

In [84]:

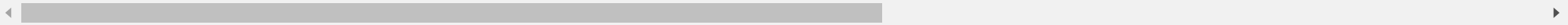
```
1 import numpy as np
2 import pandas as pd
3
4 import seaborn as sns
5 sns.set(rc={'figure.figsize':(6,4)})
6 import matplotlib.pyplot as plt
7 %matplotlib inline
8
9 from tqdm import tqdm
10 import random
11 import pickle
12 import time
13
14 from sklearn.model_selection import train_test_split
15 from sklearn.preprocessing import LabelEncoder
16
17 from sklearn.preprocessing import MinMaxScaler
18 from sklearn.preprocessing import StandardScaler
19 from sklearn.preprocessing import MaxAbsScaler
20 from sklearn.preprocessing import RobustScaler
21 from sklearn.preprocessing import QuantileTransformer
22 from sklearn.preprocessing import PowerTransformer
23 from sklearn.preprocessing import Normalizer
24
25 from sklearn.linear_model import LogisticRegression
26 from sklearn.neighbors import KNeighborsClassifier
27 from sklearn.naive_bayes import GaussianNB
28 from sklearn.tree import DecisionTreeClassifier
29 from sklearn.ensemble import RandomForestClassifier
30
31 from sklearn.metrics import accuracy_score
32 from sklearn.metrics import log_loss
33 from sklearn.metrics import cohen_kappa_score
34 from sklearn.metrics import confusion_matrix
35 from sklearn import metrics
36
37 # for ignore warnings
38 import warnings
39 warnings.filterwarnings("ignore")
40
41 plot_data_list = []
```

```
In [85]: 1 df = pd.read_csv('Dataset\df.csv')
2 df.head()
```

```
Out[85]:
```

| | 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 [86]: 1 df.shape
```

```
Out[86]: (4920, 135)
```

```
In [87]: 1 # print(sorted(list(df.columns)))
```

```
In [88]: 1 df['high_fever'] = np.random.randint(96, 106, df.shape[0])
2 df['age'] = np.random.randint(10, 90, df.shape[0])
```

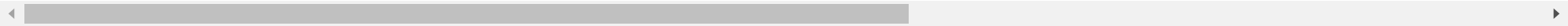
```
In [89]: 1 # df.to_csv("Dataset\df2_modified.csv", index=False)
```

```
In [90]: 1 # creating instance of LabelEncoder
2 le = LabelEncoder()
3 # Assigning numerical values and storing in another column
4 df['class_prognosis'] = le.fit_transform(df['prognosis'])
5 df.head()
```

```
Out[90]:
```

| | itching | skin_rash | nodal_skin_eruptions | continuous_sneezing | shivering | chills | joint_pain | stomach_pain | acidity | ulcers_on_tongue | ... | silver_like_dusting | small_de |
|---|---------|-----------|----------------------|---------------------|-----------|--------|------------|--------------|---------|------------------|-----|---------------------|----------|
| 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 × 136 columns



```
In [91]: 1 #print(sorted(list(df['class_prognosis'].unique())))
```

```
In [92]: 1 #df['class_prognosis'].value_counts()
```

```
In [93]: 1 # Drop unwanted columns
2 df = df.drop(['prognosis', 'sum'], axis=1)
```

```
In [94]: 1 # Split data
2 # X, Y = df.iloc[:, :-1], df.iloc[:, -1]
3 X, Y = df.drop(['class_prognosis'], axis = 1), df['class_prognosis']
4 X_train, X_test, y_train, y_test = train_test_split(X,Y, test_size = 0.3, random_state = 42, stratify = Y)
```

In [95]:

```
1  # Model initialization
2  lr_Classifier = LogisticRegression()
3  knn_Classifier = KNeighborsClassifier()
4  gnb_Classifier = GaussianNB()
5  dt_Classifier = DecisionTreeClassifier()
6  rf_Classifier = RandomForestClassifier()
7  model_list = [lr_Classifier, knn_Classifier, gnb_Classifier, dt_Classifier, rf_Classifier]
8
9  # Scaler initialization
10 MinMax_scaler = MinMaxScaler()
11 Standard_scaler = StandardScaler()
12 MaxAbs_scaler = MaxAbsScaler()
13 Robust_scaler = RobustScaler()
14 Quantile_scaler = QuantileTransformer()
15 Power_scaler = PowerTransformer()
16 Normalizer_scaler = Normalizer()
17 scaler_list = [MinMax_scaler, Standard_scaler, MaxAbs_scaler, Robust_scaler,
18               Quantile_scaler, Power_scaler, Normalizer_scaler]
```



```

In [96]: 1 def run_pipeline(X_train, X_test, y_train, y_test, scaler, classifier):
2         # Model Information
3         print(f"Model name : {type(classifier).__name__}")
4         print(f"Scaler name : {type(scaler).__name__}")
5
6         # process 1 : fit and transform X_train data
7         scaled_X_train = scaler.fit_transform(X_train)
8
9         # process 2 : train model
10        classifier.fit(scaled_X_train, y_train)
11
12        # process 3 : transform X_test data
13        scaled_X_test = scaler.transform(X_test)
14
15        # process 4 : test model
16        y_pred = classifier.predict(scaled_X_test)
17        # print(y_pred, le.inverse_transform(y_pred))
18
19        # process 5 : model evaluation
20        print("Accuracy_score:", round((accuracy_score(y_test, y_pred))*100,2), '%')
21        print("Loss:", round((1-accuracy_score(y_test, y_pred))*100,2), '%')
22        print("Cohen_kappa_score:", round((cohen_kappa_score(y_test, y_pred))*100,2), '%')
23        print("Classification_report:\n", metrics.classification_report(y_test, y_pred))
24        print("confusion_matrix:\n", confusion_matrix(y_test, y_pred))
25        # plot confusion matrix
26        fig, ax = plt.subplots()
27        fig.set_size_inches(12,8) # WH
28        sns.heatmap(confusion_matrix(y_test, y_pred),
29                    annot=True,
30                    linewidths = 2,
31                    linecolor = "blue",
32                    center=0)
33        plt.show()
34
35        # process 6 : save model in pkl file
36        filename = 'Moduls\\'+str(type(classifier).__name__)+'_Symtoms.pkl'
37        pickle.dump(classifier, open(filename, 'wb'))
38
39        # collect data for bar plot
40        global plot_data_list
41        plot_data_list.append([str(type(classifier).__name__),
42                               str(type(scaler).__name__),
43                               round((accuracy_score(y_test, y_pred))*100,2)])
44
45        # end
46        print("==="*30)

```

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

In [97]:

