**CMPE 140 Assignment 4 Test Log**

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**Checked by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Record the observed contents of registers and data memory after each instruction is executed.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Addr | MIPS Instruction | Machine Code | Registers | | | | Memory Content | |
| $a1 | $sp | $ra | $v0 | [0x00] | [0x10] |
| 3034 | lw $8, 100($4) | 0x8c880064 | 0x00000032 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 3038 | lw $9, 120($4) | 0x8c890078 | x00000032 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 303c | add $a1, $t0, $t1 | 0x01092820 | 0x000000a5 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 3040 | ori $t0, $0, 30 | 0x3408001e | 0x000000a5 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 3044 | div $a1, $t0 | 0x00a8001a | 0x000000a5 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 3048 | mflo $a1 | 0x00002812 | 0x00000005 | 0x00002ffc | 0x0 | 0x0 | 0x0 | 0x0 |
| 304c | jal factorial | 0x0c000c16 | 0x00000005 | 0x00002ffc | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3050 | add $s0, $v0, $0 | 0x00408020 | 0x00000005 | 0x00002ffc | 0x00003050 | 0x00000078 | 0x0 | 0x0 |
| 3054 | j end | 0x08000c26 | 0x00000005 | 0x00002ffc | 0x00003050 | 0x00000078 | 0x0 | 0x0 |
| 3058 | addi $sp, $sp, -8 | 0x23bdffff8 | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 305c | sw $a1, 4($sp) | 0xafa50004 | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3060 | sw $ra, 0($sp) | 0xafbf0000 | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3064 | addi $t0, $0, 2 | 0x20080002 | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3068 | slt $t0, $a1, $t0 | 0x00a8402a | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 306c | beq $t0, $0, else | 0x11000003 | 0x00000005 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3070 | addi $v0, $0, $1 | 0x20020001 | 0x00000001 | 0x00002fd4 | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 3074 | addi $sp, $sp, 8 | 0x23bd0008 | 0x00000001 | 0x00002fdc | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 3078 | jr $ra | 0x03e00008 | 0x0000001 | 0x00002fdc | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 307c | addi $a1, $a1, -1 | 0x20a5ffff | 0x00000004 | 0x00002ff4 | 0x00003050 | 0x0 | 0x0 | 0x0 |
| 3080 | jal factorial | 0x0c000c16 | 0x00000004 | 0x00002ff4 | 0x00003084 | 0x0 | 0x0 | 0x0 |
| 3084 | lw $ra, 0($sp) | 0x8fbf0000 | 0x00000001 | 0x00002fdc | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 3088 | lw $a1, 4($sp) | 0x8fa50004 | 0x00000002 | 0x00002fdc | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 308c | addi $sp, $sp, 8 | 0x23bd0008 | 0x00000002 | 0x00002fe4 | 0x00003084 | 0x00000001 | 0x0 | 0x0 |
| 3090 | mul $v0, $a1, $v0 | 0x70a21002 | 0x00000002 | 0x00002fe4 | 0x00003084 | 0x00000002 | 0x0 | 0x0 |
| 3094 | jr $ra | 0x03e00008 | 0x00000002 | 0x00002fe4 | 0x00003084 | 0x00000002 | 0x0 | 0x0 |
| 3098 | end: sw $a1, 0($0) | 0xac050000 | 0x00000005 | 0x00002ffc | 0x00003050 | 0x00000078 | 0x00000005 | 0x0 |
| 309c | sh $16, 10($0) | 0xa410000a | 0x00000005 | 0x00002ffc | 0x00003050 | 0x00000078 | 0x00000005 | 0x00780000 |
| 3100 |  |  |  |  |  |  |  |  |
| 3104 |  |  |  |  |  |  |  |  |