

RWorksheet_Cacho#4a

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```
# 1
shoesize1 <- c(6.5, 9.0, 8.5, 8.5, 10.5, 7.0, 9.5, 9.0, 13.0, 7.5, 10.5, 8.5, 12.0, 10.5)
height1 <- c(66.0, 68.0, 64.5, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.0, 67.0, 71.0, 71.0)
gender1 <- c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M", "F", "M", "M")

shoesize2 <- c(13.0, 11.5, 8.5, 5.0, 10.0, 6.5, 7.5, 8.5, 10.5, 8.5, 10.5, 11.0, 9.0, 13.0)
height2 <- c(77.0, 72.0, 59.0, 62.0, 72.0, 66.0, 64.0, 67.0, 73.0, 69.0, 72.0, 70.0, 69.0, 70.0)
gender2 <- c("M", "M", "F", "F", "M", "F", "F", "M", "M", "F", "M", "M", "M", "M")

df <- data.frame(
  ShoeSize = c(shoesize1, shoesize2),
  Height = c(height1, height2),
  Gender = c(gender1, gender2)
)
df
```

##	ShoeSize	Height	Gender
## 1	6.5	66.0	F
## 2	9.0	68.0	F
## 3	8.5	64.5	F
## 4	8.5	65.0	F
## 5	10.5	70.0	M
## 6	7.0	64.0	F
## 7	9.5	70.0	F
## 8	9.0	71.0	F
## 9	13.0	72.0	M
## 10	7.5	64.0	F
## 11	10.5	74.0	M
## 12	8.5	67.0	F
## 13	12.0	71.0	M
## 14	10.5	71.0	M
## 15	13.0	77.0	M
## 16	11.5	72.0	M
## 17	8.5	59.0	F
## 18	5.0	62.0	F
## 19	10.0	72.0	M
## 20	6.5	66.0	F
## 21	7.5	64.0	F
## 22	8.5	67.0	M
## 23	10.5	73.0	M
## 24	8.5	69.0	F
## 25	10.5	72.0	M
## 26	11.0	70.0	M

```
## 27      9.0   69.0      M
## 28     13.0   70.0      M
```

```
write.csv(df, "sample_data.csv", row.names = FALSE)
```

```
# 1b
```

```
male_data <- subset(df, Gender == "M")
```

```
female_data <- subset(df, Gender=="F")
```

```
male_data
```

```
##      ShoeSize Height Gender
## 5         10.5     70      M
## 9         13.0     72      M
## 11        10.5     74      M
## 13        12.0     71      M
## 14        10.5     71      M
## 15        13.0     77      M
## 16        11.5     72      M
## 19        10.0     72      M
## 22         8.5     67      M
## 23        10.5     73      M
## 25        10.5     72      M
## 26        11.0     70      M
## 27         9.0     69      M
## 28        13.0     70      M
```

```
female_data
```

```
##      ShoeSize Height Gender
## 1         6.5    66.0      F
## 2         9.0    68.0      F
## 3         8.5    64.5      F
## 4         8.5    65.0      F
## 6         7.0    64.0      F
## 7         9.5    70.0      F
## 8         9.0    71.0      F
## 10        7.5    64.0      F
## 12        8.5    67.0      F
## 17        8.5    59.0      F
## 18        5.0    62.0      F
## 20        6.5    66.0      F
## 21        7.5    64.0      F
## 24        8.5    69.0      F
```

```
# 1c
```

```
mean_shoesize <- mean(df$ShoeSize)
```

```
mean_height <- mean(df$Height)
```

```
mean_shoesize
```

```
## [1] 9.410714
```

```
mean_height
```

```
## [1] 68.55357
```

```
# 1d
```

```
correlation <- cor(df$ShoeSize, df$Height, use = "complete.obs")
```

```
print(paste("Correlation between Shoe Size and Height:", correlation))
```

```
## [1] "Correlation between Shoe Size and Height: 0.779186612606297"
```

```
# 2
```

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

```
factor_monthsvec <- factor(monthsvec)
```

```
factor_monthsvec
```

```
## [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
```

```
levels(factor_monthsvec)
```

```
## [1] "April"      "August"      "December"    "February"    "January"     "July"
## [7] "March"      "May"         "November"    "October"     "September"
```

```
# 3
```

```
summary(monthsvec)
```

```
##      Length      Class      Mode
##           24 character character
```

```
summary(factor_monthsvec)
```

```
##      April      August  December  February   January      July      March      May
##           2         4          1          2         3         1         1         1
## November  October  September
##           5         1          3
```