```
1 for model in model_list:
2     for scaler in scaler_list:
3         run_pipeline(X_train, X_test, y_train, y_test, scaler, model)
4 print("Done...")
```


Modele name : LogisticRegression

Scaler name : MinMaxScaler

Accuracy_score: 100.0 %

Loss: 0.0 %

Cohen_kappa_score: 100.0 %

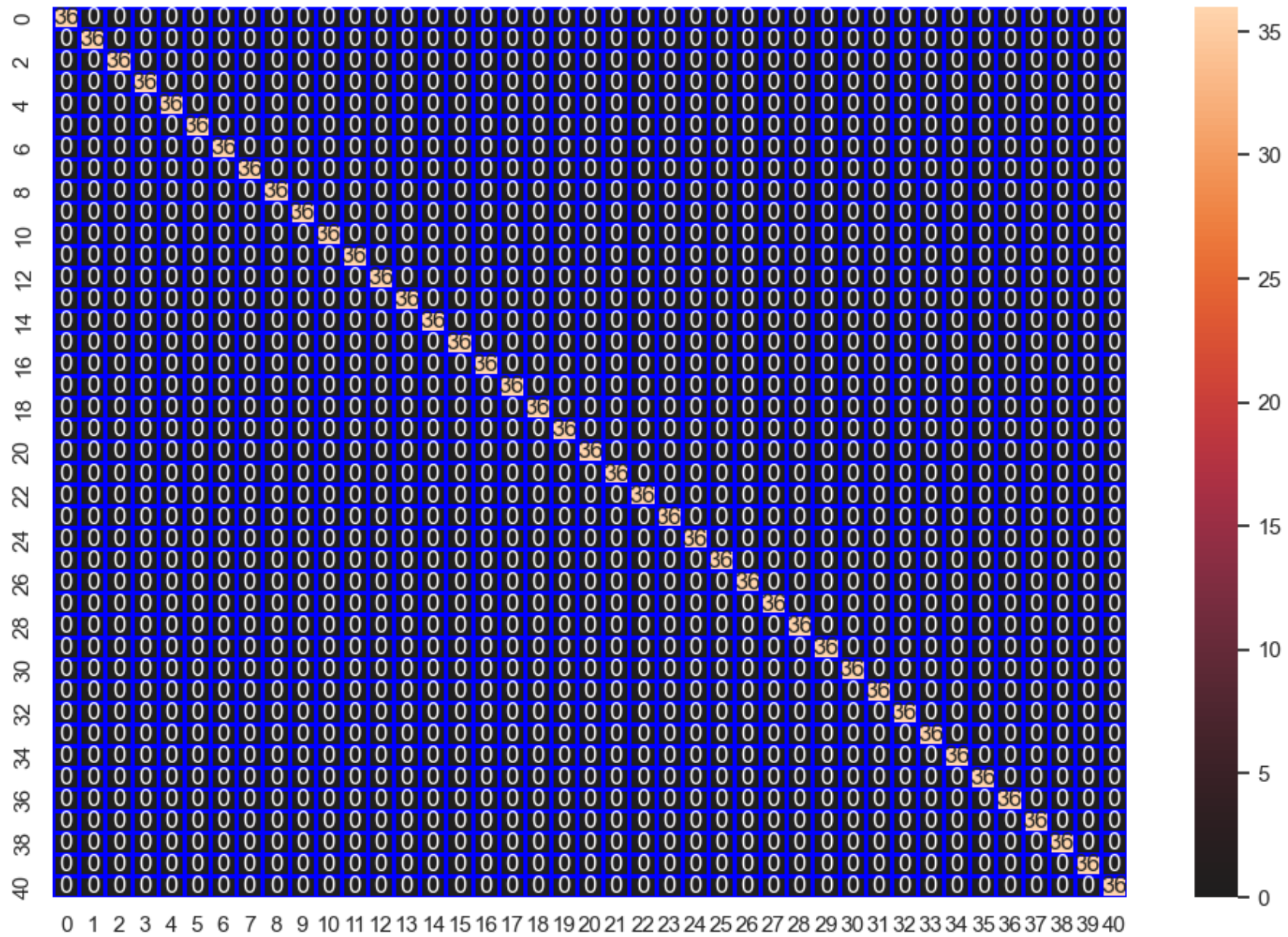
Classification_report:

| | 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 |

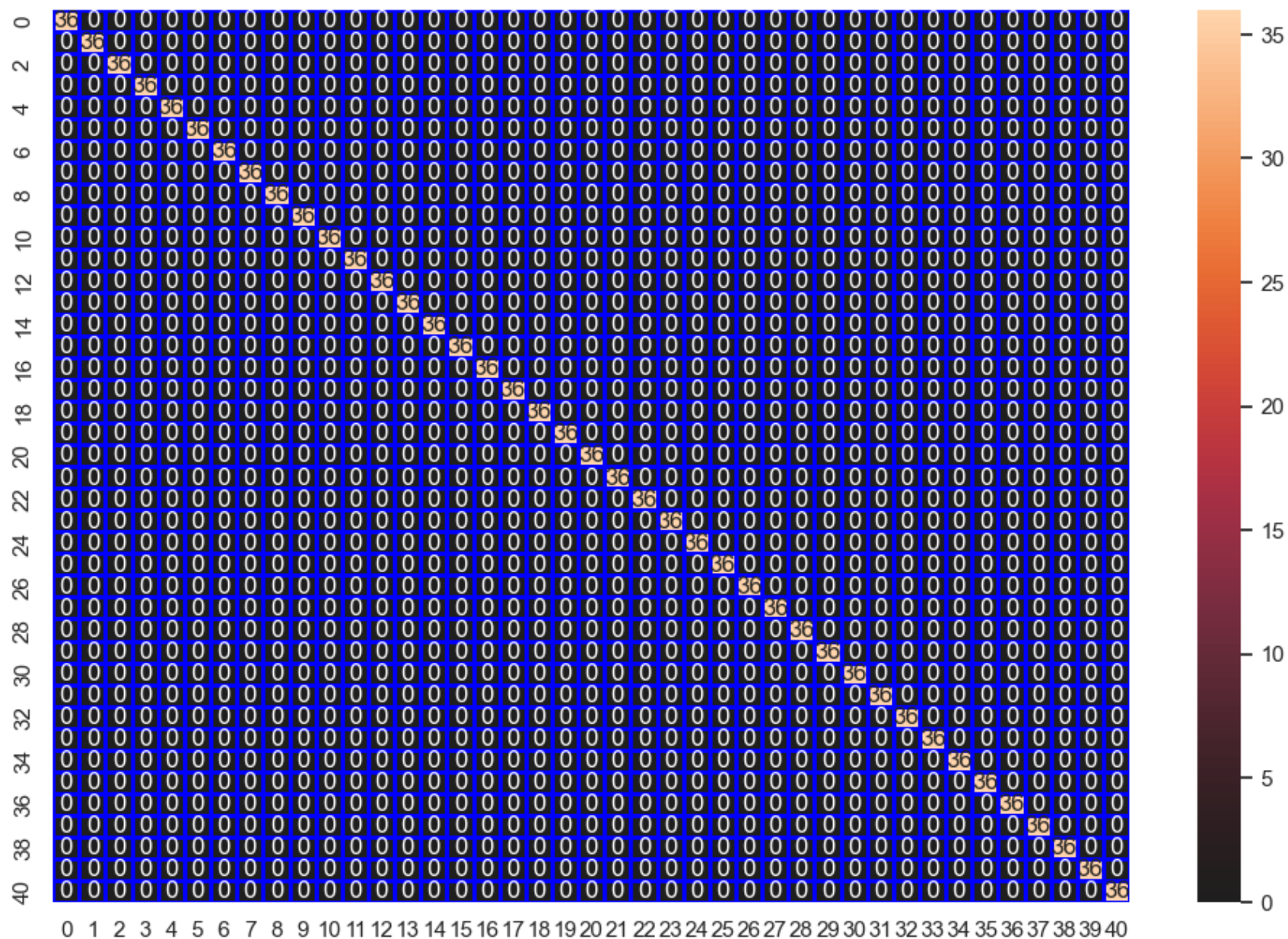
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

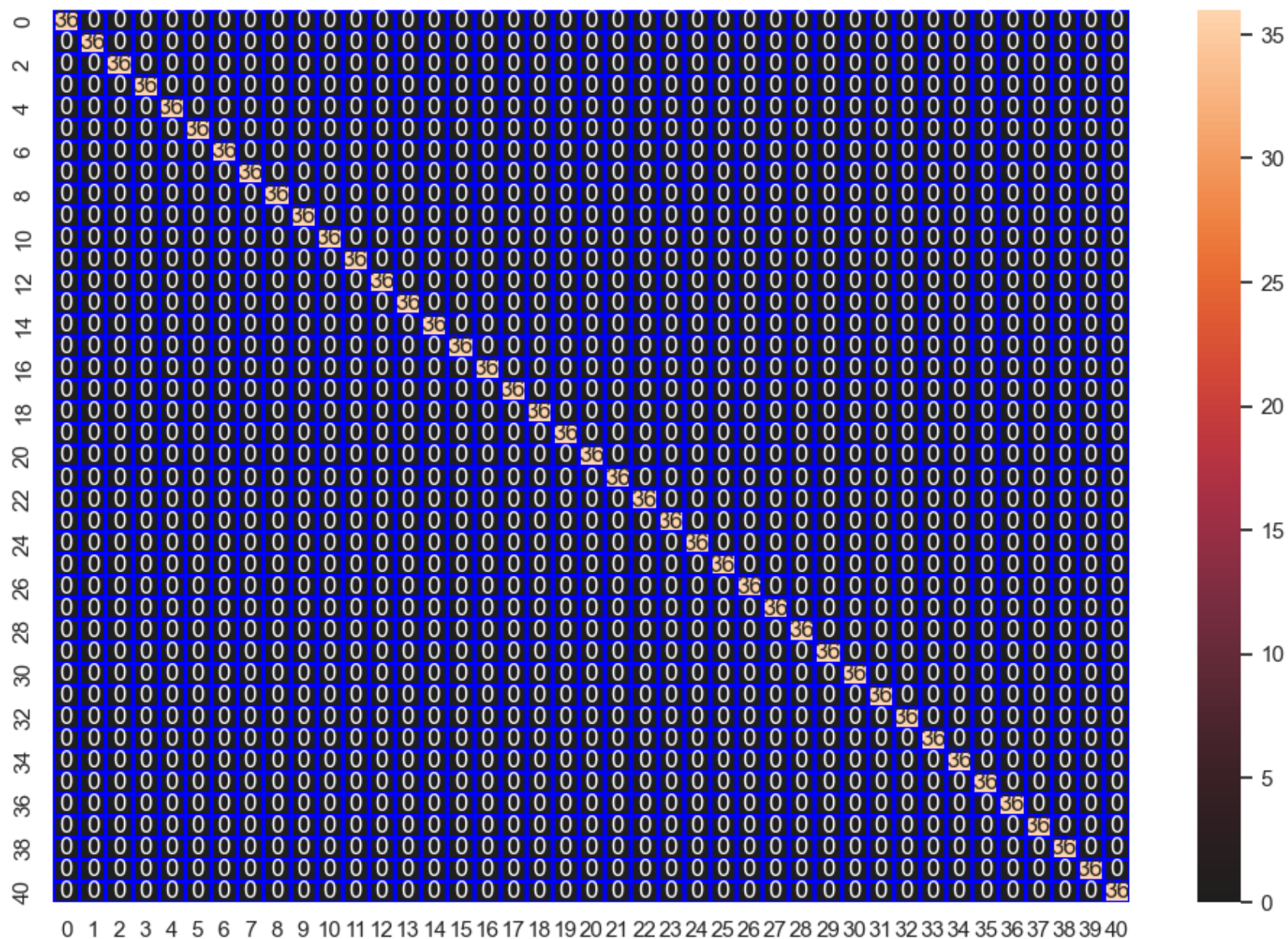
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

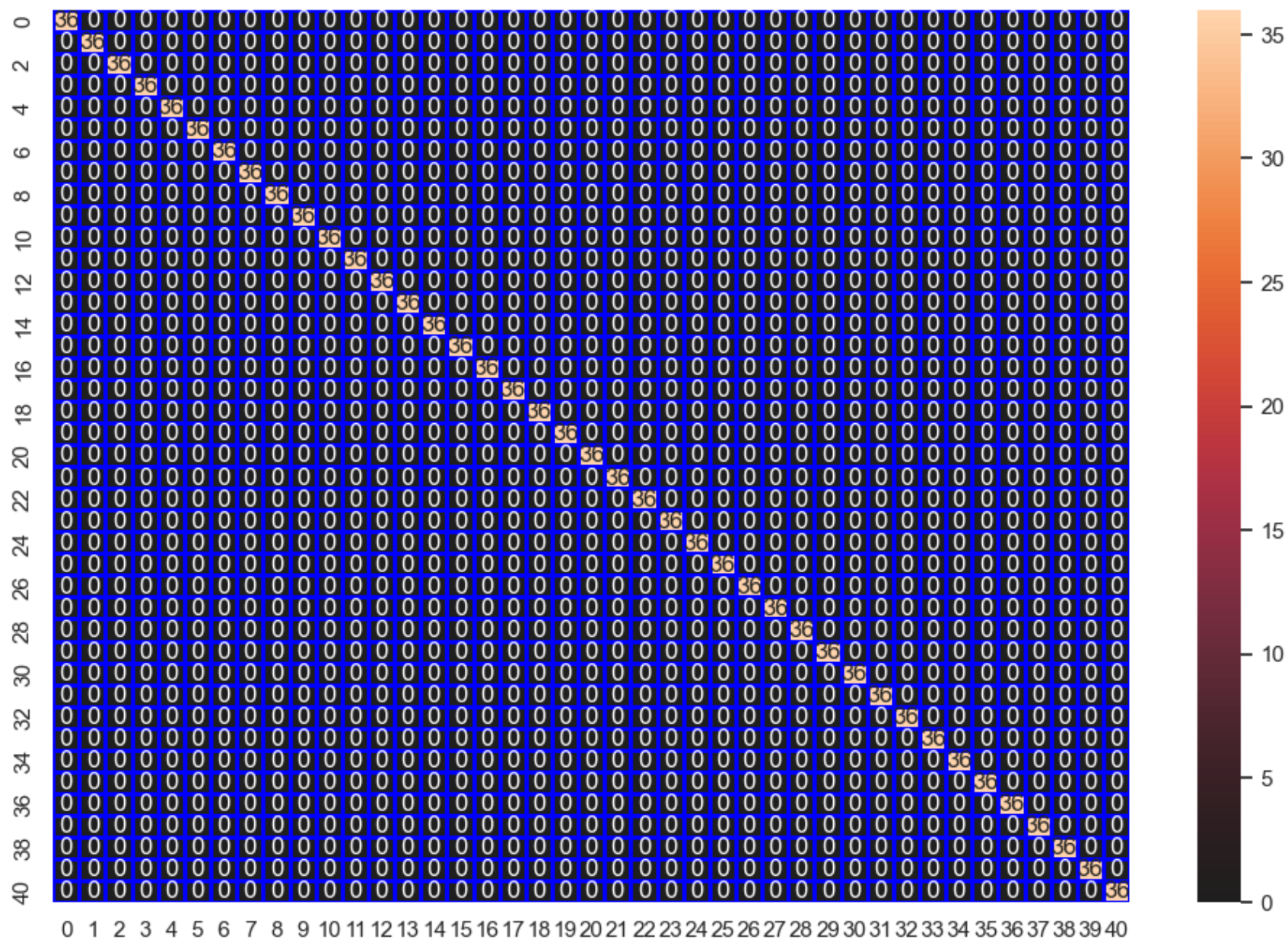
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

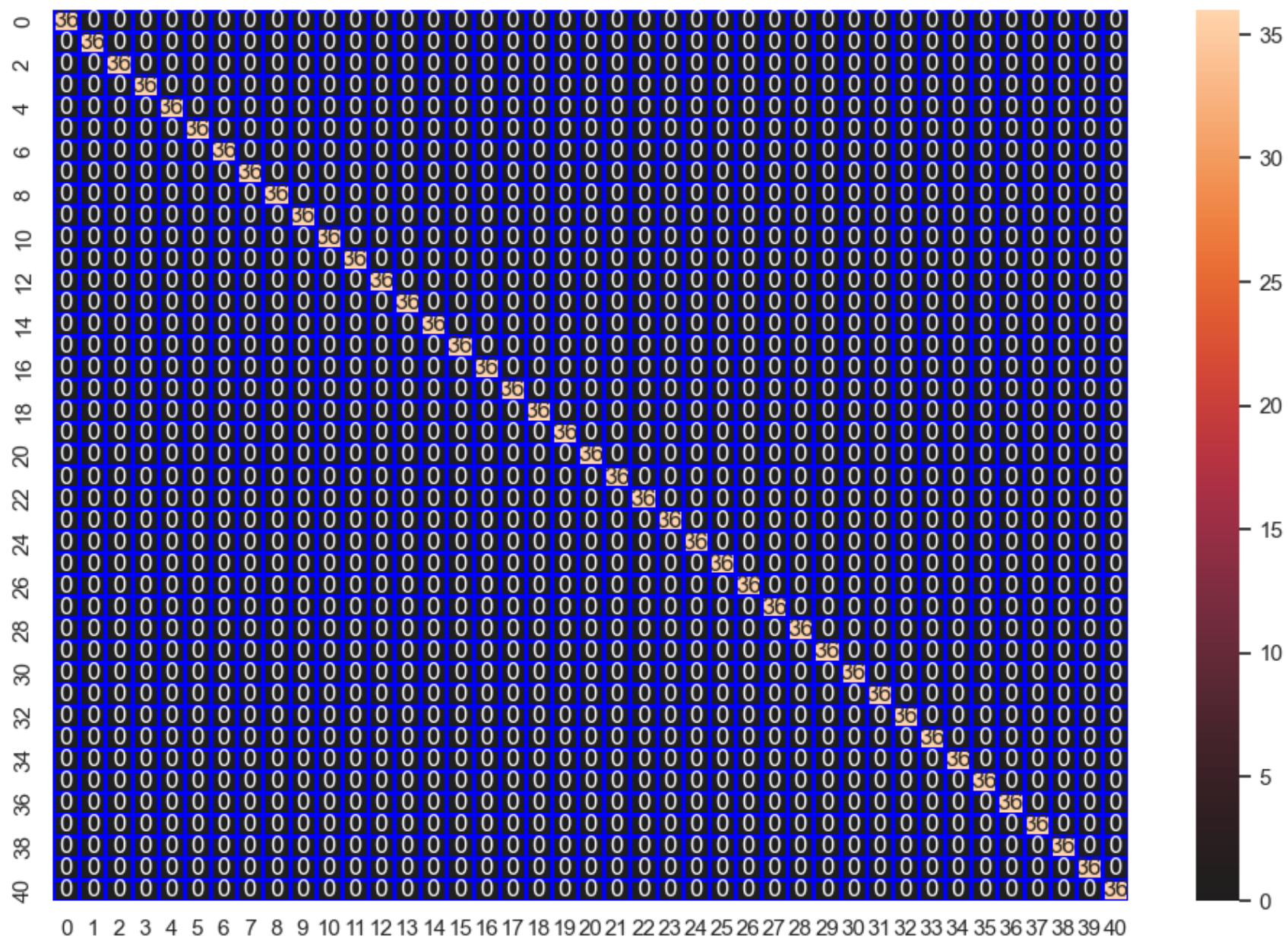
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

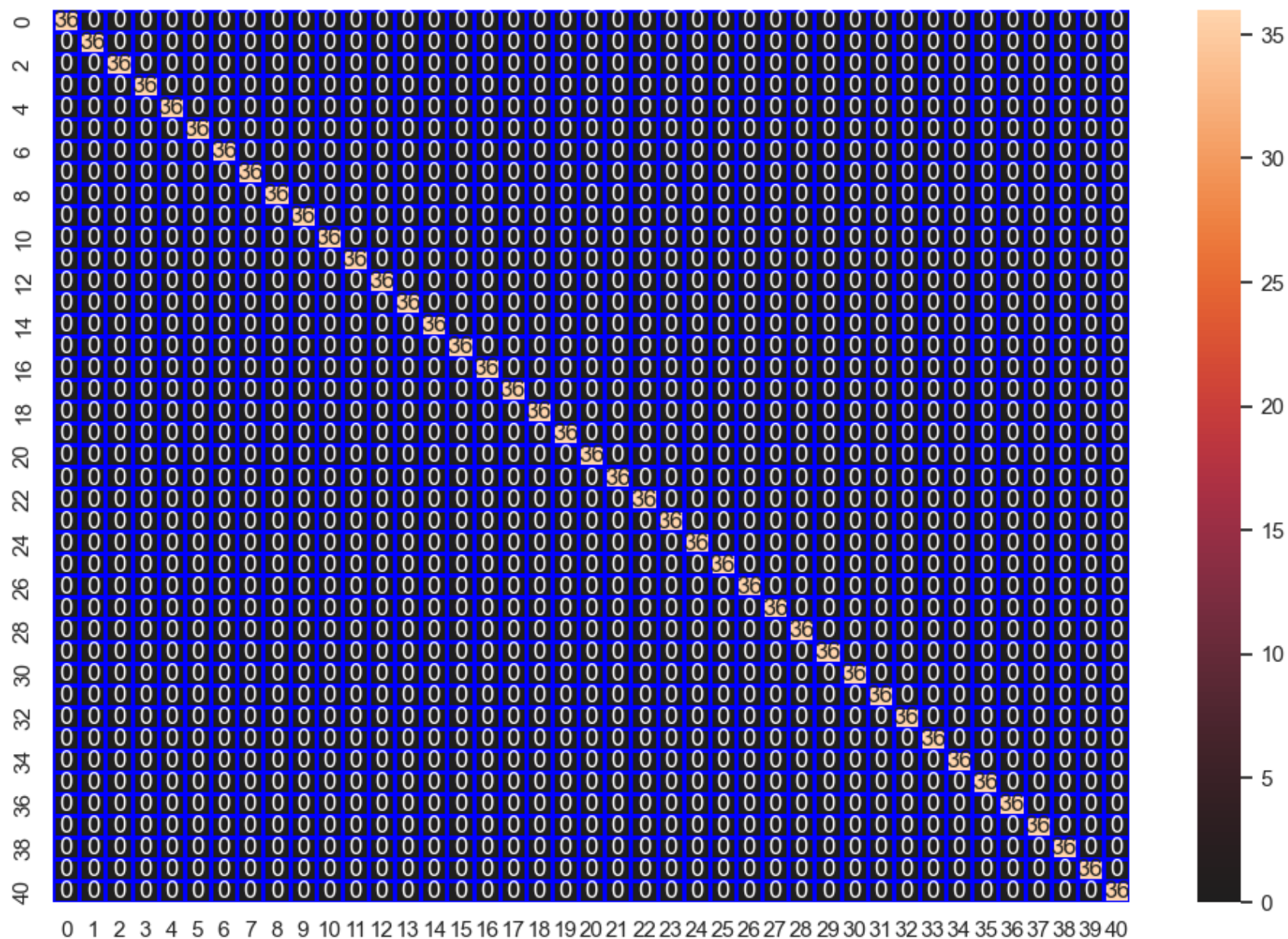
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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: 18.63 %

Loss: 81.37 %

Cohen_kappa_score: 16.6 %

Classification_report:

| | precision | recall | f1-score | support |
|----|-----------|--------|----------|---------|
| 0 | 1.00 | 0.19 | 0.33 | 36 |
| 1 | 0.80 | 0.11 | 0.20 | 36 |
| 2 | 1.00 | 0.06 | 0.11 | 36 |
| 3 | 1.00 | 0.14 | 0.24 | 36 |
| 4 | 1.00 | 0.08 | 0.15 | 36 |
| 5 | 0.03 | 0.53 | 0.05 | 36 |
| 6 | 1.00 | 0.22 | 0.36 | 36 |
| 7 | 1.00 | 0.14 | 0.24 | 36 |
