Rworksheet.Sabando#4a.Rmd

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2025-11-06

```
ShoeSize <- c(6.5, 9.0, 8.5, 10.5, 7.0, 10.5, 13.0, 7.5, 10.0, 8.5,
              10.5, 11.5, 8.5, 10.0, 7.5, 8.5, 8.5, 11.0, 9.0, 13.0)
Height <- c(46.0, 68.0, 64.5, 65.0, 70.0, 70.0, 75.0, 64.0, 74.0, 67.0,
            71.0, 72.0, 59.0, 72.0, 66.0, 64.0, 73.0, 69.0, 69.0, 70.0)
Gender <- c("F","M","F","M","F","M","F","M","F","M","M","M","F","F","M",
            "F","M","M","M","M")

household_data <- data.frame(ShoeSize, Height, Gender)
household_data

male_data <- subset(household_data, Gender == "M", select = c(ShoeSize, Height))
female_data <- subset(household_data, Gender == "F", select = c(ShoeSize, Height))

male_data
female_data

mean_shoe <- mean(household_data$ShoeSize)
mean_height <- mean(household_data$Height)

mean_shoe
mean_height

cor(household_data$ShoeSize, household_data$Height)
```

```
months_vector <- c("March","April","January","November","January","September","October", "September",
"November","August","January","November","November","February","May","August","July",
"December","August","August","September","November","February","April")

factor_months_vector <- factor(months_vector)
factor_months_vector
#3
summary(months_vector)
summary(factor_months_vector)

#interpretation
#The character vector only lists values as text.
#The factor vector counts how many times each month appears.
#Therefore, the factor is more useful for analyzing categorical data

#4
Direction <- c("East", "West", "North", "West", "West", "North", "North", "East")
new_order_data <- factor(Direction, levels = c("East", "West", "North"))
print(new_order_data)
```

```
#5
import_march <- read.csv("import_march.csv", header = TRUE)
View(import_march)

#6
num <- as.numeric(readline("Enter a number between 1 and 50: "))

if (num < 1 | num > 50) {
  print("The number selected is beyond the range of 1 to 50")
} else if (num == 20) {
  print("TRUE")
} else {
  print(num)
}

#7
min_bills <- function(price) {
  bills <- c(1000, 500, 200, 100, 50)
  count <- 0
  for (b in bills) {
    count <- count + price %/% b
    price <- price %% b
  }
  return(count)
}

# Example
min_bills(850)

#8a
students <- data.frame(
  Name = c("Annie","Thea","Steve","Hanna"),
  Grade1 = c(85,65,75,95),
  Grade2 = c(65,75,55,75),
  Grade3 = c(85,90,80,100),
  Grade4 = c(100,90,85,90)
)
students

#8b
for (i in 1:nrow(students)) {
  avg <- (students[i,2] + students[i,3] + students[i,4] + students[i,5]) / 4
  cat(students$Name[i], "'s average grade this semester is", avg, "\n")
  if (avg > 90) {
    cat(students$Name[i], "has an average over 90.\n")
  }
}

#8c
for (j in 2:5) {
  avg_test <- sum(students[,j]) / nrow(students)
  if (avg_test < 80) {
    cat("The", j-1, "th test was difficult.\n")
```

```
  }
}

#8d
for (i in 1:nrow(students)) {
  max_score <- max(students[i,2:5])
  if (max_score > 90) {
    cat(students$Name[i], "'s highest grade this semester is", max_score, "\n")
  }
}
```