

ICS 233, Term 072

Computer Architecture & Assembly Language

Programming Assignment# 1

Due date: Wednesday, March 26, 2008

- Q.1.** Write a MIPS assembly program that does the following:
- (i) Asks the user to enter number of rows, R, and read it.
 - (ii) Asks the user to enter number of columns, C, and read it.
 - (iii) Asks the user to enter an RxC matrix of signed integers. Assume that integers are stored in words.
 - (iv) Prints a menu from which the user can select one of the following options:
 - 1. Print the entered array
 - 2. Print a row
 - 3. Print a column
 - 4. Exit the program

Note that row numbers and column numbers are assumed to start from 0. Furthermore, note that to multiply two registers \$s2 and \$s3 and store the result in register \$s1, you can use the instruction **mul \$s1, \$s2, \$s3**.

A sample execution of the program is shown below:

Enter number of rows:2

Enter number of columns:3

Enter an array of 2x3 integers:

*1
2
3
4
5
6*

Select one of the following functions:

- 1. Print the entered array
- 2. Print a row
- 3. Print a column
- 4. Exit the program

If the user selects the first option, then the following should be displayed:

Array of 2x3 integers is:

1 2 3

4 5 6

If the user selects the second option, then the following should be displayed:

Enter a row number: 1

Row #1 is:

4 5 6

If the user selects the third option, then the following should be displayed:

Enter a column number: 2

Column #2 is:

3

6

*The solution should be well organized and your program should be well documented. Submit a soft copy of your solution in a zip file. Your solution should be submitted in a **word file** that contains the following items:*

- i) Your name and ID*
- ii) Assignment number*
- iii) Problem statement*
- iv) Your solution along with the code*
- v) Discussion of what worked and what did not work in your program. Include snapshots that demonstrate the working parts of your program. If things did not work and you attempted to solve them, mention that and write about the difficulty that you have faced.*