

RWorksheet#3-B

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#NUMBER 1 #A.

```
household <- data.frame (  
  Respondents = 1:20,  
  Sex = c(2, 2, 1, 2, 2, 2, 2, 2, 2, 2, 1, 2, 2, 2, 2, 2, 2, 1, 2),  
  Fathers_Occupation = c(1, 3, 3, 3, 1, 2, 3, 1, 1, 1, 3, 2, 1, 3, 3, 1, 3, 1, 2, 1),  
  Person_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, 3, 3, 3, 3, 3, 2)  
)  
household
```

##	Respondents	Sex	Fathers_Occupation	Person_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	2	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	3	8	2
## 16	16	2	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				
## 7	3				
## 8	1				
## 9	2				

```
## 10      3
## 11      2
## 12      3
## 13      2
## 14      2
## 15      3
## 16      3
## 17      3
## 18      3
## 19      3
## 20      2
```

#B.

```
str(household)
```

```
## '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 2 ...
## $ Fathers_Occupation: num 1 3 3 3 1 2 3 1 1 1 ...
## $ Person_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 ...
```

```
summary(household)
```

```
## Respondents Sex Fathers_Occupation Person_at_Home
## Min. : 1.00 Min. :1.00 Min. :1.00 Min. : 3.0
## 1st Qu.: 5.75 1st Qu.:2.00 1st Qu.:1.00 1st Qu.: 5.0
## Median :10.50 Median :2.00 Median :2.00 Median : 7.0
## Mean :10.50 Mean :1.85 Mean :1.95 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. :1.0
## 1st Qu.:2.00 1st Qu.:2.0
## Median :2.50 Median :2.5
## Mean :2.95 Mean :2.3
## 3rd Qu.:4.25 3rd Qu.:3.0
## Max. :6.00 Max. :3.0
```

#C.

```
mean_siblings <- mean(household$Siblings_at_school)
mean_siblings == 5
```

```
## [1] FALSE
```

#D.

```
subset1 <- household[1:2, ]
subset1
```

```
## Respondents Sex Fathers_Occupation Person_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.

```
subset2 <- household[c(3, 5), c(2, 4)]
subset2
```

```
##      Sex Person_at_Home
## 3      1                3
## 5      2                5
```

#F.

```
types_houses <- household$Types_of_houses
types_houses
```

```
## [1] 1 2 3 1 1 3 3 1 2 3 2 3 2 2 3 3 3 3 3 2
```

#G.

```
male_farmer <- subset(household, Sex == 1 & Fathers_Occupation == 1)
male_farmer
```

```
## [1] Respondents      Sex      Fathers_Occupation Person_at_Home
## [5] Siblings_at_school Types_of_houses
## <0 rows> (or 0-length row.names)
```

#H.

```
female_greater_than_5_siblings <- subset(household, Sex == 2 & Siblings_at_school >= 5)
female_greater_than_5_siblings
```

```
##      Respondents Sex Fathers_Occupation Person_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
```

#NUMBER 2

```
df <- data.frame(
  Ints = integer(),
  Doubles = double(),
  Characters = character(),
  Logicals = logical(),
  Factors = factor(),
  stringsAsFactors = FALSE
)
cat("Structure of the empty dataframe:\n")
```

```
## Structure of the empty dataframe:
```

```
str(df)
```

```
## 'data.frame':    0 obs. of  5 variables:
## $ Ints          : int
```

```
## $ Doubles : num
## $ Characters: chr
## $ Logicals : logi
## $ Factors : Factor w/ 0 levels:
```

#Output The displayed result indicates that the data frame contains no records (rows) and consists of 5 attributes (columns) along with their corresponding data types. The “Factors” column remains unpopulated as no categories have been defined for it as of now.

#NUMBER 3

```
household_data <- data.frame (
  Respondents = 1:10,
  Sex = c("Male", "Female", "Female", "Male", "Male", "Female", "Female", "Male", "Female", "Male"),
  Fathers_Occupation = c(1,2,3,3,1,2,2,3,1,3),
  Person_at_Home = c(5,7,3,8,6,4,4,2,11,6),
  Siblings_at_school = c(2,3,0,5,2,3,1,2,6,2),
  Types_of_houses = c("Wood", "Congrete", "Congrete", "Wood", "Semi-Congrete", "Semi-Congrete", "Wood",
)
household_data
```

```
## Respondents Sex Fathers_Occupation Person_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 Congrete
## 3 Congrete
## 4 Wood
## 5 Semi-Congrete
## 6 Semi-Congrete
## 7 Wood
## 8 Semi-Congrete
## 9 Semi-Congrete
## 10 Congrete
```

```
write.csv(household_data, file = "HouseholdData.csv", row.names = FALSE)
```

#A.

```
household_data <- read.csv("HouseholdData.csv")
```

#B.

