EMPLOYEE MANAGEMENT APPLICATION

SANCHIT PATIL

WHAT IS NORMALISATION

- Normalization is a database design technique used to reduce data redundancy (repetition) and improve data integrity by organizing the attributes (columns) and relations (tables) of a database in a way that minimizes the chances of data anomalies (insertion, update, and deletion anomalies). The goal of normalization is to ensure that the data is stored efficiently while preserving its integrity.
- Normalization involves decomposing a large, complex table into smaller, simpler tables while maintaining the relationships between the original data. Each normalization step addresses different types of redundancy and dependency issues.

NORMALISATION FORMS

1 NF

A relation is in 1NF if it contains an atomic value.

The given relation is already in 1NF as it contains atomic values.

Created a separate designation table to store designation values

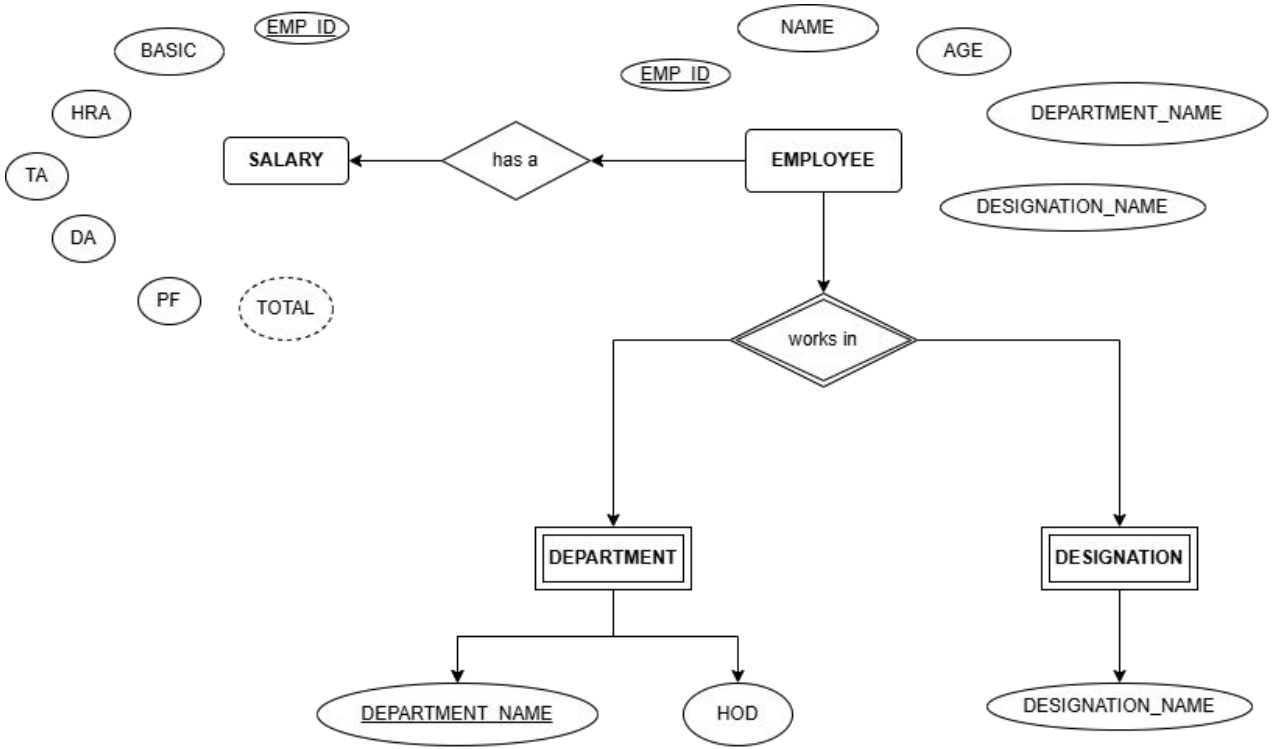
2 NF

Should be in 1NF. All non-key attributes are fully functional dependent on the primary key.

We create a seperate department table containing HOD.

Also creating a salary table consisting of splits in salary.

ER DIAGRAM


EMP_ID
BASIC
HRA
TA
DA
PF
TOTAL
SALARY
has a
NAME
EMP_ID
AGE
DEPARTMENT_NAME
EMPLOYEE
DESIGNATION_NAME
works in
DEPARTMENT
DESIGNATION
DEPARTMENT_NAME
HOD
DESIGNATION_NAME

ORIGINAL FORM (1NF)

EID	NAME	AGE	SALARY	BASIC	HRA	TA	DA	PF	DESIGNATION	DEPARTMENT	HOD
101	John	30	50000	20000	5000	2000	3000	4000	Manager	HR	Smith
102	Alice	28	40000	15000	4000	1500	2500	3500	Developer	IT	Johnson
103	Bob	35	60000	25000	6000	3000	4000	5000	Manager	HR	Smith

FINAL FORM (2NF)

	edepartment [PK] character varying (10)	hod character varying (20)
1	IT	Prasenjit Bhavtankar
2	HR	Reena kumbhare
3	SALES	Najib Ghatte
4	FINANCE	PRIYA DESHPANDE

DEPARTMENT TABLE

FINAL FORM (2NF)

	edesignation [PK] character varying (20)
1	PROGRAMMAR
2	MANAGER
3	CLERK

DESIGNATION TABLE

FINAL FORM (2NF)

	eid [PK] integer	ename character varying (20)	eage smallint	esalary numeric (10,2)	edesignation character varying (10)	edepartment character varying (10)
1	1	Sanchit Patil	21	50000.00	PROGRAMMAR	IT
2	3	Michael Schott	50	100000.00	MANAGER	HR

EMPLOYEE TABLE

FINAL FORM (2NF)

	eid [PK] integer	basic numeric (10,2)	hra numeric (10,2)	ta numeric (10,2)	da numeric (10,2)	pf numeric (10,2)
1	1	30000.00	10000.00	3000.00	2000.00	5000.00
2	3	60000.00	20000.00	6000.00	4000.00	10000.00

SALARY TABLE

CONCLUSION

- Reduces Data Redundancy: By eliminating duplicate data across the database.
- Improves Data Integrity: By ensuring consistency and eliminating anomalies.
- Simplifies Maintenance: Makes it easier to update, insert, or delete data without causing inconsistencies.
- Normalization is ideal for transactional systems (OLTP), where data consistency, integrity, and avoiding anomalies are critical.