

# Programming languages (TC-2006)

## Activity 07

In this activity, you will practice some basic aspects of the Erlang programming language. Please consider that the purpose of this activity is to allow you to practice and identify strengths and weaknesses. Then, implement these functions as requested and avoid using any built-in functions that already do what you are requested to implement.

### 1 multiplesR (10%)

Write a function in Erlang that receives a list and a number. The function must return a list with all the elements in the list which are multiples of such a number. Implement this function using a recursive approach.

### 2 multiplesHOF 10%)

Write a function in Erlang that receives a list and a number. The function must return a list with all the elements in the list which are multiples of such a number. Implement this function using higher-order functions.

### 3 take (15%)

Write a function that returns the first  $n$  elements from a list (it emulates `take` from Haskell).

### 4 drop (15%)

Write a function that removes the first  $n$  elements from a list (it emulates `drop` from Haskell).

### 5 unique (15%)

Write a function in Haskell that receives a list as input and returns a list that contains only unique elements (all repeated elements are removed).

### 6 transpose (15%)

Write a function in Erlang that calculates the transpose of a matrix.

### 7 qSort (20%)

Implement a function in Erlang that sorts a list by using the quick sort algorithm.

## Deliverables



Prepare an ERL file that contains the functions requested (in its corresponding module) and submit it to Canvas. **Please, do not submit other formats but ERL.** To prepare your ERL file, use the code template distributed along with this document. The template contains some test cases for each function to help you verify that your codes work as requested.



**I promise to apply my knowledge, strive for its development, and not use unauthorized or illegal means to complete this activity, following the Tecnológico de Monterrey Student Code of Honor.**