Neil Strava Analysis

Load Libraries

```
#install.packages("rgdal")
#install.packages("maptools")
#install.packages("httr")
#install.packages("httpuv")
#install.packages("jsonlite")

library(maptools)
library(rgdal)
library(httr)
library(httpuv)
library(tidyverse)
library(jsonlite)
```

source Credentials

```
source("C:/Users/Neil/Desktop/Git/creds.R") # <- Credentials
```

Access data and enter credential

```
my_app <- oauth_app("strava",
                    key = key, # <- From creds file
                    secret = secret # <- From Creds File
)


my_endpoint <- oauth_endpoint(
  request = NULL,
  authorize = "https://www.strava.com/oauth/authorize",
  access = "https://www.strava.com/oauth/token"
)
```

Load the data convert from Javascript

```
#sig <- oauth2.0_token(my_endpoint, my_app, scope = "view_private",  type = NULL, use_oob = FALSE, as_h


jsonData <- fromJSON(access_token, flatten = TRUE) # <- From Creds file

rm(key); rm(secret); rm(access_token) #Remove credentials
```

View some of the data

```
nrow(jsonData) ##returns the number of records retrieved
```

```
## [1] 137
```

```
names(jsonData) ##returns the column names of list vector returned
```

```
##  [1] "resource_state"         "name"
##  [3] "distance"               "moving_time"
##  [5] "elapsed_time"           "total_elevation_gain"
##  [7] "type"                   "workout_type"
##  [9] "id"                     "external_id"
## [11] "upload_id"              "start_date"
## [13] "start_date_local"       "timezone"
## [15] "utc_offset"             "start_latlng"
## [17] "end_latlng"             "location_city"
## [19] "location_state"         "location_country"
## [21] "start_latitude"         "start_longitude"
## [23] "achievement_count"      "kudos_count"
## [25] "comment_count"          "athlete_count"
## [27] "photo_count"            "trainer"
## [29] "commute"                "manual"
## [31] "private"                "flagged"
## [33] "gear_id"                "from_accepted_tag"
## [35] "average_speed"          "max_speed"
## [37] "has_heartrate"          "elev_high"
## [39] "elev_low"               "pr_count"
## [41] "total_photo_count"      "has_kudoed"
## [43] "average_watts"          "kilojoules"
## [45] "device_watts"           "athlete.id"
## [47] "athlete.resource_state" "map.id"
## [49] "map.summary_polyline"   "map.resource_state"
```

```
head(jsonData, n=3) ## returns the first three full records
```

```
##   resource_state          name distance moving_time elapsed_time
## 1              2      Rain run   8909.2        2800         3158
## 2              2 Afternoon Run   6655.4        2238         2615
## 3              2   Evening Run   5765.0        1851         2090
##   total_elevation_gain type workout_type         id
## 1                 25.1  Run            0 1472295921
## 2                 20.4  Run            0 1458274417
```

```
