Ho Chi Minh City University of Technology
Faculty of Computer Science and Engineering

Computer Architecture

Practical session - Week 3 Autumn Semester 2018

Notes:

- The main purpose of this week is to get familiar with data transfer instructions such as `lw`, `sw`.
- **Students are requested to submit your answers for this week. Due date is Sunday, 11 November.**
- Although the MARS simulator supports a number of pseudo instructions such as **`lw`** `$s1, $s0` standing for **`lw`** `$s1, 0($s0)`, please use standard MIPS instructions.
- All the exercises in this document requires an array declaring in the `.data` section. To get the base address of the array, please use the pseudo instruction `la $s1, array`.

Question 1. Write a MIPS program with the following requirements:

1. Declare an integer array with 10 synthetic data elements.
2. Calculate the sum of all array elements.
3. Print the result to the terminal.

Question 2. Write a MIPS program with the following requirements:

1. Declare an integer array with 10 synthetic data elements.
2. Calculate the sum of all odd elements (a[1]], a[3],...).
3. Calculate the sum of all even elements (a[0], a[2],...).
4. Print the results to the terminal.

Question 3. Write a MIPS program that receives 10 integer numbers from users through the terminal and store these numbers into an array. Print the sum of all array elements to the terminal.

Question 4. Write a MIPS program with the following requirements:

1. Declare an integer array with 10 synthetic data elements.
2. Print a sentence to terminal to request an integer number that is greater than 0 and less than 10 (assume that user strictly follow this rule).
3. Print value of the element at index collected from the previous step.

Question 5. Write a MIPS program that reverses an 10 elements integer array. For example, the array initially stores 1, 3, 5, 7, 9, 11, 13, 15, 17, 19 , the program will change the array to be 19, 17, 15, 13, 11, 9, 7, 5, 3, 1.

——————the end——————