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Practical exercises
Spring 2021

Practical Exercises 5

Symbol Table Construction

Please submit solutions on Blackboard by Friday, 09.04.2021 14:00h

Notice: Please submit solutions on Blackboard in groups of two or three students.
The practical exercises will be graded and count as part of your final grade.

This assignment requires you to construct the symbol table after the construction of the syntax tree.
The implementation of the symbol table uses hash tables. Since the hash table implementation in libc is not very useful here, we provide our own hash table implementation in the skeleton file. Please refer to additional information about this implementation and this exercise in general on the web page.

5.1 Globals (2 p.)

Implement the function `find_globals` in `ir.c` to populate the global symbol table with

- Global variables
- Functions

5.2 Local variables and parameters (5 p.)

Implement the function `bind_names` in `ir.c` to populate the local symbol tables with

- Parameters
- Local variables

and link the entry pointers in its syntax tree nodes to their appropriate symbols.

5.3 String table (2 p.)

Extend `bind_names` to create a global table of strings.

5.4 Clean up (1 p.)

Implement the function `destroy_symtab` to remove dynamically allocated symbol table data at the end of the compilation.