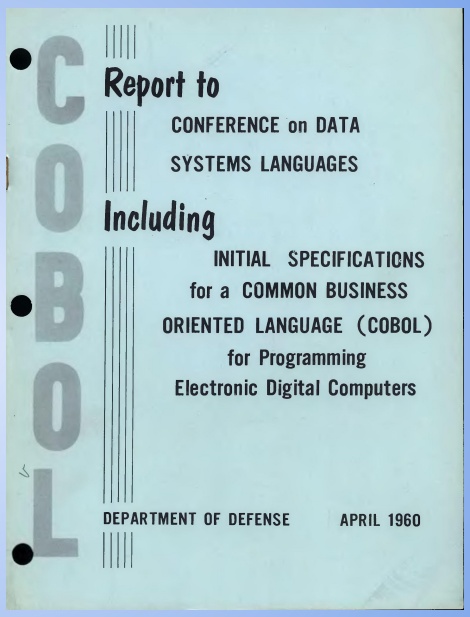
Compilers

Some Questions
2023 Fall



Some Questions

[1] A (1) : What High-Level Language had the first commercially available compiler?

[1] B (1) : Within 3 years, when was it made available?

[1] C (2) : This compiler promised three resulting advantages. Name two.

[1] D (1) : How long did it take to write this compiler?

[2] A (2) : Why can we say that all general purpose languages are *computationally equivalent*?

[2] B (1) : Does a compiler "stick around" while a program it compiled executes?

[2] C (1) : What's an *advantage* an *interpreter* has over a *compiler*?

[2] D (1) : What's an *advantage* a *compiler* has over an *interpreter*?

[3] A (1) : Could a REPL be created for C?

[3] B (3) : Justify your answer to [3] A.

[4] A (1) : What *five* items are required to define a *finite automaton*?

[4] B (2) : What does it mean for a *finite automaton* to *accept* a string? (Two items to mention here.)

[4] C (2) : What is required for a *finite automaton* to be *deterministic*? (Two items to mention here.)

[5] A (1) : Can a finite automaton *accept* an *infinite-length* string?

[5] B (1) : Explain *why* or *why not*.

[6] A (1) : Can a finite automaton *reject* an *infinite-length* string?

[6] B (1) : Explain *why* or *why not*.

[7] A (2) : What are the *five* fundamental *regular expressions*?

[7] B (1) : What does **+** mean when applied to a r*egular expression*? (Be specific!)

[7] C (1) : Even though **?** is not one of the 5 *fundamental* REs, why is it acceptable to use it when writing REs? (Be specific!)

Using only the 5 Basic REs and [ ], ?, + Write a Regular Expression that matches …

[8] A (2) : … a C identifier.

[8] B (2) : … a decimal number with a . somewhere *in the middle*. (That is, has digits on both sides.)

[8] C (1) : … a single-line string literal.

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