# Module 6 - Assignment 1

## Agyabeng, Prince

### Lubridate

library(tidyverse)

## Warning: package 'tidyverse' was built under R version 3.4.4

## -- Attaching packages ------------------------------------------ tidyverse 1.2.1 --

## v ggplot2 2.2.1 v purrr 0.2.4  
## v tibble 1.4.1 v dplyr 0.7.5  
## v tidyr 0.8.0 v stringr 1.3.1  
## v readr 1.1.1 v forcats 0.2.0

## Warning: package 'dplyr' was built under R version 3.4.4

## Warning: package 'stringr' was built under R version 3.4.4

## -- Conflicts --------------------------------------------- tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()

library(lubridate)

##   
## Attaching package: 'lubridate'

## The following object is masked from 'package:base':  
##   
## date

library(readr)  
Appointments <- read\_csv("Appointments.csv")

## Parsed with column specification:  
## cols(  
## Age = col\_integer(),  
## Sex = col\_integer(),  
## ReservationMonth = col\_integer(),  
## ReservationDay = col\_integer(),  
## ReservationHour = col\_integer(),  
## ReservationMinute = col\_integer(),  
## CreationMonth = col\_integer(),  
## CreationDay = col\_integer(),  
## CreationYear = col\_integer(),  
## CreationHour = col\_integer(),  
## `Creation Minute` = col\_integer(),  
## Show = col\_integer()  
## )

View(Appointments)

Part 2 Working with Dates

Appointments <- Appointments %>%  
 mutate(ReservationYear="2019")  
  
Appointments <- Appointments %>%  
 mutate(  
 ReservationDate = make\_date(month=ReservationMonth,day=ReservationDay,year=ReservationYear),  
 CreationDate = make\_date(month=CreationMonth, day=CreationDay, year=CreationYear)  
 )

## Warning: package 'bindrcpp' was built under R version 3.4.4

Appointments <- Appointments %>%  
 mutate(ReservationSpan = difftime(ReservationDate,CreationDate))

Part 3 â Exploratory Analysis

summary(Appointments)

## Age Sex ReservationMonth ReservationDay   
## Min. : 0.00 Min. :1.000 Min. :1.000 Min. : 1.00   
## 1st Qu.: 16.00 1st Qu.:1.000 1st Qu.:2.000 1st Qu.: 7.00   
## Median : 34.00 Median :2.000 Median :3.000 Median :15.00   
## Mean : 34.64 Mean :1.597 Mean :2.527 Mean :14.51   
## 3rd Qu.: 51.00 3rd Qu.:2.000 3rd Qu.:3.000 3rd Qu.:21.00   
## Max. :101.00 Max. :2.000 Max. :4.000 Max. :28.00   
## ReservationHour ReservationMinute CreationMonth CreationDay   
## Min. : 0.00 Min. :0 Min. : 1.000 Min. : 1.00   
## 1st Qu.:11.00 1st Qu.:0 1st Qu.: 2.000 1st Qu.: 7.00   
## Median :14.00 Median :0 Median : 2.000 Median :14.00   
## Mean :13.85 Mean :0 Mean : 5.265 Mean :14.51   
## 3rd Qu.:17.00 3rd Qu.:0 3rd Qu.:12.000 3rd Qu.:22.00   
## Max. :21.00 Max. :0 Max. :12.000 Max. :28.00   
## CreationYear CreationHour Creation Minute Show   
## Min. :2018 Min. : 0.00 Min. :0 Min. :0.0000   
## 1st Qu.:2018 1st Qu.:10.00 1st Qu.:0 1st Qu.:1.0000   
## Median :2019 Median :13.00 Median :0 Median :1.0000   
## Mean :2019 Mean :13.42 Mean :0 Mean :0.7898   
## 3rd Qu.:2019 3rd Qu.:16.00 3rd Qu.:0 3rd Qu.:1.0000   
## Max. :2019 Max. :23.00 Max. :0 Max. :1.0000   
## ReservationYear ReservationDate CreationDate   
## Length:61214 Min. :2019-01-01 Min. :2018-10-03   
## Class :character 1st Qu.:2019-02-01 1st Qu.:2018-12-21   
## Mode :character Median :2019-03-04 Median :2019-01-20   
## Mean :2019-03-01 Mean :2019-01-21   
## 3rd Qu.:2019-03-28 3rd Qu.:2019-02-19   
## Max. :2019-04-28 Max. :2019-03-28   
## ReservationSpan   
## Length:61214   
## Class :difftime   
## Mode :numeric   
##   
##   
##