## 3                 14.6  Run            0 1456670656
##                       external_id  upload_id           start_date
## 1 f292201314b94a9e6d807dbf5e3e9a95 1586688317 2018-03-26T00:09:57Z
## 2 635c3106f4c5920d81f67340ac556b9b 1572057032 2018-03-17T22:35:11Z
## 3 34e401315b0b7c1837c2307c5b2a054d 1570403296 2018-03-17T00:39:44Z
##       start_date_local                   timezone utc_offset
## 1 2018-03-25T18:09:57Z (GMT-07:00) America/Denver     -21600
## 2 2018-03-17T16:35:11Z (GMT-07:00) America/Denver     -21600
## 3 2018-03-16T18:39:44Z (GMT-07:00) America/Denver     -21600
##     start_latlng     end_latlng location_city location_state
## 1 40.55, -105.03 40.55, -105.03            NA             NA
## 2 40.55, -105.03 40.55, -105.03            NA             NA
## 3 40.55, -105.03 40.55, -105.03            NA             NA
##   location_country start_latitude start_longitude achievement_count
## 1                           40.55         -105.03                 0
## 2                           40.55         -105.03                 0
## 3                           40.55         -105.03                 1
##   kudos_count comment_count athlete_count photo_count trainer commute
## 1           0             0             1           0   FALSE   FALSE
## 2           1             0             1           0   FALSE   FALSE
## 3           0             0             1           0   FALSE   FALSE
##   manual private flagged  gear_id from_accepted_tag average_speed
## 1  FALSE   FALSE   FALSE g1496276             FALSE         3.182
## 2  FALSE   FALSE   FALSE g1496276             FALSE         2.974
## 3  FALSE   FALSE   FALSE g1496276             FALSE         3.115
##   max_speed has_heartrate elev_high elev_low pr_count total_photo_count
## 1       4.7         FALSE    1514.5   1497.7        0                 0
## 2       4.5         FALSE    1497.9   1485.0        0                 0
## 3       4.8         FALSE    1512.7   1495.0        0                 0
##   has_kudoed average_watts kilojoules device_watts athlete.id
## 1      FALSE            NA         NA           NA   15386069
## 2      FALSE            NA         NA           NA   15386069
## 3      FALSE            NA         NA           NA   15386069
##   athlete.resource_state      map.id
## 1                      1 a1472295921
## 2                      1 a1458274417
## 3                      1 a1456670656
##
## 1                                                                                cnnvF`_``S_N~Hy@dIs
## 2 innvFt_``SNiC}H{XeLxKkDaD[yKrAiEyf@sAyCrAqBhHc@|Lp@hDwD|B}Od@WxJaEzF@|DtCk@xE}H|OoDvIkLgDwHgEnBpB}
## 3                                                                    qnnvF~~_`S}L|GcAdIsK^GvtA`xAA@s
##   map.resource_state
## 1                  2
## 2                  2
## 3                  2
```

Strava only loads 200 records at a time… if you have more than 200 records, use this

```r
#jsonData[c(6,7,12,29,31)]
#
#
```

```
#jsonData_p2 <- fromJSON("https://www.strava.com/api/v3/athlete/activities?access_token=5017dd6afa6bfab
#
#jsonData_p2[c(6,7,12,29,31)]
#
#jsonData_p3 <- fromJSON("https://www.strava.com/api/v3/athlete/activities?access_token=5017dd6afa6bfab
#
#jsonData_p3[c(6,7,12,29,31)]
#
#
alltimeData <-  jsonData     #rbind.pages(list(jsonData, jsonData_p2, jsonData_p3)) ##combines the thre
#
#nrow(alltimeData) ##show your full strava activity count for all time
#
alltimeData[c(6,7,12,29,31)] ##display the summary data for ALL records
```

```
