Data Book

Database Narrative

Database Description :

Event Management Database Narrative :

The event management database designed for an arena such as Lucas Oil Stadium stores detailed information about past, ongoing, and future events taking place across multiple venues within the same arena. The database updates its values in real time, ensuring that event schedules, staff assignments, and organizational activities remain fully interconnected. Lucas Oil Stadium hosts multiple events each week. The major ones take place on the main field at the center of the stadium and are categorized in the database as field events—examples include NFL games, concerts, and WrestleMania. All other events are classified as indoor events and occur in exhibit halls, meeting rooms, terraces, and club lounges. These typically include corporate events, wedding receptions, networking sessions, and private parties.

For this database, it is assumed that all staff members are internal employees of the stadium. They are categorized into front-end and back-end staff. Front-end staff are those who interact directly with the audience and guests, handling responsibilities such as crowd management, ushering, registration, public relations, and hospitality services. Back-end staff manage technical operations behind the scenes, including maintenance, logistics, security, IT, and power supply. One event can have many staff members assigned, but each staff member can work on only one event at a time.

The attendees are the individuals participating in or attending events, whether public or private. However, only public events generate tickets and payments in this database. Tickets are therefore created and booked exclusively by attendees of public events. For private events, no tickets are generated; instead, attendee information is recorded through guest lists provided by the event organizer. One attendee may have several bookings and tickets, but each booking and ticket is linked to only one attendee. Every payment is associated with a booking to maintain a clear and efficient financial structure.

The database supports three booking and payment status options: Pending, Completed, and Cancelled, determined based on booking date and expiry time. For public events, a 30-minute expiry time limit is set for each booking to define how long a booking can remain pending without payment. A booking is considered confirmed only when its corresponding payment is successfully processed. All events are overseen by both a stadium-assigned event coordinator and the event organizer. They work collaboratively to manage sponsors, staff, and vendors. Multiple events can be sponsored by multiple sponsors; this many-to-many relationship is implemented through the bridge entity EVENT_SPONSOR.

Facilities represent predefined locations within Lucas Oil Stadium, each hosting specific types of events. These facilities are divided into four main categories: Event Level, Street Level, Upper Suite Level, and Terrace Level. The database ensures that whenever an event is scheduled, the appropriate facility is automatically allocated. Facility services refer to the various services provided by vendors and contractors that are essential to hosting an event. These include catering, lighting, internet and data services, and transportation. Each service booked is linked to its corresponding event and vendor through relational attributes. A pricing model attribute specifies how the vendor charges for that service—per event, per person, or hourly.

The Event Management Database consists of 13 main tables—EVENT, EVENT_COORDINATOR, ORGANIZER, STAFF, ATTENDEE, TICKET, BOOKING, PAYMENT, FACILITY, FACILITY_SERVICE, VENDOR, SPONSOR, and EVENT_SPONSOR—along with subtypes such as FIELD_EVENT, INDOOR_EVENT, FRONT_END_STAFF, and BACK_END_STAFF. This relational structure ensures real-time data updates and accurate reporting of all ongoing activities and events within the stadium. Overall, the database functions as a comprehensive information system that unifies all aspects of event management under a single relational model. It not only supports operational efficiency for large-scale venues like Lucas Oil Stadium but also enables data-driven insights by providing accurate, timely insights into attendance, revenue, staffing, and resource utilization.

Data Dictionary :

Table Name	Attribute Name	Contents	Data Type	Format	Range	Required	PK/FK	Reference
EVENT	EVENT_ID	Unique ID for each event	INT(6)	999999	1–999999	Y	PK	
	EVENT_NAME	Name of the event	VARCHAR(50)	Xxxxxx		Y		
	EVENT_TYPE	Type of event	ENUM('Field Event','Indoor Event')	Xxxxxx	"Field Event", "Indoor Event"	Y		
	EVENT_DATE	Date and time of the event	DATETIME	Yyyy-mm-dd hh:mm:ss		Y		
	FACILITY_ID	Facility hosting the event	VARCHAR(4)	EH1,EH2…		Y	FK	FACILITY
	ORG_ID	Event Organizer ID	INT(5)	99999	1–99999	Y	FK	ORGANIZER

