WORKSHEET-2

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R Markdown

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1. Create a vector using : operator

a. `Sequence from -5 to 5. Write the R code and its output. Describe its output.`

```
seq <- c(-5:5)
seq
```

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

b. x <- 1:7. What will be the value of x?

```
x <- 1:7
x
```

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

2. Create a vector using seq() function #a. seq(1, 3, by=0.2) # specify step size

```
         #Creating a Sequence of Numeric Values with the seq Function
seq(1,3)
```

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

```
seq(1,3,0.2)    #specifies that in every number you need to jump by 0.2
```

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

```
#The by argument
seq(1,3, by = 0.2) #sequence from 1 to 3 by 0.2
```

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

3. . A factory has a census of its workers. There are 50 workers in total.

factory_workers = 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) factory_workers a. Access 3rd element, what is the value?

```
factory_workers = c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50,
                    24,33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54, 58, 26,
                    18)
print(factory_workers[3])
```

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

b. Access 2nd and 4th element, what are the values?

```
factory_workers = c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50,
                    24,33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54, 58, 26,
                    18)
print(factory_workers[2])
```

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

```
print(factory_workers[4])
```

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

c. Access all but the 1st element is not included. Write the R code and its output.

```
factory_workers = c(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50,
                    24,33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54, 58, 26,
                    18)
print(factory_workers[-1])
```

```
##  [1] 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
## [26] 43 53 41 51 35 24 33 41 53 40 18 44 38 41 48 27 39 19 30 61 54 58 26 18
```

4. Create a vector x <- c(“first”=3, “second”=0, “third”=9).

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

```
## [1] "first"  "second" "third"
```

```
x[c("first", "third")]
```

```
## first third
##     3     9
```

5. Create a sequence x from -3:2.

a. Modify 2nd element and change it to 0;x[2] <- 0 x

```
x <- -3:2
x[2] <- 0
x
```

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

6.

a. Create a data frame for month, price per liter (php) and purchase-quantity (liter).Write the codes.

```
Month <- c("Jan", "Feb", "March", "Apr", "May", "June")
Price_per_liter_php <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
Purchase_quantity_liter <- c(25, 30, 40, 50, 10, 45)
data_frame <- data.frame(Month, Price_per_liter_php, Purchase_quantity_liter )
data_frame
```

```
##   Month Price_per_liter_php Purchase_quantity_liter
## 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. What is the average fuel expenditure of Mr. Cruz from Jan to June? Note: Use weighted.mean(liter, purchase)

```
weighted.mean(Price_per_liter_php, Purchase_quantity_liter)
```

```
## [1] 59.2625
```

7. R has actually lots of built-in datasets.

a. Type “rivers” in your R console. Create a vector data with 7elements, containing the number of elements (length) in rivers, their sum (sum), mean (mean), median (median), variance (var) standard deviation (sd), minimum (min) and maximum (max).

```
data <- c(length(rivers), sum(rivers), mean(rivers), median(rivers), var(rivers),
          sd(rivers), min(rivers), max(rivers))
data
```

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

8.

a. Create vectors according to the above table. Write the codes.

```
PowerRanking <- (1:25);
CelebrityName <- 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 Lenon", "Celine Dion", "Kobe
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);
Data_Ranking <- data.frame(PowerRanking, CelebrityName, Pay);
Data_Ranking
```

```
##    PowerRanking        CelebrityName 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 Lenon  32
## 24           24          Celine Dion  40
## 25           25          Kobe Bryant  31
```

b. Modify the power ranking and pay of J.K. Rowling. Change power ranking to 15 and pay to 90. Write the codes and its output.

```
PowerRanking [19] <- 15
print (PowerRanking)
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 15 20 21 22 23 24 25
```

```
Pay [19] <- 90
print (Pay)
```

```
##  [1]  67  90 225 110  90 332 302  41  52  88  55  44  55  40 233  34  40  47  90
## [20]  25  39  45  32  40  31
```

```
forbes_Ranking <- data.frame(PowerRanking, CelebrityName, Pay);
forbes_Ranking
```

```
##    PowerRanking        CelebrityName 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 Lenon  32
## 24           24          Celine Dion  40
## 25           25          Kobe Bryant  31
```