##     total_elevation_gain type           start_date commute private
## 1                   25.1  Run 2018-03-26T00:09:57Z   FALSE   FALSE
## 2                   20.4  Run 2018-03-17T22:35:11Z   FALSE   FALSE
## 3                   14.6  Run 2018-03-17T00:39:44Z   FALSE   FALSE
## 4                   10.8  Run 2018-03-14T20:39:51Z   FALSE   FALSE
## 5                   23.5  Run 2018-02-18T20:13:49Z   FALSE   FALSE
## 6                   21.7  Run 2018-02-17T00:11:36Z   FALSE   FALSE
## 7                   18.9  Run 2018-02-13T22:24:30Z   FALSE   FALSE
## 8                   24.1  Run 2018-02-06T21:44:29Z   FALSE   FALSE
## 9                   19.6  Run 2018-02-03T19:49:37Z   FALSE   FALSE
## 10                  23.5  Run 2018-01-30T22:11:57Z   FALSE   FALSE
## 11                  10.5  Run 2018-01-28T19:55:12Z   FALSE   FALSE
## 12                  31.1  Run 2018-01-20T22:01:20Z   FALSE   FALSE
## 13                  15.4  Run 2018-01-18T22:32:34Z   FALSE   FALSE
## 14                  24.4  Run 2018-01-15T22:33:06Z   FALSE   FALSE
## 15                  28.4  Run 2018-01-13T22:28:25Z   FALSE   FALSE
## 16                  25.1  Run 2018-01-11T22:17:10Z   FALSE   FALSE
## 17                  24.4  Run 2018-01-07T21:17:25Z   FALSE   FALSE
## 18                  53.7  Run 2017-12-17T21:19:52Z   FALSE   FALSE
## 19                  18.1  Run 2017-12-14T22:52:40Z   FALSE   FALSE
## 20                  31.0  Run 2017-12-12T22:40:18Z   FALSE   FALSE
## 21                  30.9  Run 2017-12-10T21:48:13Z   FALSE   FALSE
## 22                  25.2  Run 2017-12-07T21:26:18Z   FALSE   FALSE
## 23                  29.4  Run 2017-12-03T22:19:15Z   FALSE   FALSE
## 24                  17.3  Run 2017-12-01T23:06:45Z   FALSE   FALSE
## 25                  34.7  Run 2017-11-26T22:46:45Z   FALSE   FALSE
## 26                  14.4  Run 2017-11-14T23:19:00Z   FALSE   FALSE
## 27                  28.4  Run 2017-11-12T21:30:02Z   FALSE   FALSE
## 28                  25.2  Run 2017-11-11T22:55:39Z   FALSE   FALSE
## 29                  25.3  Run 2017-11-05T21:11:19Z   FALSE   FALSE
## 30                  36.3  Run 2017-10-29T22:38:17Z   FALSE   FALSE
## 31                  25.1  Run 2017-10-27T22:53:48Z   FALSE   FALSE
## 32                  31.5  Run 2017-10-25T23:15:06Z   FALSE   FALSE
## 33                  25.5  Run 2017-10-23T23:26:38Z   FALSE   FALSE
## 34                  18.9  Run 2017-10-20T22:15:36Z   FALSE   FALSE
## 35                  25.6  Run 2017-10-15T23:48:40Z   FALSE   FALSE
## 36                  35.4  Run 2017-10-10T23:25:52Z   FALSE   FALSE
## 37                  32.6  Run 2017-10-06T22:56:08Z   FALSE   FALSE
## 38                  25.5  Run 2017-09-25T23:11:51Z   FALSE   FALSE
```

```
## 39                 34.9  Run 2017-09-18T22:28:18Z   FALSE   FALSE
## 40                 18.1  Run 2017-09-14T00:18:53Z   FALSE   FALSE
## 41                 30.3  Run 2017-09-12T00:02:55Z   FALSE   FALSE
## 42                 25.9  Run 2017-09-08T00:10:25Z   FALSE   FALSE
## 43                 10.9  Run 2017-09-06T01:05:01Z   FALSE   FALSE
## 44                 43.3  Run 2017-08-30T23:36:34Z   FALSE   FALSE
## 45                 10.8  Run 2017-08-29T01:37:30Z   FALSE   FALSE
## 46                 32.4  Run 2017-08-25T22:39:28Z   FALSE   FALSE
## 47                 43.0  Run 2017-08-23T22:57:40Z   