UNIVERSITY DATABASE MANAGEMENT SYSTEM

Group Members

(Section 2)

Archit Agrawal (202051213)

Kalash Singh Jadoun (202051097)

Sarang Nagar (202051168)

Sahil Kumar Rai (202051167)

Sushil Kumar Patel (202051188)

Reporting TA : Amit Dwivedi

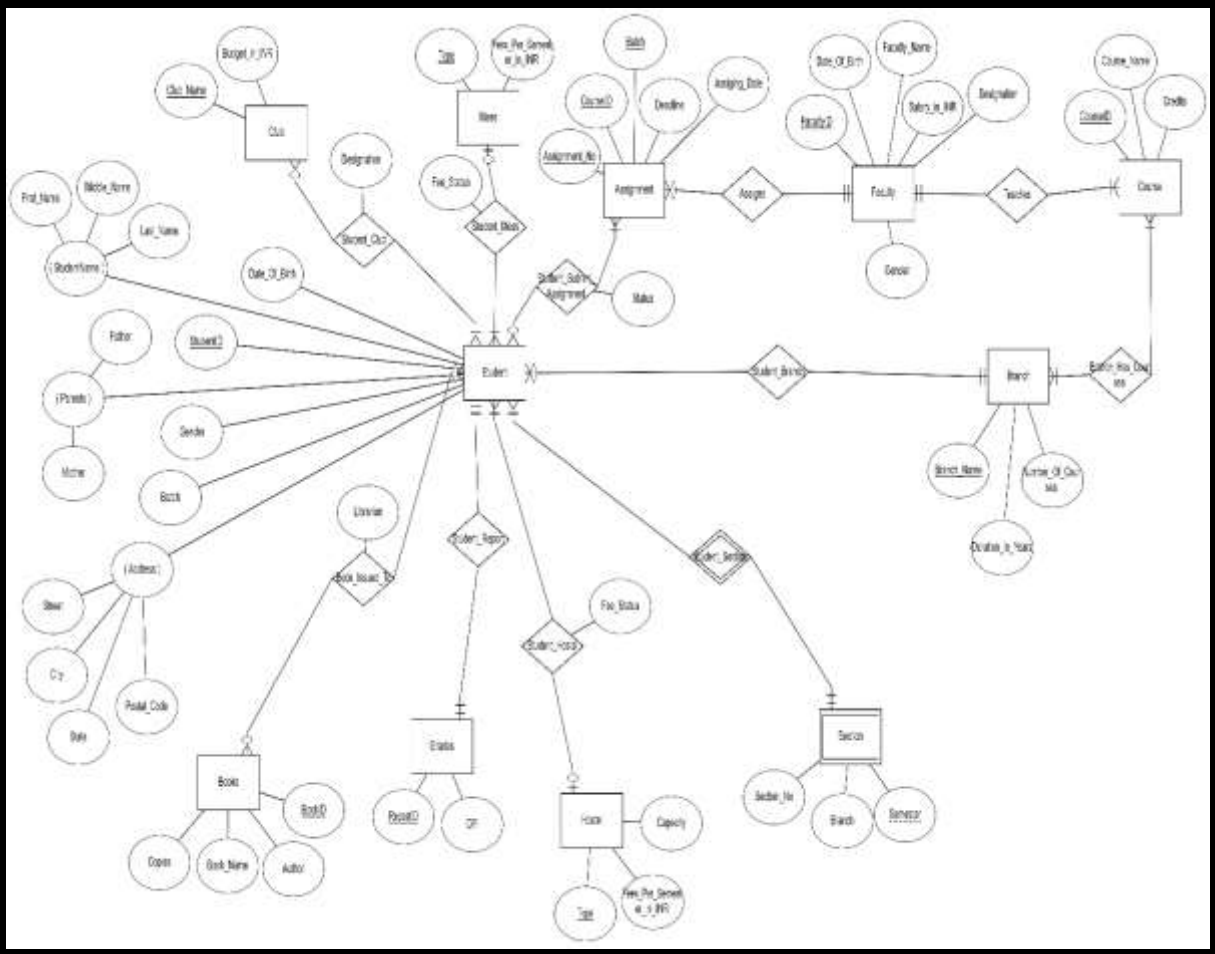
INTRODUCTION

University Database Management System is a MySQL database designed to handle the university records. The University Database Management System creates, manages and performs all the activities related to the database of a given university.

