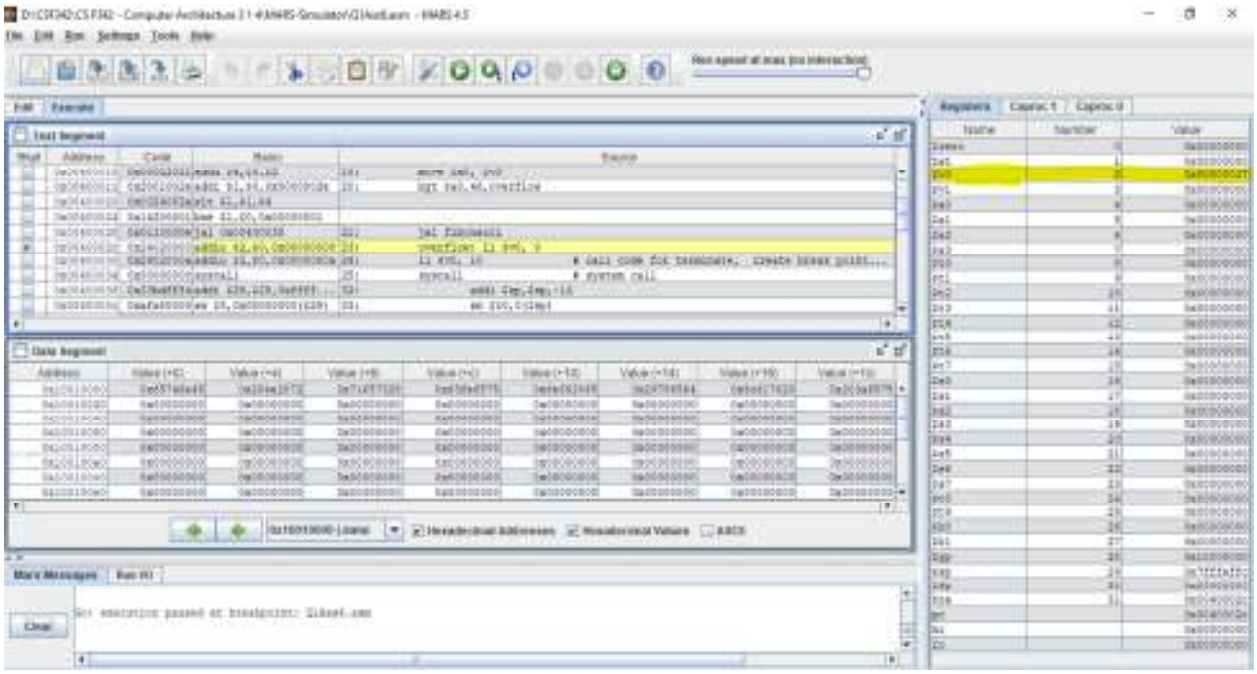
BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
K. K. BIRLA Goa Campus
Semester I, 2020-2021
Computer Architecture (CS F342)

Lab. assignment no. 6 Due Date: Nov. 24, 2020 at 5 PM Total Marks: 4

Q1. Write a recursive Fibonacci (N, E), to return E as the N-th element in the Fibonacci sequence, using MIPS-based assembly language. Use the stack to pass information to and from the function. If N is greater than 46 overflow will occur, so return a value of 0, if N is greater than 46. Assume N is passed to your function in register $a0. Your output should be in register $v0 at the end of your function. Submit your code and a screenshot of MARS that shows the registers with the correct output value for N=10, i.e., Fibonacci (10) = 55 = 0x37.
(Marks: 2.5)

Marks distributions: for logic in the code: 2 and output:0.5

Sample output:

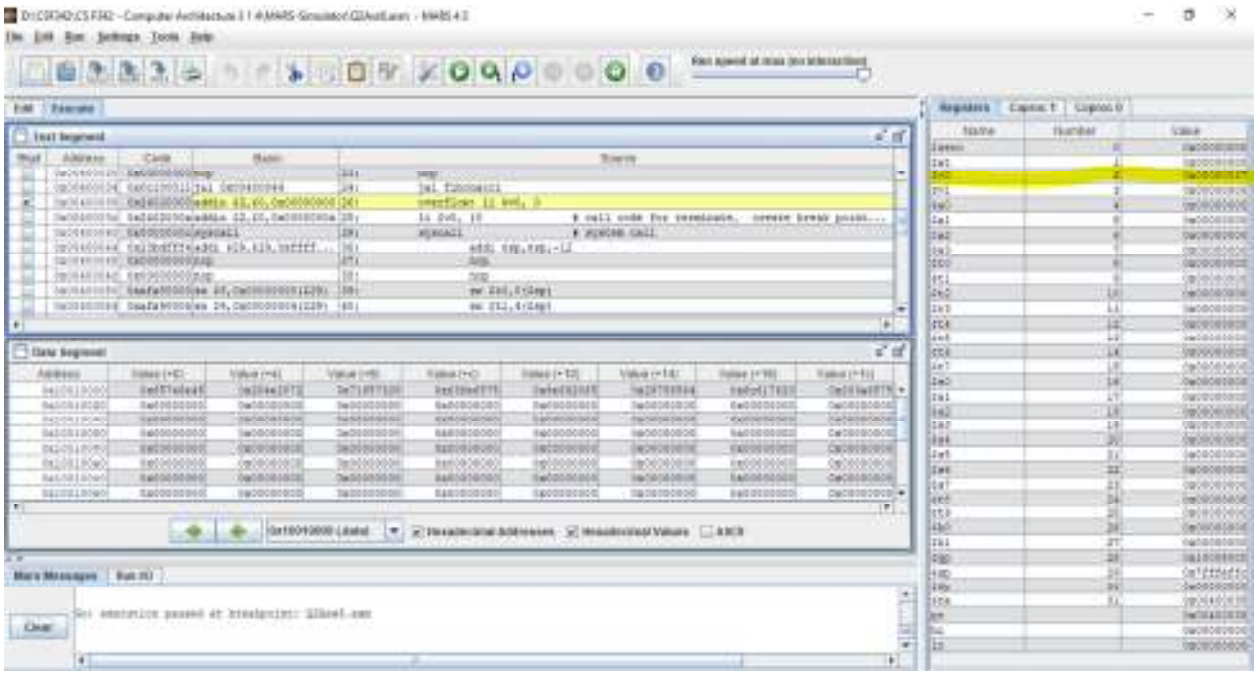


Q2. Taking into consideration delayed branches and delayed loads, write a MIPS function, recursive Fibonacci (N, E), to return the N-th element in the Fibonacci sequence. A value N is passed to the function on the stack, and the N-th Fibonacci number E is returned on the stack. If N is greater than 46 overflow will occur, so return a value of 0 if N is greater than 46. Assume N is passed to your function in register $a0. Your output should be in register $v0 at the end of your function. Submit your code and a screenshot of MARS that shows the registers with correct output value for N=10, i.e., Fibonacci (10) = 55 = 0x37.

(Marks: 1.5)

Marks distributions: for logic in the code: 1 and output: 0.5

Sample output:



NOTE: Kindly upload the code and screenshot of the output for both the questions in one zip file. (thus there must be 4 files zipped in one zip file.)

Follow the naming conventions as <ID.NO_Lab6_solution1> and <ID.NO_Lab6_output1> and similar for Q2. Name the zip file as <ID.NO_Lab6>