Quick Analysis

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This is a quick little analysis I did for some data that I collected as part of my final dissertation project. I had about 20 people use a food diary on their cell phones for 3 weeks. The code was instrumented with analytics codes to make it easy (well, possible!) to analyze usage of the food diary over time.

```
## gdata: read.xls support for 'XLS' (Excel 97-2004) files ENABLED.
##
## gdata: read.xls support for 'XLSX' (Excel 2007+) files ENABLED.
##
## Attaching package: 'gdata'
##
## The following object is masked from 'package:stats':
##
##     nobs
##
## The following object is masked from 'package:utils':
##
##     object.size
##
##
## Attaching package: 'dplyr'
##
## The following objects are masked from 'package:plyr':
##
##     arrange, count, desc, failwith, id, mutate, rename, summarise,
##     summarize
##
## The following objects are masked from 'package:gdata':
##
##     first, last
##
## The following object is masked from 'package:stats':
##
##     filter
##
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

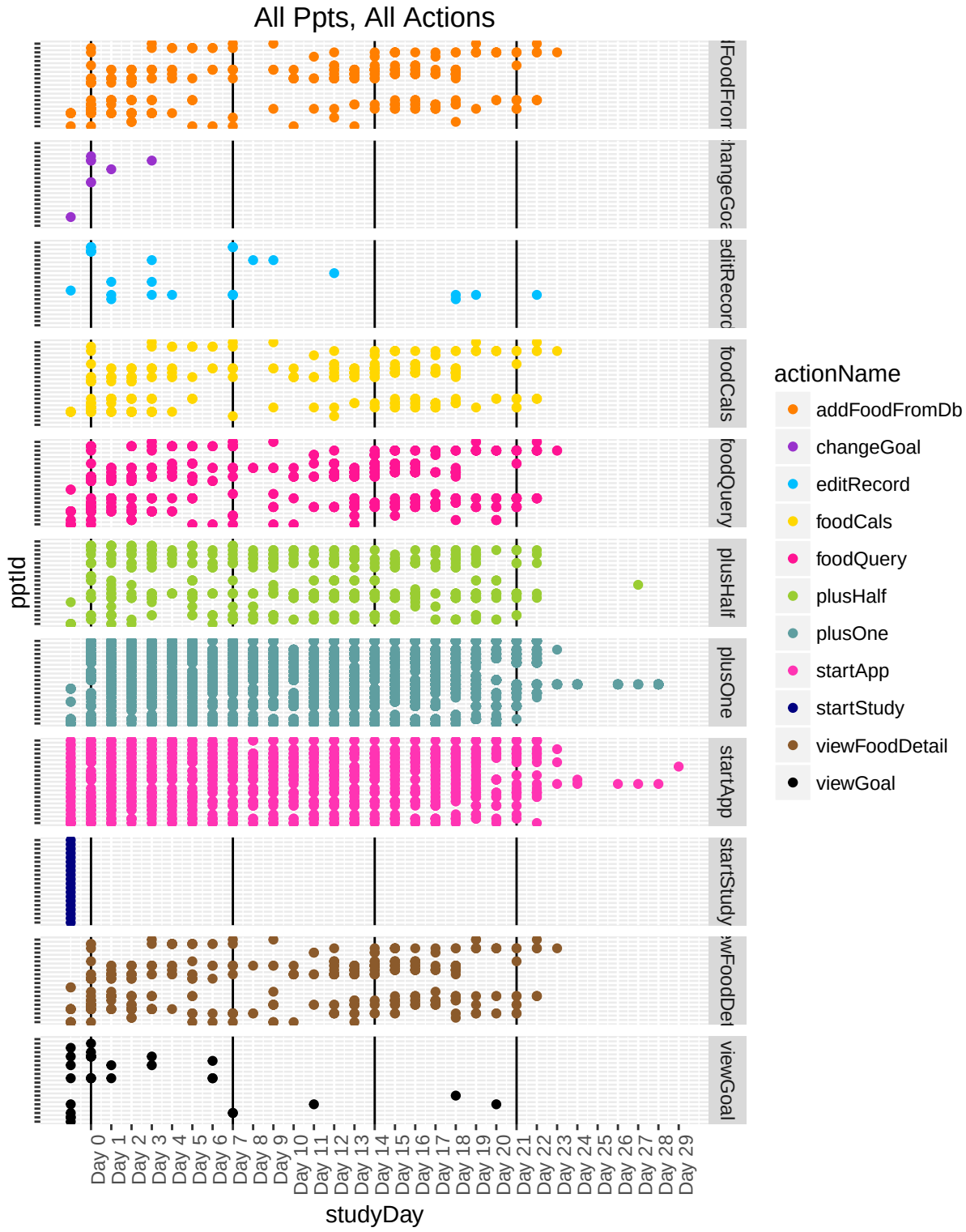
```
##   X_id     timestamp actionId refId typeId            comment pptId
## 1   NA                    NA    NA     NA
## 2    1 1/23/12 10:28        0    -1     -1       Starting app p1001
## 3    2 1/23/12 10:29        0    -1     -1       Starting app p1001
## 4    3 1/23/12 10:29        1     1     -1            Fruit+1 p1001
## 5    4 1/23/12 10:29        1     1     -1      Fruit Juice+1 p1001
## 6    5 1/23/12 10:31        2    -1     -1 View goal activity p1001
##         hrs      mins seconds
## 1        NA        NA      NA
```

```
## 2 -13.53556 -812.1333  -48728
## 3 -13.51667 -811.0000  -48660
## 4 -13.51278 -810.7667  -48646
## 5 -13.51222 -810.7333  -48644
## 6 -13.48333 -809.0000  -48540
```

```
## [1] 31806
```

```
