CSCE 231/ 2303 Fall 2018
Assignment 2: MIPS Programming

Assigned: Sunday, September 23rd in Class

Due: Sunday, September 30th at 17:00

Delayed submission with penalty until Tuesday, October 2nd at mid-night.

Goals

This assignment is an individual assignment and you will work on it on your own. The goal of this assignment is to write code for small basic functionalities using the MIPS assembly language. In this assignment you will implement a number of MIPS simple programs. Your code should run on the MARS simulator.

Details

You are required to write the following programs:

1. Assuming that the C/C++ variables (integers) a, b, c, d, and i are assigned to $t0, $t1, $t2, $t3, and $t4. Also, assume that the base address of the array A (of integers) is in $s0 and the array B (of integers) is in $s1. Write a MIPS assembly code that corresponds to the following C code:
   i. a = b - c + A[B[i]];
   ii. i=0; b=0; while(B[i]) b+=A[i++];
   iii. a = b / 32; c = d % 8; // use only 2 instructions
2. Develop a MIPS assembly program that accepts an array of integers and its size, then sums up only the odd values of that array. Your program has to prompt the user to enter the array size then the array elements, and finally outputs the sum.
3. Develop a MIPS program to print this triangle:
   1
   12
   123
   1234
   12345
   123456
   1234567
   12345678
   123456789
   Your program must use nested loops.

What to submit

1. Your full in-line documented source code.
2. A PDF report that includes any assumptions you have made and your design approach to implement these programs.
3. Your code should run on the MARS simulator.

How to submit:

Compress all your work: source code, report, readme file, and any extra information into a zip archive. You should name your archive in the specific format <Student_ID>_<Name>_Assignment2.zip. Finally, upload your code to blackboard.

Grade

This assignment is worth 5% of the overall course grade. The assignment will be graded on a 100% grade scale, and then will be scaled down to the 5% its worth. The grading of the assignment will be broken down as follows:

1. 10 % for just submitting a meaningful assignment before or on the due date. This 10% does not account for the correctness of your assignment but submitting an empty assignment without code will definitely result in loosing this 10% and consequently the whole grade of this assignment.
2. 65 % for the correctness and the quality of your code.
3. 25 % for the quality of your inline documentation and the readme file.

Delays

You have up to 2 working days of delay, after which the assignment will not be accepted and your grade in that case will be ZERO. For every day (of the 2 allowed days), a penalty of 10% will be deducted from the grade. And of course you will lose the 10% mentioned in point 1 above under the “Grade” section.