Exam 1

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```
library(tidyverse)
```

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

```
## v ggplot2 3.3.2     v purrr   0.3.4
## v tibble  3.0.4     v dplyr   1.0.2
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.0
```

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

1.

```
combination <- c(1,2,3,4,5)

# This is taking the sample mean of the combination
mean(combination)
```

```
## [1] 3
```

```
# This is taking the sample standard deviation of the combination
sd(combination)
```

```
## [1] 1.581139
```

Solution: The mean of the combination lock is 3 with a standard deviation of 1.58.

2.

Use the mtcars data set:

```
mydata <- mtcars %>%
  # remove all rows where the number of carburetors are
  # less than 2
  filter(carb > 1) %>%
  group_by(cyl) %>% # group by the number of cylinders
  summarise(Avg_mpg = mean(mpg)) %>% # find the average (mean) of the
  # remaining cars by miles per gallon
  arrange(desc(Avg_mpg)) # arrange the results in descending order dependent on the mean
```

```
## `summarise()` ungrouping output (override with `.groups` argument)
```

```
# mpg

mydata # Observe the outcome
```

```
## # A tibble: 3 x 2
##     cyl Avg_mpg
##   <dbl>   <dbl>
## 1     4    25.9
## 2     6    19.7
## 3     8    15.1
```

Solution: A four cycle engine has the highest average miles per gallon.

3.

...