CSCI 200: Computer Organization I

MIPS Programming Assignment 2

Due December 1, 2017, 23:59:59PM

Description:

You will write a MIPS program that reads a string of up to 1000 characters from user input. The string consists of one or more substrings separated by comma. Spaces or tabs at the beginning or end or around commas are ignored, those spaces or tabs should stay. For each of the substring, if it is a hexadecimal string, i.e. it has only the characters from '0' to '9' and from 'a' to 'f' and from 'A' to 'F', the program prints out the corresponding *unsigned* decimal integer. Otherwise, the program prints out the string of "NaN". The output should be separated by commas in the same way as the input.

The program must have the following 3 subprograms.

Subprogram 1:

It converts a single hexadecimal character to a decimal integer. Registers must be used to pass parameters into the subprogram. Values must be returned via registers.

Subprogram 2:

It converts a single hexadecimal string to a decimal integer. It must call Subprogram 1 to get the decimal value of each of the characters in the string. Registers must be used to pass parameters into the subprogram. Values must be returned via the *stack*.

Subprogram 3:

It displays an unsigned decimal integer. The *stack* must be used to pass parameters into the subprogram. No values are returned.

The main program must call Subprogram 2 for conversion and call Subprogram 3 for output.

Other Requirements:

- The use of registers must follow the guidelines mentioned in the slides.
- For grading purposes, no other output (including prompt messages) should be made except those mentioned in the description. You may have extra output during development, but must remove that before submission.

- Version control of the project must be done via Github.
- The code must be commented. The comment is considered satisfactory if one can understand how the program works without reading the instructions.
- Staring on November 18th, *at least one significant update must be committed each day for **nine** days* (not necessarily consecutive). If you complete the project at least 24 hours before the deadline, the number can be reduced to **five** days. In total there must be at least 9 non-trivial commits.
- No more commits after submission.
- Keep your repository private all the time until after the deadline.

Project not meeting the requirements are subject to substantial or complete loss of credits.

Submission:

Go to http://hucs.dynu.net/lij/courses/submit_hw.html, submit one single plain text file (such as one created by notepad on Windows or by vi on Unix/Linux) named "project.txt". In the file, include the github link that can be used to clone your repo. In order for your repo to be cloneable, make your repo public. If you have other instructions for cloning your project, add it under that.

Repos that cannot be cloned results in a zero score for the project, no matter what the reason is. Therefore, double check your github link and verify that it can be cloned by anyone before submission.