**Project 1: MIPS Instruction Decoder**

Write a program **in Java** that takes an 8-digit hexadecimal number as input and outputs the MIPS instruction representation as if that 32-bit number were interpreted correctly. It only needs to properly recognize the following: lw, sw, add, sub, and, or, slt, beq, and j. Format your output according to the sample run below.

Sample run (user input in bold italics):

> ***java mips\_decoder***

Enter an 8-digit hex value: ***012A4020***

Binary equivalent: 00000001001010100100000000100000

R-format instruction

opcode | rs | rt | rd | shamt | funct

0 9 10 8 0 32

instruction = add $8, $9, $10

Enter an 8-digit hex value: ***10430020***

Binary equivalent: 00010000010000110000000000100000

I-format instruction

opcode | rs | rt | immediate/address

4 2 3 32

instruction = beq $2, $3, 32