Assignment 2–R

Sherri Abbott

February 1, 2019

Control flow: Airport statistics

If your code uses any libraries, load them here.

```
library(readr)

## Warning: package 'readr' was built under R version 3.5.2
```

a. Download the data set `airport.csv`. Read it into R and display the first few lines of data.

```
airport = read_csv("airport.csv")

## Parsed with column specification:
## cols(
##   Airport = col_character(),
##   City = col_character(),
##   `Scheduled Departures` = col_double(),
##   `Performed Departures` = col_double(),
##   Passengers = col_double(),
##   `Freight (tons)` = col_double(),
##   `Mail (tons)` = col_double()
## )
```

This data set contains data on all 135 medium and large airports in the US in 1990.

(Dataset: "US Airport Statistics," submitted by Larry Winner, University of Florida. Dataset obtained from the Journal of Statistics Education (http://www.amstat.org/publications/jse). Accessed 3 June 2015. Used by permission of author.)

b. **Use control flow** to print a list of airports at which the number of scheduled departures was less than the number of departures performed.

- The point of this assignment is to demonstrate your understanding of control flow, so please use control flow to solve this problem.

```
numRows = dim(airport)[1]
for(ap_index in 1:numRows){ #iterate over airports
  if(airport$`Scheduled Departures`[ap_index] < airport$`Performed
Departures`[ap_index]){ #check if scheduled departures is less than actual
departures
    print(airport$Airport[ap_index])
  } #end of iteration over airports
} #end "check departures"
```

```
## [1] "HARTSFIELD INTL"
## [1] "BALTO/WASH INTL"
## [1] "LOGAN INTL"
## [1] "DOUGLAS MUNI"
## [1] "MIDWAY"
## [1] "O'HARE INTL"
## [1] "DALLAS/FT WORTH INTL"
## [1] "LOVE FIELD"
## [1] "STAPLETON INTL"
## [1] "DETROIT CITY"
## [1] "WAYNE COUNTY"
## [1] "HONOLULU INTL"
## [1] "INTERCONTINENTAL"
## [1] "HOBBY"
## [1] "ELLINGTON FIELD"
## [1] "HOLLYWOOD-BURBANK"
## [1] "LONG BEACH"
## [1] "LOS ANGELES INTL"
## [1] "ORANGE COUNTY"
## [1] "MINNEAPOLIS/ST PAUL"
## [1] "NEWARK"
## [1] "LA GUARDIA"
## [1] "INTERNATIONAL"
## [1] "SKY HARBOR INTL"
## [1] "GREATER PITTSBURGH"
## [1] "LAMBERT-ST LOUIS"
## [1] "SAN DIEGO INTL"
## [1] "BUCHANAN FIELD"
## [1] "OAKLAND METRO INTL"
## [1] "SAN FRANCISCO INTL"
## [1] "SEATTLE-TACOMA INTL"
## [1] "TAMPA INTL"
## [1] "DULLES INTL"
## [1] "WASHINGTON NATIONAL"
## [1] "ALBUQUERQUE INTL"
## [1] "MUELLER MUNI"
## [1] "GREATER BUFFALO INTL"
## [1] "GREATER CINCINNATI"
## [1] "HOPKINS INTL"
## [1] "PORT COLUMBUS INTL"
## [1] "COX/DAYTON INTL"
## [1] "EL PASO INTL"
## [1] "BRADLEY INTL"
## [1] "JACKSONVILLE INTL"
## [1] "KAHULUI"
## [1] "INTERNATIONAL"
## [1] "LIHUE"
## [1] "MEMPHIS INTL"
## [1] "GENERAL MITCHELL"
## [1] "METROPOLITAN"
```

```