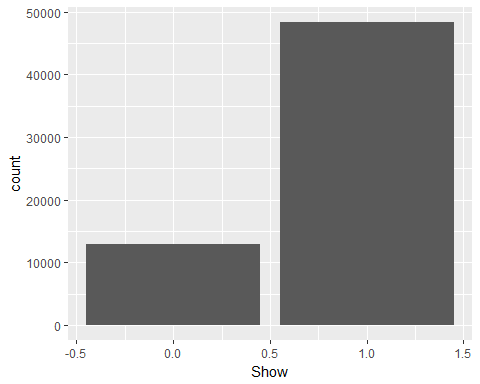
Appointments$ReservationSpan <- as.numeric(Appointments$ReservationSpan)  
summary(Appointments)

## Age Sex ReservationMonth ReservationDay   
## Min. : 0.00 Min. :1.000 Min. :1.000 Min. : 1.00   
## 1st Qu.: 16.00 1st Qu.:1.000 1st Qu.:2.000 1st Qu.: 7.00   
## Median : 34.00 Median :2.000 Median :3.000 Median :15.00   
## Mean : 34.64 Mean :1.597 Mean :2.527 Mean :14.51   
## 3rd Qu.: 51.00 3rd Qu.:2.000 3rd Qu.:3.000 3rd Qu.:21.00   
## Max. :101.00 Max. :2.000 Max. :4.000 Max. :28.00   
## ReservationHour ReservationMinute CreationMonth CreationDay   
## Min. : 0.00 Min. :0 Min. : 1.000 Min. : 1.00   
## 1st Qu.:11.00 1st Qu.:0 1st Qu.: 2.000 1st Qu.: 7.00   
## Median :14.00 Median :0 Median : 2.000 Median :14.00   
## Mean :13.85 Mean :0 Mean : 5.265 Mean :14.51   
## 3rd Qu.:17.00 3rd Qu.:0 3rd Qu.:12.000 3rd Qu.:22.00   
## Max. :21.00 Max. :0 Max. :12.000 Max. :28.00   
## CreationYear CreationHour Creation Minute Show   
## Min. :2018 Min. : 0.00 Min. :0 Min. :0.0000   
## 1st Qu.:2018 1st Qu.:10.00 1st Qu.:0 1st Qu.:1.0000   
## Median :2019 Median :13.00 Median :0 Median :1.0000   
## Mean :2019 Mean :13.42 Mean :0 Mean :0.7898   
## 3rd Qu.:2019 3rd Qu.:16.00 3rd Qu.:0 3rd Qu.:1.0000   
## Max. :2019 Max. :23.00 Max. :0 Max. :1.0000   
## ReservationYear ReservationDate CreationDate   
## Length:61214 Min. :2019-01-01 Min. :2018-10-03   
## Class :character 1st Qu.:2019-02-01 1st Qu.:2018-12-21   
## Mode :character Median :2019-03-04 Median :2019-01-20   
## Mean :2019-03-01 Mean :2019-01-21   
## 3rd Qu.:2019-03-28 3rd Qu.:2019-02-19   
## Max. :2019-04-28 Max. :2019-03-28   
## ReservationSpan   
## Min. : 1.00   
## 1st Qu.: 25.00   
## Median : 35.00   
## Mean : 38.53   
## 3rd Qu.: 49.00   
## Max. :207.00

## What is the average time between appointment creation and the actual reservation date? 38.53 days  
## What was the max time? 207 days  
## What was the min time? 1 day  
  
  
##Correlation  
cor(Appointments$ReservationSpan, Appointments$Show, use = "complete.obs", method = "pearson")

## [1] 0.002693853

##Are ReservationSpan and Show highly correlated? They are not correlated as the correlation figure is 0.0027  
  
##Creating Bar Chart  
ggplot(Appointments, aes(Show))+  
 geom\_bar()



###a. Based on 0 being no show and 1 being show, do most people make their appointments? From the bar chart, most people make it to their appointments.