wwdob@DA

Prince Singh Tomar (2019101021) Shreyansh Verma (2019113012) Manoj Sirvi (2019111016)

September 18, 2020

1 Relational-Model

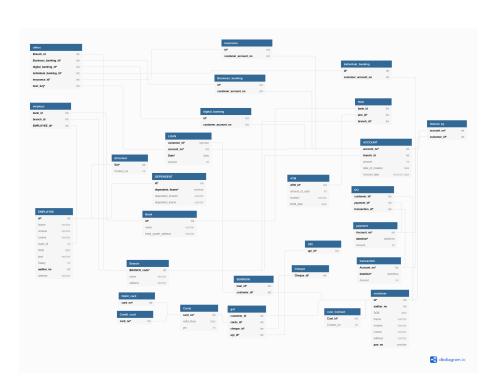


Figure 1: Relational Model

2 1st_Normal_Form

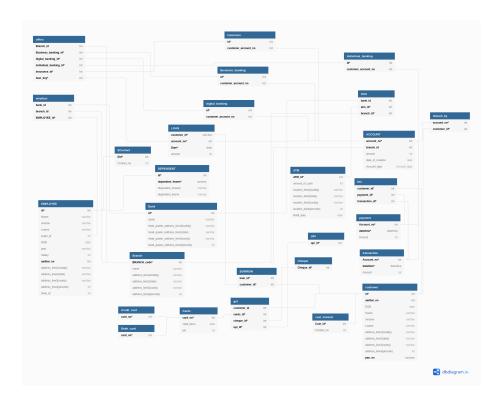


Figure 2: 1st Normal Form

3 2nd_Normal_Form

Already in 2nd Normal Form

4 3rd_Normal_Form

Already in 3rd Normal Form

5 Explanation

Note on Reading the model:-

- * at the end of name of attributes means that, that particular attribute is a part of primary key for that Relation.
- Bold attribute shows that they are uniquely valued and may work as primary key.

Relational model:-

Entities:-

- Employee
 - contact number a multivalued so different relation with employee id as foreign key supervisor key added because of supervise
- Dependant employee id (also a foreign key) + dependant Fname as primary key.
- Digital, Business, individual banking and insurance account number as foreign key
- account Branch id as foreign key

 Account type attribute for ISA relation.
- transaction & payment Account_no as foreign key and account_no + datetime as derived primary key attribute.
- loan customer id (also a foreign key) + account_no(also a foreign key) + Date as derived primary key attribute
- Rest all are Normal

n-ary relations:-

• offers, employs, got, has, do contains all attributes as foreign keys and if cardinality ratio is not 1 then, that foreign key is also included in primary key of that relation.

Sub-classes :-

• cards (debit and credit)

1st_Normal_Form :-

- For address attribute who is composite attribute in relation (EMPLOYEE, customer, Branch, Bank) have to divide into sub-attribute which are not composite.
- Since ATM location is also a composite attribute so it is also divided into parts.

2nd_Normal_Form :-

- 1st_Natural_Form is also is in 2nd_Normal_Form because there does not
 exist any non prime attribute which is dependent on subset of primary
 kev.
- Main reason for this is that most of the tables have a unique and atomic primary key.

3rd_Normal_Form :-

• 2nd_Natural_Form is also in 3rd_Normal_Form because there is no non prime attribute that can be derived from another non prime attribute.