The database consists of information about the university, branches, students, faculties, courses, library, clubs etc. The main aim of this project is to manage the database in such a way that information can be retrieved and modified in an efficient way.

- ⇨ **Submitted in Previous Report**:
  - ER Diagram
  - Conversion from ER to Relational Model
  - MySQL Database
  - SQL Queries on the database
- ⇨ **This Report Includes**:
  - Modification in ER Diagram
  - A well-designed MySQL Database
  - Schema's of all the database tables
  - Functional Dependencies
  - Normalization (1NF, 2NF, 3NF and BCNF)

Entity-Relationship Diagram



(The ER diagram is also submitted separately in the zip file as it is not clearly visible here.)

We have increased the number of entities and relations according to our needs as we proceeded with the project.

MySQL Database

This report deals mainly with the functional dependencies and normalization. Hence, instead of pasting screenshots of all the database tables along with its data, we have just pasted the schemas of all the tables (there are 25 tables).

List of all tables in the database:

```
mysql> USE University_Database;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> SHOW TABLES;
+-------------------------------+
| Tables_in_University_Database |
+-------------------------------+
| Assignment                    |
| Assigns                       |
| Book_Issued_To                |
| Books                         |
| Branch                        |
| Branch_Has_Course             |
| Club                          |
| Course                        |
| Faculty                       |
| Grades                        |
| Hostel                        |
| Mess                          |
| Section                       |
| Student                       |
| Student_Address               |
| Student_Branch                |
| Student_Club                  |
| Student_Hostel                |
| Student_Mess                  |
| Student_Name                  |
| Student_Parents               |
| Student_Report                |
| Student_Section               |
| Student_Submits_Assignment    |
| Teaches                       |
+-------------------------------+
25 rows in set (0.00 sec)
```

