

# RWorksheet\_Arenal#2

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```
# 1
# a
sequence_vector <- -5:5

sequence_vector
```

```
## [1] -5 -4 -3 -2 -1 0 1 2 3 4 5
```

*# The output is a vector containing all integer values from -5 to 5, inclusive. The : operator generates a sequence of integers.*

```
# b

x <- 1:7

x
```

```
## [1] 1 2 3 4 5 6 7
```

```
# 2
# a

sequence_vector_seq <- seq(1, 3, by = 0.2)

sequence_vector_seq
```

```
## [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
```

*# The output is a vector that starts at 1 and ends at 3, with increments of 0.2. The seq() function generates a sequence of values.*

```
# 3
ages <- c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
         22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37,
         43, 53, 41, 51, 35, 24, 33, 41, 53, 40, 18, 44, 38,
         41, 48, 27, 39, 19, 30, 61, 54, 58, 26, 18)
```

```
third_element <- ages[3]
```

```
third_element
```

```
## [1] 22
```

```
# b

second_fourth_elements <- ages[c(2, 4)]

second_fourth_elements
```

```
## [1] 28 36
```

```
# c.
```

```
ages_excluding_4th_12th <- ages[-c(4, 12)]
```

```
ages_excluding_4th_12th
```

```
## [1] 34 28 22 27 18 52 39 42 29 35 27 22 37 34 19 20 57 49 50 37 46 25 17 37 43
```

```
## [26] 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

```
# 4
```

```
# a
```

```
x <- c("first" = 3, "second" = 0, "third" = 9)
```

```
print(x)
```

```
## first second third
```

```
##      3      0      9
```

```
selected_elements <- x[c("first", "third")]
```

```
selected_elements
```

```
## first third
```

```
##      3      9
```

