

# REPORT

## ANALISI DEI DATI PER LA SICUREZZA

Studente: Matteo Esposito

Matricola: 806075

A.A. 2024-2025

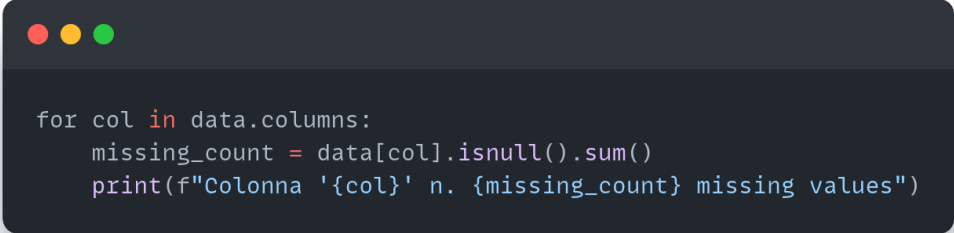
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## 1 MISSING VALUES

Utilizzo il seguente codice per verificare la presenza di valori mancanti all'interno del dataset.

A terminal window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. It contains three lines of Python code:

```
for col in data.columns:  
    missing_count = data[col].isnull().sum()  
    print(f"Colonna '{col}' n. {missing_count} missing values")
```

```
for col in data.columns:  
    missing_count = data[col].isnull().sum()  
    print(f"Colonna '{col}' n. {missing_count} missing values")
```

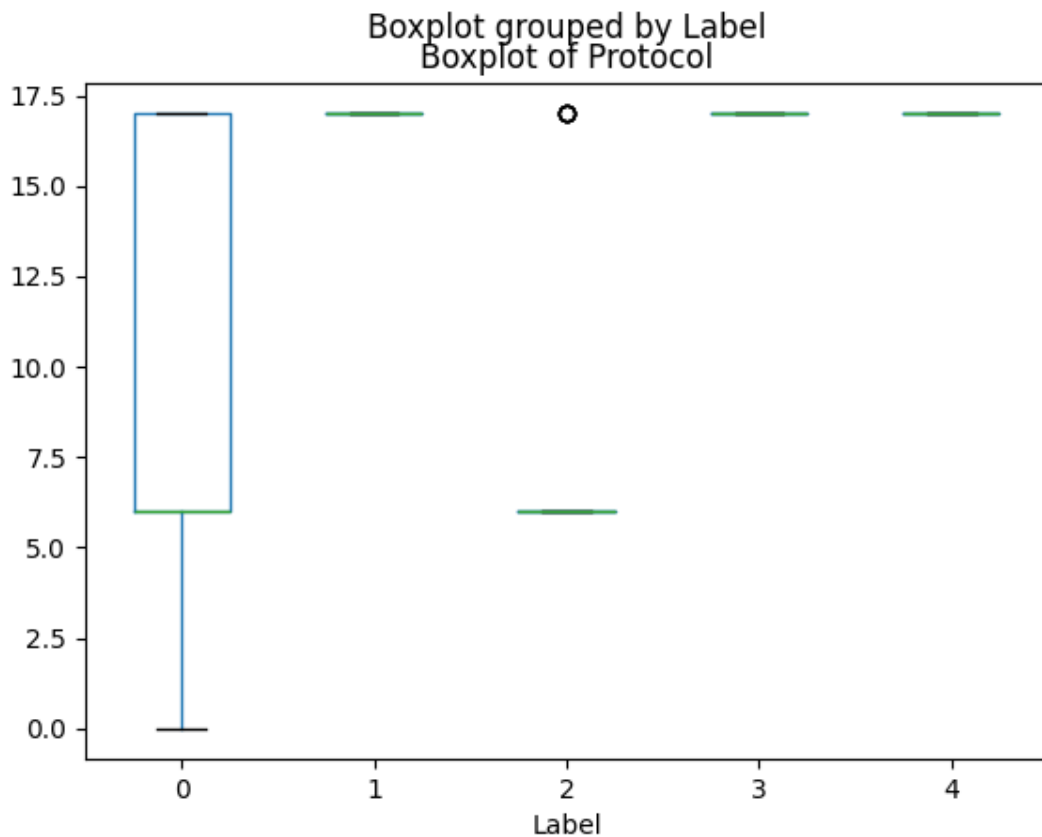
L'analisi evidenzia che non sono presenti valori nulli.

## 2 USELESS FEATURES

Colonne dove il valore minimo e' uguale al valore massimo: [' Bwd PSH Flags', ' Fwd URG Flags', ' Bwd URG Flags', 'FIN Flag Count', ' PSH Flag Count', ' ECE Flag Count', 'Fwd Avg Bytes/Bulk', ' Fwd Avg Packets/Bulk', ' Fwd Avg Bulk Rate', ' Bwd Avg Bytes/Bulk', ' Bwd Avg Packets/Bulk', 'Bwd Avg Bulk Rate']

## 3 STATISTICAL PROPERTIES OF USEFUL ATTRIBUTES

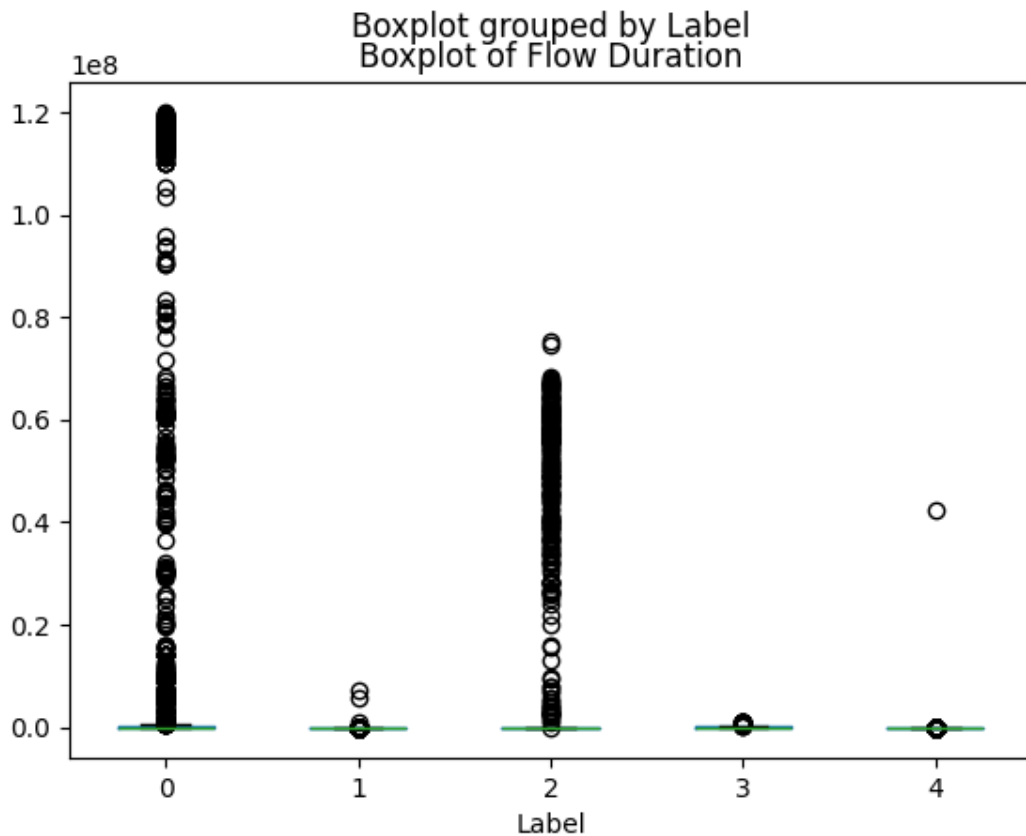
### 3.1 Protocol



- count 10000.000000
- mean 12.372700
- std 5.495017
- min 0.000000
- 25% 6.000000
- 50% 17.000000
- 75% 17.000000
- max 17.000000

Il boxplot mostra la presenza di outlier nella classe 2, con un valore di 17. La classe 0 presenta valori compresi tra 0 e 17, mentre classe 1, 3 e 4 hanno valori pari a 17. La classe 2 registra valori pari a 6.

### 3.2 Flow Duration

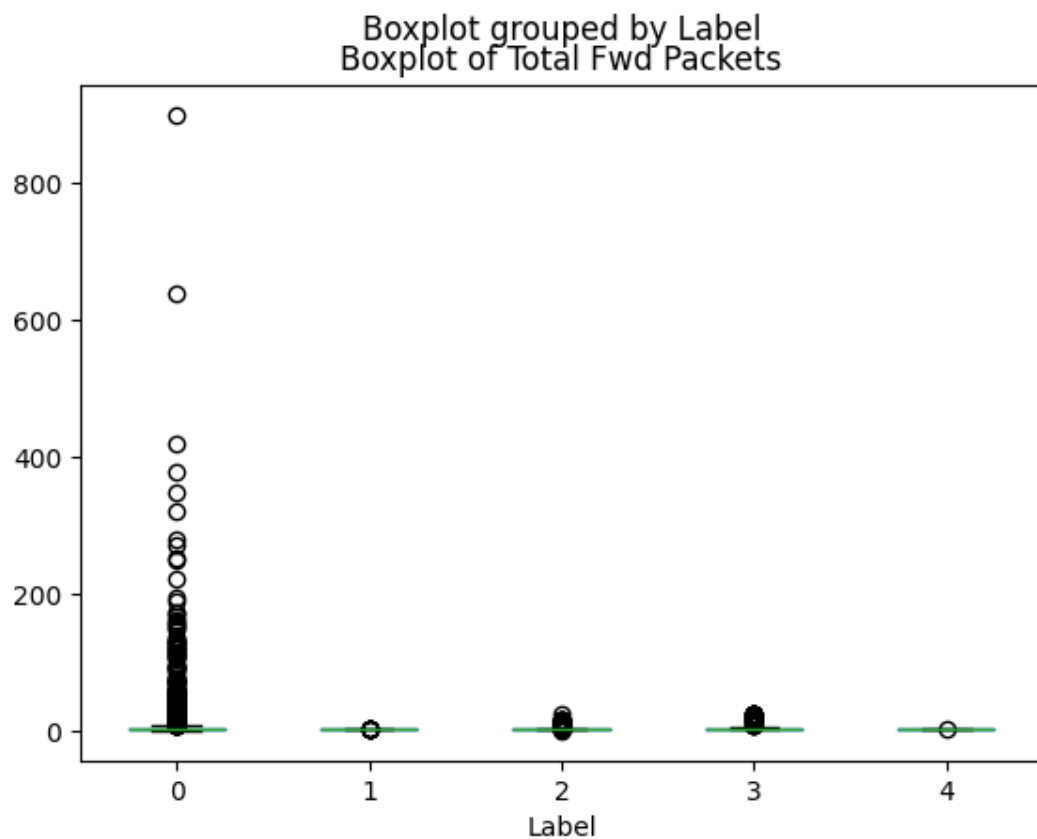


- count 1.000000e+04
- mean 5.052362e+06
- std 2.086003e+07
- min 1.000000e+00
- 25% 1.000000e+00
- 50% 4.700000e+01
- 75% 3.113775e+04
- max 1.199499e+08

Tutte e cinque le classi presentano outlier, nello specifico Classe 0 e 2 presentano outlier che superano enormemente i limiti superiori.



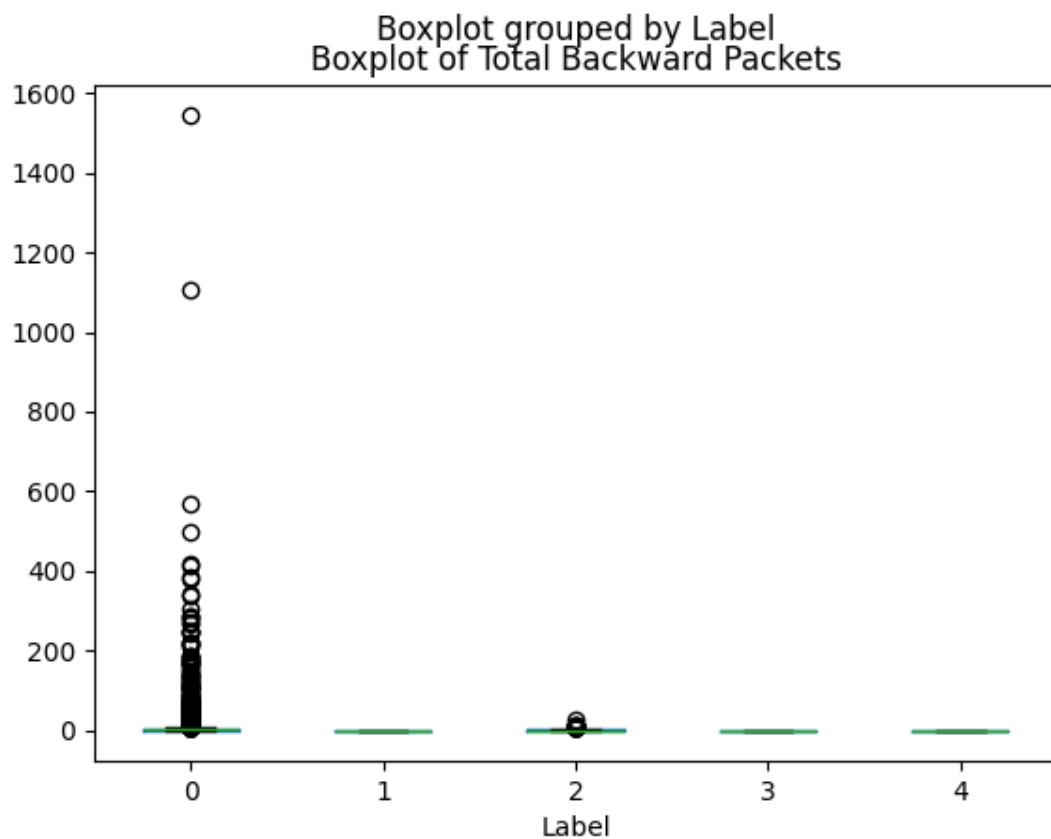
### 3.3 Total Fwd Packets



- count 10000.000000
- mean 4.974100
- std 17.905778
- min 1.000000
- 25% 2.000000
- 50% 2.000000
- 75% 2.000000
- max 899.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier che superano di gran lunga il valore più frequente (2).

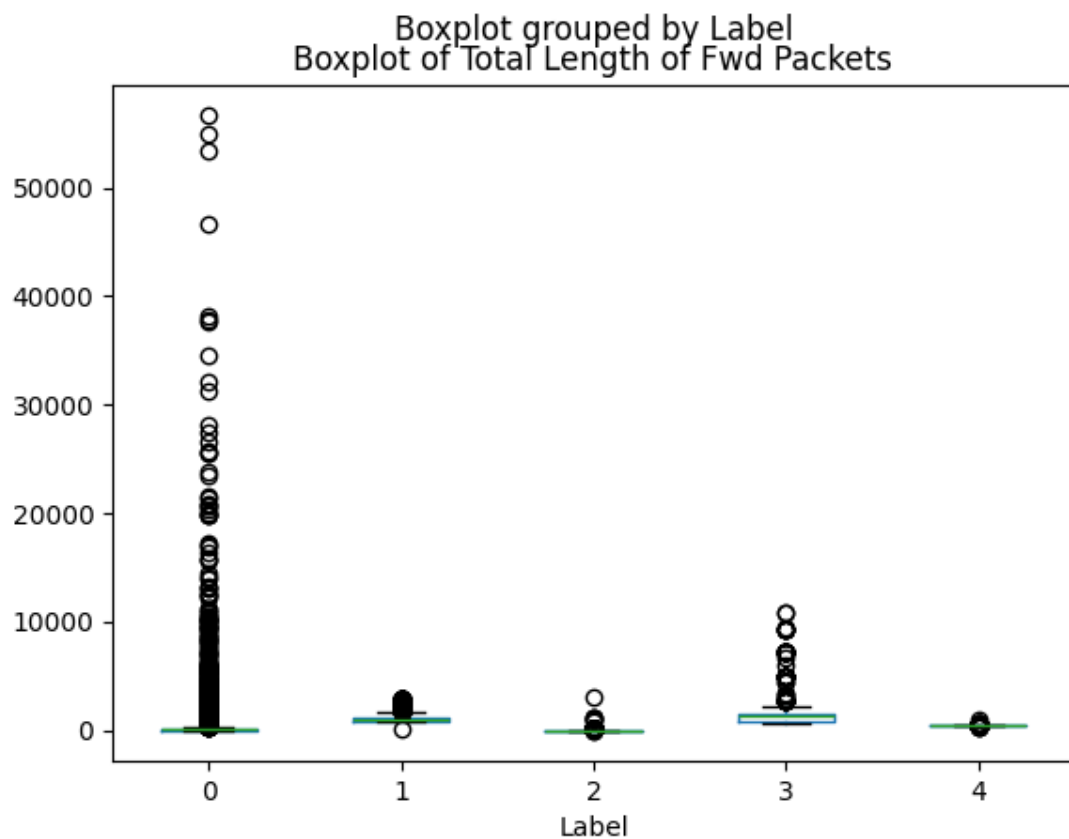
### 3.4 Total Backward Packets



- count 10000.000000
- mean 3.349400
- std 26.611075
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 2.000000
- max 1543.000000

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (max 1543) che superano di gran lunga il valore più frequente (compreso tra 0 e 2).

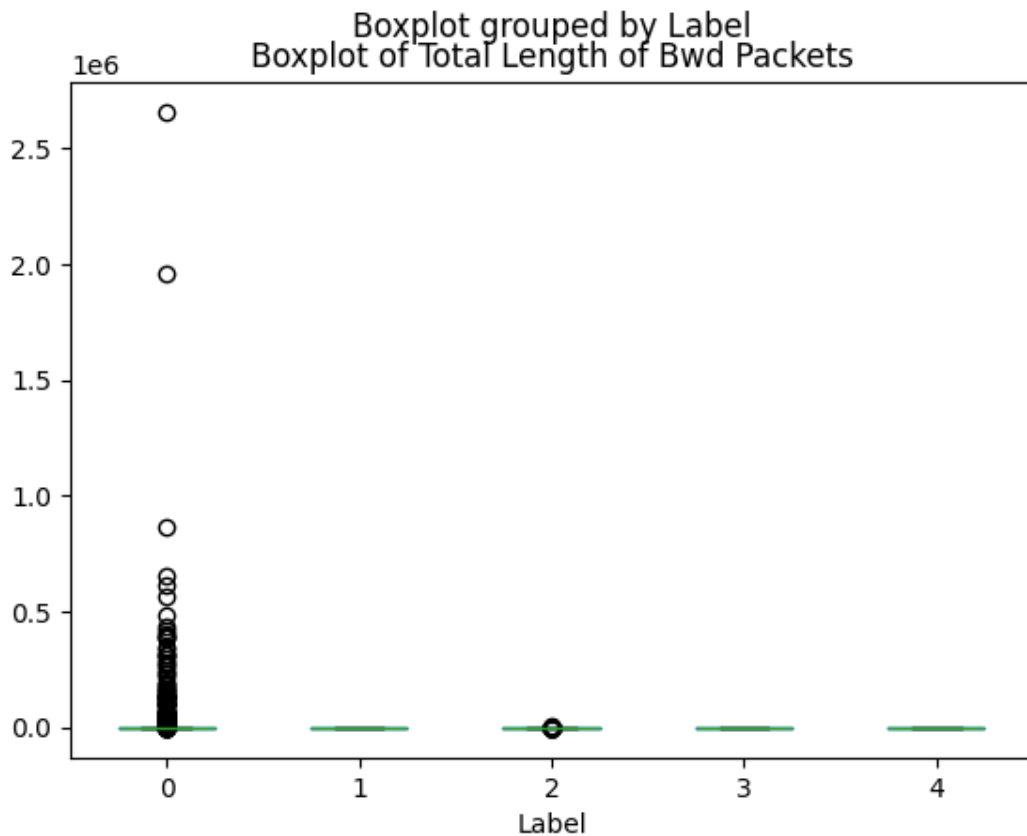
### 3.5 Total Length of Fwd Packets



- count 10000.000000
- mean 832.031800
- std 2049.949291
- min 0.000000
- 25% 12.000000
- 50% 458.000000
- 75% 1000.000000
- max 56622.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier che superano di gran lunga il valore più frequente (compreso tra 12 e 1000).

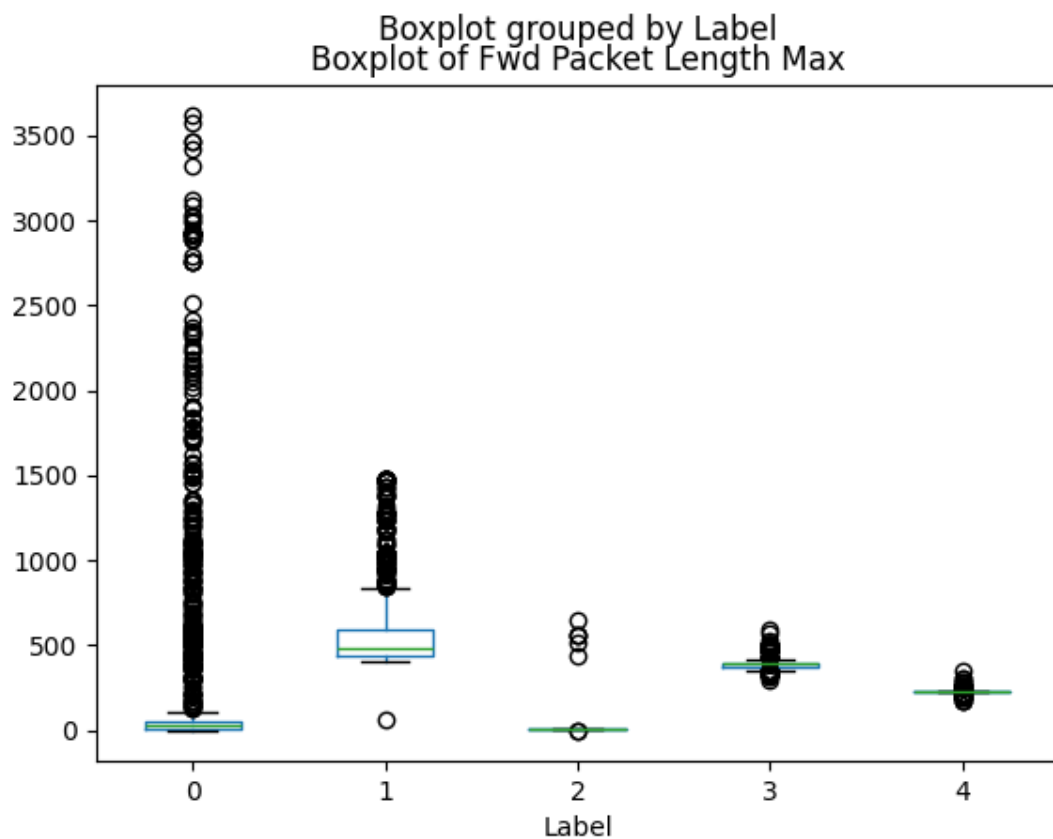
### 3.6 Total Length of Bwd Packets



- count 1.000000e+04
- mean 2.269414e+03
- std 3.956776e+04
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.200000e+01
- max 2.655090e+06

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (max 2.655.090) che superano di gran lunga il valore più frequente (compreso tra 0 e 12).

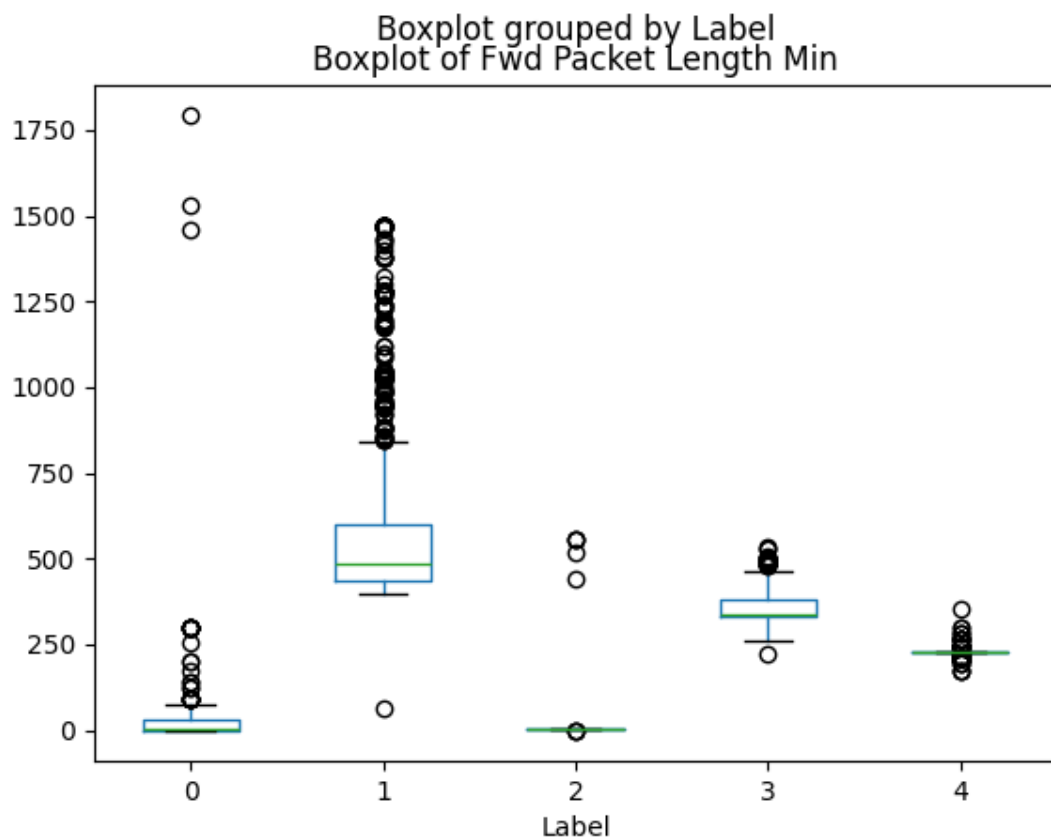
### 3.7 Fwd Packet Length Max



- count 10000.000000
- mean 266.889100
- std 322.176744
- min 0.000000
- 25% 6.000000
- 50% 229.000000
- 75% 403.000000
- max 3617.000000

Tutte e cinque le classi presentano outlier, classe 1,2 e 3 presentano anche outlier inferiori.