As you can see, there are 25 tables overall. The description of all of the tables is pasted below.

```
mysql> DESC Assignment;
+-----------------+----------+------+-----+---------+-------+
| Field           | Type     | Null | Key | Default | Extra |
+-----------------+----------+------+-----+---------+-------+
| Assignment_No   | int      | NO   | PRI | NULL    |       |
| CourseID        | int      | NO   | PRI | NULL    |       |
| Batch           | year     | NO   | PRI | NULL    |       |
| Assigning_Date  | date     | YES  |     | NULL    |       |
| Deadline        | datetime | YES  |     | NULL    |       |
+-----------------+----------+------+-----+---------+-------+
5 rows in set (0.01 sec)

mysql> DESC Assigns;
+----------------+------+------+-----+---------+-------+
| Field          | Type | Null | Key | Default | Extra |
+----------------+------+------+-----+---------+-------+
| FacultyID      | int  | NO   | PRI | NULL    |       |
| Assignment_No  | int  | NO   | PRI | NULL    |       |
| CourseID       | int  | NO   | PRI | NULL    |       |
| Batch          | year | NO   | PRI | NULL    |       |
+----------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESC Book_Issued_To;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| StudentID | int         | NO   | PRI | NULL    |       |
| BookID    | int         | NO   | PRI | NULL    |       |
| Librarian | varchar(50) | NO   |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC Books;
+-----------+--------------+------+-----+---------+-------+
| Field     | Type         | Null | Key | Default | Extra |
+-----------+--------------+------+-----+---------+-------+
| BookID    | int          | NO   | PRI | NULL    |       |
| Book_Name | varchar(100) | NO   |     | NULL    |       |
| Author    | varchar(100) | YES  |     | NULL    |       |
| Copies    | int          | YES  |     | NULL    |       |
+-----------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> DESC Branch;
+------------------+-------------+------+-----+---------+-------+
| Field            | Type        | Null | Key | Default | Extra |
+------------------+-------------+------+-----+---------+-------+
| Branch_Name      | varchar(100) | NO   | PRI | NULL    |       |
| Duration_in_Years | int         | NO   |     | NULL    |       |
| Number_Of_Courses | int         | NO   |     | NULL    |       |
+------------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC Branch_Has_Course;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Branch_Name | varchar(100) | NO   | PRI | NULL    |       |
| CourseID    | int         | NO   | PRI | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> DESC Club;
+---------------+------------+------+-----+---------+-------+
| Field         | Type       | Null | Key | Default | Extra |
+---------------+------------+------+-----+---------+-------+
| Club_Name     | varchar(20) | NO   | PRI | NULL    |       |
| Budget_in_INR | int        | YES  |     | NULL    |       |
+---------------+------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> DESC Course;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| CourseID    | int         | NO   | PRI | NULL    |       |
| Course_Name | varchar(100) | NO   |     | NULL    |       |
| Credits     | int         | YES  |     | 0       |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> DESC Faculty;
+---------------+--------------+------+-----+---------+-------+
| Field         | Type         | Null | Key | Default | Extra |
+---------------+--------------+------+-----+---------+-------+
| FacultyID     | int          | NO   | PRI | NULL    |       |
| Faculty_Name  | varchar(100) | NO   |     | NULL    |       |
| Date_Of_Birth | date         | NO   |     | NULL    |       |
| Salary_in_INR | int          | YES  |     | NULL    |       |
| Designation   | varchar(50)  | NO   |     | NULL    |       |
| Gender        | varchar(20)  | YES  |     | NULL    |       |
+---------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql> DESC Grades;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| ReportID | int         | NO   | PRI | NULL    |       |
| CPI      | double(8,6) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> DESC Hostel;
+--------------------------+--------------+------+-----+---------+-------+
| Field                    | Type         | Null | Key | Default | Extra |
+--------------------------+--------------+------+-----+---------+-------+
| Type                     | varchar(100) | NO   | PRI | NULL    |       |
| Fees_Per_Semester_in_INR | int          | YES  |     | NULL    |       |
| Capacity                 | int          | YES  |     | NULL    |       |
+--------------------------+--------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC Mess;
+--------------------------+-------------+------+-----+---------+-------+
| Field                    | Type        | Null | Key | Default | Extra |
+--------------------------+-------------+------+-----+---------+-------+
| Type                     | varchar(50) | NO   | PRI | NULL    |       |
| Fees_Per_Semester_in_INR | int         | YES  |     | NULL    |       |