| 8 | 1.00 | 0.25 | 0.40 | 36 |
| 9 | 1.00 | 0.06 | 0.11 | 36 |
| 10 | 1.00 | 0.42 | 0.59 | 36 |
| 11 | 0.13 | 0.50 | 0.20 | 36 |
| 12 | 1.00 | 0.39 | 0.56 | 36 |
| 13 | 0.50 | 0.11 | 0.18 | 36 |
| 14 | 1.00 | 0.08 | 0.15 | 36 |
| 15 | 1.00 | 0.08 | 0.15 | 36 |
| 16 | 1.00 | 0.17 | 0.29 | 36 |
| 17 | 1.00 | 0.11 | 0.20 | 36 |
| 18 | 1.00 | 0.08 | 0.15 | 36 |
| 19 | 0.89 | 0.22 | 0.36 | 36 |
| 20 | 0.40 | 0.11 | 0.17 | 36 |
| 21 | 0.12 | 0.03 | 0.05 | 36 |
| 22 | 0.42 | 0.14 | 0.21 | 36 |
| 23 | 0.75 | 0.08 | 0.15 | 36 |
| 24 | 1.00 | 0.19 | 0.33 | 36 |
| 25 | 1.00 | 0.17 | 0.29 | 36 |
| 26 | 1.00 | 0.22 | 0.36 | 36 |
| 27 | 1.00 | 0.17 | 0.29 | 36 |
| 28 | 1.00 | 0.25 | 0.40 | 36 |
| 29 | 1.00 | 0.11 | 0.20 | 36 |
| 30 | 1.00 | 0.11 | 0.20 | 36 |
| 31 | 0.04 | 0.47 | 0.08 | 36 |
| 32 | 0.44 | 0.11 | 0.18 | 36 |
| 33 | 1.00 | 0.22 | 0.36 | 36 |

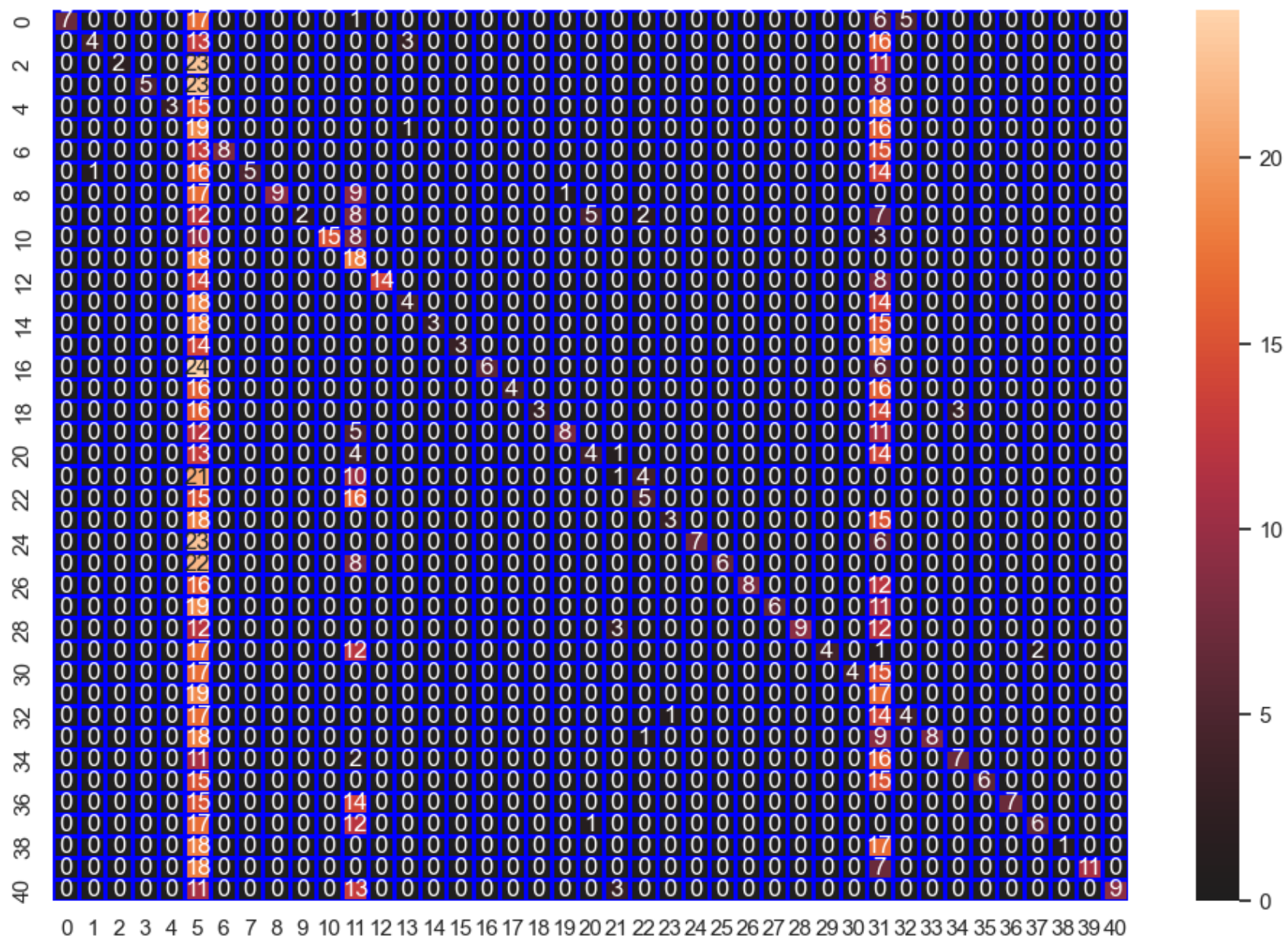
| | | | | |
|----|------|------|------|----|
| 34 | 0.70 | 0.19 | 0.30 | 36 |
| 35 | 1.00 | 0.17 | 0.29 | 36 |
| 36 | 1.00 | 0.19 | 0.33 | 36 |
| 37 | 0.75 | 0.17 | 0.27 | 36 |
| 38 | 1.00 | 0.03 | 0.05 | 36 |
| 39 | 1.00 | 0.31 | 0.47 | 36 |
| 40 | 1.00 | 0.25 | 0.40 | 36 |

| | | | | |
|--------------|------|------|------|------|
| accuracy | | | 0.19 | 1476 |
| macro avg | 0.83 | 0.19 | 0.25 | 1476 |
| weighted avg | 0.83 | 0.19 | 0.25 | 1476 |

