

Assignment 3

Ques Design an ER diagram for an application that models an educational institute having several departments, faculty, students, projects, student hostels etc. Analyse the requirements by identifying the entities, attributes, relationships, keys, constraints etc. Apply extended entity-relationship features to the design. Defend your design with proper assumptions and justifications. Map the ER model into a relational model.

Assumptions :-

Following are entities for ER Diagram:-

- Student
 - Attributes:- Student ID, S_name, Contact, Age, DOB.
 - Student ID is prime attribute/key and Project ID is foreign key.
 - Age is derived and contact is multivalued attributes.
 - Student lives in Hostel.
- Department
 - Attributes :- D Code, D Contact no. , D Name, HOD, DOE.
 - D code is prime attributes.
 - Its contains students and Employees.
- Hostel
 - Attributes- Hostel ID, H Name , Total Student and Total Student.
 - Hostel ID is prime attributes and Student ID is foreign key..
- Project
 - Attributes- Project ID, project Name and Pro ID.
 - Project ID is prime attributes and Pro ID is foreign attributes..
- Employees
 - Attributes:- Em ID, Em Name and D Code.
 - Em ID is prime key and C code is foreign key.
- Teaching Staff
 - Attributes:- TS ID, Em ID and TS name.
 - Its contains compositional prime key i.e. TS ID and Em ID.
- Non- Teaching Staff
 - Attributes:- NST ID, Em ID and NTS Name
 - Its contains compositional prime key i.e. NTS ID and Em ID.
- Professor
 - Attributes:- Pro ID, TS ID and Pro Name
 - Its contains compositional prime key i.e. Pro ID and TS ID.
- Associate Professor
 - Attributes:- Ap ID, TS ID and Ap Name
 - Its contains compositional prime key i.e. Ap ID and TS ID.
- Medical Staff
 - Attributes:- MS ID , NTS ID, MS Name ,Gender
 - Its contains compositional prime key i.e. MS ID and NTS ID.
- Peon
 - Attributes:- Pe ID , NTS ID, Pe Name
 - Its contains compositional prime key i.e. Pe ID and NTS ID.

Steps followed during whole process:

1. Students Belongs to department and lives in hostel.
2. Employees Belongs to department and it is generalized into teaching and non-teaching staff, further they are generalized.
3. Project is undertaken by Student and Professor.