FALSE   FALSE
## 48                 34.1  Run 2017-08-22T00:03:23Z   FALSE   FALSE
## 49                 27.5  Run 2017-08-21T00:35:33Z   FALSE   FALSE
## 50                 38.9  Run 2017-08-17T21:45:17Z   FALSE   FALSE
## 51                 34.1  Run 2017-08-15T23:26:39Z   FALSE   FALSE
## 52                  2.0  Run 2017-08-09T01:21:04Z   FALSE   FALSE
## 53                 45.6  Run 2017-08-08T23:33:27Z   FALSE   FALSE
## 54                 21.0  Run 2017-08-07T22:47:30Z   FALSE   FALSE
## 55                 48.5  Run 2017-08-04T00:46:22Z   FALSE   FALSE
## 56                 29.6  Run 2017-08-03T01:26:21Z   FALSE   FALSE
## 57                178.7 Ride 2017-08-02T00:17:19Z   FALSE   FALSE
## 58                 40.6  Run 2017-08-01T01:35:10Z   FALSE   FALSE
## 59                 27.8  Run 2017-07-31T01:38:11Z   FALSE   FALSE
## 60                 22.1 Ride 2017-07-28T21:27:20Z   FALSE   FALSE
## 61                 14.2  Run 2017-07-28T00:44:44Z   FALSE   FALSE
## 62                 19.1  Run 2017-07-27T01:54:03Z   FALSE   FALSE
## 63                149.9 Ride 2017-07-25T01:37:58Z   FALSE   FALSE
## 64                180.9  Run 2017-07-23T17:09:40Z   FALSE   FALSE
## 65                 26.5  Run 2017-07-19T01:19:12Z   FALSE   FALSE
## 66                 30.7  Run 2017-07-13T01:00:54Z   FALSE   FALSE
## 67                 32.1  Run 2017-07-01T01:47:00Z   FALSE   FALSE
## 68                 17.7  Run 2017-06-24T15:12:26Z   FALSE   FALSE
## 69                 62.6  Run 2017-06-23T14:13:33Z   FALSE   FALSE
## 70                 74.8  Run 2017-06-22T14:39:20Z   FALSE   FALSE
## 71                127.7  Run 2017-06-19T01:53:28Z   FALSE   FALSE
## 72                 72.3  Run 2017-06-11T00:40:56Z   FALSE   FALSE
## 73                172.3 Ride 2017-06-10T00:24:57Z   FALSE   FALSE
## 74                 29.0  Run 2017-06-08T22:17:04Z   FALSE   FALSE
## 75                 34.9  Run 2017-06-05T22:06:07Z   FALSE   FALSE
## 76                 26.5  Run 2017-06-05T01:54:19Z   FALSE   FALSE
## 77                 19.7  Run 2017-06-04T23:00:13Z   FALSE   FALSE
## 78                 14.4  Run 2017-06-03T19:09:18Z   FALSE   FALSE
## 79                 35.4  Run 2017-06-02T19:27:07Z   FALSE   FALSE
## 80                 18.8  Run 2017-05-31T01:16:02Z   FALSE   FALSE
## 81                 27.7  Run 2017-05-27T22:03:33Z   FALSE   FALSE
## 82                 10.0  Run 2017-05-26T00:11:50Z   FALSE   FALSE
## 83                 52.4  Run 2017-05-24T00:28:07Z   FALSE   FALSE
## 84                 25.3  Run 2017-05-20T00:11:19Z   FALSE   FALSE
## 85                 32.4  Run 2017-05-14T22:06:30Z   FALSE   FALSE
## 86                  0.0  Run 2017-05-09T23:01:00Z   FALSE   FALSE
## 87                 46.9  Run 2017-05-08T00:58:23Z   FALSE   FALSE
## 88                 19.3  Run 2017-04-26T22:35:27Z   FALSE   FALSE
## 89                 25.3  Run 2017-04-23T23:51:24Z   FALSE   FALSE
## 90                  0.0  Run 2017-04-23T01:13:14Z   FALSE   FALSE
## 91                 34.9  Run 2017-04-19T00:24:14Z   FALSE   FALSE
## 92                 25.3  Run 2017-04-17T23:26:04Z   FALSE   FALSE
```

```
