

IITH Compilers-1 Jan19

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Course : CS3320

Google classroom assignment.

Programming Assignment-0 Cool Toy Programs

1 Trivial Programs : factorial, fibonacci, list, odd even, prime.

2 Non-trivial Programs : honai, palindrome.

The correspondence between the COOL Program and the MIPS code :

1 all the objects classes that are build in cool are declared globally at first.

2 the memory containers are defined next.

3 All the objects, classes and data names such as the file name are stored in string, with their attributes being declared. This block also contained all the user defined strings such as the string that are sent to the console to be printed.

4 all the predefined Integers are added to the int dispatch table .

5 All the objects, classes and other instances such as main are then defined, again, by setting their attributes. These attributes include, the

member word that are included in the object. The memory heap is defined in the same way.

6 The IO class is initialized first , since our Main class inherits from it.

7 The Main class is initialized, after-which the Main.main method is executed.

8 In Recursive programs like factorial.cl (fibonaci.cl and towerhanoi.cl too), a label "main.Factorial" is defined, to loop between each recursion of the function.

9 Each branch of the if conditions are defined in a separate block, with unique labels that assist the transition from one block to another.

10 The default labels "label X" are used to create the iterative while loop.

Incorrect Cool Program :

1 "toy10.1.cl" -> Integers, identifiers and Special Notations :

Changes made : declared an Int identifier as "n\$"

Error: "toy10.1.cl", line 3: syntax error at or near ERROR = \$.

"toy10.1.cl", line 8: syntax error at or near ERROR = \$.

"toy10.1.cl", line 10: syntax error at or near ERROR = \$.

Compilation halted due to lex and parse errors.

2 "toy10.2.cl" -> Strings

Changes: created a non-escaped newline.

Error : "toy10.2.cl", line 14: syntax error at or near ERROR = Unterminated string constant.

Compilation halted due to lex and parse errors.

3 "toy10.3.cl" -> Comments

Changes : Written a comment which was not properly nested.

Error: "toy10.3.cl", line 28: syntax error at or near ERROR = EOF in comment

Compilation halted due to lex and parse errors

4 "toy10.4.cl" -> Keywords

Changes : removed necessary keyword " fi ".

Error Shown : "toy10.4.cl", line 25: syntax error at or near '}'

Compilation halted due to lex and parse errors

5 "toy10.5.cl" -> White Space

Changes : made a white space in string .

Error Shown : "toy10.5.cl", line 9: syntax error at or near OBJECTID = ing

Compilation halted due to lex and parse errors