assignment_01_MukherjeeChitramoy.R

chitro

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```
# Assignment: ASSIGNMENT 1
# Name: Mukherjee, chitramoy
# Date: 2022-12-08

## Create a numeric vector with the values of 3, 2, 1 using the `c()` function
## Assign the value to a variable named `num_vector`
## Print the vector
num_vector <- c (3, 2, 1)
num_vector
```

```
## [1] 3 2 1
```

```
## Create a character vector with the values of "three", "two", "one" "using the `c()` function
## Assign the value to a variable named `char_vector`
## Print the vector
char_vector <- c ("three", "two", "one")
char_vector
```

```
## [1] "three" "two"   "one"
```

```
## Create a vector called `week1_sleep` representing how many hours slept each night of the week
## Use the values 6.1, 8.8, 7.7, 6.4, 6.2, 6.9, 6.6
week1_sleep <- c (6.1, 8.8, 7.7, 6.4, 6.2, 6.9, 6.6)

## Display the amount of sleep on Tuesday of week 1 by selecting the variable index
week1_sleep[ 3 ]
```

```
## [1] 7.7
```

```
## Create a vector called `week1_sleep_weekdays`
## Assign the weekday values using indice slicing
week1_sleep_weekdays <- week1_sleep[c (1 : 5)]
week1_sleep_weekdays
```

```
## [1] 6.1 8.8 7.7 6.4 6.2
```

```
## Add the total hours slept in week one using the `sum` function
## Assign the value to variable `total_sleep_week1`
```

```r
total_sleep_week1 <- sum(week1_sleep)
total_sleep_week1
```

```
## [1] 48.7
```

```r
## Create a vector called `week2_sleep` representing how many hours slept each night of the week
## Use the values 7.1, 7.4, 7.9, 6.5, 8.1, 8.2, 8.9
week2_sleep <- c (7.1, 7.4, 7.9, 6.5, 8.1, 8.2, 8.9)

## Add the total hours slept in week two using the sum function
## Assign the value to variable `total_sleep_week2`
total_sleep_week2 <- sum(week2_sleep)
total_sleep_week2
```

```
## [1] 54.1
```

```r
## Determine if the total sleep in week 1 is less than week 2 by using the < operator
total_sleep_week1 < total_sleep_week2
```

```
## [1] TRUE
```

```r
## Calculate the mean hours slept in week 1 using the `mean()` function
mean(total_sleep_week1)
```

```
## [1] 48.7
```

```r
## Create a vector called `days` containing the days of the week.
## Start with Sunday and end with Saturday
days <- c ( "Sunday", "Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday")
days
```

```
## [1] "Sunday"    "Monday"    "Tuesday"   "Wednesday" "Thursday"  "Friday"
## [7] "Saturday"
```

```r
## Assign the names of each day to `week1_sleep` and `week2_sleep` using the `names` function and `days` vector
names(week1_sleep) <- (days)
names(week2_sleep) <- (days)
week1_sleep
```

```
##    Sunday    Monday   Tuesday Wednesday  Thursday    Friday  Saturday
##       6.1       8.8       7.7       6.4       6.2       6.9       6.6
```

```r
week2_sleep
```

```
##    Sunday    Monday   Tuesday Wednesday  Thursday    Friday
Saturday
##       7.1       7.4       7.9       6.5       8.1       8.2
8.9
```

```r
## Display the amount of sleep on Tuesday of week 1 by selecting the
variable name
week1_sleep["Tuesday"]
```

```
## Tuesday
##     7.7
```

```r
## Create vector called weekdays from the days vector
weekdays <- days[2: 6]

## Create vector called weekends containing Sunday and Saturday
weekends <- c ("Sunday" , "Saturday")

## Calculate the mean about sleep on weekdays for each week
## Assign the values to weekdays1_mean and weekdays2_mean
weekdays1_mean <- mean(week1_sleep[weekdays])
weekdays2_mean <- mean(week2_sleep[weekdays])
weekdays1_mean
```