### 3.8 Fwd Packet Length Min

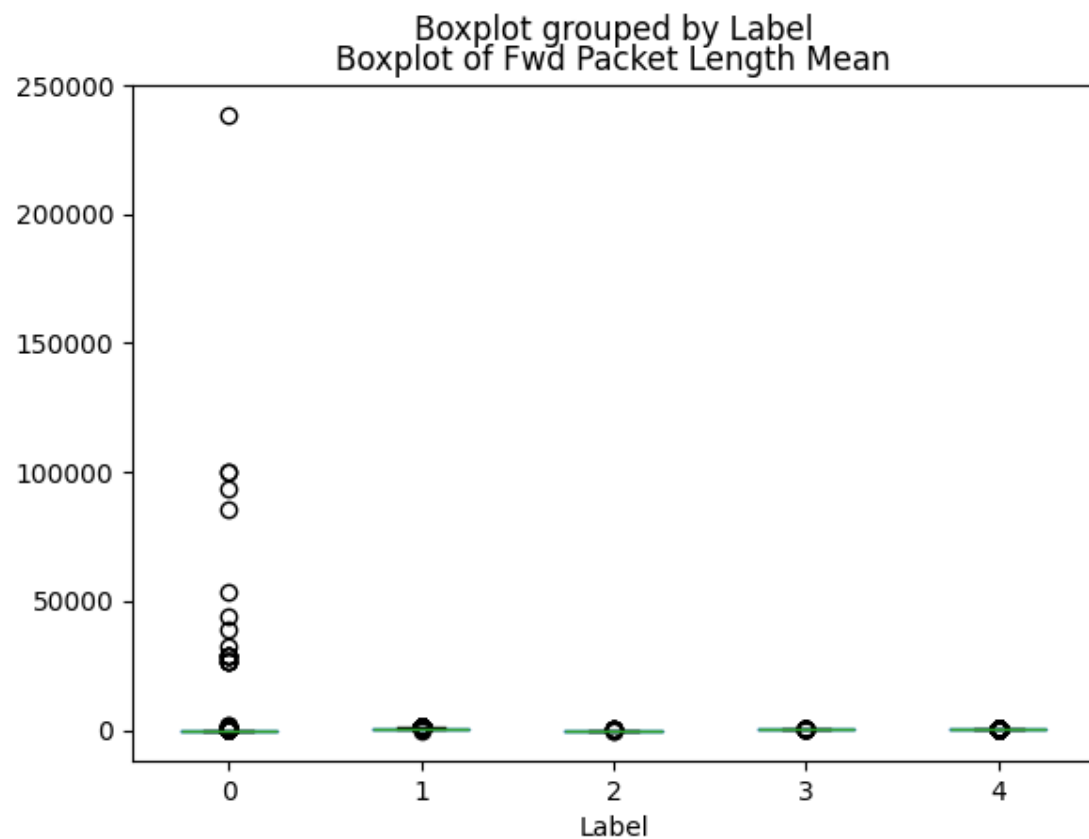


- count 10000.000000
- mean 213.788400
- std 245.620054
- min 0.000000
- 25% 6.000000
- 50% 211.000000
- 75% 383.000000
- max 1791.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (max 1791) che superano di gran lunga i valori più frequenti.

Classe 1, 2, 3, 4 presentano anche outlier inferiori.

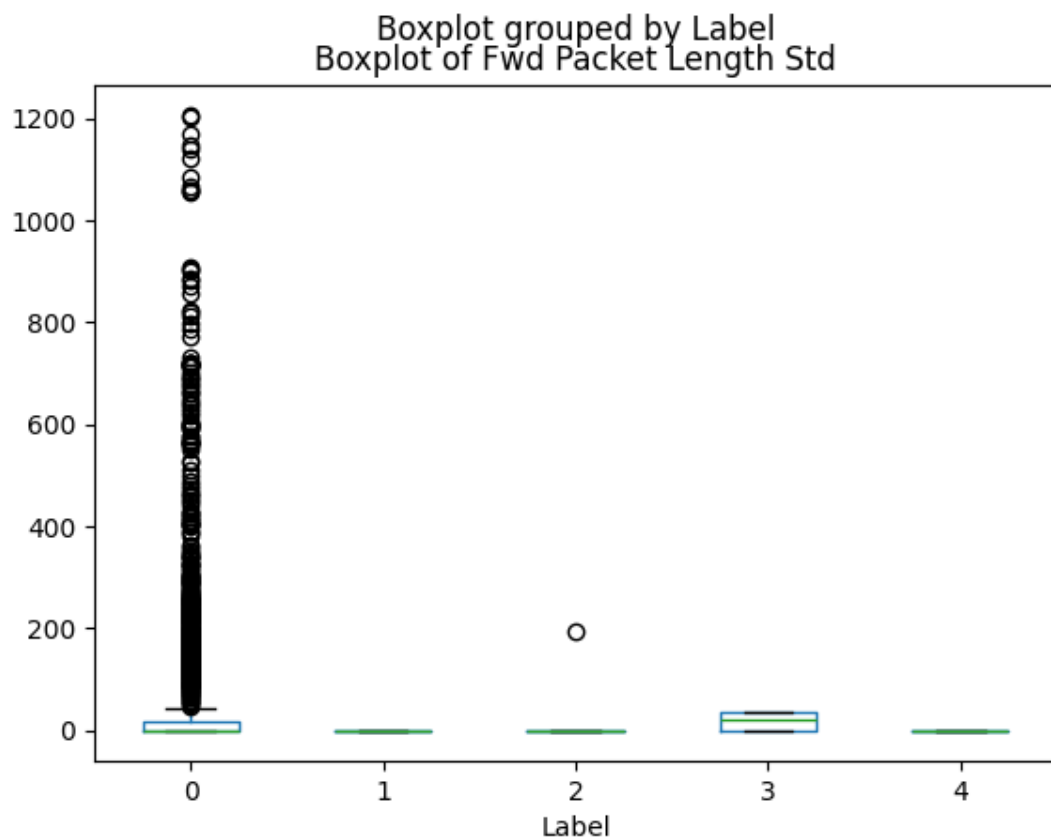
### 3.9 Fwd Packet Length Mean



- count 10000.000000
- mean 335.006267
- std 3299.525185
- min 0.000000
- 25% 6.000000
- 50% 229.000000
- 75% 383.000000
- max 238125.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (max 238.125) che superano di gran lunga i valori più frequenti.

### 3.10 Fwd Packet Length Std

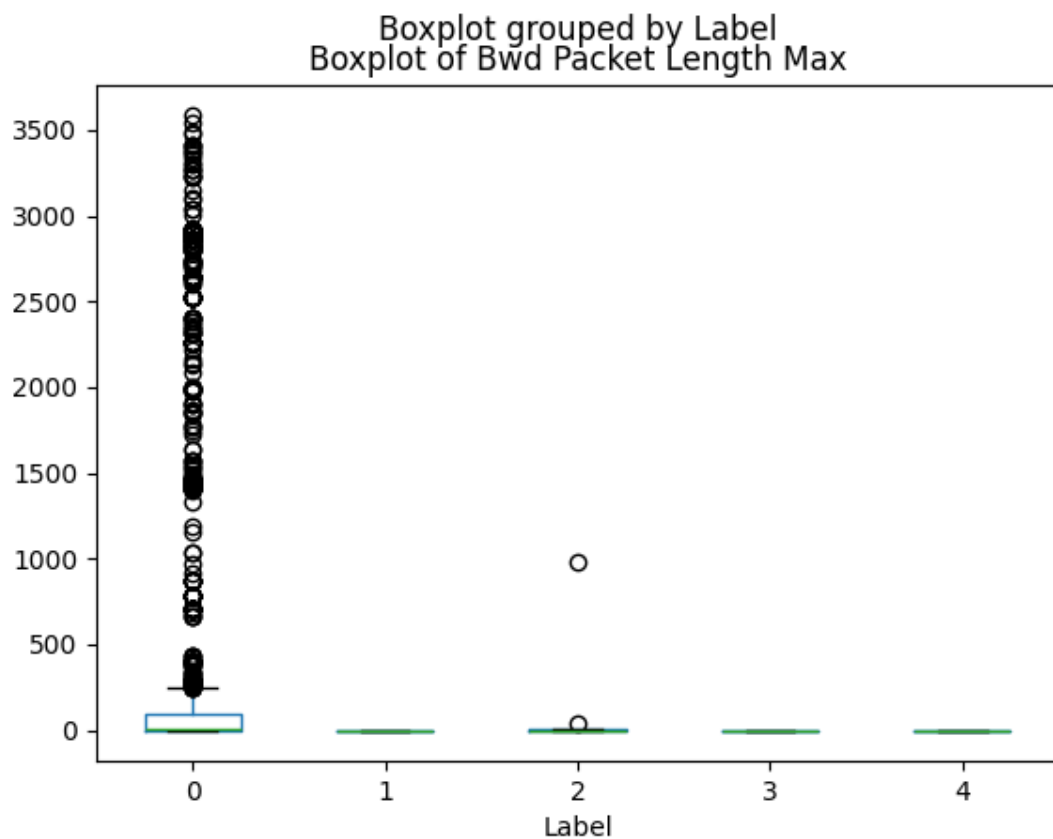


- count 10000.000000
- mean 18.225182
- std 77.235121
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1205.477522

Classe 0 e 2 presentano outlier, in particolare la Classe 0 ha outlier (valore max 1.205) che superano di gran lunga i valori più frequenti.



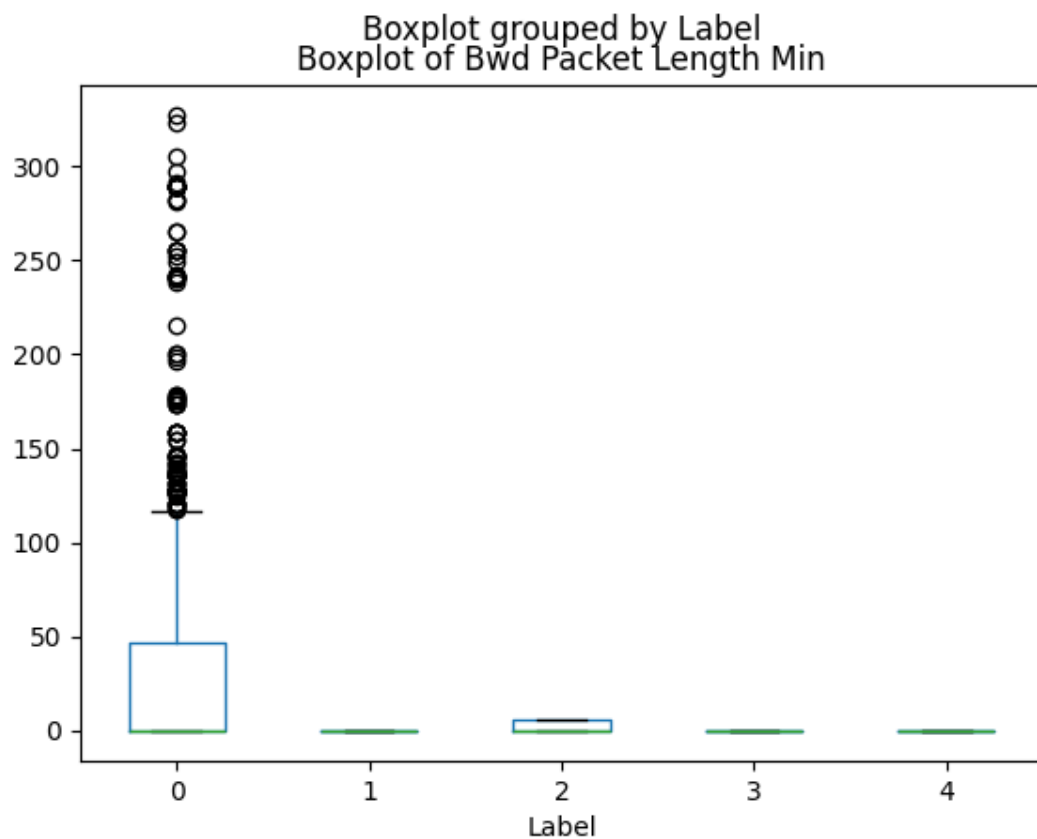
### 3.11 Bwd Packet Length Max



- count 10000.000000
- mean 98.885900
- std 446.663368
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 6.000000
- max 3583.000000

Classe 0 e 2 presentano outlier, in particolare la Classe 0 ha outlier (max 3.583) che superano di gran lunga i valori più frequenti.

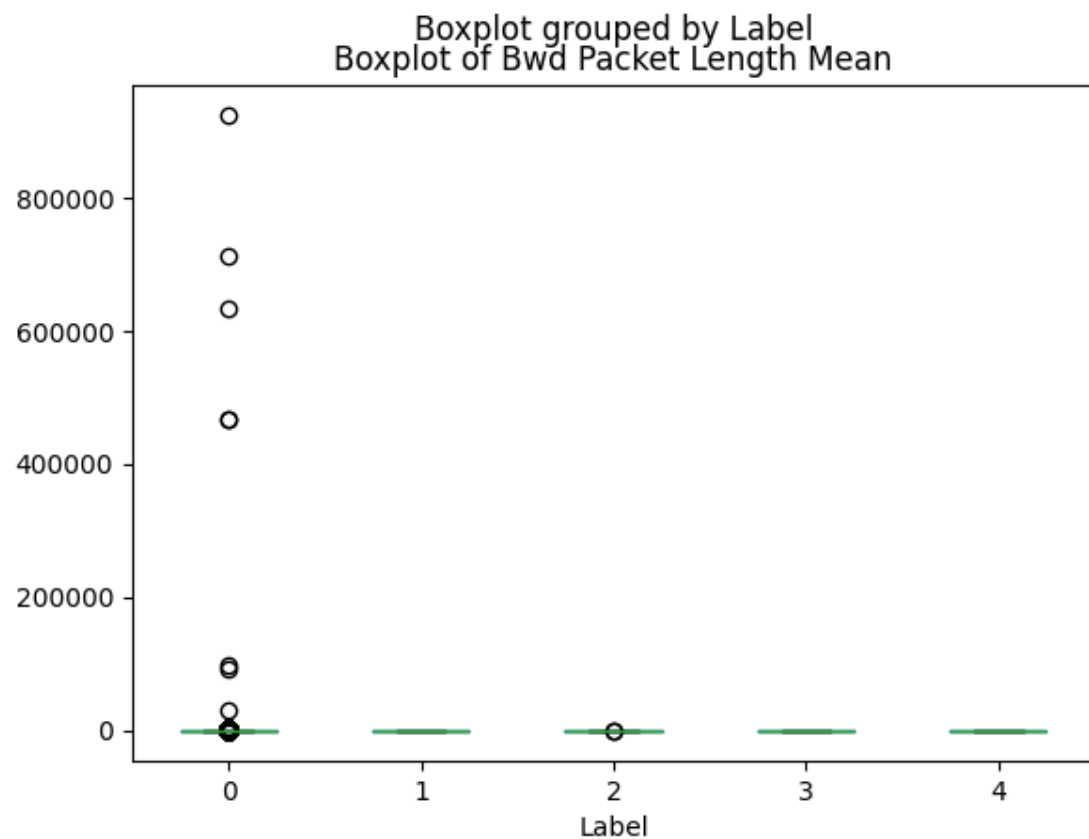
### 3.12 Bwd Packet Length Min



- count 10000.000000
- mean 8.426500
- std 28.499972
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 327.000000

La classe 0 è l'unica che presenta outlier che superano di gran lunga i valori più frequenti (valore max 327).

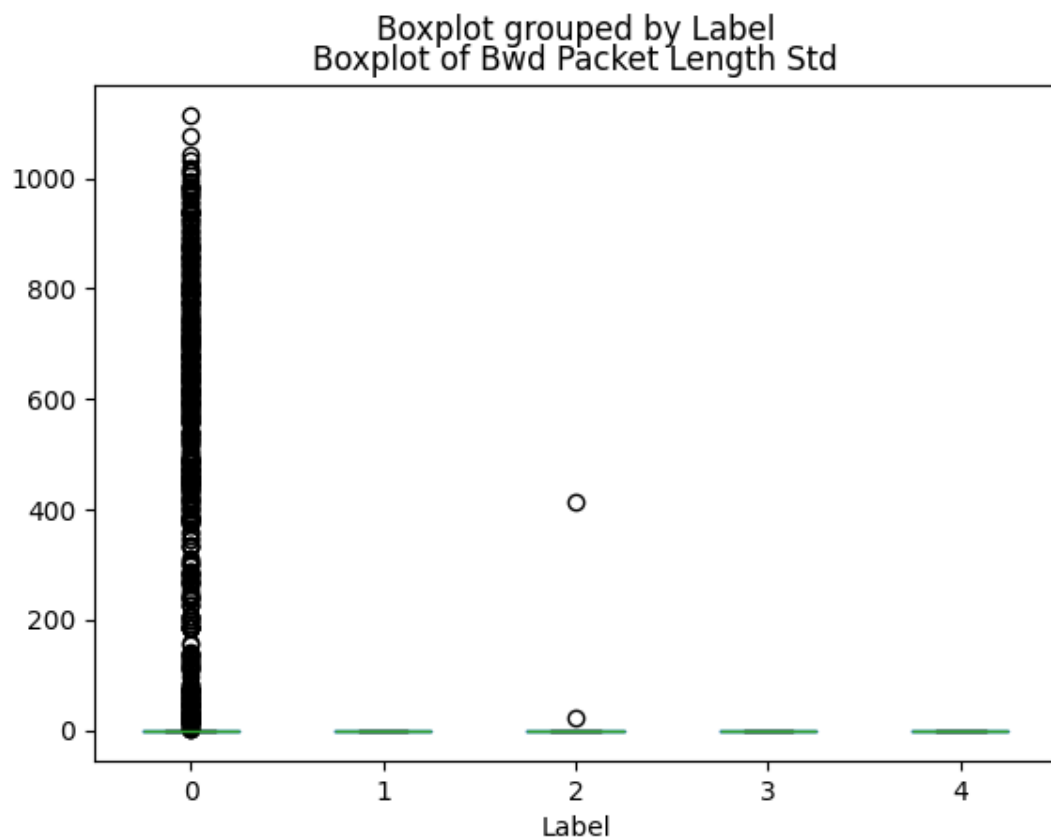
### 3.13 Bwd Packet Length Mean



- count 10000.000000
- mean 375.263850
- std 14894.726524
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 6.000000
- max 924125.000000

Classe 0 e 2 presentano outlier, in particolare la Classe 0 ha outlier (max 924125) che superano di gran lunga i valori più frequenti.

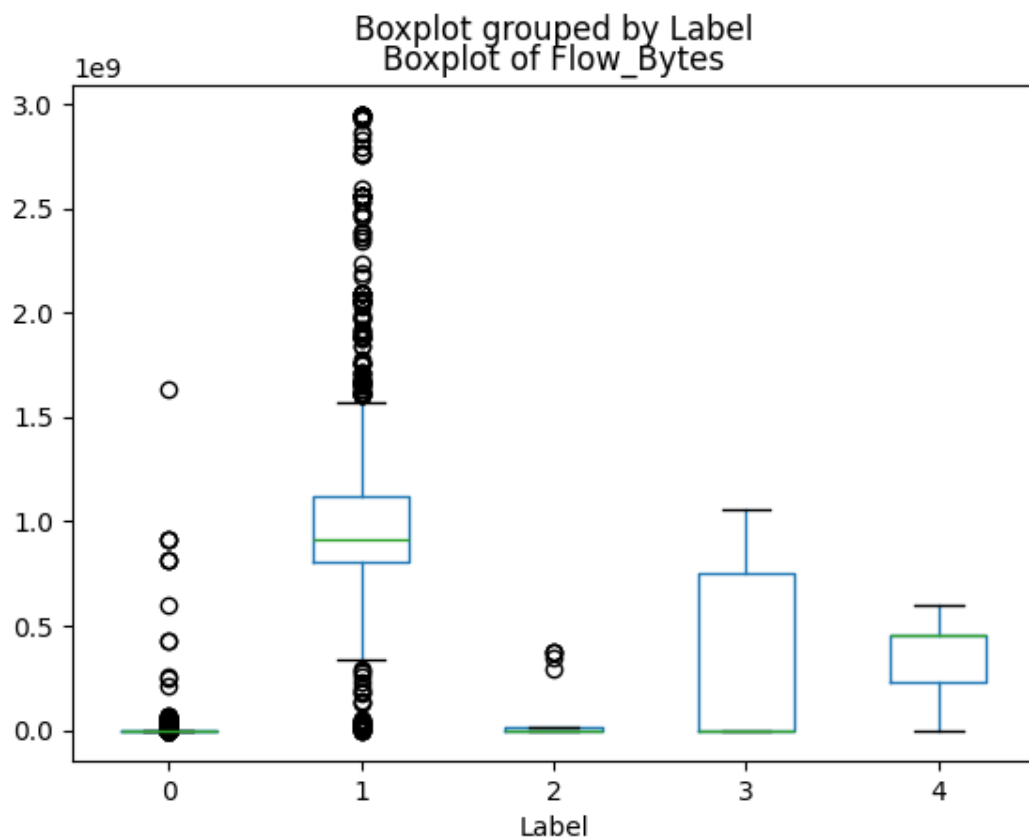
### 3.14 Bwd Packet Length Std



- count 10000.000000
- mean 27.253425
- std 132.108142
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1112.854940

Classe 0 e 2 presentano outlier, in particolare la Classe 0 ha outlier (max 1.112,85) che superano di gran lunga i valori più frequenti.

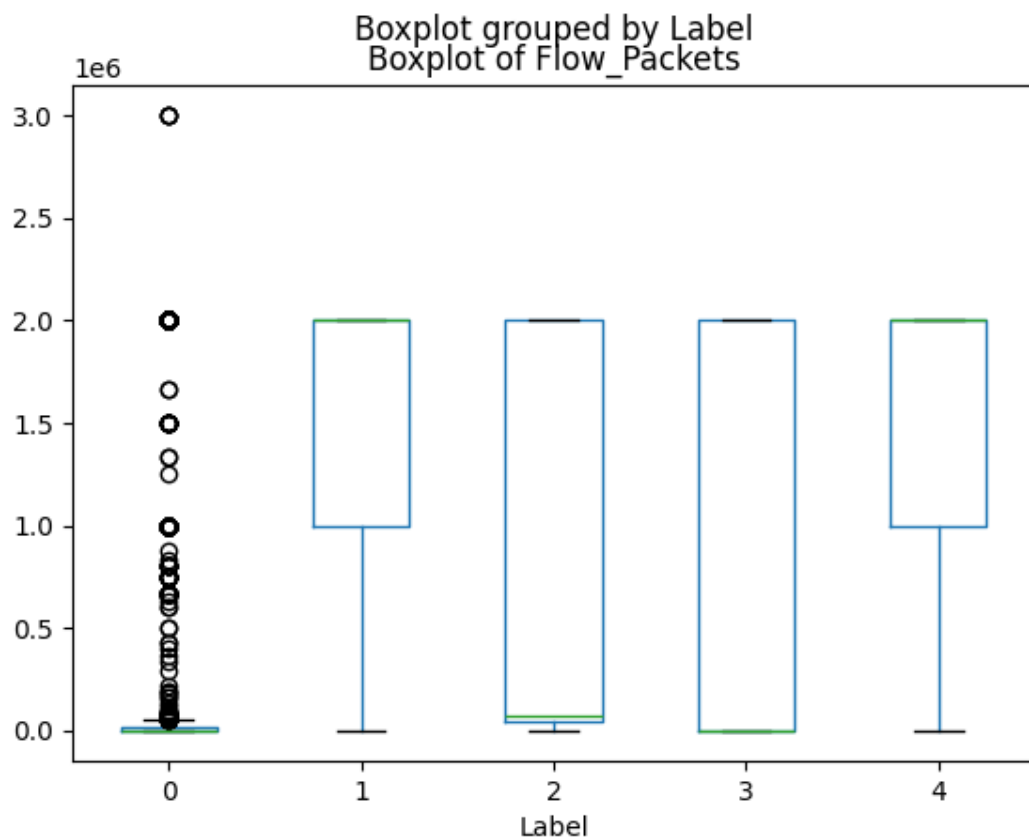
### 3.15 Flow\_Bytes



- count 1.000000e+04
- mean 2.784807e+08
- std 4.588245e+08
- min 0.000000e+00
- 25% 1.288851e+04
- 50% 9.541667e+06
- 75% 4.580000e+08
- max 2.944000e+09

Classe 0, 1 e 2 presentano outlier, in particolare Classe 1 ha sia outlier superiori che inferiori.

