01 Lecture

Lecture 1

Normalization

1NF RULE
- Each table cell should contain a single value.
- Each record needs to be unique.

1NF Example

FULL NAMES	PHYSICAL ADDRESS	MOVIES RENTED	SALUTATION
Janet Jones	First Street Plot No 4	Pirates of the Caribbean	Ms.
Janet Jones	First Street Plot No 4	Clash of the Titans	Ms.
Robert Phil	3rd Street 34	Forgetting Sarah Marshal	Mr.
Robert Phil	3rd Street 34	Daddy's Little Girls	Mr.
Robert Phil	5th Avenue	Clash of the Titans	Mr.

2NF RULE

- Rule 1– Be in 1NF
- Rule 2– Single Column Primary Key that does not functionally dependent on any subset of candidate key relation
- "features should be fully dependent on the entire primary key"

MEMBERSHIP ID	FULL NAMES	PHYSICAL ADDRESS	SALUTATION
1	Janet Jones	First Street Plot No 4	Ms.
2	Robert Phil	3rd Street 34	Mr.
3	Robert Phil	5th Avenue	Mr.

MEMBERSHIP ID	MOVIES RENTED
1	Pirates of the Caribbean
1	Clash of the Titans
2	Forgetting Sarah Marshal
2	Daddy's Little Girls
3	Clash of the Titans

An entity type is in 2NF when it is in 1NF and when all of its non-key attributes are fully dependent on its primary key.

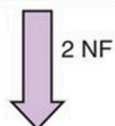"features should be fully dependent on the entire primary key"|

OrderNumber	ProductID	ProductName
1	232	Pespsi
2	234	Coca-Cola
3	241	Polar

OrderNumber	ProductID
1	232
2	
3	

ProductID	ProductName
232	Pespsi
234	Coca-Cola
241	Polar

SSN	PNUMBER	PNAME	HOURS
100	1000	Hadoop	50
220	1200	CRM	200
280	1000	Hadoop	40
300	1500	Java	100
120	1000	Hadoop	120

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PNUMBER	PNAME
1000	Hadoop
1200	CRM
1500	Java

SSN	PNUMBER	HOURS
100	1000	50
220	1200	200
280	1000	40
300	1500	100
120	1000	120

Foreign Key references the primary key of another Table! It helps connect tables.

3NF RULE

An entity type is in 3NF when it is in 2NF and no non-key attribute is transitively dependent on the primary key.

MEMBERSHIP ID	FULL NAMES	PHYSICAL ADDRESS	SALUTATION ID
1	Janet Jones	First Street Plot No 4	2
2	Robert Phil	3rd Street 34	1
3	Robert Phil	5th Avenue	1

MEMBERSHIP ID	MOVIES RENTED
1	Pirates of the Caribbean
1	Clash of the Titans
2	Forgetting Sarah Marshal
2	Daddy's Little Girls
3	Clash of the Titans

SALUTATION ID	SALUTATION
1	Mr.
2	Ms.
3	Mrs.
4	Dr.

Tournament	Year	Winner	Winner DoB
Indiana Invitational	1998	Al Fredrickson	21 July 1975
Cleveland Open	1999	Bob Albertson	28 September 1968
Indiana Invitational	1999	Chip Masterson	14 March 1977

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Indiana Invitational	1998	Al Fredrickson
Cleveland Open	1999	Bob Albertson
Indiana Invitational	1999	Chip Masterson

Winner	Winner DoB
Al Fredrickson	21 July 1975
Bob Albertson	28 September 1968
Chip Masterson	14 March 1977

SSN	NAME	DNUMBER	DNAME	DMGRSSN
10	O´Reilly	10	Marketing	210
22	Donovan	30	Logistics	150
28	Bush	10	Marketing	210
30	Jackson	20	Finance	180
12	Thompson	10	Marketing	210

3 NF
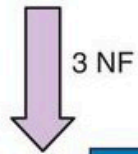
SSNR	NAME	DNUMBER
10	O´Reilly	10
22	Donovan	30
28	Bush	10
30	Jackson	20
12	Thompson	10

DNUMBER	DNAME	DMGRSSN
10	Marketing	210
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