

## RWorksheet\_Pama#4

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#Number1

```
df <- data.frame(
  ShoeSize = 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, 13.0, 11.5, 8),
  Height = c(66.0, 68.0, 64.5, 65.0, 70.0, 64.0, 70.0, 71.0, 72.0, 64.0, 74.5, 67.0, 71.0, 71.0, 77.0, 70.0),
  Gender = c("F", "F", "F", "F", "M", "F", "F", "F", "M", "F", "M", "F", "M", "M", "M", "M", "F", "F"),
  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	74.5	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

#B

```
male_subset <- df[df$Gender == "M", c("ShoeSize", "Height")]
female_subset <- df[df$Gender == "F", c("ShoeSize", "Height")]
male_subset
```

```
##      ShoeSize Height
```

```
## 5      10.5    70.0
## 9      13.0    72.0
## 11     10.5    74.5
## 13     12.0    71.0
## 14     10.5    71.0
## 15     13.0    77.0
## 16     11.5    72.0
## 19     10.0    72.0
## 22      8.5    67.0
## 23     10.5    73.0
## 25     10.5    72.0
## 26     11.0    70.0
## 27      9.0    69.0
## 28     13.0    70.0
```

```
female_subset
```

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

```
#C
```

```
mean(df$ShoeSize)
```

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

```
mean(df$Height)
```

```
## [1] 68.57143
```

#D #YES, there is a relationship between the shoe size and height, if an individual is more taller, the longer the size of their shoe.

```
#Number2
```

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

```
## [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
```

```
summary(months)
```

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

```
summary(factor_months)
```

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

```
#3
```

```
summary(months)
```

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

```
summary(factor_months)
```

```
##      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")  
direction
```

```
## [1] "East" "West" "North"
```

```
frequency<-c(1,4,3)  
frequency
```

```
## [1] 1 4 3
```

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

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

```
factor_frequency<-factor(frequency,levels=c(1,4,3))  
print(factor_frequency)
```

```
## [1] 1 4 3  
## Levels: 1 4 3
```

```
#5.
```

```
library(readr)  
import_march<-read_csv(file="import_march.csv")  
import_march
```

```
##      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.

```
num<-readline(prompt="Choose a number from 1 to 50:")
```

```
## Choose a number from 1 to 50:
```

```
if (num>1 && num<=50){
  cat("The input number is", num)
}else if (num==20){
  print('TRUE')
}else{
  print('The number selected is beyond the range of 1 to 50')
}
```

```
## [1] "The number selected is beyond the range of 1 to 50"
```

#7.

```
#a.
calc_min_bills<-function(){
  price<-as.integer(readline(prompt="Price of snack(a random number divisible by 50):"))

  if (is.na(price)|| price %% 50 !=0){
    cat("Invalid.\n")
  }
  return()
}

num_bills<-0
bill_denominations<-c(1000,500,200,100,50)

for(bill in bill_denominations){
  num_bills<-num_bills + (price %% bill)
  price<-price %% bill
}

cat("Minimum number of bills needed:", num_bills,"\n")
}
calc_min_bills()
```

```
## Price of snack(a random number divisible by 50):
```

```
## Invalid.
```

```
## NULL
```

#8.

```
#a.
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)
cardDf<-data.frame(Name, Grade1, Grade2, Grade3, Grade4)
cardDf
```

```
##      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.

```
student_above_90<-FALSE
for(j in 1:length(Name)){
  total_average <- 0
  count <- 0
  average_score<-c((Grade1)[j]+(Grade2)[j]+(Grade3)[j]+(Grade4)[j])/4
  if (average_score>90){
    cat(paste(Name[j], "'s average grade this semester is", round(average_score,2),"\n"))
    student_above_90<-TRUE
  }
}
if(!student_above_90){
  print("No student have an average of over 90 in the math during the semester")
}
```

```
## [1] "No student have an average of over 90 in the math during the semester"
```

#c.

```
for (test_num in 1:4){
  total_score<-Grade1 + Grade2 + Grade3 + Grade4
  average_score<-total_score/4
  if (average_score[test_num]<80){
    cat("The", test_num, "test was difficult.\n")
  }
}
```

```
## The 3 test was difficult.
```

#d.

```
for (j in 1:length(Name)){
  highest_grade<-Grade1[j]

  if (Grade2[j]>highest_grade){
    highest_grade<-Grade2[j]
  }
  if (Grade3[j]>highest_grade){
    highest_grade<-Grade3[j]
  }
  if (Grade4[j]>highest_grade){
    highest_grade<-Grade4[j]
  }

  if (highest_grade>90){
    cat(paste(Name[j], "'s highest grade this semester is", highest_grade, ".\n"))
  }
}
```

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

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