

Amina Qadeer

Ce-42-A

CSA ASSIGNMENT #1

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- For multicycle, break/ fetch instructions
- Each instruction takes 3-5 cycles/step

R-type inst \rightarrow 4 cycles (Fetch, decode, execute, memory WB)
Store instruction \rightarrow 4 cycles (Fetch, decode, execute)
Load instruction \rightarrow 5 cycles (Fetch, decode, execute, WB)
Branch inst \rightarrow 3 cycles (Fetch, decode, execute, memory)
Jump inst \rightarrow 3 cycles (Fetch, decode, execute, memory)

\rightarrow each cycle to use at most each major function:

\rightarrow LW - 2x5 beq - 1x3 add - 1x4

\rightarrow SW - 1x4

Total cycles = 21

2. In 8th cycle of execution, we will be needed to execute this code.

So, completing mem address of $4 + \$t3$

3.

We use add command, first 13 cycles we load word & check beg, and then perform addition function. For 2 address to add this happens in execution cycle which takes $(5 + 5 + 3 + 3) = 16^{\text{th}}$ cycle of execution.

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x — x