

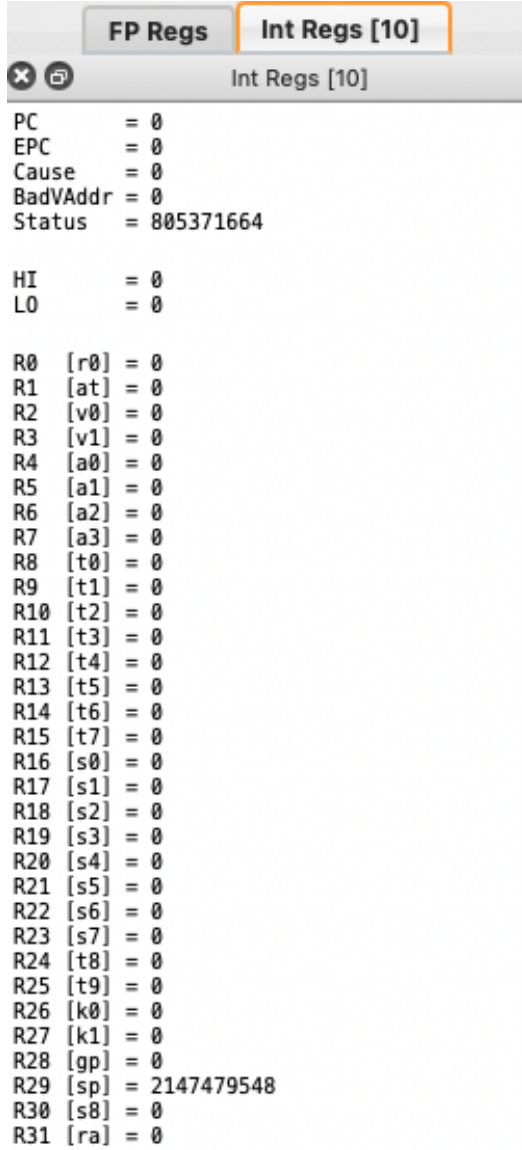
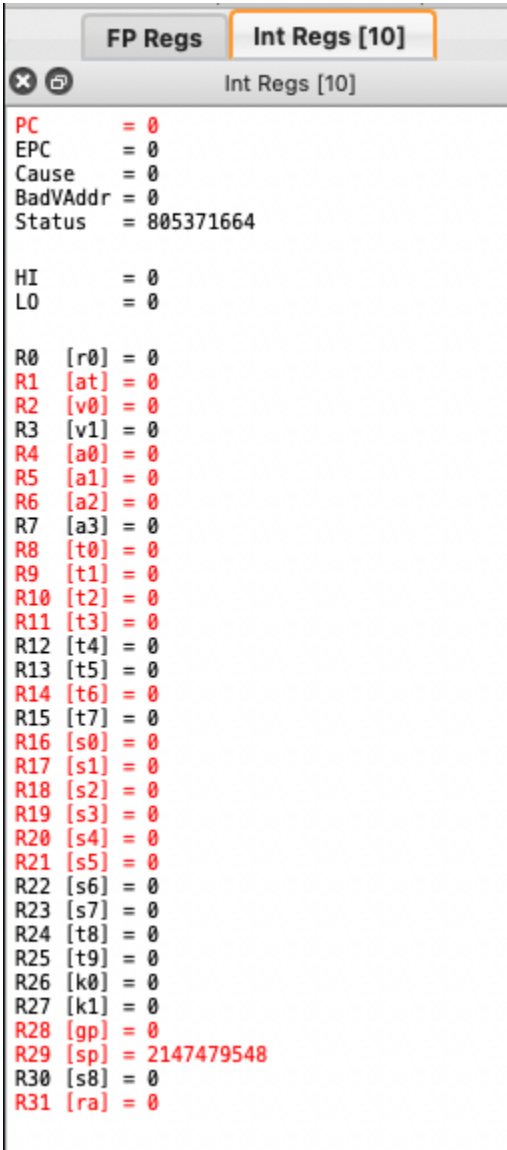
**Name:** Ramon Arambula

**Lab Topic:** MIPS Assembly Programming (Basic) (Lab #: 9)

**Question #1:**

Take two screenshots of the MIPS register panel: one before your program runs, and one after your program finishes. Put the register panel in Decimal mode (right-click) so it is easy to see register values.