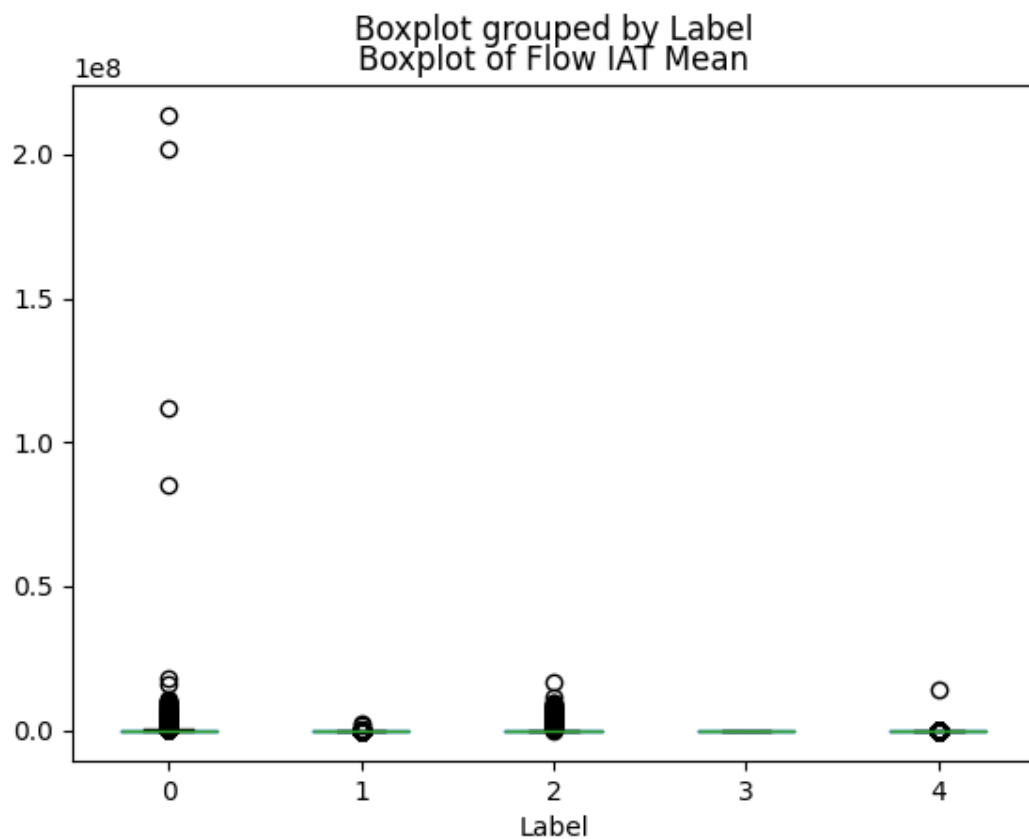
### 3.16 Flow\_Packets



- count 1.000000e+04
- mean 8.762053e+05
- std 9.464913e+05
- min 7.475528e-02
- 25% 1.532832e+02
- 50% 4.687500e+04
- 75% 2.000000e+06
- max 3.000000e+06

La classe 0 è l'unica che presenta outlier, alcuni di questi superano di gran lunga i valori più frequenti (valore max 3.000.000).

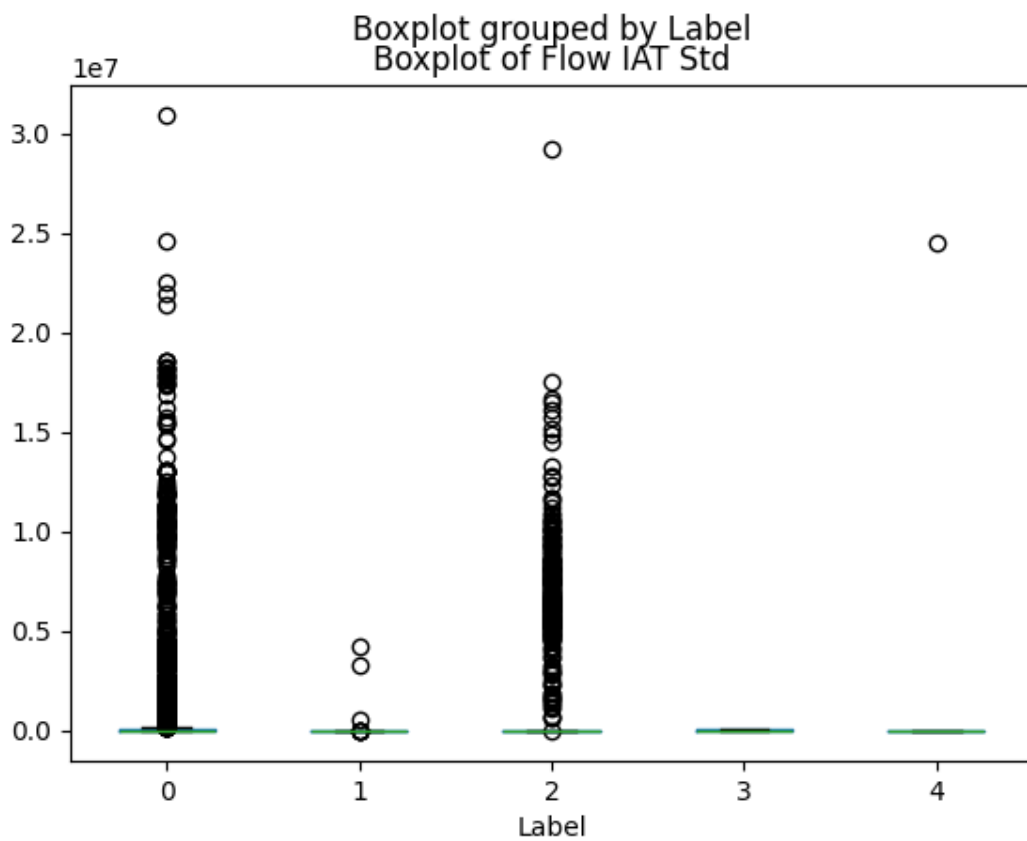
### 3.17 Flow IAT Mean



- count 1.000000e+04
- mean 2.734815e+05
- std 3.385072e+06
- min 5.000000e-01
- 25% 1.000000e+00
- 50% 3.133333e+01
- 75% 8.393483e+03
- max 2.133164e+08

Classe 0,1,2 e 4 presentano outlier, in particolare la Classe 0 ha outlier (max 213.316.400) che superano di gran lunga i valori più frequenti.

### 3.18 Flow IAT Std

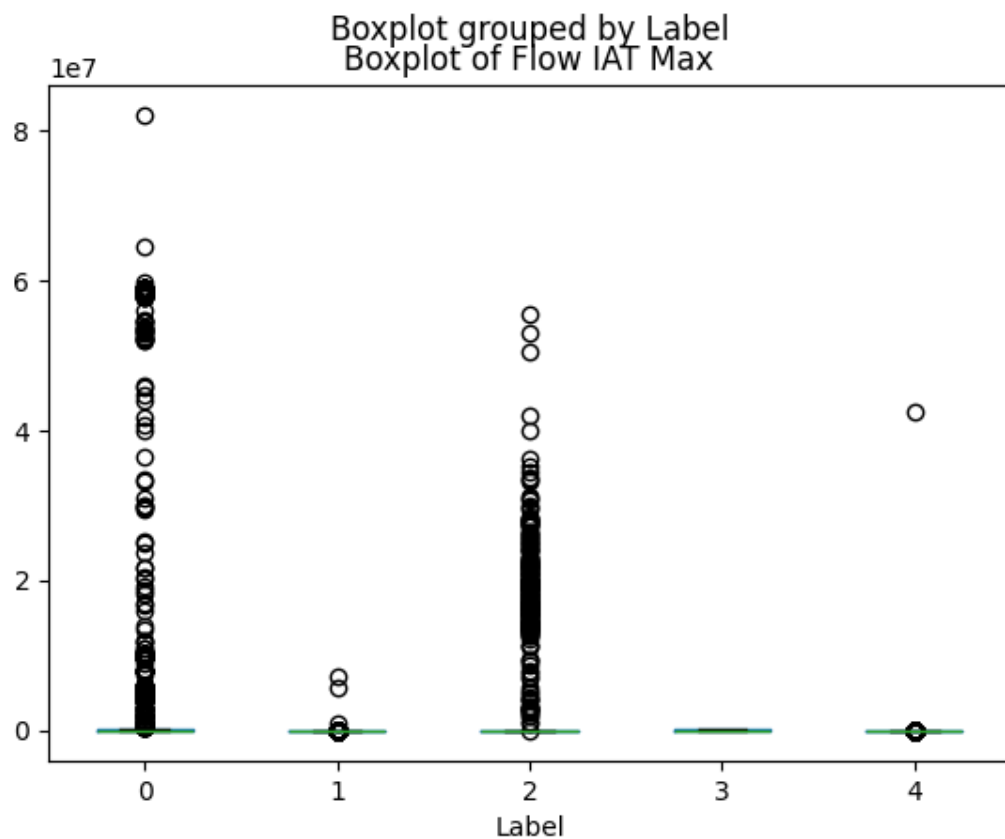


- count 1.000000e+04
- mean 4.955549e+05
- std 2.040065e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.256485e+04
- max 3.089281e+07

Classe 0,1,2 e 4 presentano outlier che superano il baffo superiore.



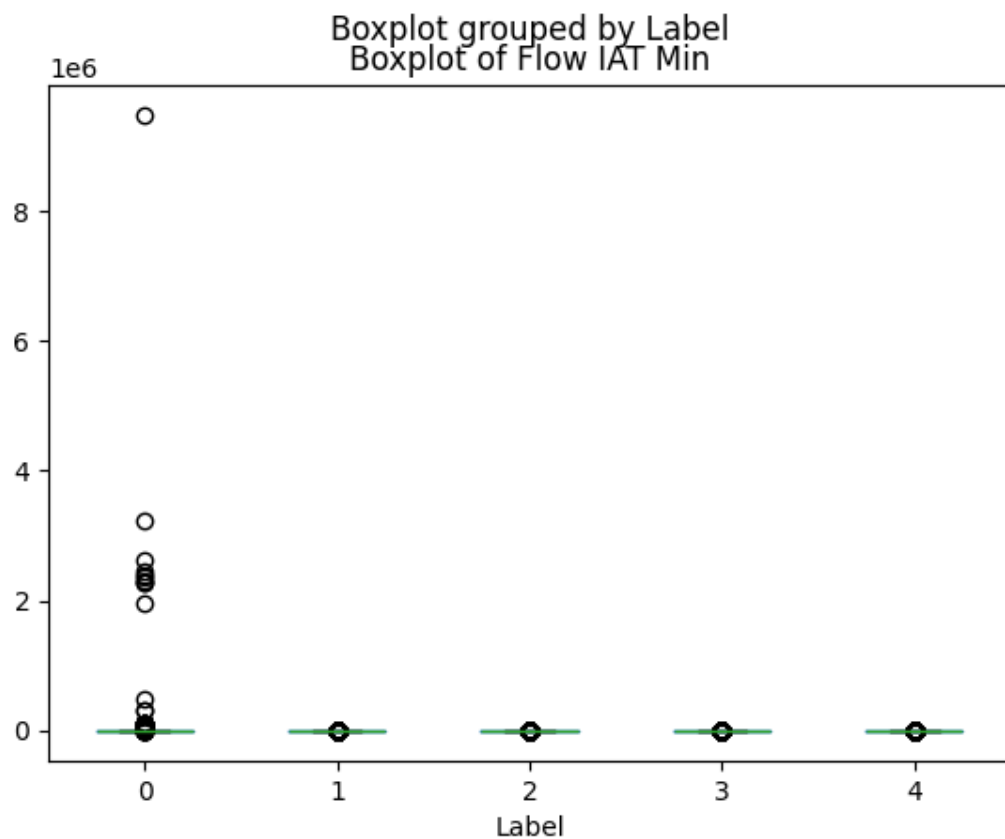
### 3.19 Flow IAT Max



- count 1.000000e+04
- mean 1.967495e+06
- std 8.750638e+06
- min 1.000000e+00
- 25% 1.000000e+00
- 50% 4.700000e+01
- 75% 2.820800e+04
- max 8.201220e+07

Classe 0,1,2 e 4 presentano outlier che superano il baffo superiore.

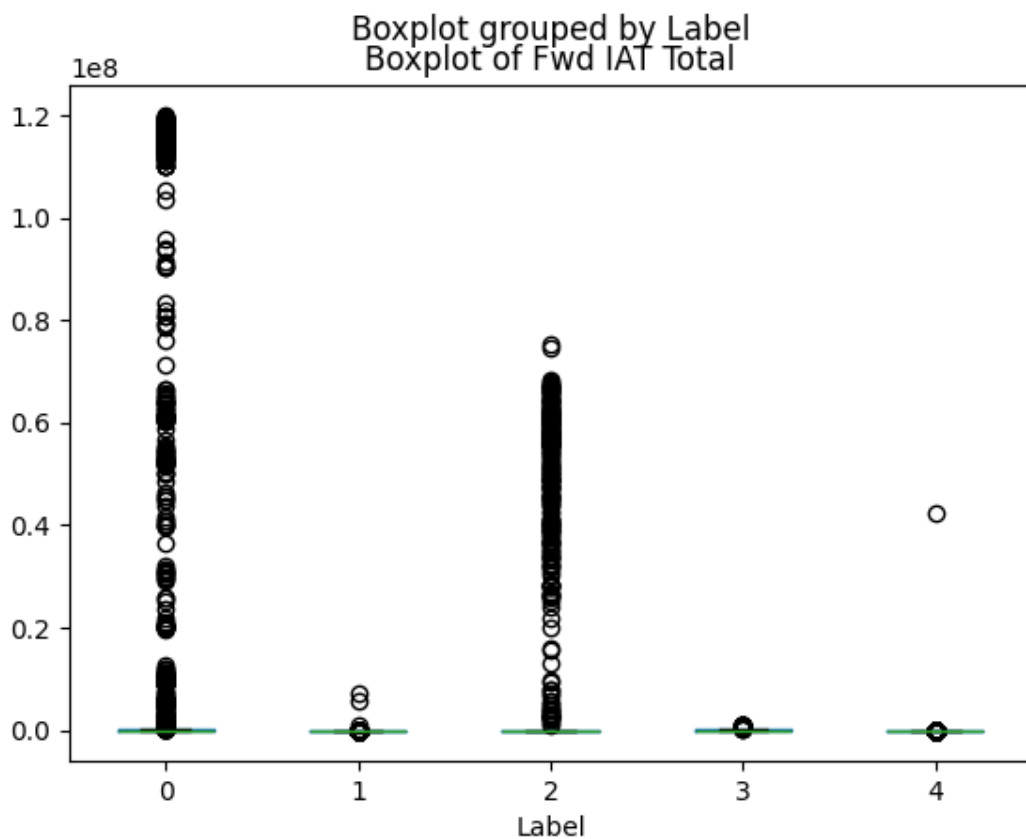
### 3.20 Flow IAT Min



- count 1.000000e+04
- mean 3.766345e+03
- std 1.201319e+05
- min 0.000000e+00
- 25% 1.000000e+00
- 50% 1.000000e+00
- 75% 2.000000e+00
- max 9.472020e+06

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (max 9.472.020) che superano enormemente i valori più frequenti.

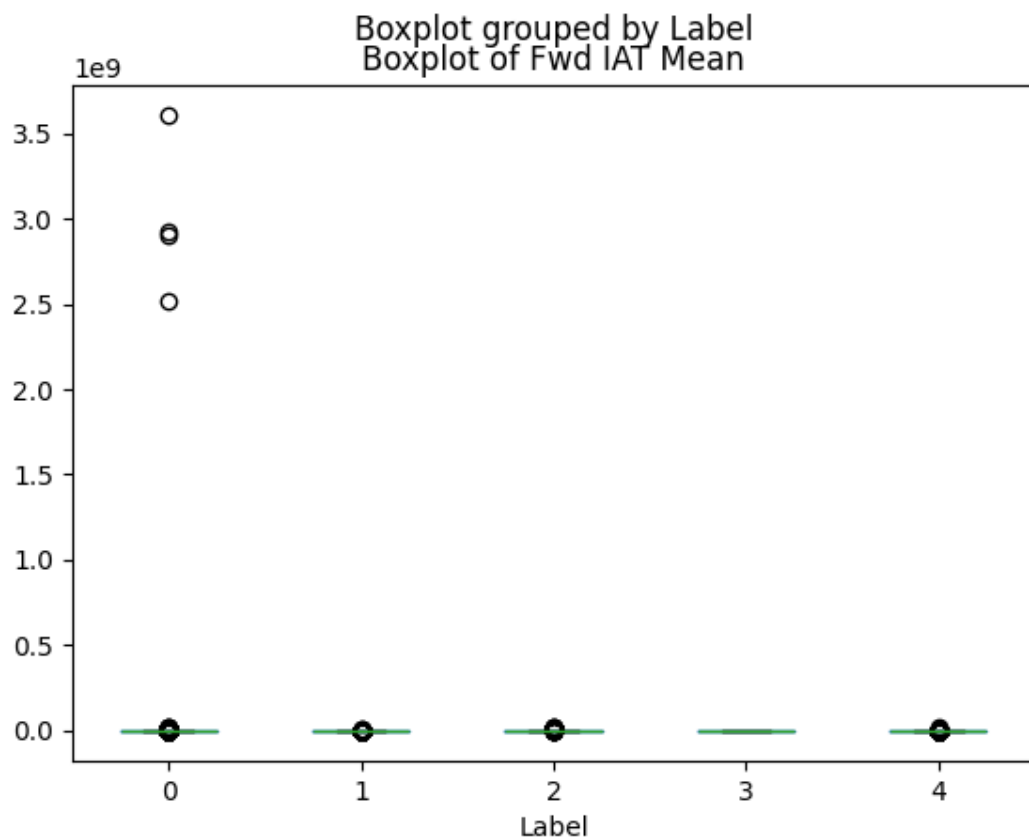
### 3.21 Fwd IAT Total



- count 1.000000e+04
- mean 4.956191e+06
- std 2.083816e+07
- min 0.000000e+00
- 25% 1.000000e+00
- 50% 1.000000e+00
- 75% 4.900000e+01
- max 1.199499e+08

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (max 9.472.020) che superano enormemente i valori più frequenti.

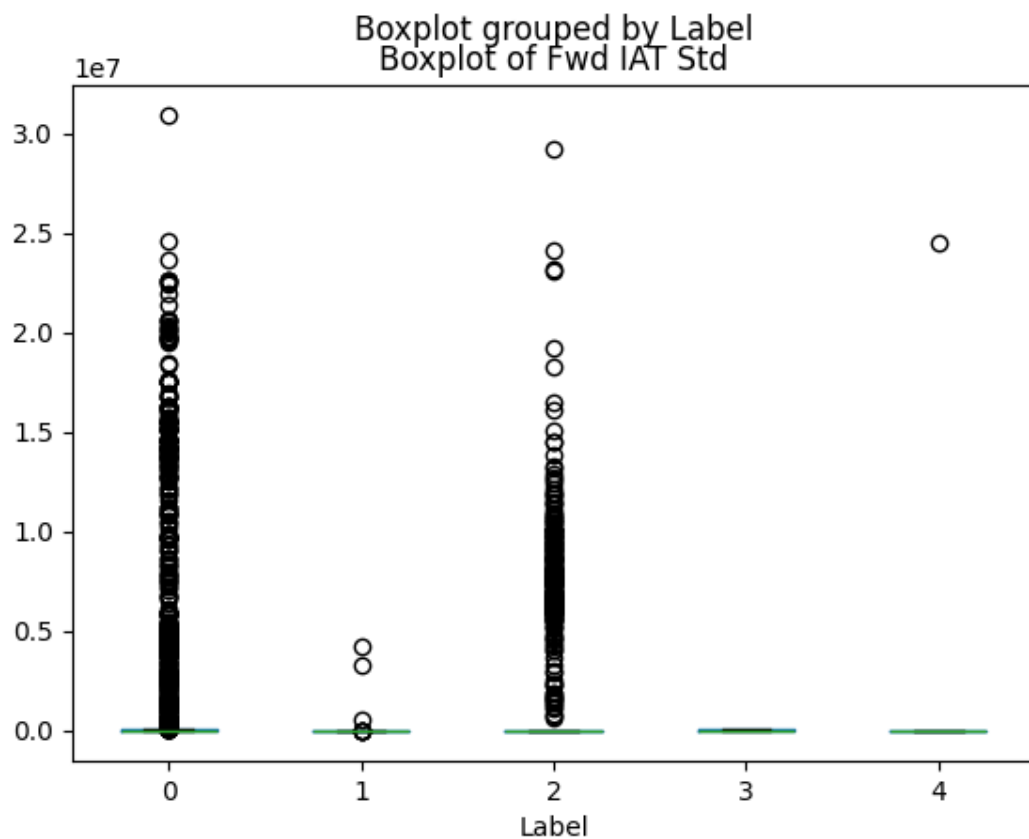
### 3.22 Fwd IAT Mean



- count 1.000000e+04
- mean 1.488125e+06
- std 6.023732e+07
- min 0.000000e+00
- 25% 1.000000e+00
- 50% 1.000000e+00
- 75% 4.900000e+01
- max 3.604371e+09

Classe 0, 1, 2 e 4 presentano outlier, nello specifico la Classe 0 ha outlier (max 3.604.371.000) che superano enormemente i valori più frequenti.

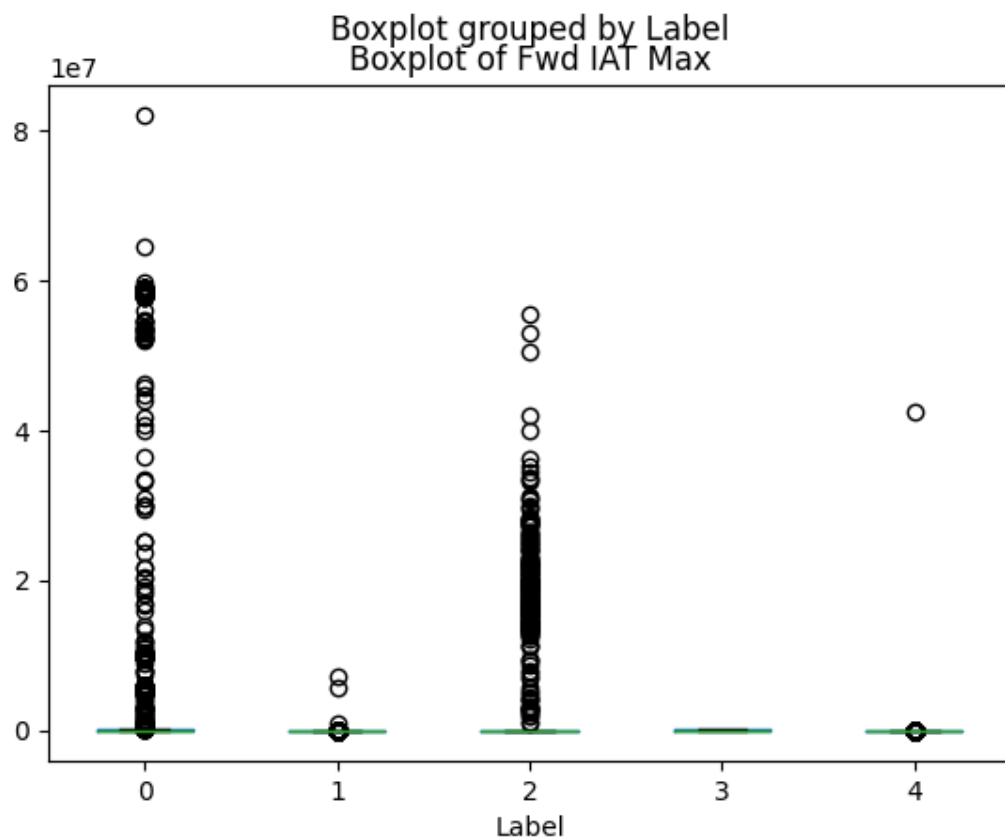
### 3.23 Fwd IAT Std



- count 1.000000e+04
- mean 5.920651e+05
- std 2.506531e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 3.089281e+07

Classe 0, 1, 2 e 4 presentano outlier, nello specifico la Classe 0,2 e 4 hanno outlier che superano enormemente il baffo superiore.

