DATABASE

CSE3103 : Database

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First Normal Form (1NF)

- A relation is in 1NF if it is satisfied the following conditions.
  - **It should only have single(atomic) valued attributes/columns.**
  - **Values stored in a column should be of the same domain**
  - **All the columns in a table should have unique names.**
  - **And the order in which data is stored, does not matter.**

First Normal Form (1NF)

- Example Couse_Student

Std_id	Name	Course_taken
170104001	Adam Hart	Information System design Database Telecommunication
170104002	Becky Patric	Database Operating System
170104003	Jon Ceara	Information System design Operating System
170104004	Tom David	Telecommunication Operating System

First Normal Form (1NF)

- Assign a new table name : **Couse_Student_New**

Std_id	Name	Course_taken
170104001	Adam Hart	Information System Design
170104001	Adam Hart	Database
170104001	Adam Hart	Telecommunication
170104002	Becky Patric	Database
170104002	Becky Patric	Operating System
170104003	Jon Ceara	Information System Design
170104003	Jon Ceara	Operating System
170104004	Tom David	Telecommunication
170104004	Tom David	Operating System

First Normal Form (1NF)

- Example **Book**

Book_id	Author	Author	Author
14805	Adam Hart	Abraham	Paul Allen
14501	Becky Patric	Bella Wats	Jack Sei
25482	Jon Ceara	Gabriel	John Hoppe

First Normal Form (1NF)

- Example **Book_New**

Book_id	Author 1	Author 2	Author 3
14805	Adam Hart	Abraham	Paul Allen
14501	Becky Patric	Bella Wats	Jack Sei
25482	Jon Ceara	Gabriel	John Hoppe

First Normal Form (1NF)

- Example **Book_New01**

Book_id	Author
14805	Adam Hart
14805	Abraham
14805	Paul Allen
14501	Becky Patric
14501	Bella Wats
14501	Jack Sei
25482	Gabriel
25482	Jon Ceara
25482	John Hoppe

Second Normal Form (2NF)

- A relation is in 2NF if it is satisfied the following conditions.
  - **It should be in the First Normal form.**
  - **And, it should not have Partial Dependency.**
  - **So, all non-key attributes are fully functional dependent on primary key.**

Second Normal Form (2NF)

- Example **Customer**

Cus_No	Name	Address	Status	Acc_No
14805	Adam Hart	UTTARA	BUSINESS	M897
14501	Becky Patric	BANANI	BUSINESS	N987
25482	Jon Ceara	GULSHAN	LOCAL	U787

Second Normal Form (2NF)

- Example Customer

- Cus_No → Name, Address, Status

- Acc_No → Name, Address, Status

- Or

- Cus_No, Acc_No → Name, Address, Status

Second Normal Form (2NF)

- **Account_Customer**

Cus_no	Acc_no
14805	M897
14501	N987
25482	U787

- **Customer_info**

Cus_no	Name	Address	Status
14805	Adam Hart	UTTARA	BUSINESS
14501	Becky Patric	BANANI	BUSINESS
25482	Jon Ceara	GULSHAN	LOCAL