CPS510 Fall2021 Section 04

Group-11

Assignment 7

Normalization / 3NF

3rd Normalize form

Application Name: Online Job Bank System.

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-- Normalization/ 3NF

In order to normalize our design, we first outlined the functional dependencies in the system. We have normalized each table with 1NF and 2NF procedure and now we will apply the 3rd NF.

In our database no table use any transitive keys to make primary keys, so our database if of form 3NF.

We take each table and apply the 3NF normalization technique:

1.

JB_Members		
PK	Member_id	Char
	Member_type	Char
	Address	Char
	Email	Char
	Date_created	Date
	Subscriptions	Char
FK	Login_id	Char

All the non key attributes in the table depends on the primary key Member_id and all non-key attribute is non-transitively dependent on Member_id that makes it to 3NF.

JB_Members (Member_id, Member_type,Address,Email,Date_created,Subscriptions).

So, Member_id--→ { Member_type, Address,Email,Date_created, subscriptions}.

This table has only one candidate key and that is the primary key (Member_id) of the table.

But Login_id does not depend on Member_id as it's belonging to another table. This table is of the form 3NF.

2.

JB_Users		
PK	Login_id	Char
	Password	Char

In the table JB_Users, all the non-key attributes depends on key attribute which is Login_id depends on Password.

Also there is no transitive key in the table.

So, key Login_id -→ password.

Note: If we look at the relationship between these two tables, each JB_Member will have one Login_id, so Member_id and Login_id will have one to one relationship and vice versa. Both tables are functionally dependent and all primary keys are non-transitive. This table is of the form satisfies all three form 1NF, 2NF and 3NF.

3.

Recruiters		
PK	recr_id	Char
	Company_name	Char
	Manager_name	Char
FK	Member_id	Char

In this table Recruiters (recr**_id**, Company_name, Manager_name) all the non-key attributes depends on recr_id and that is a primary key of the table. This table has no transitive keys as all keys are unique.

Represented as Recr_id→company_name,Manager_name.

This table is of the form 3NF.

4.

Qualifications		
PK	Qualification_id	Char
	Edu_level	Char
	Experience	Number
	Cover_letter	Char
	Certi_License	Char
FK	JB_user_id	Char

In this table Qualification_id is a key on which all the other non-key attributes depends on and there is no key that is transitively dependent of any other table keys. All the keys of the table are unique.

Represented as Qualification_id→Edu_level,Expeience,Cover_leter and Certi_license.

Whereas Jb_user_id is a key to another table and acts as forign key her and does not depends on Qualification_id. This table is of the form 3NF.

5.

HR_Department		
PK	Depart_id	Char
	Depart_name	Char
	HR_Manager	Number
FK	Org_id	Char

All the non key attributes in the table depends on the primary key Depart_id and all non-key attribute is non-transitively dependent on Depart_id that makes it to 3NF.
All the non-key attributes are unique.
We could represent by Depart_id→Depart_name,Hr_Manger

Whereas Org_id is a foreign key and doesn't depends on depart_id.

This table is of the form 3NF.

6.

JB_Postings		
PK	Job_id	Char
	Company	Char
	Salary	Number
	Job_title	Char
	Job_location	Char
	Job_type	Char
	Effect_date	Date
	End_date	Date
FK	depart_id	Char

If you look at the table JB_posings all the non-key attributes depends on Job_id key of the table. There are no transitive relations in the table.

We can represent this as Job_id →company,Salary,Job_tile,Job_location,Job_type,Effect_date and End_date.

This table is of the form 3NF.

7.

Connections		
PK	Conn_id	Char
	Date_made	Date
	Conn_details	Char
FK	Member_id	Char

If we look at the conn_id key all the other non-key attribute depends on Conn_id so → date_made and Conn_details. This table is of the form 3NF.

Conclusion: All the tables in our DBMS are normalized to 1NF, 2NF and 3NF form as all keys are unique.