**Entities and Their Attributes:**

1. **Gym**
   * **Attributes**:
     + Gym Name (Primary Key)
     + Address
     + Phone Number
2. **Member**
   * **Attributes**:
     + Member ID (Primary Key)
     + Last Name
     + First Name
     + Address
     + Date of Birth
     + Gender
   * **Relationship**: A member is associated with exactly one gym (Many-to-One relationship with Gym).
3. **Session**
   * **Attributes**:
     + Session ID (Primary Key)
     + Sport Type
     + Schedule
     + Maximum Capacity (fixed to 20 members)
   * **Relationship**: A session is held at exactly one gym (Many-to-One relationship with Gym).
4. **Coach**
   * **Attributes**:
     + Coach ID (Primary Key)
     + Last Name
     + First Name
     + Age
     + Specialty
   * **Relationship**: A coach can lead multiple sessions (Many-to-Many relationship with Session).

**Relationships:**

1. **Gym-Session**: A gym can host multiple sessions (One-to-Many from Gym to Session).
2. **Gym-Member**: A member is registered at one gym (Many-to-One from Member to Gym).
3. **Session-Member**: A session can have multiple members (Many-to-Many relationship between Member and Session, with a limit of 20 members per session).
4. **Session-Coach**: A session can be led by up to two coaches (Many-to-Many relationship between Session and Coach).

**ER Diagram Design**

* **Gym** (Gym Name, Address, Phone Number) 1----N **Session** (Session ID, Sport Type, Schedule, Max Capacity)
* **Gym** 1----N **Member** (Member ID, Last Name, First Name, Address, DOB, Gender)
* **Session** M----M **Member** (Member ID, Last Name, First Name, Address, DOB, Gender)
* **Session** M----M **Coach** (Coach ID, Last Name, First Name, Age, Specialty)

**Explanation:**

1. **Gym Entity**: Represents each gym with its name, address, and phone number. Each gym can host multiple sessions and have multiple members.
2. **Member Entity**: Represents the gym members with their unique ID, personal details (name, address, date of birth, gender), and links to the gym they are registered at.
3. **Session Entity**: Represents the various fitness sessions, identified by a session ID, sport type, schedule, and a maximum capacity of 20 members. Each session takes place at a specific gym and can have many members.
4. **Coach Entity**: Represents the coaches leading sessions, identified by a unique coach ID, their personal details (name, age, specialty). A session can have up to two coaches.