Spring 2022
EEE212-01 Microprocessors
Lab Assignment 1
01.03.2022 08:30-12:30

In this lab, you are going to get familiar with Assembly 8051 environment with a simple assignment. You are expected to use **MCU 8051 IDE** Software to write your codes and simulate and demonstrate your results. Please read the notes and the assignment requirements carefully since they are pretty important in terms of evaluation.

Important Notes:

- Please prepare your off-lab demonstration before starting the on-lab assignment. TAs will check them during the on-lab.
- After you have completed your lab, you need to get a check from one of the lab assistants (not tutors). The check consists of explanation of the code and a small demonstration.
- This is an individual lab. You can cooperate but you have to write your **OWN** code. Any kind of plagiarism will not be tolerated. Codes will be compared manually by assistants and by Turnitin software after the lab.
- The deadline is strict. Submit your code before the deadline. There will be no extention to the deadline.
- You can get a check after the deadline if the queue for the check is long, so do not worry. If such a case occurs, you will get your check based on your latest submission to the Moodle. Therefore, do not try to change your code after you have submitted your code.

Q1: Median Finder (100pts)

As your first on-lab assignment, you are going to implement a subroutine called **MEDIAN-FINDER** that finds the median of either 4 or 5 unsigned integer numbers.

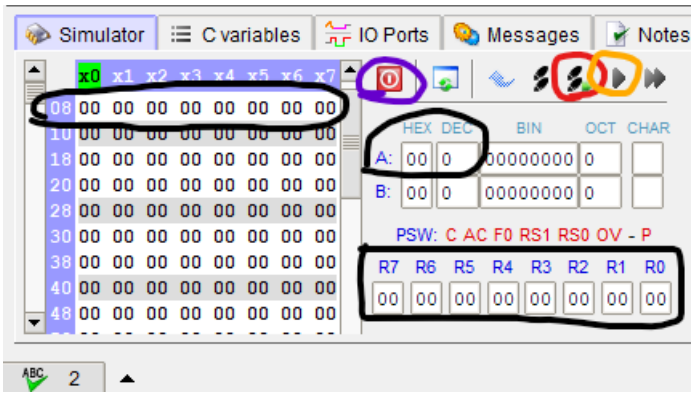
Requirements:

- Get the number of inputs from **R0** (either 4 or 5).
- Get non-zero inputs from **R1-R5**.
- In your code, you will store the median in register **R6** and **R7**. Use **R7** for decimal points.
- Input numbers will be in the range from 1 to 127.

- Your code should have a structure as in the figure below.

```
1  ORG 0
2
3  ACALL MEDIANFINDER
4  ACALL TERMINATE
5
6  MEDIANFINDER:
7  ;
8  ;
9  ;
10 ;
11 ;
12 ;
13 ; WRITE YOUR CODE HERE
14 ;
15 ;
16 ;
17 ;
18 ;
19 ;
20 RET
21
22 TERMINATE: END
```

- Your simulation result needs to be correct in order to get full credit. Check your result using the simulation tool of your IDE Software. Simulation button is circled with black.



- When you start the simulation menu, you will see this popup.
  - Purple: Start/stop simulation mode
  - Red: Go one step
  - Orange: Start the simulation (pause button will be replaced when you start it)
  - Black: R0-R7 and ACC