

Compiler Assignment

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Analyzing correct programs

Correspondence between Cool programs and generated MIPS code is studied. Important points are mentioned below.

1. In the initial part of MIPS code all constants are declared like int constants (int_const), string constants (str_const) and global constants (.globl).
2. For every class which is defined in Cool, there is a init (IO_init, Main_init).
3. For every subroutine in Cool, there is a label in MIPS which contains instructions about that subroutine.
4. For every method defined inside a class, there is a class.method entry which has instructions for that method. Example, for main method defined inside Main class there is Main.main: in MIPS.
5. For every function, a stack is created. Stack pointers and frame pointers are stored on stack which indicate the flow of the program.

Analyzing incorrect programs

1. violation of section 10.1: Type identifier started with a small letter instead of capital letter. *Error message: syntax error at or near OBJECTID = main*
2. violation of section 10.2: Strings enclosed in single quotes instead of double quotes. *Error message: syntax error at or near ERROR = '*
3. violation of section 10.3: Invalid comment statements like (* (I have 1 *) *) . *Error message: syntax error at or near ERROR = Unmatched *)*
4. violation of section 10.4: First letter of constant true should be small but True was used. *Error message: syntax error at or near TYPEID = True*
5. violation of section 10.5: Instead of using \n for new line <Enter> is used for new line. *Error message: syntax error at or near ERROR = Unterminated string constant.*