

FD = Functional Dependencies

"Good relation": Information preservation, minimum redundancy
ຂໍ້ມູນສ້າງເປົ້າ ພັນຍົກດົດ

Normal Forms.

- 1 NF
- 2 NF
- 3 NF
- BCNF (3.5 NF)

Guideline 1 : Semantics

- ສະແດ່ 1 Entity / 1 R (ມີແລດຕິຫຼຸດຂຶ້ນ ຫຼື ດາວໂຫຼວງເຊື່ອງ ຍສນັກັນ)
- Fk ໄກສັ່ນ ທີ່ ຕັ້ງກີ່ entity / R ຮຳ (Attribute ຜົນຕິຫຼຸດທີ່ ຂໍ້ງຮຽນເຕັກຕາວ)

Guideline 2: not suffer from Insert, delete and update

Guideline 3: ສະບັບ null ພົບຍົງ

Guideline 4:

- ເອດໄລຍະນິ້ງ Join ແລ້ວ ປ້ອມວິນເສັ້ນ ດາວໂຫຼວງ
- No spurious tuples ດາວກໍ ນາລັກ -join ຖຸກ R

“

Spurious Tuples : ມີ join “table” ຖຸກ → ເລີກ
ທີ່ ລື່ມຕົ້ນ

♥ Preservation FD
ມີກົດຈົບ, ຢືກເມາ

- Note that:
 - Property (a) is **extremely important** and **cannot** be sacrificed.
 - Property (b) is less stringent and may be sacrificed. (See Chapter 15).

FD

normal table definition

- formal measures w.r.t. Designs
- key \rightarrow defines NF
- constraints \rightarrow column meaning and interrelationship
- set X func determines set Y
 $\forall X \rightarrow^{\text{func}} Y$: constraints on all R instances $r(R)$ Ex. p.24

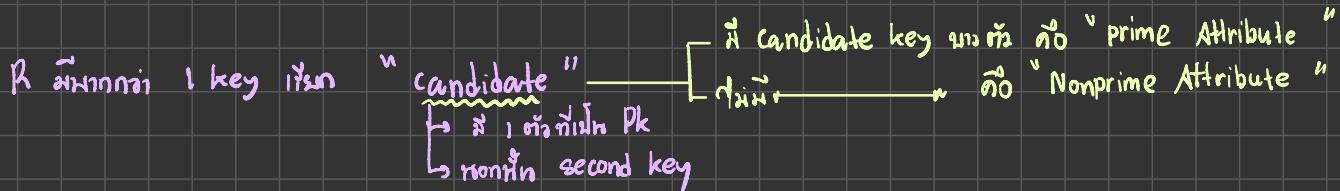
Normalization

↳ ໄລ້ມານິກ ກົດເພີ່ມຂອງກວດ / ໄຕກ table ຍັງກຳ ອຸປະກອບ ອຸປະກອບ ທີ່ເລີກວັງ

NF = Normal Form : key and FD

↳ determines all Attributes in R

" Denormalization " : ດັດເນັດສ່ວນ storing the join ອູນ NF ກົດທີ່ສູງຫຸ້ນ



• 1 NF, 2 NF, 3 NF, BCNF (3.5 NF)

base on key and FD

• 4 NF

—————, multi-valued : MVDs

• 5 NF

—————, join : JDs

1 NF

- ນ້ຳມາ Composite Attributes
- ນ້ຳມາ multivalued Attributes
- ນ້ຳມາ table ຢືນ table ສົ່ງ " nested relation "

Ex P. 96

{ } ມີ ໂດຍຈະ

✓ Considered ໃນກໍານົດກໍານົດ ດັນ define ອູນ R

✓ most RDBMSs allow ໂດຍ 1 NF

2 NF

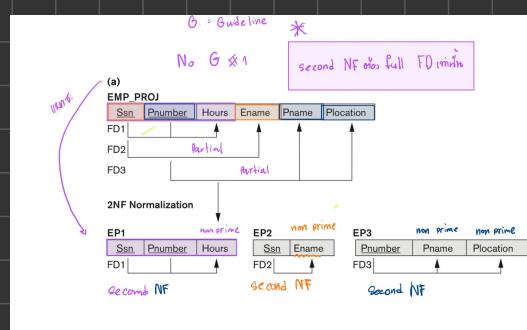
- Concepts of FD, Pk
- Definition
 - prime Attribute : Attribute ທີ່ສັນນັກກ່ອນ candidate key
 - partial / full functional dependency (Full FD)
 - in $Y \rightarrow Z$ ຖ້າ Z ດັດເກີດຕ້ອງ Y

