

ASSIGNMENT 4 DIVYANK SHARMA

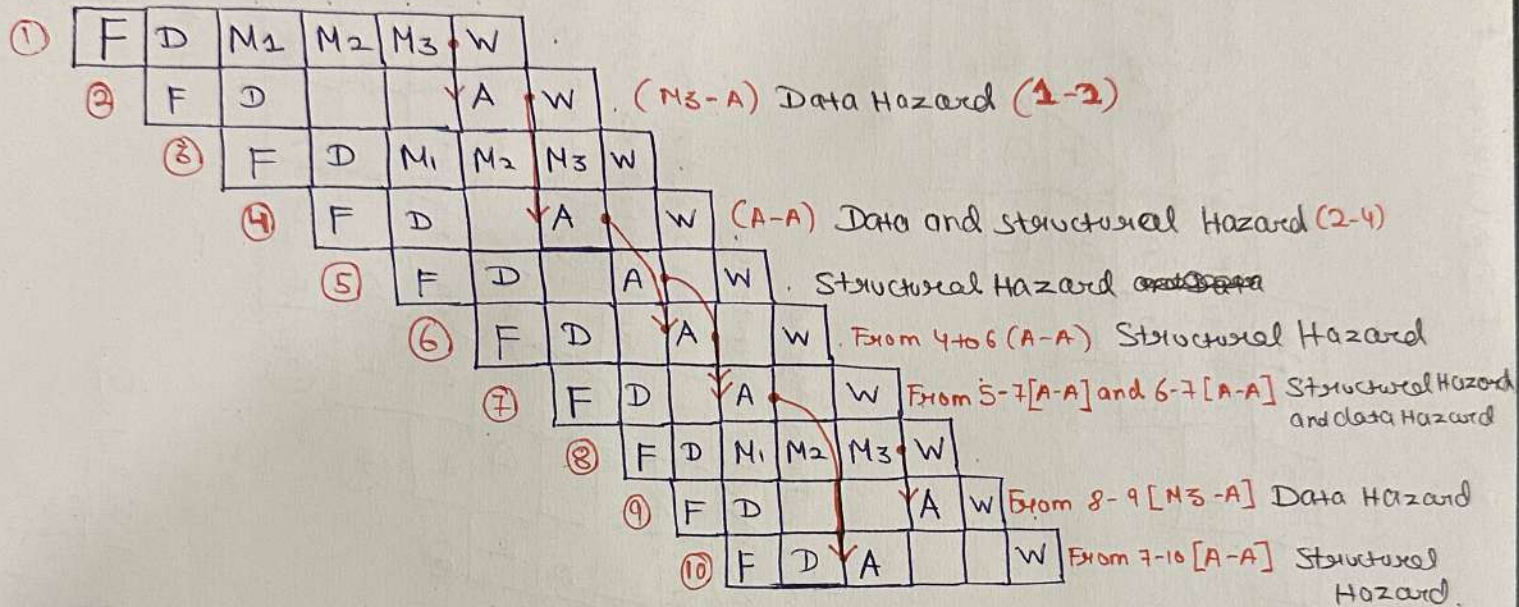
Checking Dependencies

1	lw	^D \$a2	,	^S 0(\$a5)	
2	subi	^D \$a4	,	^S \$a2	, 1
3	lw	\$a1	,	0(\$a6)	
4	add	\$a3	,	\$a0	, ^S \$a4
5	subi	\$a2	,	\$a6	, 1
6	subi	\$a4	,	\$a3	, 5
7	add	\$a3	,	\$a2	, \$a4
8	lw	\$a2	,	0(\$a7)	
9	or	\$a4	,	\$a2	, \$a1
10	subi	\$a7	,	\$a3	, 9

Architecture 5 \Rightarrow out-of-order (OOO) and in-order commit Divyank Sharma.

$$ALU = 1 \text{ (A)}$$

$$\text{Memory Unit} = 3 \text{ (M}_1, \text{M}_2, \text{M}_3)$$



$$CPI = \frac{15}{\text{No of instructions}} = \frac{15}{10} = \underline{\underline{1.5}}$$

① From 1-2 in instruction 2 we took M₃-A.

② From 2-4 in instruction 4 we took A-A

③ From 4-6 in instruction 6 we took A-A

④ From 5-7 and 6-7 in instruction 7 we took A-A for both as both are ALU.

⑤ From 8-9 in instruction 8 we took M₃-A

⑥ From 7-10 in instruction 10 we took A-A

Because of in-order commit none of the instruction can commit before the previous instruction.