1. Study *Computer Systems*, Sixth edition Chapter 7, Section 7.3.

2. Answer the following questions from *Computer Systems*, Fifth edition, Chapter 7, available on the course website: Exercises 11, 12, 13.

    Hand in a `.pdf` document on Canvas under Assignment 21a.

3. A hexadecimal digit is `'0'..'9'`, or `'a'..'f'`, or `'A'..'F'`. A hexadecimal constant is a sequence of hexadecimal digits. Examples include `3`, `a`, `0d`, and `FF4e`. Use the direct-code technique for implementing an FSM as in the program of Figure 7.29 to parse a hexadecimal constant and convert it to a nonnegative integer.

    The input/output should be similar to that in the figure, with invalid input producing an error message and a valid hexadecimal input string producing the nonnegative integer value. The companion source code contains a placeholder class named `HexDirect` in `fsm/lexer.py` which you will modify. As in Figure 7.29, you may use `int()` to convert single character strings to integers, passing an additional argument of `base=16`.

    To test your program, enter on the command line

    ```
    uv run main hexdirect --text "<input goes here>"
    ```

    To hand in your programming assignment, you must zip the entire project you downloaded from github. Name your file *xx*`prob0720.zip` (all lowercase) where *xx* is your assigned two-digit number. For example, if your two-digit number is 99 you would name it `99prob0720.zip`.

    Hand in your file as an attachment in Canvas under Assignment 21b.