Lab 7: Electronic Clock

Objective

✓ Implement the display function of the electronic clock.

Prerequisite

✓ Fundamentals of logic gates.
✓ Logic modeling in Verilog HDL.
✓ Simple logic development and FSM control

Experiments

1 Finish the time display function supporting 24-hour (00-23).
  1.1 Can display as hour:minute and second, and use a push button or DIP switch to switch the display.
  1.2 Support two modes: AM/PM and 24-hour.

2 For the date functions in clock (no leap year), we have the following functions:
  - Day (Jan/March/May/July/Aug/Oct/Dec: 1-31, Feb: 28, Apr/June/Sept/Nov: 30),
  - Month (1-12),
  - Year (00-99).

  Implement the following functions:

  2.1 Month-Day function display in the 4 7-segment displays.
  2.2 Combine the Year and 1.1 to finish a Year-Month-Day, and use one DIP switch to select the display of Year (2 Seven-Segment Displays, SSDs) or Month-Day (4 SSDs).

3 (Bonus) Add the time display support of both AM/PM and 24-hour, and the leap year support. (The year will start from 2000 to 2200 and use 4 SSDs to display.)

