EXERCISE 1

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Problem 1

Write a bubble sort algorithm to sort out arbitrary 5 numbers in decreasing order:
Solution:

Listing 1. Main Script

```
#######################################################
#                                                     #
#    Bubble Sort Algorithm by Anil Aksu               #
#   It is developed to show some basics of R          #
#                                                     #
#######################################################

## functions
source('getSorted.R')

## numbers array
Numbers <- integer(5)

## this function gets numbers from console
for (i in 1:5){
    # this converts data into integer as.integer()
    Numbers[i] <- as.integer(readline("Please enter a number"))
}


## let's output them
print("The numbers")
print(Numbers)
## let's sort them out

SortedNumbers <- getSorted(Numbers);

## let's output them
 print("The  sorted numbers")
```

Date: April 21, 2017.

LISTING 2. Sorting Function

```
getSorted<- function(Numbers){

#######################################################
#                                                     #
#  This function is developed to sort numbers in      #
#  arbitrary order                                    #
#                                                     #
#######################################################

#######################################################
#                                                     #
#   Input:   Numbers in arbitrary order               #
#                                                     #
#######################################################

#######################################################
#                                                     #
#   Output:   Numbers in decreasing order             #
#                                                     #
#######################################################

## the length of Number Array
numSize <- length(Numbers)

## let's define sorted array of Numbers
SortedNumbers <- integer(numSize)

SortedNumbers <- Numbers;

## let's start sorting
for(i in 1:numSize){
    for (j in i:numSize){
        if(SortedNumbers[i] < SortedNumbers[j]) {
            # dummy variable
            dummy <- SortedNumbers[i]
            SortedNumbers[i] <- SortedNumbers[j];
            SortedNumbers[j] <- dummy;
        }
     }
}
 return(SortedNumbers)
}
```