```
household_data$Sex <- factor(household_data$Sex)
household_data$Sex <- as.integer(factor(household_data$Sex,
levels = c("Male", "Female"),
labels = c(1, 2)))
household_data
```

```
## Respondents Sex Fathers_Occupation Person_at_Home Siblings_at_school
## 1 1 1 1 5 2
## 2 2 2 2 7 3
## 3 3 2 3 3 0
## 4 4 1 3 8 5
## 5 5 1 1 6 2
## 6 6 2 2 4 3
## 7 7 2 2 4 1
## 8 8 1 3 2 2
## 9 9 2 1 11 6
## 10 10 1 3 6 2
## Types_of_houses
## 1 Wood
## 2 Congrete
## 3 Congrete
## 4 Wood
## 5 Semi-Congrete
## 6 Semi-Congrete
## 7 Wood
## 8 Semi-Congrete
## 9 Semi-Congrete
## 10 Congrete
```

#C.

```
household_data$Types_of_houses <- factor(household_data$Types_of_houses)
household_data$Types_of_houses <- as.integer(factor(household_data$Types_of_houses,
  levels = c("Wood", "Congrete", "Semi-Congrete"),
  labels = c(1, 2, 3)))
print(household_data)
```

```
## Respondents Sex Fathers_Occupation Person_at_Home Siblings_at_school
## 1 1 1 1 5 2
## 2 2 2 2 7 3
## 3 3 2 3 3 0
## 4 4 1 3 8 5
## 5 5 1 1 6 2
## 6 6 2 2 4 3
## 7 7 2 2 4 1
## 8 8 1 3 2 2
## 9 9 2 1 11 6
## 10 10 1 3 6 2
## Types_of_houses
## 1 1
## 2 2
## 3 2
## 4 1
## 5 3
## 6 3
## 7 1
## 8 3
## 9 3
## 10 2
```

#D.

```
household_data$Fathers_Occupation <- factor(household_data$Fathers_Occupation)
household_data$Fathers_Occupation <- as.character(factor(household_data$Fathers_Occupation,

levels = c(1, 2, 3),
labels = c("Farmer", "Driver", "Others")))

# Print the updated data frame
print(household_data)
```

```
## Respondents Sex Fathers_Occupation Person_at_Home Siblings_at_school
## 1          1  1          Farmer             5             2
## 2          2  2          Driver             7             3
## 3          3  2          Others             3             0
## 4          4  1          Others             8             5
## 5          5  1          Farmer             6             2
## 6          6  2          Driver             4             3
## 7          7  2          Driver             4             1
## 8          8  1          Others             2             2
## 9          9  2          Farmer            11             6
## 10         10  1          Others             6             2
## Types_of_houses
## 1          1
## 2          2
## 3          2
## 4          1
## 5          3
## 6          3
## 7          1
## 8          3
## 9          3
## 10         2
```

#E.

```
female_driver <- subset(household_data, Sex == 2 & Fathers_Occupation == "Driver")
female_driver
```

```
## Respondents Sex Fathers_Occupation Person_at_Home Siblings_at_school
## 2          2  2          Driver             7             3
## 6          6  2          Driver             4             3
## 7          7  2          Driver             4             1
## Types_of_houses
## 2          2
## 6          3
## 7          1
```

#F.

```
greater_than_5_siblings <- subset(household_data, Siblings_at_school >= 5)
greater_than_5_siblings
```

```
## Respondents Sex Fathers_Occupation Person_at_Home Siblings_at_school
## 4          4  1          Others             8             5
## 9          9  2          Farmer            11             6
## Types_of_houses
## 4          1
```

#4. INTERPRET THE GRAPH The depicted graph seems to represent a sentiment analysis conducted on Twitter data, focusing on the time span of July 14, 15, 17, 18, 20, and 21 in the year 2020. This sentiment analysis classifies tweets into three sentiment categories: negative, neutral, and positive. Let's delve into an analysis of the findings::

- July 14, 2020:
 - Negative count: Nearly 2,500 tweets were categorized as negative.
 - Neutral count: Around 1,500 tweets were categorized as neutral.
 - Positive count: Approximately 1,750 tweets were categorized as positive.
- July 15, 2020:
 - Negative count: Over 4,000 tweets were categorized as negative.
 - Neutral count: About 2,750 tweets were categorized as neutral.
 - Positive count: Roughly 3,200 tweets were categorized as positive.
- July 17, 2020:
 - Negative count: There were approximately 3,250 tweets categorized as negative.
 - Neutral count: Around 1,800 tweets were categorized as neutral.
 - Positive count: Almost 2,500 tweets were categorized as positive.
- July 18, 2020:
 - Negative count: There were still around 3,250 tweets categorized as negative.
 - Neutral count: About 2,000 tweets were categorized as neutral.
 - Positive count: Approximately 2,500 tweets were categorized as positive.
- July 20, 2020:
 - Negative count: There were nearly 2,500 tweets categorized as negative.
 - Neutral count: Around 1,500 tweets were categorized as neutral.
 - Positive count: Almost 1,750 tweets were categorized as positive.
- July 21, 2020:
 - Negative count: Around 4,000 tweets were categorized as negative.
 - Neutral count: About 2,600 tweets were categorized as neutral.
 - Positive count: Roughly 3,300 tweets were categorized as positive.

It appears from the statistics that sentiment levels varied over the course of the given days. Positive and negative tweets were more common on July 15 and July 21 than on any other day, suggesting a potential spike in sentiment-related Twitter activity on those specific dates. In contrast, there were fewer tweets on July 14 and July 20 across all sentiment categories. According to the data, Twitter's sentiment environment changed around this particular time in 2020.