	EVENT_CAPACITY	Maximum attendees allowed	INT(5)	99999	1–99999	Y		
	EVENT_STATUS	Event Status	VARCHAR(20)	Xxxxxx		Y		
	EVENT_ACCESS	Event Accessibility	ENUM('Public', Private')	Xxxxxx	“Public”, “Private”	Y		
FIELD_EVENT	EVENT_ID	Unique ID for each event	INT(6)	999999	1-999999	Y	PK/FK	
	FIELD_TYPE	Type of surface used	VARCHAR(30)	Xxxxxx		Y		
	FIELD_AREA	Portion of field used	VARCHAR(10)	Xxxxxx		Y		
	FIELD_ROOF	Retractable Roof open or closed	ENUM('yes','No')	Xxxxxx		N		
INDOOR_EVENT	EVENT_ID	Unique ID for each event	INT(6)	999999	1-999999	Y	PK/FK	EVENT
	INDOOR_CAPACITY	Seating Capacity	INT(4)	9999	1-5000	Y		
	INDOOR_FLOOR_NUM	Floor Number of Hall	INT(2)	99	0-10	N		
STAFF	STAFF_ID	Staff Assignment Unique Identifier	INT(6)	999999	0-999999	Y	PK	
	STAFF_FNAME	Staff first name	VARCHAR(20)	Xxxxxx		Y		
	STAFF_LNAME	Staff last name	VARCHAR(20)	Xxxxxx		Y		
	EVENT_ID	Event being staffed	INT(6)	999999		N	FK	EVENT
	STAFF_ROLE	Type of staff	VARCHAR(30)	Xxxxxx	“Front_End”, “Back_End”	Y		
	STAFF_SHIFT	Assigned shift timing	TIME	HH:MM		Y		
	STAFF_WAGE	Hourly wage for the event	DECIMAL(4,2)	99.99	00.01 >=	Y		
FRONT_END	STAFF_ID	Staff Assignment	INT(6)	999999	1-999999	Y	PK/FK	STAFF

	FRONT_ROLE_DESC	Specific Front Duty	VARCHAR(30)	Xxxxxx		Y		
	FRONT_AREA	Event Area Handled	VARCHAR(30)	Xxxxxx		N		
BACK_END	STAFF_ID	Staff Assignment Unique Identifier	INT(6)	999999	1-999999	Y	PK/FK	STAFF
	BACK_ROLE_DESC	Specific Back duty	VARCHAR(30)	Xxxxxx		Y		
	BACK_EQP	Equipment or system managed	VARCHAR(30)	Xxxxxx		N		
ORGANIZER	ORG_ID	Event Organizer ID	INT(6)	999999	1–99999	Y	PK	
	ORG_NAME	Primary contact person	VARCHAR(60)	Xxxxxx		Y		
	ORG_PHONE_NUM	Contact phone number	CHAR(12)	999-999-9999		Y		
	ORG_EMAIL	Organizer email address	VARCHAR(80)	Xxx@xxx		Y		
	ORG_TYPE	Organizer Type	VARCHAR(30)	Xxxxxx		Y		
	COORD_ID	Coordinator ID	VARCHAR(3)	CD1,CD2		Y	FK	EVENT_COORDINATOR
ATTENDEE	ATT_ID	Attendee ID code	INT(5)	99999	1–99999	Y	PK	
	ATT_FNAME	Attendee first name	VARCHAR(40)	Xxxxxx		Y		
	ATT_LNAME	Attendee last name	VARCHAR(40)	Xxxxxx		Y		
	ATT_PHONE_NUM	Attendee phone number	CHAR(12)	999-999-9999		Y		
	ATT_EMAIL	Attendee email address	VARCHAR(80)	Xxx@xxx		Y		
	ATT_MEM_STATUS	Attendee membership status	ENUM('Member','Non_Member')	Xxxxxx		Y		
TICKET	TICKET_ID	Ticket unique ID	INT(8)	99999999	1-99999999	Y	PK	

