Practical Intro-1

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Exercise 1:

Data on heights, weights and gender were collected for 10 individuals in early-adulthood. The data were reported in the table below (heights measured in cm, weights in Kg and m refers to a male gender):

id	ht	wt	gender
1	155	80	m
2	152	85	m
3	164	72	f
4	175	69	m
5	193	86	f
6	203	110	f
7	190	106	f
8	183	96	m
9	155	90	f
10	169	89	m

a) Create vectors for height, weight and gender and assigned them to the names: `ht`; `wt`; `gender` respectively.

```
ht = c(155, 152, 164, 175, 193, 203, 190, 183, 155, 169)
wt = c(80, 85, 72, 69, 86, 110, 106, 96, 90, 89)
gender = c("m", "m", "f", "m", "f", "f", "f", "m", "f", "m")
```

b) Using `ht` and `wt` vectors, creat a new variable for the BMI (Hint: BMI is calculated by dividing weight measured in Kg by the squared height measured in **meters**)

```
# convert 'ht' into meters
ht_meters = ht / 100
# BMI calculations
BMI = wt/(ht_meters^2)
```

c) Show the length of the `ht` vector.

```
length(ht)
```

```
## [1] 10
```

d) Use R to count how many subjects with weights over 80 Kg.

```
sum(wt > 80)
```

```
## [1] 7
```

e) Show a frequency table for the `gender` variable (Hint: search the help for the table function by typing in `?table`)

```
?table
table(gender)
```

```
## gender
```

```
## f m
## 5 5
```

f) Round the calculated BMI values to 2 decimel digits only.

```
BMI = round(BMI, digits = 2)
```

g) Extract the BMI for the 3rd and 5th individuals.

```
BMI[c(3,5)]
```

```
## [1] 26.77 23.09
```

Exercise 2

a) Generate a vector x consisting of the values 0.70, 3.26, 4.48, and 5.05.

```
x = c(0.7, 3.26, 4.48, 5.05)
```

b) Append `x` with a sequence of length 6 of equidistant values starting with 2 and ending with 9. The vector should now consist of 10 values.

```
# appending 'x' with the required sequence
x = c(x, seq(from=2, to=9, length.out=6))
# show the length of 'x'
length(x)
```

```
## [1] 10
```

c) Use x to generate three more vectors: (`x1`) represents `x` divided by 4; (`x2`) is x multiplied by 2.5; (`x3`) is `x` to the power 2.5.

```
x1 = x/4
x2 = x*2.5
x3 = x^2.5
```

d) Generate a vector `y` consisting of these three vectors, `x1`, `x2` and `x3`. Make sure that `y` has a lenght 30.

```
y = c(x1, x2, x3); length(y)
```

```
## [1] 30
```

e) Calculate the maximum, minimum, and mean of `y`.

```
max(y)
```

```
## [1] 243
```

```
min(y)
```

```
## [1] 0.175
```

```
mean(y)
```

```
## [1] 27.42119
```