Lab 4 - Arithmetic

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CS311 - Computer Architecture 1

April 29, 2021

The fourth laboratory exercise requires you to solve the following four questions.

Please create files named `Question_1.asm` ... `Question_4.asm` in ebe.

Question 1.

Write an assembly language program to compute the distance squared between 2 points in the plane identified as 2 integer coordinates each, stored in memory.

Question 2.

If we could do floating point division, this exercise would have you compute the slope of the line segment connecting 2 points. Instead you are to store the difference in x coordinates in 1 memory location and the difference in y coordinates in another. The input points are integers stored in memory. Leave register **rax** with the value **1** if the line segment is vertical (infinite or undefined slope) and **0** if it is not. You should use a conditional move to set the value of **rax**.

Question 3.

Write an assembly language program to compute the average of 4 grades. Use memory locations for the 4 grades. Make the grades all different numbers from 0 to 100. Store the average of the 4 grades in memory and also store the remainder from the division in memory.

Question 4.

Given two values in memory, A = *-326* and B = *7*, write an assembly language program to divide A by B using the appropriate opcode and store the quotient and remainder in memory.

Submission

All submitted files **MUST** have the **student name**, **student CWU ID** and the **honor code**. If any of these mandatory requirements are missing from any of the submission, it will not be graded and the student will be given **0 points** for the entire lab.

The four files must be submitted through Canvas before **5pm on May 7, 2021**. Each question is 25%, and is divided in the following way.

Table 1: Grading rubric

File	Aspects	Points
`Question_x.asm`	Correct result	10
	Correct use of registers	5
	Correct use of memory offsets/addressing	5
	Documentation/commenting	5