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## Homework 7

### 1. Write MIPS code for the below Python code. [40]

HW 7

i @ 0xF0000000

j @ 0xC004F004

A @ 0xF0000004

i = 0

j = 1

A = [0x23, 0x15]

A[i] = A[i] + A[j]

In MIPS code: (Assume all registers are empty)

lui \$t0 0xF000 } # addr of i in \$t0

ori \$t0 0x0000

sw \$zero 0(\$t0) } # i = 0

lui \$t1 0xC004 } # addr of j in \$t1

ori \$t1 0xF004

addi \$s0 \$s0 0x1 } # \$s0 = 1

sw \$s0 0(\$t1) } # j = 1

lui \$t2 0xF000 } # base addr of A in \$t2

ori \$t2 0x0004

addi \$s1 \$s1 0x23 } # \$s1 = 0x23

sw \$s1 0(\$t2) } # A[0] = 0x23

addi \$s2 \$s2 0x15 } # \$s2 = 0x15

sw \$s2 4(\$t2) } # A[1] = 0x15

lw \$s3 0(\$t0) } # i → \$s3

lw \$s4 0(\$t1) } # j → \$s4

sll \$s3 \$s3 2 } # i × 4 = 0 × 4 = 0

add \$s3 \$s3 \$t2 } # absolute addr of A[i] → \$s3

lw \$s5 0(\$s3) } # A[i] = A[0] = 0x23 → \$s5

sll \$s4 \$s4 2 } # j × 4 = 1 × 4 = 4

add \$s4 \$s4 \$t2 } # absolute addr of A[j] → \$s4

lw \$s6 0(\$s4) } # A[j] = A[1] = 0x15 → \$s6

add \$s5 \$s5 \$s6 } # A[i] + A[j] = 0x23 + 0x15 → \$s5

sw \$s5 0(\$s3) } # A[i] + A[j] → A[i]