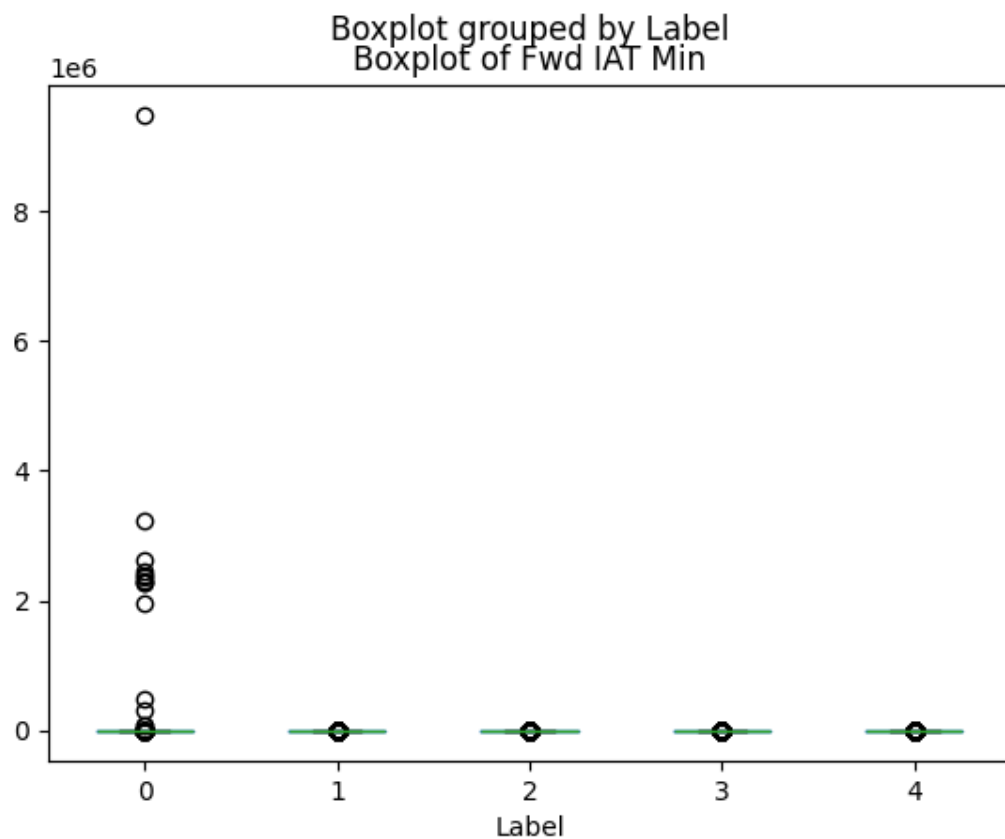
### 3.24 Fwd IAT Max



- count 1.000000e+04
- mean 1.918364e+06
- std 8.750342e+06
- min 0.000000e+00
- 25% 1.000000e+00
- 50% 1.000000e+00
- 75% 4.900000e+01
- max 8.201220e+07

Classe 0, 1, 2 e 4 presentano outlier, nello specifico la Classe 0,2 e 4 hanno outlier che superano enormemente il baffo superiore.

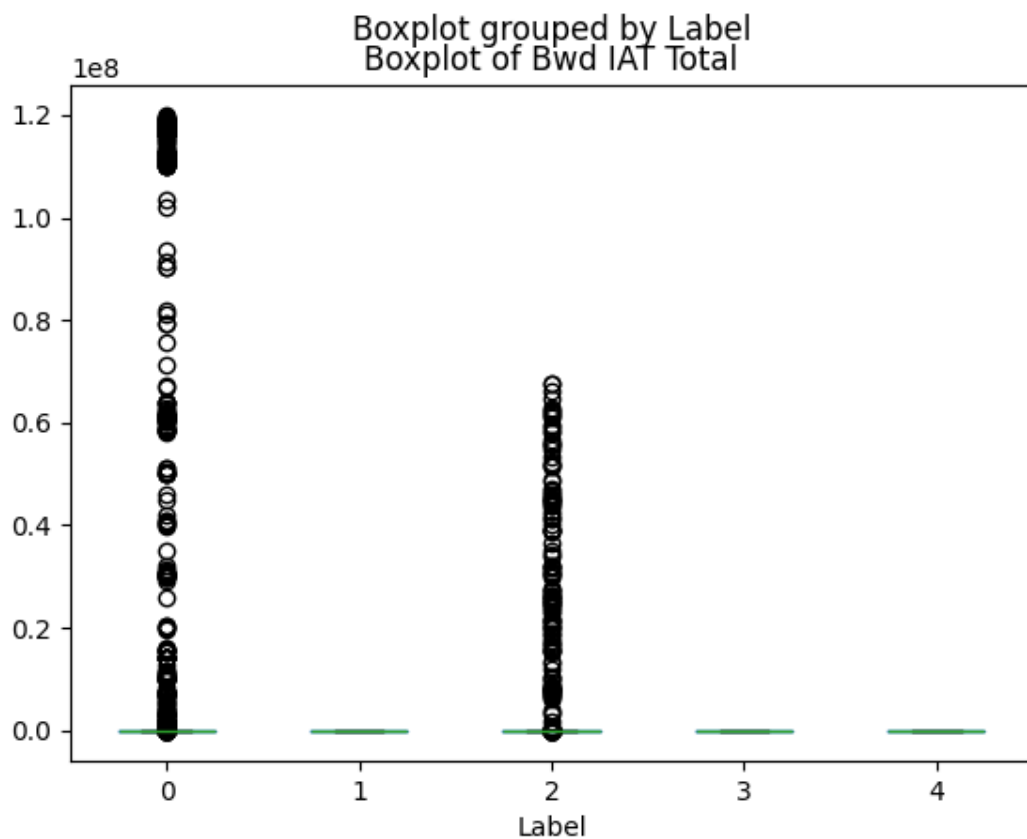
### 3.25 Fwd IAT Min



- count 1.000000e+04
- mean 3.233667e+03
- std 1.200038e+05
- min 0.000000e+00
- 25% 1.000000e+00
- 50% 1.000000e+00
- 75% 2.000000e+00
- max 9.472020e+06

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (max 9.472.020) che superano enormemente i valori più frequenti.

### 3.26 Bwd IAT Total

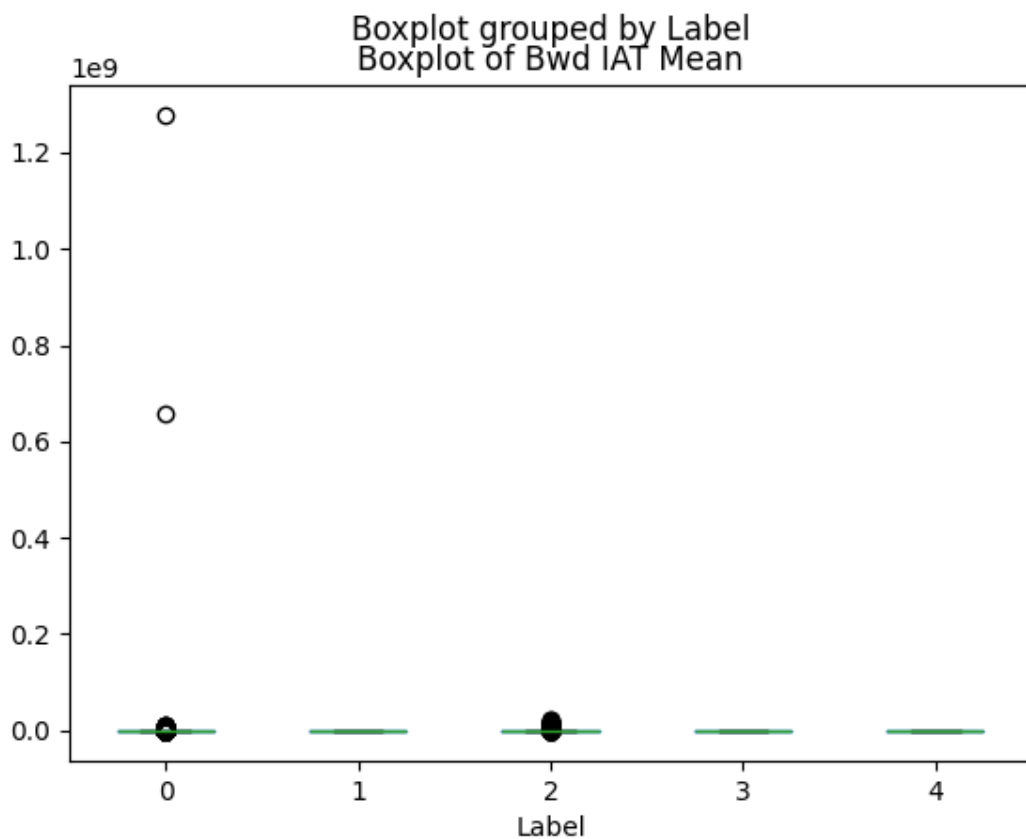


- count 1.000000e+04
- mean 3.551726e+06
- std 1.813216e+07
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.000000e+00
- max 1.198525e+08

Classi 0 e 2 presentano outlier che superano di gran lunga il baffo superiore.



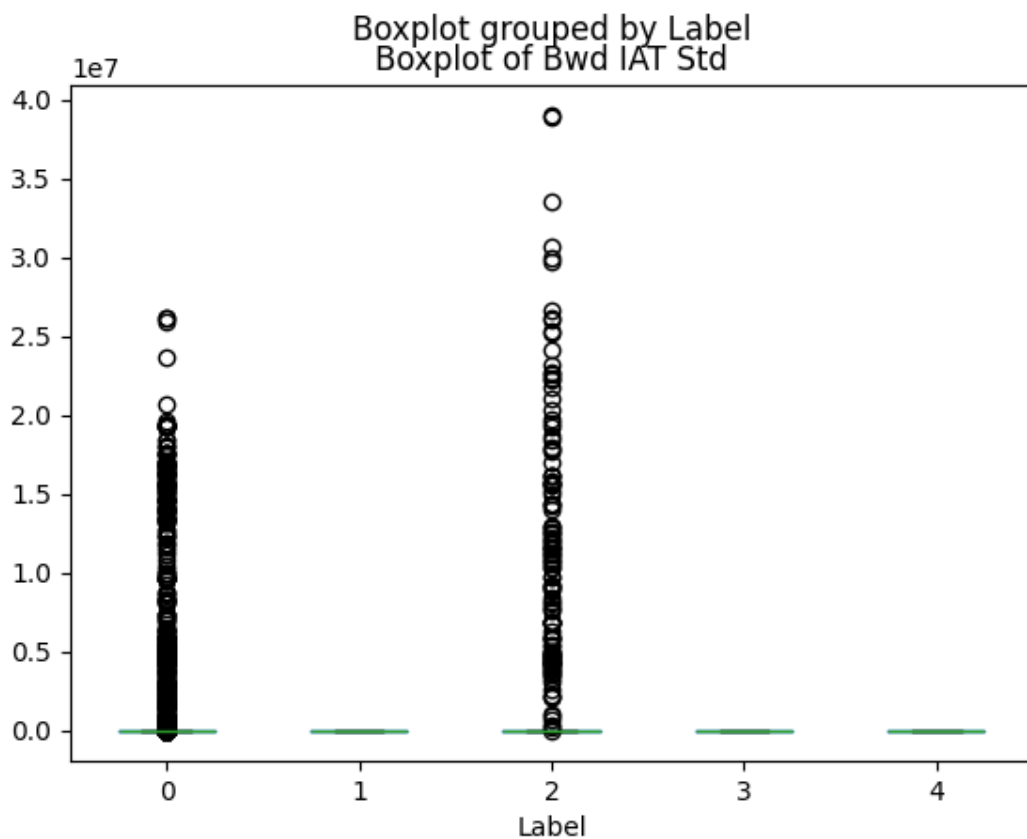
### 3.27 Bwd IAT Mean



- count 1.000000e+04
- mean 3.981695e+05
- std 1.440115e+07
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.000000e+00
- max 1.276447e+09

Classi 0 e 2 presentano outlier, il valore massimo di 1.276.447.000 supera enormemente il baffo superiore.

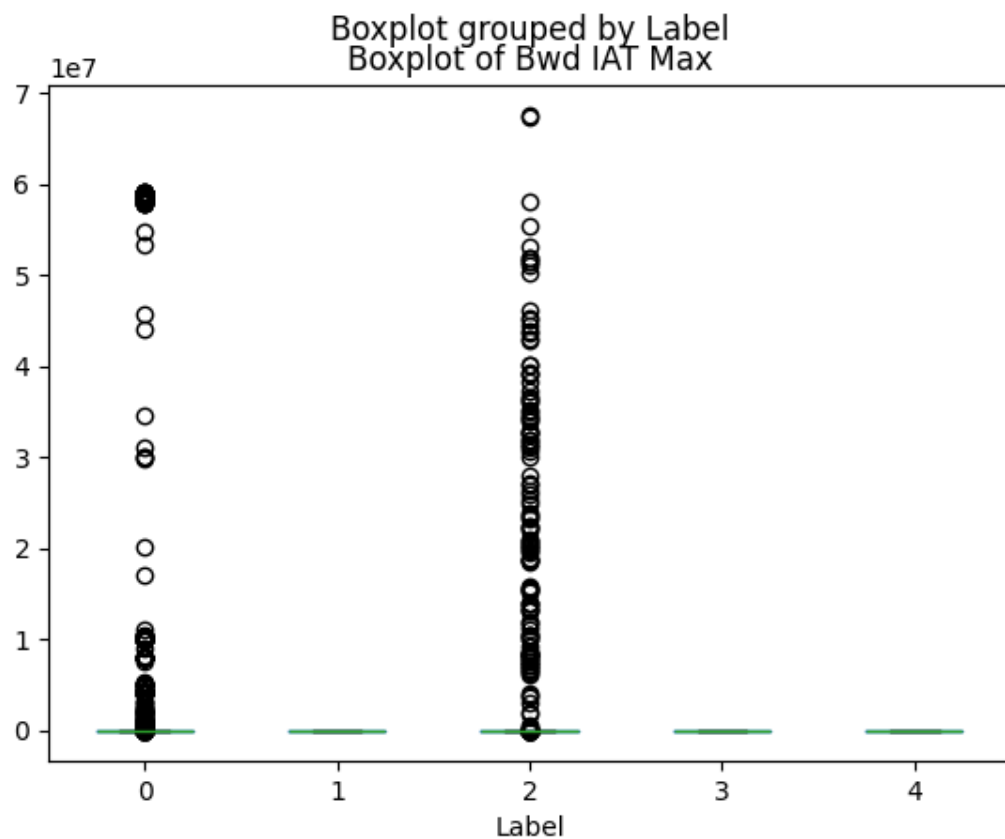
### 3.28 Bwd IAT Std



- count 1.000000e+04
- mean 4.678660e+05
- std 2.482373e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 3.897542e+07

Classi 0 e 2 presentano outlier, il valore massimo di 38.975.420 supera enormemente il baffo superiore per la classe 2.

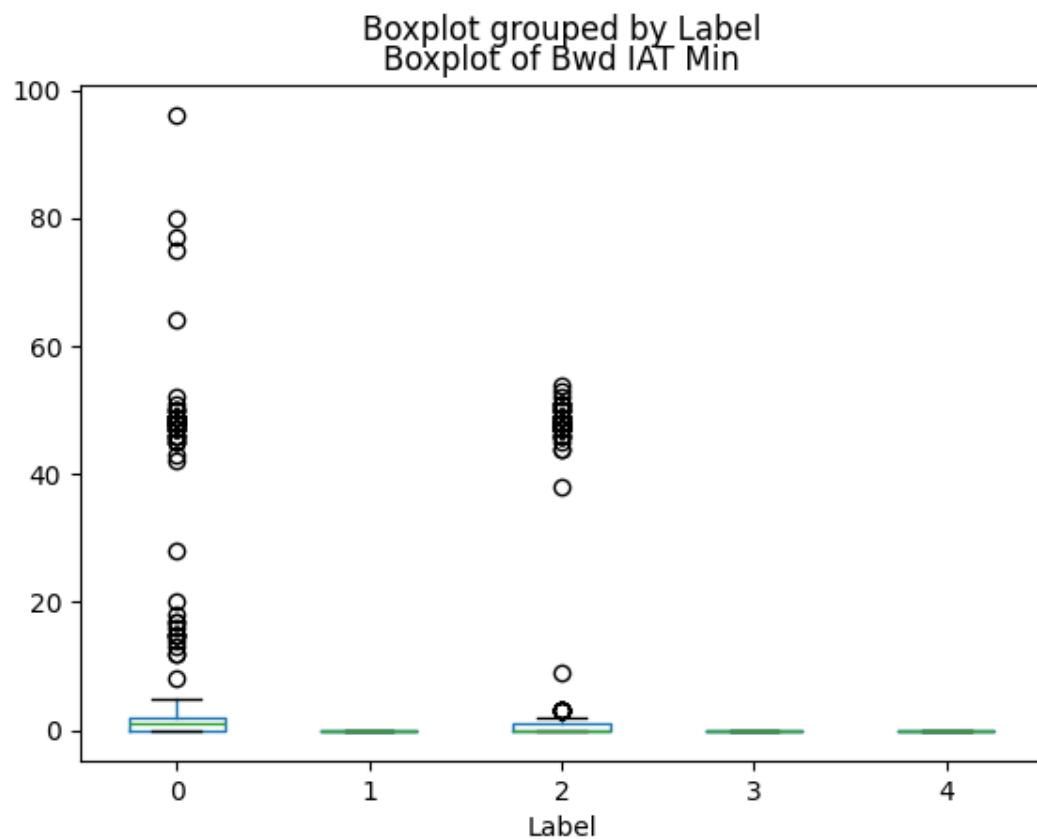
### 3.29 Bwd IAT Max



- count 1.000000e+04
- mean 1.560932e+06
- std 8.364169e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.000000e+00
- max 6.750742e+07

Classi 0 e 2 presentano outlier, il valore massimo di 67.507.420 supera enormemente il baffo superiore per la classe 2.

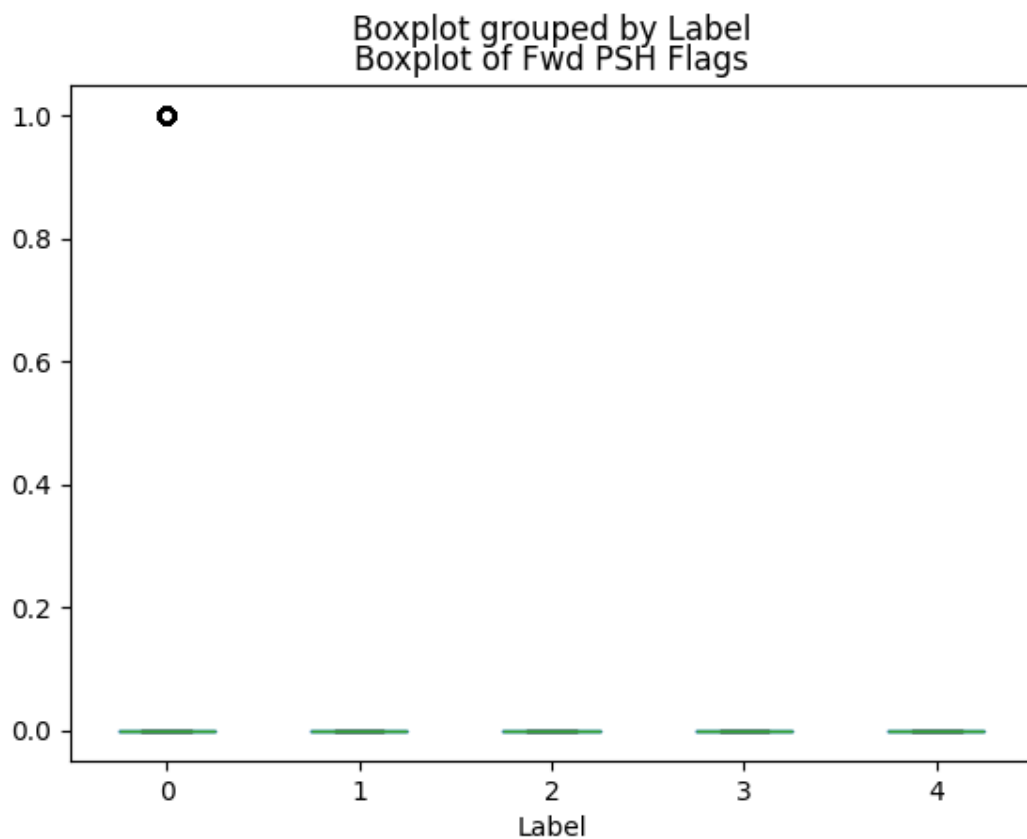
### 3.30 Bwd IAT Min



- count 10000.000000
- mean 0.988600
- std 5.089033
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 1.000000
- max 96.000000

Classi 0 e 2 presentano outlier, il valore massimo di 96 supera enormemente il baffo superiore per la classe 2.

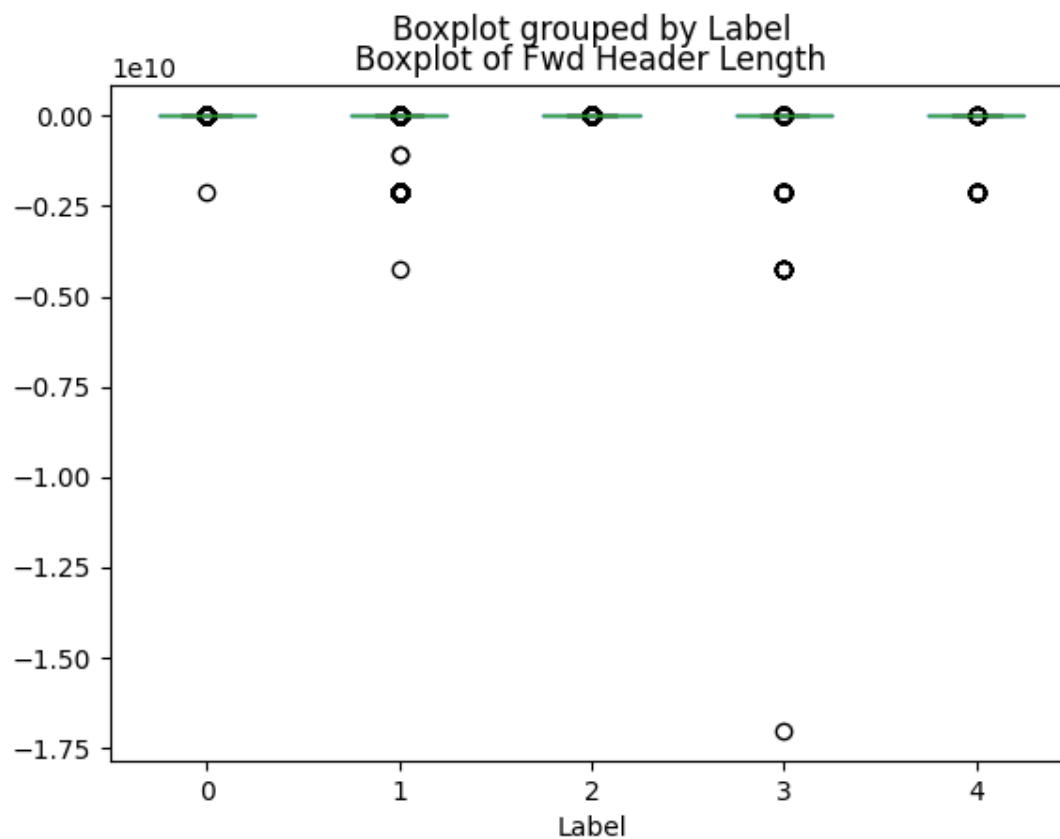
### 3.31 Fwd PSH Flags



- count 10000.000000
- mean 0.055800
- std 0.229547
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1.000000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 solo per Classe 0.

