# Interim Report
User Analytics in the Telecommunication Industry

** The top 10 handsets used by the customers

```
Handset Type
Huawei B528S-23A               10616
Apple iPhone 6S (A1688)         6759
undefined                       6671
Apple iPhone 6 (A1586)          6260
Apple iPhone 7 (A1778)          4699
Apple iPhone Se (A1723)         3755
Apple iPhone 8 (A1905)          3543
Samsung Galaxy S8 (Sm-G950F)    3245
Apple iPhone Xr (A2105)         3072
Samsung Galaxy J5 (Sm-J530)     2748
Name: IMSI, dtype: int64
```

** The top 3 handset manufacturers
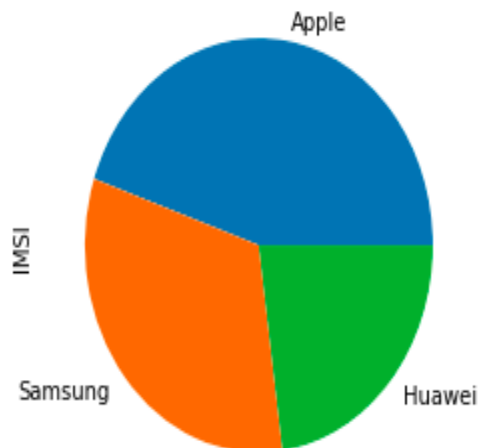
** The top 5 handsets per top 3 handset manufacturer #Apple
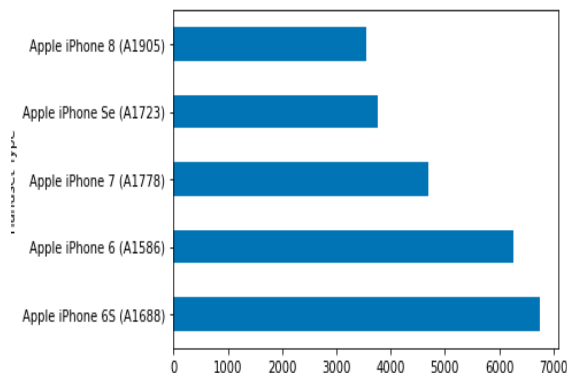
** The top 5 handsets per top 3 handset manufacturer #Samsung

```
Handset Type
Samsung Galaxy S8 (Sm-G950F)    3245
Samsung Galaxy J5 (Sm-J530)     2748
Samsung Galaxy A5 Sm-A520F      2708
Samsung Galaxy J3 (Sm-J330)     2589
Samsung Galaxy S7 (Sm-G930X)    2292
Name: IMSI, dtype: int64
```

** The top 5 handsets per top 3 handset manufacturer #Huawei

```
Handset Type
Huawei B528S-23A                10616
Huawei P20 Lite Huawei Nova 3E   1531
Huawei E5180                     1182
Huawei P20                       1109
Huawei Y6 2018                    757
Name: IMSI, dtype: int64
```

Number of sessions per user(XDR)

MSISDN/Number	count
3197020876596	1
33601001722	1
33601001754	1
33601002511	1
33601007832	1
33601008617	2
33601010682	2
33601011634	2
33601011959	1
33601014694	2

Session Duration

MSISDN/Number	sum
3197020876596	877385.0
33601001722	116720.0
33601001754	181230.0
33601002511	134969.0
33601007832	49878.0
33601008617	37104.0
33601010682	253983.0
33601011634	128360.0
33601011959	86399.0
33601014694	495702.0

Total Data uploaded and downloaded

MSISDN/Number	Total UL (Bytes)	Total DL (Bytes)
3197020876596	37295915.0	194828056.0
33601001722	36053108.0	842637466.0
33601001754	36104459.0	120755184.0
33601002511	39306820.0	556659663.0
33601007832	20327526.0	401993172.0

Total data volume (in Bytes) during this session for each application
#Social media

MSISDN/Number	min	max	mean	median	sum
3197020876596	715224.0	715224.0	715224.0	715224.0	715224.0
33601001722	2232135.0	2232135.0	2232135.0	2232135.0	2232135.0
33601001754	2660565.0	2660565.0	2660565.0	2660565.0	2660565.0
33601002511	3195623.0	3195623.0	3195623.0	3195623.0	3195623.0
33601007832	280294.0	280294.0	280294.0	280294.0	280294.0
33601008617	1388485.0	1524057.0	1456271.0	1456271.0	2912542.0
33601010682	993654.0	2799258.0	1896456.0	1896456.0	3792912.0
33601011634	414264.0	2355363.0	1384813.5	1384813.5	2769627.0
33601011959	1782692.0	1782692.0	1782692.0	1782692.0	1782692.0
33601014694	2593845.0	2694840.0	2644342.5	2644342.5	5288685.0

