CS2323 Computer Architecture 2018

Programming Assignment 1 on SimpleRISC

A number is known as a Factorian number (https://en.wikipedia.org/wiki/Factorion) or Dudeney number (https://en.wikipedia.org/wiki/Dudeney_number) if it satisfies certain conditions. Refer to the link to see the definition and examples.

You are given a number and it is known to be between 1 and 60,000. For example, if the number is 59999, then it should be specified as "movu r0, 59999" in your code. We will specify decimal and not hexadecimal number. This should be the first line of code (after .main), so that we can change the number specified. This line will store the given number in r0.

Write a piece of assembly code in SimpleRisc to find out if a number is a Factorian number or Dudeney number. Save 1 in r1 if it is a Factorian number; otherwise, save 0. Save 1 in r2 if it is a Dudeney number; otherwise, save 0. You have to write a single program to test both these conditions.

* All the commands and register names are case sensitive, for example, R1 is considered as wrong, whereas r1 is correct.

* Please make sure your submission can compile with the interpreter.c. TAs will not make any change to your code to get it compiled, so even if your program is "almost correct" but does not compile, we cannot award any mark to you. We will test your code with interpreter.c

* You need to do two additional things:

1. Before the beginning of the program, write

.main:

This means, ".main:" (without quotes) should be the first line in your code.

2. Assume that we have a new instruction ".print rK" prints the value of register K on the screen. For example, ".print r1" prints the value of register r1 (assume that memory values cannot be directly printed, only register values can be printed). Then, you can write ".print r1" which will print the value of r1, etc.

* Comments may be added as allowed by interpreter.c. The first line of your code should be your roll number under comment, e.g.,

//CS16mtech11011

* Your answer should uploaded as a private comment (preferred) or a single *asm file (not zipped/pdf/docx file).