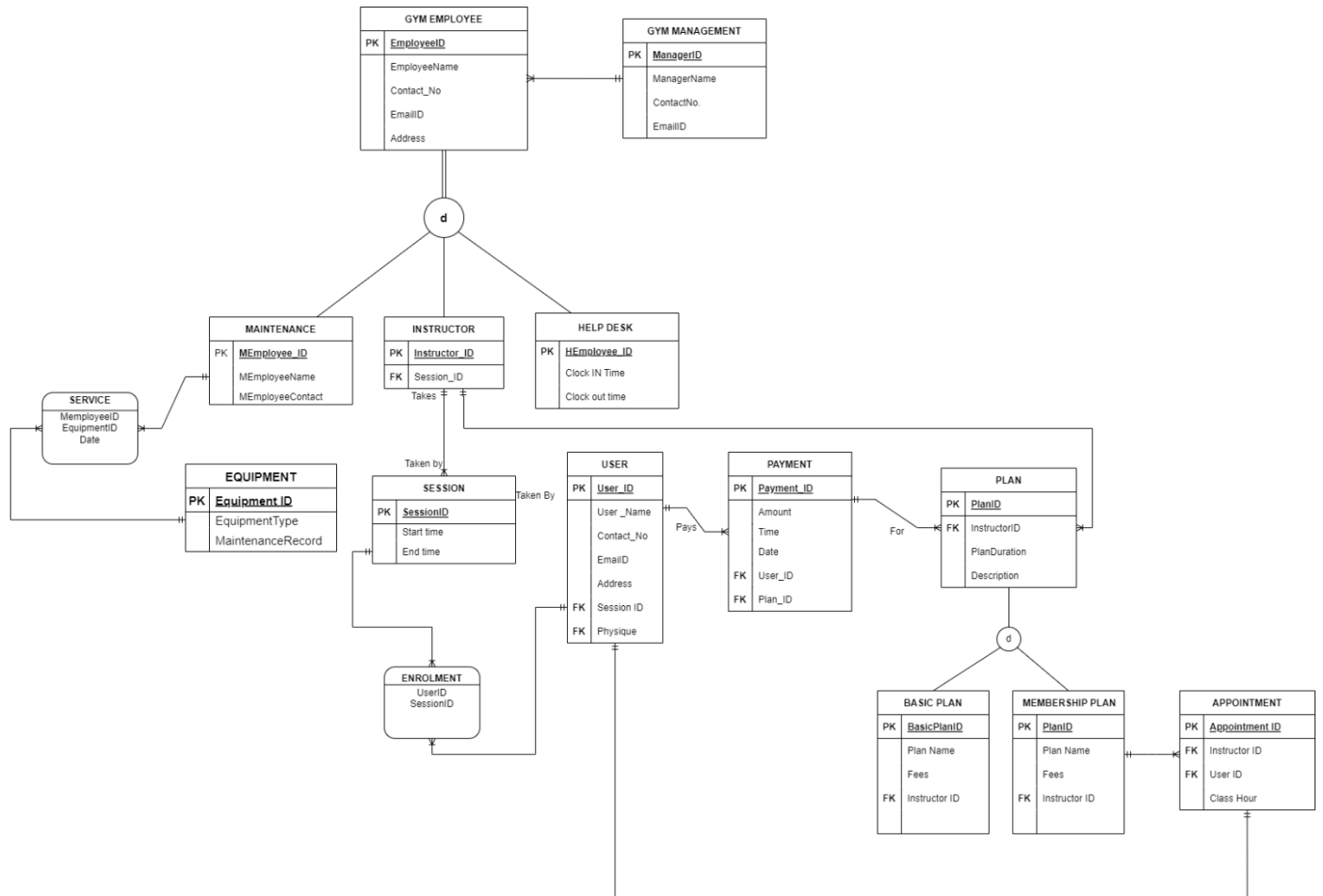


P2. DATABASE DESIGN AND INITIAL ERD

E-R DIAGRAM



The E-R Diagram of the GYM MANAGEMENT SYSTEM has the following entities and attributes:

ENTITIES	ATTRIBUTES
GYM EMPLOYEE	<u>EmployeeID</u> , EmployeeName, ContactNo, EmailID, Address
GYM MANGEMENT	<u>ManagerID</u> , ManagerName, ContactNo, EmailID
MAINTENANCE	MEmployeeName, MEmployeeContact
INSTRUCTOR	<u>InstructorID</u> , SessionID
HELP DESK	Clock In Time, Clock Out Time
PHYSIQUE	Age, Mass, BMI
EQUIPMENT	<u>EquipmentID</u> , EquipmentType, MaintenanceRecord
SESSION	<u>SessioID</u> , Start Time, End Time
USER	<u>UserID</u> , User_Name, Contact_No, EmailID, Address
PAYMENT	<u>PaymentI_ID</u> , Amount, Time, Date, User_ID, Plan_ID
PLAN	<u>PlanID</u> , InstructorID, PlanDuration, Description
BASIC PLAN	<u>BasicPlanID</u> , Plan Name, Fees, <u>Instructor_ID</u>
MEMBERSHIP PLAN	<u>PlanID</u> , Plan Name, Fees, <u>Instructor_ID</u>
APPOINTMENT	<u>Appointment_ID</u> , Instructor_ID, Customer_ID, <u>Class Hour</u>

- **GYM MANAGEMENT:**

Gym Management is the main Entity and has the details of the Gym Manager as it's attributes.