**Total data volume (in Bytes) during
this session for each application
Google**

MSISDN/Number	min	max	mean	median	sum
3197020876596	10438660.0	10438660.0	10438660.0	10438660.0	10438660.0
33601001722	4389005.0	4389005.0	4389005.0	4389005.0	4389005.0
33601001754	5334863.0	5334863.0	5334863.0	5334863.0	5334863.0
33601002511	3443126.0	3443126.0	3443126.0	3443126.0	3443126.0
33601007832	9678493.0	9678493.0	9678493.0	9678493.0	9678493.0
33601008617	8328981.0	10170635.0	9249808.0	9249808.0	18499616.0
33601010682	2417450.0	12845684.0	7631567.0	7631567.0	15263134.0
33601011634	3869764.0	6326639.0	5098201.5	5098201.5	10196403.0
33601011959	12023614.0	12023614.0	12023614.0	12023614.0	12023614.0
33601014694	4242818.0	9891393.0	7067105.5	7067105.5	14134211.0

**Total data volume (in Bytes) during
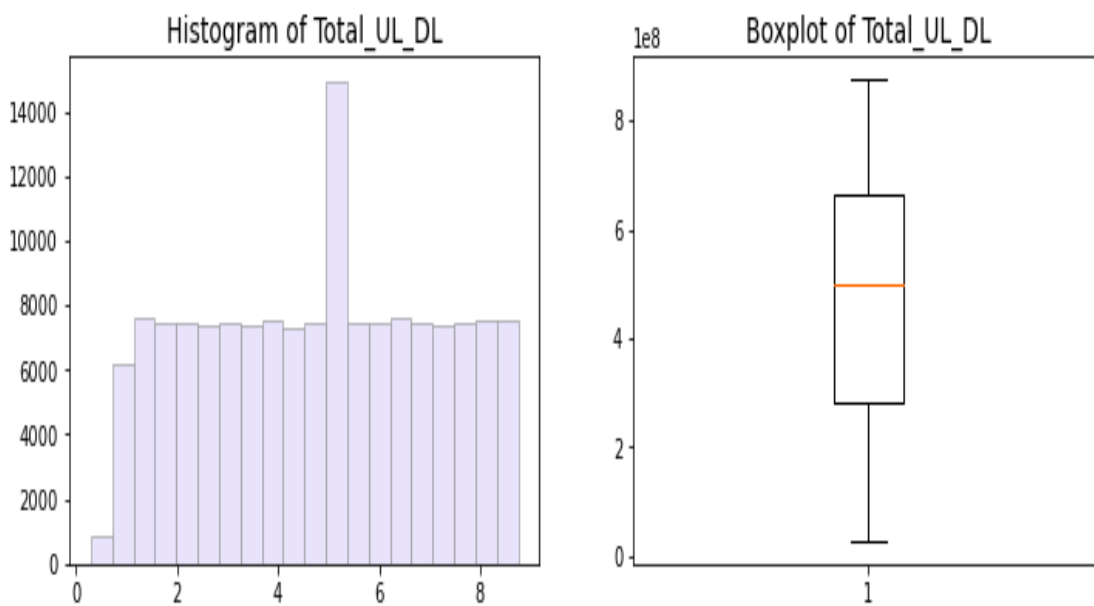this session for each application
#Email**

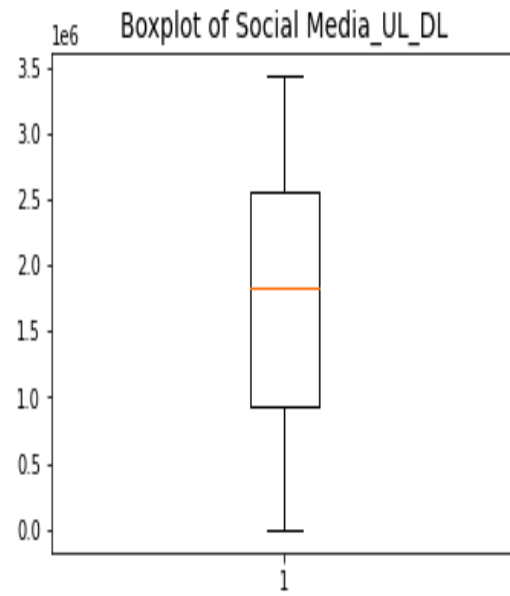| MSISDN/Number	min	max	mean	median	sum
3197020876596	1684558.0	1684558.0	1684558.0	1684558.0	1684558.0
33601001722	1674800.0	1674800.0	1674800.0	1674800.0	1674800.0
33601001754	5657642.0	5657642.0	5657642.0	5657642.0	5657642.0
33601002511	4873000.0	4873000.0	4873000.0	4873000.0	4873000.0
33601007832	4357236.0	4357236.0	4357236.0	4357236.0	4357236.0
33601008617	1959718.0	2535898.0	2247808.0	2247808.0	4495616.0
33601010682	6278782.0	6748886.0	6513834.0	6513834.0	13027668.0
33601011634	627002.0	845890.0	736446.0	736446.0	1472892.0
33601011959	2561116.0	2561116.0	2561116.0	2561116.0	2561116.0
33601014694	1983404.0	5348658.0	3666031.0	3666031.0	7332062.0

