Given table

EID	NAME	AGE	SALARY	BASIC	HRA	TA	DA	PF	DESIGNATION	DEPARTMENT	HOD
E001	Alice	30	67000	50000	10000	5000	8000	6000	Manager	HR	Mr. Smith
E002	Bob	28	54000	40000	8000	4000	7000	5000	Engineer	IT	Ms. Davis
E003	Carol	35	61500	45000	9000	4500	7500	5500	Analyst	Finance	Mr. Johnson

Given table is already in 1NF which is it contains unique values for each record

2NF

DEPARTMENT	HOD
HR	Mr. Smith
IT	Ms. Davis
Finance	Mr. Johnson

department table

Here, the primary key is EID . However, HOD is determined by the DEPARTMENT

This creates a partial dependency, where HOD depends only on DEPARTMENT but not on the entire primary key (EID).

To eliminate this partial dependency, we create DEPARTMENT table with where hod is determined by department which is a primary key.

3NF

EID	NAME	AGE	DESIGNATION	DEPARTMENT	SALARY	HRA	TA	DA	PF
E001	Alice	30	Manager	HR	67000	10000	5000	8000	6000
E002	Bob	28	Engineer	IT	54000	8000	4000	7000	5000
E003	Carol	35	Analyst	Finance	61500	9000	4500	7500	5500

BASIC, HRA, TA, DA, and PF depend on SALARY and SALARY depends on EID, we have a transitive dependency, which violates 3NF.

SALARY → BASIC, HRA, TA, DA, PF

EID → SALARY

This violates 3NF, which requires that non-key attributes should only depend on the primary key and not on other non-key attributes.

EID	NAME	AGE	DESIGNATION	DEPARTMENT
E001	Alice	30	Manager	HR
E002	Bob	28	Engineer	IT
E003	Carol	35	Analyst	Finance

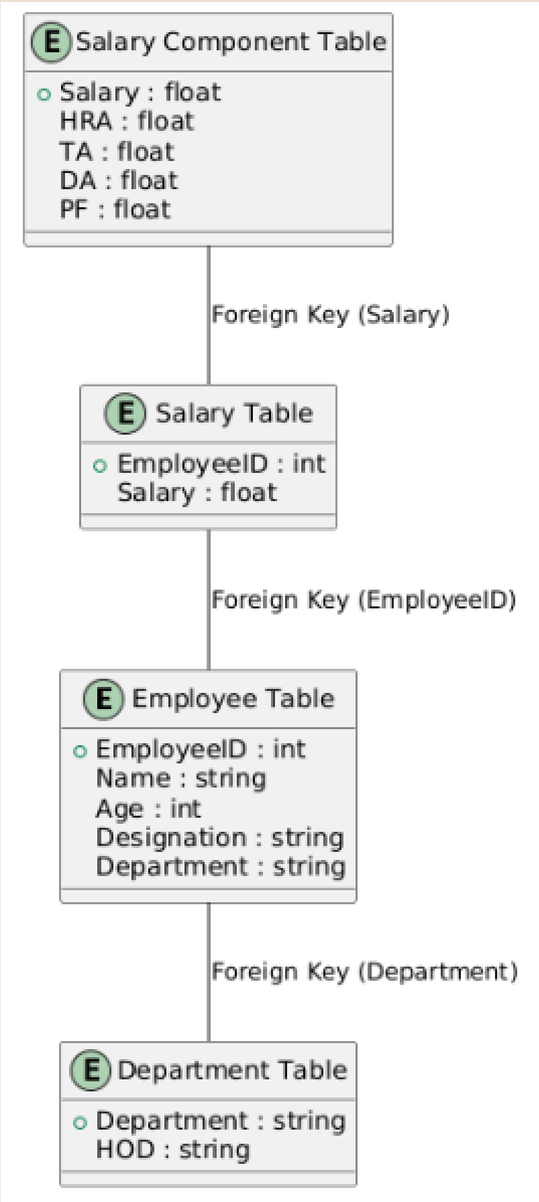
Employee table

EID	SALARY
E001	67000
E002	54000
E003	61500

Salary table

SALARY	BASIC	HRA	TA	DA	PF
67000	50000	10000	5000	8000	6000
54000	40000	8000	4000	7000	5000
61500	45000	9000	4500	7500	5500

Salary component table


Salary Component Table
Salary : float
HRA : float
TA : float
DA : float
PF : float
Foreign Key (Salary)
Salary Table
EmployeeID : int
Salary : float
Foreign Key (EmployeeID)
Employee Table
EmployeeID : int
Name : string
Age : int
Designation : string
Department : string
Foreign Key (Department)
Department Table
Department : string
HOD : string

ER diagram