classwork

2024-11-20

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
scores <-
  tibble(
    name = c("mike", "carol", "greg", "marcia", "peter", "jan", "bobby", "cindy", "alice"),
    school = c("south", "south", "south", "south","north", "north","north", "south","south"),
    teacher = c("johnson", "johnson", "johnson", "johnson","smith", "smith" , "smith",           "perry
    sex = c("male", "female", "male", "female", "male", "female", "male","female", "female"),
    math_score = c(4, 3, 2, 4, 3, 4, 5, 4, 5),
    reading_score = c(1, 5, 2, 4, 5, 4, 1, 5, 4)
)
```

```
print(scores)
```

```
## # A tibble: 9 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 mike   south  johnson male            4             1
## 2 carol  south  johnson female          3             5
## 3 greg   south  johnson male            2             2
## 4 marcia south  johnson female          4             4
## 5 peter  north  smith   male            3             5
## 6 jan    north  smith   female          4             4
## 7 bobby  north  smith   male            5             1
## 8 cindy  south  perry   female          4             5
## 9 alice  south  perry   female          5             4
```

```
scores %>%
  slice(1:3)
```

```
## # A tibble: 3 x 6
##   name  school teacher sex    math_score reading_score
##   <chr> <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 mike  south  johnson male            4             1
## 2 carol south  johnson female          3             5
## 3 greg  south  johnson male            2             2
```

```
scores_small <- scores %>%
  slice(1:3)
```

```
scores_small
```

```
## # A tibble: 3 x 6
##   name  school teacher sex    math_score reading_score
##   <chr> <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 mike  south  johnson male            4             1
## 2 carol south  johnson female          3             5
## 3 greg  south  johnson male            2             2
```

```
scores %>% head(3)
```

```
## # A tibble: 3 x 6
##   name  school teacher sex    math_score reading_score
##   <chr> <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 mike  south  johnson male            4             1
## 2 carol south  johnson female          3             5
## 3 greg  south  johnson male            2             2
```

```
scores %>%
  arrange(desc(math_score))
```

```
## # A tibble: 9 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 bobby  north  smith   male            5             1
## 2 alice  south  perry   female          5             4
## 3 mike   south  johnson male            4             1
## 4 marcia south  johnson female          4             4
## 5 jan    north  smith   female          4             4
## 6 cindy  south  perry   female          4             5
## 7 carol  south  johnson female          3             5
## 8 peter  north  smith   male            3             5
## 9 greg   south  johnson male            2             2
```

```
scores %>%
  arrange(name)
```

```
## # A tibble: 9 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 alice  south  perry   female          5             4
## 2 bobby  north  smith   male            5             1
## 3 carol  south  johnson female          3             5
## 4 cindy  south  perry   female          4             5
## 5 greg   south  johnson male            2             2
## 6 jan    north  smith   female          4             4
## 7 marcia south  johnson female          4             4
```

```
## 8 mike   south  johnson male            4             1
## 9 peter  north  smith   male            3             5
```

```
scores %>%
  arrange(sex)
```

```
## # A tibble: 9 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 carol  south  johnson female          3             5
## 2 marcia south  johnson female          4             4
## 3 jan    north  smith   female          4             4
## 4 cindy  south  perry   female          4             5
## 5 alice  south  perry   female          5             4
## 6 mike   south  johnson male            4             1
## 7 greg   south  johnson male            2             2
## 8 peter  north  smith   male            3             5
## 9 bobby  north  smith   male            5             1
```

```
scores %>%
  arrange(school, teacher, sex, math_score, reading_score)
```

```
## # A tibble: 9 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 jan    north  smith   female          4             4
## 2 peter  north  smith   male            3             5
## 3 bobby  north  smith   male            5             1
## 4 carol  south  johnson female          3             5
## 5 marcia south  johnson female          4             4
## 6 greg   south  johnson male            2             2
## 7 mike   south  johnson male            4             1
## 8 cindy  south  perry   female          4             5
## 9 alice  south  perry   female          5             4
```

