

Tareq Shaunnak

COMP333

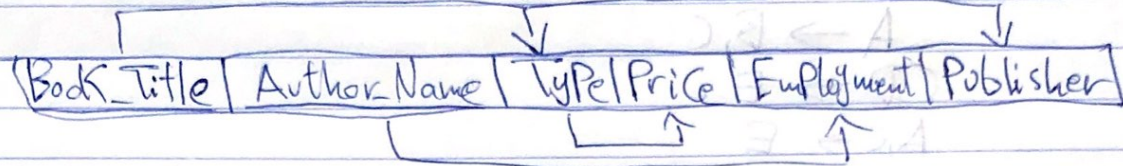
Friday

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Worksheet
Normalization

25/12/2020

Q1)



a) Assume that there are no repeating groups or multi-valued attributes, so, this relation is at least 1NF.

~~Author~~ Type → Price & (not every) determinant is a key ⇒ Not BCNF

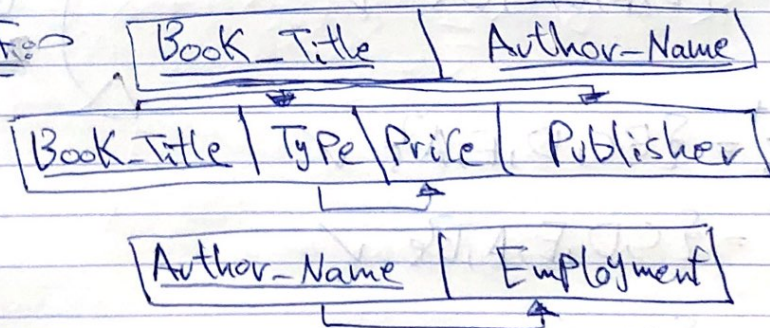
Book Title → Type → Price & (Transitive dependency) ⇒ Not 3NF

Author Name → Employment & ⇒ Partial dependencies

Book Title → Type, Publisher, Price & ⇒ Not 2NF

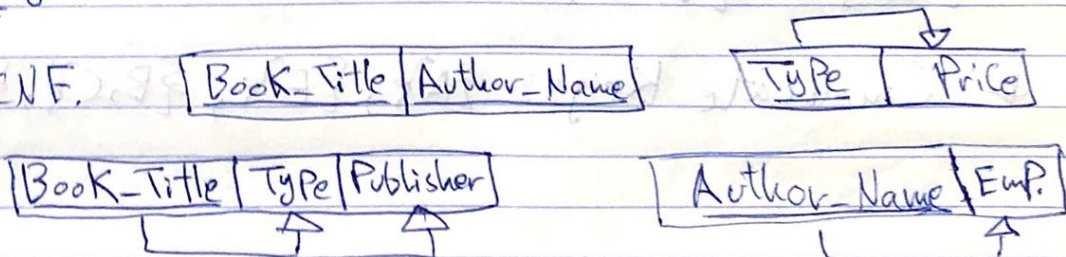
∴ The relation is 1NF.

b) Make 2NF ⇒



Make 3NF ⇒

Also, it's BCNF.



Q2) R(A, B, C, D, E)

A → B, C

C, D → E

A, C → E

B → D

E → AB

{A}+ = {A, B, C, D, E} ✓

{B}+ = {B, D}

{C}+ = {C}

{D}+ = {D}

{E}+ = {E, A, B, C, D} ✓

B, C, D
2 attributes.

{B, C}+ = {B, C, D, E, A} ✓

{C, D}+ = {C, D, E, A, B} ✓

{B, D}+ = {B, D}

Candidate Keys: {A}, {E}, {B, C}, {C, D}