```

confusion_matrix:
[[ 7  0  0 ...  0  0  0]
 [ 0  4  0 ...  0  0  0]
 [ 0  0  2 ...  0  0  0]
 ...
 [ 0  0  0 ...  1  0  0]
 [ 0  0  0 ...  0 11  0]
 [ 0  0  0 ...  0  0  9]]

```



=====

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 |

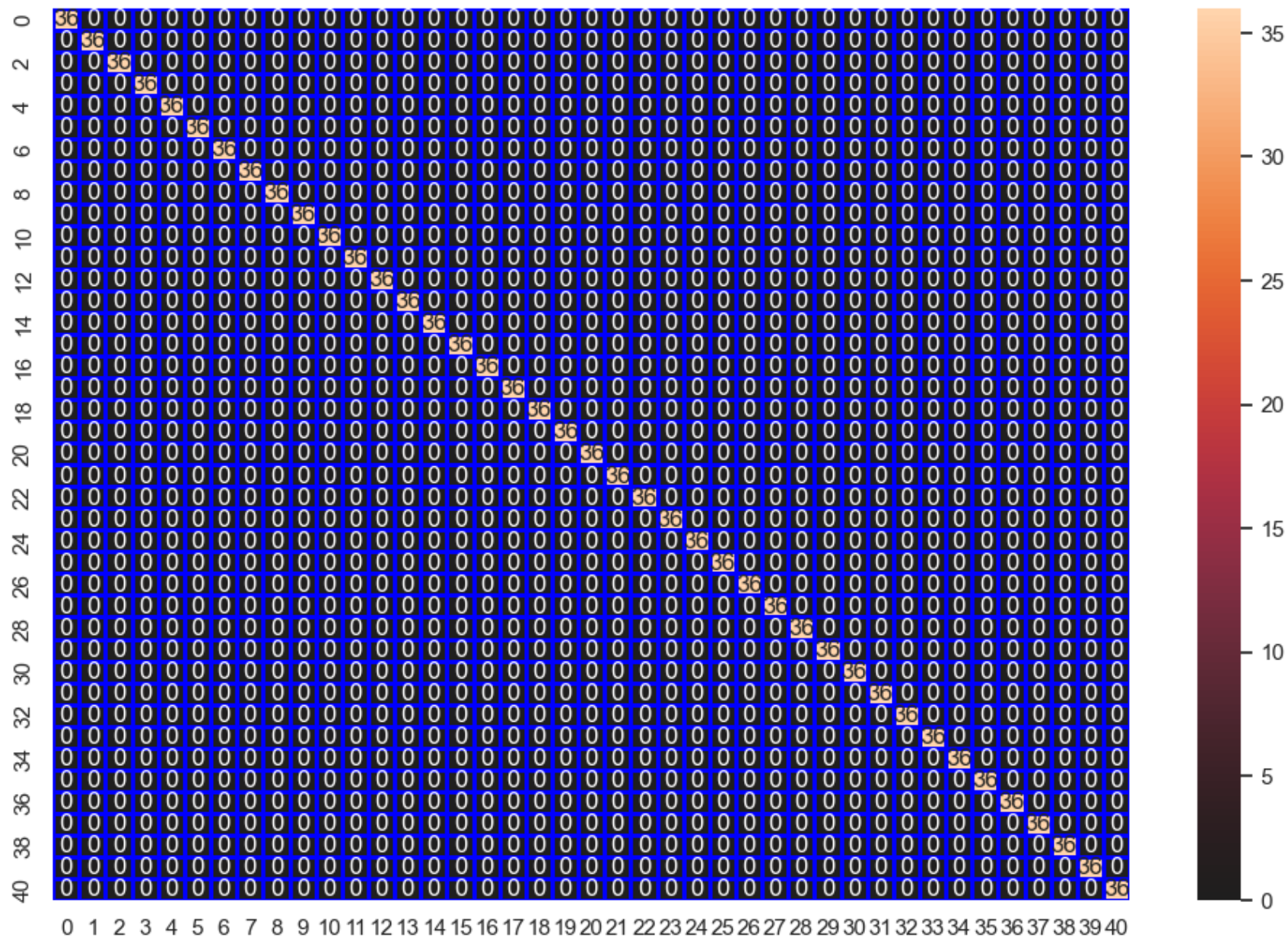
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

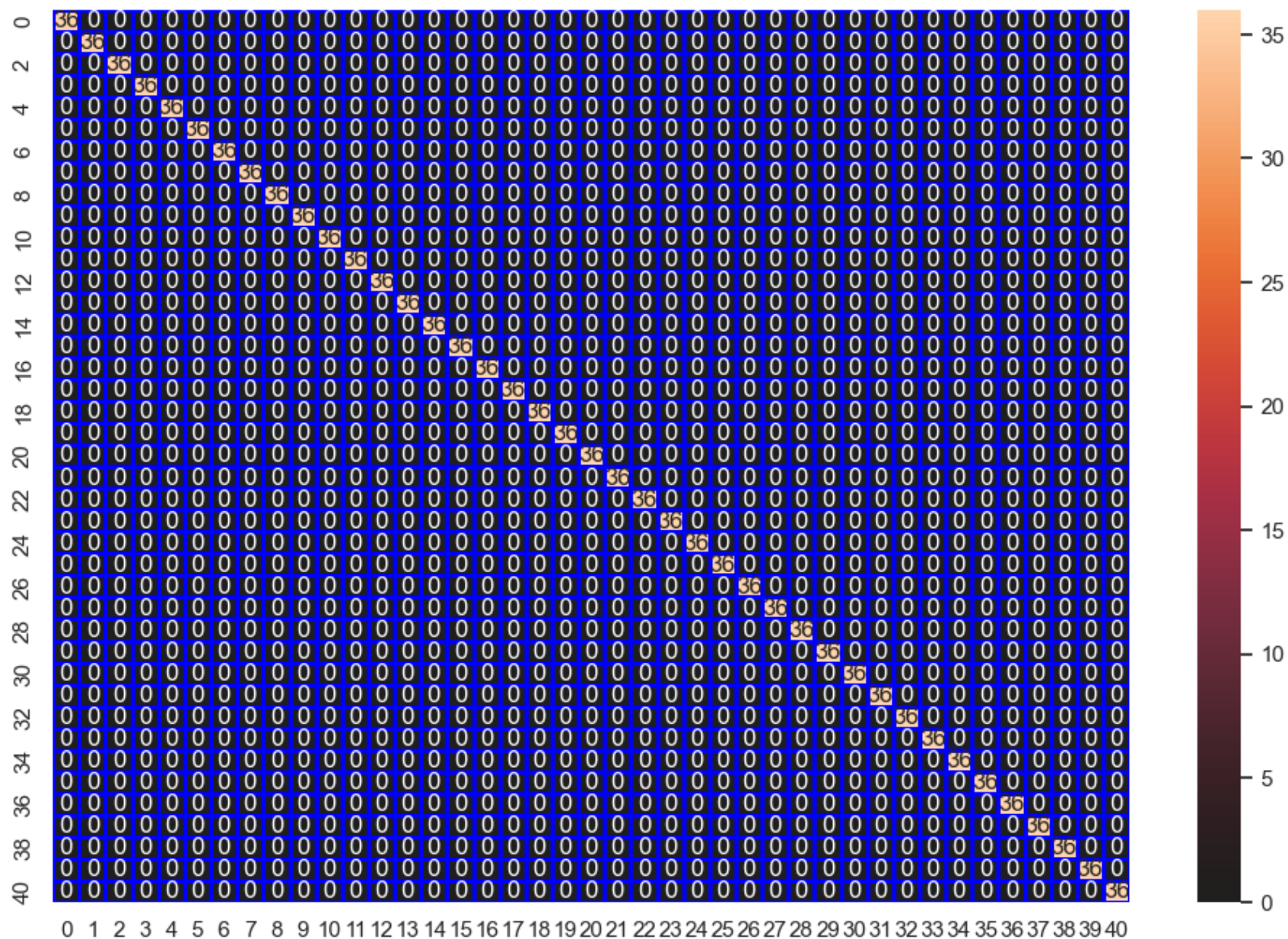
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

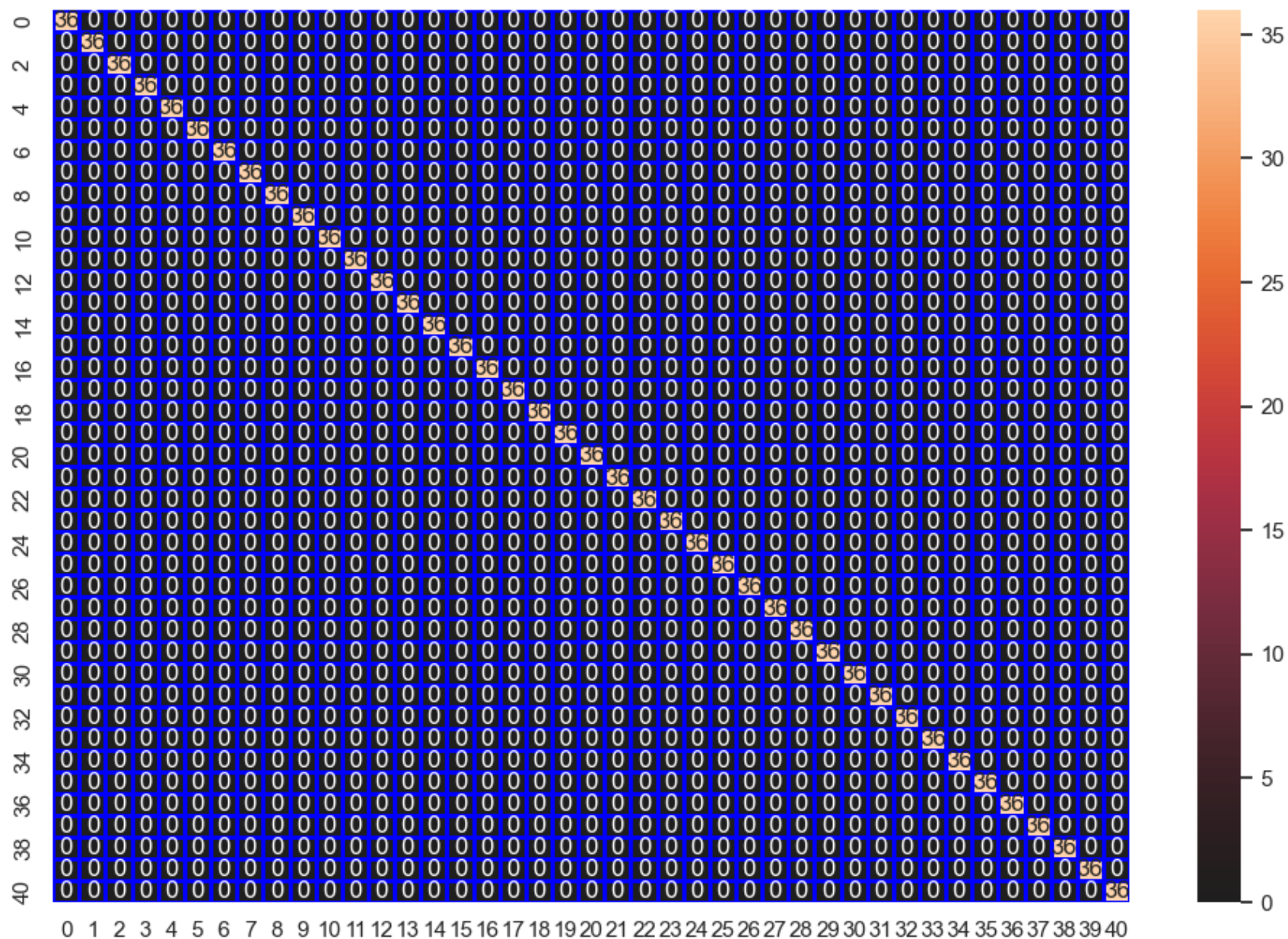
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

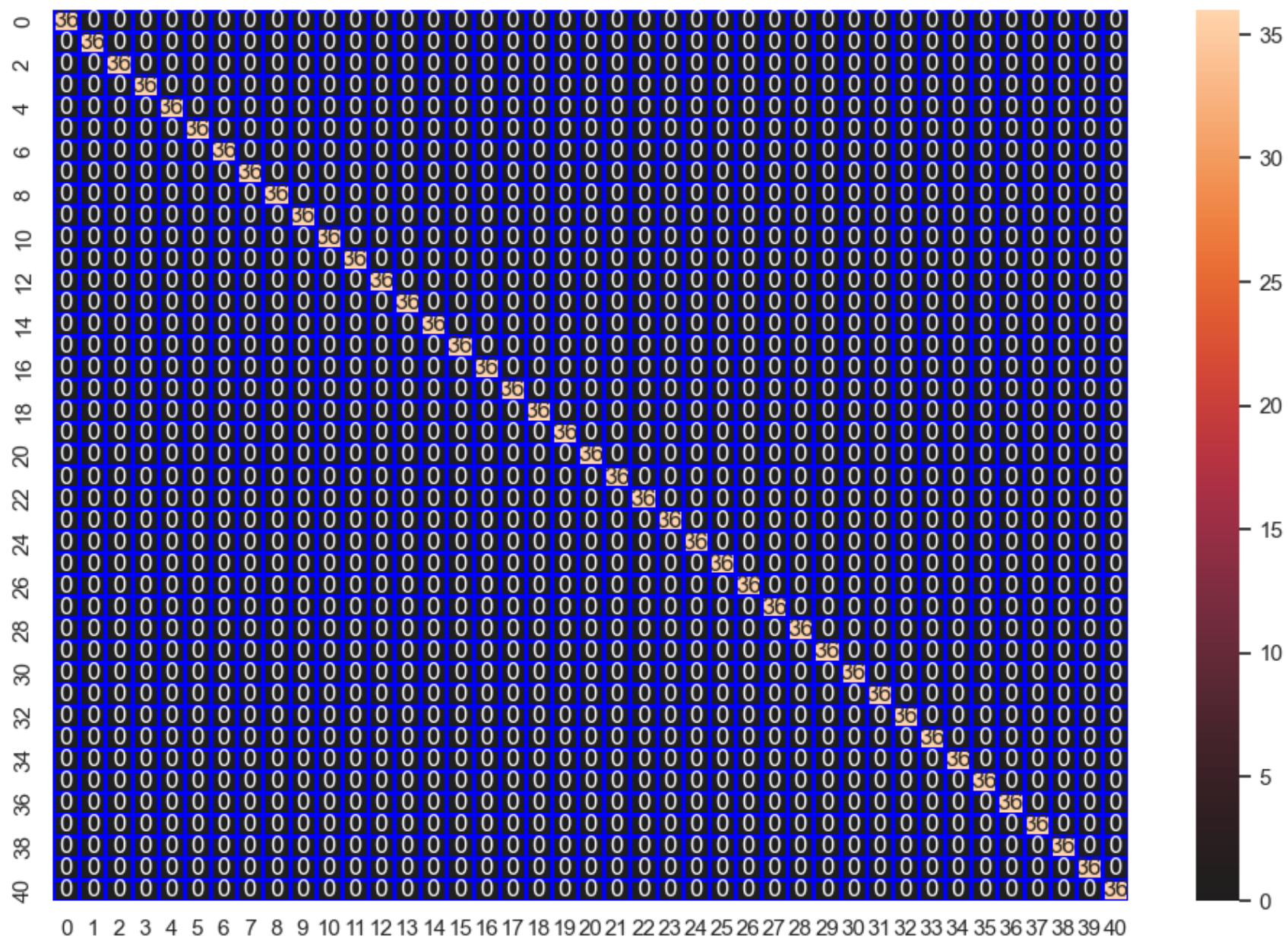
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

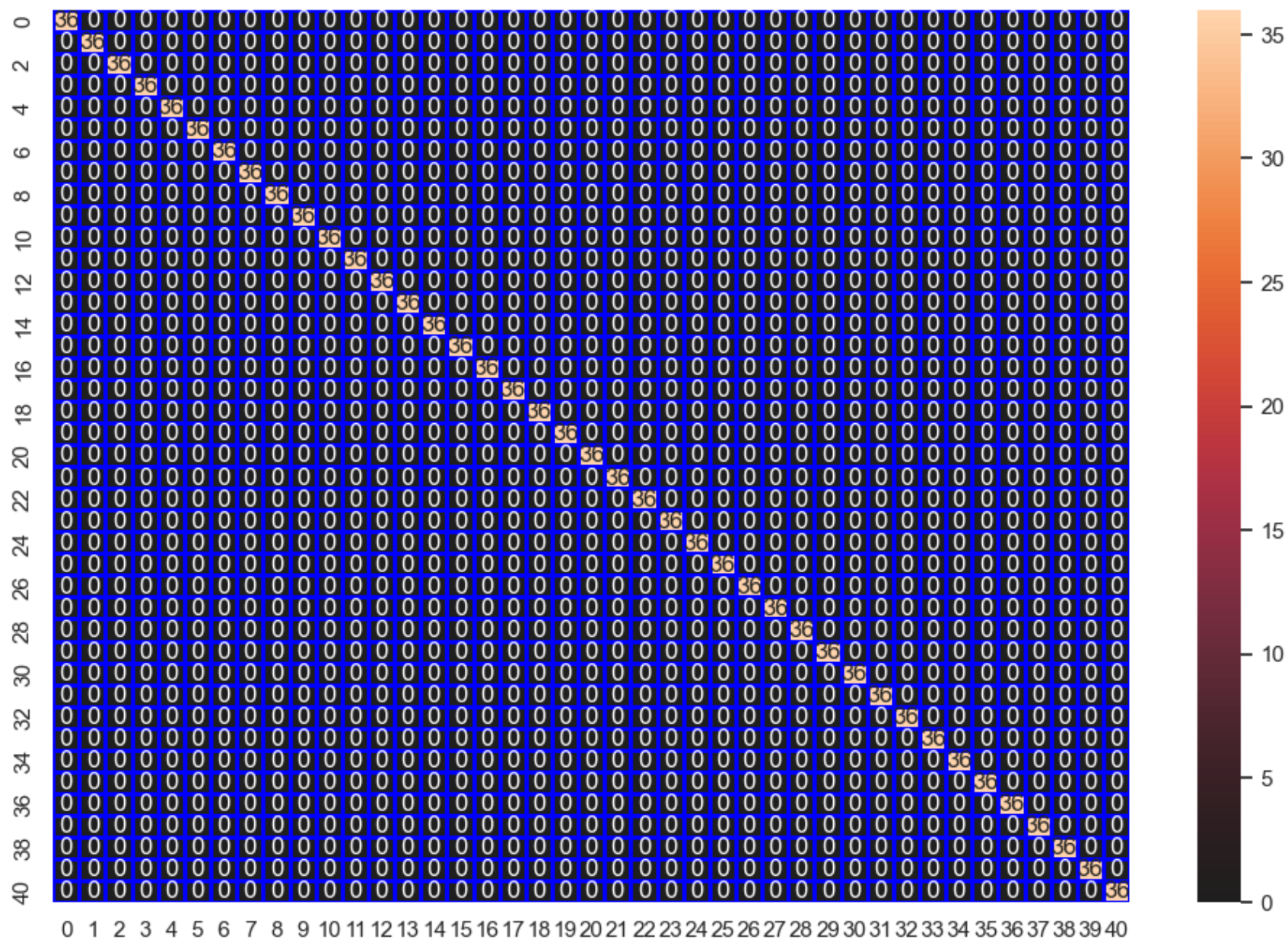
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

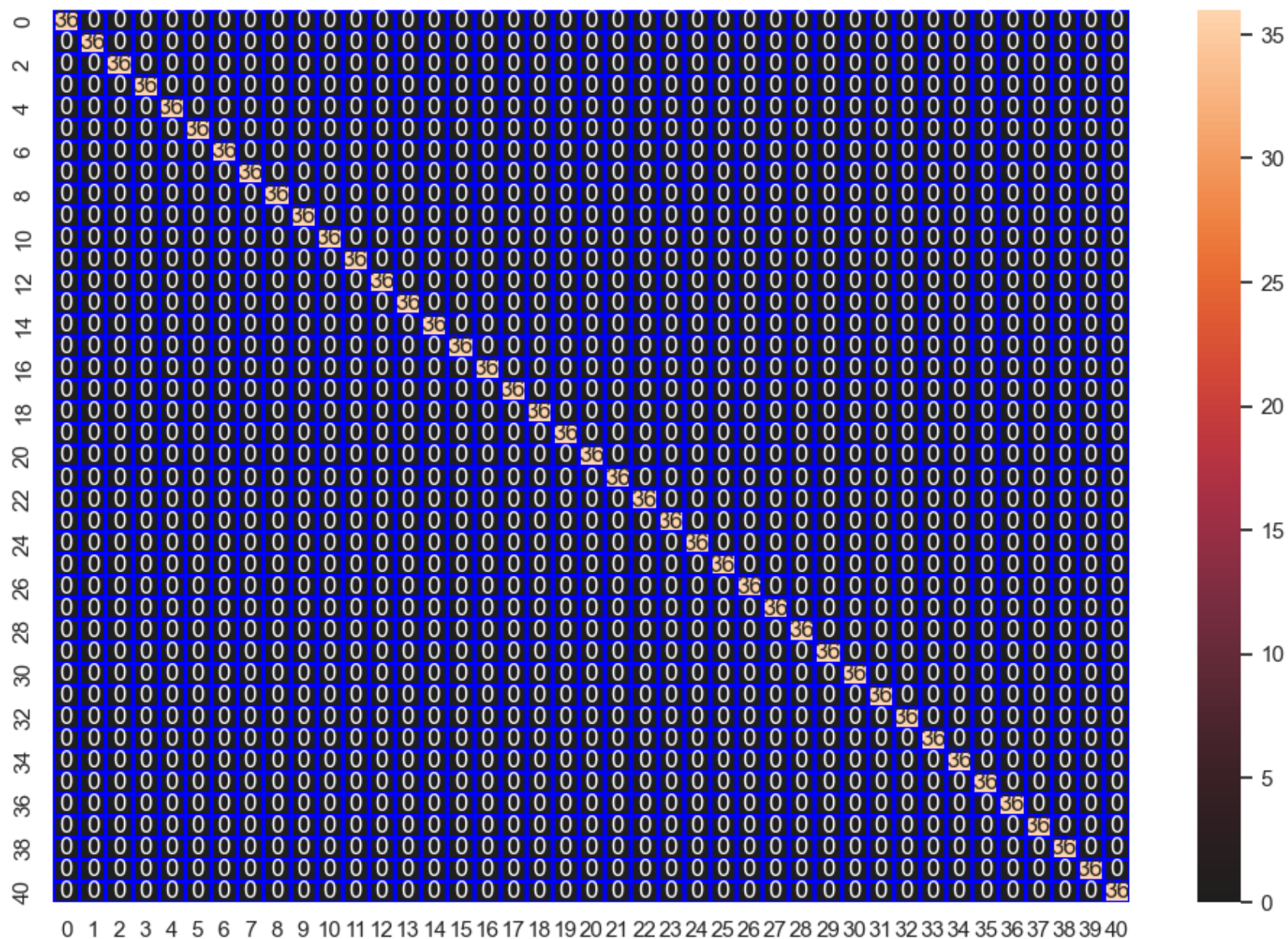
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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: 95.33 %

Loss: 4.67 %

Cohen_kappa_score: 95.21 %

Classification_report:

| | precision | recall | f1-score | support |
|----|-----------|--------|----------|---------|
| 0 | 0.95 | 1.00 | 0.97 | 36 |
| 1 | 0.92 | 0.97 | 0.95 | 36 |
| 2 | 0.85 | 0.94 | 0.89 | 36 |
| 3 | 1.00 | 1.00 | 1.00 | 36 |
| 4 | 1.00 | 1.00 | 1.00 | 36 |
| 5 | 0.97 | 0.86 | 0.91 | 36 |
| 6 | 0.95 | 0.97 | 0.96 | 36 |
| 7 | 0.97 | 0.92 | 0.94 | 36 |
| 8 | 1.00 | 0.97 | 0.99 | 36 |
| 9 | 0.88 | 1.00 | 0.94 | 36 |
| 10 | 1.00 | 1.00 | 1.00 | 36 |
| 11 | 1.00 | 0.97 | 0.99 | 36 |
| 12 | 1.00 | 1.00 | 1.00 | 36 |
| 13 | 1.00 | 1.00 | 1.00 | 36 |
| 14 | 0.87 | 0.94 | 0.91 | 36 |
| 15 | 0.85 | 0.78 | 0.81 | 36 |
| 16 | 1.00 | 0.92 | 0.96 | 36 |
| 17 | 0.92 | 0.97 | 0.95 | 36 |
| 18 | 0.76 | 0.89 | 0.82 | 36 |
| 19 | 1.00 | 0.97 | 0.99 | 36 |
| 20 | 0.97 | 0.92 | 0.94 | 36 |
| 21 | 0.79 | 0.94 | 0.86 | 36 |
| 22 | 1.00 | 0.89 | 0.94 | 36 |
| 23 | 0.92 | 0.94 | 0.93 | 36 |
| 24 | 1.00 | 1.00 | 1.00 | 36 |
| 25 | 1.00 | 1.00 | 1.00 | 36 |
| 26 | 1.00 | 0.97 | 0.99 | 36 |
| 27 | 1.00 | 1.00 | 1.00 | 36 |
| 28 | 0.97 | 0.89 | 0.93 | 36 |
| 29 | 0.92 | 1.00 | 0.96 | 36 |
| 30 | 1.00 | 0.97 | 0.99 | 36 |
| 31 | 0.90 | 0.97 | 0.93 | 36 |
| 32 | 0.91 | 0.86 | 0.89 | 36 |
| 33 | 1.00 | 0.94 | 0.97 | 36 |

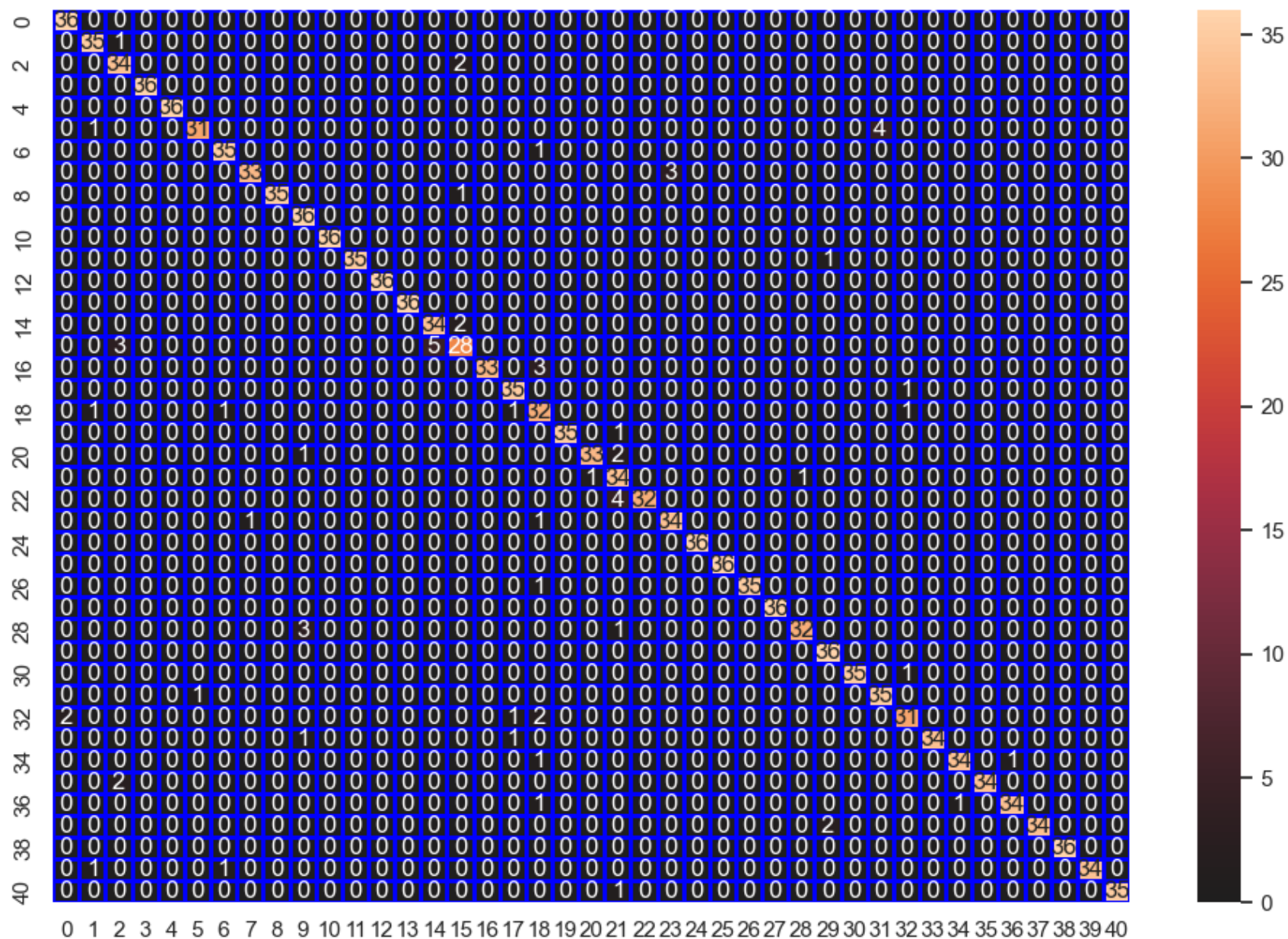
| | | | | |
|----|------|------|------|----|
| 34 | 0.97 | 0.94 | 0.96 | 36 |
| 35 | 1.00 | 0.94 | 0.97 | 36 |
| 36 | 0.97 | 0.94 | 0.96 | 36 |
| 37 | 1.00 | 0.94 | 0.97 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 0.94 | 0.97 | 36 |
| 40 | 1.00 | 0.97 | 0.99 | 36 |

| | | | | |
|--------------|------|------|------|------|
| accuracy | | | 0.95 | 1476 |
| macro avg | 0.96 | 0.95 | 0.95 | 1476 |
| weighted avg | 0.96 | 0.95 | 0.95 | 1476 |