```
# 4
```

```
direction <- c("East", "West", "North")
frequency <- c(1,4,3)
factor_data <- factor(direction, levels = c("East", "West", "North"))
```

```
factor_data
```

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

```
new_order_data <- factor(factor_data, levels = c("East", "West", "North"))
```

```
new_order_data
```

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

```
# 5
```

```
write.csv("import_march.csv",row.names=FALSE)
```

```
## "x"
## "import_march.csv"
```

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

```
##      mpg  cyl  disp  hp drat    wt  qsec vs am gear carb
## 1  21.0    6  160.0  110 3.90  2.620 16.46  0  1    4    4
## 2  21.0    6  160.0  110 3.90  2.875 17.02  0  1    4    4
## 3  22.8    4  108.0   93 3.85  2.320 18.61  1  1    4    1
## 4  21.4    6  258.0  110 3.08  3.215 19.44  1  0    3    1
## 5  18.7    8  360.0  175 3.15  3.440 17.02  0  0    3    2
## 6  18.1    6  225.0  105 2.76  3.460 20.22  1  0    3    1
## 7  14.3    8  360.0  245 3.21  3.570 15.84  0  0    3    4
## 8  24.4    4  146.7   62 3.69  3.190 20.00  1  0    4    2
## 9  22.8    4  140.8   95 3.92  3.150 22.90  1  0    4    2
## 10 19.2    6  167.6  123 3.92  3.440 18.30  1  0    4    4
## 11 17.8    6  167.6  123 3.92  3.440 18.90  1  0    4    4
## 12 16.4    8  275.8  180 3.07  4.070 17.40  0  0    3    3
## 13 17.3    8  275.8  180 3.07  3.730 17.60  0  0    3    3
## 14 15.2    8  275.8  180 3.07  3.780 18.00  0  0    3    3
## 15 10.4    8  472.0  205 2.93  5.250 17.98  0  0    3    4
## 16 10.4    8  460.0  215 3.00  5.424 17.82  0  0    3    4
## 17 14.7    8  440.0  230 3.23  5.345 17.42  0  0    3    4
## 18 32.4    4   78.7   66 4.08  2.200 19.47  1  1    4    1
## 19 30.4    4   75.7   52 4.93  1.615 18.52  1  1    4    2
## 20 33.9    4   71.1   65 4.22  1.835 19.90  1  1    4    1
## 21 21.5    4  120.1   97 3.70  2.465 20.01  1  0    3    1
## 22 15.5    8  318.0  150 2.76  3.520 16.87  0  0    3    2
## 23 15.2    8  304.0  150 3.15  3.435 17.30  0  0    3    2
## 24 13.3    8  350.0  245 3.73  3.840 15.41  0  0    3    4
## 25 19.2    8  400.0  175 3.08  3.845 17.05  0  0    3    2
## 26 27.3    4   79.0   66 4.08  1.935 18.90  1  1    4    1
## 27 26.0    4  120.3   91 4.43  2.140 16.70  0  1    5    2
## 28 30.4    4   95.1  113 3.77  1.513 16.90  1  1    5    2
## 29 15.8    8  351.0  264 4.22  3.170 14.50  0  1    5    4
## 30 19.7    6  145.0  175 3.62  2.770 15.50  0  1    5    6
## 31 15.0    8  301.0  335 3.54  3.570 14.60  0  1    5    8
## 32 21.4    4  121.0  109 4.11  2.780 18.60  1  1    4    2
```

```
# 6
rand <- function() {
  chosen_number <- sample(1:50, 1)
  if (chosen_number < 1 || chosen_number > 50) {
    print("The number chosen is beyond the range of 1 to 50")
  } else if (chosen_number == 20) {
    print(TRUE)
  } else {
    print(chosen_number)
  }
}

rand()
```

```
## [1] 49
```

```
# 7
min_bills <- function(price){
```

```

bills <- c(50, 100, 200, 500, 1000)
count <- 0
for (bill in bills){
  count <- count + price %/% bill
  price <- price %% bill
}
return(count)
}

snackPrice <- as.integer(readline(prompt = "Enter the price of the snack:"))

```

```
## Enter the price of the snack:
```

```
print(paste("Minimum number of bills needed: ", min_bills(snackPrice)))
```

```
## [1] "Minimum number of bills needed: NA"
```

```
# 8a
```

```

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)
)
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

```

```

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

```

```
## Annie 's highest grade this semester is 100
```

```
## Hanna 's highest grade this semester is 100
```