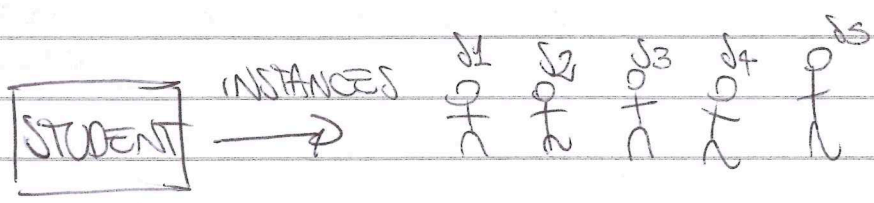


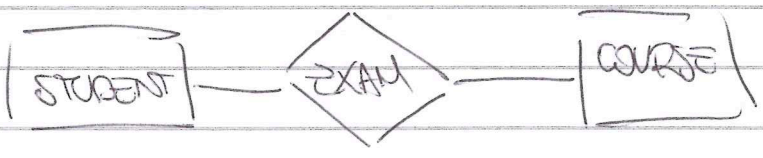
FOUNDATIONS OF DATABASES NOTES & EXERCISES



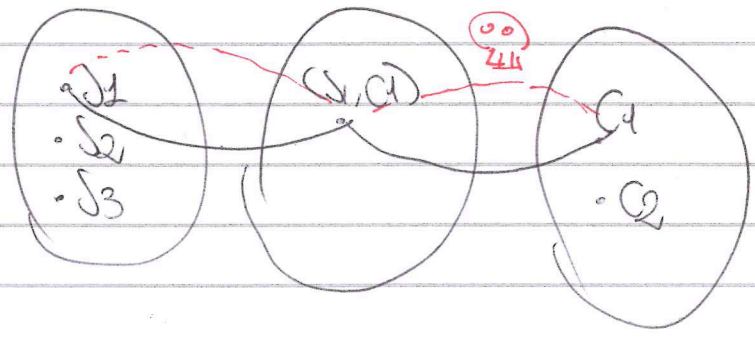
{S1, S2, S3, S4, S5}

KEY NOTES:

1. NO REPETITIONS
2. NO ORDERING



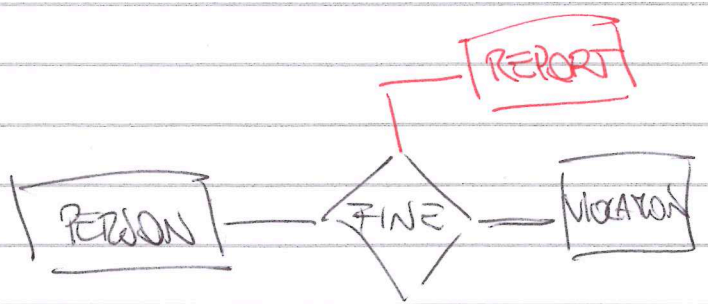
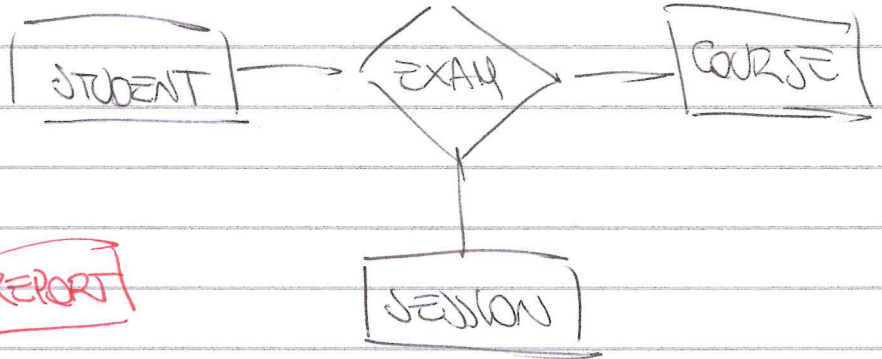
- S1 DID EXAM FOR COURSE C1 ON January (S1, C1) : FAILED
- S1 DID EXAM FOR COURSE C1 ON February (S1, C1) : PASSED



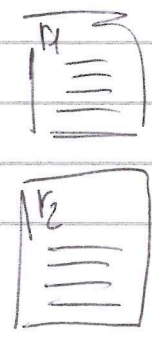
CANNOT MODEL REPEATED EVENTS!

HOW TO FIX?

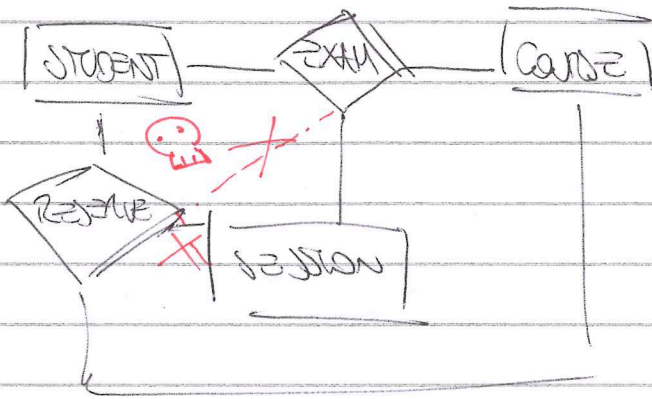
- (S1, C1, Jan)
- (S1, C1, Feb)



- Person p1 exceeded speed limits
- (P1, V1) → (P1, V1, V2)
- (P1, V1) → (P1, V1, V2)



②

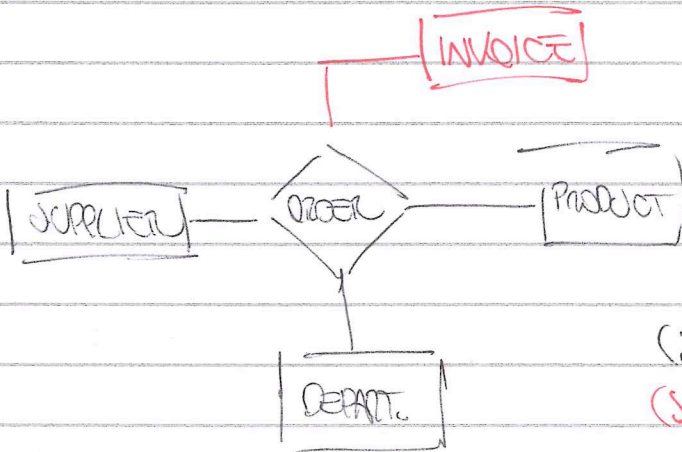


NO DIRECT CONNECTION OF TWO RELATIONSHIP → CHECK EXTENSIVE SEMANTICS

EXTERNAL CONSTRAINT:

You can do exams only booked ahead

$\forall (s_i, c_j, u_{kx}) \in \text{instance}(\text{exam}),$
 $\exists (s_i, c_j, u_{kx}) \in \text{instance}(\text{reserve})$



$(s_i, p_i, d_i) \rightarrow (s_i, p_i, d_i, i_1)$

$(s_i, p_i, d_i) \rightarrow (s_i, p_i, d_i, i_2)$