```

confusion_matrix:
[[36  0  0 ...  0  0  0]
 [ 0 35  1 ...  0  0  0]
 [ 0  0 34 ...  0  0  0]
 ...
 [ 0  0  0 ... 36  0  0]
 [ 0  1  0 ...  0 34  0]
 [ 0  0  0 ...  0  0 35]]

```



=====

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 |

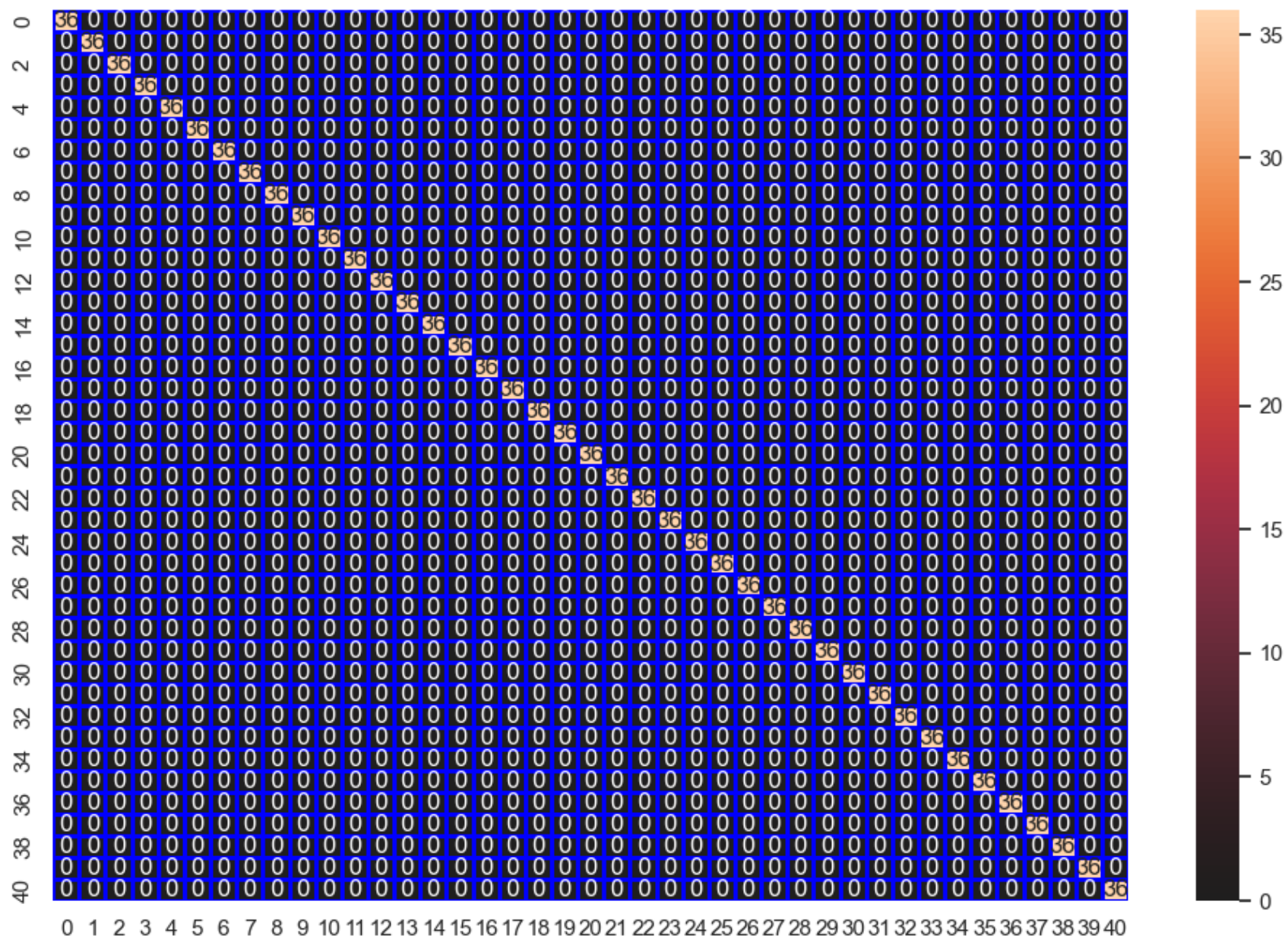
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

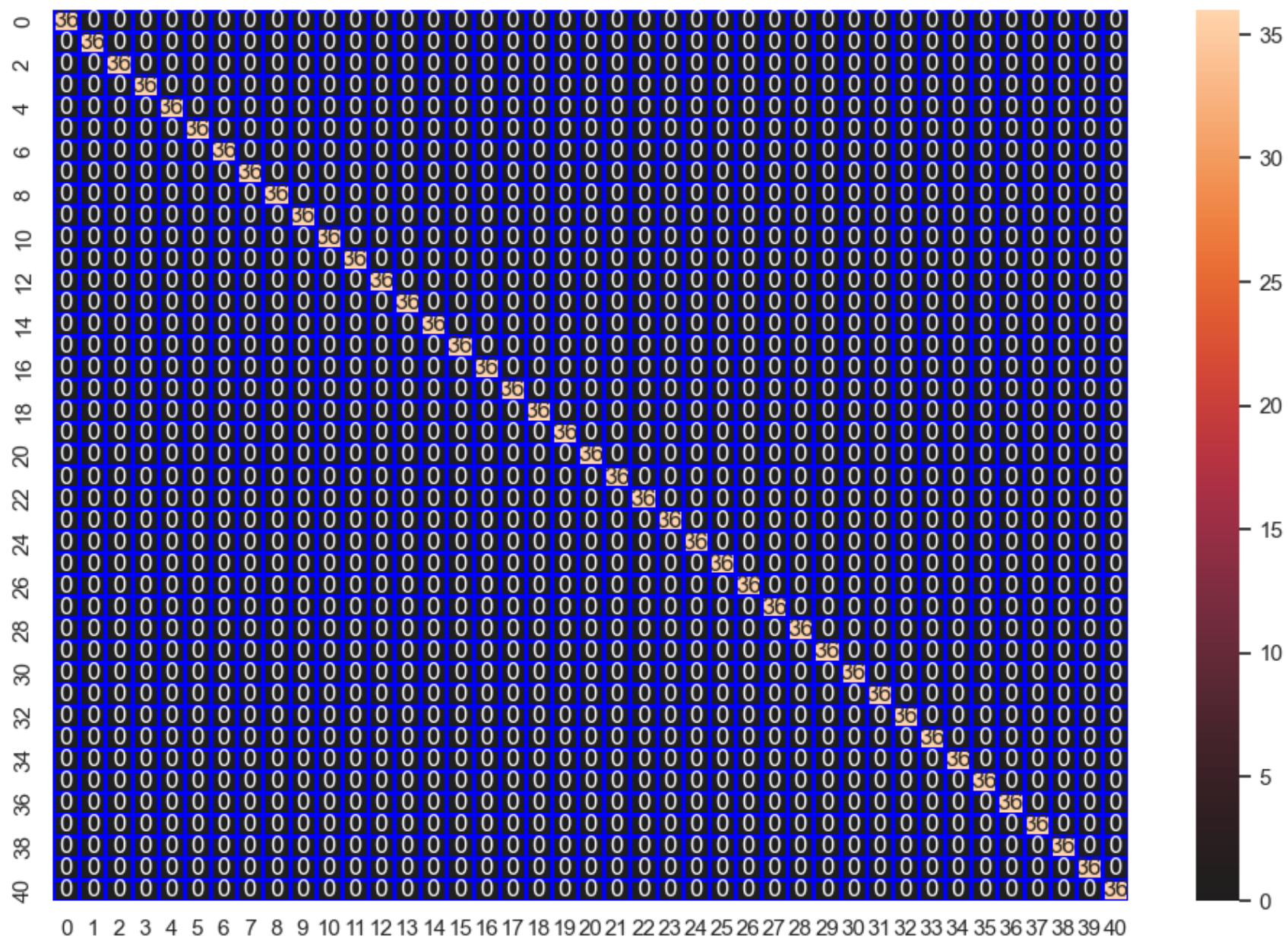
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

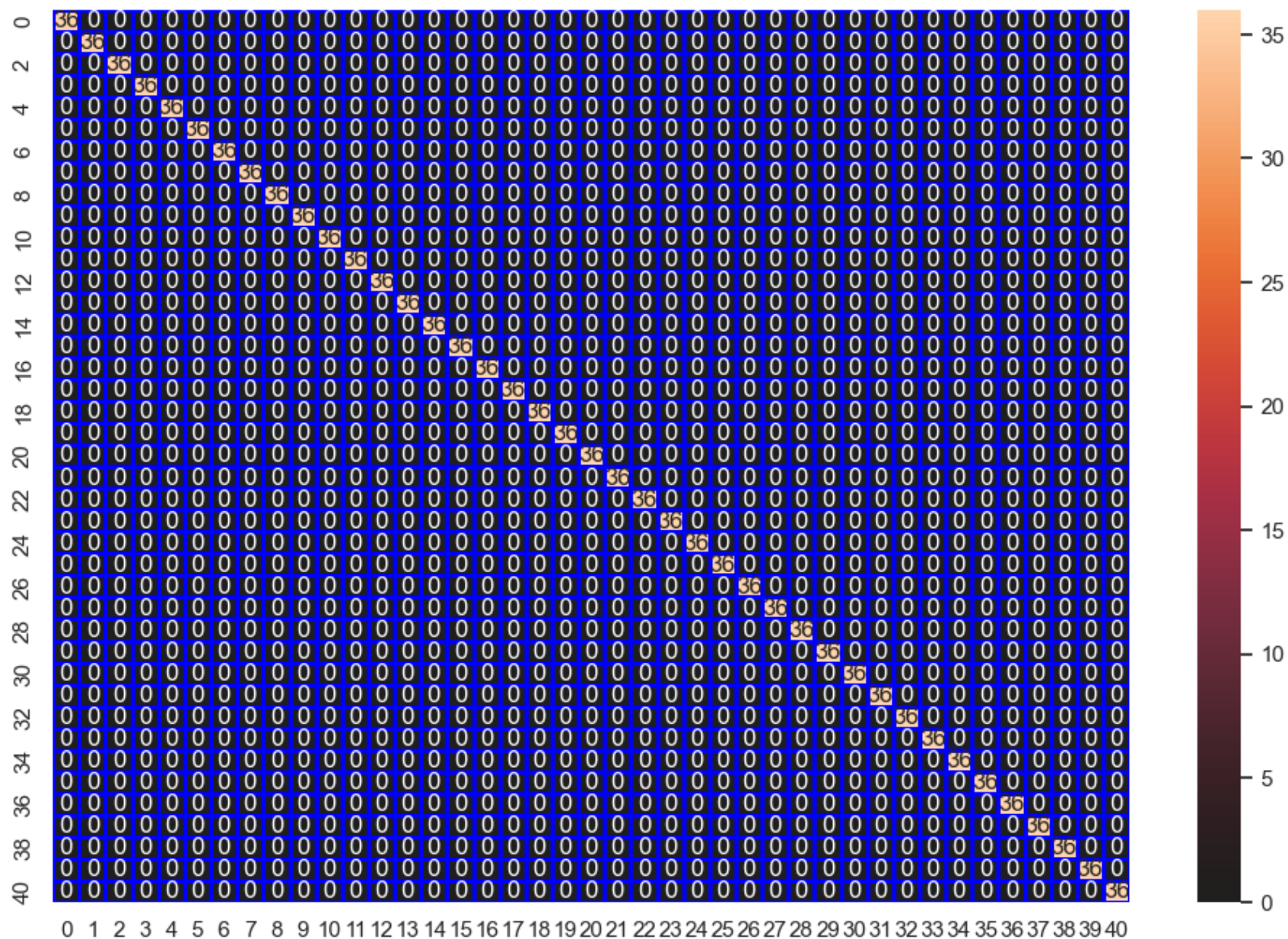
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

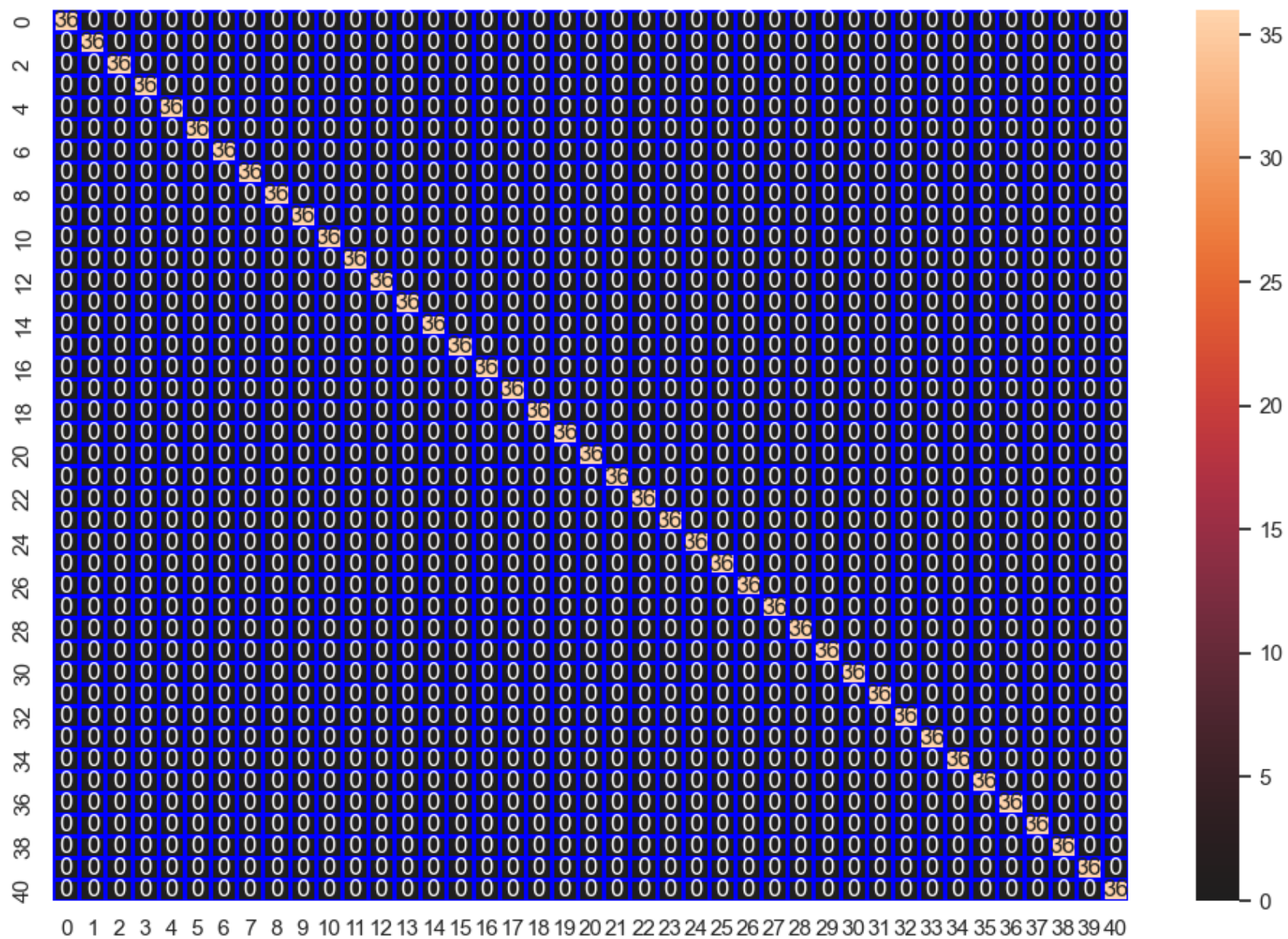
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

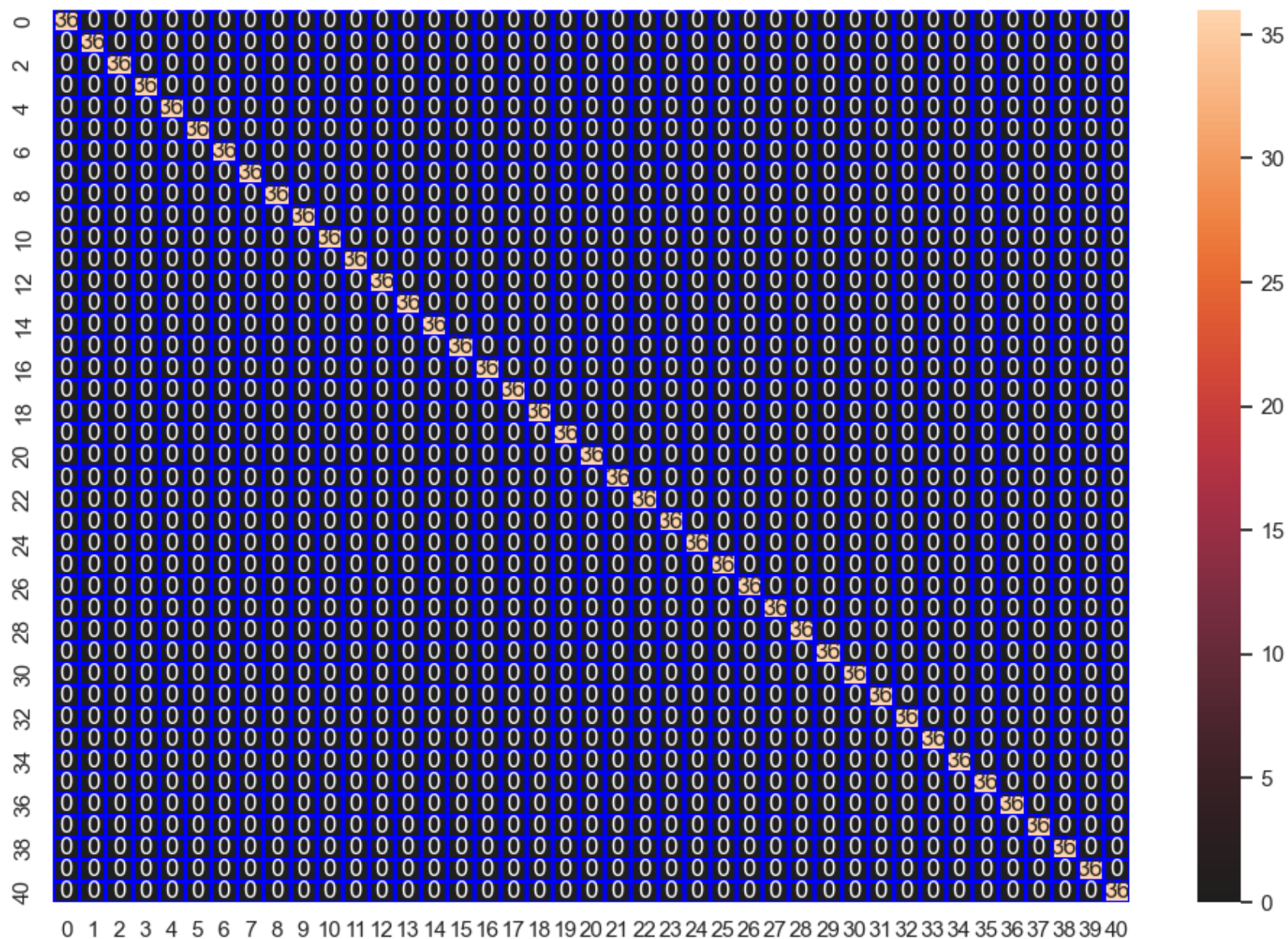
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

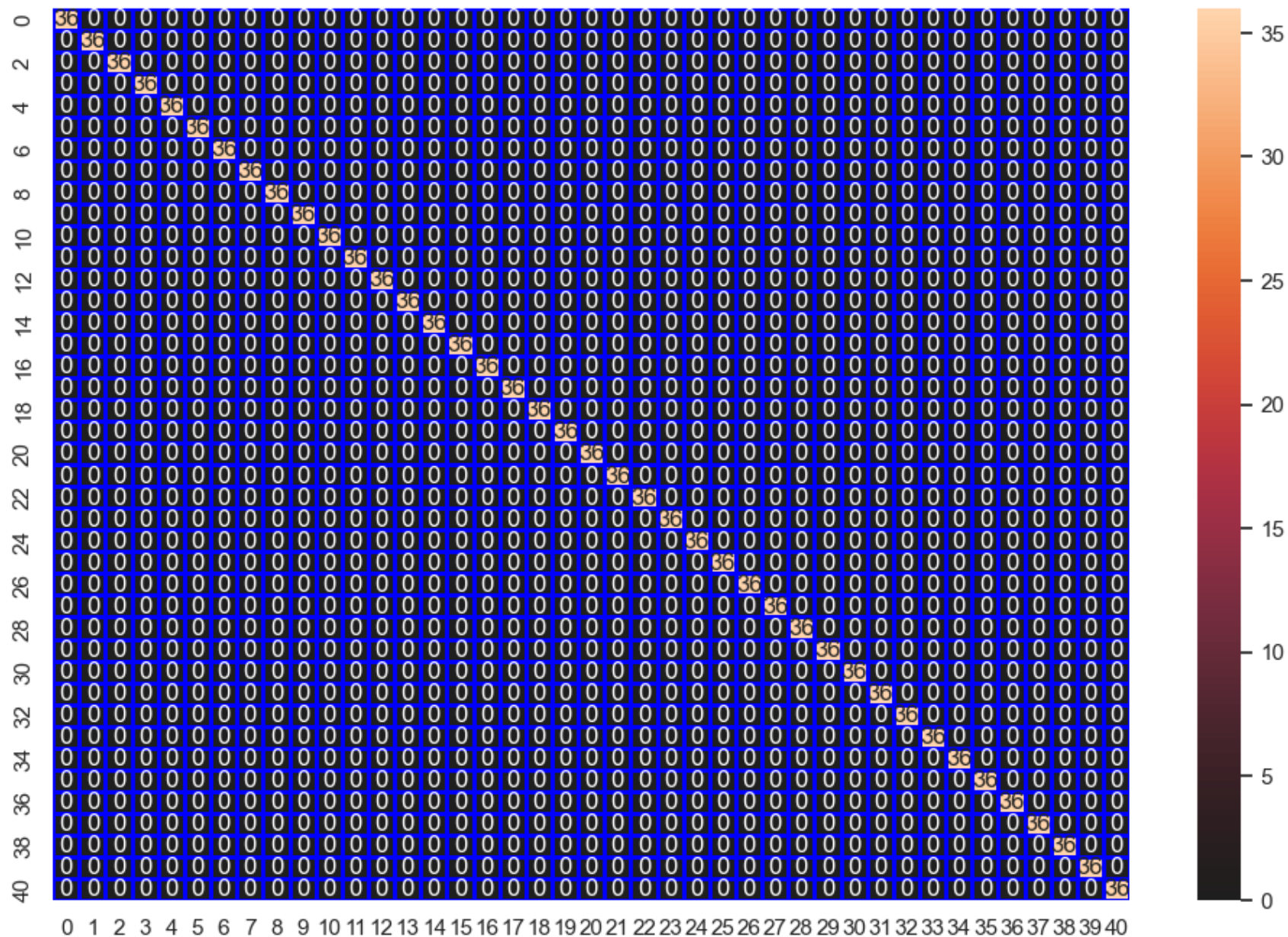
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

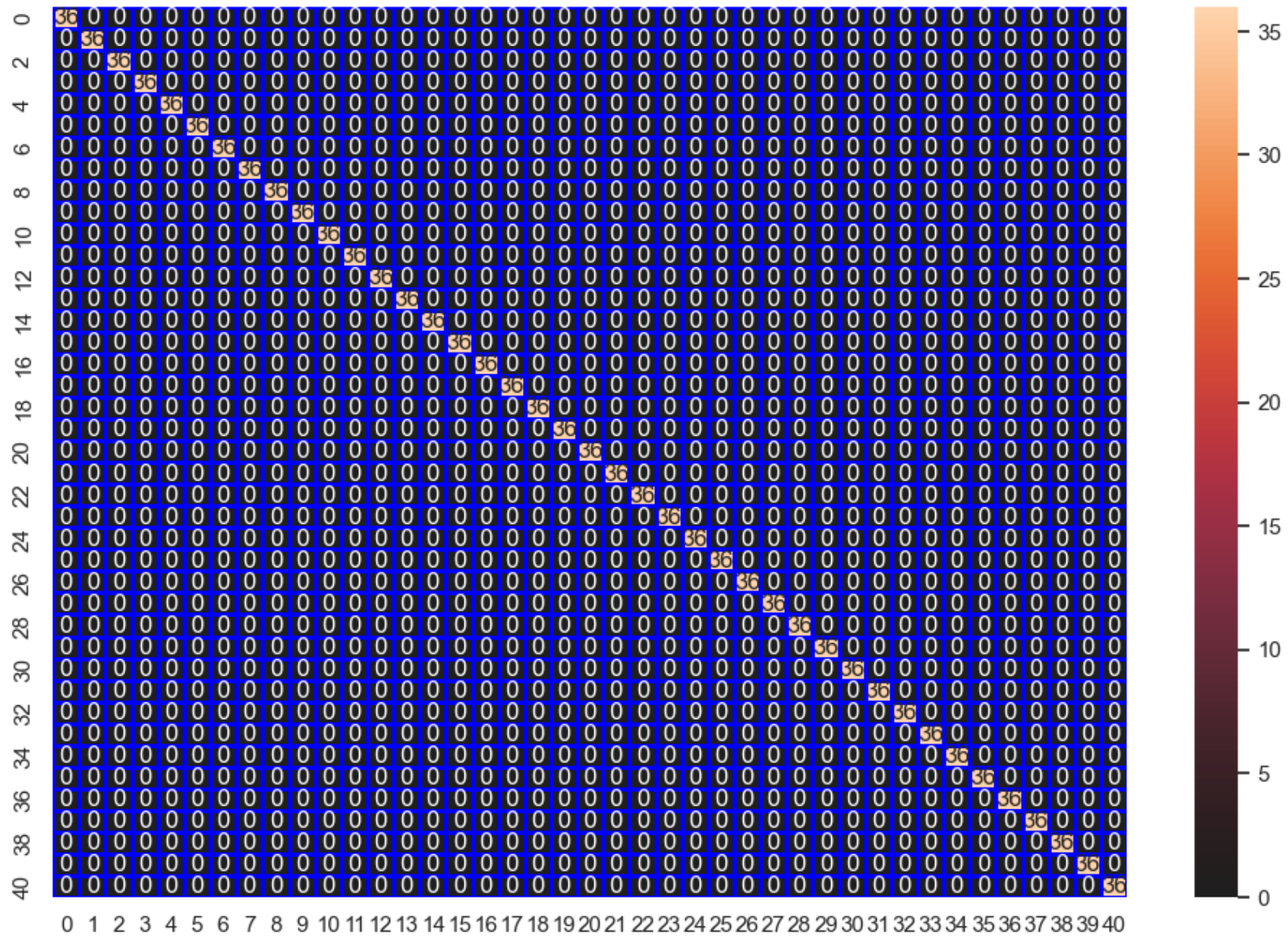
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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]]

