**Gym Database Application**

**- Explanation of Modifications to ER Diagram -**

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**Introduction:**

In this document, we highlight key modifications made to our Entity-Relationship Diagram (ERD) since the previous deliverable.

**Modification in Office entity:**

The change from "office\_hours" to "office\_hours\_start\_time" and "office\_hours\_end\_time" was made for increased precision and clarity in representing time-related data regarding the office entity (since when you read office\_hours you don’t think of a specific type). The new attributes specifically capture the starting and ending times of office hours.

**Modification in Equipment entity:**

In the "Equipment" entity, we added two attributes: "check\_interval\_days" to track maintenance intervals for each piece of equipment and the second attribute "barcode" for unique identification (that comes with a piece of equipment when bought).

**Modification in Employee entity:**

We removed the "days\_off" attribute from the employee entity because it required deciding in advance how many days an employee would take off. This became problematic when employees changed their plans—for example, if they initially requested a longer period but later decided on a shorter one.

**‘Associated\_with’ a ternary relationship instead of a binary relationship:**

The initial binary relationship 'Associated with' in the ERD was overly simplistic, assuming a one-to-one mapping between disciplines and training spaces. This approach implied creating new spaces for each discipline, which is impractical. To address this, we transitioned to a ternary relationship by introducing the session entity. This modification allows for a more realistic representation where different disciplines can share the same training space during various sessions. The session entity also enables accurate tracking of each discipline's sessions, providing a more effective representation for a gym database.

**Adding the attribute locker\_id for the Rents relationship:**

The addition of the "locker\_id" attribute to the "Rents" relationship serves the purpose of tracking the specific locker rented by a customer.

**Enhancing readability:**

We increased the font size for entities in our ERD to improve readability. This adjustment enhances the visual clarity of the diagram, making it easier for whoever wants to read our ERD to identify and understand the entities immediately, we also renamed the attributes to make them more meaningful.