### Entity-Relationship Diagram (ERD)

**Below is the textual representation of the ERD:**

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| Gymnasium | | Member | | Coach | | Session | | Session\_Member |

+------------+ +------------+ +------------+ +------------+ +------------+

| Gym\_ID (PK) |<---->| Member\_ID (PK) |<----->| Coach\_ID (PK) |<----->| Session\_ID (PK) | | Session\_ID (PK) |

| Name | | Last\_Name | | Last\_Name | | Sport\_Type | | Member\_ID (PK) |

| Address | | First\_Name | | First\_Name | | Schedule | +------------+

| Phone\_Num | | Address | | Age | | Gym\_ID (FK) |

+------------+ | DOB | | Specialty | +------------+

| Gender | +------------+ +------------+

| Gym\_ID (FK) | +------------+ | Session\_Coach |

+------------+ | Session\_ID (PK) |

| Coach\_ID (PK) |

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**Entities and Attributes**

1. **Gymnasium**
   * Gym\_ID (Primary Key)
   * Name
   * Address
   * Phone\_Number
2. **Member**
   * Member\_ID (Primary Key)
   * Last\_Name
   * First\_Name
   * Address
   * Date\_Of\_Birth
   * Gender
   * Gym\_ID (Foreign Key)
3. **Coach**
   * Coach\_ID (Primary Key)
   * Last\_Name
   * First\_Name
   * Age
   * Specialty
4. **Session**
   * Session\_ID (Primary Key)
   * Sport\_Type
   * Schedule
   * Gym\_ID (Foreign Key)
5. **Session\_Member** (Associative Entity to handle many-to-many relationship between Session and Member)
   * Session\_ID (Composite Primary Key, Foreign Key)
   * Member\_ID (Composite Primary Key, Foreign Key)
6. **Session\_Coach** (Associative Entity to handle many-to-many relationship between Session and Coach)
   * Session\_ID (Composite Primary Key, Foreign Key)
   * Coach\_ID (Composite Primary Key, Foreign Key)

**Relationships**

* A **Gymnasium** has many **Members**. Each **Member** is associated with one **Gymnasium**.
* A **Gymnasium** hosts many **Sessions**. Each **Session** is held at one **Gymnasium**.
* A **Session** accommodates many **Members** and each **Member** can register for many **Sessions**.
* A **Session** is led by one or two **Coaches** and each **Coach** can lead multiple **Sessions**.