Compiladores - First part of the Course Work

DCC-FCUP

October 2024

1 Work Groups

Groups of **two (2) students** enrolled in the **same practical class**. Exceptionally, and only if necessary, a group of three per class may be accepted. The groups are chosen in the activity available for this purpose on Moodle. Groups are already created, named *Txx_Gyy*, where *Txx* represents the practical class (T01 to T02), and *Gyy* represents the group within the class (from group G01 to G15). Groups from each practical class should organize themselves into these groups. **Registration is mandatory for all students taking the assignment.**

2 Deadlines

The work must be submitted by **20:00 of the 10th of November**, 2024, in the activity to be made available for this purpose on Moodle, with demonstrations carried out in the practical class of the week of November 11th, 2024.

3 Submission guidelines

Each group must deliver a **.zip file** with the whole source code, and a .pdf file with a brief README of the project, called **README.pdf**. The submitted file must be zipped as a .zip file (not another archive format). The file name must be:

<div align="center">

COMP_TP1_Txx_Gyy.zip

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where Txx_Gyy is the name of the group (example: COMP_TP1_T01_G02.zip).

4 Assignment description

Implement a scanner (for the lexical analysis phase) and a parser (for the syntactic analysis phase) for a simple subset of the Kotlin programming language:

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`https://kotlinlang.org/docs/basic-syntax.html`

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The parser should return the abstract syntax tree (AST) representing the Kotlin program given as input.

The subset of Kotlin considered in this first coursework consists of one function *main* and the following expressions and commands:

- Expressions:
  1. arithmetic expressions;
  2. boolean expressions;
  3. the `print` function;
  4. the `readln` fuction;

- Commands:
  1. variable declarations and assignments;
  2. conditional expressions (`if then else`);
  3. `while` loops;