

Rworksheet_Mabalina#4a

Kristian B. Mabalina

2024-10-23

#1

a

```
shoe_size <- c(8, 9, 10, 6, 7)
height <- c(170, 180, 175, 160, 165)
gender <- c("M", "M", "M", "F", "F")

data <- data.frame(ShoeSize = shoe_size, Height = height, Gender = gender)
print(data)
```

```
##   ShoeSize Height Gender
## 1         8     170      M
## 2         9     180      M
## 3        10     175      M
## 4         6     160      F
## 5         7     165      F
```

b

```
male_data <- subset(data, Gender == "M")
female_data <- subset(data, Gender == "F")

print(male_data)
```

```
##   ShoeSize Height Gender
## 1         8     170      M
## 2         9     180      M
## 3        10     175      M
```

```
print(female_data)
```

```
##   ShoeSize Height Gender
## 4         6     160      F
## 5         7     165      F
```

c

```
mean_shoe_size <- mean(data$ShoeSize)
mean_height <- mean(data$Height)

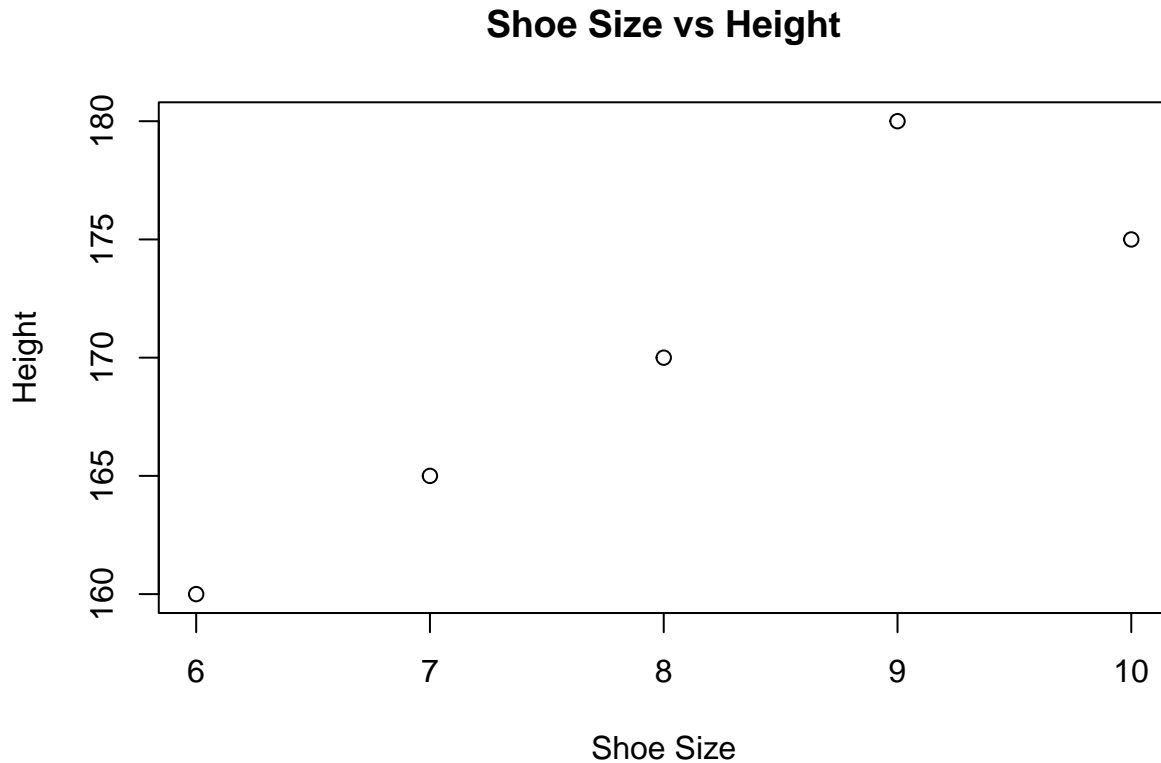
print(paste("Mean Shoe Size:", mean_shoe_size))
```

```
## [1] "Mean Shoe Size: 8"
```

```
print(paste("Mean Height:", mean_height))
```

```
## [1] "Mean Height: 170"
```

```
# d
plot(data$ShoeSize, data$Height, main="Shoe Size vs Height", xlab="Shoe Size", ylab="Height")
```



```
#2
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)
print(factor_months_vector)
```

```
## [1] March    April     January  November January  September October
## [8] September November August   January  November November February
## [15] May       August    July     December August   August   September
## [22] November February April
## 11 Levels: April August December February January July March May ... September
```

```
#3
```

```
direction <- c("East", "West", "North", "West", "North")
frequency <- c(1, 4, 3, 2, 1)

factor_direction <- factor(direction, levels = c("East", "West", "North"))
print(factor_direction)
```

```
## [1] East West North West North
## Levels: East West North
```

```
#4
```

```
factor_data <- c("East", "West", "North")
frequency_vector <- c(1, 4, 3)
new_order_data <- factor(factor_data, levels = c("East", "West", "North"))
print(new_order_data)
```

```
## [1] East West North
## Levels: East West North
```

