

ASSIGNMENT#1

Task 1: School Database with Students and Staff

Entities:

1. Student

- *Attributes:*

- Student_ID (Primary Key)
- First_Name
- Last_Name
- DOB (Date of Birth)
- Gender
- Address
- Phone_Number
- Email
- Enrollment_Date
- Class_ID (Foreign Key)

2. Staff

- *Attributes:*

- Staff_ID (Primary Key)
- First_Name
- Last_Name
- Gender
- DOB (Date of Birth)
- Address
- Phone_Number
- Email
- Hire_Date
- Role_ID (Foreign Key)

3. Class

- *Attributes:*
 - Class_ID (Primary Key)
 - Class_Name
 - Grade_Level
 - Section

Relationships and Cardinality:

- **Student – Class:**
 - A student is enrolled in one class.
 - Each class can have many students.
 - *Cardinality:* 1 (Class) : N (Students)
- **Staff – Class:**
 - A staff member may teach one or many classes.
 - Each class is typically assigned to one primary staff member.
 - *Cardinality:* 1 (Staff) : N (Classes) or 1 (Class) : 1 (Staff)

Task 2: School Database Managing Students, Departments, and Staff Roles

Entities:

1. Student

- *Attributes:*
 - Student_ID (Primary Key)
 - First_Name
 - Last_Name
 - DOB (Date of Birth)
 - Gender
 - Address
 - Email
 - Enrollment_Date
 - Department_ID (Foreign Key)

2. Department

- *Attributes:*
 - Department_ID (Primary Key)
 - Department_Name
 - Department_Head (Foreign Key referencing Staff_ID)

3. Staff

- *Attributes:*
 - Staff_ID (Primary Key)
 - First_Name
 - Last_Name
 - Gender
 - DOB (Date of Birth)
 - Address
 - Email
 - Hire_Date

- Role_ID (Foreign Key)
- Department_ID (Foreign Key)

4. Role

- *Attributes:*
 - Role_ID (Primary Key)
 - Role_Name
 - Description

Relationships and Cardinality:

- **Student – Department:**
 - Each student belongs to one department.
 - Each department can have many students.
 - *Cardinality:* 1 (Department) : N (Students)
- **Staff – Department:**
 - Each staff member is part of one department.
 - Each department can have multiple staff members.
 - *Cardinality:* 1 (Department) : N (Staff)
- **Staff – Role:**
 - Each staff member has one role.
 - A role can be assigned to many staff members.
 - *Cardinality:* 1 (Role) : N (Staff)

Task 3: School Database for Students, Departments, and Administrative Staff

Entities:

1. Student

- *Attributes:*
 - Student_ID (Primary Key)
 - First_Name
 - Last_Name
 - DOB (Date of Birth)
 - Gender
 - Address
 - Email
 - Phone_Number
 - Enrollment_Date
 - Department_ID (Foreign Key)

2. Department

- *Attributes:*
 - Department_ID (Primary Key)
 - Department_Name
 - Department_Head (Foreign Key referencing Staff_ID)
 - Location

3. Staff

- *Attributes:*
 - Staff_ID (Primary Key)
 - First_Name
 - Last_Name
 - Gender
 - DOB (Date of Birth)
 - Address

- Email
- Phone_Number
- Hire_Date
- Department_ID (Foreign Key)
- Position

4. **Administrative_Staff**

- *Attributes:*
 - Admin_ID (Primary Key)
 - Staff_ID (Foreign Key referencing Staff_ID)
 - Position
 - Department_ID (Foreign Key)

Relationships and Cardinality:

- **Student – Department:**
 - Each student belongs to one department.
 - Each department can have multiple students.
 - *Cardinality:* 1 (Department) : N (Students)
- **Staff – Department:**
 - A staff member is part of one department.
 - Each department can have multiple staff members.
 - *Cardinality:* 1 (Department) : N (Staff)
- **Administrative_Staff – Department:**
 - Administrative staff members are assigned to a department with specific administrative roles.
 - *Cardinality:* 1 (Department) : N (Administrative Staff)
- **Staff – Administrative_Staff:**
 - An administrative staff entry is associated with one staff member.
 - *Cardinality:* 1 (Staff) : 1 (Administrative_Staff)