

# Rworksheet.Sabando.#3b.Rmd

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2025-11-24

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# Create the dataset
# Creating the dataset based on the given table
#A
data <- data.frame(
  Respondents = 1:20,
  Sex = c(2,2,1,2,2,2,2,2,1,1,2,2,2,2,1,2,2,1,2),
  Fathers_Occupation = c(1,3,3,3,1,2,3,1,1,1,3,2,1,3,1,1,3,1,2,1),
  Persons_at_Home = c(5,7,3,8,5,9,6,7,8,4,7,5,4,7,8,8,3,11,7,6),
  Siblings_at_School = c(6,4,4,1,2,1,5,3,1,2,3,2,5,5,2,1,2,5,3,2),
  Types_of_Houses = c(1,2,3,1,1,3,3,1,2,3,2,3,2,2,2,3,3,3,3,2)
)

# Display the dataset
data

##   Respondents Sex Fathers_Occupation Persons_at_Home Siblings_at_School
## 1             1   2                 1               5                  6
## 2             2   2                 3               7                  4
## 3             3   1                 3               3                  4
## 4             4   2                 3               8                  1
## 5             5   2                 1               5                  2
## 6             6   2                 2               9                  1
## 7             7   2                 3               6                  5
## 8             8   2                 1               7                  3
## 9             9   2                 1               8                  1
## 10            10  1                 1               4                  2
## 11            11  1                 3               7                  3
## 12            12  2                 2               5                  2
## 13            13  2                 1               4                  5
## 14            14  2                 3               7                  5
## 15            15  2                 1               8                  2
## 16            16  1                 1               8                  1
## 17            17  2                 3               3                  2
## 18            18  2                 1              11                  5
## 19            19  1                 2               7                  3
## 20            20  2                 1               6                  2
##   Types_of_Houses
## 1             1
## 2             2
## 3             3
## 4             1
## 5             1
## 6             3
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## 7          3
## 8          1
## 9          2
## 10         3
## 11         2
## 12         3
## 13         2
## 14         2
## 15         2
## 16         3
## 17         3
## 18         3
## 19         3
## 20         2

#B
str(data)

## 'data.frame':   20 obs. of  6 variables:
## $ Respondents    : int  1 2 3 4 5 6 7 8 9 10 ...
## $ Sex            : num  2 2 1 2 2 2 2 2 2 1 ...
## $ Fathers_Occupation: num  1 3 3 3 1 2 3 1 1 1 ...
## $ Persons_at_Home : num  5 7 3 8 5 9 6 7 8 4 ...
## $ Siblings_at_School: num  6 4 4 1 2 1 5 3 1 2 ...
## $ Types_of_Houses : num  1 2 3 1 1 3 3 1 2 3 ...

# Get the summary of the data
#B
summary(data)

##   Respondents      Sex      Fathers_Occupation Persons_at_Home
## Min.   : 1.00   Min.   :1.00   Min.   :1.00       Min.   : 3.0
## 1st Qu.: 5.75   1st Qu.:1.75   1st Qu.:1.00       1st Qu.: 5.0
## Median :10.50   Median :2.00   Median :1.50       Median : 7.0
## Mean   :10.50   Mean   :1.75   Mean   :1.85       Mean   : 6.4
## 3rd Qu.:15.25   3rd Qu.:2.00   3rd Qu.:3.00       3rd Qu.: 8.0
## Max.   :20.00   Max.   :2.00   Max.   :3.00       Max.   :11.0
##   Siblings_at_School Types_of_Houses
## Min.   :1.00   Min.   :1.00
## 1st Qu.:2.00   1st Qu.:2.00
## Median :2.50   Median :2.00
## Mean   :2.95   Mean   :2.25
## 3rd Qu.:4.25   3rd Qu.:3.00
## Max.   :6.00   Max.   :3.00

#C mean number
mean_siblings <- mean(data$Siblings_at_School)
is_mean_5 <- mean_siblings == 5
print(is_mean_5)

## [1] FALSE
print(mean_siblings)

## [1] 2.95

#D The 1st two rows and then all the columns using the subsetting functions
subset_data <- data[1:2, ]

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print(subset_data)

##   Respondents Sex Fathers_Occupation Persons_at_Home Siblings_at_School
## 1           1   2                   1           5               6
## 2           2   2                   3           7               4
##   Types_of_Houses
## 1             1
## 2             2
#E 3rd and 5th row with 2nd and 4th column
subset_data_2 <- data[c(3, 5), c(2, 4)]
print(subset_data_2)

##   Sex Persons_at_Home
## 3   1           3
## 5   2           5
#F the variable types of houses then store the vector that results as types_houses
types_houses <- data$Types_of_Houses
print(types_houses)

