MIPS Programming – Homework

This homework must be done **INDIVIDUALLY**. Before starting working on the homework read again the academic integrity policy. Last semester 8 students failed the class due to cheating and plagiarism.

Use ONLY instructions listed in the Integer Instruction Set

(especially when it comes to branches – use only beq, bne or comparisons to zero, no blt, bgt, subi, no multi…) You can use li and move.

Note: for all programs that you will write be sure that you give a **detailed documentation.**
Each program should be commented (documented) with the following information:

1. Your name
   Last modified date:
   Program name

2. Description (what the program does)
   C (or java) -pseudo-code

3. Registers Use (name of registers and what they will store)

Program1.

Write a MIPS assembly language program that will cover the following steps:

Prompt the user to enter a first integer in the range [-20, 5]
Prompt the user to enter a second integer < 0
Compute (8*int1- int2) // don't use *subi; don't use mul, muli*
Print the value of the result together with a message
Repeat

The program should enforce the rule that the two entered integers must be in the mentioned intervals. **If the entered integer is not in the specified range, prompt again the user to enter an integer in the specified range.**

Create a sentinel (sentinel value **100**) that will allow the user to exit the program.

Name your program: **yourlastname_h1.s**

Upload the homework on Blackboard under MIPS_H1

DUE MONDAY, JUNE 26

No late submission will be allowed.

Program 2

Write a MIPS assembly language program that accomplishes the following tasks:

The program will prompt the user to enter an integer **k** between 1 and 10.
If the entered number doesn't satisfy the above condition, use a loop and prompt the user for a new entry (until a valid number is entered).
Depending on the k value implement the following cases:

case 1: if 5 <= k <= 10
Prompt the user to enter one by one a sequence of 10 integers (between 0 and 100). For each entered integer:
Read in the integer.
Display the integer.
Store the integers in a new array that will contain the entered numbers in reverse order.
Display the contents of the new array

The program will exit if the user enters an invalid value.
Your program should be well documented with comments.
Your console output should include helpful prompts for the user.

case 2: If 1<= k <= 4
For full credit display a joke.

<u>For 5 points extra credit in the final exam:</u>
Instead of the joke

compute Func(n): if (n=1) return 10
else return 3*Func(n-1) + 2n;

Have n (n>= 0) be prompted from the user.
Display a result_message together with the numeric value of the result.
NOTE: use recursive function call.

Name your program: yourlastname_h2.s

Upload the homework on Blackboard under MIPS_H2

DUE THE LATES THURSDAY JUNE 29, NOON
No late submission will be allowed.

No cheating and/or plagiarism are allowed.