## 93                   0.0  Run 2017-04-15T21:51:58Z   FALSE   FALSE
## 94                  35.3  Run 2017-04-11T23:38:35Z   FALSE   FALSE
## 95                  31.9  Run 2017-04-09T22:35:33Z   FALSE   FALSE
## 96                  25.1  Run 2017-04-08T23:04:58Z   FALSE   FALSE
## 97                   0.0  Run 2017-04-07T22:10:44Z   FALSE   FALSE
## 98                  27.8  Run 2017-03-29T23:38:13Z   FALSE   FALSE
## 99                 135.5 Ride 2017-02-19T22:54:58Z   FALSE   FALSE
## 100                  0.0  Run 2017-02-12T22:36:08Z   FALSE   FALSE
## 101                  0.0  Run 2017-02-04T22:43:31Z   FALSE   FALSE
## 102                 25.3  Run 2017-01-29T21:02:13Z   FALSE   FALSE
## 103                  0.0  Run 2017-01-28T22:43:40Z   FALSE   FALSE
## 104                  0.0  Run 2017-01-22T20:22:20Z   FALSE   FALSE
## 105                 24.0  Run 2017-01-14T22:26:12Z   FALSE   FALSE
## 106                  0.0  Run 2017-01-08T21:38:31Z   FALSE   FALSE
## 107                188.7 Ride 2016-10-26T14:19:18Z   FALSE   FALSE
## 108                  0.0  Run 2016-10-24T23:58:56Z   FALSE   FALSE
## 109                375.8 Ride 2016-10-23T23:09:38Z   FALSE   FALSE
## 110                536.8 Ride 2016-10-15T16:01:44Z   FALSE   FALSE
## 111                 64.3  Run 2016-09-25T15:00:58Z   FALSE   FALSE
## 112                 29.8  Run 2016-08-31T23:06:51Z   FALSE   FALSE
## 113                 36.6  Run 2016-08-21T18:59:24Z   FALSE   FALSE
## 114                 12.2  Run 2016-08-15T23:09:21Z   FALSE   FALSE
## 115                393.0 Ride 2016-08-10T14:54:54Z   FALSE   FALSE
## 116                270.4 Ride 2016-08-09T22:15:33Z   FALSE   FALSE
## 117                 29.2  Run 2016-08-08T23:51:42Z   FALSE   FALSE
## 118                  0.0  Run 2016-08-05T22:58:04Z   FALSE   FALSE
## 119                 96.8  Run 2016-07-22T00:19:01Z   FALSE   FALSE
## 120                367.1 Ride 2016-07-14T00:15:11Z   FALSE   FALSE
## 121                115.8  Run 2016-07-06T00:39:24Z   FALSE   FALSE
## 122                399.2 Ride 2016-07-05T01:45:56Z   FALSE   FALSE
## 123                473.3 Ride 2016-06-30T00:41:31Z   FALSE   FALSE
## 124                781.8 Ride 2016-06-26T14:07:05Z   FALSE   FALSE
## 125                181.3  Run 2016-06-26T00:22:23Z   FALSE   FALSE
## 126                639.0 Ride 2016-06-23T14:28:37Z   FALSE   FALSE
## 127                167.9  Run 2016-06-18T16:03:03Z   FALSE   FALSE
## 128                148.4 Ride 2016-06-15T01:24:35Z   FALSE   FALSE
## 129                 71.2 Ride 2016-06-15T00:31:53Z   FALSE   FALSE
## 130                163.3 Ride 2016-06-08T00:28:51Z   FALSE   FALSE
## 131                331.5 Ride 2016-06-06T15:39:41Z   FALSE   FALSE
## 132                 24.4  Run 2016-06-05T00:49:20Z   FALSE   FALSE
## 133                511.9 Ride 2016-06-01T15:29:36Z   FALSE   FALSE
## 134                153.6  Run 2016-05-31T20:43:14Z   FALSE   FALSE
## 135                331.6 Ride 2016-05-29T14:37:54Z   FALSE   FALSE
## 136                183.8 Ride 2016-05-28T17:04:48Z   FALSE   FALSE
## 137                 31.7  Run 2016-05-27T21:32:27Z   FALSE   FALSE
```

```
#alltimeData <- as.POSIXct(alltimeData$start_date_local, format = "%Y-%m-%dT%TZ") #convert from charact
```

Filter by year and convert to American Units

```
##STATISTICS FOR 2016
```

```