+--------------------------+-------------+------+-----+---------+-------+
2 rows in set (0.01 sec)
```

```
mysql> DESC Section;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| Section_No  | int          | NO   |     | NULL    |       |
| Branch_Name | varchar(100) | YES  | MUL | NULL    |       |
| Semester    | int          | YES  |     | NULL    |       |
| StudentID   | int          | YES  | MUL | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESC Student;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| StudentID     | int         | NO   | PRI | NULL    |       |
| Date_Of_Birth | date        | NO   |     | NULL    |       |
| Gender        | varchar(20) | NO   |     | NULL    |       |
| Batch         | year        | NO   |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESC Student_Address;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| StudentID   | int         | NO   | PRI | NULL    |       |
| Street      | varchar(50) | YES  |     | NULL    |       |
| City        | varchar(30) | NO   |     | NULL    |       |
| State       | varchar(30) | NO   |     | NULL    |       |
| Postal_Code | varchar(10) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> DESC Student_Branch;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| StudentID   | int          | NO   | PRI | NULL    |       |
| Branch_Name | varchar(100) | YES  | MUL | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> DESC Student_Club;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| StudentID   | int         | NO   | PRI | NULL    |       |
| Club_Name   | varchar(20) | NO   | PRI | NULL    |       |
| Designation | varchar(30) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC Student_Hostel;
+--------------------------+--------------+------+-----+---------+-------+
| Field                    | Type         | Null | Key | Default | Extra |
+--------------------------+--------------+------+-----+---------+-------+
| StudentID                | int          | NO   | PRI | NULL    |       |
| Type                     | varchar(100) | YES  | MUL | NULL    |       |
| Fee_Per_Semester_in_INR  | int          | YES  |     | 0       |       |
| Fee_Status               | varchar(20)  | YES  |     | NULL    |       |
+--------------------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESC Student_Mess;
+--------------------------+-------------+------+-----+---------+-------+
| Field                    | Type        | Null | Key | Default | Extra |
+--------------------------+-------------+------+-----+---------+-------+
| StudentID                | int         | NO   | PRI | NULL    |       |
| Type                     | varchar(50) | YES  | MUL | NULL    |       |
| Fee_Per_Semester_in_INR  | int         | YES  |     | 0       |       |
| Fee_Status               | varchar(20) | YES  |     | NULL    |       |
+--------------------------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)

mysql> DESC Student_Name;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| StudentID   | int         | NO   | PRI | NULL    |       |
| First_Name  | varchar(30) | NO   |     | NULL    |       |
| Middle_Name | varchar(20) | YES  |     | NULL    |       |
| Last_Name   | varchar(20) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

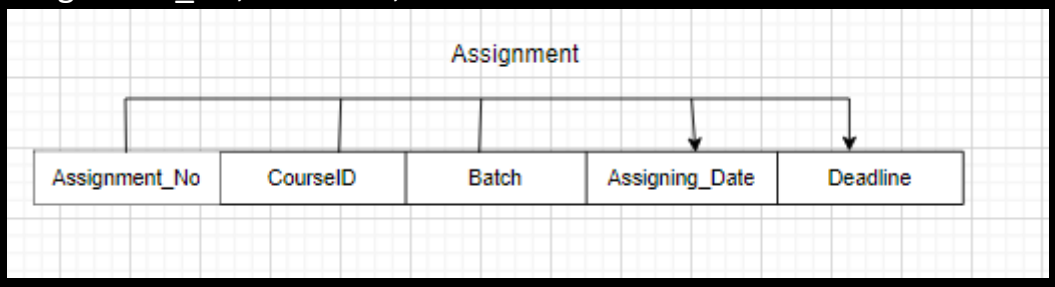
```
mysql> DESC Student_Parents;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| StudentID | int         | NO   | PRI | NULL    |       |
| Father    | varchar(50) | YES  |     | NULL    |       |
| Mother    | varchar(50) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> DESC Student_Report;
+-----------+------+------+-----+---------+-------+
| Field     | Type | Null | Key | Default | Extra |
+-----------+------+------+-----+---------+-------+
| StudentID | int  | NO   | PRI | NULL    |       |
| ReportID  | int  | NO   | PRI | NULL    |       |
+-----------+------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> DESC Student_Section;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| StudentID   | int          | NO   | PRI | NULL    |       |
| Section_No  | int          | YES  |     | NULL    |       |
| Branch_Name | varchar(100) | YES  | MUL | NULL    |       |
| Semester    | int          | NO   | PRI | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> DESC Student_Submits_Assignment;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| StudentID     | int         | NO   | PRI | NULL    |       |
| Assignment_No | int         | NO   | PRI | NULL    |       |
| CourseID      | int         | NO   | PRI | NULL    |       |
| Batch         | year        | NO   | PRI | NULL    |       |
| Status        | varchar(20) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> DESC Teaches;
+-----------+------+------+-----+---------+-------+
| Field     | Type | Null | Key | Default | Extra |
+-----------+------+------+-----+---------+-------+
| FacultyID | int  | NO   | PRI | NULL    |       |
| CourseID  | int  | NO   | PRI | NULL    |       |
+-----------+------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