```
## [1] 7.2
```

```r
weekdays2_mean
```

```
## [1] 7.62
```

```r
## Using the weekdays1_mean and weekdays2_mean variables,
## see if weekdays1_mean is greater than weekdays2_mean using the `>`
operator
weekdays1_mean > weekdays2_mean
```

```
## [1] FALSE
```

```r
## Determine how many days in week 1 had over 8 hours of sleep using
the `>` operator
week1_sleep > 8
```

```
##    Sunday    Monday   Tuesday Wednesday  Thursday    Friday
Saturday
##     FALSE      TRUE     FALSE     FALSE     FALSE     FALSE
FALSE
```

```r
## Create a matrix from the following three vectors
student01 <- c(100.0, 87.1)
student02 <- c(77.2, 88.9)
```

```r
student03 <- c(66.3, 87.9)

students_combined <- c(student01, student02, student03)
grades <- matrix(students_combined, byrow = TRUE, nrow = 3)


## Add a new student row with `rbind()`
student04 <- c(95.2, 94.1)
grades <- rbind(grades, c(95.2, 94.1))

## Add a new assignment column with `cbind()`
assignment04 <- c(92.1, 84.3, 75.1, 97.8)
grades <- cbind(grades , c(92.1, 84.3, 75.1, 97.8))


## Add the following names to columns and rows using `rownames()` and
`colnames()`
assignments <- c("Assignment 1", "Assignment 2", "Assignment 3")
students <- c("Florinda Baird", "Jinny Foss", "Lou Purvis", "Nola
Maloney")

rownames(grades) <- c("Florinda Baird", "Jinny Foss", "Lou Purvis",
"Nola Maloney")
colnames(grades) <- c("Assignment 1", "Assignment 2", "Assignment 3")


## Total points for each assignment using `colSums()`
colSums(grades)

## Assignment 1 Assignment 2 Assignment 3
##        338.7        358.0        349.3

## Total points for each student using `rowSums()`
rowSums(grades)

## Florinda Baird     Jinny Foss     Lou Purvis   Nola Maloney
##          279.2          250.4          229.3          287.1

## Matrix with 10% and add it to grades
weighted_grades <- grades * 0.1 + grades


## Create a factor of book genres using the genres_vector
## Assign the factor vector to factor_genre_vector
genres_vector <- c("Fantasy", "Sci-Fi", "Sci-Fi", "Mystery", "Sci-Fi",
"Fantasy")
factor_genre_vector <- as.factor(genres_vector)
```

```r
## Use the `summary()` function to print a summary of
`factor_genre_vector`
summary(factor_genre_vector)
```

```
## Fantasy Mystery  Sci-Fi
##       2       1       3
```

```r
## Create ordered factor of book recommendations using the
recommendations_vector
## `no` is the lowest and `yes` is the highest
recommendations_vector <- c("neutral", "no", "no", "neutral", "yes")
factor_recommendations_vector <- factor(
  recommendations_vector,
  ordered = TRUE,
  levels = c("no", "neutral", "yes")
)

## Use the `summary()` function to print a summary of
`factor_recommendations_vector`
summary(factor_recommendations_vector)
```

```
##      no neutral     yes
##       2       2       1
```

```r
## Using the built-in `mtcars` dataset, view the first few rows using
the `head()` function
head (mtcars , n= 10)
```

```
##                    mpg cyl  disp  hp drat    wt  qsec vs am gear
carb
## Mazda RX4         21.0   6 160.0 110 3.90 2.620 16.46  0  1    4
4
## Mazda RX4 Wag     21.0   6 160.0 110 3.90 2.875 17.02  0  1    4
4
## Datsun 710        22.8   4 108.0  93 3.85 2.320 18.61  1  1    4
1
## Hornet 4 Drive    21.4   6 258.0 110 3.08 3.215 19.44  1  0    3
1
## Hornet Sportabout 18.7   8 360.0 175 3.15 3.440 17.02  0  0    3
2
## Valiant           18.1   6 225.0 105 2.76 3.460 20.22  1  0    3
1
## Duster 360        14.3   8 360.0 245 3.21 3.570 15.84  0  0    3
4
## Merc 240D         24.4   4 146.7  62 3.69 3.190 20.00  1  0    4
2
## Merc 230          22.8   4 140.8  95 3.92 3.150 22.90  1  0    4
2
## Merc 280          19.2   6 167.6 123 3.92 3.440 18.30  1  0    4
```

