Exercises for the course

"An introduction to R"

Exercise session Algorithmics: Monday, February 27 2017

Exercise 1: What is the value of A, B (and C when relevant) at the end of each algorithm? We assume that the variables A, B and C are already defined as integers.

Algorithm 1:

```
A <- 1
B <- A + 3
A <- 3
```

Algorithm 2:

```
A <- 5
B <- 3
C <- A + B
A <- 2
C <- B - A
```

Algorithm 3:

```
A <- 5
B <- A + 4
A <- A + 1
B <- A - 4
```

Algorithm 4:

```
A <- 3
B <- 10
C <- A + B
B <- A + B
A <- C
```

Algorithm 5:

```
A <- 5
B <- 2
A <- B
B <- A
```

Exercise 2: Write an algorithm allowing to exchange the values of two variables A and B. At the end of the algorithm, B must have the initial value of A and A must have the initial value of B.

Exercise 3: Write an algorithm that asks the user for a number and then calculates and prints the square value of this number.

Exercise 4: Write an algorithm that asks the user for a number and prints whether this number is positive or negative (dont consider the value 0).
Upgrade your algorithm including the value 0.

Exercise 5: Write an algorithm asking the user for two numbers and printing whether their product is positive or negative. You should not compute the value of the product.

Exercise 6: In a bird species, females from 1 year and above build nests and males from one year and below 6 years also build a nest (to try and attract a female). Other individuals build no nest.
Write an algorithm asking for the relevant information about one bird and printing whether it will build a nest or not.

Exercise 7: Write an algorithm asking the user to enter a number between 1 and 3 and repeating until the answer is correct.

Exercise 8: Write an algorithm asking for an integer, computing the product of all positive integers until this value (factorial of the value) and printing the result.