Canonical Form of Functional Dependencies

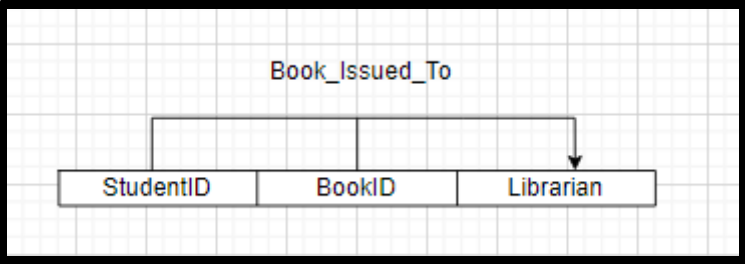
In this section, we have mentioned all the functional dependencies that are present in our database.

- In Table “Assignment”
  i) Assignment_No, CourseID, Batch → Assigning_Date
  ii) Assignment_No, CourseID, Batch → Deadline

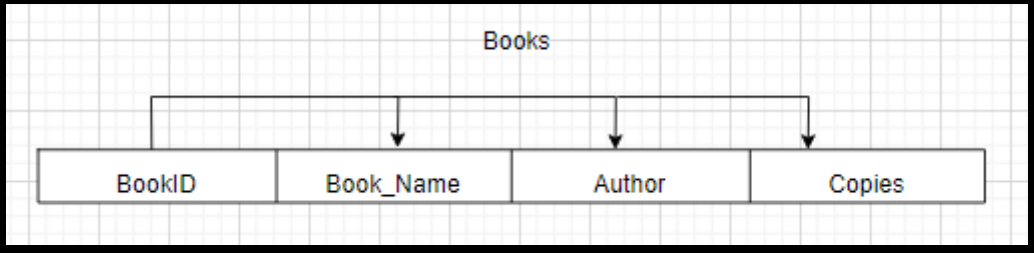


- In Table “Assigns”
  iii) Only Trivial (Reflexive) Functional Dependency

- In Table “Book_Issued_To”
  iv) StudentID, BookID → Librarian



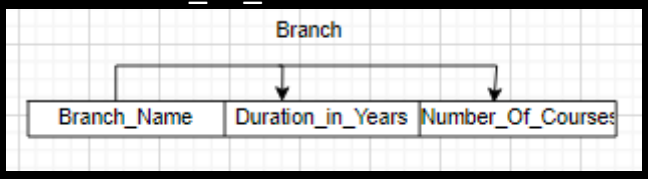
- In Table “Books”
  v) BookID → Book_Name
  vi) BookID → Author
  vii) BookID → Copies



- In Table “Branch”

  viii) Branch_Name → Duration_in_Years

  ix) Branch_Name → Number_Of_Courses

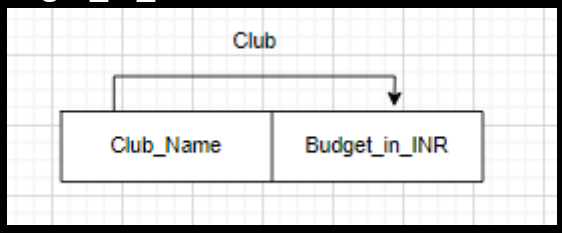


- In Table “Branch_Has_Course”

  x) Only Trivial (Reflexive) Functional Dependency

- In Table “Club”

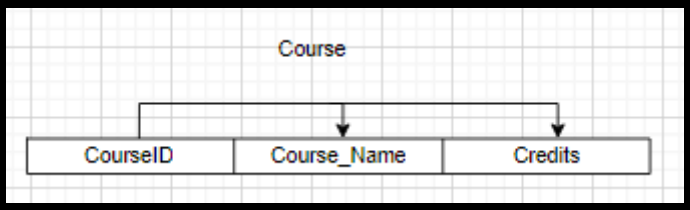
  xi) Club_Name → budget_in_INR



- In Table “Course”

  xii) CourseID → Course_Name

  xiii) CourseID → Credits



- In Table “Faculty”

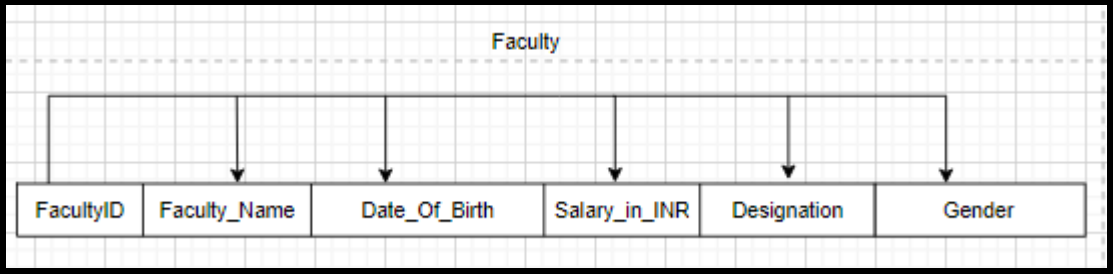
  xiv) FacultyID → Faculty_Name

  xv) FacultyID → Date_Of_Birth

  xvi) FacultyID → Salary_in_INR

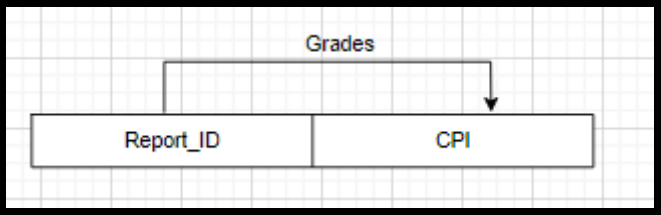
  xvii) FacultyID → Designation

  xviii) FacultyID → Gender



- In Table “Grades”