It is connected to "Gym Employee" entity which has all the details of the Employees.

- **GYM EMPLOYEE:**

Gym Employee is sub divided into 3 Categories:

- **MAINTENANCE:**

The Maintenance Employee's takes care of the maintenance of the Gym equipment and has "Name" and "Contact" as it's attributes. It is then connected to the Equipment Entity

- **EQUIPMENT:**

Equipment is the Gym Machinery which can be used by the users.

Equipment has "Equipment ID", "Type" and "Maintenance" records as its attributes.

- **HELP DESK:**

Help Desk Employees can be receptionists, IT Support or any support Employees. Help Desk has “Clock In” and “Clock out” time as the entities.

- **INSTRUCTOR:**

Instructor is an Employee who conducts different sessions for various users and this entity is connected to the Session Entity having “Session_ID” as a foreign key which is a primary key to the Session Entity.

SESSION:

Session Entity has the details of the start time and the time of different sessions and is connected to the USER Entity.

USER:

User Entity has the details of all the users and including “Name”, “Contact No”, “Email”, “Address”, “Session ID” and “Physique ID” as the foreign Keys.

The USER entity is then Connected to the PHYSIQUE Entity and PAYMENT Entity.

PHYSIQUE:

Physique Entity has the values of age, Mass and Body Mass Index of the User.

PAYMENT:

Payment entity has “Payment ID” as the primary key and it has amount, time, date as its attributes. It also has User_ID and Plan_ID as foreign keys which are primary keys to User Entity and Plan Entity respectively.

PLAN:

Plan Entity has Instructor_ID, Plan Duration and Description as it’s entities and it is sub divided into two entities:

Basic Plan and Membership Plan

BASIC PLAN:

It has Plan Name and Fees as the Entities and Instructor ID as the Foreign Key

MEMBERSHIP PLAN:

The Users who paid for the Membership Plan can get an individual appointment with the instructor and it has Plan Name and Fees as the Entities and Instructor Id as the foreign key.

This Entity is connected to the APPOINTMENT Entity

APPOINTMENT:

It has Appointment ID as the Primary key and Instructor ID and Customer ID as the foreign keys. It also has class hour as an entity which is the time of the appointment.

ASSOCIATIVE ENTITIES AND ITS RELATIONSHIPS

- **Enrolment**

The enrolment acts as an associative entity in between of session and user. The session can have many enrollments and enrollment need to have at least one session. Subsequently, enrollment must have one user end user can have multiple enrollments however, it should have at least one enrollment. In this way and enrolment entity acts as an associative entity between a session entity and user entity.

- **Service**

The Service acts as an associative entity in between of Maintenance and Equipment. The Maintenance entity can have many services and service must be provided by at least one maintenance team. Subsequently, service can be provided to multiple enrollments however, equipment can be multiple serviced. In this way and service entity acts as an associative entity between a maintenance entity and equipment entity.

Business problems addressed by Gym management database:

For a long time since the modernization in 1995, there has been a lot of technical improvement, and people all over the world have turned to computers rather than working on papers physically. Because technology was improving all the time and human labor was becoming obsolete in every element of the market, in the early days of the gym management system, paperwork was maintained for everyone's information storage about their routine, BMI calculations, and so on. However, as the world has turned towards technology, we now need to update ourselves to a greater level. As a result, we require an upgrade in gym administration to save data as needed and to be able to access it.

The Existing System has a few flaws, which are listed below:

- Manual labor is usually time consuming.
- There's a chance you'll make a mistake.
- As a result of the geographical limitation, data is not available ecumenically to both clients and staff.
- Everything is done on paper, which makes them incredibly vulnerable to fraud and necessitates a significant amount of security and storage space.
- Decrease in business growth.
- Hectic booking.
- Revenue issues.
- Time membership management.

This suggested system also stores all the information about the Equipment and the data of the instructors. The Gym services are likewise managed by this system. It made it simple to generate

reports for different activities carried out in the gym, such as paying the membership cost, which could be saved and then analyzed to provide a list of members who had not paid the membership price. It also aids users in decreasing their carbon footprint by minimizing the amount of paper consumed in the workplace. This also aids in maintaining the management system's standard in the event that the administration enlists the assistance of more than one individual to run the gym. Members can choose from a variety of alternatives, including attendance and fee payment changes, session requests, and so on. This would increase member transparency, which is always a beneficial aspect in the system.