	EVENT_ID	Associated event	INT(6)	999999	1-999999	Y	FK	EVENT
	BOOKING_ID	Booking Transacion ID	INT(8)	99999999	1-99999999	Y	FK	BOOKING
	TICKET_TYPE	Ticket Category(	ENUM (‘Standard’,’VIP’)	Xxxxxx	(‘Standard’,’VIP’)	Y		
	TICKET_SEAT_NUM	Seat Number	VARCHAR (10)	A12, 101A		N		
	TICKET_PRICE	Ticket Face Price	DECIMAL(8,2)	999999.99	0.00–999999.99	Y		
	TICKET_STATUS	Ticket Status	ENUM(‘Active’, ‘Sold’,’Cancelled’)	Xxxxxx	“Active”, “Sold”, “Cancelled”	Y		
BOOKING	BOOKING_ID	Booking Transacion ID	INT(8)	99999999	1-99999999	Y	PK	
	ATT_ID	Attendee ID Code	INT(5)	999999	1-99999	Y	FK	ATTENDEE
	BOOKING_Date	Booking Date	DATETIME	yyyy-mm- dd hh:mm:ss		Y		
	BOOKING_QUANTITY	Number of tickets	INT(3)	999	1-999	Y		
	BOOKING_STATUS	Booking Status	ENUM(“Completed”, “Pending”, “Cancelled”)	Xxxxxx	“Completed”, “Pending”, “Cancelled”	Y		
	BOOKING_EXP_TIME	Expiry time for each booking	DATETIME	yyyy-mm- dd hh:mm:ss		N		
PAYMENT	PAY_ID	Unique Payment ID	INT(8)	99999999	1-99999999	Y	PK	
	BOOKING_ID	Related Booking	INT(8)	99999999	1-99999999	Y	FK	BOOKING
	PAY_AMOUNT	Amount paid	DECIMAL(8,2)	999999.99	0.00-999999.99	Y		
	PAY_DATE	Datetime of Payment	DATETIME	yyyy-mm- dd hh:mm:ss		N		

	PAY_STATUS	Payment Status	ENUM('Completed','Pending','Cancelled')	Xxxxxx	“Completed”, “Pending”, “Cancelled”	Y		
	PAY_TRANS_ID	Payment Transaction ID	VARCHAR (20)	Xxxx9x999 999		N		
SPONSOR	SPONSOR_ID	Sponsor ID code	INT(6)	999999	1–999999	Y	PK	
	SPONSOR_NAME	Sponsor Company Name	VARCHAR (100)	Xxxxxx		Y		
	SPONSOR_LEVEL	Sponsorship Level	ENUM('Platinum','Gold','Silver')	Xxxxxx	“Platinum”, “Gold”, “Silver”	Y		
	SPONSOR_AMOUNT	Sponsorship amount	DECIMAL(10,2)	99999999.99	00.01 >=	Y		
	SPONSOR_EMAIL	Sponsor Company Email Address	VARCHAR (80)	Xxx@xxx		Y		
EVENT_SPONSOR	EVENT_ID	Event Sponsored	INT(6)	999999	1-999999	Y	PK/FK	EVENT
	SPONSOR_ID	Sponsor Id code	INT(6)	999999	1–999999	Y	PK/FK	SPONSOR
FACILITY	FACILITY_ID	Facility/space ID	VARCHAR (6)	EH1,EH2…		Y	PK	
	FACILITY_TYPE	Event Location Type	VARCHAR (30)	Xxxxxx		Y		
	FACILITY_CAPACITY	Max attendees	INT(6)	999999	0–999999	Y		
	FACILITY_LEVEL	Event Location Level	VARCHAR (30)	Xxxxxx		Y		
FACILITY_SERVICE	SERVICE_ID	Facility Service ID	INT(4)	9999	1-9999	Y	PK	
	SERVICE_CATEGORY	Facility Service Category	VARCHAR (30)	Xxxxxx		Y		
	SERVICE_DESC	Short description of service	VARCHAR (200)	Xxxxxx		N		