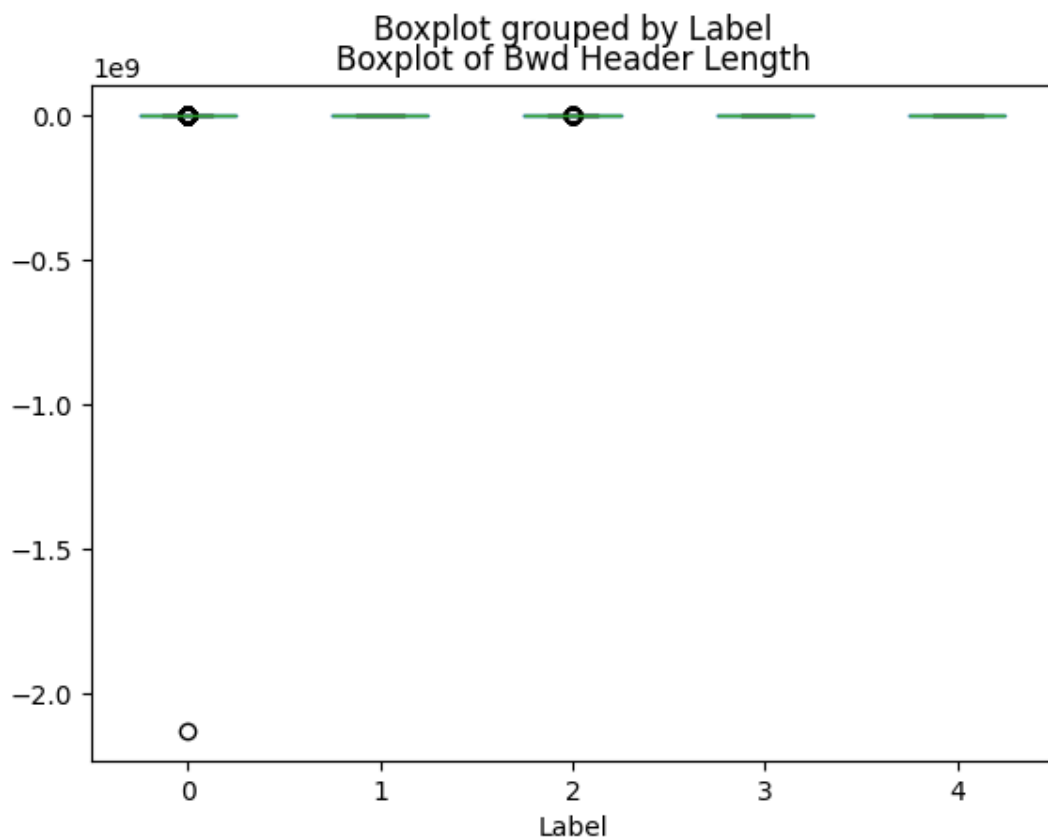
### 3.32 Fwd Header Length



- count 1.000000e+04
- mean -6.057485e+07
- std 4.012595e+08
- min -1.700350e+10
- 25% 2.800000e+01
- 50% 4.000000e+01
- 75% 6.400000e+01
- max 2.878400e+04

Tutte e 5 le classi presentano degli outlier inferiori, in particolare Classe 3 ha un outlier che supera enormemente il baffo inferiore -17mld

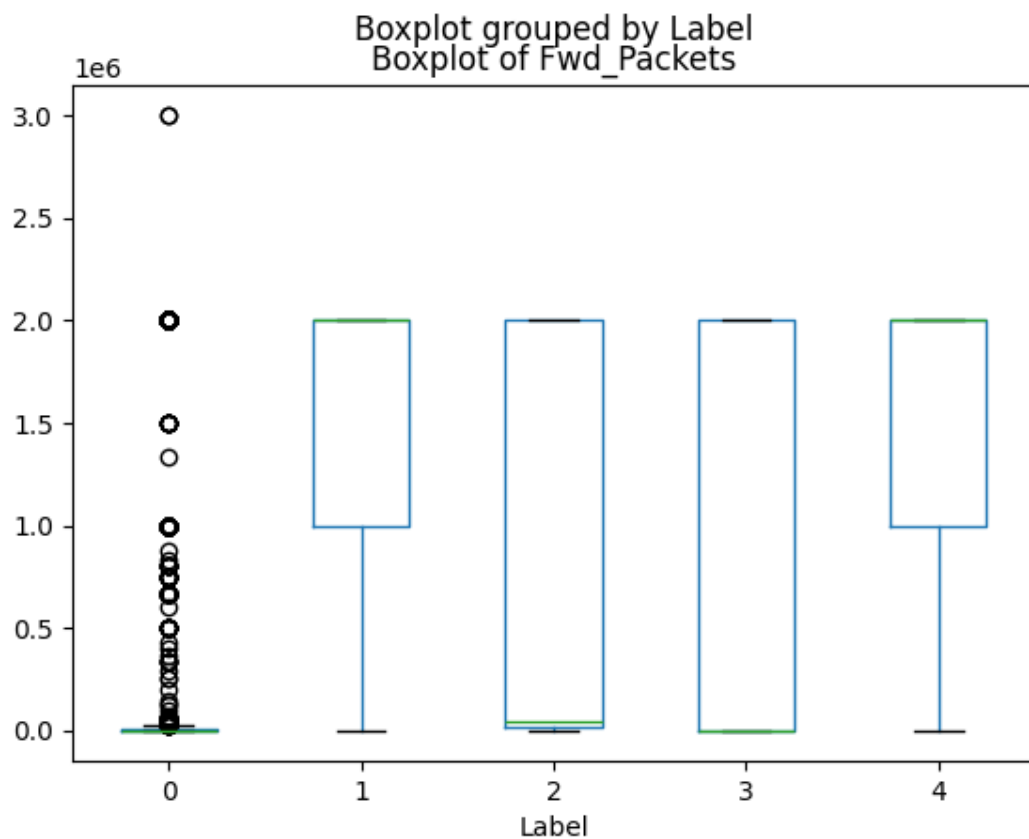
### 3.33 Bwd Header Length



- count 1.000000e+04
- mean -2.124557e+05
- std 2.125430e+07
- min -2.125430e+09
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 4.000000e+01
- max 4.939200e+04

Classe 0 e 2 presentano outlier, in particolare il valore minimo  $2.125.430.000$  supera di gran lunga il baffo inferiore.

### 3.34 Fwd\_Packets

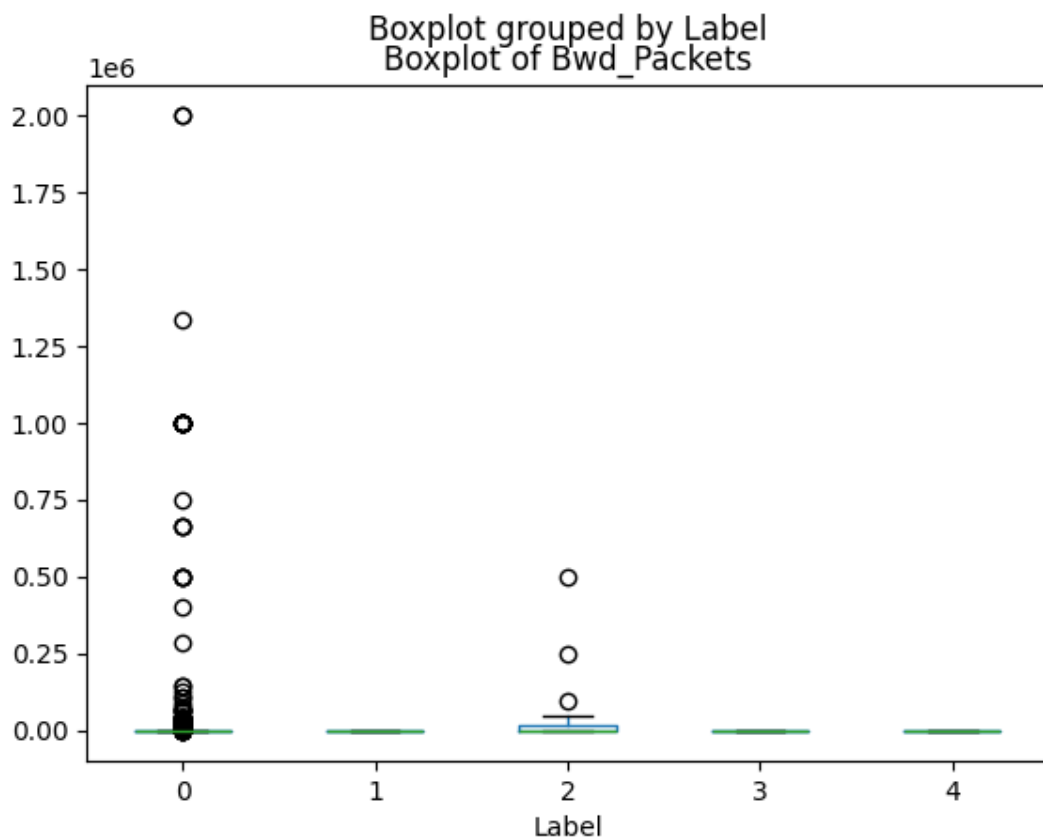


- count  $1.000000 \times 10^4$
- mean  $8.716025 \times 10^5$
- std  $9.478612 \times 10^5$
- min  $7.475528 \times 10^{-2}$
- 25%  $7.739876 \times 10^1$
- 50%  $4.255319 \times 10^4$
- 75%  $2.000000 \times 10^6$
- max  $3.000000 \times 10^6$

L'unica classe a presentare outlier è la classe 0 con valore max  $3.000.000$



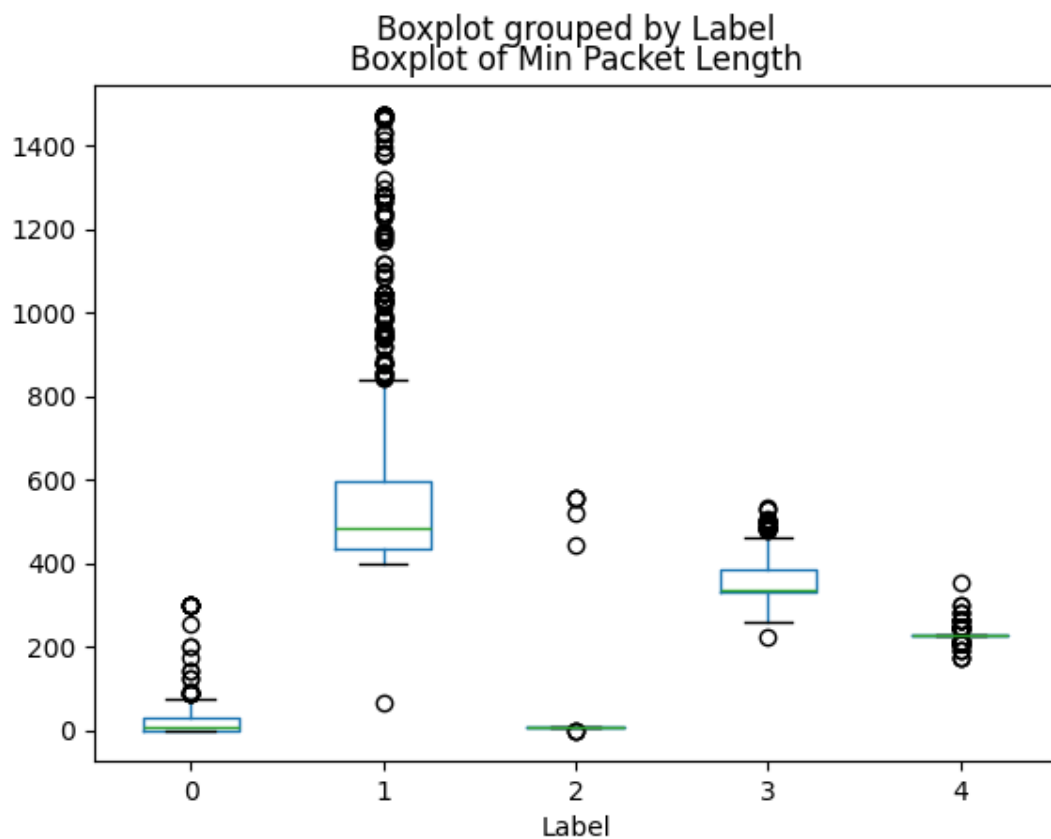
### 3.35 Bwd\_Packets



- count 1.000000e+04
- mean 4.602816e+03
- std 5.160721e+04
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.103628e+00
- max 2.000000e+06

Classe 0 e 2 presentano outlier superiori.

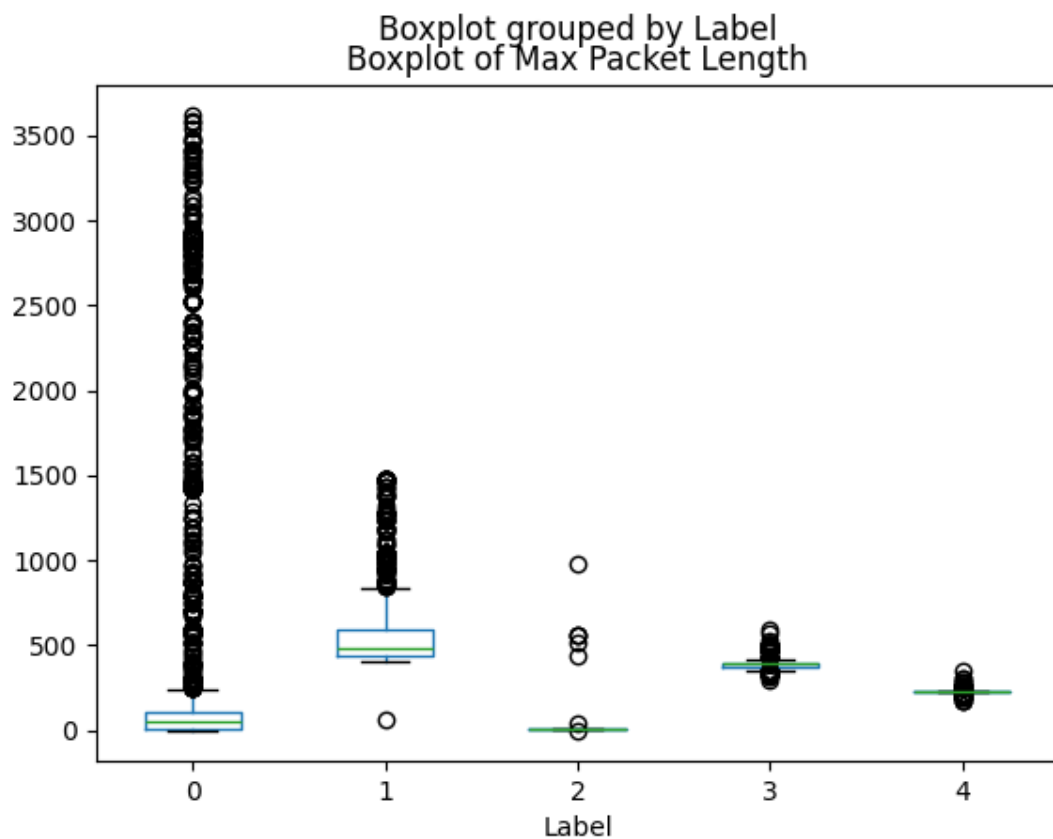
### 3.36 Min Packet Length



- count 10000.000000
- mean 213.236100
- std 244.527403
- min 0.000000
- 25% 6.000000
- 50% 211.000000
- 75% 383.000000
- max 1472.000000

Tutte e 5 le classi presentano outlier, in particolare Classe 1,3 e 4 presentano anche outlier inferiori.

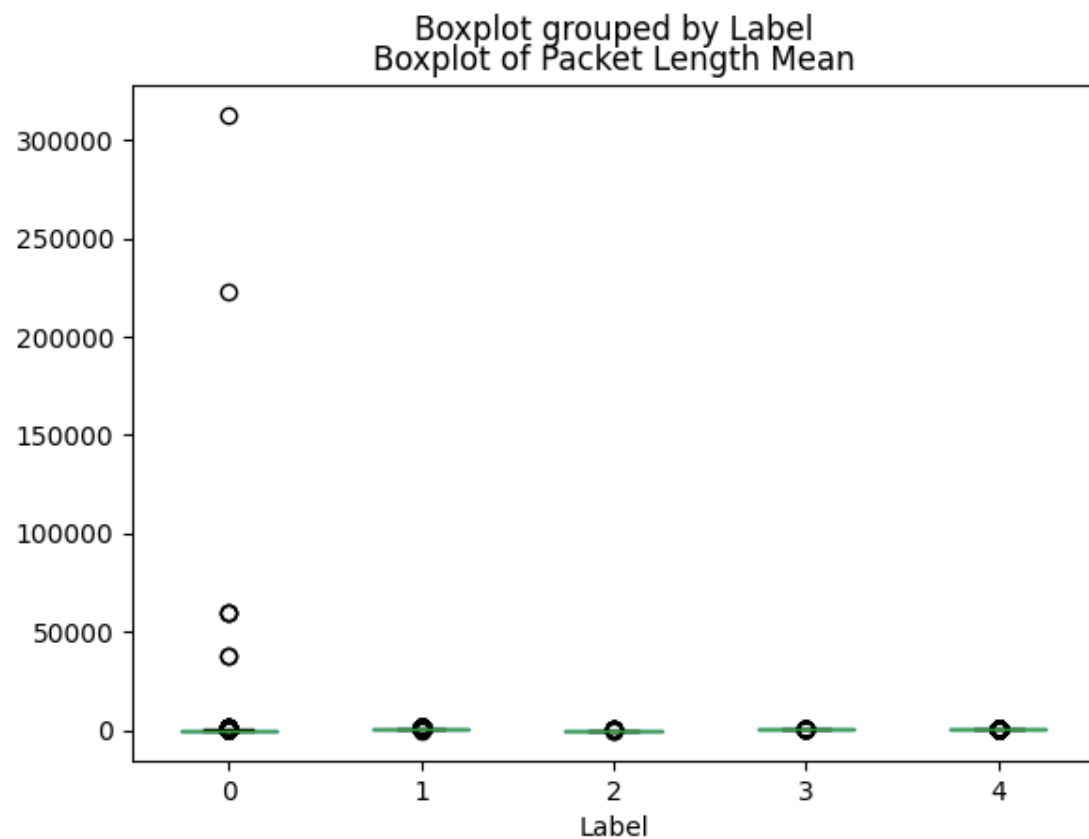
### 3.37 Max Packet Length



- count 10000.000000
- mean 325.721700
- std 484.730972
- min 0.000000
- 25% 6.000000
- 50% 229.000000
- 75% 405.000000
- max 3617.000000

Tutte e 5 le classi presentano outlier, in particolare Classe 1, 2, 3 e 4 presentano anche outlier inferiori.

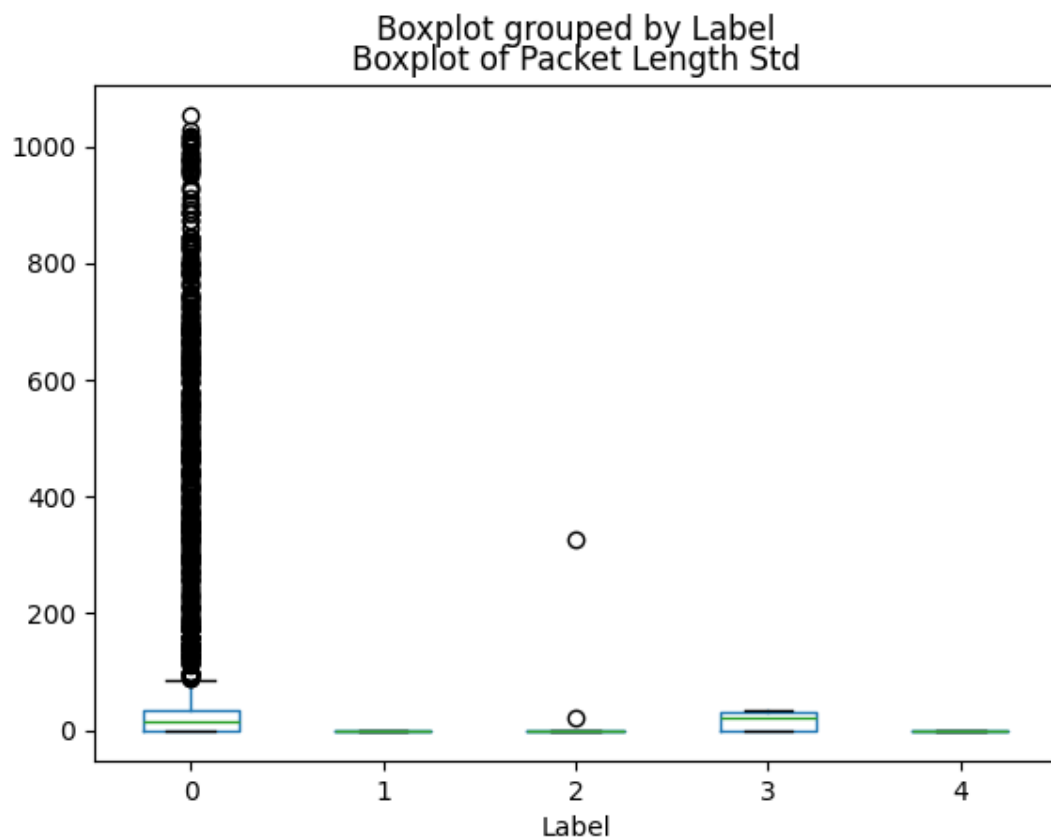
### 3.38 Packet Length Mean



- count 10000.000000
- mean 314.810701
- std 4009.218666
- min 0.000000
- 25% 6.000000
- 50% 229.000000
- 75% 401.000000
- max 312375.000000

Tutte e cinque le classi presentano outlier, il valore massimo di 312.375 supera enormemente il baffo superiore per la classe 0.

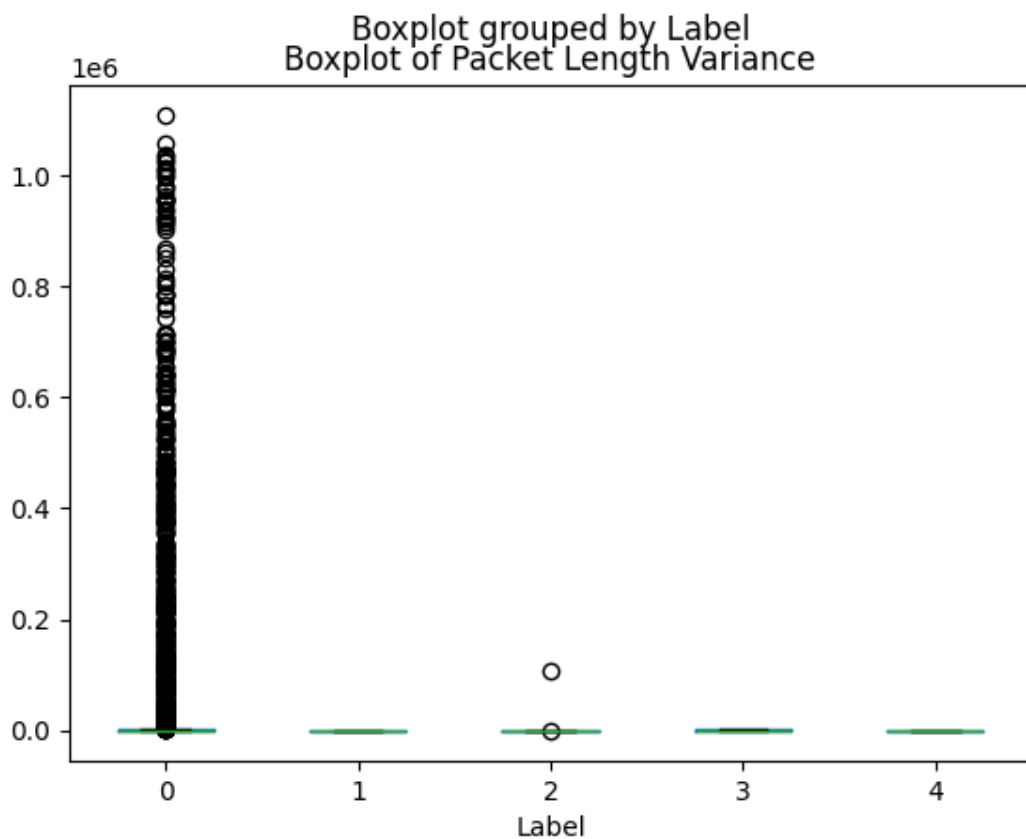
### 3.39 Packet Length Std



- count 10000.000000
- mean 32.782734
- std 123.568815
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 14.433757
- max 1052.315670

Classe 0 e 2 presentano outlier, il valore massimo di 1.052 supera enormemente il baffo superiore per la classe 0.

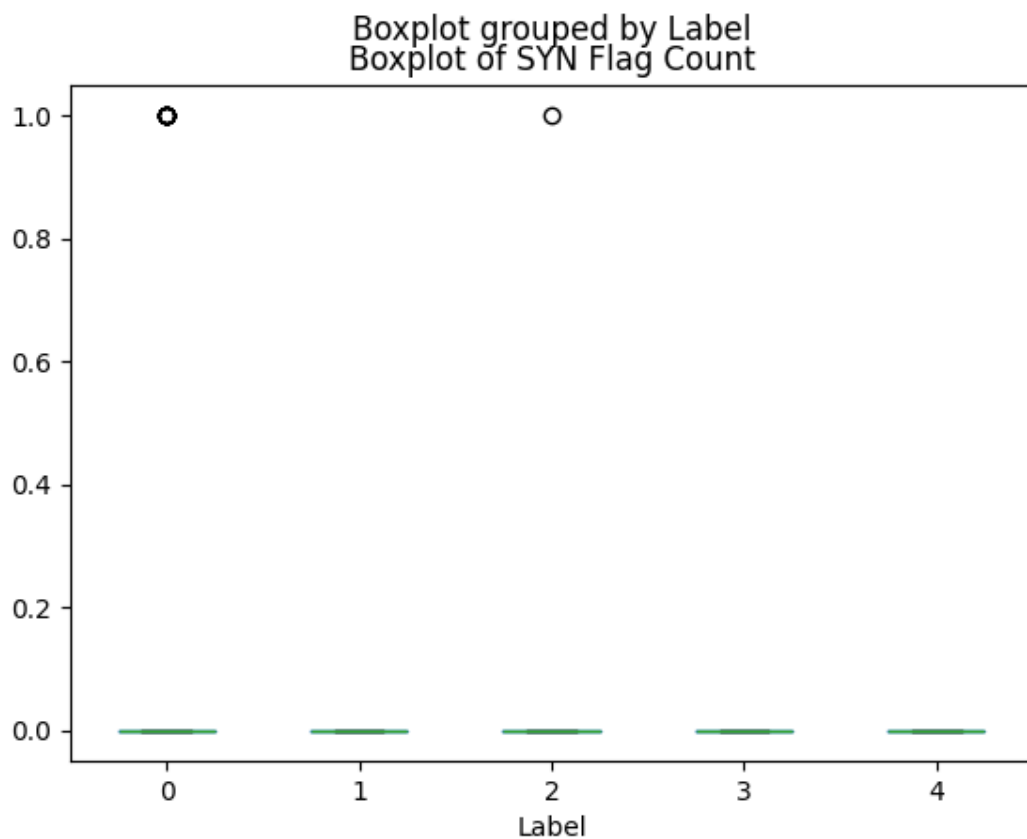
### 3.40 Packet Length Variance



- count 1.000000e+04
- mean 1.634243e+04
- std 9.071925e+04
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 2.083333e+02
- max 1.107368e+06

Classe 0 e 2 presentano outlier, il valore massimo di 1.107.368 supera enormemente il baffo superiore per la classe 0.