(ຕົວ 1 NF ນີ້)

Ex { SSN, PNUMBER } → HOURS full FD ✓

{ SSN, PNUMBER } → ENAME partial dependency > not Full FD X
 ພຽງ: SSN → ENAME ຢ້ອງກ່ຽວຂ້ອງ

- Pk fully FD determines Non prime Attribute
- Decomposed ໂດຍກ່ຽວຂ້ອງ → ເລີກ

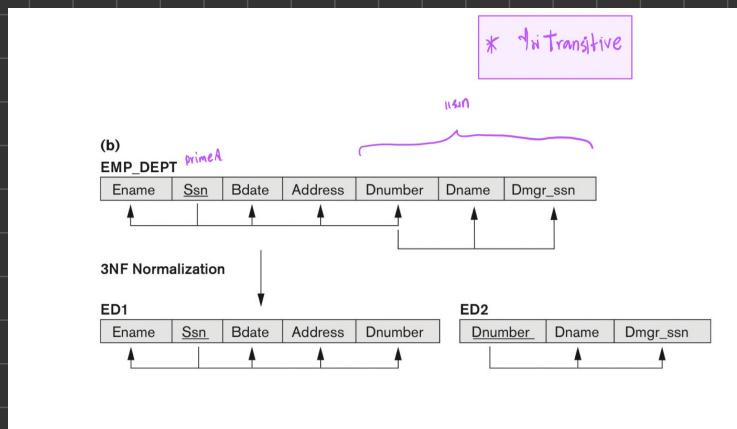


"Transitive FD": $X \rightarrow Y$, $Y \rightarrow Z$ សម្រាប់ពីរទំនួន

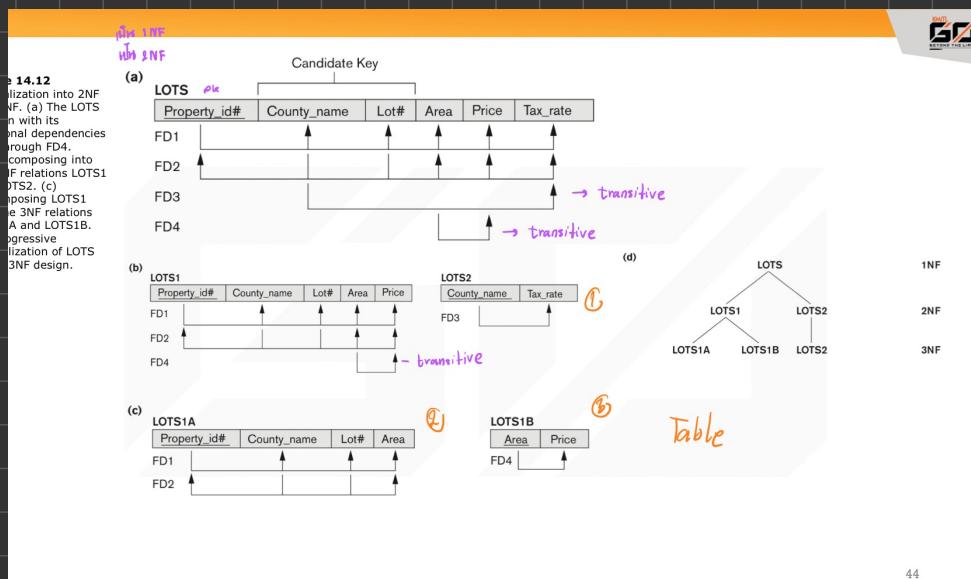
Non transitive: ម្នាក់ទំនួន នៅក្នុង $SSN \rightarrow ENAME$

3NF

(តើ 2NF ណា)



វិធីការងារ



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អត្ថបទការងារ

Normal Forms Defined Informally

- 1st normal form
 - All attributes depend on the key
- 2nd normal form
 - All attributes depend on the whole key
- 3rd normal form
 - All attributes depend on nothing but the key