Question 2 (30 points): Now that MIPS-48 has been out on the market for awhile, you have been tasked with analyzing how frequently these new 16 registers are being used as register `rs` in branch instructions. Write the two MIPS procedures specified below. Do not use pseudoinstructions in your code. Your procedures must follow calling conventions for register usage. You may assume that all the instructions you are analyzing are MIPS-48 branch instructions.

Part A (15 points): Write a MIPS procedure `is_new` that takes in the address of a MIPS-48 instruction and determines if register `rs` in the instruction is one of the new registers (numbered 32 to 47). The address of the instruction will be in `$a0`, and the procedure should return `1` in `$v0` if register `rs` is new, and `0` otherwise.

Part B (15 points): Write a MIPS procedure `count_new` that counts the number of instructions in an array of branch instructions that use the new registers for register `rs`. Your procedure should call `is_new` from Part A. The address of the base of the instruction array will be in `$a0` and the number of instructions in the array will be in `$a1`. The procedure should return the number of instructions using the new registers for register `rs` in `$v0`.