```
4
```

```
## Using the built-in mtcars dataset, view the last few rows using the
`tail()` function
tail(mtcars)
```

```
##                 mpg cyl  disp  hp drat    wt qsec vs am gear carb
## Porsche 914-2  26.0   4 120.3  91 4.43 2.140 16.7  0  1    5    2
## Lotus Europa   30.4   4  95.1 113 3.77 1.513 16.9  1  1    5    2
## Ford Pantera L 15.8   8 351.0 264 4.22 3.170 14.5  0  1    5    4
## Ferrari Dino   19.7   6 145.0 175 3.62 2.770 15.5  0  1    5    6
## Maserati Bora  15.0   8 301.0 335 3.54 3.570 14.6  0  1    5    8
## Volvo 142E     21.4   4 121.0 109 4.11 2.780 18.6  1  1    4    2
```

```
## Create a dataframe called characters_df using the following
information from LOTR
name <- c("Aragon", "Bilbo", "Frodo", "Galadriel", "Sam", "Gandalf",
"Legolas", "Sauron", "Gollum")
race <- c("Men", "Hobbit", "Hobbit", "Elf", "Hobbit", "Maia", "Elf",
"Maia", "Hobbit")
in_fellowship <- c(TRUE, FALSE, TRUE, FALSE, TRUE, TRUE, TRUE, FALSE,
FALSE)
ring_bearer <- c(FALSE, TRUE, TRUE, FALSE, TRUE, TRUE, FALSE, TRUE,
TRUE)
age <- c(88, 129, 51, 7000, 36, 2019, 2931, 7052, 589)

characters_df <- data.frame(name, race, in_fellowship, ring_bearer,
age)
characters_df
```

```
##        name   race in_fellowship ring_bearer  age
## 1    Aragon    Men          TRUE       FALSE   88
## 2     Bilbo Hobbit         FALSE        TRUE  129
## 3     Frodo Hobbit          TRUE        TRUE   51
## 4 Galadriel    Elf         FALSE       FALSE 7000
## 5       Sam Hobbit          TRUE        TRUE   36
## 6   Gandalf   Maia          TRUE        TRUE 2019
## 7   Legolas    Elf          TRUE       FALSE 2931
## 8    Sauron   Maia         FALSE        TRUE 7052
## 9    Gollum Hobbit         FALSE        TRUE  589
```

```
## Sorting the characters_df by age using the order function and
assign the result to the sorted_characters_df
sorted_characters_df <- characters_df[order(age),]
## Use `head()` to output the first few rows of `sorted_characters_df`
head (sorted_characters_df)
```

```
##      name   race in_fellowship ring_bearer  age
## 5     Sam Hobbit          TRUE        TRUE   36
```

```
## 3   Frodo Hobbit          TRUE        TRUE   51
## 1  Aragon    Men          TRUE       FALSE   88
## 2   Bilbo Hobbit         FALSE        TRUE  129
## 9  Gollum Hobbit         FALSE        TRUE  589
## 6 Gandalf   Maia          TRUE        TRUE 2019
```

```
## Select all of the ring bearers from the dataframe and assign it to ringbearers_df
ringbearers_df <- characters_df[characters_df$ring_bearer == TRUE,]
## Use `head()` to output the first few rows of `ringbearers_df`
head(ringbearers_df)
```

```
##      name   race in_fellowship ring_bearer  age
## 2   Bilbo Hobbit         FALSE        TRUE  129
## 3   Frodo Hobbit          TRUE        TRUE   51
## 5     Sam Hobbit          TRUE        TRUE   36
## 6 Gandalf   Maia          TRUE        TRUE 2019
## 8  Sauron   Maia         FALSE        TRUE 7052
## 9  Gollum Hobbit         FALSE        TRUE  589
```