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AS per the rule of First normal form, an attribute of a table can't hold multiple values. It should hold only atomic values.

SUPPOSE

Dep id	Dep name	Dep. addr	Dep-mobile
201	CSE	Dhaka	01717
202	BBA	Rangpur	01513 01762
203	ECE	Buet	01912
204	LAW	Sylhet	01572

TWO ~~employees~~ dep. are having two mobile numbers so the company stored them in the same field as we can see in the table.



This table is not 1NF as the rule says each attribute of a table must have atomic values. The mobile values for ~~department~~ department name BBA and ECE is given below.

emp id	Dep. name	Dep. address	Dep. mobile
201	CSE	Phoka	
202	BBA	Rougaru	01512
202	BBA	Prugar	01762
203	ECE	Bhet	01922
203	ECE	Bhet	01739
104	Low	Low	01521

Second Normal Form (2NF)

So, Table is in 2NF as no non-prime attribute is dependent on the proper subset of any candidate key of table.



An attribute that is not part of any candidate key is known as non-prime attribute. Here,

dept-id	subject	age
112	maths	38
111	physics	38
222	biology	38
333	physics	40
333	chem-10	40

Candidate keys: [teacher-id, subject]

Non prime attributes: teacher\_age

To make this 2NF

teacher-id	teacher-age
112	38
222	38
333	40



## Dependent Subject Core Table

Dependent ID	Subject
222	MATHS
222	PHYSICS
222	BIOLOGY
333	PHYSICS
333	CHEMISTRY

## Third Normal form :-

REP-ID <del>REP-1</del>	REP-NAME	REP-ZIP	REP-STATE	REP-CITY
1002	CBE	2201	DHAKA	
1002	BBA	2202	Sylhet	A
1006	Hrm	2203	Rajshahi	
1101	EEE	2204	Moulvibazar	
1201	Law	2203		

So, keys:  $\{ \text{REP-ID} \}$ ,  $\{ \text{REP-ID}, \text{REP-NAME} \}$ ,  $\{ \text{REP-ID}, \text{REP-NAME}, \text{REP-ZIP} \}$   
 Composite key:  $\{ \text{REP-ID} \}$



Dep. to U

Dep. i	Dep. name	Dep. zip
2001	BBA CSE	281005
2002	BBA	222 00
2006	Hon	28 1007
2001	EEF	22.209