



3NF Normalization:

Members:

$\text{member_id} \rightarrow \{\text{name, gender, email, phone, fitness_goal}\}$

Trainers:

$\text{trainer_id} \rightarrow \{\text{name}, \text{gender}, \text{email}, \text{phone}, \text{specialization}\}$

Admin:

$\text{staff_id} \rightarrow \{\text{name}, \text{gender}, \text{email}, \text{phone}, \text{role}\}$

Rooms:

$\text{room_id} \rightarrow \{\text{room_name}, \text{capacity}, \text{status}\}$

HealthMetrics:

$\text{metric_id} \rightarrow \{\text{member_id}, \text{date_recorded}, \text{height}, \text{weight}, \text{heart_rate}, \text{body_fat_percentage}\}$

PersonalTrainingSessions:

$\text{session_id} \rightarrow \{\text{member_id}, \text{trainer_id}, \text{room_id}, \text{staff_id}, \text{session_date}, \text{start_time}, \text{end_time}, \text{status}\}$

Therefore all of these functional dependencies are fully functional so no partial keys mapping to non PK attributes. Also there is no transitive dependency on non PK attributes which means this is In **3NF**