How many times have users turned off the notifications?

05/06/2019

Step 1: Data selection

The selected file analyzes 210 users for 329 days, from the beginning of the experimental phase (06.09.2017) until the end (11.01.2018).

Step 2: Pre-processing

```
##   Day                Date
## 1  31 2017-09-06 08:00:00
## 2  32 2017-09-07 08:00:02
## 3  36 2017-09-08 08:00:00
## 4  40 2017-09-09 08:00:02
## 5  44 2017-09-10 08:00:00
## 6  63 2017-09-12 08:00:00
##                                                Action UID01 UID02 UID03
## 1 [Admin] The following UIDs have been unregistered    64    76    79
## 2 [Admin] The following UIDs have been unregistered     2    64    76
## 3 [Admin] The following UIDs have been unregistered    64    76   237
## 4 [Admin] The following UIDs have been unregistered    76    NA    NA
## 5 [Admin] The following UIDs have been unregistered    99    NA    NA
## 6 [Admin] The following UIDs have been unregistered    99    NA    NA
##   UID04 UID05 UID06 UID07 UID08 UID09 UID10 UID11 UID12
## 1   108   143   162   222   237    NA    NA    NA    NA
## 2    79   136   162   222   237    NA    NA    NA    NA
## 3    NA    NA    NA    NA    NA    NA    NA    NA    NA
## 4    NA    NA    NA    NA    NA    NA    NA    NA    NA
## 5    NA    NA    NA    NA    NA    NA    NA    NA    NA
## 6    NA    NA    NA    NA    NA    NA    NA    NA    NA
```

Data has already been pre-processed and only data in the selected period and only notifications stating "The following UIDs have been unregistered" are shown.

Step 3: Transformation

For each day, the list of users is extracted.

```
##   Day                                            Action Column UID
## 1  31 [Admin] The following UIDs have been unregistered  UID01  64
## 2  31 [Admin] The following UIDs have been unregistered  UID02  76
## 3  31 [Admin] The following UIDs have been unregistered  UID03  79
## 4  31 [Admin] The following UIDs have been unregistered  UID04 108
## 5  31 [Admin] The following UIDs have been unregistered  UID05 143
## 6  31 [Admin] The following UIDs have been unregistered  UID06 162
```

Each user appears once at the most every day.
We check that by counting how many times a UID appears every day, and then filter only those that appear more than once.

```
## # A tibble: 6 x 3
## # Groups:   Day [1]
##     Day   UID     n
##   <dbl> <dbl> <int>
## 1    31    64     1
## 2    31    76     1
## 3    31    79     1
## 4    31   108     1
## 5    31   143     1
## 6    31   162     1
```

The resulting table is empty.

```
## # A tibble: 0 x 3
## # Groups:   Day [0]
## # ... with 3 variables: Day <dbl>, UID <dbl>, n <int>
```

Some user in the list appear to be assigned to UID that are not in the user liste (UID= 64, 79, 108, 143, 162, 222, 237). They shall be removed from the next table.

```
##   Day Column UID Type Active
## 1  31  UID02  76  CON Active
## 2  32  UID03  76  CON Active
## 3  36  UID02  76  CON Active
## 4  40  UID01  76  CON Active
## 5  44  UID01  99  CON Active
## 6  63  UID01  99  CON Active
```

The resulting table allows obtaining the study conditions of each participant.

Step 4: Data mining

The resulting table presents the sum of how many times participants have turned the system off, divided by type of intervention.

```
## # A tibble: 4 x 2
## # Groups:   Type [4]
##   Type      n
##   <fct> <int>
## 1 CON     117
## 2 FIX      95
## 3 LOT      94
## 4 POW     241
```

An in-depth analysis allows observing some interesting trends concerning how many times each user has turned the system off.

The amount of times each participant has turned the system off varies greatly among particiapants.

```
## # A tibble: 10 x 3
## # Groups:   Type [2]
##    Type    UID     n
```

```
##    <fct> <dbl> <int>
##  1 CON      56    17
##  2 CON      57    24
##  3 CON      76    10
##  4 CON      99     2
##  5 CON     112    24
##  6 CON     415    40
##  7 FIX     229    22
##  8 FIX     233     1
##  9 FIX     235    21
## 10 FIX     265     9
```

By gathering the information about the participant, it is possible to count how many participants are listed in each type.

```
## # A tibble: 4 x 2
## # Groups:   Type [4]
##   Type      n
##   <fct> <int>
## 1 CON       6
## 2 FIX       6
## 3 LOT       3
## 4 POW       4
```

Consequently, it is possible to obtain the average of how many times each user has turned the system off.

```
## # A tibble: 4 x 2
## # Groups:   Type [4]
##   Type      n
##   <fct> <dbl>
## 1 CON    19.5
## 2 FIX    15.8
## 3 LOT    31.3
## 4 POW    60.2
```

In the end, it apperars that the average of CON (19.5) is smaller than the average of LOT (31.33).

Step 5: Evaluation

As requested, the current analysis allows stating that:

- In CON condition users turned off the notifications 117 amount of times.
- In FIX condition users turned off the notifications 95 amount of times.
- In LOT condition users turned off the notifications 94 amount of times.
- In POW condition users turned off the notifications 241 amount of times.