

Plan 3

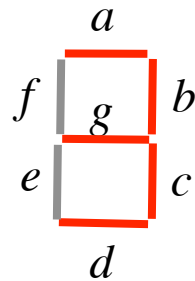
September 25 – October 2

- Read Sections 4.1-12 of Chapter 4.
- Download Logisim via the course web page. It is useful for solving the following exercises.
- **Exercise 4.** Draw the logical diagrams for the parity generator and the parity checker described on page 160 in the textbook. Use as few gates as possible.
- **Exercise 5.** Solve the exercise on the next page.

Exercise 5

Binary-Coded Decimal (BCD) is a representation of the decimal digits 0 to 9, using their binary coded equivalent. In this representation, 0 would be 0000, and 9 would be 1001.

A seven-segment display (SSD) is a set of LEDs that displays a numerical digit (common in digital watches, calculators and clock radios). The display has seven outputs (a, b, c, d, e, f, g), as shown below.



A BCD-to-SSD decoder converts a set of four inputs (x_1, x_2, x_3, x_4) to a seven-segment output (a, b, c, d, e, f, g).

- (1) Provide the truth table.
- (2) Draw a circuit diagram for a decoder.