## [1] 1 2 3 1 1 3 3 1 2 3 2 3 2 2 2 3 3 3 3 2
#G only all Males respondent that their father occupation was farmer
male_farmers <- subset(data, Sex == 1 & Fathers_Occupation == 1)
print(male_farmers)

##   Respondents Sex Fathers_Occupation Persons_at_Home Siblings_at_School
## 10          10   1                   1           4               2
## 16          16   1                   1           8               1
##   Types_of_Houses
## 10          3
## 16          3
#H only all females respondent that have greater than or equal to 5 number of siblings attending school
female_many_siblings <- subset(data, Sex == 2 & Siblings_at_School >= 5)
print(female_many_siblings)

##   Respondents Sex Fathers_Occupation Persons_at_Home Siblings_at_School
## 1           1   2                   1           5               6
## 7           7   2                   3           6               5
## 13          13   2                   1           4               5
## 14          14   2                   3           7               5
## 18          18   2                   1          11               5
##   Types_of_Houses
## 1             1
## 7             3
## 13            2
## 14            2
## 18            3
#A Create an empty data frame
df <- data.frame(Ints = integer(),
                  Doubles = double(),
                  Characters = character(),
                  Logicals = logical(),
                  Factors = factor(),

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        stringsAsFactors = FALSE)
print("Structure of the empty dataframe:")

## [1] "Structure of the empty dataframe:"
print(str(df))

## 'data.frame':    0 obs. of  5 variables:
##   $ Ints      : int
##   $ Doubles   : num
##   $ Characters: chr
##   $ Logicals   : logi
##   $ Factors    : Factor w/ 0 levels:
##   NULL

#B Read the CSV file
data <- read.csv("HouseholdData.csv")
print(data)

##   Respondents Sex Fathers.Occupation Persons.at.Home Siblings.at.School
## 1            1  Male                 1                  5                  2
## 2            2 Female                2                  7                  3
## 3            3 Female                3                  3                  0
## 4            4  Male                 3                  8                  5
## 5            5  Male                 1                  6                  2
## 6            6 Female                2                  4                  3
## 7            7 Female                2                  4                  1
## 8            8  Male                 3                  2                  2
## 9            9 Female                1                 11                  6
## 10           10  Male                3                  6                  2

##   Types.of.Houses
## 1          Wood
## 2        Concrete
## 3        Concrete
## 4          Wood
## 5  Semi-concrete
## 6  Semi-concrete
## 7          Wood
## 8  Semi-concrete
## 9  Semi-concrete
## 10         Concrete

#C Convert Sex into factor
data$Sex <- factor(data$Sex,
                     levels = c(1, 2),
                     labels = c("Male", "Female"))
print(data$Sex)

## [1] <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>
## Levels: Male Female

#D Convert Type of Houses into factor
data$Types.of.Houses <- factor(data$Types.of.Houses,
                                 levels = c(1, 2, 3),
                                 labels = c("Wood", "Concrete", "Semi-concrete"))
print(data$Types.of.Houses)

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## [1] <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA> <NA>
## Levels: Wood Concrete Semi-concrete
#E Convert Fathers Occupation into factor
data$Fathers.Occupation <- factor(data$Fathers.Occupation,
                                     levels = c(1, 2, 3),
                                     labels = c("Farmer", "Driver", "Others"))
print(data$Fathers.Occupation)

## [1] Farmer Driver Others Others Farmer Driver Driver Others Farmer Others
## Levels: Farmer Driver Others

#F Select all female respondents whose father is a driver
female_drivers <- subset(data,
                           Sex == "Female" &
                           Fathers.Occupation == "Driver")
print(female_drivers)

## [1] Respondents      Sex          Fathers.Occupation Persons.at.Home
## [5] Siblings.at.School Types.of.Houses
## <0 rows> (or 0-length row.names)

#G Select respondents with >= 5 siblings at school
respondents_5_siblings <- subset(data,
                                    Siblings.at.School >= 5)
print(respondents_5_siblings)

##   Respondents Sex Fathers.Occupation Persons.at.Home Siblings.at.School
## 4            4 <NA>           Others             8                  5
## 9            9 <NA>           Farmer            11                  6
##   Types.of.Houses
## 4            <NA>
## 9            <NA>

# Figure 3: Interpretation
# The bar chart illustrates the distribution of tweet sentiments per day
# from July 14 to July 21, 2020. Negative sentiments consistently appear
# as the most dominant category, peaking notably on July 15 and July 21.
# Neutral tweets show relatively stable counts throughout the observed period,
# while positive tweets remain lower but display minor increases on certain days
# such as July 17 and July 20. Overall, the figure indicates that Twitter users
# expressed more negative sentiments during this timeframe compared to neutral
# and positive reactions.

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