```

=====

Modele name : DecisionTreeClassifier

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 |

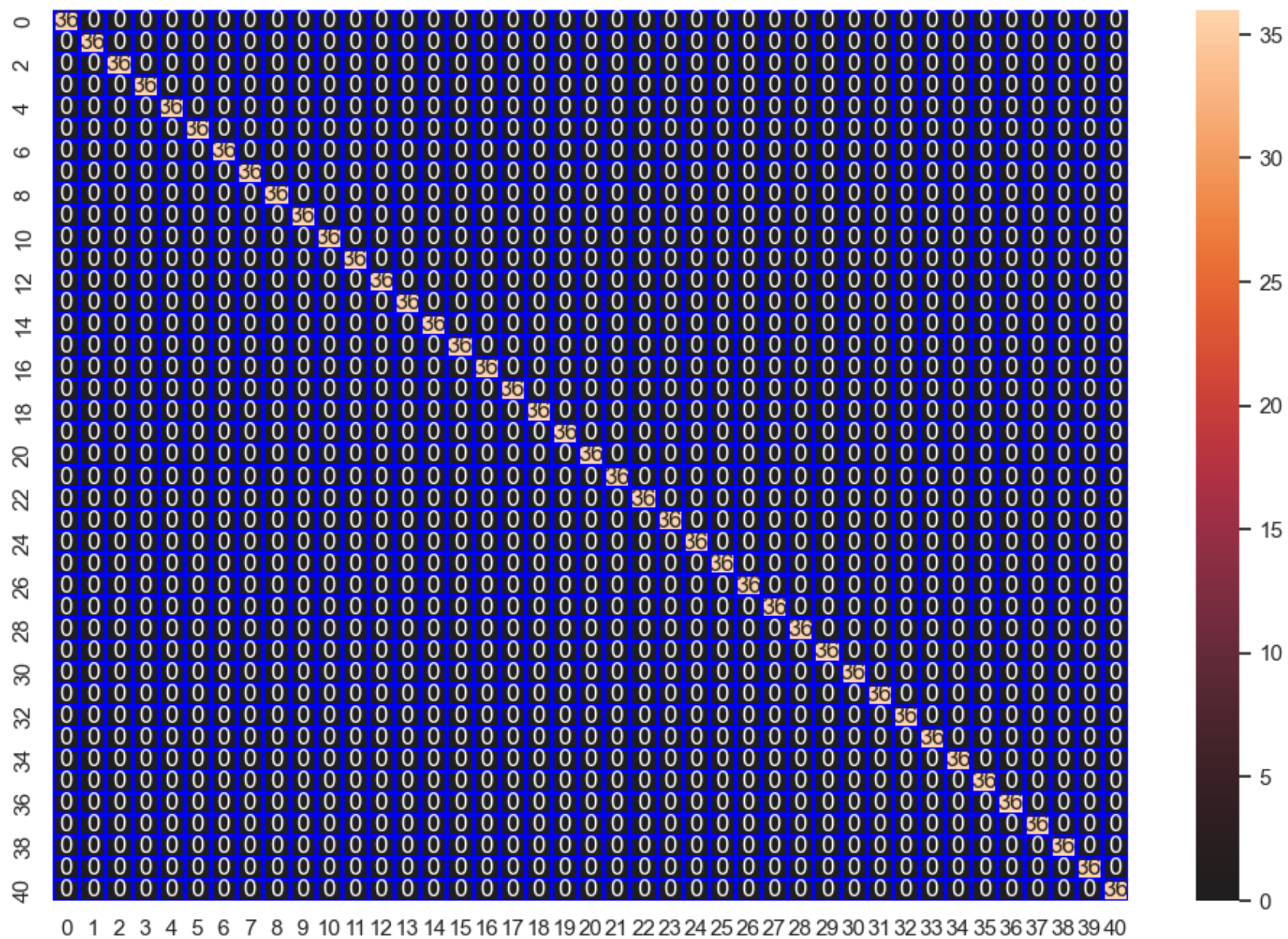
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 : 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 |

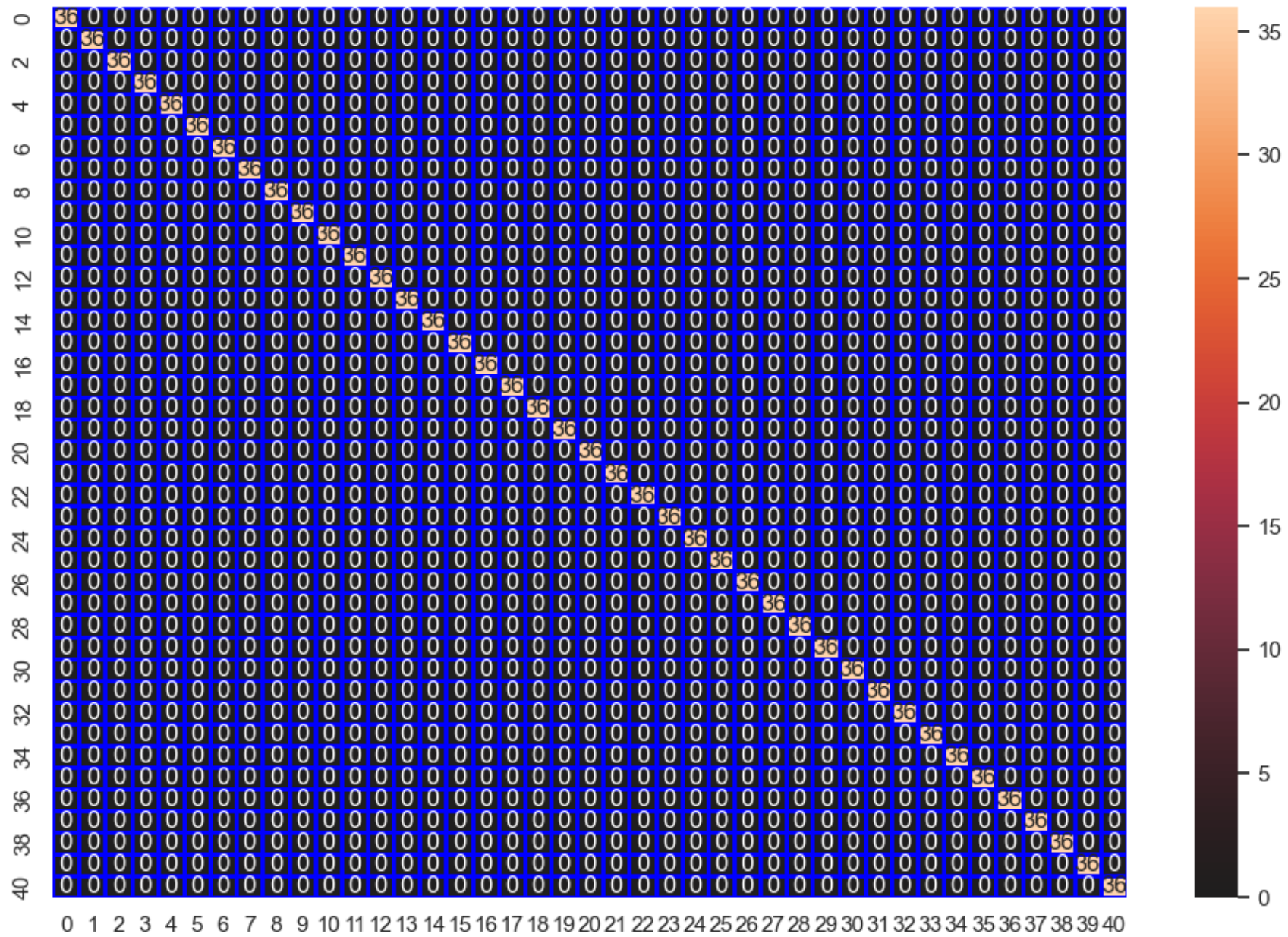
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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: 99.12 %

Loss: 0.88 %

Cohen_kappa_score: 99.1 %

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 | 0.92 | 0.94 | 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 | 0.86 | 0.89 | 0.88 | 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 | 0.87 | 0.94 | 0.91 | 36 |

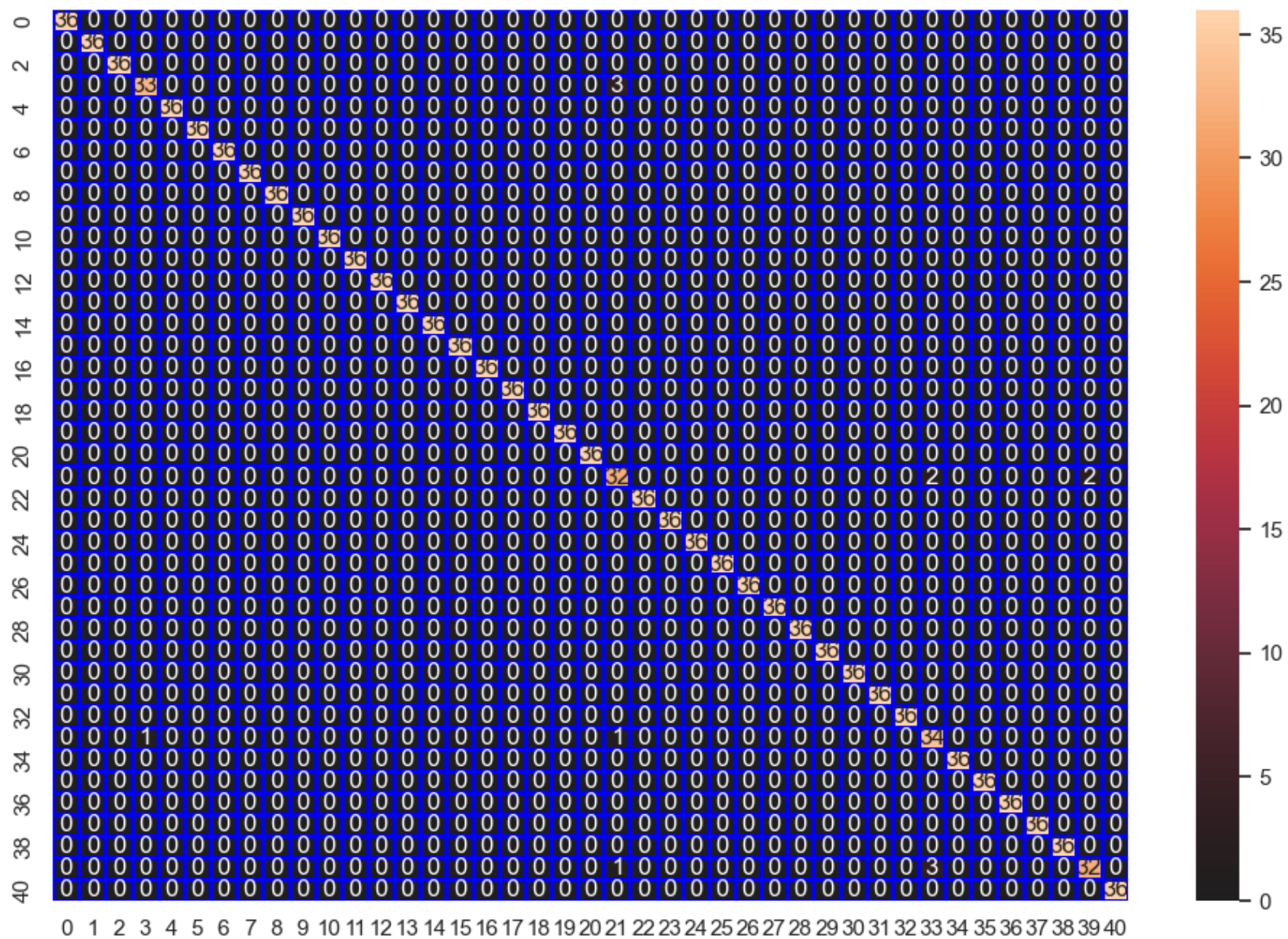
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 0.94 | 0.89 | 0.91 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 32  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 |

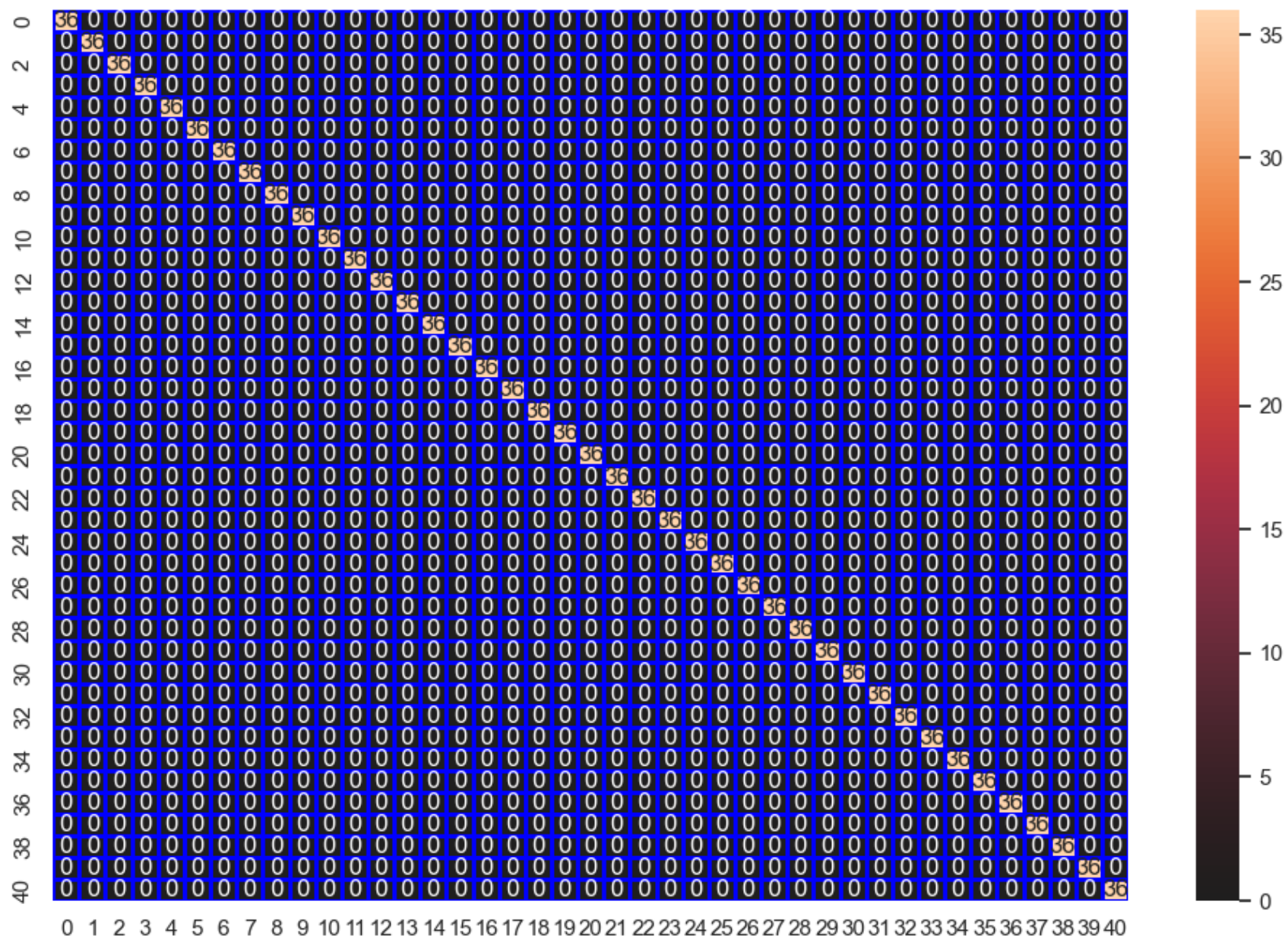
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

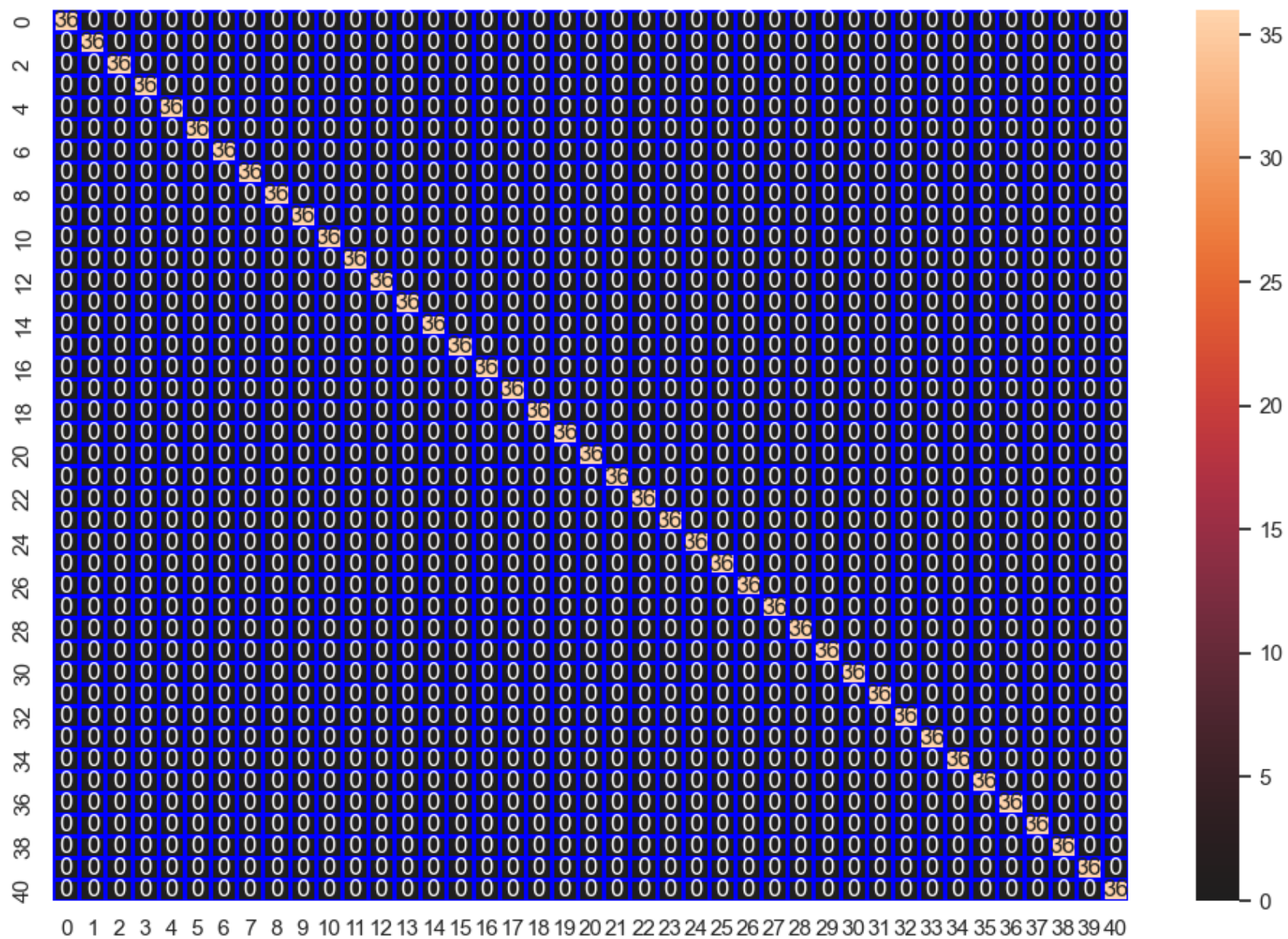
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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: 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 |

