Istanbul Technical University
2021-2022 Fall
BIL212E - Microprocessor Systems

Homework 1
CRN: 11450

Due Date: 05.12.2021 23:59

1

In this homework, you are required to write assembly language programs to multiply and divide one 32-bit and one 16-bit number on the 8051 microcontroller.

- You should write two different programs to multiply and divide one 32-bit and one 16-bit number.
- Your programs for multiplying and dividing should be named as "multiply" and "divide" respectively.
- You should use the draft assembly language source code for both of the programs.
- There is one test case scenario in `draft.asm` but there will be another test cases to test your code is working properly or not.
- Your main function name or label must be `main`.
- Your code must include a comment for each line. Explain your solution clearly.
- Your assembly source file is expected to work with EdSim51 8051 microcontroller simulator.

2

There are four register banks in the 8051 Microcontroller. In this homework, it is expected that you to choose one of these register banks to store one 32-bit number and one 16-bit number. Please choose the register bank (that you will use to store two numbers) under the result of the modular arithmetic operation that is given below. Please write down your student number and calculate the register bank that you should use while doing your homework (count digits from left-to-right):

- Use register bank-0 for storing 32-bit numbers if (9th-digit)mod(4) == 0
- Use register bank-1 for storing 32-bit numbers if (9th-digit)mod(4) == 1
- Use register bank-2 for storing 32-bit numbers if (9th-digit)mod(4) == 2
- Use register bank-3 for storing 32-bit numbers if (9th-digit)mod(4) == 3

3

You are required to upload your work through the Ninova system before the due date and time. Late submissions will not be graded.

- You should upload an `.zip` or `.rar` file that includes `multiply.asm` and `divide.asm` files.

- You should type your name and student ID at the top of each file as comments.
- You should clearly explain where you store the results at the beginning of `*.asm` files as comments.
- This is a individual homework, your solution must be your own work. If any plagiarism is detected, disciplinary regulations of the university will be followed.
- Do not hesitate to contact (*sayinays@itu.edu.tr*) if you have any question regarding the homework.

IMPORTANT NOTE: Late submissions will not be graded, be aware of the deadline.