Rworksheet#3b

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```r
# ==========================
# 1. CREATE DATA FRAME
# ==========================

#1a
respondents <- data.frame(
  Name = c("John", "Mary", "Alice", "Bob", "Eve"),
  Sex = c("Male", "Female", "Female", "Male", "Female"),
  Siblings = c(4, 5, 6, 3, 5),
  Houses = c("Wood", "Concrete", "Semi-Concrete", "Wood", "Concrete"),
  Fathers_Occupation = c("Farmer", "Driver", "Farmer", "Others", "Farmer"),
  stringsAsFactors = FALSE
)
respondents

#1b
str(respondents)
summary(respondents)

#1c
mean_siblings <- mean(respondents$Siblings)
mean_siblings
mean_siblings == 5

#1d
respondents[1:2, ]

#1e
respondents[c(3,5), c(2,4)]

#1f
types_houses <- respondents$Houses
types_houses

#1g
respondents[respondents$Sex == "Male" & respondents$Fathers_Occupation == "Farmer", ]

#1h
respondents[respondents$Sex == "Female" & respondents$Siblings >= 5, ]


# ==========================
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```r
# 2. EMPTY DATA FRAME
# ==========================

#2
df <- data.frame(
  Ints = integer(),
  Doubles = double(),
  Characters = character(),
  Logicals = logical(),
  Factors = factor(),
  stringsAsFactors = FALSE
)
print("Structure of the empty dataframe:")
str(df)


# ==========================
# 3. CSV FILE OPERATIONS
# ==========================

#3a. Save CSV
write.csv(respondents, "HouseholdData.csv", row.names = FALSE)

#3b. Import CSV
household <- read.csv("HouseholdData.csv", stringsAsFactors = FALSE)
household

#3c. Convert Sex to factor and integer (Male=1, Female=2)
household$Sex <- factor(household$Sex, levels = c("Male", "Female"))
household$Sex_int <- as.integer(household$Sex)
household

#3d. Convert Houses to factor and integer (Wood=1, Concrete=2, Semi-Concrete=3)
household$Houses <- factor(household$Houses, levels = c("Wood", "Concrete", "Semi-Concrete"))
household$Houses_int <- as.integer(household$Houses)
household

#3e. Factor Fathers_Occupation (Farmer=1, Driver=2, Others=3)
household$Fathers_Occupation <- factor(household$Fathers_Occupation, levels = c("Farmer", "Driver", "Ot
household$Fathers_Occupation_int <- as.integer(household$Fathers_Occupation)
household

#3f. Select females with father occupation Driver
household[household$Sex == "Female" & household$Fathers_Occupation == "Driver", ]

#3g. Select respondents with >=5 siblings
household[household$Siblings >= 5, ]


# ==========================
# 4. GRAPH INTERPRETATION
# ==========================
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#The graph illustrates people's emotions on Twitter from July 14 to July 21, 2020. Negative
#tweets (red bars) are the most frequent on most days, showing that many users expressed
#negative feelings. Neutral tweets (orange bars) appear in moderate numbers, indicating posts
#that were neither positive nor negative. Positive tweets (blue bars) are generally the fewest,
#suggesting limited expressions of happiness. The largest spikes in negative tweets occur on
#July 15 and July 21, meaning users were especially unhappy on those days. Overall, negative
#sentiments dominated the week, followed by neutral, with positive tweets being the least
#common.
```