Analytics Results Test

7/31/2020

Creating the spreadsheet

```r
spreadsheet <- data.frame("send_date" = c("4/30/15", "4/26/15", "4/23/15"),
                          "subject_line" = c("Only You", "before midnight", "got a sec"),
                          "sent" = c(418328, 417767, 415714),
                          "opens" = c(62676, 66396, 64347),
                          "clicked" = c(3486, 2941, 2289),
                          "gifts" = c(103, 224, 71),
                          "total_raised" = c(3189, 1478, 1283))

with_stats <- spreadsheet %>%
  group_by(send_date) %>%
  mutate(open_rate = (opens/sent),
         clicks_sent = (clicked/sent),
         clicks_opens = (clicked/opens),
         gifts_sent = (gifts/sent),
         gifts_open = (gifts/opens),
         gifts_clicks = (gifts/clicked),
         average_gift = (total_raised/gifts)) %>%
  adorn_totals(where = "row", fill = "")
```

Showing raw display of spreadsheet

```r
with_stats
```

```
##  send_date     subject_line     sent  opens clicked gifts total_raised open_rate
##    4/30/15         Only You  418328  62676    3486   103         3189 0.1498250
##    4/26/15  before midnight  417767  66396    2941   224         1478 0.1589307
##    4/23/15        got a sec  415714  64347    2289    71         1283 0.1547867
##      Total                  1251809 193419    8716   398         5950 0.4635424
##  clicks_sent clicks_opens    gifts_sent gifts_open gifts_clicks average_gift
##  0.008333174   0.05561938 0.0002462183 0.001643372   0.02954676    30.961165
##  0.007039809   0.04429484 0.0005361840 0.003373697   0.07616457     6.598214
##  0.005506189   0.03557275 0.0001707905 0.001103393   0.03101791    18.070423
##  0.020879173   0.13548697 0.0009531928 0.006120462   0.13672924    55.629802
```

Writing to csv without personal information

Code: write_csv(with_stats, "../spreadsheet.csv")

The spreadsheet can be found in the folder `data` called `spreadsheet.csv`

Questions

1. By what percentage did the gifts/clicks ratio improve from "only you" to "before midnight"? Please show your math.

The gifts/clicks ratio for "only you:" $\frac{103}{3486} = 0.02954676$

The gifts/clicks ratio for "before midnight:" $\frac{224}{2941} = 0.07616457$

Subtracting ratios: $0.07616457 - 0.02954676 = 0.04661781$

Finding percentage: $0.04661781 \times 100 = 4.661781\%$

The ratio improved by about 4.7%

2. In the email "before midnight," if the gift/open ratio held steady, how many opens would be required to reach 300 gifts? Please show your math.

Proportion to solve: $\frac{224}{66396} = \frac{300}{x}$

Cross-multiply: $224x = 300(66396)$

Solve for x: $\frac{244(x)}{244} = \frac{300(66396)}{224}$

x = 88923.21

88924 opens are required to reach 300 gifts.

3. Please rank the emails in order of best to worst performance and please explain why you selected that order.

1. "Only You"
2. "before midnight"
3. "got a sec"

I decided to rank the emails in the above order by considering average gift and total raised as the most significant statistics to determine the emails' performances. Initially, I thought to also consider the open rate as part of the criteria to rank the emails; however, "before midnight" has a higher rate than "Only You" and "got a sec" of only 0.009 and 0.004, respectively. These differences are negligible and therefore I decided to consider the emails' performance by average gift and total raised.

"Only You" has the largest average gift rate than "before midnight" and "got a sec" by a difference of 24.36295 and 12.89074, respectively. This may tell us how the content of the email may have affected the amount the recipients decided to donate. Since I consider the average gift as a slightly more significant attribute than total raised, I ranked "before midnight" before "got a sec."

The email that received the greatest total raised is ranked first, "Only You." Even with the smalles open rate, "Only You" performed better in total raised and average gifts than the other two emails. "before midnight" receieved the second most total raised which is why "got a sec" is ranked last.

4. Should the client be concerned about the drop in average gift from the "this is crazy" email to the "one more minute" message? Please explain your answer.

```
question4 <- data.frame("Subject" = c("one more minute", "this is crazy"),
                        "Gifts" = c(70, 51),
                        "Raised" = c("$2,109", "$2,543"),
                        "Average Gift" = c("$30.13", "$49.86"))
question4
```

```
##            Subject Gifts Raised Average.Gift
## 1 one more minute    70 $2,109       $30.13
## 2   this is crazy    51 $2,543       $49.86
```

I think whether the client should be concerned about the drop in average gift from the "this is crazy" email to the "one more minute" email depends on how many emails were sent out. The number of gifts both of the emails receive may indicate each of the emails were sent under 100 times and thus may not be a large sample to come to any conclusions.

5. How would you say the response rate for the "one more minute" message compares to the "can't stop hitting refresh" message? Please explain your answer and show your math.

```r
question5 <- data.frame("Subject" = c("one more minute", "can't stop hitting refresh"),
                        "Sent" = c("33,251", "33,160"),
                        "Open Rate" = c("21.4%", "22.0%"),
                        "Response Rate" = c("0.12%", "0.08%"))
question5
```

```
##                       Subject    Sent Open.Rate Response.Rate
## 1           one more minute 33,251     21.4%         0.12%
## 2 can't stop hitting refresh 33,160     22.0%         0.08%
```

  a) Much better
  b) Better
  c) About the same
  d) Worse
  e) Much worse

The "one more minute" message is *about the same* as the "can't stop hitting refreseh" message. The "one more minute" message was sent lightly more than the other message and the "one more minute" message slightly performed better in open rate and response rate than the other message. However, such differences are negligible thus these messages are ranked about the same.