RWorksheet_SOCO#2.R

```
#1. Create a vector using : operator
x <- -5:5
x
```

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

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

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

```
#2.* Create a vector using seq() function
seq(1, 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.
#The following list shows their ages:
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)

print(ages[3])
```

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

```
print(ages[c(2, 4)])
```

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

```
print(ages[-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). Then named the
#vector, names(x).
x <- c("first"=3, "second"=0, "third"=9)
x
```

```
##  first second  third
##      3      0      9
```

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

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

```r
#The Output shows only the first and third which the value is 3 and 9.
```

```r
#5. Create a sequence x from -3:2.
x <- -3:2
x
```

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

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

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

```r
#The output shows that the element [2] was replaced by 0.
```

```r
Month <- c("Jan", "Feb", "March" ,"April" , "May", "June")
Priceperliter <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
Liters <- c(25, 30, 40, 50, 10, 45)

fuel <- data.frame(Month, Priceperliter, Liters)
fuel
```

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

```r
ave <- weighted.mean(Liters, Priceperliter)
ave
```

```
## [1] 32.65152
```

```r
#7. R has actually lots of built-in data sets. For example, the rivers
#data "gives the lengths (in miles) of 141 "major" rivers in North America,
#as compiled by the US Geological Survey".

#a.
data <- c(
  length(rivers),   # number of elements
  sum(rivers),      # sum
  mean(rivers),     # mean
  median(rivers),   # median
```

```
  var(rivers),      # variance
  sd(rivers),       # standard deviation
  min(rivers),      # minimum
  max(rivers)       # maximum
)
data
```

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

```
#The output is / [1]    141.0000  83357.0000    591.1844
#425.0000 243908.4086    493.8708    135.0000   3710.0000
```

```
#8. The table below gives the 25 most powerful celebrities and their annual pay
#as ranked by the editions of Forbes magazine and as listed on the Forbes.com website.
# Original vectors
Rank <- 1:25
Celebrity <- 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", "Brad 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)

forbes <- data.frame(Rank, Celebrity, Pay)
#Modification
forbes[forbes$Rank == 15, "Celebrity"] <- "J.K. Rowling"
forbes[forbes$Rank == 15, "Pay"] <- 90
forbes[forbes$Rank == 19, "Celebrity"] <- "George Lucas"

forbes
```

```
##    Rank            Celebrity 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         J.K. Rowling  90
## 16   16           Elton John  34
## 17   17      David Letterman  40
## 18   18       Phil Mickelson  47
## 19   19         George Lucas  75
## 20   20            Brad 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
```

```
#Interpretation
#After the modification, J.K. Rowling replaced George Lucas at Rank 15 with
#a pay of 90 million dollars. This change moves her up from Rank 19, showing an
#increase in both influence and financial standing in the Forbes list.
```