

Capstone Project 1 – Statistical Analysis

Top 10 grids that experience high volumes for each of these activities for the 2 months are identified. From the above plots, we see that the first 4 grids have highly varying total volume and rest of the grids have almost same total volume for each activity. This is further verified by performing a set of one-way ANOVA tests.

P-value < 0.05 indicates mean values of the grids are not equal, P-value > 0.05 indicates means values of the grids are equal.

```
#Comparison of mean SMS values of top 4 grids
```

```
stats.f_oneway(daily5059.sms.to_list(), daily5161.sms.to_list(), daily6064.sms.to_list(), daily5061.sms.to_list())
```

```
F_onewayResult(statistic=15.6837152166561, pvalue=2.3305180034398526e-09)
```

```
#Comparison of mean SMS values of rest of the grids from the top 10 list
```

```
stats.f_oneway(daily5159.sms.to_list(), daily5259.sms.to_list(), daily5262.sms.to_list(), daily4855.sms.to_list(),  
              daily4856.sms.to_list(), daily6165.sms.to_list())
```

```
F_onewayResult(statistic=1.0806731220881904, pvalue=0.37063204247098347)
```

```
#Comparison of mean Call values of top 4 grids
```

```
stats.f_oneway(daily5059.call.to_list(), daily6064.call.to_list(), daily5161.call.to_list(), daily5159.call.to_list())
```

```
F_onewayResult(statistic=8.245022535234758, pvalue=3.0159552209709387e-05)
```

```
#Comparison of mean Call values of rest of the grids from the top 10 list
```

```
stats.f_oneway(daily5061.call.to_list(), daily5259.call.to_list(), daily6165.call.to_list(), daily5262.call.to_list(),  
              daily6058.call.to_list(), daily5162.call.to_list())
```

```
F_onewayResult(statistic=2.089333950123052, pvalue=0.06609465518655394)
```

```
#Comparison of mean Internet values of top 4 grids
```

```
stats.f_oneway(daily5161.internet.to_list(), daily5059.internet.to_list(), daily5259.internet.to_list(),  
              daily5061.internet.to_list())
```

```
F_onewayResult(statistic=8.388137367527829, pvalue=2.5001501890290148e-05)
```

```
#Comparison of mean Internet values of rest of the grids from the top 10 list
```

```
stats.f_oneway(daily5258.internet.to_list(), daily5159.internet.to_list(), daily6064.internet.to_list(),  
              daily4855.internet.to_list(), daily4856.internet.to_list(), daily5262.internet.to_list())
```

```
F_onewayResult(statistic=0.42971229199857125, pvalue=0.8278755021476163)
```

One-Way ANOVA tests verifying that, except the first 4 grids, rest in the top 10 list have similar mean volumes