96	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	0.92	1.00	0.96	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	0.97	0.99	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
          38       1.00      1.00      1.00        36
          39       1.00      1.00      1.00        36
          40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```



Modele name : RandomForestClassifier
Scaler name : MinMaxScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36

```
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : RandomForestClassifier
Scaler name : StandardScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
```

```
           15       1.00      1.00      1.00        36
           16       1.00      1.00      1.00        36
           17       1.00      1.00      1.00        36
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : RandomForestClassifier
Scaler name : MaxAbsScaler
Accuracy_score: 100.0 %
```

Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36

```
    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```

Modele name : RandomForestClassifier
Scaler name : RobustScaler
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================



Modele name : RandomForestClassifier
Scaler name : QuantileTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
              precision    recall  f1-score   support

           0       1.00      1.00      1.00        36
           1       1.00      1.00      1.00        36
           2       1.00      1.00      1.00        36
           3       1.00      1.00      1.00        36
           4       1.00      1.00      1.00        36
           5       1.00      1.00      1.00        36
           6       1.00      1.00      1.00        36
           7       1.00      1.00      1.00        36
           8       1.00      1.00      1.00        36
           9       1.00      1.00      1.00        36
          10       1.00      1.00      1.00        36
          11       1.00      1.00      1.00        36
          12       1.00      1.00      1.00        36
          13       1.00      1.00      1.00        36
          14       1.00      1.00      1.00        36
          15       1.00      1.00      1.00        36
          16       1.00      1.00      1.00        36
          17       1.00      1.00      1.00        36
```

```
           18       1.00      1.00      1.00        36
           19       1.00      1.00      1.00        36
           20       1.00      1.00      1.00        36
           21       1.00      1.00      1.00        36
           22       1.00      1.00      1.00        36
           23       1.00      1.00      1.00        36
           24       1.00      1.00      1.00        36
           25       1.00      1.00      1.00        36
           26       1.00      1.00      1.00        36
           27       1.00      1.00      1.00        36
           28       1.00      1.00      1.00        36
           29       1.00      1.00      1.00        36
           30       1.00      1.00      1.00        36
           31       1.00      1.00      1.00        36
           32       1.00      1.00      1.00        36
           33       1.00      1.00      1.00        36
           34       1.00      1.00      1.00        36
           35       1.00      1.00      1.00        36
           36       1.00      1.00      1.00        36
           37       1.00      1.00      1.00        36
           38       1.00      1.00      1.00        36
           39       1.00      1.00      1.00        36
           40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================


Modele name : RandomForestClassifier
Scaler name : PowerTransformer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:
```

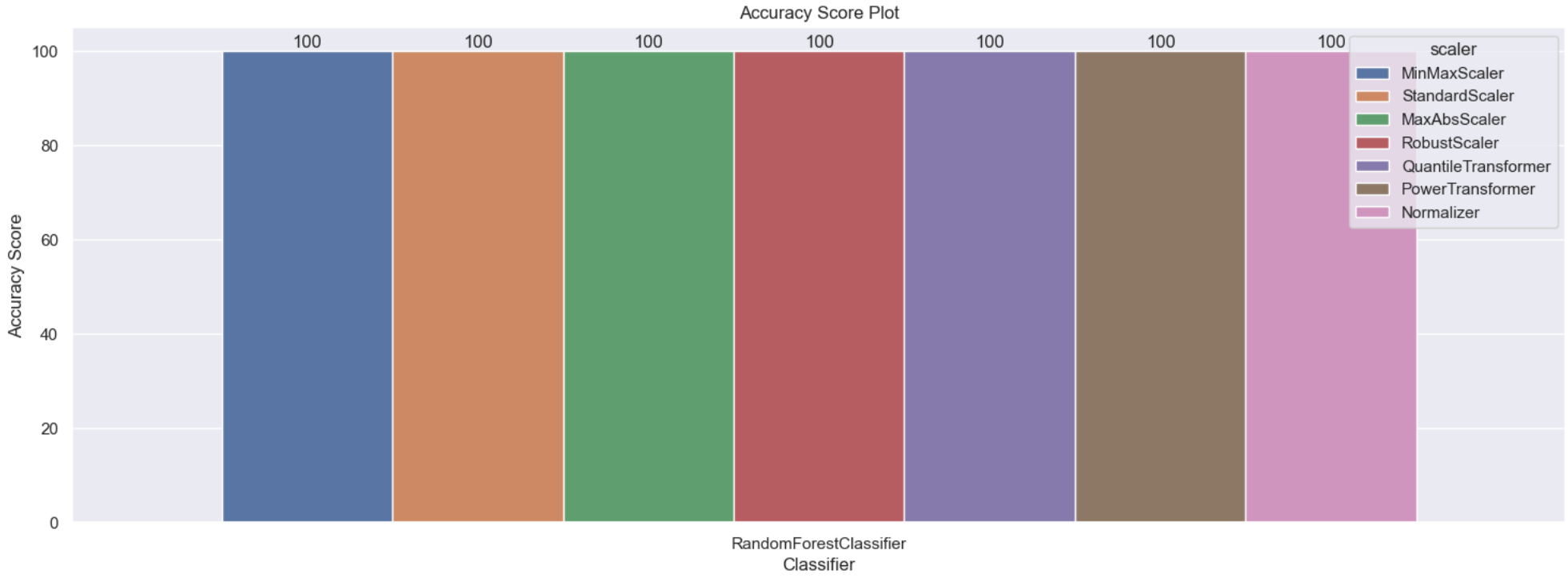
	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36
38	1.00	1.00	1.00	36
39	1.00	1.00	1.00	36
40	1.00	1.00	1.00	36
accuracy			1.00	1476
macro avg	1.00	1.00	1.00	1476

```
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
==========================================================================================
```