#filter just 2017 runs

alltimeData <- alltimeData %>%
  mutate(year = ifelse((grepl("2016-", start_date) == TRUE), 2016, NA),
         year = ifelse((grepl("2017-", start_date) == TRUE), 2017, year),
         year = ifelse((grepl("2018-", start_date) == TRUE), 2018, year))  %>%
  filter(type == "Run")


alltimeData <- alltimeData %>%
  mutate(distance_miles = distance/1609.34,
         moving_minutes = moving_time/60,
         elev_gain_feet = total_elevation_gain*3.28,
         avg_sp_minmi   = average_speed/0.3926239,
         elv_gain_ft = total_elevation_gain*3.28084)
```

2017

```
###STATISTICS FOR 2017

#filter just 2017 runs
data2017 <- alltimeData %>%
  filter(grepl("2017-", start_date)) %>%
  filter(type == "Run")



nrow(data2017) ##count the number of records from 2017
```

```
## [1] 84
```

```
data2017 <- data2017 %>%
  mutate(distance_miles = distance/1609.34)

data2017[c(51,11,27,29)] ## display the summary data of these 2017 rides
```

```
##    year  upload_id photo_count commute
## 1  2017 1425339521           0   FALSE
## 2  2017 1421580571           0   FALSE
## 3  2017 1419356193           0   FALSE
## 4  2017 1417097929           0   FALSE
## 5  2017 1413229866           0   FALSE
## 6  2017 1408247645           0   FALSE
## 7  2017 1405198053           0   FALSE
## 8  2017 1398986519           0   FALSE
## 9  2017 1382349691           0   FALSE
## 10 2017 1379634761           0   FALSE
## 11 2017 1377921459           0   FALSE
## 12 2017 1369818909           0   FALSE
## 13 2017 1359440205           0   FALSE
## 14 2017 1356119995           0   FALSE
## 15 2017 1353486875           0   FALSE
```

```
## 16 2017 1350509879           0   FALSE
## 17 2017 1345831583           0   FALSE
## 18 2017 1338760814           0   FALSE
## 19 2017 1330898442           0   FALSE
## 20 2017 1324403652           0   FALSE
## 21 2017 1307701678           0   FALSE
## 22 2017 1296389239           0   FALSE
## 23 2017 1288549280           0   FALSE
## 24 2017 1285380774           0   FALSE
## 25 2017 1278986435           0   FALSE
## 26 2017 1275841601           0   FALSE
## 27 2017 1265997633           0   FALSE
## 28 2017 1262679847           0   FALSE
## 29 2017 1257262138           0   FALSE
## 30 2017 1254108069           0   FALSE
## 31 2017 1250670941           0   FALSE
## 32 2017 1249165993           0   FALSE
## 33 2017 1243982263           0   FALSE
## 34 2017 1240754133           0   FALSE
## 35 2017 1229087396           0   FALSE
## 36 2017 1229056557           0   FALSE
## 37 2017 1227292339           0   FALSE
## 38 2017 1220881629           0   FALSE
## 39 2017 1219327560           0   FALSE
## 40 2017 1215917998           0   FALSE
## 41 2017 1214358791           0   FALSE
## 42 2017 1209330280           0   FALSE
## 43 2017 1207805289           0   FALSE
## 44 2017 1202640087           0   FALSE
## 45 2017 1194814065           0   FALSE
## 46 2017 1184856959           0   FALSE
## 47 2017 1165413900           0   FALSE
## 48 2017 1155424215           0   FALSE
## 49 2017 1153884426           0   FALSE
## 50 2017 1152502240           0   FALSE
## 51 2017 1146984268           0   FALSE
## 52 2017 1133629156           0   FALSE
## 53 2017 1130453577           0   FALSE
## 