

Database Normalization

Database normalization is a database schema design technique, by which an existing schema is modified to minimize redundancy and dependency of data.

First Normal Form :-

Normalizing into 1NF :

According to first NF: there should be for each attribute only single value each record should be atomic so split it into two table t1 and t2

Table t1

ClientNo	ClientName
CR76	John kay
CR56	Aline Stewart

Table t2

ClientNo	Property No	Property Address	Rent	RentStart	RentFinish	OwnerNo	OwnerName
CR76	PG4	6 Lawrence st, Glassgow	350	1-Jul-00	31-Aug-01	CO40	Tina Murphy
CR76	PG16	5 Novar Dr, Glassgow	450	1-Sep-02	1-Sep-02	CO93	Tony Shaw
CR56	PG4	6 Lawrence st, Glassgow	350	1-Sep-99	10-Jun-00	CO40	Tina Murphy
CR56	PG36	2 Manor Rd, Glassgow	370	10-Oct-00	1-Dec-01	CO93	Tony Shaw
CR56	PG16	5 Novar Dr, Glassgow	450	1-Nov-02	1-Aug-03	CO93	Tony Shaw

Second Normal Form :-

Normalizing into 2NF :

According to 2 NF: Table must be in 1NF and no partial dependencies on whole key

converting the table into 2NF by splitting it :

Table t1 :

ClientNo	ClientName
CR76	John kay
CR56	Aline Stewart

Table t2:

PropoertyNo	PropertyAddress	Rent	OwnerNo	OwnerName
PG4	6 Lawrence st, Glassgow	350	CO40	Tina Murphy
PG16	5 Novar Dr, Glassgow	450	CO93	Tony Shaw
PG34	2 Manor Rd, Glassgow	370	CO93	Tony Shaw

Table t3:

CientNo	PropertyNo	RentStart	RentFinish
CR76	PG4	1-Jul-00	31-Aug-01
CR76	PG16	1-Sep-02	1-Sep-02
CR56	PG4	1-Sep-99	10-Jun-00
CR56	PG36	10-Oct-00	1-Dec-01
CR56	PG36	10-Oct-00	1-Dec-01

Third Normal Form :-

Normalizing t into 3 NF

According to 3 NF : Table must be in 2NF and no transitive dependencies

So we will split the clientRental table :

Table t1 :

ClientNo	ClientName
CR76	John kay
CR56	Aline Stewart

Table t2 :

OwnerNo	ClientName
CO40	Tina Murphy
CO93	Tony Shaw

Table t3 :

PropoertyNo	PropertyAddress	Rent	OwnerNo
PG4	6 Lawrence st, Glassgow	350	CO40
PG16	5 Novar Dr, Glassgow	450	CO93
PG34	2 Manor Rd, Glassgow	370	CO93

Table t4 :

CientNo	PropertyNo	RentStart	RentFinish
CR76	PG4	1-Jul-00	31-Aug-01
CR76	PG16	1-Sep-02	1-Sep-02
CR56	PG4	1-Sep-99	10-Jun-00
CR56	PG36	10-Oct-00	1-Dec-01
CR56	PG36	10-Oct-00	1-Dec-01