*# The output shows a vector that contains only the elements corresponding to the names "first" and "third"*

```
# 5
```

```
# a
```

```
x[2] <- 0
```

```
x
```

```
## first second third
```

```
##      3      0      9
```

```
# b
```

```
x <- -3:2
```

```
print(x)
```

```
## [1] -3 -2 -1  0  1  2
```

```
x[2] <- 0
```

```
print(x)
```

```
## [1] -3  0 -1  0  1  2
```

```
# 6
```

```
# a
```

```
months <- c("Jan", "Feb", "March", "Apr", "May", "June")
```

```
price_per_liter <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
```

```
purchase_quantity <- c(25, 30, 40, 50, 10, 45)
```

```
diesel_data <- data.frame(Month = months,
                          Price_per_liter = price_per_liter,
                          Purchase_quantity = purchase_quantity)

print(diesel_data)
```

```
##   Month Price_per_liter Purchase_quantity
## 1   Jan           52.50                25
## 2   Feb           57.25                30
## 3 March           60.00                40
## 4   Apr           65.00                50
## 5   May           74.25                10
## 6  June           54.00                45
```

```
# b
```

```
expenditure <- price_per_liter * purchase_quantity

average_expenditure <- weighted.mean(expenditure, purchase_quantity)

average_expenditure
```

```
## [1] 2298.062
```

```
# 7
# a
# b
# c
```

```
data <- c(length(rivers),      # Number of elements
          sum(rivers),        # Sum of lengths
          mean(rivers),       # Mean of lengths
          median(rivers),     # Median of lengths
          var(rivers),        # Variance
          sd(rivers),         # Standard deviation
          min(rivers),        # Minimum length
          max(rivers))        # Maximum length
```

```
data
```

```
## [1] 141.0000 83357.0000 591.1844 425.0000 243908.4086 493.8708
## [7] 135.0000 3710.0000
```

```
# 8
# a
```

```
Power_ranking <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24)
```

```
Celebrity_name <- c("Tom Cruise", "Rolling Stones", "Oprah Winfrey", "U2", "Tiger Woods",
                    "Steven Spielberg", "Howard Stern", "50 Cent", "Cast of the Sopranos",
                    "Dan Brown", "Bruce Springsteen", "Donald Trump", "Muhammad Ali",
                    "Paul McCartney", "George Lucas", "Elton John", "David Letterman",
                    "Phil Mickelson", "J.K. Rowling", "Bradd Pitt", "Peter Jackson",
                    "Dr. Phil McGraw", "Jay Leno", "Celine Dion", "Kobe Bryant")
```

```
Pay <- c(67, 90, 225, 110, 90, 332, 302, 41, 52, 88, 55, 44, 55, 40, 233, 34, 40, 47,
```

```

75, 25, 39, 45, 32, 40, 31)

celebrity_df <- data.frame(Power_ranking = Power_ranking,
                           Celebrity_name = Celebrity_name,
                           Pay = Pay)

celebrity_df

##      Power_ranking      Celebrity_name Pay
## 1                1          Tom Cruise  67
## 2                2      Rolling Stones  90
## 3                3      Oprah Winfrey 225
## 4                4                U2 110
## 5                5          Tiger Woods  90
## 6                6    Steven Spielberg 332
## 7                7      Howard Stern 302
## 8                8          50 Cent  41
## 9                9 Cast of the Sopranos  52
## 10               10          Dan Brown  88
## 11               11    Bruce Springsteen  55
## 12               12      Donald Trump  44
## 13               13      Muhammad Ali  55
## 14               14      Paul McCartney  40
## 15               15      George Lucas 233
## 16               16      Elton John  34
## 17               17    David Letterman  40
## 18               18      Phil Mickelson  47
## 19               19      J.K. Rowling  75
## 20               20      Bradd Pitt  25
## 21               21      Peter Jackson  39
## 22               22    Dr. Phil McGraw  45
## 23               23          Jay Leno  32
## 24               24      Celine Dion  40
## 25               25      Kobe Bryant  31

# b
Power_ranking <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25)

Celebrity_name <- c("Tom Cruise", "Rolling Stones", "Oprah Winfrey", "U2", "Tiger Woods",
                    "Steven Spielberg", "Howard Stern", "50 Cent", "Cast of the Sopranos",
                    "Dan Brown", "Bruce Springsteen", "Donald Trump", "Muhammad Ali",
                    "Paul McCartney", "George Lucas", "Elton John", "David Letterman",
                    "Phil Mickelson", "J.K. Rowling", "Bradd Pitt", "Peter Jackson",
                    "Dr. Phil McGraw", "Jay Leno", "Celine Dion", "Kobe Bryant")

Pay <- c(67, 90, 225, 110, 90, 332, 302, 41, 52, 88, 55, 44, 55, 40, 233, 34, 40, 47,
        75, 25, 39, 45, 32, 40, 31)

celebrity_df <- data.frame(Power_ranking, Celebrity_name, Pay)

celebrity_df[celebrity_df$Celebrity_name == "J.K. Rowling", "Power_ranking"] <- 15
celebrity_df[celebrity_df$Celebrity_name == "J.K. Rowling", "Pay"] <- 90

celebrity_df