5

```
#a
data <- read.table("import_march.csv", header = TRUE, sep = ",")
```

```
#b
data
```

```
## Students Strategy.1 Strategy.2 Strategy.3
## 1 Male 8 10 8
## 2 4 8 6
## 3 0 6 4
## 4 Female 14 4 15
## 5 10 2 12
## 6 6 0 9
```

```
#6
```

```
exhaustive_search <- function() {
  # Get input from the user and check if it's a valid number
  number <- suppressWarnings(as.integer(readline(prompt = "Please select a number between 1 and 50: ")))
  if (is.na(number)) {
    print("Invalid input. Please enter a number.")
  } else if (number < 1 || number > 50) {
    print("The number selected is beyond the range of 1 to 50")
  } else if (number == 20) {
    print(TRUE)
  } else {
    print(number)
  }
}
exhaustive_search()
```

```
## Please select a number between 1 and 50:
## [1] "Invalid input. Please enter a number."
```

```
#7
```

```
min_bills <- function(price) {
  bills <- c(1000, 500, 200, 100, 50)
  count <- 0
  for (bill in bills) {

    while (price >= bill) {
      price <- price - bill
      count <- count + 1
    }
  }
}
```

```

    return(count)
}
snack_price <- 2700
cat("Minimum number of bills needed:", min_bills(snack_price), "\n")

```

```
## Minimum number of bills needed: 4
```

```
#8
```

```

# a
grades <- 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)
)
print(grades)

```

```

##      Name Grade1 Grade2 Grade3 Grade4
## 1 Annie      85      65      85      100
## 2 Thea       65      75      90      90
## 3 Steve      75      55      80      85
## 4 Hanna      95      75     100      90

```

```

# b
for (i in 1:nrow(grades)) {
  avg <- sum(grades[i, 2:5]) / 4
  print(paste(grades$Name[i], "'s average grade this semester is", avg))
}

```

```

## [1] "Annie 's average grade this semester is 83.75"
## [1] "Thea 's average grade this semester is 80"
## [1] "Steve 's average grade this semester is 73.75"
## [1] "Hanna 's average grade this semester is 90"

```

```

# c
for (j in 2:5) {
  avg_test <- mean(grades[,j])
  if (avg_test < 80) {
    print(paste("The", j-1, "test was difficult with an average score of", avg_test))
  }
}

```

```
## [1] "The 2 test was difficult with an average score of 67.5"
```

```

# d
for (i in 1:nrow(grades)) {
  highest_score <- grades[i, 2]
  for (j in 3:5) {
    if (grades[i, j] > highest_score) {
      highest_score <- grades[i, j]
    }
  }
  if (highest_score > 90) {
    print(paste(grades$Name[i], "'s highest grade this semester is", highest_score))
  }
}

```

```
}
```

```
## [1] "Annie 's highest grade this semester is 100"
```

```
## [1] "Hanna 's highest grade this semester is 100"
```