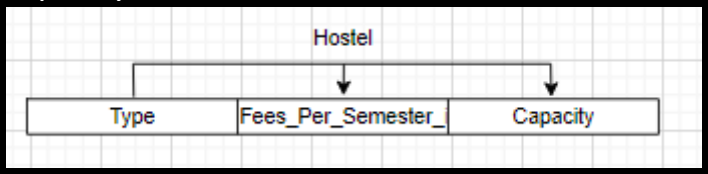
  xix) ReportID → CPI



- In Table “Hostel”

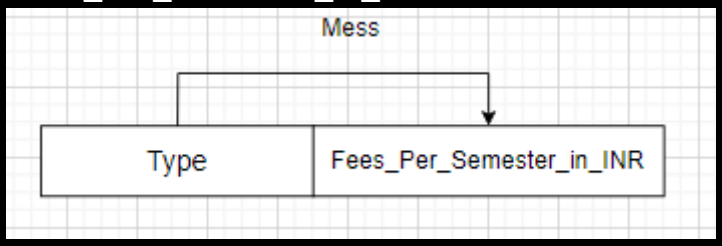
  xx) Type → Fees_Per_Semester_in_INR

  xxi) Type → Capacity



- In Table “Mess”

  xxii) Type → Fees_Per_Semester_in_INR

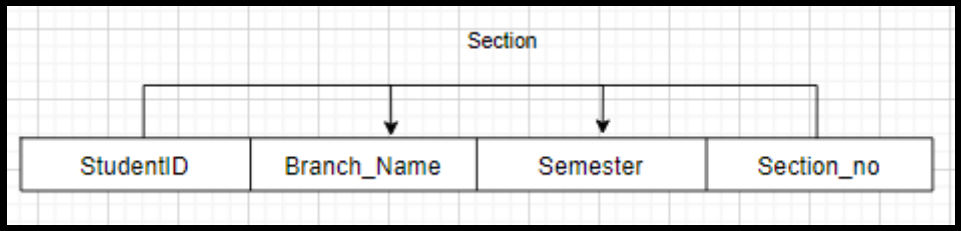


- In Table “Section”

  xxiii) StudentID → Section_No

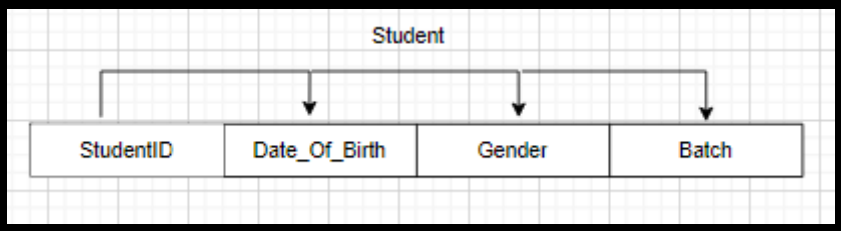
  xxiv) StudentID → Branch_Name

  xxv) StudentID → Semester



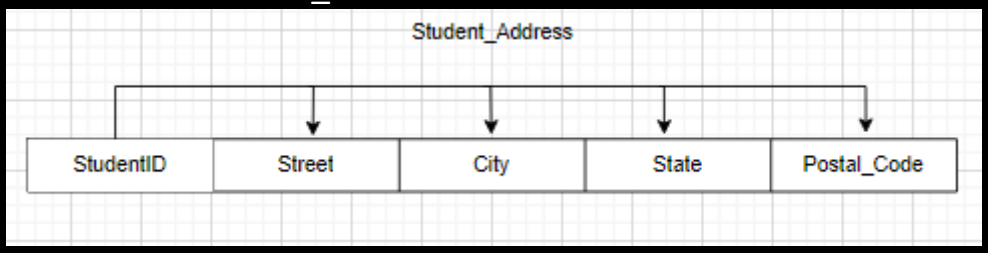
- In Table “Student”

xxvi) StudentID → Date_Of_Birth
xxvii) StudentID → Gender
xxviii) StudentID → Batch



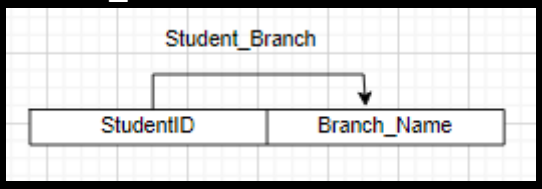
- In Table "Student_Address"

xxix) StudentID → Street
xxx) StudentID → City
xxxi) StudentID → State
xxxii) StudentID → Postal_Code