```

```
##      Power_ranking      Celebrity_name Pay
## 1          1          Tom Cruise  67
## 2          2      Rolling Stones  90
## 3          3      Oprah Winfrey 225
## 4          4              U2 110
## 5          5          Tiger Woods  90
## 6          6      Steven Spielberg 332
## 7          7      Howard Stern 302
## 8          8          50 Cent  41
## 9          9 Cast of the Sopranos  52
## 10         10          Dan Brown  88
## 11         11      Bruce Springsteen  55
## 12         12          Donald Trump  44
## 13         13          Muhammad Ali  55
## 14         14          Paul McCartney  40
## 15         15          George Lucas 233
## 16         16          Elton John  34
## 17         17      David Letterman  40
## 18         18      Phil Mickelson  47
## 19         15          J.K. Rowling  90
## 20         20          Bradd Pitt  25
## 21         21          Peter Jackson  39
## 22         22      Dr. Phil McGraw  45
## 23         23          Jay Leno  32
## 24         24          Celine Dion  40
## 25         25          Kobe Bryant  31
```

```
# 9
# a
library(readxl)
hotels_vienna <- read_excel("/cloud/project/hotels-vienna.xlsx")
hotels_vienna
```

```
## # A tibble: 428 x 24
##   country city_actual rating_count center1label center2label neighbourhood
##   <chr>    <chr>      <chr>      <chr>      <chr>      <chr>
## 1 Austria Vienna    36      City centre Donauturm  17. Hernals
## 2 Austria Vienna   189      City centre Donauturm  17. Hernals
## 3 Austria Vienna    53      City centre Donauturm  Alsergrund
## 4 Austria Vienna    55      City centre Donauturm  Alsergrund
## 5 Austria Vienna    33      City centre Donauturm  Alsergrund
## 6 Austria Vienna    25      City centre Donauturm  Alsergrund
## 7 Austria Vienna    57      City centre Donauturm  Alsergrund
## 8 Austria Vienna   161      City centre Donauturm  Alsergrund
## 9 Austria Vienna    50      City centre Donauturm  Alsergrund
## 10 Austria Vienna    NA      City centre Donauturm  Alsergrund
## # i 418 more rows
## # i 18 more variables: price <dbl>, city <chr>, stars <dbl>, ratingta <chr>,
## #   ratingta_count <chr>, scarce_room <dbl>, hotel_id <dbl>, offer <dbl>,
## #   offer_cat <chr>, year <dbl>, month <dbl>, weekend <dbl>, holiday <dbl>,
## #   distance <dbl>, distance_alter <dbl>, accommodation_type <chr>,
## #   nnights <dbl>, rating <chr>
```

```
# b
dim(hotels_vienna)
```

```
## [1] 428 24
```

```
# c
```

```
# d
```

```
# e
```

```
# 10
```

```
# a
```

```
vegetables <- c("Carrot", "Broccoli", "Spinach", "Potato", "Tomato",
               "Cabbage", "Bell Pepper", "Zucchini", "Onion", "Eggplant")
```

```
vegetables
```

```
## [1] "Carrot"      "Broccoli"    "Spinach"     "Potato"      "Tomato"
## [6] "Cabbage"     "Bell Pepper" "Zucchini"    "Onion"       "Eggplant"
```

```
# b
```

```
vegetables <- c(vegetables, "Cauliflower", "Radish")
```

```
vegetables
```

```
## [1] "Carrot"      "Broccoli"    "Spinach"     "Potato"      "Tomato"
## [6] "Cabbage"     "Bell Pepper" "Zucchini"    "Onion"       "Eggplant"
## [11] "Cauliflower" "Radish"
```

```
# c
```

```
vegetables <- append(vegetables, c("Asparagus", "Kale", "Lettuce", "Mushroom"), after = 5)
```

```
vegetables
```

```
## [1] "Carrot"      "Broccoli"    "Spinach"     "Potato"      "Tomato"
## [6] "Asparagus"  "Kale"        "Lettuce"     "Mushroom"    "Cabbage"
## [11] "Bell Pepper" "Zucchini"    "Onion"       "Eggplant"    "Cauliflower"
## [16] "Radish"
```

```
length(vegetables)
```

```
## [1] 16
```

```
# d
```

```
vegetables <- vegetables[-c(5, 10, 15)]
```

```
vegetables
```

```
## [1] "Carrot"      "Broccoli"    "Spinach"     "Potato"      "Asparagus"
## [6] "Kale"        "Lettuce"     "Mushroom"    "Bell Pepper" "Zucchini"
## [11] "Onion"       "Eggplant"    "Radish"
```

```
length(vegetables)
```

```
## [1] 13
```