In [14]:
```
# import random search, random forest, iris data, and distributions
from sklearn.model_selection import cross_validate
from sklearn import datasets
from sklearn.ensemble import RandomForestClassifier
```

In [16]:
```
import pandas as pd
data = pd.read_csv('HaitiPixels_good.csv')
data.head()
```

...

In [18]:
```
from sklearn import datasets
X=data[['Red', 'Green', 'Blue']]  # Features
y=data['Type']  # Labels
X.columns = ['Red','Green','Blue']
y.columns = ['Target']
```

https://www.kaggle.com/diegosch/classifier-evaluation-using-confusion-matrix (https://www.kaggle.com/diegosch/classifier-evaluation-using-confusion-matrix)

In [20]:
```
# Split dataset into training set and test set
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(X, y, test_size=0.3) # 70% t
```

In [22]:
```
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score, confusion_matrix, precision_recall_f

clf = SVC(kernel = 'linear').fit(x_train,y_train)
clf.predict(x_train)
y_pred = clf.predict(x_test)

# Creates a confusion matrix
cm = confusion_matrix(y_test, y_pred)
cm
```

Out[22]:
```
array([[  2404,    237],
       [    18, 311914]], dtype=int64)
```

In [5]:

In [6]:

```
Accuracy: 0.9998887380671577
```

https://rstudio-pubs-static.s3.amazonaws.com/71575_4068e2e6dc3d46a785ad7886426c37db.html (https://rstudio-pubs-static.s3.amazonaws.com/71575_4068e2e6dc3d46a785ad7886426c37db.html)

In [7]:

In [8]:

```
Accuracy: 0.9998887380671577
```

https://medium.com/@hjhuney/implementing-a-random-forest-classification-model-in-python-583891c99652 (https://medium.com/@hjhuney/implementing-a-random-forest-classification-model-in-python-583891c99652)

In [9]:

```
from sklearn import model_selection
# random forest model creation
rfc = RandomForestClassifier()
rfc.fit(X_train,y_train)
# predictions
rfc_predict = rfc.predict(X_test)
```

```
C:\Users\gladi\Anaconda3\lib\site-packages\sklearn\ensemble\forest.py:245: Futu
reWarning: The default value of n_estimators will change from 10 in version 0.2
0 to 100 in 0.22.
  "10 in version 0.20 to 100 in 0.22.", FutureWarning)
```

In [10]:

In [12]:

In [13]:

```
=== Confusion Matrix ===
[[  2668     13]
 [    30 311862]]


=== Classification Report ===
              precision    recall  f1-score   support

        blue       0.99      1.00      0.99      2681
     nonblue       1.00      1.00      1.00    311892

    accuracy                           1.00    314573
   macro avg       0.99      1.00      1.00    314573
weighted avg       1.00      1.00      1.00    314573



=== All AUC Scores ===
[1.         1.         1.         1.         1.         1.
 0.99999999 0.99999998 0.99999516 0.99866024]


=== Mean AUC Score ===
Mean AUC Score - Random Forest:  0.999865536847714
```

In [ ]:

```
Fitting 3 folds for each of 100 candidates, totalling 300 fits

[Parallel(n_jobs=-1)]: Using backend LokyBackend with 8 concurrent workers.
```

In [ ]:

In [ ]: