Languages and Compiler (DAT4, SW4, KBH-SW4, CS-IT8)

Exercises for Lecture 6 + slides + mp4 filer

Exercises

Individual Exercises (1 hour)

The following exercises you may prefer to do on your own, e.g. just after you have read the literature, and discuss the outcome with your group:

1. (optional - but recommended) Follow the studio associated with Crafting a Compiler Chapter 3 http://www.cs.wustl.edu/~cytron/cacweb/Chapters/3/studio.shtml
2. Do Fischer et al exercise 1, 2, 9, 22 (optional) on pages 106-112 (exercise 3, 4, 14, 23 on pages 134-141 in GE)
3. Write a regular expression definition for unsigned integer literals excluding those that contain unnecessary leading zeroes. Thus 0, 1, 123, 10000 are included, but 00, 0123 and 0010000 are excluded.
4. You have scanned an integer literal into a character buffer (e.g. using yytext). You now want to convert the string representation to a numeric (int) form. However, the string may represent a value too large for the int form. Explain how to convert a string representation of an integer literal into numeric form with full overflow checking.
5. (optional) Modify the studio associated with Crafting a Compiler Chapter 3 to produce a lexer for the ac language from Lecture 3 using the lexical grammar for ac in figure 2.3 on page 36 in (64 in GE edition) of Fischer et. al. Take a look at the `Yylex` source file in the `autogen` package and compare the code with the hand written ScannerCode class from Studio 2

Group Exercises (1 hour)

The following exercises are best done as group discussions:

1. Discuss the outcome of the individual exercises
2. Do Fischer et al exercises 4, 6, 7, 8 on pages 106-112 (exercises 5, 6, 7, 9, 12, 13 on pages 134-141 in GE)
3. (optional) Read the Lab associated with Crafting a Compiler Chapter 3 http://www.cs.wustl.edu/~cytron/cacweb/Chapters/3/lab.shtml and take a look at the "official" solution in the file FischerLab356solutions.zip in the General Course material directory https://www.moodle.aau.dk/pluginfile.php/154451/mod_folder/content/0/FischerLab356solutions.zip?forcedownload=1 (You may of course Follow the Lab with out looking at the solution, but be warned that this is a tough one)

1.

You should limit the discussion to about 10 minutes per question.

- SPOF20-6.mp4
- SPOF20-6.pdf
- SPOF20-6.ppt
- SuggestedSolutions_Exercise6.pdf

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Exercise for lecture 7 + slides + mp4 filer ►