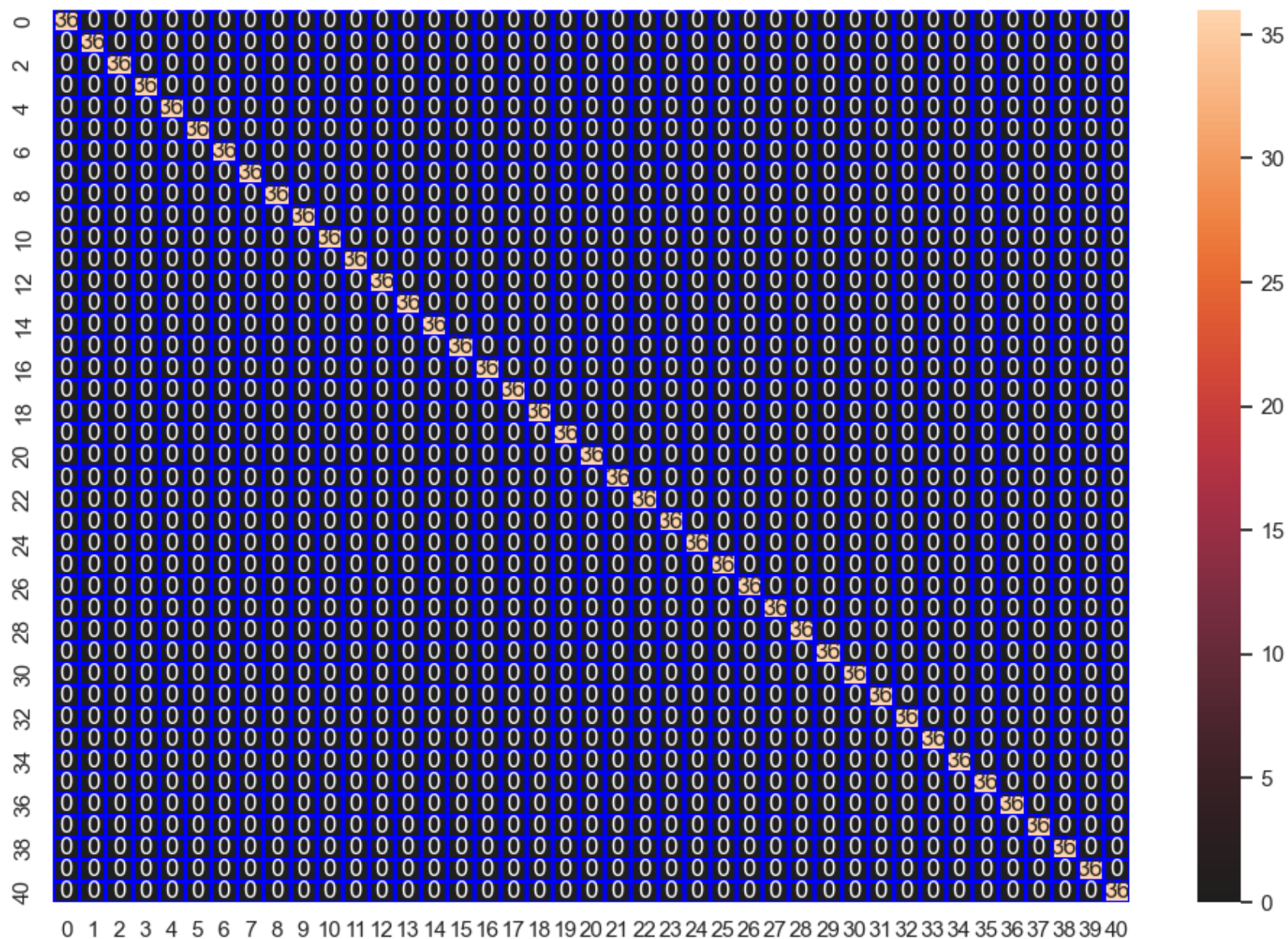
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 : Normalizer

Accuracy_score: 99.53 %

Loss: 0.47 %

Cohen_kappa_score: 99.51 %

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 | 0.92 | 1.00 | 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 | 0.89 | 0.94 | 0.92 | 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 | 0.97 | 0.99 | 36 |

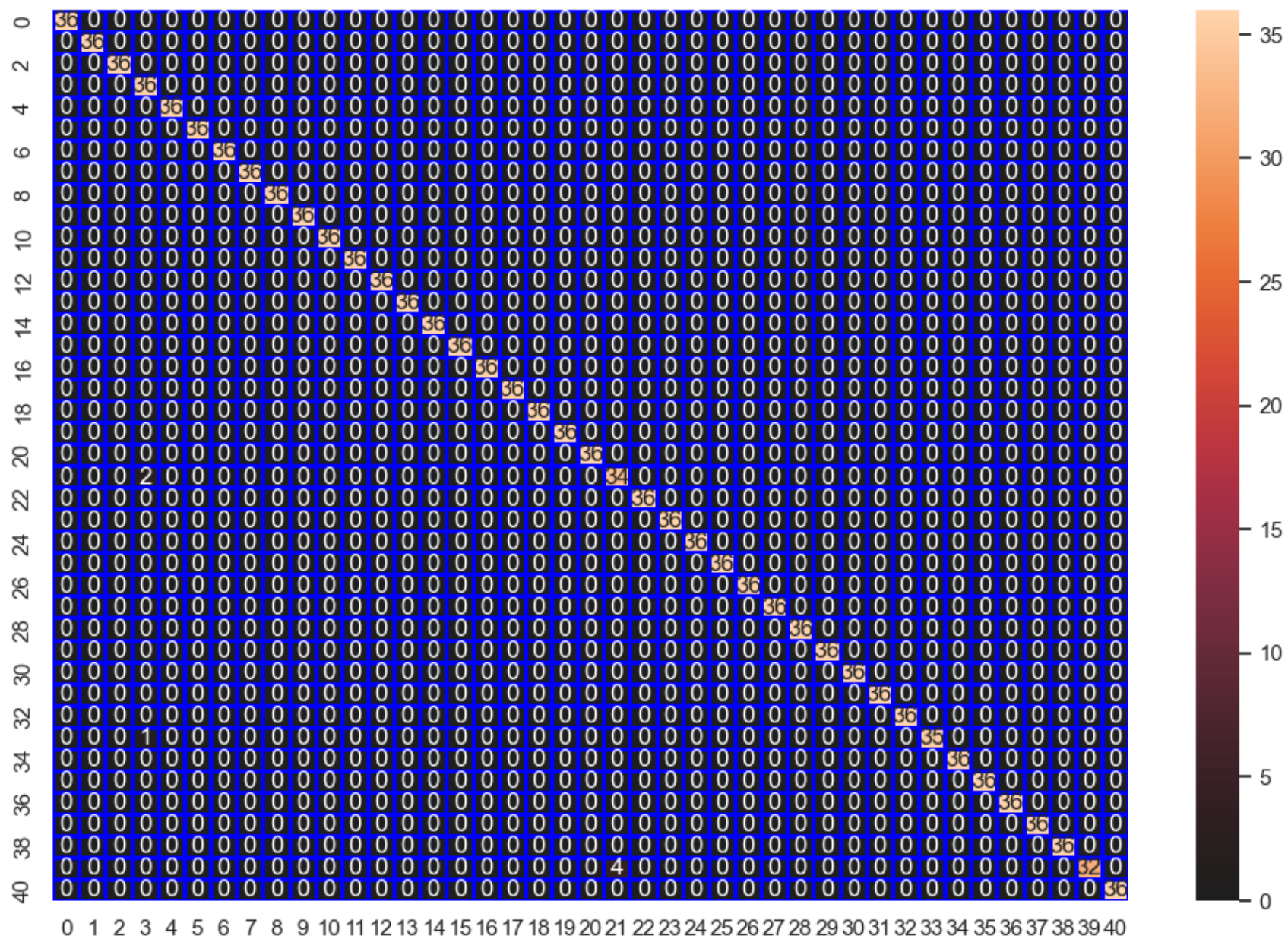
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 0.89 | 0.94 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 32  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 |

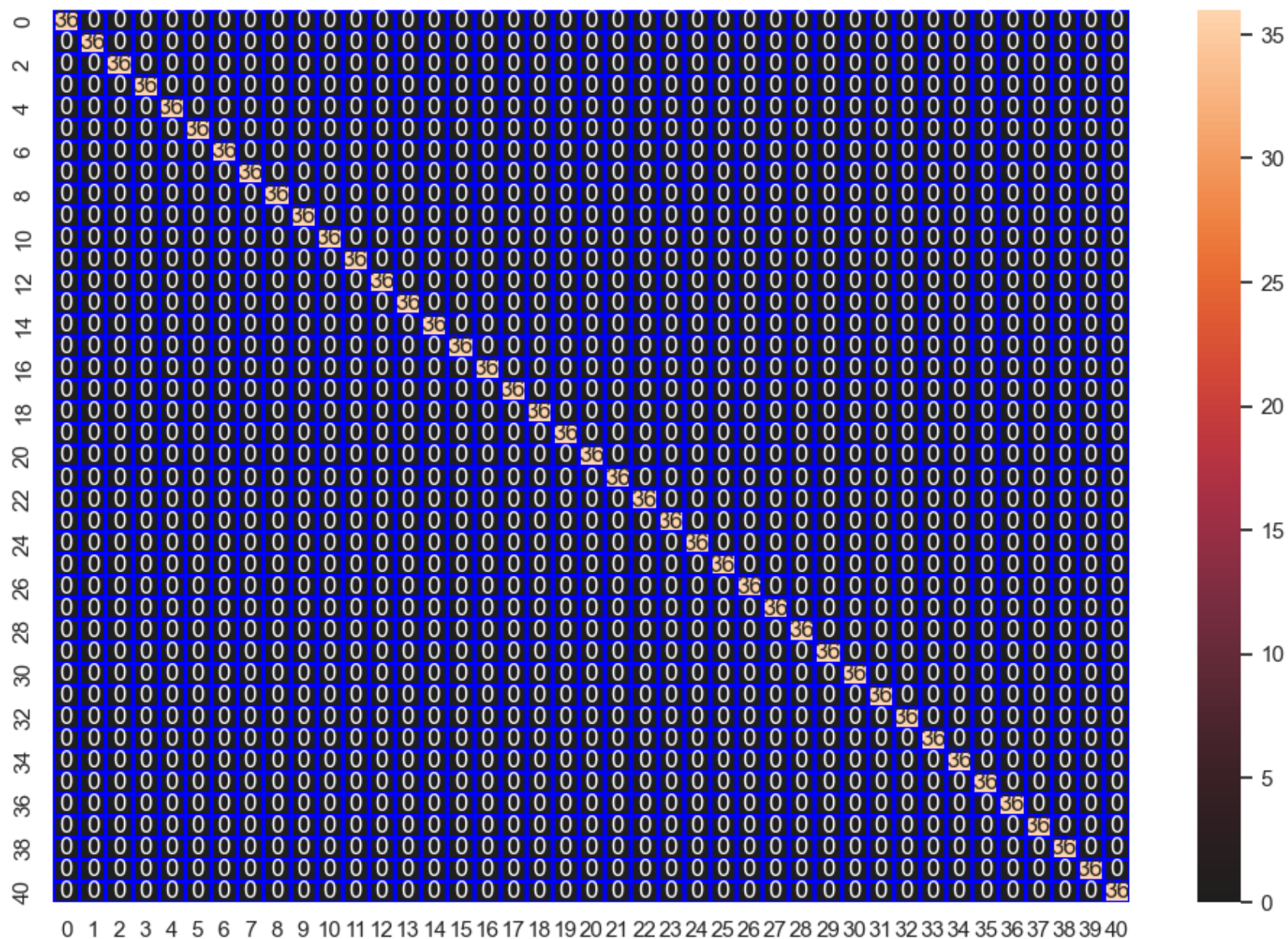
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

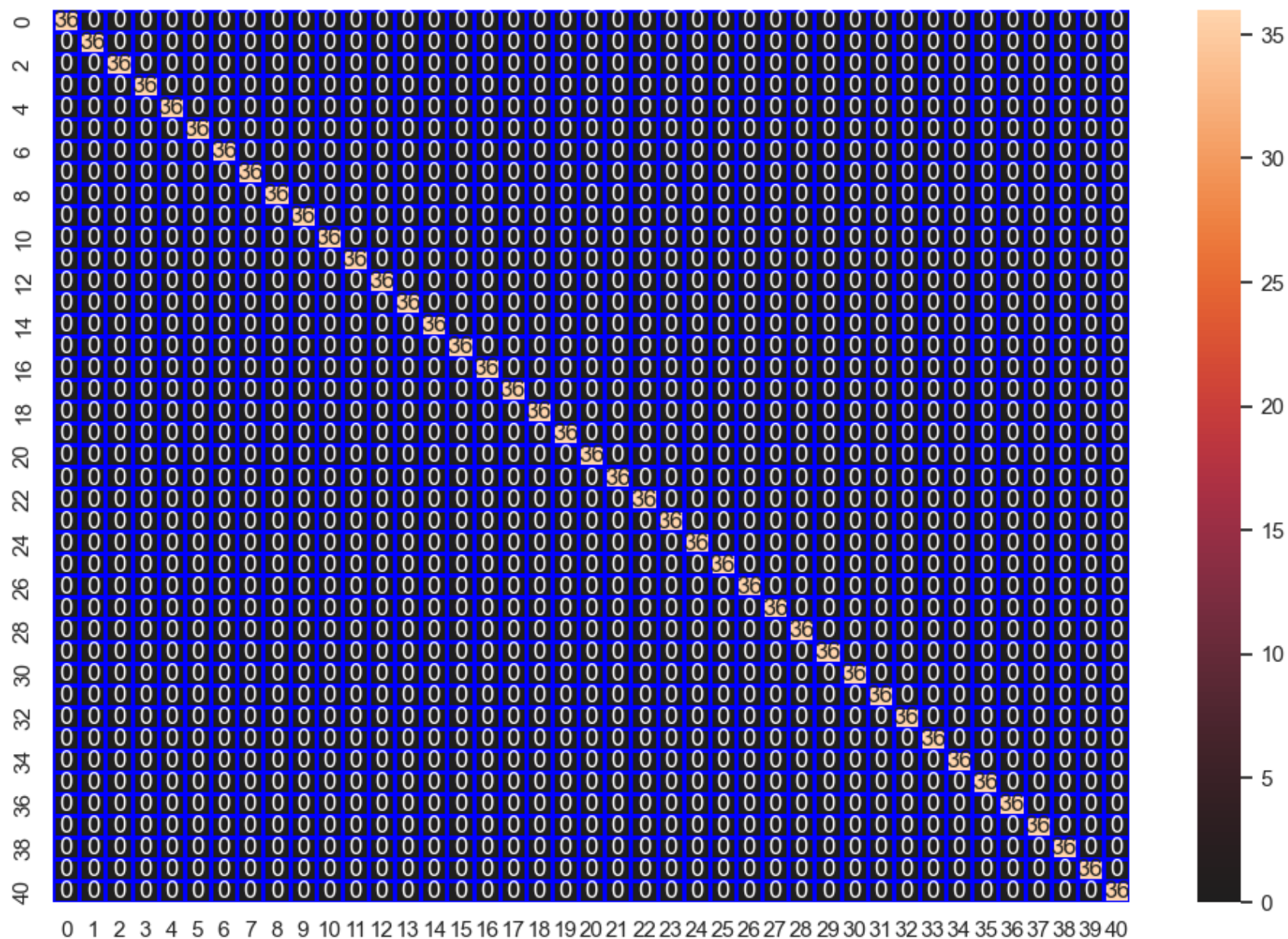
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

