Data Exploration

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.1.0     v dplyr   1.0.3
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1

## Warning: package 'tibble' was built under R version 4.0.4

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
Poop_raw <- read.csv("./Data/Raw/FAOSTAT_data_1980_2050.csv", stringsAsFactors = TRUE)
Poop_filtered <- Poop_raw %>%
  select(Area, Element, Item, Year:Flag.Description)
Poop_CH4 <- Poop_filtered %>%
  filter(Element == "Emissions (CH4) (Manure management)") %>%
  select(Area, Element, Item, Year:Flag.Description)
```

```
library(kableExtra)
```

```
## Warning: package 'kableExtra' was built under R version 4.0.5

##
## Attaching package: 'kableExtra'

## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
#making summary tables of CH4 data

summary(Poop_CH4)
```

```
##                         Area
##  United States of America:533
##
##
##
```

```
##
##
##
##                                          Element                    Item
##  Emissions (CH4) (Manure management)           :533   Asses             : 41
##  Direct emissions (CO2eq) (Manure management)  :  0   Cattle, dairy     : 41
##  Direct emissions (N2O) (Manure management)    :  0   Cattle, non-dairy : 41
##  Emissions (CO2eq) (Manure management)         :  0   Chickens, broilers: 41
##  Emissions (CO2eq) from CH4 (Manure management):  0   Chickens, layers  : 41
##  Emissions (CO2eq) from N2O (Manure management):  0   Ducks             : 41
##  (Other)                                       :  0   (Other)           :287
##       Year                 Unit         Value         Flag
##  Min.   :1980   gigagrams    :533   Min.   :  0.000     :  0
##  1st Qu.:1990   Head         :  0   1st Qu.:  0.234   * :  0
##  Median :2000   kg           :  0   Median : 21.600   F :  0
##  Mean   :2001   kg CH4/head  :  0   Mean   :102.244   Fc:533
##  3rd Qu.:2010   kg N2O-N/kg N:  0   3rd Qu.: 91.791   Im:  0
##  Max.   :2050                       Max.   :670.952
##
##                                 Flag.Description
##  Calculated data                           :533
##  FAO data based on imputation methodology:  0
##  FAO estimate                              :  0
##  Official data                             :  0
##  Unofficial figure                         :  0
##
##
```

```
range(Poop_CH4$Value)
```

```
## [1]   0.0000 670.9518
```

```
mean(Poop_CH4$Value)
```

```
## [1] 102.2441
```

```
unique(Poop_CH4$Item)
```

```
##  [1] Asses              Cattle, dairy      Cattle, non-dairy  Chickens, broilers
##  [5] Chickens, layers   Ducks              Goats              Horses
##  [9] Mules              Sheep              Swine, breeding    Swine, market
## [13] Turkeys
## 13 Levels: Asses Cattle, dairy Cattle, non-dairy ... Turkeys
```

Variables	Units	Ranges	Central Tendencies
Methane Emissions	gigagrams CH4	0-670.9518	102.2441
Item	Animal	13 animals: asses, cattle, chicken, ducks, goats, horses, mules, sheep, swine, turkey	
Time	years	1980-2050 (predicted 2030 and 2050)	