54 2017 1125993685           0   FALSE
## 55 2017 1124650773           0   FALSE
## 56 2017 1124554176           0   FALSE
## 57 2017 1122424233           0   FALSE
## 58 2017 1120770939           0   FALSE
## 59 2017 1116362096           0   FALSE
## 60 2017 1111242370           0   FALSE
## 61 2017 1108243088           0   FALSE
## 62 2017 1105103152           0   FALSE
## 63 2017 1098261543           0   FALSE
## 64 2017 1089694742           0   FALSE
## 65 2017 1080431720           0   FALSE
## 66 2017 1077514209           0   FALSE
## 67 2017 1060412285           0   FALSE
## 68 2017 1056390815           0   FALSE
## 69 2017 1054520240           0   FALSE
```

```
## 70 2017 1048930656           0   FALSE
## 71 2017 1047453193           0   FALSE
## 72 2017 1044386196           0   FALSE
## 73 2017 1038733455           0   FALSE
## 74 2017 1035858908           0   FALSE
## 75 2017 1033945131           0   FALSE
## 76 2017 1032323172           0   FALSE
## 77 2017 1019866366           0   FALSE
## 78 2017  956793210           0   FALSE
## 79 2017  946959563           0   FALSE
## 80 2017  939892443           0   FALSE
## 81 2017  938459242           0   FALSE
## 82 2017  931462290           0   FALSE
## 83 2017  921483653           0   FALSE
## 84 2017  914710643           0   FALSE
```

```
sum(data2017$distance)/1609.34 ##total 2016 distance, converted from meters to miles
```

```
## [1] 453.2064
```

```
sum(data2017[which(data2017[,27]==TRUE),6])/1609.34 ##total distance where Commute = True, also convert
```

```
## [1] 0
```

```
sum(data2017[which(data2017[,27]==FALSE),6])/1609.34 ##total distance where Commute = False, again conv
```

```
## [1] 1.550636
```

2018

```
###STATISTICS FOR 2018

#filter just 2018 runs
data2018 <- alltimeData %>%
  filter(grepl("2018-", start_date)) %>%
  filter(type == "Run")



nrow(data2018) ##count the number of records from 2017
```

```
## [1] 17
```

```
data2018 <- data2018 %>%
  mutate(distance_miles = distance/1609.34)

data2018[c(51,11,27,29)] ## display the summary data of these 2017 rides
```

```
##    year  upload_id photo_count commute
## 1  2018 1586688317           0   FALSE
## 2  2018 1572057032           0   FALSE
## 3  2018 1570403296           0   FALSE
## 4  2018 1567039026           0   FALSE
## 5  2018 1526968691           0   FALSE
## 6  2018 1522960865           0   FALSE
```

```
## 7  2018 1517973203           0   FALSE
## 8  2018 1505317424           0   FALSE
## 9  2018 1500093831           0   FALSE
## 10 2018 1493594041           0   FALSE
## 11 2018 1490113439           0   FALSE
## 12 2018 1476297437           0   FALSE
## 13 2018 1472939117           0   FALSE
## 14 2018 1468172826           0   FALSE
## 15 2018 1464564543           0   FALSE
## 16 2018 1461216871           0   FALSE
## 17 2018 1454578661           0   FALSE
```

```
sum(data2018$distance)/1609.34 ##total 2016 distance, converted from meters to miles
```

```
## [1] 78.13178
```

```
sum(data2018[which(data2018[,27]==TRUE),6])/1609.34 ##total distance where Commute = True, also convert
```

```
## [1] 0
```

```
sum(data2018[which(data2018[,27]==FALSE),6])/1609.34 ##total distance where Commute = False, again conv
```

```
## [1] 0.2246262
```