Exercise 12 for Students of Computer Science

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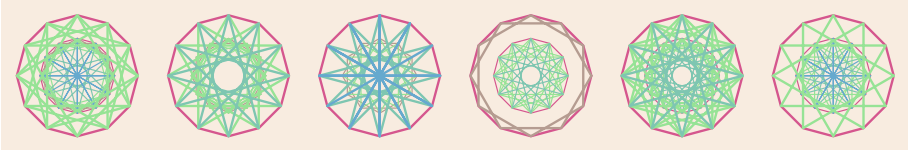

First look at compilers

1. Compare the year in which Noam Chomsky first described the Chomsky Hierarchy to the year in which John Backus and his team produced the first version of FORTRAN. What did you learn?
2. What is lexical analysis?
3. What is syntactic analysis?
4. What is semantic analysis?
5. What are the parts of a compiler?
6. Distinguish between the front end and back end of a compiler.
7. What is the role of a symbol table in a compiler?
8. What kinds of data structures might the writers of a compiler use to represent a symbol table?

9. The designers of a compiler will use regular expressions in which part of the project?

10. The designers of a compiler will use context free grammars in which part of the project?

11. What is Backus-Naur Form (BNF)?

12. For what purposes might the authors of a compiler use these software products?

    - Lex
    - Yacc
    - GNU Flex
    - GNU Bison

13. What is a parse tree?

14. A finite state machine can recognize a regular language. What are the parts of a finite state machine?

15. A finite state machine has no memory. A more powerful kind of machine is needed to recognize a context free language.

    What kind of machine is that?

16. What are the parts of a context free grammar?