**Answer:**

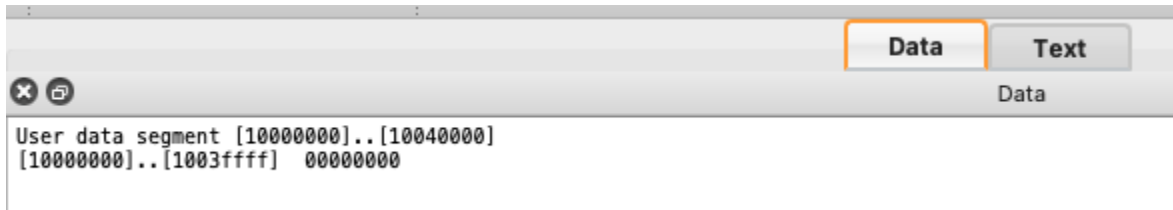
Before	After
	

## Question #2:

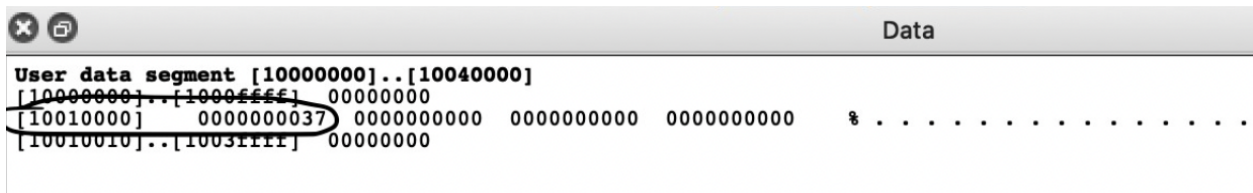
Take two screenshots of the MIPS memory panel (data tab): one before your program runs, and one after your program finishes. Put the memory panel in Decimal mode (right-click), so it is easy to see memory values. In the after-execution capture, **circle the memory location (not register) that contains the final calculated value of Z**.

Answer:

Before



After

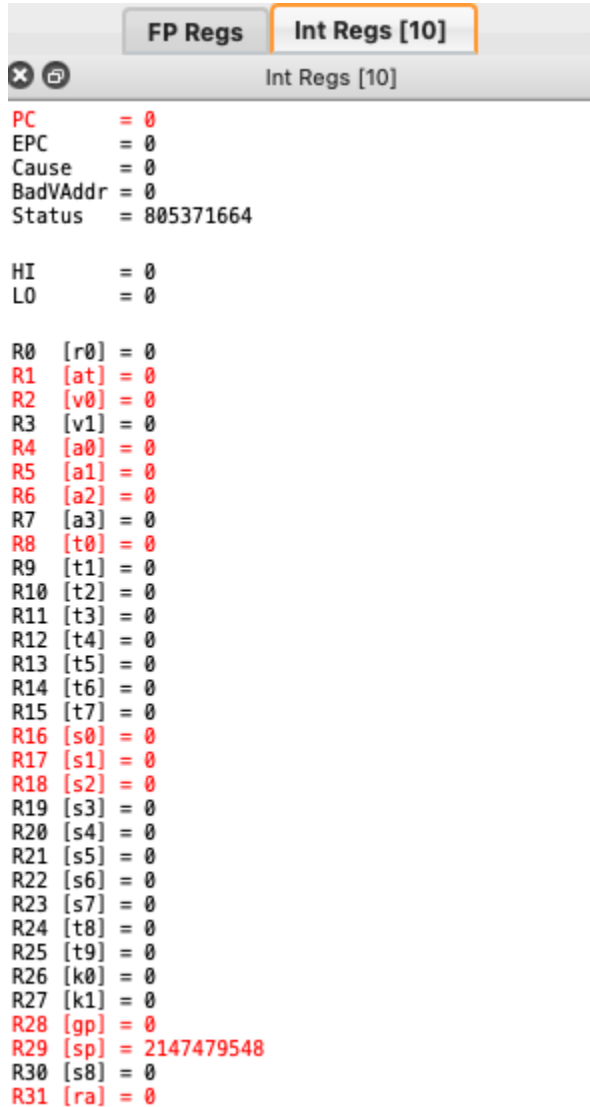


### Question #3:

Take two screenshots of the MIPS register panel: one before your program runs, and one after your program finishes. Put the register panel in Decimal mode (right-click) so it is easy to see register values.