Modele name : RandomForestClassifier
Scaler name : Normalizer
Accuracy_score: 100.0 %
Loss: 0.0 %
Cohen_kappa_score: 100.0 %
Classification_report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	36
1	1.00	1.00	1.00	36
2	1.00	1.00	1.00	36
3	1.00	1.00	1.00	36
4	1.00	1.00	1.00	36
5	1.00	1.00	1.00	36
6	1.00	1.00	1.00	36
7	1.00	1.00	1.00	36
8	1.00	1.00	1.00	36
9	1.00	1.00	1.00	36
10	1.00	1.00	1.00	36
11	1.00	1.00	1.00	36
12	1.00	1.00	1.00	36
13	1.00	1.00	1.00	36
14	1.00	1.00	1.00	36
15	1.00	1.00	1.00	36
16	1.00	1.00	1.00	36
17	1.00	1.00	1.00	36
18	1.00	1.00	1.00	36
19	1.00	1.00	1.00	36
20	1.00	1.00	1.00	36
21	1.00	1.00	1.00	36
22	1.00	1.00	1.00	36
23	1.00	1.00	1.00	36
24	1.00	1.00	1.00	36
25	1.00	1.00	1.00	36
26	1.00	1.00	1.00	36
27	1.00	1.00	1.00	36
28	1.00	1.00	1.00	36
29	1.00	1.00	1.00	36
30	1.00	1.00	1.00	36
31	1.00	1.00	1.00	36
32	1.00	1.00	1.00	36
33	1.00	1.00	1.00	36
34	1.00	1.00	1.00	36
35	1.00	1.00	1.00	36
36	1.00	1.00	1.00	36
37	1.00	1.00	1.00	36

```
          38       1.00      1.00      1.00        36
          39       1.00      1.00      1.00        36
          40       1.00      1.00      1.00        36

    accuracy                           1.00      1476
   macro avg       1.00      1.00      1.00      1476
weighted avg       1.00      1.00      1.00      1476

confusion_matrix:
 [[36  0  0 ...  0  0  0]
 [ 0 36  0 ...  0  0  0]
 [ 0  0 36 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  0  0 ...  0 36  0]
 [ 0  0  0 ...  0  0 36]]
================================================================================
```



```
Done...
```

In [ ]:

```
# plot_df = pd.DataFrame(plot_data_list, columns=['classifier', 'scaler', 'accuracy_score'])
# plot_df.to_csv("Dataset\\accuracy_score_plot_data.csv", index=False)
```

In [ ]:

```
# sns.set(rc={'figure.figsize':(18,6)})

# sns.barplot(data=plot_df, x="classifier", y="accuracy_score", hue="scaler")
# plt.title('Accuracy Score Plot')
# plt.xlabel('Classifier')
# plt.ylabel('Accuracy Score')
# plt.show()
```

In [ ]:

```

```