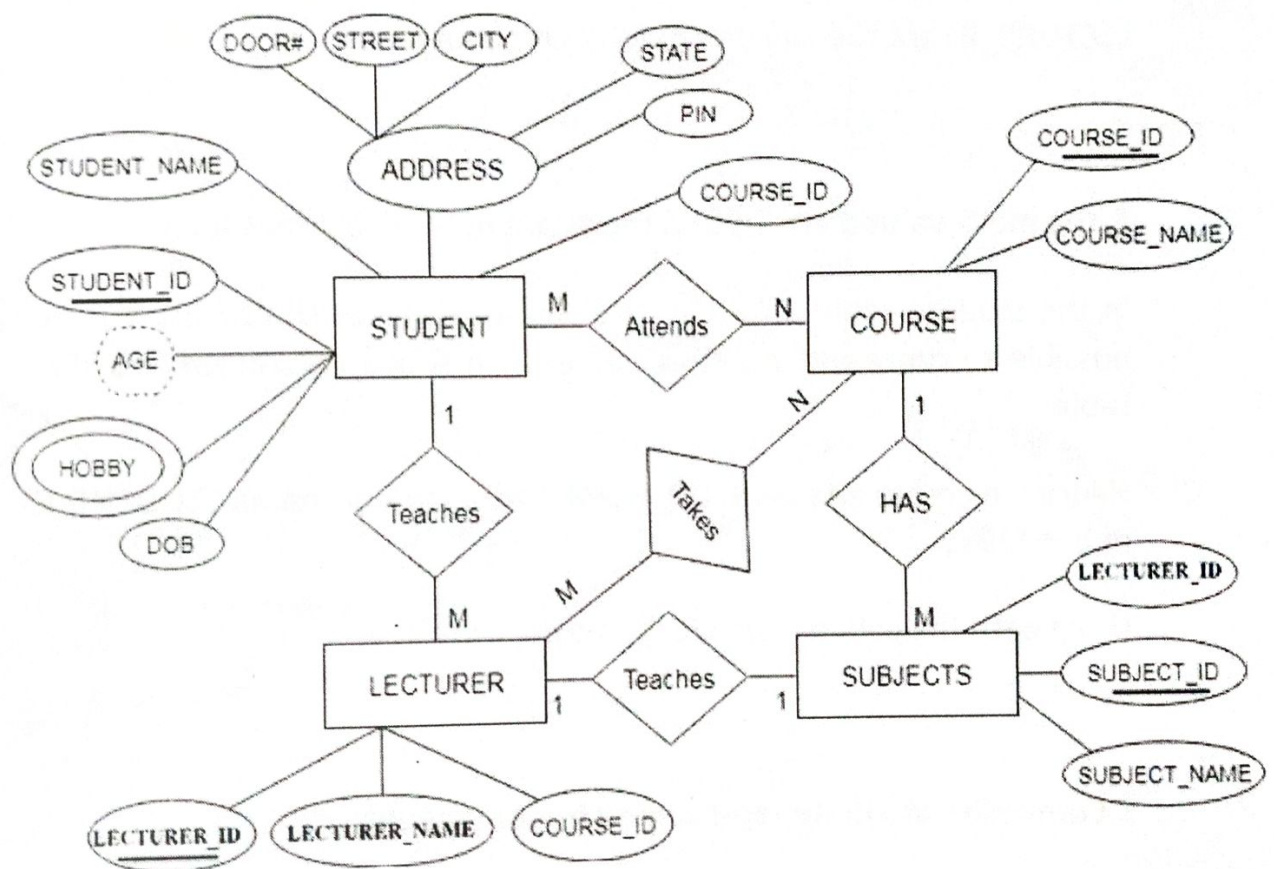## Reduction of ER diagram to Table

The database can be represented using the notations, and these notations can be reduced to a collection of tables.

In the database, every entity set or relationship set can be represented in tabular form.

The ER diagram is given below:

There are some points for converting the ER diagram to the table:

1.Entity type becomes a table.

In the given ER diagram, **LECTURE, STUDENT, SUBJECT and COURSE** forms individual tables.

2.All single-valued attribute becomes a column for the table.

In the **STUDENT** entity, **STUDENT_NAME** and **STUDENT_ID** form the column of **STUDENT** table.

Similarly, **COURSE_NAME** and **COURSE_ID** form the column of **COURSE** table and so on.

3.A key attribute of the entity type represented by the primary key.

In the given **ER** diagram, **COURSE_ID, STUDENT_ID, SUBJECT_ID,** and **LECTURE_ID** are the key attribute of the entity.

4.The multi-valued attribute is represented by a separate table.

In the student table, a **hobby is a multi-valued attribute.** So it is not possible to **represent multiple values in a single column of STUDENT** table.

Hence we create a table **STUD_HOBBY** with column name **STUDENT_ID** and **HOBBY.**

Using both the column, we create a composite key.

5.Composite attribute represented by components.

In the given ER diagram, **student address is a composite attribute.**

It contains **CITY, PIN, DOOR#, STREET,** and **STATE.** In the **STUDENT** table, these attributes can merge as an individual column.

6. Derived attributes are not considered in the table.

In the **STUDENT** table, **Age is the derived attribute.**

It can be **calculated at any point of time by calculating the difference between current date and Date of Birth.**

Using these rules, you can convert the ER diagram to tables and columns and assign the mapping between the tables.

Table structure for the given ER diagram is as below:

STUDENT
- STUDENT_ID
- STUDENT_NAME
- DOB
- DOOR #
- STREET
- CITY
- STATE
- PIN
- COURSE_ID

LECTURER
- LECTURER_ID
- LECTURER_NAME
- COURSE_ID

SUBJECT
- SUBJECT_ID
- SUBJECT_NAME
- LECTURER_ID

COURSE
- COURSE_ID
- COURSE_NAME

STUD_HOBBY
- STUDENT_ID
- HOBBY