Sports Ground Reservation and Parking System

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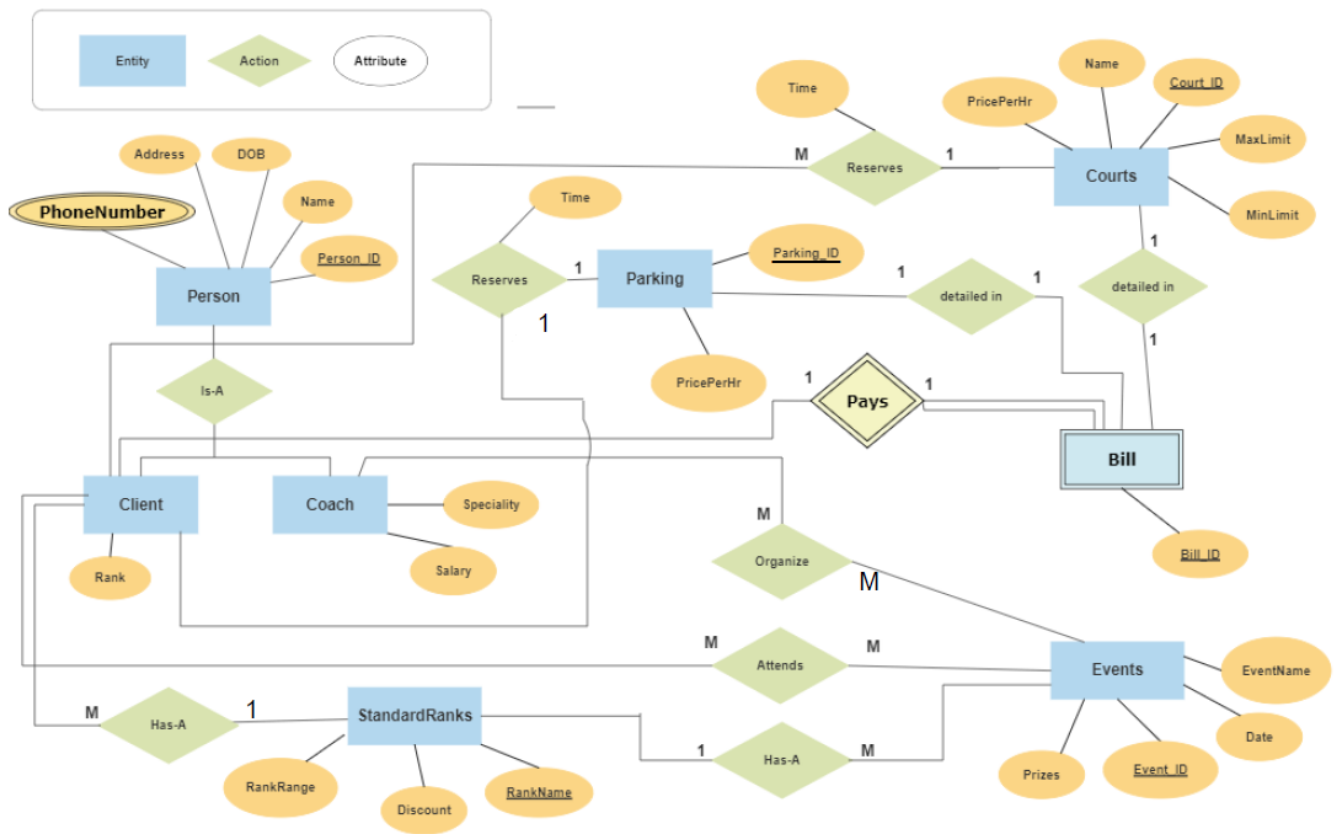
Brief Description:

Our project's main purpose is to facilitate the interaction between people and the things they love to do. Nowadays, many people are into sports whether it's for fun, a hobby or any other reason, which has deprived many people from enjoying their time due to lack of organization. For instance, people could go to a certain court and find it completely booked. Therefore, our project is a system designed for such sport grounds that has many courts to be rented. The system contains a number of entities and relations that represent clients and coaches' data, events, courts information. It also contains a rank for each client to be provided by a voucher later. Adding to this, we wanted to ease it for car owners, so we've made a parking system that helps the user to choose the best parking slot for him/her. An invoice is then printed containing the bill details for the court and the parking slot rent per hour.

Business Rules:

1. A person is identified by a unique ID, and their names, date of birth, age, address.
2. Each person could have more than one phone number.
3. Each person is either a coach or a client.
4. A coach has a specialty and a salary.
5. A client has a rank, rank name and a parking ID.
6. There are standard ranks identified by rank name, rank range and discount.
7. A court is identified by a court ID, name, price per hour, maximum and minimum limit of players.
8. For each bill client ID, court ID, court name, and a parking ID must be recorded and the bill ID identifies a bill uniquely.
9. Events are identified by event name, date, person ID, rank name and prizes.
10. Each client pays a bill and each bill is paid by only one client.
11. Clients could reserve one court and a court could be reserved by many clients.
12. Each client could only reserve a parking slot.
13. Clients have ranks. Many clients could have the same rank. But each client has only one rank.
14. Clients attend events. Many clients could attend one event. But only one event is attended by several clients at a time.
15. Several coaches organize several events.

ERD:

Legend: Entity, Action, Attribute

Person attributes: Address, DOB, Name, PhoneNumber, Person_ID

Courts attributes: Time, Name, PricePerHr, Court_ID, MaxLimit, MinLimit

Parking attributes: Time, Parking_ID, PricePerHr

Client attribute: Rank

Coach attributes: Speciality, Salary

StandardRanks attributes: RankRange, Discount, RankName

Events attributes: EventName, Date, Event_ID, Prizes

Bill attribute: Bill_ID

Relationships: Reserves (M:1), Reserves (1:1), detailed in (1:1), Pays (1:1), Is-A, Organize (M:M), Attends (M:M), Has-A (M:1), Has-A (1:M)

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Relational Mapping:

Person

Person_ID	Name	DOB	Address

Client

Client_ID	CName	CDOB	CoAddr	Rank	CourtIDReserved	Time	SRankName

Coach

Coach_ID	CoName	Co_DOB	Co_Addr	Salary	Speciality

Parking

Parking_ID	PricePerHr	Client_ID

Courts

Court_ID	Name	PricePerHr	Maxlimit	Minlimit

Bill (weak entity)

Client_ID	Bill_ID	Parking_ID	Court_ID

Events

Event_ID	EventName	Date	Prizes	StandardRankName

Standard Ranks

RankName	RankRange	Discount

Attends

Client_ID	Event_ID

Organize

Coach_ID	Event_ID

Person_Phone_num

Person_ID	Phone