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Group 4 Topic # 26 Payroll Management DBMS		
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Assignment 7 Goal:

Verify all tables being in 3NF. You can use a diagram (shown in the class) and add FDs to change some tables to not be in 3NF. For tables that are not 3NF (or not in BCNF), decompose it to 3NF tables by diagram.

VERIFY Tables in 3NF:

DESIGNATION:

- DESIGNATION_ID is the primary key.
- TITLE is unique and dependent on DESIGNATION_ID.
- Conclusion: This table is in 3NF.

EMPLOYEE:

- EMPLOYEE_ID is the primary key.
- NAME is directly dependent on EMPLOYEE_ID.
- DESIGNATION_ID is a foreign key and does not introduce a transitive dependency.
- Conclusion: This table is in 3NF.

SALARY:

- SALARY_ID is the primary key.
- EMPLOYEE_ID is a foreign key and the AMOUNT is dependent on SALARY_ID.
- Conclusion: This table is in 3NF.

PAYMENT:

- PAYMENT_ID is the primary key.
- EMPLOYEE_ID is a foreign key, AMOUNT, and DATE_RECEIVED are dependent on PAYMENT_ID.
- Conclusion: This table is in 3NF.

TAX:

- TAX_ID is the primary key.
- EMPLOYEE_ID is a foreign key and TAX_AMOUNT depends on TAX_ID.

- There are no transitive dependencies.
- Conclusion: This table is in 3NF.

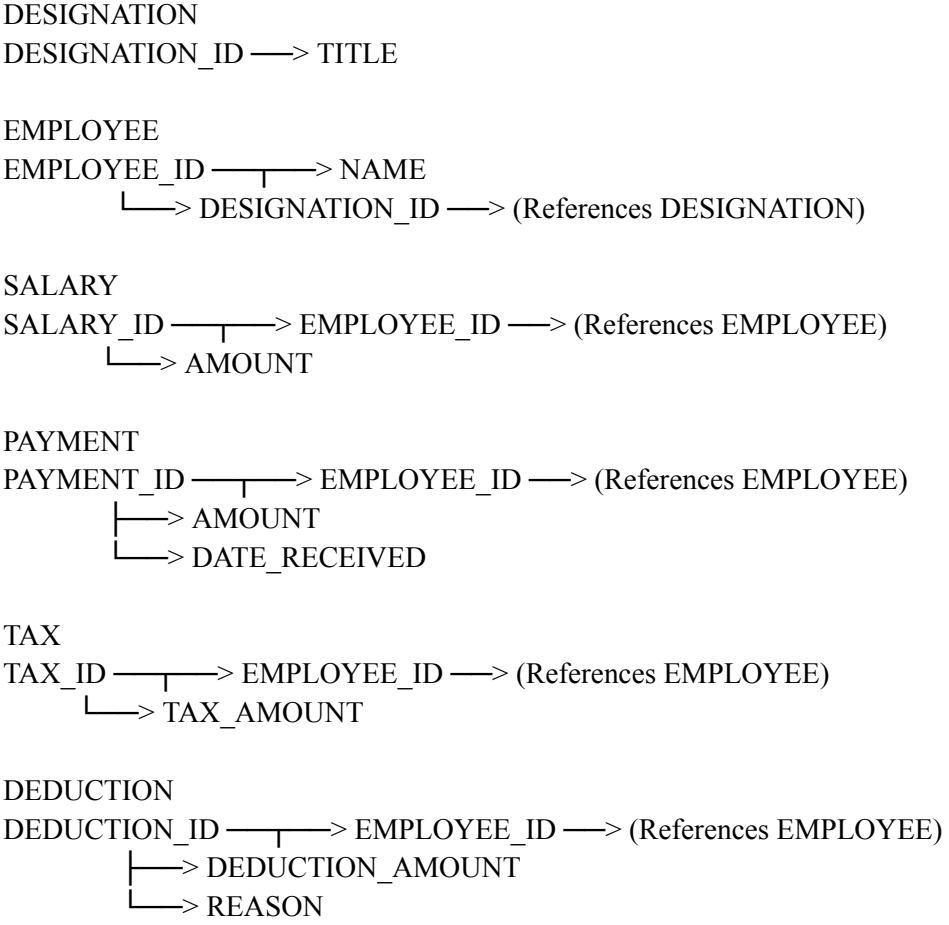
DEDUCTION:

- DEDUCTION_ID is the primary key.
- EMPLOYEE_ID is a foreign key and DEDUCTION_AMOUNT and REASON depend on DEDUCTION_ID.
- Conclusion: This table is in 3NF.

TABLES NOT listed in 3NF:

Based on the code, none of the tables seem to violate the rules of 3NF because each table has a primary key that all the other attributes are functionally dependent on.

Diagram format of the normalization: (functional dependency and relationships between different tables in the database)



Decomposition Diagram (3NF) TABLES:

EMPLOYEE

EMPLOYEE_ID	EMPLOYEE_NAME
E1	Alice
E2	Bob

FD: EMPLOYEE_ID -> EMPLOYEE_NAME

DEPARTMENT

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID
D1	HR	E3
D2	Engineering	E4

FD: DEPARTMENT_ID -> DEPARTMENT_NAME, MANAGER_ID

MANAGER

MANAGER_ID	MANAGER_NAME
E3	Charlie
E4	Dana

FD: MANAGER_ID -> MANAGER_NAME