Homework 4: Semantic analyzer for the PyC programming language

2024 Compiler MUST FIE
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Tasks

- Write a semantic analyzer for PyC, which is a complete C program with the following properties:
  - The input: a parse tree produced by a PyC parser after parsing a PyC source-code file.
  - The output:
    - When the program is correct, some symbol tables (or other data structures) are produced, and the symbol tables are printed to verify their correctness.
    - When some semantic errors in the Pry source code exist, like name-related or type-related errors, at least one error message is printed explaining one of the errors discovered.
- Test your analyzer with some correct PyC program files and some PyC program files with semantic errors. You can design your own testing PyC program files.

Hint: The provided helpful code at the Moodle site of this course can be useful, which includes examples of data structure and functions for an analyzer (for a different source language).

Submission

- The following files should be submitted on Moodle:
  - The source code of the complete parser program.
  - A report file (.docx) describing:
    - The **names** of the members in your group (at most three) that did the homework together.
    - How did the group members cooperate? What are the contributions of each group member?
    - What aspects of your analyzer work correctly, and what are the troubles?
    - How do you compile and run your program? Show some output record of your running your program and explain it.
  - Only one member must submit the files in a group (at most three students).
- Due date: Refer to the setting on Moodle.