Computer Architecture

Practical session - Week 1 Spring Semester 2021

Notes:

- The main purpose of this session is to get familiar with MARS MIPS simulator tool only
- To download the MARS MIPS simulator, the link from developers (https://goo.gl/497FVV) can be used. Besides, the additional download link (https://goo.gl/ECR2k6) can be used as an alternative.
- The MARS MIPS simulator requires JDK which is downloadable from Oracle website to execute.
- To get a simple MARS MIPS tutorial, please check out this link (https://goo.gl/CUzFTi) and this link (https://goo.gl/8m6Tzi).
- Please note that the register \$zero can be described as \$0.
- The main purpose of this week is to get familiar with arithmetic instructions.
- Students are required to submit your answers to the BKeL system no later than Monday, 05-April, 2021
- To submit, please make a zip file that contains all sources for these questions below, each question should be answered in one source file.

Please refer to Section syscall instruction for these exercises.

Question 1. Write a simple MIPS program that can execute these steps:

- 1. Print a sentence to terminal to request an integer number from user;
- 2. Collect the number and increase it by 1;
- 3. Print the result to terminal.

Question 2. Write a small program that is able collect two integer numbers from users and print out the sum of the two numbers.

Question 3. Write a small program that allows users to input values for variables a, b, c, and d. The program then calculates the following expressions and prints the results to terminal.

$$f = (a+b) - (c-d-2); (1)$$

$$g = (a+b) * 3 - (c+d) * 2; (2)$$

Question 4. Write a small program that allows users to input 5 different integer numbers. The program then prints those numbers in reverse. For example, users input 1, 2, 3, 4, 5; the program should print 5, 4, 3, 2, 1.