```
scores %>%
  select(name, math_score, reading_score)
```

```
## # A tibble: 9 x 3
##   name   math_score reading_score
##   <chr>       <dbl>         <dbl>
## 1 mike            4             1
## 2 carol           3             5
## 3 greg            2             2
## 4 marcia          4             4
## 5 peter           3             5
## 6 jan             4             4
## 7 bobby           5             1
## 8 cindy           4             5
## 9 alice           5             4
```

```
scores %>%
  select(-sex)
```

```
## # A tibble: 9 x 5
##   name   school teacher math_score reading_score
##   <chr>  <chr>  <chr>        <dbl>         <dbl>
```

```
## 1 mike   south  johnson          4             1
## 2 carol  south  johnson          3             5
## 3 greg   south  johnson          2             2
## 4 marcia south  johnson          4             4
## 5 peter  north  smith            3             5
## 6 jan    north  smith            4             4
## 7 bobby  north  smith            5             1
## 8 cindy  south  perry            4             5
## 9 alice  south  perry            5             4
```

```
scores %>%
  select(-math_score,-reading_score)
```

```
## # A tibble: 9 x 4
##   name   school teacher sex
##   <chr>  <chr>  <chr>   <chr>
## 1 mike   south  johnson male
## 2 carol  south  johnson female
## 3 greg   south  johnson male
## 4 marcia south  johnson female
## 5 peter  north  smith   male
## 6 jan    north  smith   female
## 7 bobby  north  smith   male
## 8 cindy  south  perry   female
## 9 alice  south  perry   female
```

```
scores %>%
  select(sex, everything())
```

```
## # A tibble: 9 x 6
##   sex    name   school teacher math_score reading_score
##   <chr>  <chr>  <chr>  <chr>        <dbl>         <dbl>
## 1 male   mike   south  johnson          4             1
## 2 female carol  south  johnson          3             5
## 3 male   greg   south  johnson          2             2
## 4 female marcia south  johnson          4             4
## 5 male   peter  north  smith            3             5
## 6 female jan    north  smith            4             4
## 7 male   bobby  north  smith            5             1
## 8 female cindy  south  perry            4             5
## 9 female alice  south  perry            5             4
```

```
scores %>%
  filter(sex == "male" & school == "south")
```

```
## # A tibble: 2 x 6
##   name  school teacher sex   math_score reading_score
##   <chr> <chr>  <chr>   <chr>      <dbl>         <dbl>
## 1 mike  south  johnson male           4             1
## 2 greg  south  johnson male           2             2
```

```
scores %>%
  filter(math_score > mean(math_score))
```

```
## # A tibble: 6 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
```

```
## 1 mike   south  johnson male            4             1
## 2 marcia south  johnson female          4             4
## 3 jan    north  smith   female          4             4
## 4 bobby  north  smith   male            5             1
## 5 cindy  south  perry   female          4             5
## 6 alice  south  perry   female          5             4
```

```
scores %>%
  filter(reading_score == 2 | reading_score == 3 | reading_score == 4)
```

```
## # A tibble: 4 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 greg   south  johnson male            2             2
## 2 marcia south  johnson female          4             4
## 3 jan    north  smith   female          4             4
## 4 alice  south  perry   female          5             4
```

```
scores %>%
  filter(substr(name, 1, 1) == 'm')
```

```
## # A tibble: 2 x 6
##   name   school teacher sex    math_score reading_score
##   <chr>  <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 mike   south  johnson male            4             1
## 2 marcia south  johnson female          4             4
```

```
scores %>%
  group_by(teacher) %>%
  filter(max(math_score) == 5)
```

```
## # A tibble: 5 x 6
## # Groups:   teacher [2]
##   name  school teacher sex    math_score reading_score
##   <chr> <chr>  <chr>   <chr>       <dbl>         <dbl>
## 1 peter north  smith   male            3             5
## 2 jan   north  smith   female          4             4
## 3 bobby north  smith   male            5             1
## 4 cindy south  perry   female          4             5
## 5 alice south  perry   female          5             4
```