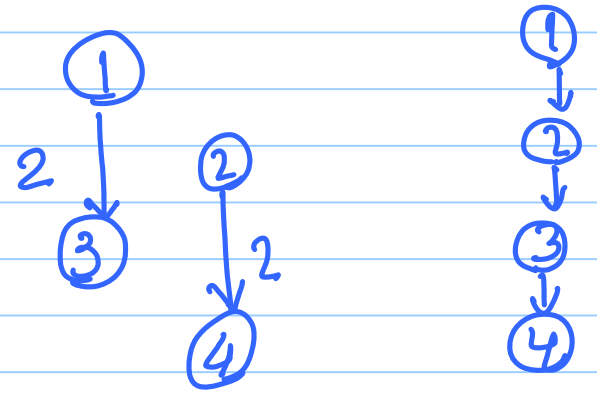


1) LDR R1, [R2, #8]  
 3) ADD R3, R1, R2      2) ADD R5, R6, R7



# Control Hazards

BEQ R<sub>1</sub>, R<sub>2</sub>, LI  
→

IF    ID    EX<sup>✓</sup>    M    WB



2 cycle bubble

What to do?

- 1) Flush based mechanism  
→ guess taken. or Not Taken.
- 2) Delayed Branch

ADD R7, R8, R9  
ADD R10, R11, R12  
BEQ R1, R2, -L1

NOP  
(Instructions  
that does  
nothing)

If you cannot find independent  
instructions → put NOPs

3) Do the comparison in ID