## [1] "INTL/MOISANT FIELD"
## [1] "NORFOLK REGIONAL"
## [1] "WILL ROGERS WORLD"
## [1] "ONTARIO INTL"
## [1] "PORTLAND INTL"
## [1] "RALEIGH-DURHAM"
## [1] "RENO INTL"
## [1] "ROCHESTER-MONROE CTY"
## [1] "SACRAMENTO METRO"
## [1] "SAN ANTONIO INTL"
## [1] "SAN JOSE MUNI"
## [1] "HANCOCK"
## [1] "TUCSON INTL"
## [1] "TULSA INTL"
## [1] "PALM BEACH INTL"
## [1] "AKRON-CANTON"
## [1] "ALBANY COUNTY"
## [1] "ALLENTOWN-BETHEHEM"
## [1] "AMARILLO"
## [1] "RYAN"
## [1] "LOGAN FIELD"
## [1] "BIRMINGHAM MUNI"
## [1] "BOISE AIR TERMINAL"
## [1] "HARLINGEN INDUSTRIAL"
## [1] "BURLINGTON INTL"
## [1] "CEDAR RAPIDS MUNI"
## [1] "CHARLESTON AFB/MUNI"
## [1] "LOVELL FIELD"
## [1] "PETERSON FIELD"
## [1] "COLUMBIA METRO"
## [1] "CORPUS CHRISTI INTL"
## [1] "DES MOINES MUNI"
## [1] "MAHLON SWEET FIELD"
## [1] "FAIRBANKS INTL"
## [1] "MUNI/BAER FIELD"
## [1] "FRESNO AIR TERMINAL"
## [1] "KENT COUNTY"
## [1] "GREENSBORO-HP-WS REG"
## [1] "GREENVILLE/SPARTANBG"
## [1] "HARRISBURG INTL"
## [1] "MADISON COUNTY"
## [1] "PALM SPRINGS MUNI"
## [1] "LONG ISLAND-MCARTHUR"
## [1] "THOMPSON FIELD"
## [1] "KE-AHOLE"
## [1] "MCGHEE TYSON"
## [1] "BLUE GRASS"
## [1] "ADAMS FIELD"
## [1] "STANDIFORD FIELD"
## [1] "LUBBOCK REGIONAL"
```

```
## [1] "TRUAX FIELD"
## [1] "MUNICIPAL"
## [1] "CAPE KENNEDY REG"
## [1] "MIDLAND REGIONAL"
## [1] "BATES FIELD"
## [1] "QUAD CITY"
## [1] "PENSACOLA REGIONAL"
## [1] "PORTLAND INTL JETPRT"
## [1] "FRANCIS GREEN STATE"
## [1] "BYRD FLYING FIELD"
## [1] "ROANOKE MUNI"
## [1] "TRI CITY"
## [1] "SANTA BARBARA"
## [1] "SARASOTA-BRADENTON"
## [1] "SAVANNAH INTL"
## [1] "FOSS FIELD"
## [1] "MICHIANA REGIONAL"
## [1] "SPOKANE INTL"
## [1] "TALLAHASSEE REGIONAL"
## [1] "MID-CONTINENT"
```

c. **Use control flow** to find the average (mean) number of passengers on flights from all the airports in part b.

- Your result should be 1 number: The total number of passengers from all of the specified airports, divided by the total number of performed departures from all of the specified airports.
- The point of this assignment is to demonstrate your understanding of control flow, so please use control flow to solve this problem.

```
num_pass = 0
num_dep = 0
numRows = dim(airport)[1]
for (ap_index in 1:numRows){ #iterate over airports
  if(airport$`Scheduled Departures`[ap_index] < airport$`Performed
Departures`[ap_index]){ #check scheduled departures that are less than
performed departures
   num_pass = num_pass + airport$Passengers[ap_index] #assign number of
passengers to vector
     num_dep = num_dep + airport$`Performed Departures`[ap_index] #assign
number of performed departures to vector
   } #end of iteration over airports
      } #end "check departures"
num_pass/num_dep

## [1] 66.09745
```

d. Optional: If you know a more efficient way to do parts b and c in R, that's great! Do that here and use the result to check your work. (If you don't know a more efficient way, that's fine. We'll discuss methods of writing efficient code later in the course.)

- Submit your .Rmd file and knitted .pdf or .docx file (.pdf preferred) to GitHub.