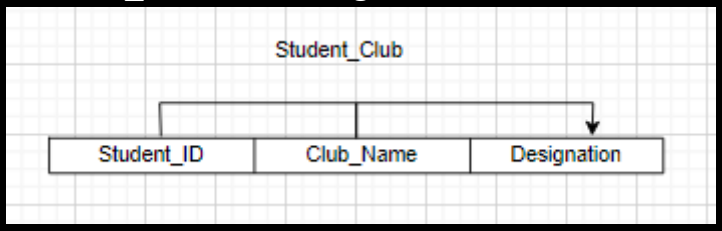
- In Table "Student_Branch"

xxxiii) StudentID → Branch_Name



- In Table "Student_Club"

xxxiv) StudentID, Club_Name → Designation

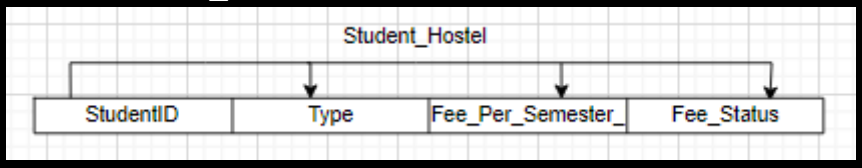


- In Table "Student_Hostel"

xxxv) StudentID → Type

xxxvi) StudentID → Fees_Per_Semester_in_INR

xxxvii)StudentID → Fee_Status

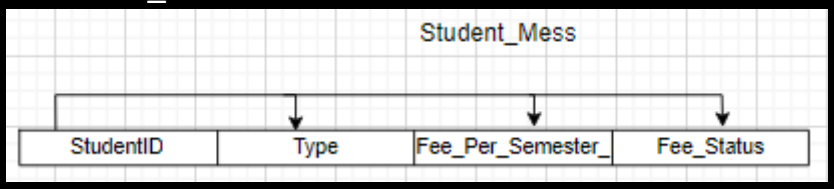


- In Table "Student_Mess"

xxxviii) StudentID → Type

xxxix) StudentID → Fees_Per_Semester_in_INR

xl) StudentID → Fee_Status

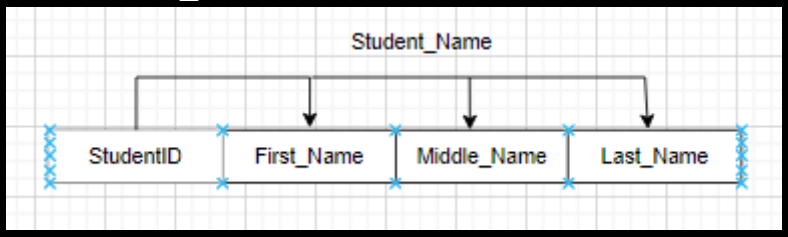


- In Table "Student_Name"

xli) StudentID → First_Name

xlii) StudentID → Middle_Name

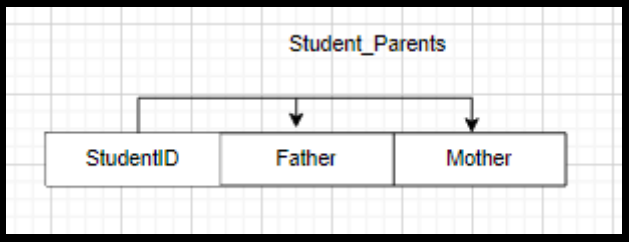
xliii) StudentID → Last_Name



- In Table "Student_Parents"

xliv) StudentID → Father

xlv) StudentID → Mother



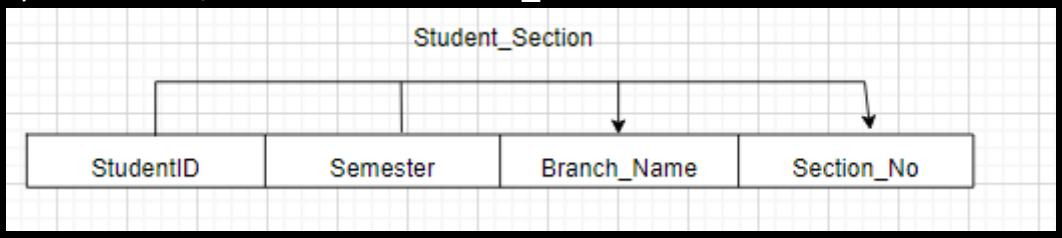
- In Table "Student_Report"

xlvi) Only trivial (reflexive) functional dependency.