##
##   -1    0    1    2    3    4    5    6    7    8    9   10   11   12   13
## 9063  262   38   50   33   21   24   26   19   15   12   16   14   24    8
##   14   15   16   17   18   19   20   21   22   23   24   25   26   27   28
##   19   30    6   17    5    5   10    9   10    6    9    7    9    7    9
##   29   30   31   32   33   34   35   36   37   38   39   40   41   42   43
##    4    7    7    3   11    3    2   11   10    4    4    7    4    1    2
##   44   45   47   48   49   50   51   52   53   54   55   56   57   58   59
##    2    5    4    6    3    8    4    6    2    3    5    4    3    2    7
##   60   61   62   63   64   65   66   67   68   69   70   71   72   73   74
##    4    5    5    5    3    2    4    4    3    3    2    4    4    3    5
##   75   76   77   78   79   80   81   82   83   84   85   86   87   88   89
##    4    3    3   15   10    4    6    8    2    5    5    2    4    5    8
##   90   91   92   93   94   96   97   98   99  100  101  102  103  104  105
##    2    6    2    3    5    2    4   20    3    3    1    6    2    2    2
##  106  107  108  109  110  111  112  113  114  115  116  117  121  123  124
##    1    1    2    1    1    5    2    6    1    2    2    1    1    1    1
##  125  126  128  129  130  133  134  142  146  154  156  157  161  169  177
##    1    1    8    3    3    2    1    3    1    2    1    1    4    7    3
##  178  185  188  197  200  213  225  230  231  238  245  247  250  262  271
##    1    9    2    1    3    9    5   10    2    1    1    6    4    1    5
##  292  297  312  321  342  359  377  393  404  417  464  469  614  636  653
##    2    1    3    3    1    3    2    4    5    4    5    4    1    4    1
##  819 1004 1199 1312
##    2    7    4    5
```

My first plot is all the data, with each action type represented in each facet panel. This first one is just the action for a single participant on a single day, so a point represents that the given participant had a given action on that day of the study.



