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Section: A

Date: 2/15/2017

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Lab-4

Section A: SPIM

```
PC          = 4194380
EPC         = 0
Cause       = 0
BadVAddr    = 0
Status      = 805371664

HI          = 0
LO          = 0

R0  [r0]  = 0
R1  [at]  = 268500992
R2  [v0]  = 5
R3  [v1]  = 0
R4  [a0]  = 268500992
R5  [a1]  = 2147480440
R6  [a2]  = 2147480448
R7  [a3]  = 0
R8  [t0]  = 8
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
```

Section B: MIPS Assembly

a). All comments are added to the lab4b.s

b). The assembly file called procedure

```
PC          = 4194364
EPC         = 0
Cause       = 0
BadVAddr    = 0
Status      = 805371664

HI          = 0
LO          = 45

R0  [r0]  = 0
R1  [at]  = 0
R2  [v0]  = 45
R3  [v1]  = 0
R4  [a0]  = 2
R5  [a1]  = 3
R6  [a2]  = 4
R7  [a3]  = 5
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
```

Section C: Machine Code

machine code of the procedure part:

```
[0040003c] 23bdfff4   addi $29, $29, -12    ; 18: addi $sp,$sp,-12
[00400040] afa90008   sw $9, 8($29)         ; 19: sw $t1, 8($sp)
[00400044] afa80004   sw $8, 4($29)         ; 20: sw $t0, 4($sp)
[00400048] afb00000   sw $16, 0($29)        ; 21: sw $s0, 0($sp)
[0040004c] 00854020   add $8, $4, $5        ; 23: add $t0,$a0,$a1
[00400050] 00c74820   add $9, $6, $7        ; 24: add $t1,$a2,$a3
[00400054] 71098002   mul $16, $8, $9       ; 25: mul $s0,$t0,$t1
[00400058] 02001020   add $2, $16, $0       ; 27: add $v0,$s0,$zero
[0040005c] 8fb00000   lw $16, 0($29)        ; 29: lw $s0, 0($sp)
[00400060] 8fa80004   lw $8, 4($29)         ; 30: lw $t0, 4($sp)
[00400064] 8fa90008   lw $9, 8($29)         ; 31: lw $t1, 8($sp)
[00400068] 23bd000c   addi $29, $29, 12     ; 32: addi $sp,$sp,12
[0040006c] 03e00008   jr $31                ; 34: jr $ra
```