- In Table “Student_Section”

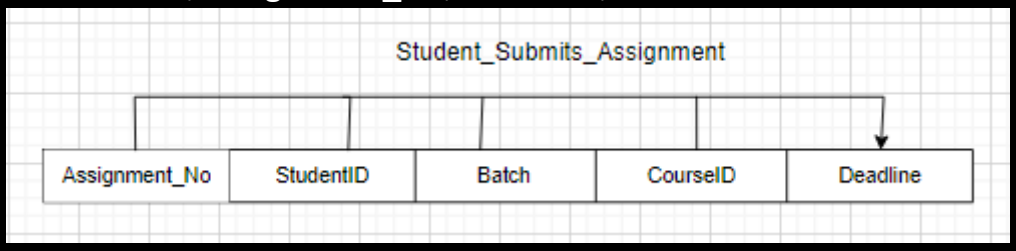
  xlvii) StudentID, Semester → Section_No

  xlviii) StudentID, Semester → Branch_Name



- In Table “Student_Submits_Assignment”

  xlix) StudentID, Assignment_No, CourseID, Batch → Status



- In Table “Teaches”

  l) Only trivial (reflexive) functional dependency.

Normalization

In this section, we have justified the normalization in our database for the relations. Below is our justification of normality for each relation.

⇨ For “Assignment”:

- 1NF:- Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs:- {Assignment_No → CourseID,Batch, Assigning_Date, Deadline}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF:- There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF:- Since Assignment_No is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

⇨ For “Book_Issued_To”:

- 1NF:- Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs:- {StudentID, BookId → Librarian}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF:- There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF:- Since, {student ID, BookID} is the primary key of the table, implies that it is a super key. Hence, the table is in BCNF.

⇨ For “Books”:

- 1NF:- Since, all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs:- {BookID → Book_Name, Author, Copies}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF:- There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF:- Since BookID is the primary key of the table, implies that it is a super key. Hence, the table is in BCNF.

⇨ For Branch

- 1NF:- Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs:- {Branch_Name → Duration_in_Years, Number_of_Course}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF:- There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

- BCNF:- Since Branch_Name is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

⇨ For Club

- 1NF:- Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs: - {Club_Name → Budget_in_INR}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF:- There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF:- Since Club_Name is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

⇨ For Course

- 1NF:- Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF:- FDs:- {CourseID → Course_Name, Credits}. This is already an FFD (since there is only one FD). Therefore, table is in 2NF.
- 3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF: - Since CourseID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

⇨ For Faculty

- 1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.
- 2NF: - FDs: - {FacultyID → > Faculty_Name, Date_of_Birth, Salary_in_INR, Designation, Gender}. This is already an FFD. (since there is only one FD). Therefore, table is in 2NF.
- 3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.
- BCNF: - Since FacultyID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Grades

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {Report_ID->CPI}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since Report_ID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_Hostel

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Type,Fee_Per_Semester,Fee_Status}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since StudentID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Mess

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {Type -> Fees_Per_Semester_in_INR}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since Type is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Section

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Branch_Name,Semester,Section_no}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since Section is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_ Address

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Street,city,State,postal code}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since student ID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_Branch

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID -> Branch_Name}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since StudentID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student _Club

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID,Club_Name -> Designation}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since student ID and Club_Name is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_Hostel

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Type,Fee_Per_Semester,Fee_Status}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since StudentID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_Mess

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Type,Fess_Per_Semseter,Fee_Status}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since student ID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student Name

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->First_Name,Middle_Name,Last_Name}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since student ID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_ Parents

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID ->Father ,Mother}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since student ID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.

For Student_Section

1NF: - Since all the attributes are atomic and single valued, therefore the table is already in 1NF.

2NF: - FDs: - {StudentID -> Semester,Branch_Name,Section}
This is already an FFD. (since there is only one FD)
Therefore, table is in 2NF.

3NF: - There is only one FD in the table therefore there is no Transitive dependency in the table. Hence, it is in 3NF.

BCNF: - Since StudentID is the primary key of the table, implies that it is a super key. Hence the table is in BCNF.