**Answer:**

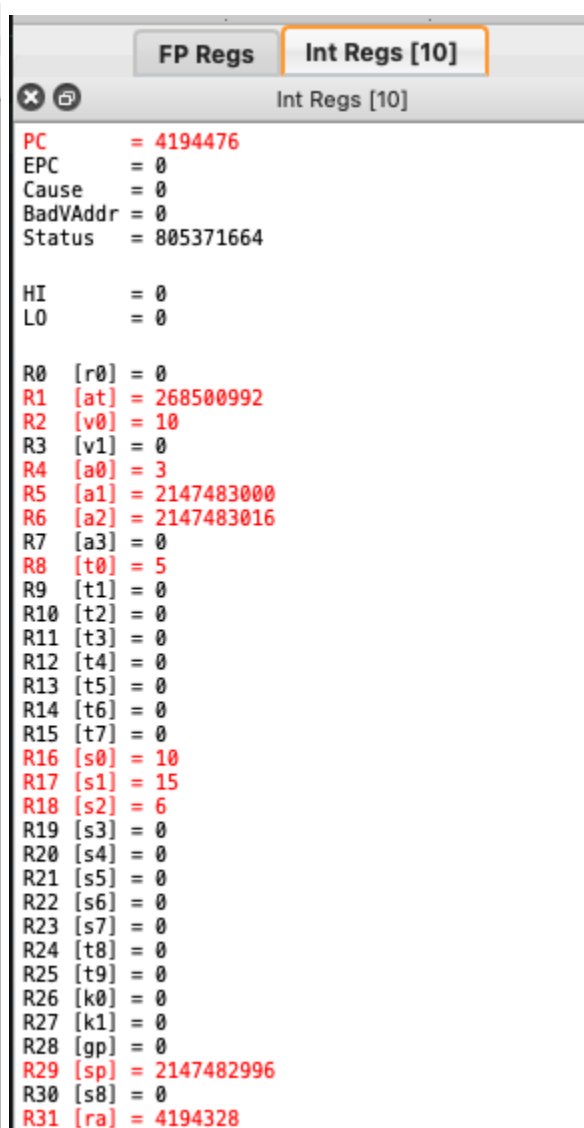
Before



The screenshot shows the MIPS register panel with the 'Int Regs [10]' tab selected. The 'PC' register is highlighted in red and set to 0. The 'Status' register is 805371664. All other registers (R0-R31) are 0. The 'Cause' register is 0. The 'BadVAddr' register is 0. The 'EPC' register is 0. The 'HI' and 'LO' registers are 0.

Register	Value
PC	0
EPC	0
Cause	0
BadVAddr	0
Status	805371664
HI	0
LO	0
R0 [r0]	0
R1 [at]	0
R2 [v0]	0
R3 [v1]	0
R4 [a0]	0
R5 [a1]	0
R6 [a2]	0
R7 [a3]	0
R8 [t0]	0
R9 [t1]	0
R10 [t2]	0
R11 [t3]	0
R12 [t4]	0
R13 [t5]	0
R14 [t6]	0
R15 [t7]	0
R16 [s0]	0
R17 [s1]	0
R18 [s2]	0
R19 [s3]	0
R20 [s4]	0
R21 [s5]	0
R22 [s6]	0
R23 [s7]	0
R24 [t8]	0
R25 [t9]	0
R26 [k0]	0
R27 [k1]	0
R28 [gp]	0
R29 [sp]	2147479548
R30 [s8]	0
R31 [ra]	0

After



The screenshot shows the MIPS register panel with the 'Int Regs [10]' tab selected. The 'PC' register is highlighted in red and set to 4194476. The 'Status' register is 805371664. The 'Cause' register is 0. The 'BadVAddr' register is 0. The 'EPC' register is 0. The 'HI' and 'LO' registers are 0. The 'R1' register is 268500992. The 'R2' register is 10. The 'R4' register is 3. The 'R5' register is 2147483000. The 'R6' register is 2147483016. The 'R8' register is 5. The 'R16' register is 10. The 'R17' register is 15. The 'R18' register is 6. The 'R29' register is 2147482996. The 'R31' register is 4194328.

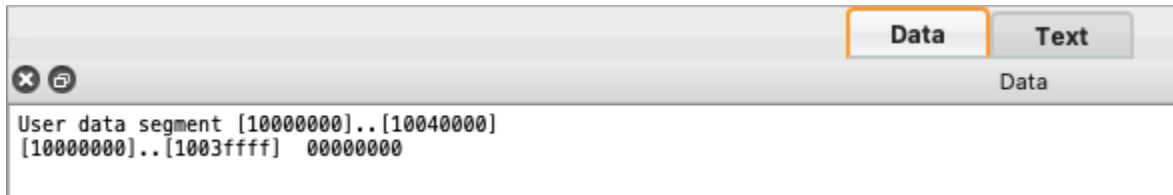
Register	Value
PC	4194476
EPC	0
Cause	0
BadVAddr	0
Status	805371664
HI	0
LO	0
R0 [r0]	0
R1 [at]	268500992
R2 [v0]	10
R3 [v1]	0
R4 [a0]	3
R5 [a1]	2147483000
R6 [a2]	2147483016
R7 [a3]	0
R8 [t0]	5
R9 [t1]	0
R10 [t2]	0
R11 [t3]	0
R12 [t4]	0
R13 [t5]	0
R14 [t6]	0
R15 [t7]	0
R16 [s0]	10
R17 [s1]	15
R18 [s2]	6
R19 [s3]	0
R20 [s4]	0
R21 [s5]	0
R22 [s6]	0
R23 [s7]	0
R24 [t8]	0
R25 [t9]	0
R26 [k0]	0
R27 [k1]	0
R28 [gp]	0
R29 [sp]	2147482996
R30 [s8]	0
R31 [ra]	4194328