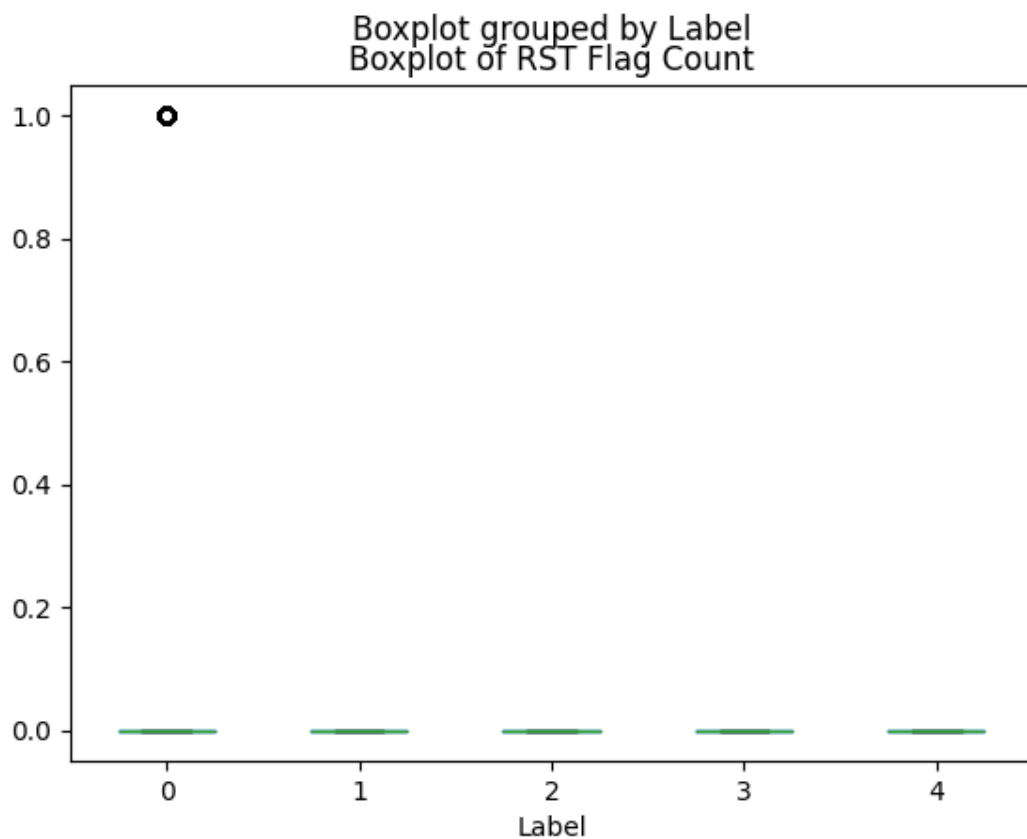
### 3.41 SYN Flag Count



- count 10000.000000
- mean 0.001300
- std 0.036034
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1.000000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 solo per Classe 0 e 2.

### 3.42 RST Flag Count

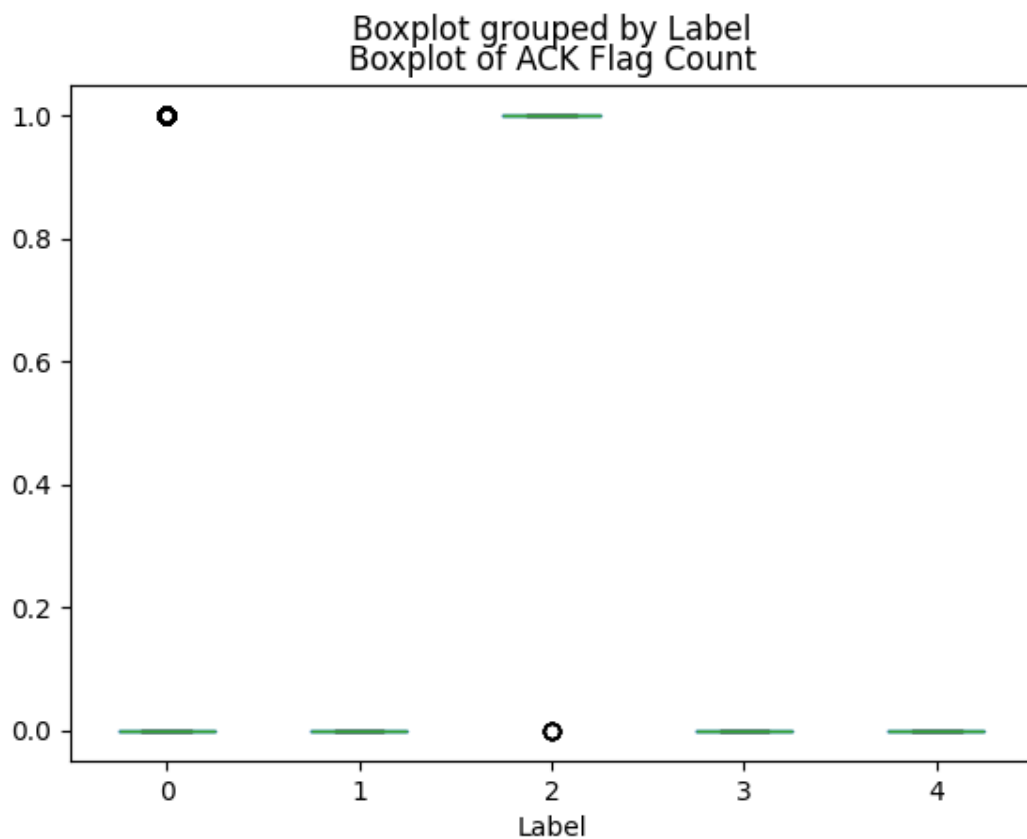


- count 10000.000000
- mean 0.055800
- std 0.229547
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1.000000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 solo per Classe 0.



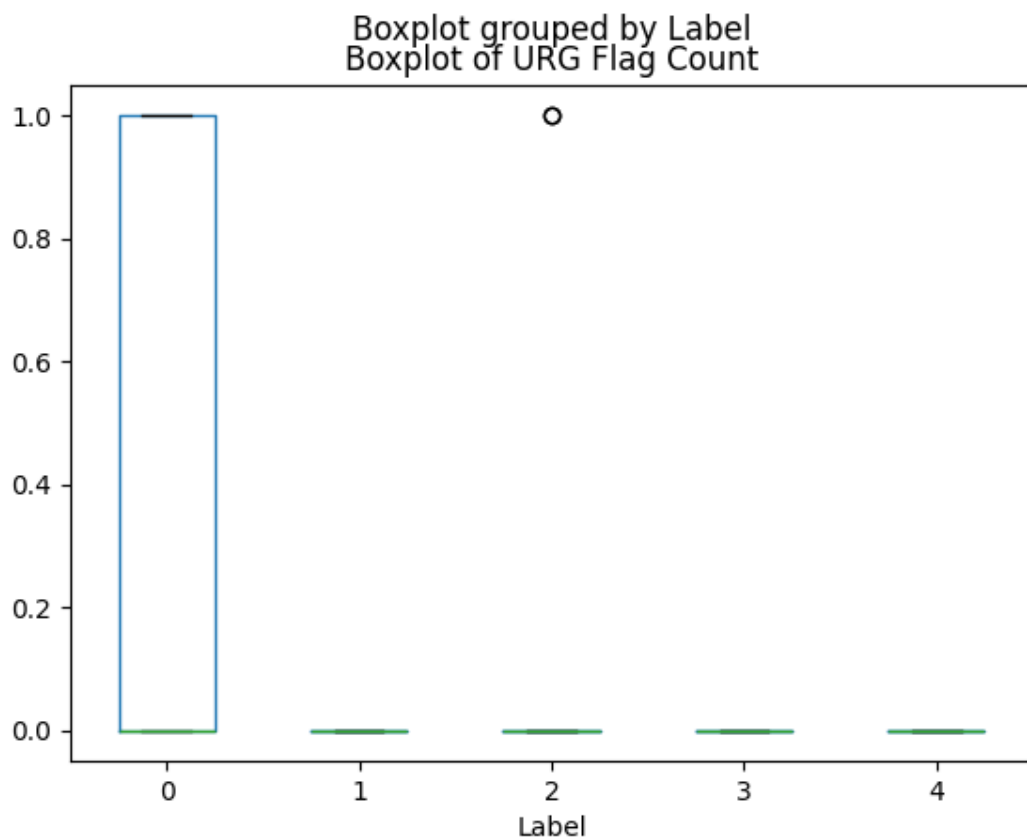
### 3.43 ACK Flag Count



- count 10000.000000
- mean 0.261200
- std 0.439311
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 1.000000
- max 1.000000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 di frequente per la classe 2 e di rado per la classe 0.

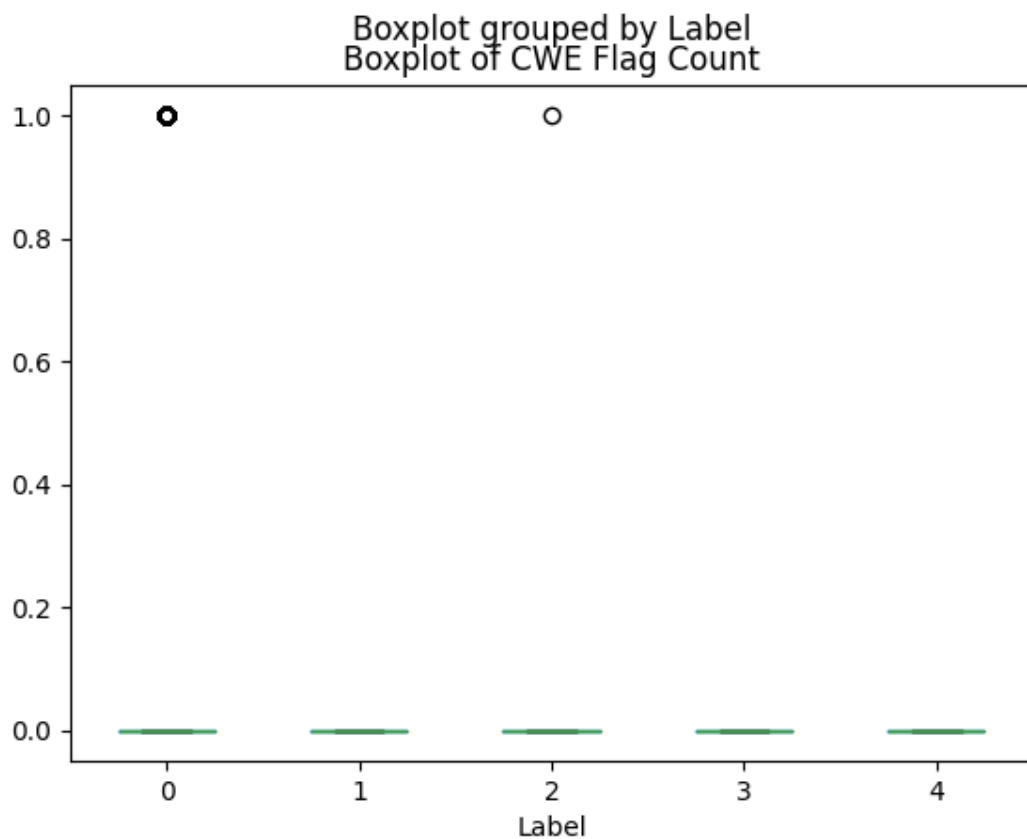
### 3.44 URG Flag Count



- count 10000.000000
- mean 0.148600
- std 0.355712
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 1.000000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 solo per Classe 0 e 2.

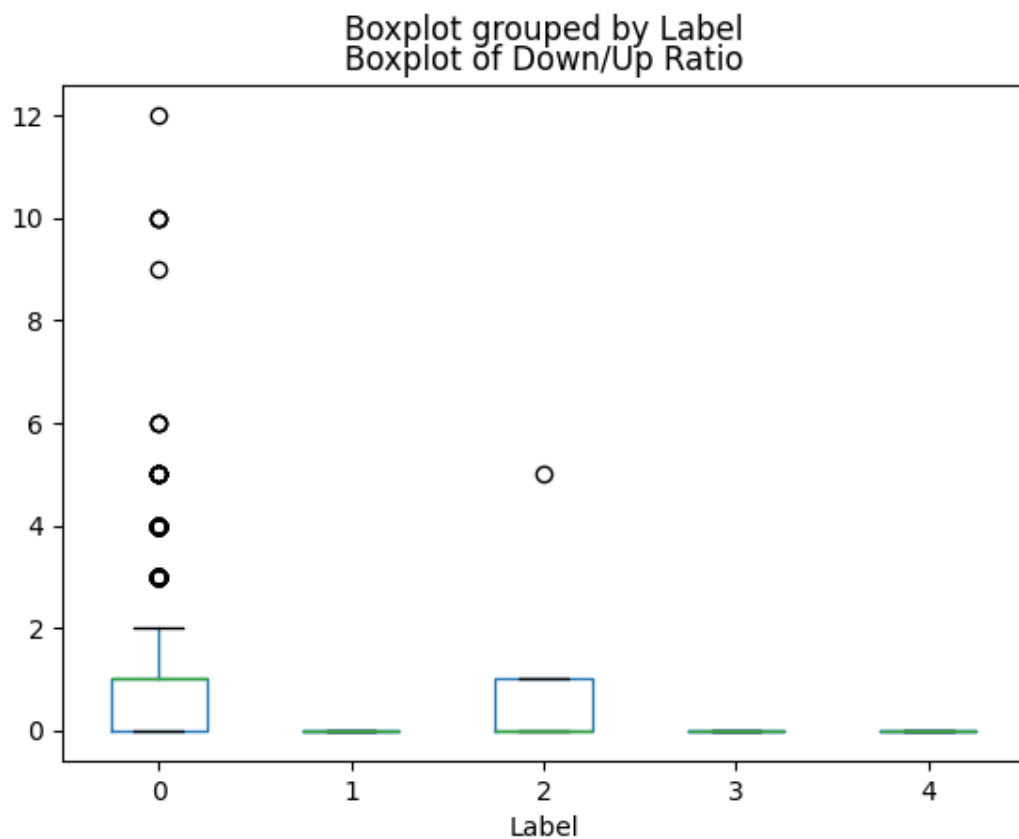
### 3.45 CWE Flag Count



- count 10000.00000
- mean 0.06370
- std 0.24423
- min 0.00000
- 25% 0.00000
- 50% 0.00000
- 75% 0.00000
- max 1.00000

Dalle analisi emerge che la feature contiene valori booleani (0 e 1), assume 1 solo per Classe 0 e 2.

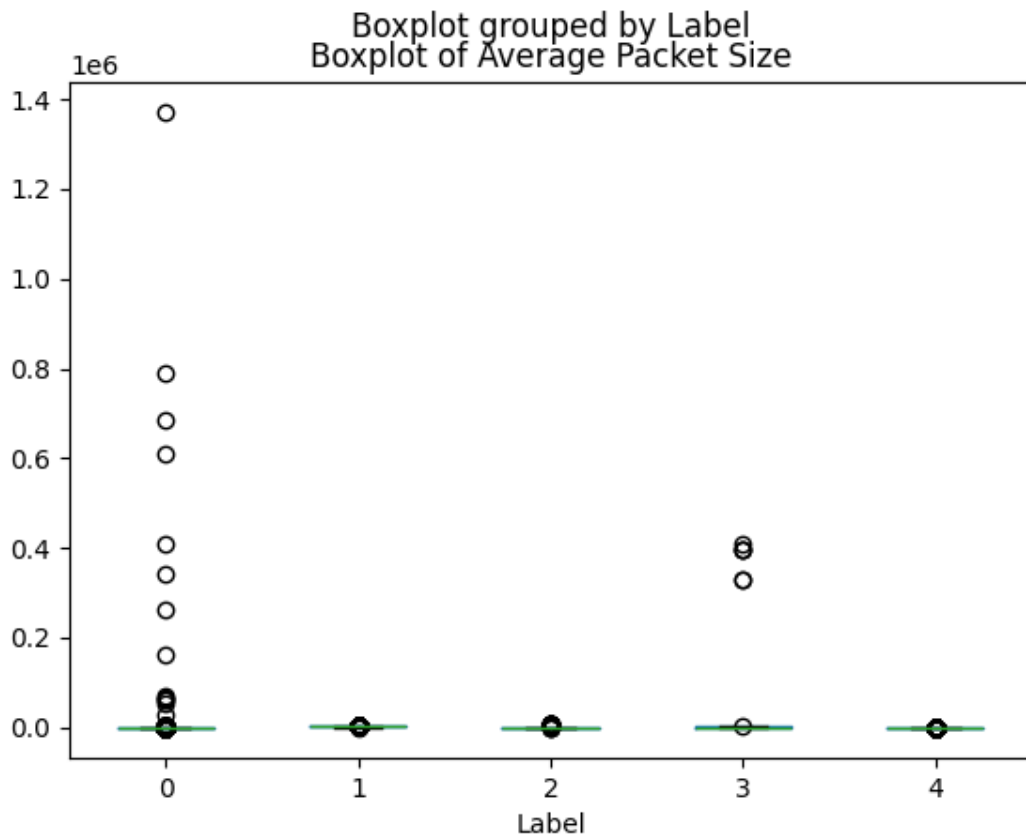
### 3.46 Down/Up Ratio



- count 10000.000000
- mean 0.318100
- std 0.702255
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 0.000000
- max 12.000000

Classe 0 e 2 presentano outlier, il valore massimo di 12 supera enormemente il baffo superiore per la classe 0.

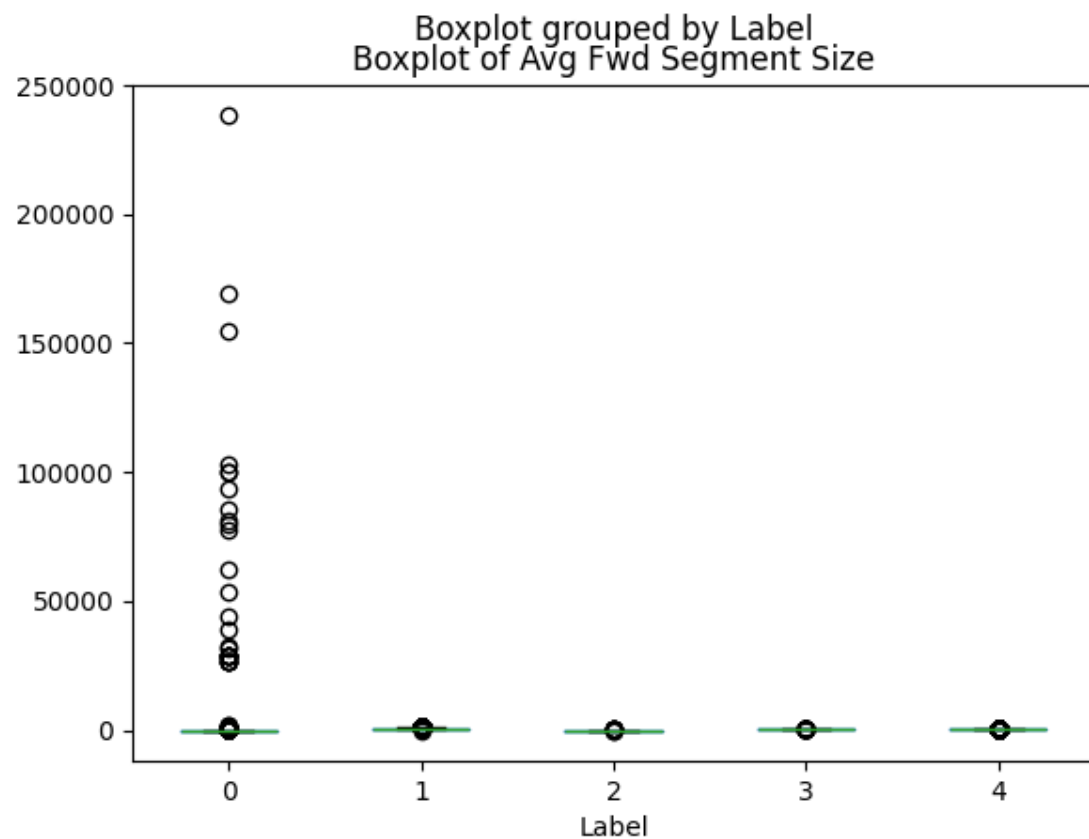
### 3.47 Average Packet Size



- count 1.000000e+04
- mean 1.071255e+03
- std 2.139569e+04
- min 0.000000e+00
- 25% 9.000000e+00
- 50% 3.435000e+02
- 75% 5.970000e+02
- max 1.369875e+06

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (valore max 1.369.875) che superano di gran lunga i valori più frequenti.

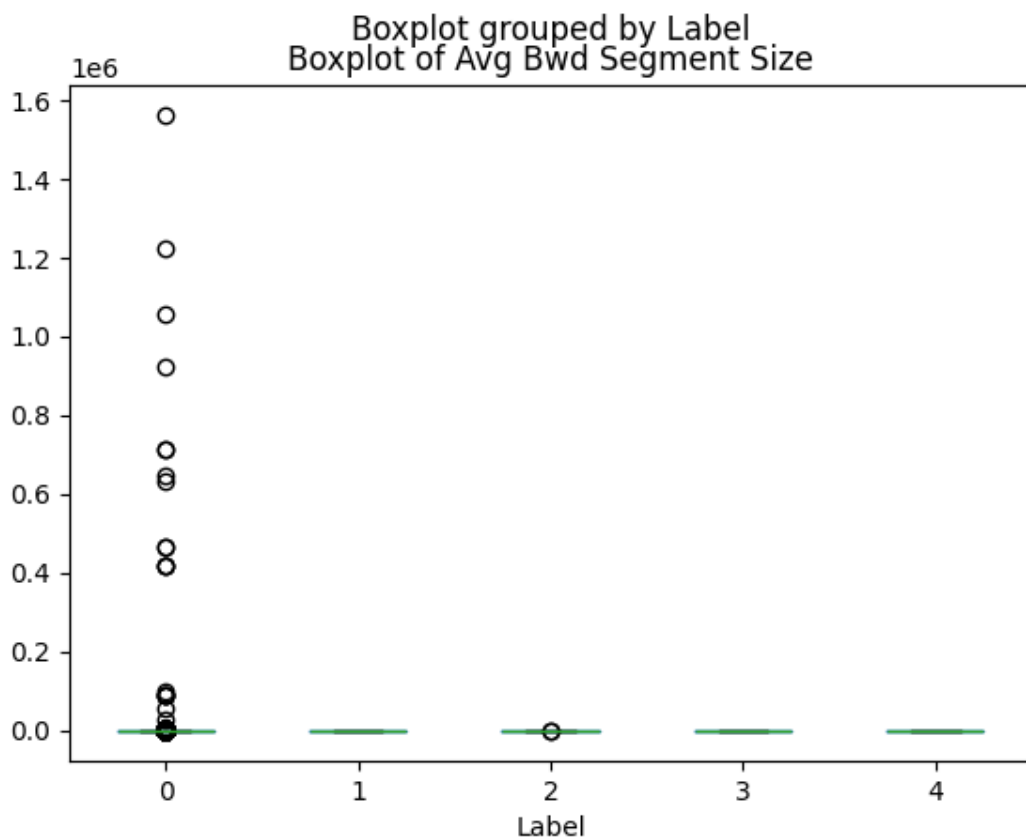
### 3.48 Avg Fwd Segment Size



- count 10000.000000
- mean 413.805489
- std 4431.180017
- min 0.000000
- 25% 6.000000
- 50% 229.000000
- 75% 383.000000
- max 238125.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier (valore max 238.125) che superano di gran lunga i valori più frequenti.

