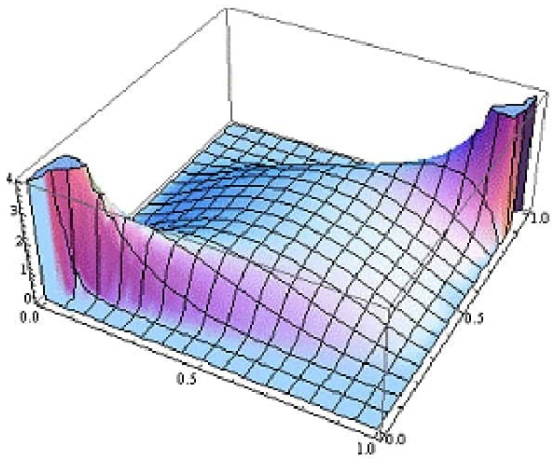
Exercise 1



Create a function that given a data frame and a vector, will add a the vector (if the vector length match with the rows number of the data frame) as a new variable to the data frame.

Exercise 2

Consider a data frame df:

```
Id=c(1:10)
Age=c(14,12,15,10,23,21,41,56,78,12)
Sex=c('F','M','M','F','M','F','M','M','F','M')
Code=letters[1:10]
df=data.frame(Id,Age,Sex,Code)
```

Create a function that, given a data frame and two indexes, exchanges two values of the Code variable with each other.
For example, if the index is 1 and 3, you assign:

```
df[1,'Code']=df[3,'Code']
df[3,'Code']=df[1,'Code']
```

Exercise 3

Consider two variables x,y and a data frame df:

```
x,y integer
```

```
A=c(1:10)
B=seq(100,10,-10)
H=seq(-200,-50,along.with=B)
df=data.frame(A,B,H)
```

Create a function that given a data frame df calculate a new variable 'SUM_x_y'(If x=2 and y=3, then the new variable will be 'SUM_2_3',
if x=4 and y=10, then the new variable will be 'SUM_4_10'),such that for each row 'i' is equal to:

```
sum(x*df[1:i,1])+sum(y*df[1:i,2])
```

Exercise 4

Create a function that given a numeric vector, sort this in ascending order and duplicate it by two.

Exercise 5

Create a function that given a vector alpha numeric, keep only the numbers and apply the function created on exercise 4.
For example, if the input is a vector `w="a" "v" "7" "4" "q"` , the function will return `w=8 14` .

Exercise 6

Create a function that given a string

```
ST='NAME: Maria /COUNTRY:uruguay /EMAIL: mariaUY@gmail.com'
```

return a matrix

```
[,1] [,2]
[1,] "NAME" " Maria "
[2,] "COUNTRY" "uruguay "
[3,] "EMAIL" " mariaUY@gmail.com"
```

Exercise 7

Consider a vector:

```
ST=c('NAME:Maria /COUNTRY:uruguay
/EMAIL:mariaUY@gmail.com','NAME:Paul/COUNTRY:UK /EMAIL:PaulUK@gmail.com',
'NAME:Jhon /COUNTRY:USA /EMAIL:JhonUSA@gmail.com','NAME:Carlos /COUNTRY:Spain
/EMAIL:CarlosSP@gmail.com')
```

Create a function that given a vector string ST return a matrix:

```
[,1] [,2] [,3] [,4] [,5]
[1,] "NAME" "Maria " "Paul" "Jhon " "Carlos "
[2,] "COUNTRY" "uruguay " "UK " "USA " "Spain "
[3,] "EMAIL" "mariaUY@gmail.com" "PaulUK@gmail.com" "JhonUSA@gmail.com"
"CarlosSP@gmail.com"
```

Exercise 8

Create a function that given a numeric vector X returns the digits 0 to 9 that are not in X. If `X=0 2 4 8`
the function return `1 3 5 6 7 9`

Exercise 9

Create a function that given two strings (one word each), check if one is an anagram of another.

Exercise 10

Create a function that given one word, return the position of word's letters on `letters` vector. For example, if the word is 'abc', the function will return 1 2 3.