#### Question #4:

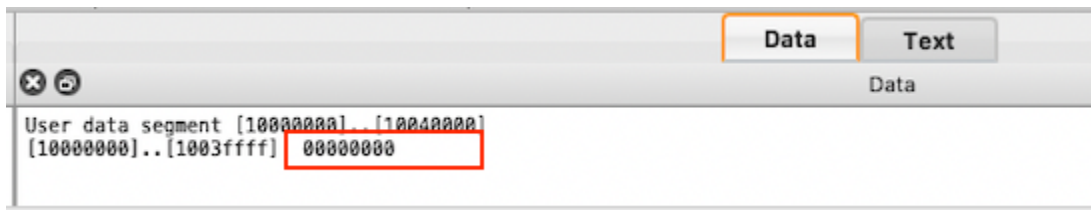
Take two screenshots of the MIPS memory panel (data tab): one before your program runs, and one after your program finishes. Put the memory panel in Decimal mode (right-click), so it is easy to see memory values. In the after-execution capture, **circle the memory location (not register) that contains the final calculated value of Z.**

**Answer:**

Before



After



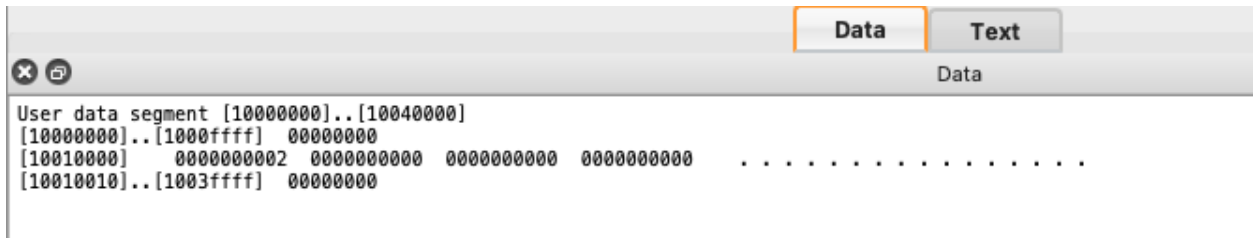


### Question #6:

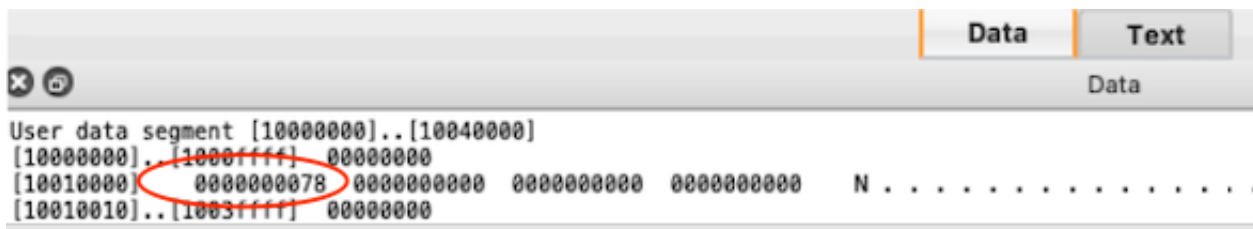
Take a screenshot of the MIPS memory panel (data tab) after your program finishes. Put the memory panel in Decimal mode (right-click), so it is easy to see memory values. **Circle the memory location (not register) that contains the final calculated values of I and Z.**