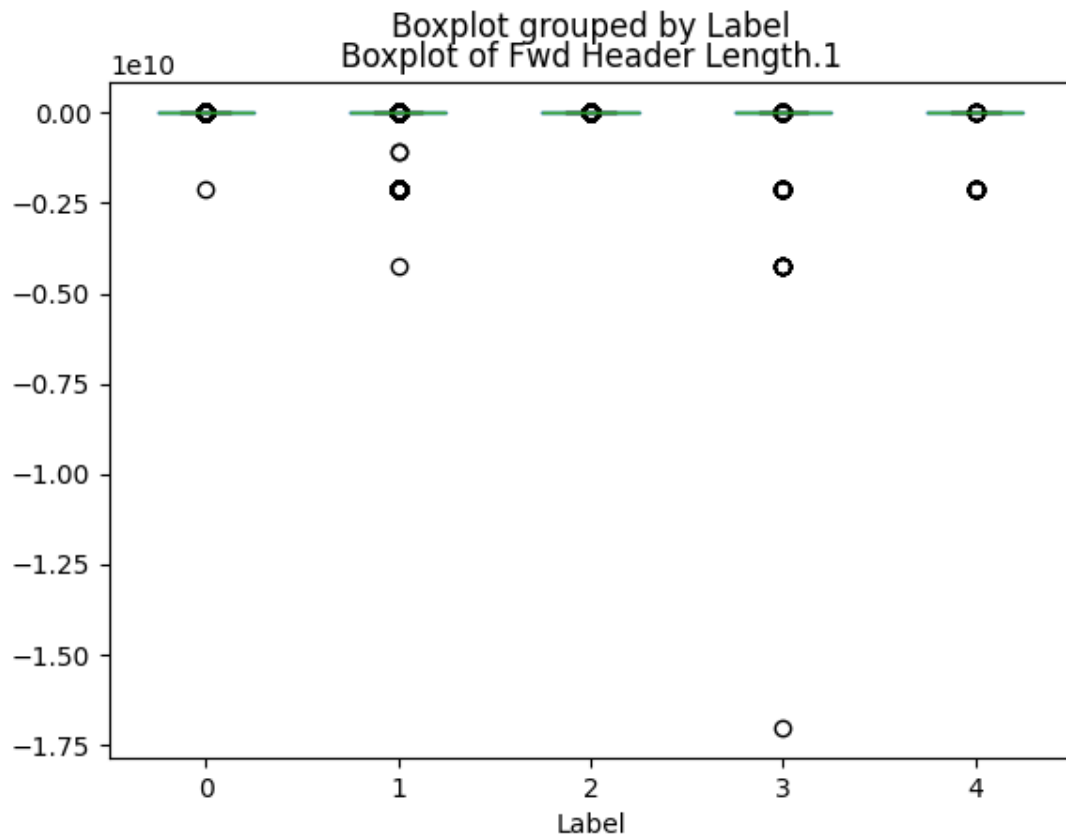
### 3.49 Avg Bwd Segment Size



- count 1.000000e+04
- mean 1.052065e+03
- std 2.956934e+04
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 6.000000e+00
- max 1.560784e+06

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (valore max 1.560.784) che superano di gran lunga i valori più frequenti.

### 3.50 Fwd Header Length.1

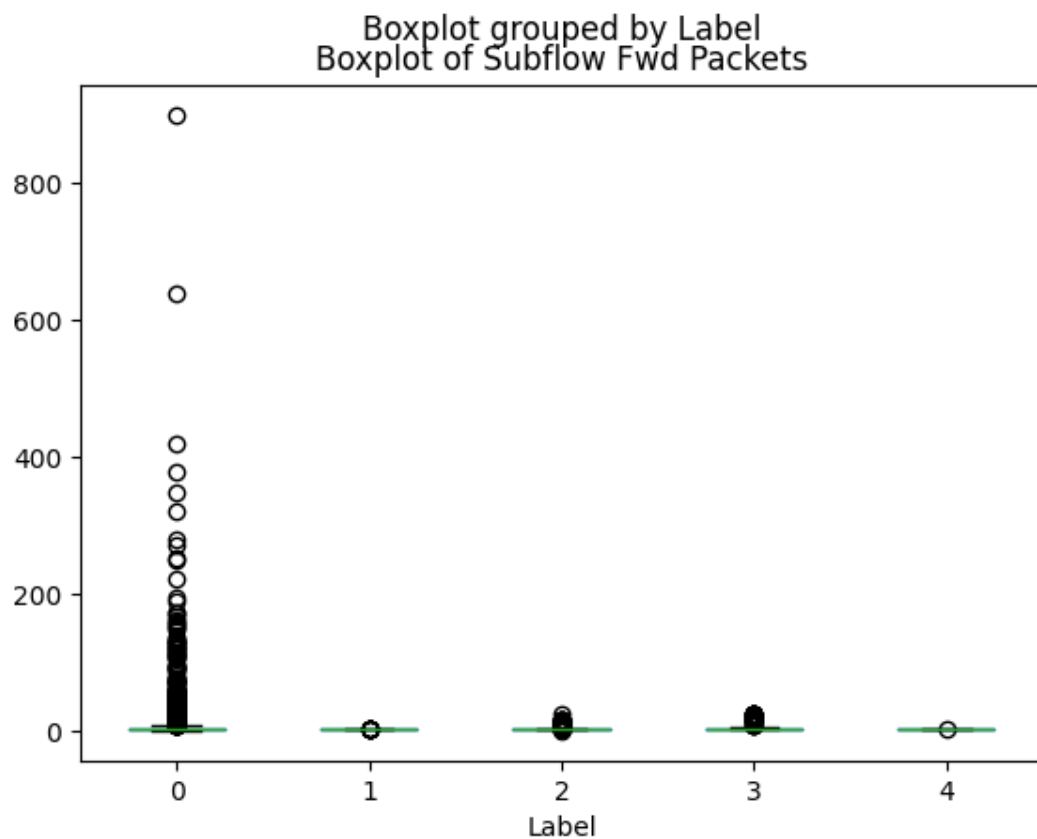


- count 1.000000e+04
- mean -6.057485e+07
- std 4.012595e+08
- min -1.700350e+10
- 25% 2.800000e+01
- 50% 4.000000e+01
- 75% 6.400000e+01
- max 2.878400e+04

Tutte e cinque le classi presentano outlier, il valore minimo di -17mld supera enormemente il baffo superiore per la classe 3.



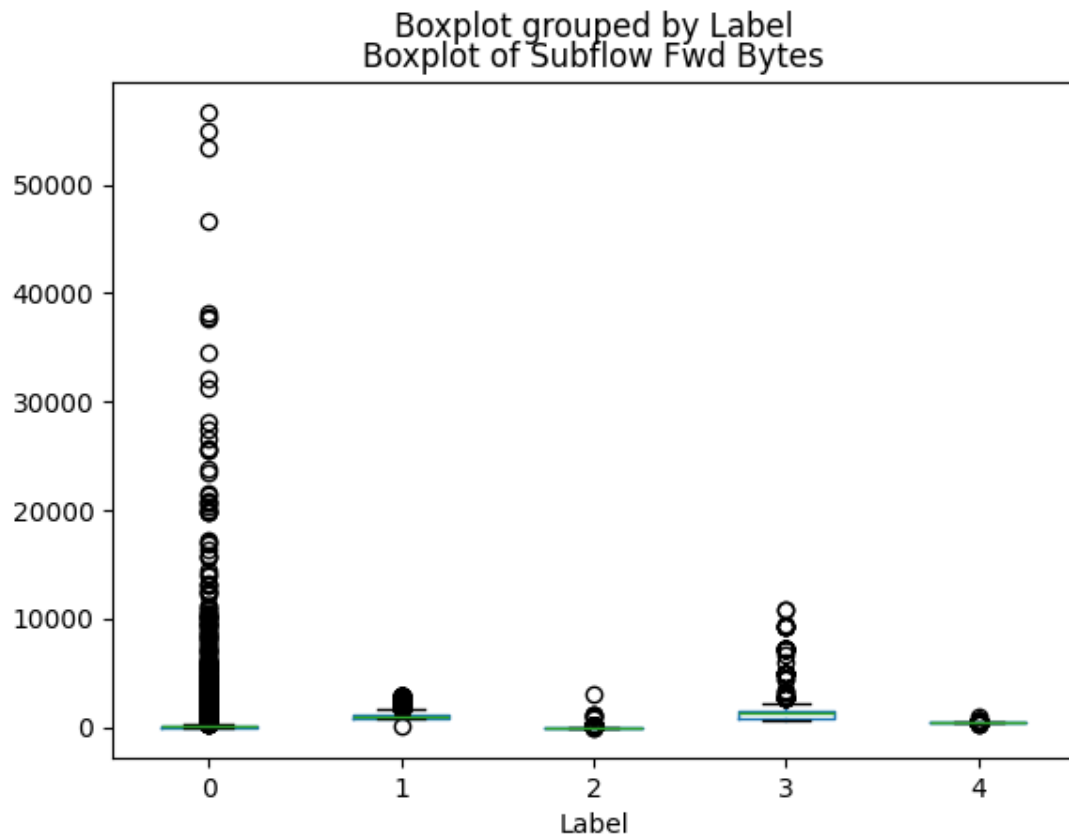
### 3.51 Subflow Fwd Packets



- count 10000.000000
- mean 4.974100
- std 17.905778
- min 1.000000
- 25% 2.000000
- 50% 2.000000
- 75% 2.000000
- max 899.000000

Tutte e cinque le classi presentano outlier, il valore massimo di 899 supera enormemente il baffo superiore per la classe 0.

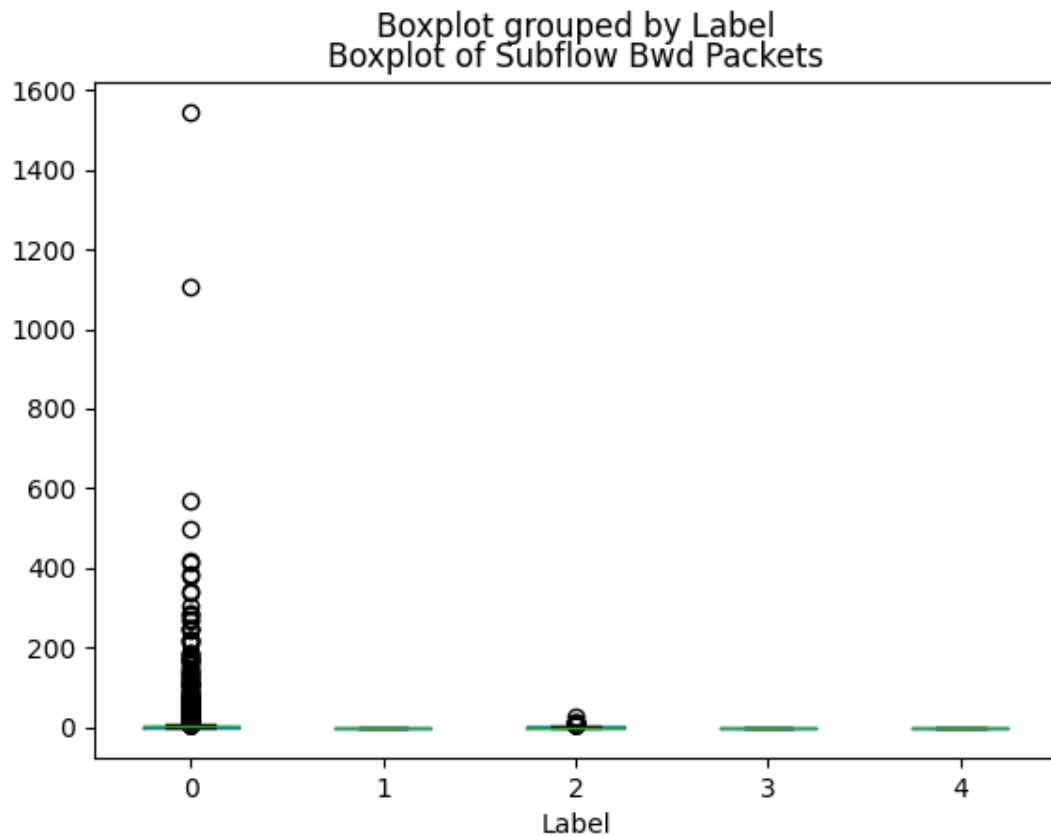
### 3.52 Subflow Fwd Bytes



- count 10000.000000
- mean 832.031800
- std 2049.949291
- min 0.000000
- 25% 12.000000
- 50% 458.000000
- 75% 1000.000000
- max 56622.000000

Tutte e cinque le classi presentano outlier, il valore massimo di 56.622 supera enormemente il baffo superiore per la classe 0.

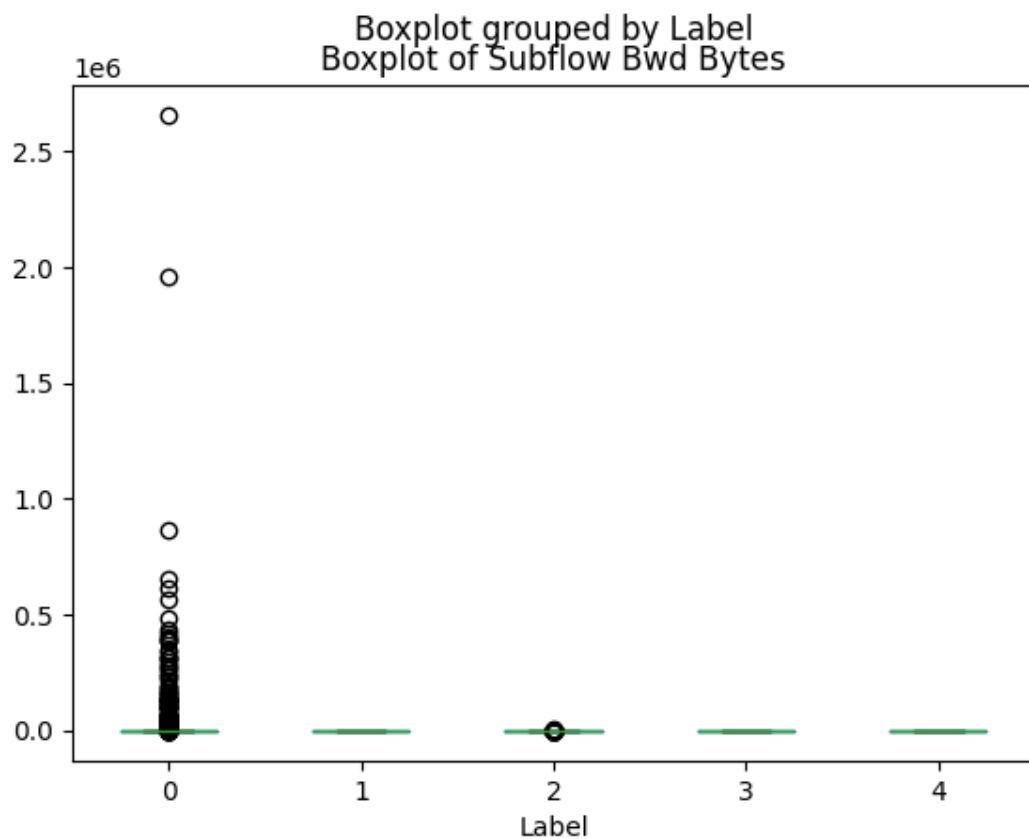
### 3.53 Subflow Bwd Packets



- count 10000.000000
- mean 3.349400
- std 26.611075
- min 0.000000
- 25% 0.000000
- 50% 0.000000
- 75% 2.000000
- max 1543.000000

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (valore max 1.543) che superano di gran lunga il valore più frequente (compreso tra 0 e 2).

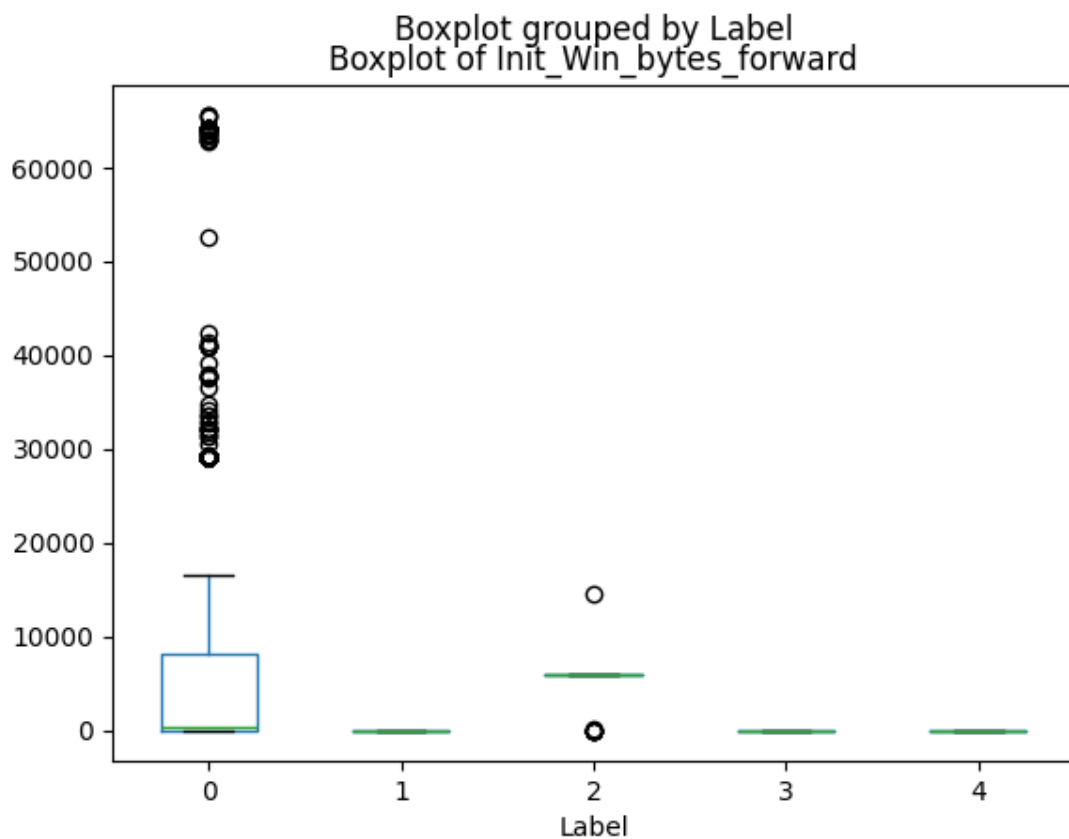
### 3.54 Subflow Bwd Bytes



- count 1.000000e+04
- mean 2.269414e+03
- std 3.956776e+04
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 1.200000e+01
- max 2.655090e+06

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (max 2.655.090) che superano di gran lunga il valore più frequente (compreso tra 0 e 12).

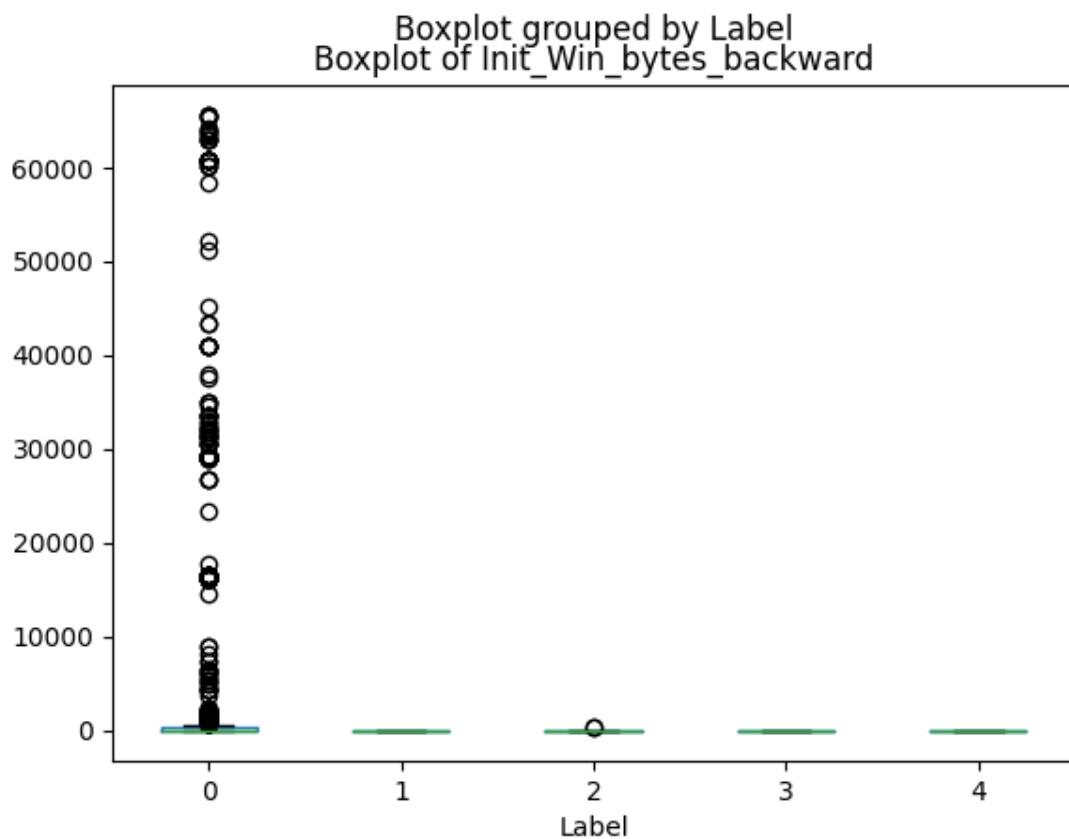
### 3.55 Init\_Win\_bytes\_forward



- count 10000.000000
- mean 2908.308800
- std 6525.600525
- min -1.000000
- 25% -1.000000
- 50% -1.000000
- 75% 5840.000000
- max 65535.000000

Classe 0 presenta outlier che superano enormemente il baffo superiore, Classe 2 invece presenta outlier sia nella parte alta che nella parte bassa.

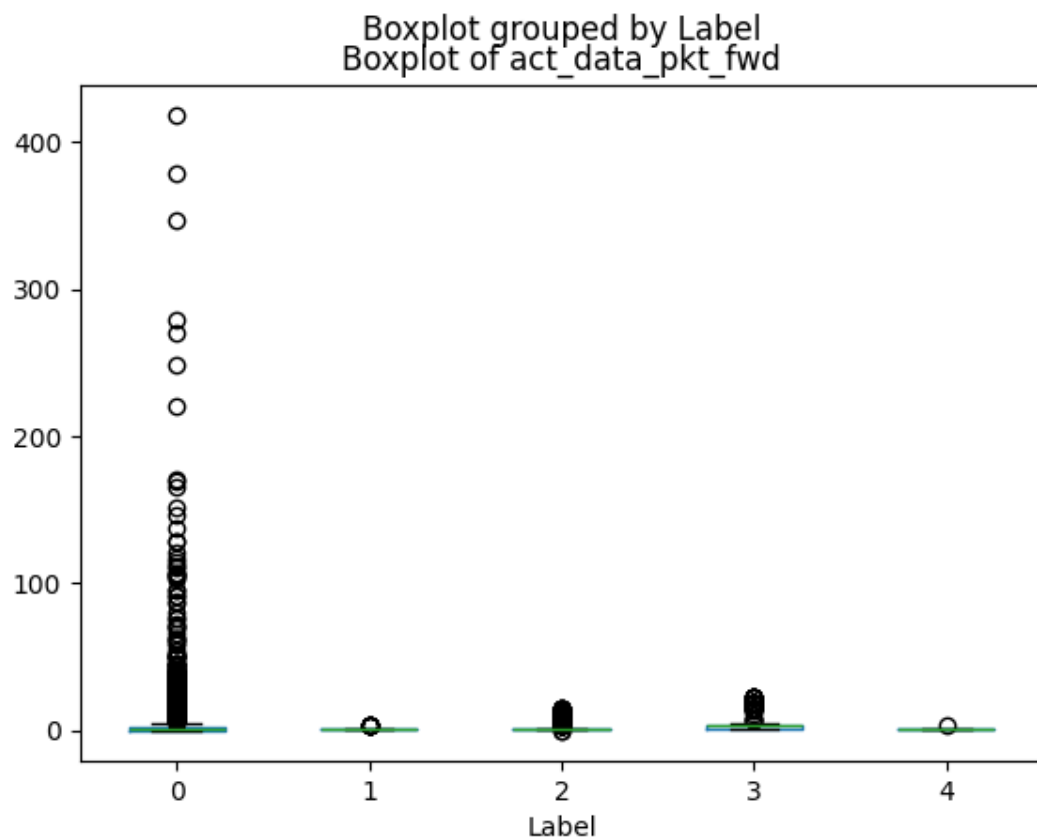
### 3.56 Init\_Win\_bytes\_backward



- count 10000.000000
- mean 830.581600
- std 5503.753359
- min -1.000000
- 25% -1.000000
- 50% -1.000000
- 75% -1.000000
- max 65535.000000

Classe 0 e 2 presentano outlier, nello specifico la Classe 0 ha outlier (max 65.535) che superano di gran lunga il valore più frequente (-1).

