Assignment 2

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Solve A2.1 and A2.2 given in the Course information  
  
Solve the below problems:

* **Consider the following sequence of instructions in MIPS architecture.**

**LDR  R1, [R2,#40]**  
**ADD R2, R3, R3**  
**ADD R1, R1, R2**  
**STR R1, [R2,#20]**  
**a.  Find all dependencies in this instruction sequence.**  
**b.  Find all hazards in this instruction sequence for a five stage pipeline with and without data forwarding.**  
**c.  Find whether NOPs are required to be introduced inspite of data   forwarding in this instruction sequence**

* .**Consider the following sequence of instructions in MIPS architecture.**

**LDR  R1, [R6,#40]**  
**BEQ  R2, R3, LABEL2   ; BRANCH TAKEN**  
**ADD R1, R6, R4**  
**LABEL2:BEQ R1,R2, LABEL1      ; BRANCH NOT TAKEN**  
**STR R2,[R4, #20]**  
**AND R1, R1, R4**  
  
**a.   Draw the pipeline execution diagram for this code, assuming there are  no delay slots and that branches execute in the EX stage.b.   Repeat the exercise mentioned in a and draw the pipeline execution diagram for this code, assuming that delay slots are used by writing a “SAFE INSTRUCTION” in the delay slot.**