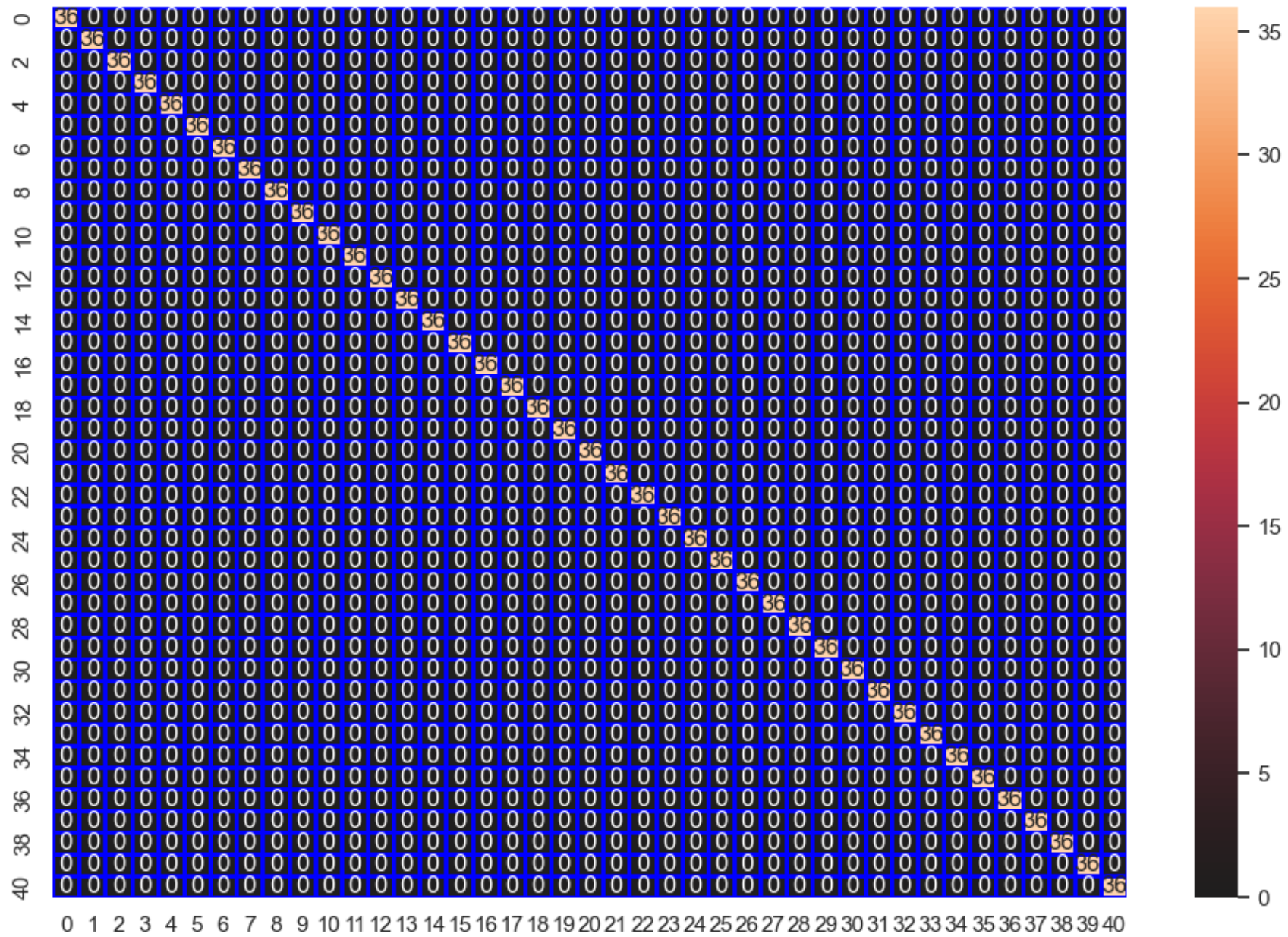
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

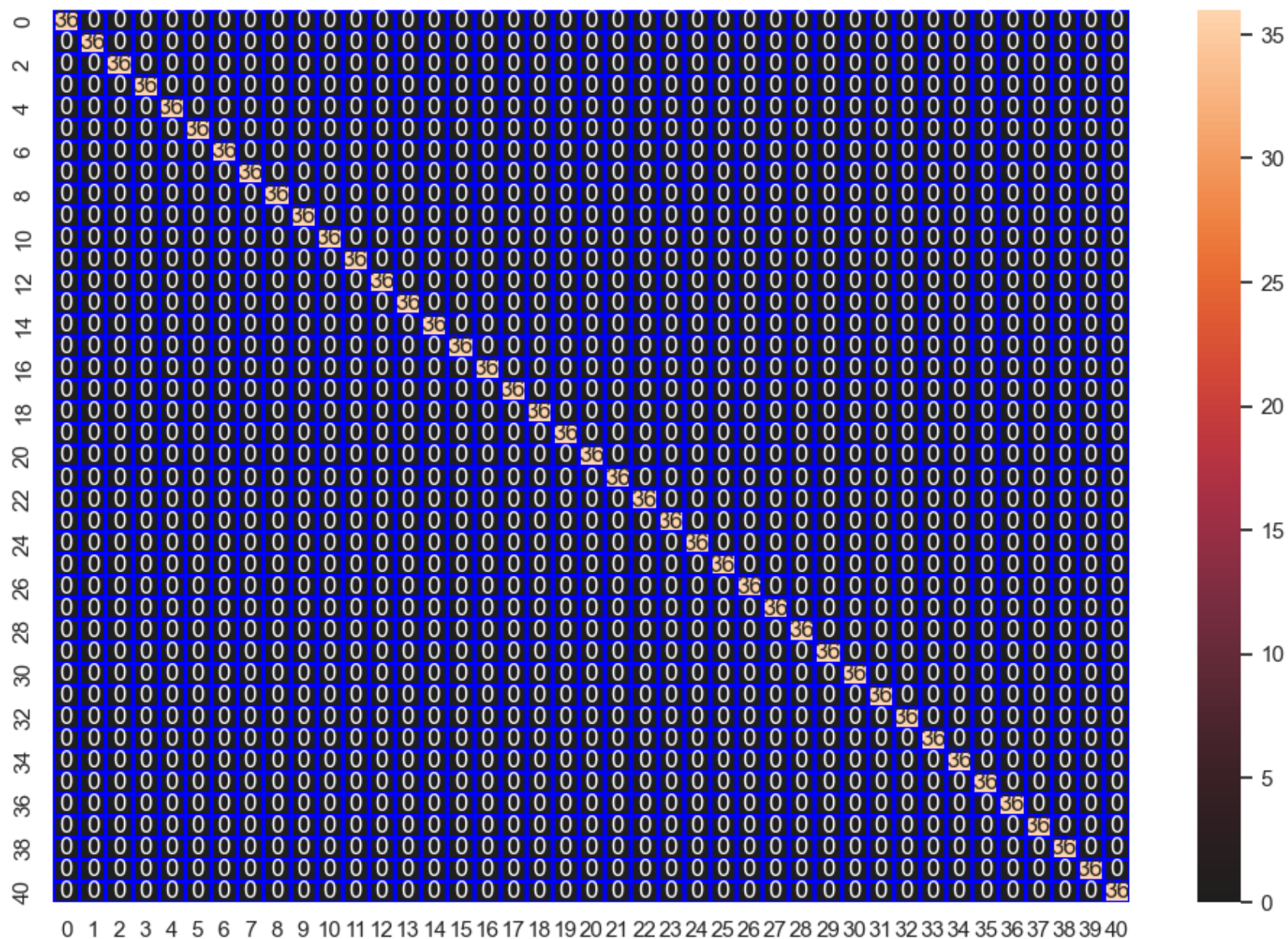
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

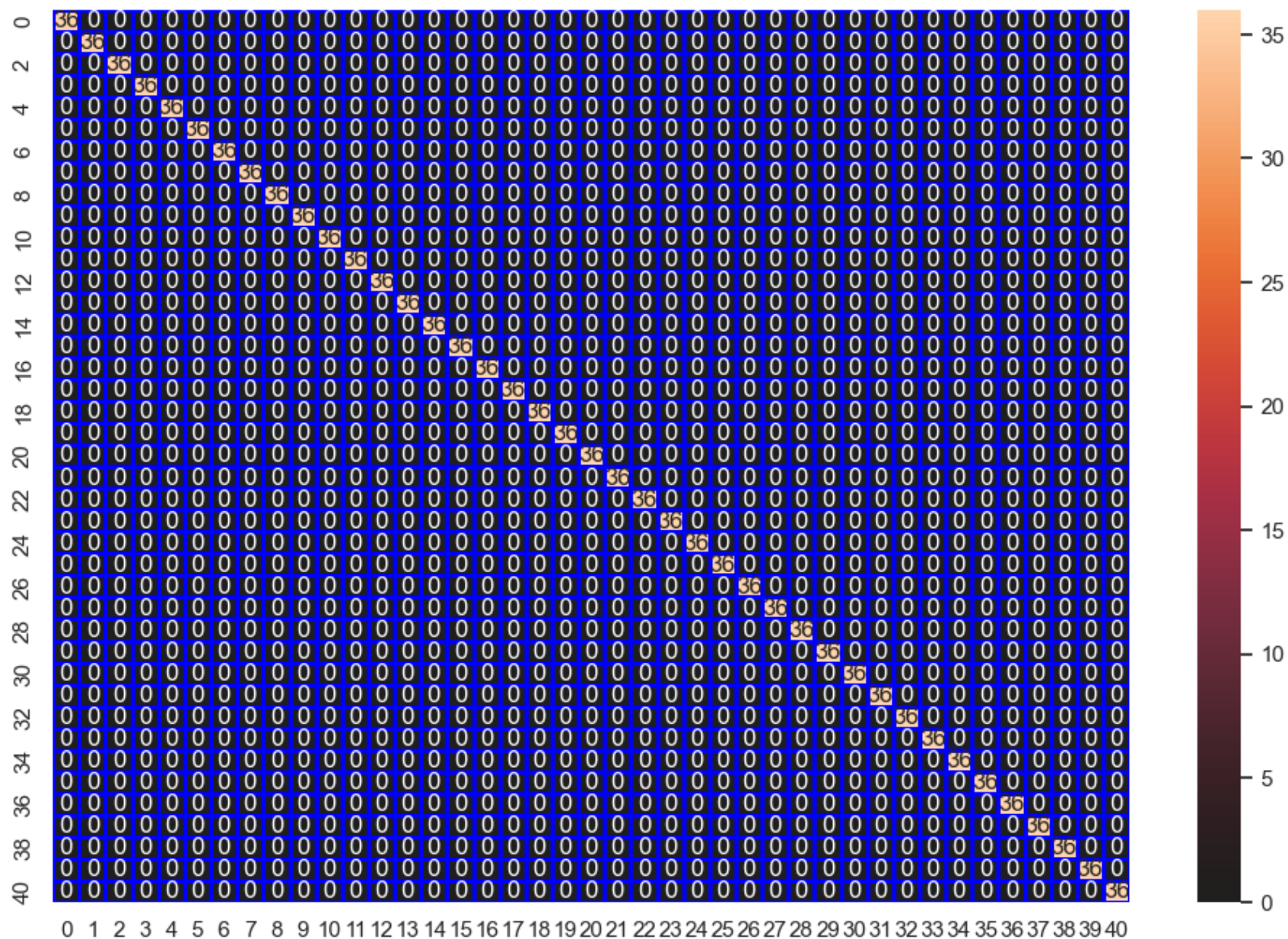
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

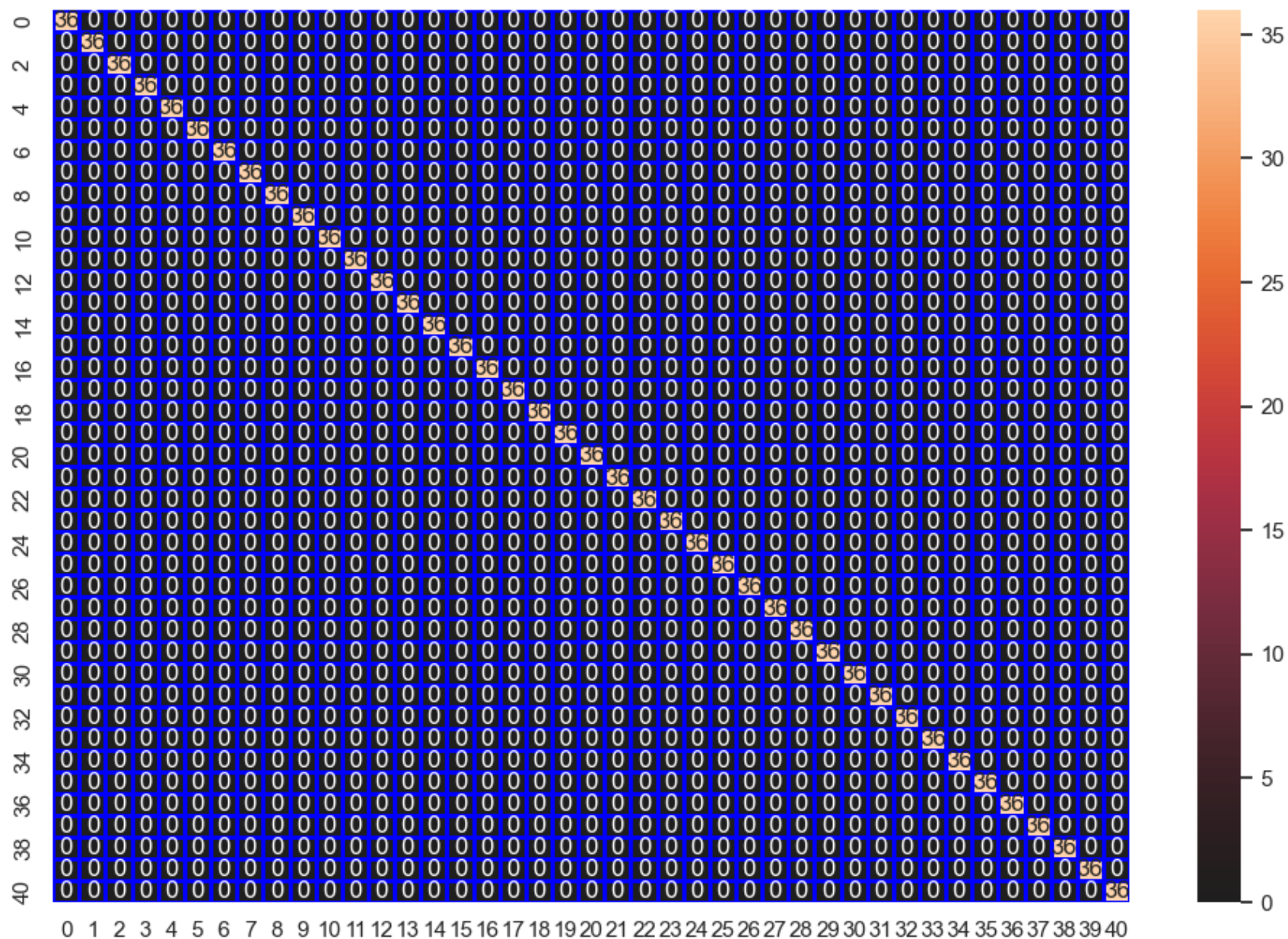
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 |

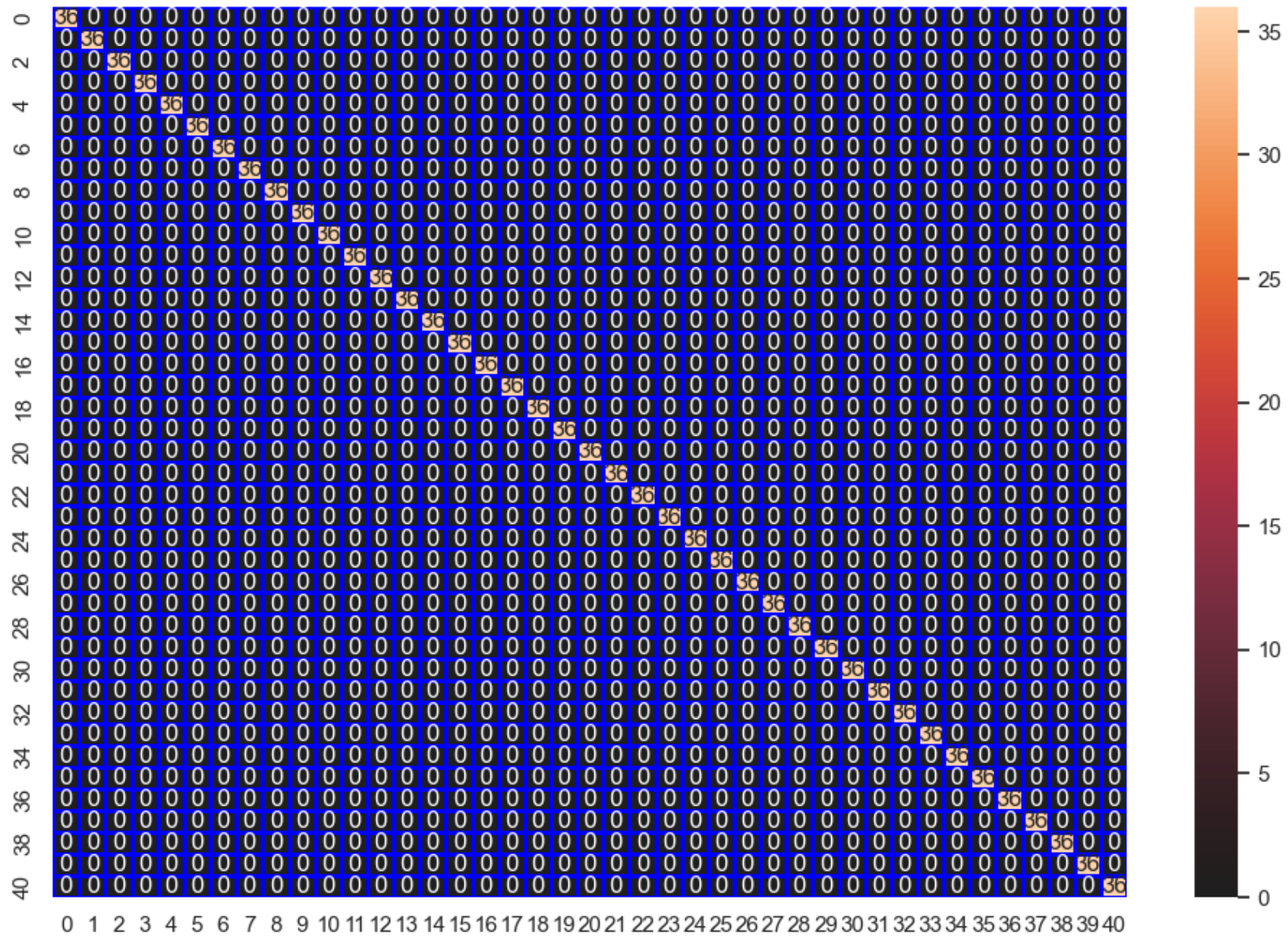
| | | | | |
|----|------|------|------|----|
| 34 | 1.00 | 1.00 | 1.00 | 36 |
| 35 | 1.00 | 1.00 | 1.00 | 36 |
| 36 | 1.00 | 1.00 | 1.00 | 36 |
| 37 | 1.00 | 1.00 | 1.00 | 36 |
| 38 | 1.00 | 1.00 | 1.00 | 36 |
| 39 | 1.00 | 1.00 | 1.00 | 36 |
| 40 | 1.00 | 1.00 | 1.00 | 36 |

| | | | | |
|--------------|------|------|------|------|
| 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 [98]: 1 plot_df = pd.DataFrame(plot_data_list, columns=['classifier', 'scaler', 'accuracy_score'])
          2 plot_df.to_csv("accuracy_score_plot_data.csv", index=False)
```

```
In [99]: 1 sns.set(rc={'figure.figsize':(18,6)})
2
3 sns.barplot(data=plot_df, x="classifier", y="accuracy_score", hue="scaler")
4 plt.title('Accuracy Score Plot')
5 plt.xlabel('Classifier')
6 plt.ylabel('Accuracy Score')
7 plt.show()
```