Graphical Univariate Analysis
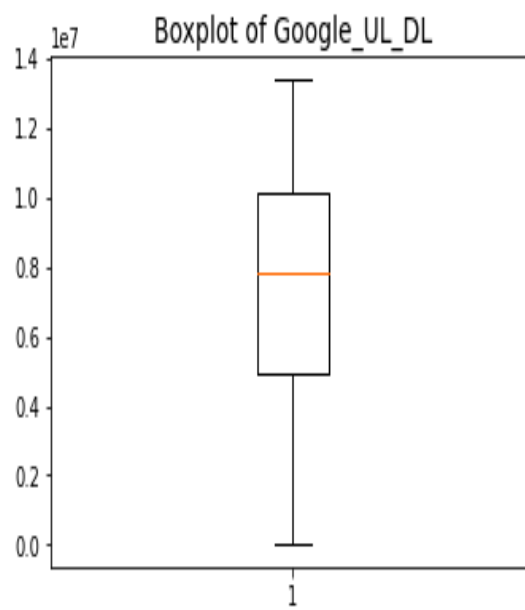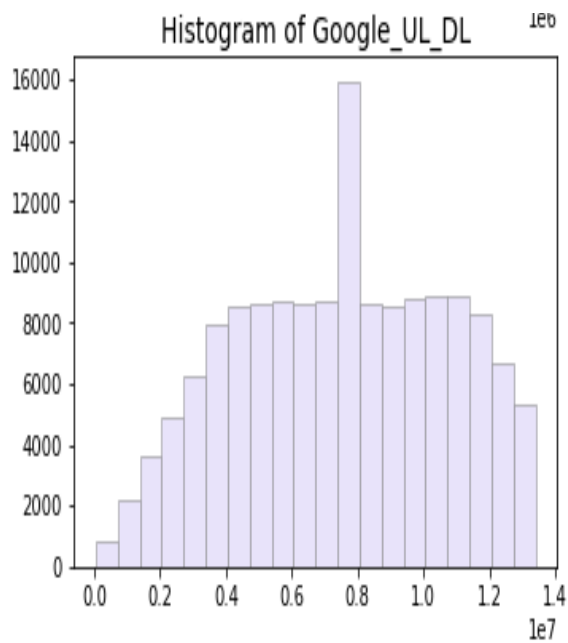
** Duration
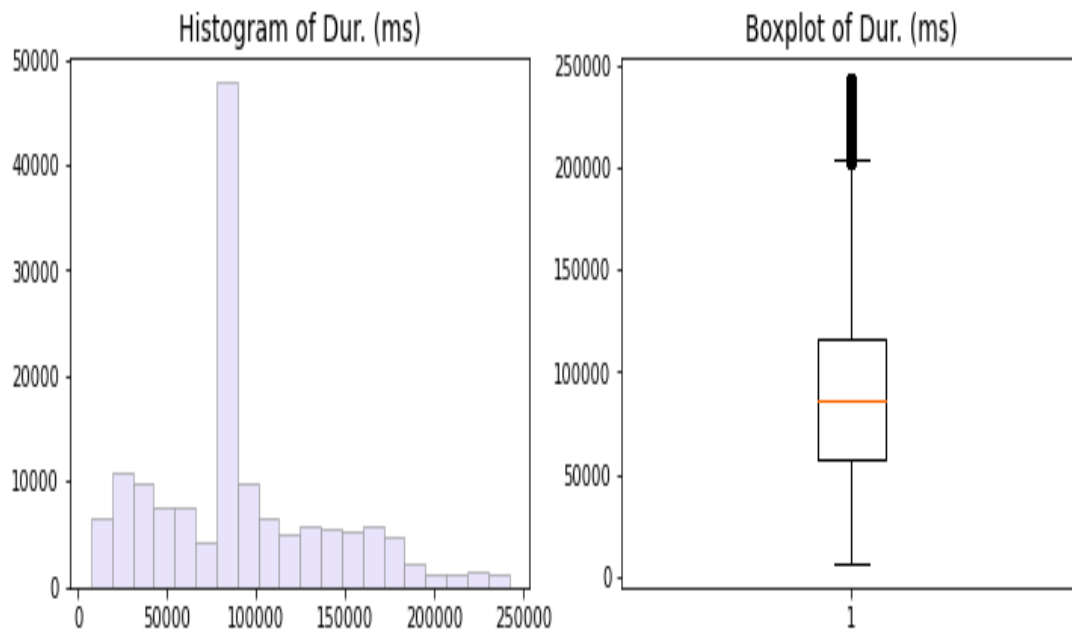
** Total uploaded and downloaded data

** Social media

** Google

** Email

Histogram of Email_UL_DL

Boxplot of Email_UL_DL