A few initial observations:

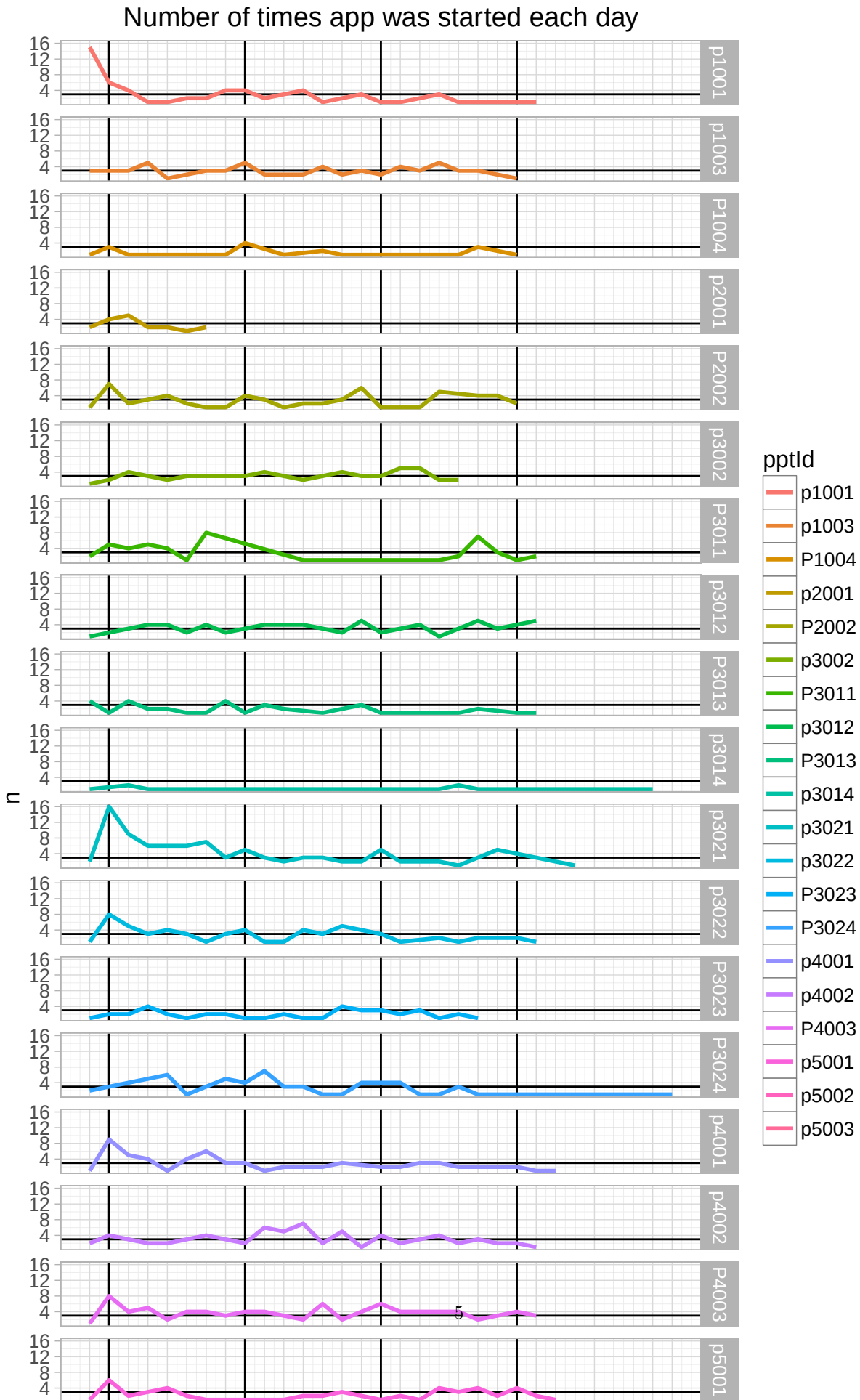
- Only a couple of participants changed any daily goals (purple dots), and that was only in the first few days of the study.
- More people actually looked at the goals (black dots), and that was throughout the study.
- A few people edited records throughout the study, but not many.

There are three things we want to look at:

- Actions related to using the food database.
- Actions related to using the +1 buttons.
- How often the app was started over the course of the study.

App Starts throughout the study

One behavior we wanted to see from our participants was a good pattern of starting the app– multiple times per day, hopefully a consistent pattern. Here, I've plotted the number of app starts per day. The black horizontal line indicates three app starts per day.


Number of times app was started each day
n
16
12
8
4
p1001
p1003
P1004
p2001
P2002
p3002
P3011
p3012
P3013
p3014
p3021
p3022
P3023
P3024
p4001
p4002
P4003
p5001
5
pptId
p1001
p1003
P1004
p2001
P2002
p3002
P3011
p3012
P3013
p3014
p3021
p3022
P3023
P3024
p4001
p4002
P4003
p5001
p5002
p5003

- to do: table of number of app starts per day. Mean number of starts per day for each ppt.
- For each ppt:
  - Number of days with more than one start
  - Number of days with 0 starts
  - Number of days with 3 or more starts

Question to investigate:

In the preliminary analysis, I saw different users use different strategies for entering given food items. It would be interesting to see if there is a correlation between what people do in the lab and what they do in the field.