

**Problem Statement:** Assuming the role of a music agency that organizes shows, design a database that satisfies the following requirements - identify the entities, relationships and maximum cardinalities (one or many)

- *A show can have multiple concerts, each by a band. Each show may have one (or more) featured bands.*
- *You contract with bands through their agents. You pay the agents based on invoices they send.*
- *You sell tickets to the shows.*
- *A band may release an album at a show. A band may promote/sell albums at a show. (you want to track these because you get a cut of the revenues).*
- *Each concert may use backing bands.*
- *You can potentially expand this in either direction: one - focusing on the event management angle, thinking of other things that you need to keep track of when organizing a show (think of who you might pay, and where you make money, and you will start to see new possibilities for entities and relationships)*
- *two - focusing on bands, and albums, expanding further into music industry (genre, track, individual performer, label, etc are possibilities)*

**ER modeling  
for music event management:**

Entities identified:

Event, Customer, Concert, Band, Members, Album, Agent, Contract, Transaction(Supertype), Tickets(Subtype), Album sale(Subtype), band\_receipt(Subtype), Venue

Entity set description:

Event: We assume the role of an agency that organizes shows/events

Event
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Event_id (PK)
Event_name
Start_time
End_time

Customer :

Customer
Event_id (FK)
Ticket_id(FK)
Customer_name
Contact_number

Concert - An event can have multiple concerts

Concert
Concert_id (PK)
Concert_name
Start_time
End_time
Event_id(FK)
Band_id(FK)

Band: Creating a separate entity because each event may have one or more featured bands.

Band
Band_id (PK)
Band_name
No_of_artists
Agent_id(FK)

Members - A band can have one or many performers

Members
Member_id (PK) Member_name genre/instrument Contact number Band_id(FK)

Album : A band may release an album at a show. A band may promote/sell albums at a show. (you want to track these because you get a cut of the revenues).

Album
Album_id (PK) Album_name release_date Band_id(FK)

Agent : You contract with bands through their agents. You pay the agents based on invoices they send.

Agent
Agent_id (PK) Agent_name Contact number

Contract:

Contract
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Contract_id (PK) No of shows Agent_id(FK) Band_id(FK)
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Invoice - Connecting invoice to both contract and concert.

Invoice
Invoice_id (PK) Amount to be paid Contract_id(FK) Concert_id(FK)

Creating a transaction supertype which connects to events and customers.

Transaction
Transaction_id(PK) Event_id (FK) Transaction_date

Subtypes of transaction - Album sale and tickets. Album sale connects to entity album

Album_sale
Album_id (FK) no_of_copies_sold Album_unit_price

Tickets : You sell tickets to the Events.

Tickets
Ticket_id (PK) Seat_no Ticket_price

Band receipt: Amount paid to band for each concert

Band receipt
Receipt_id (PK) Invoice_id(FK) Amount paid

Venue:

Venue
Venue_id (PK) Venue_name Address Hourly_rent Event_id(FK)

**ER diagram (drawn using Lucid Chart)**