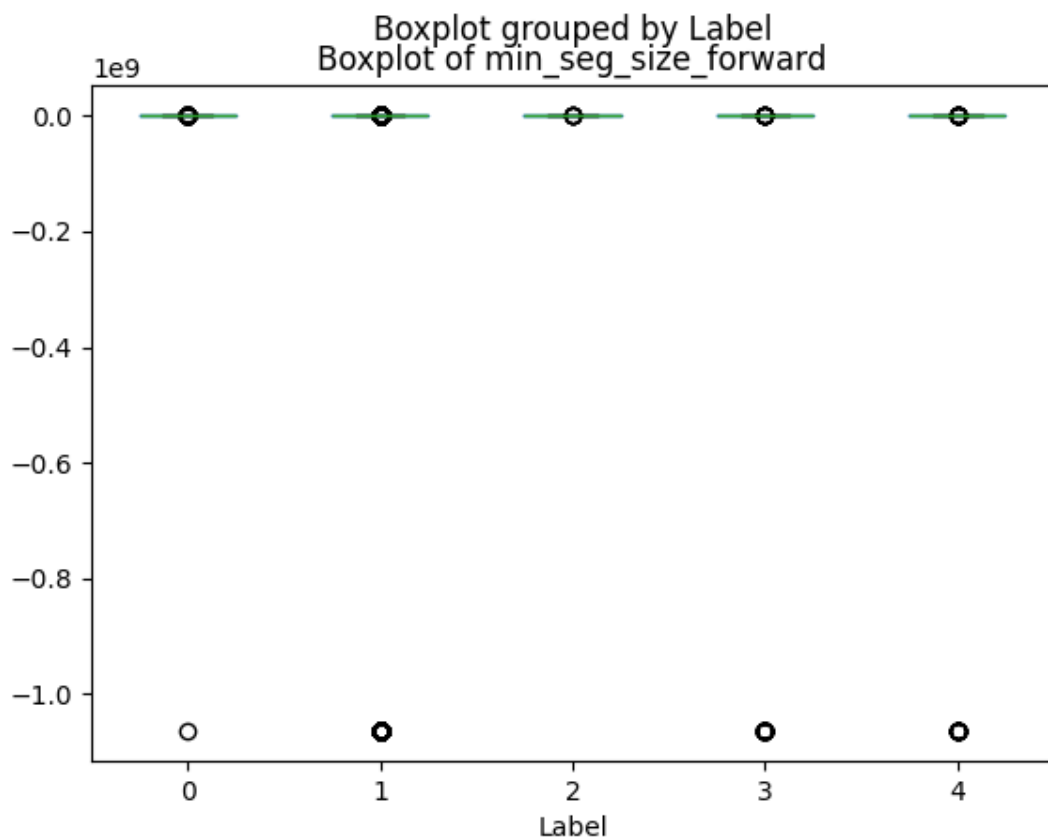
### 3.57 act\_data\_pkt\_fwd



- count 10000.000000
- mean 2.924500
- std 11.476444
- min 0.000000
- 25% 1.000000
- 50% 1.000000
- 75% 1.000000
- max 418.000000

Tutte e cinque le classi presentano outlier, nello specifico la Classe 0 ha outlier che superano di gran lunga il valore più frequente (1).

### 3.58 min\_seg\_size\_forward

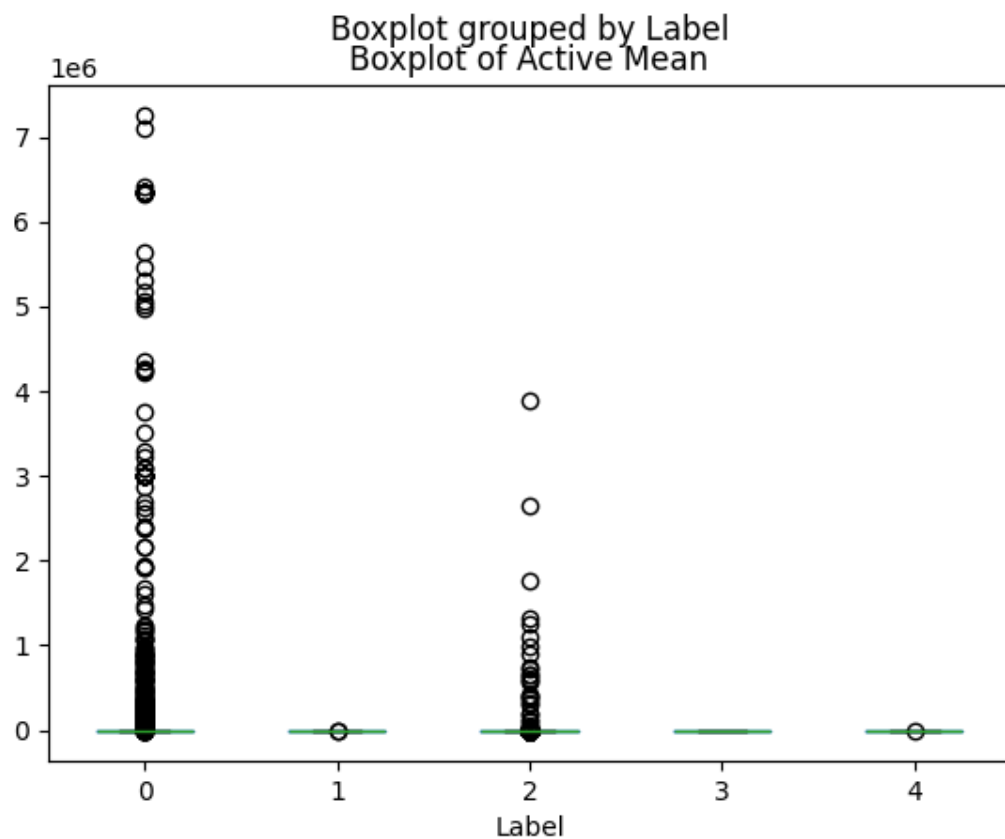


- count 1.000000e+04
- mean -2.837457e+07
- std 1.713244e+08
- min -1.062719e+09
- 25% 8.000000e+00
- 50% 2.000000e+01
- 75% 2.000000e+01
- max 1.480000e+03

Tutte le classi presentano degli outlier, in particolare Classe 0, 1, 3 e 4 presentano outlier che superano enormemente il baffo inferiore ( $< -1\text{mld}$ ).



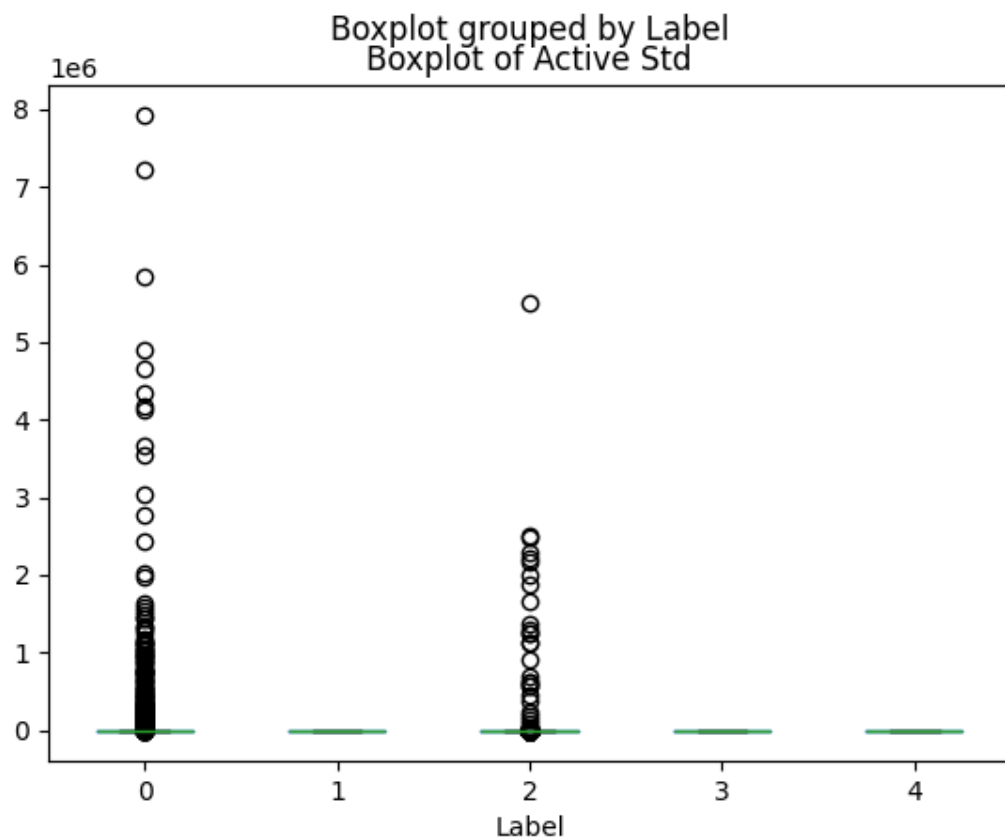
### 3.59 Active Mean



- count 1.000000e+04
- mean 3.418684e+04
- std 3.359141e+05
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 7.247923e+06

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0 e 2 hanno Outlier che superano di gran lunga il baffo superiore.

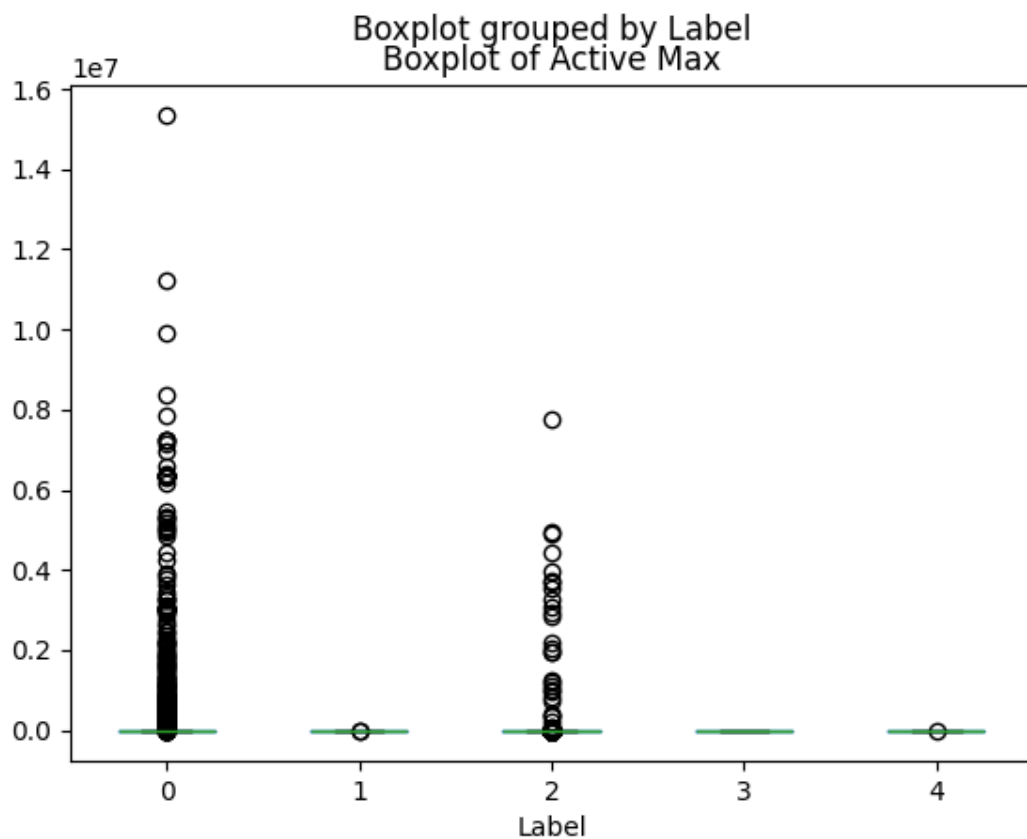
### 3.60 Active Std



- count 1.000000e+04
- mean 1.752317e+04
- std 2.095494e+05
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 7.914871e+06

Classe 0 e 2 presentano outlier che superano di gran lunga il baffo superiore.

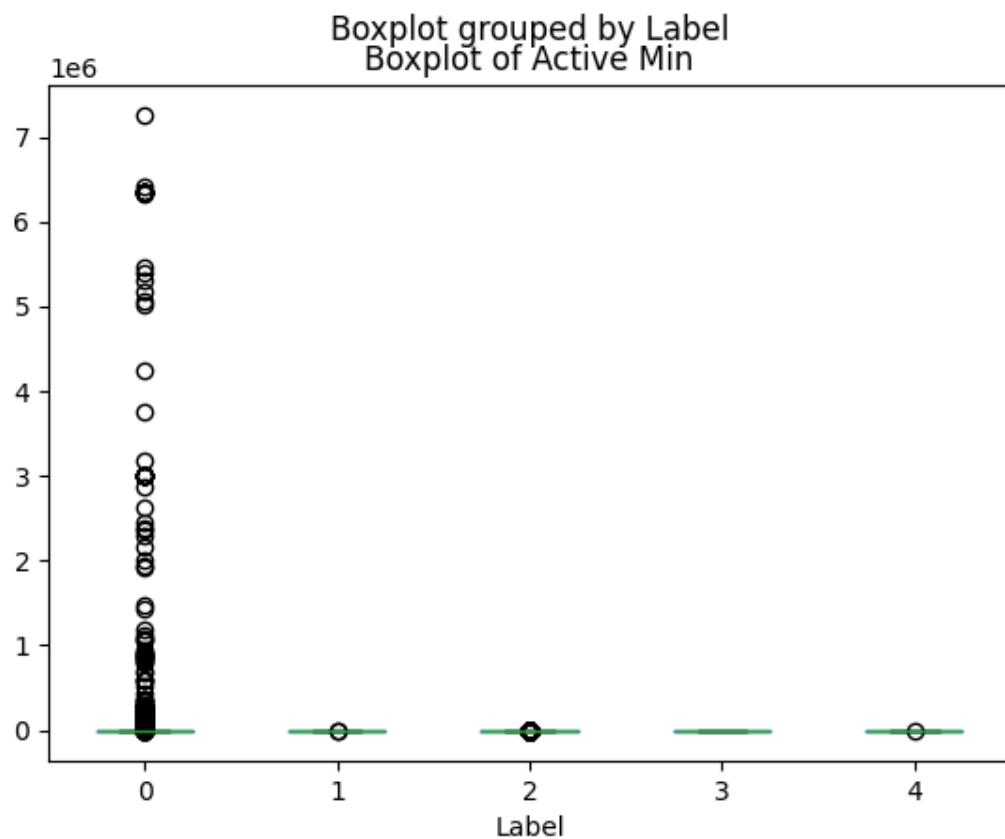
### 3.61 Active Max



- count 1.000000e+04
- mean 5.608207e+04
- std 4.859636e+05
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 1.533156e+07

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0 e 2 hanno outlier che superano di gran lunga il baffo superiore.

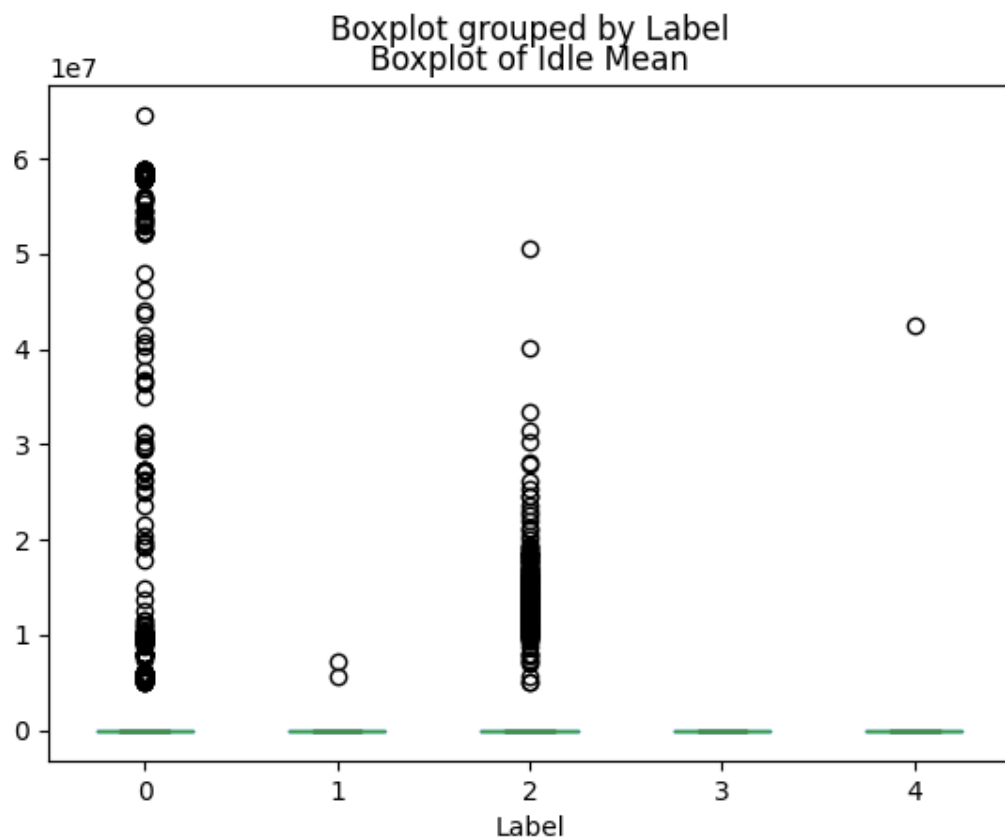
### 3.62 Active Min



- count 1.000000e+04
- mean 2.347295e+04
- std 2.964444e+05
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 7.247923e+06

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0 ha outlier che superano di gran lunga il baffo superiore.

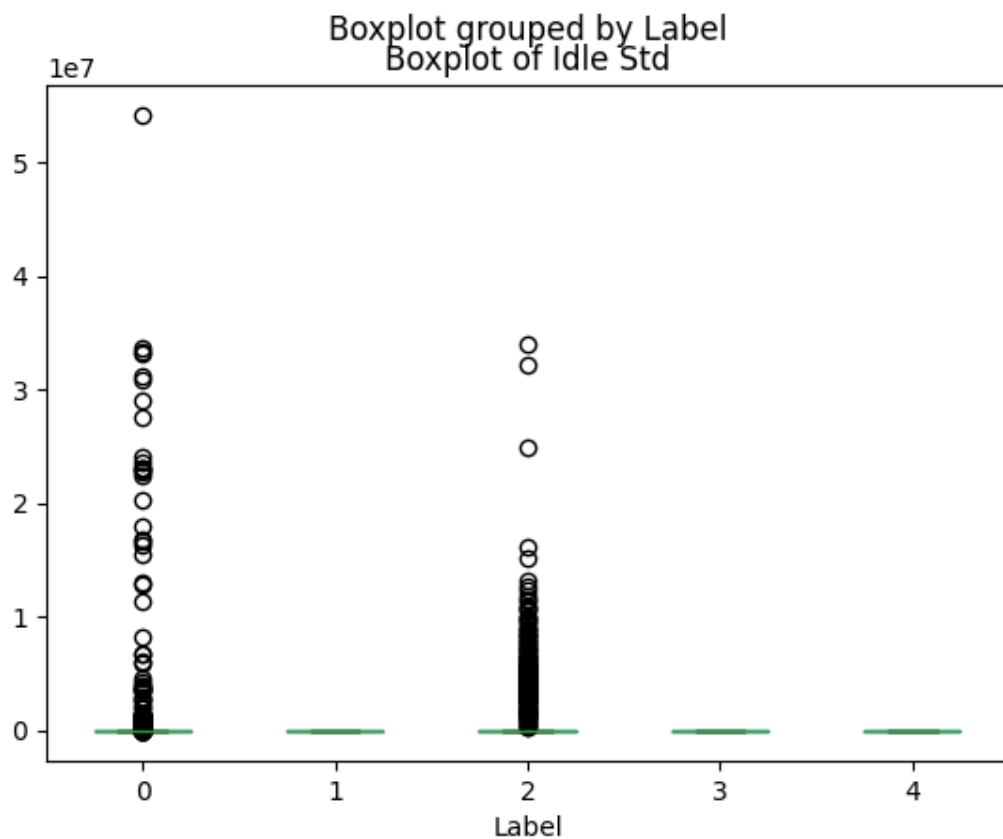
### 3.63 Idle Mean



- count 1.000000e+04
- mean 1.700478e+06
- std 8.205343e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 6.451177e+07

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0, 2 e 4 hanno outlier che superano di gran lunga il baffo superiore.

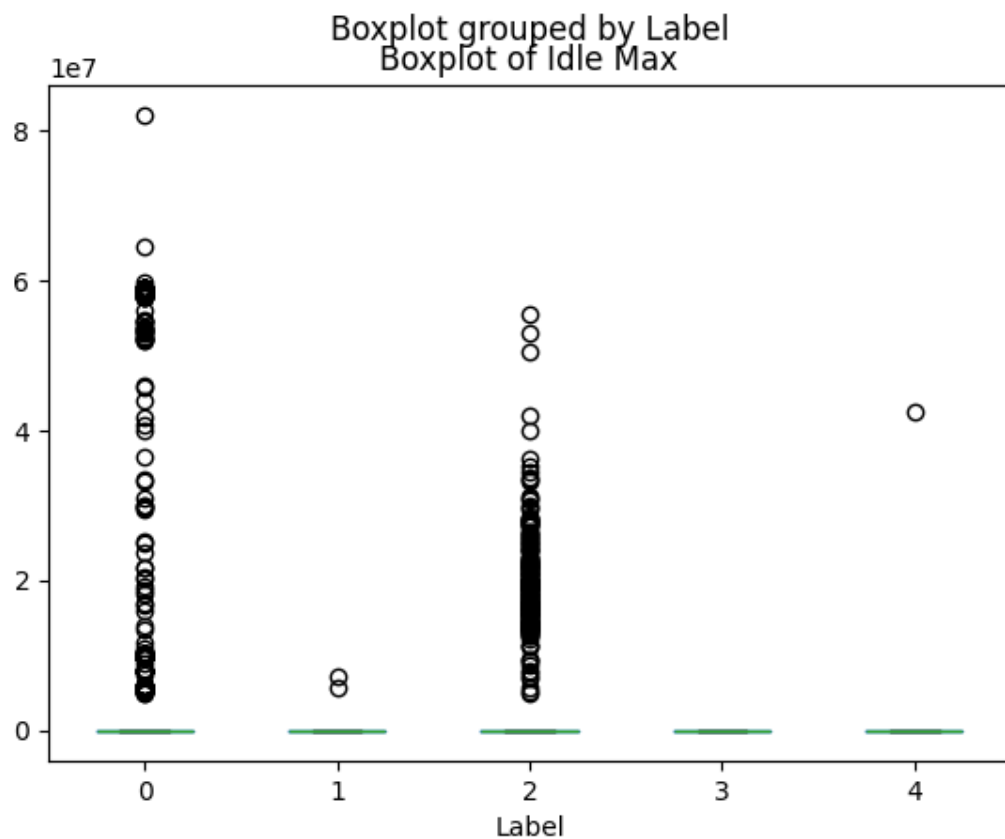
### 3.64 Idle Std



- count 1.000000e+04
- mean 1.801478e+05
- std 1.583956e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 5.407594e+07

Classe 0 e 2 presentano outlier che superano di gran lunga il baffo superiore.

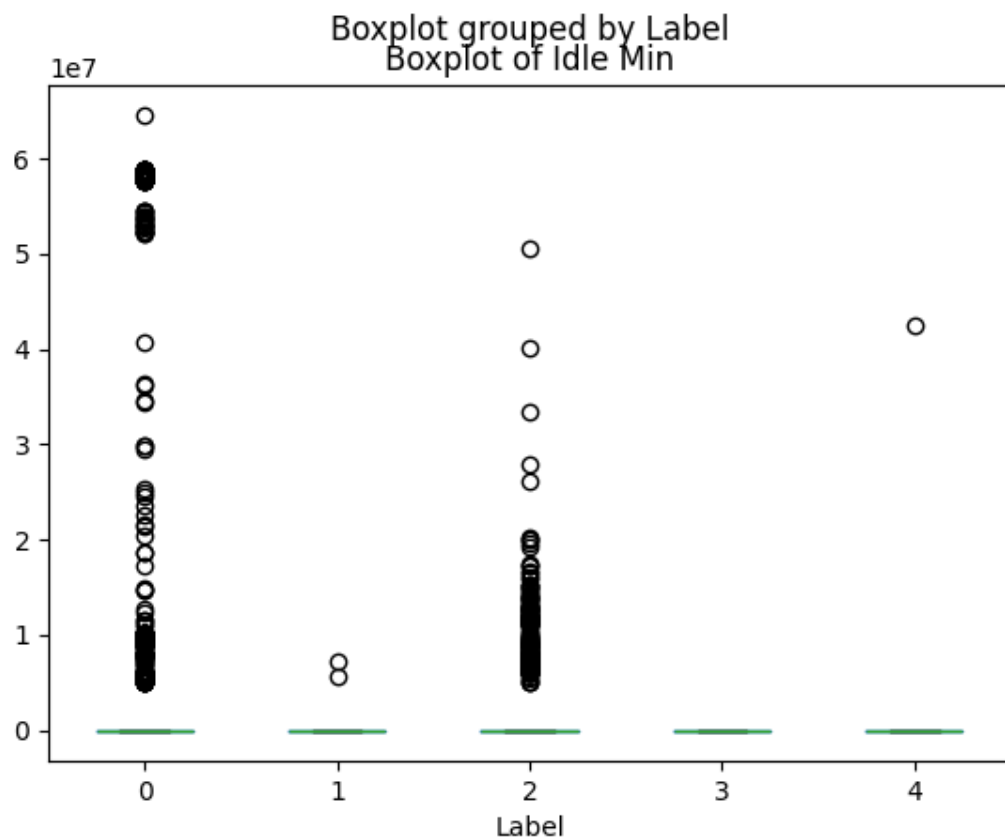
### 3.65 Idle Max



- count 1.000000e+04
- mean 1.876333e+06
- std 8.740673e+06
- min 0.000000e+00
- 25% 0.000000e+00
- 50% 0.000000e+00
- 75% 0.000000e+00
- max 8.201220e+07

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0, 2 e 4 hanno Outlier che superano di gran lunga il baffo superiore.

### 3.66 Idle Min



- count  $1.000000 \times 10^4$
- mean  $1.541433 \times 10^6$
- std  $7.909073 \times 10^6$
- min  $0.000000 \times 10^0$
- 25%  $0.000000 \times 10^0$
- 50%  $0.000000 \times 10^0$
- 75%  $0.000000 \times 10^0$
- max  $6.451177 \times 10^7$

Classe 0,1,2 e 4 presentano outlier, in particolare Classe 0, 2 e 4 hanno Outlier che superano di gran lunga il baffo superiore.