**Answer:**

Before



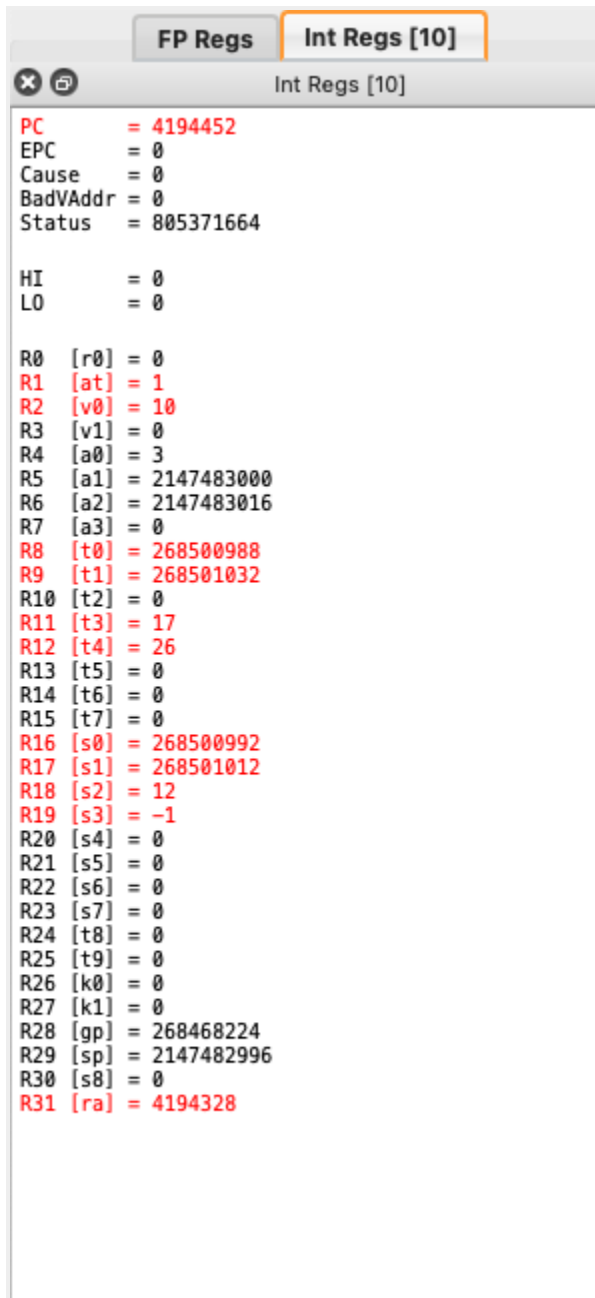
After



### Question #7:

(7) Take a screenshot of the MIPS register panel after your program finishes. Put the register panel in Decimal mode (right-click) so it is easy to see register values.

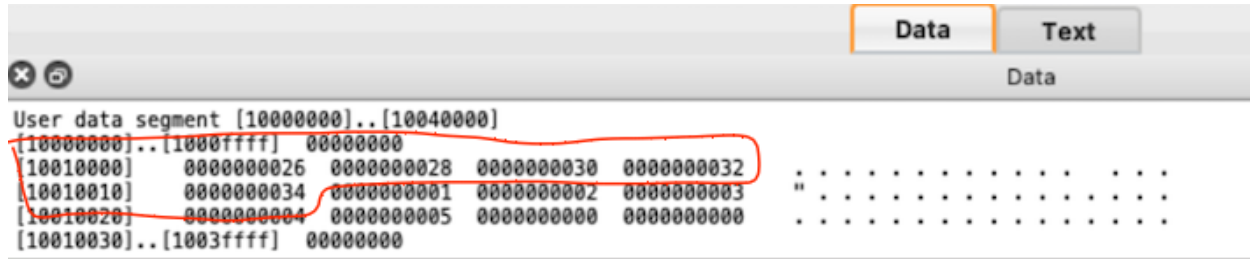
**Answer:**



### Question #8:

(8) Take a screenshot of the MIPS memory panel (data tab) after your program finishes. Put the memory panel in Decimal mode (right-click), so it is easy to see memory values. **Circle the final values of array A.**

**Answer:**





## Question #9:

(9) Take a screenshot of the MIPS memory panel (data tab) after your program finishes. Put the memory panel in Hex mode (right-click), since Decimal mode will not allow us to distinguish between bytes. Circle two things: the final value of the pointer 'result' in memory, and the corresponding location that result points to. Does that location in memory contain the ASCII code for the character 'e'? (If not, you had better check your work!)

Answer:

The screenshot shows the MIPS memory panel (Data tab) and the Console window. The memory panel displays the User data segment [10000000]..[10040000] in Hex mode. The pointer 'result' is located at address 268500992, which is circled in red. The memory at this address contains the ASCII code for the character 'e' (0x65). The corresponding location that result points to is at address 268500993, which also contains the ASCII code for the character 'e' (0x65). The Console window shows the output of the program, which is "First match found at address 268500993. The matching character is e".

Memory and register

Console

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QtSPIM is linked to