	SERVICE_COST	Base cost for the service	DECIMAL(8,2)	999999.99	0-999999.99	Y		
	EVENT_ID	Event being serviced	INT(6)	999999	1-999999	N	FK	EVENT
	VENDOR_ID	Booked vendor for this service	INT(5)	99999	1-99999	N	FK	VENDOR
VENDOR	VENDOR_ID	Vendor ID	INT(5)	99999	1-99999	Y	PK	
	VENDOR_NAME	Company name	VARCHAR (100)	Xxxxxx		Y		
	VENDOR_CONTACT	Vendor contact person name	VARCHAR (60)	Xxxxxx		Y		
	VENDOR_EMAIL	Vendor Email Address	VARCHAR (80)	Xxx@xxx		Y		
	VENDOR_PHONE_NUM	Primary Phone Number	CHAR(12)	999-999-9999		Y		
	VENDOR_WEBSITE	Vendor Company Website	VARCHAR (80)	Xxxxxx.xxx		N		
	VENDOR_PRICE_MODEL	Vendor Pricing Model	VARCHAR (15)	Xxxxxx	"Hourly", "Per Event", "Per Person"	Y		
EVENT_COORDINATOR	COORD_ID	Unique Coordinator ID	VARCHAR (3)	CD1,CD2		Y	PK	
	COORD_FNAME	Coordinator First Name	VARCHAR (30)	Xxxxxx		Y		
	COORD_LNAME	Coordinator Last Name	VARCHAR (30)	Xxxxxx		Y		
	COORD_PHONE_NUM	Coordinator Phone Number	CHAR(12)	999-999-9999		Y		
	COORD_EMAIL	Coordinator Email Address	VARCHAR (80)	Xxx@xxx		Y		

Entity Relationship Model :

EVENT MANAGEMENT DATABASE ENTITY RELATIONSHIP MODEL			
ENTITY	RELATIONSHSIP	CONNECTIVITY	ENTITY
EVENT	…organized by…	(M:1)	ORGANIZER
EVENT	…hosted in…	(M:1)	FACILITY
EVENT	…sponsored by…	(M:N)	SPONSOR
EVENT	…has assigned…	(1:M)	STAFF
EVENT	…sells…	(0:M)	TICKET
EVENT	…uses	(0:M)	FACILITY_SERVICE
EVENT	…specializes as…	(1:1) (subtype)	FIELD_EVENT
EVENT	…specializes as…	(1:1) (subtype)	INDOOR_EVENT
STAFF	…specializes as…	(1:1) (subtype)	FRONT_END_STAFF
STAFF	…specializes as…	(1:1) (subtype)	BACK_END_STAFF
EVENT_COORDINATOR	…assists…	(0:M)	ORGANIZER
ATTENDEE	…makes…	(1:M)	BOOKING
BOOKING	…includes…	(1:M)	TICKET
BOOKING	…has…	(1:1)	PAYMENT
FACILITY_SERVICE	…provided by…	(M:1)	VENDOR
FACILITY	…contains…	(1:M)	EVENT

Note : EVENT_SPONSOR acts as bridge entity that implements M:N relationship between EVENT table and SPONSOR table.

Business Rules:

EVENT / ORGANIZER

1. Each EVENT must be organized by one and only one ORGANIZER.
2. Each ORGANIZER can organize one or many EVENTS.
3. No event can exist in the system without being linked to an organizer.

EVENT / FACILITY

1. Each EVENT must be hosted in exactly one FACILITY.
2. A FACILITY can host zero, one, or multiple EVENTS over time.
3. Each event must specify the facility in which it takes place.

EVENT / SPONSOR

1. Each EVENT can be sponsored by one or many SPONSORS, or by none.
2. Each SPONSOR can fund multiple EVENTS.
3. The relationship between EVENT and SPONSOR is many-to-many and maintained through the EVENT_SPONSOR associative table.

EVENT / STAFF

1. Each EVENT can have no assigned STAFF or many staff members assigned.
2. Each STAFF member must be assigned to exactly one EVENT.
3. Staff assignment must occur before the event start date to ensure operational readiness.

EVENT / FACILITY_SERVICE

1. Each EVENT can have zero, one or many FACILITY_SERVICES being used.
2. Each Facility_service must be linked with one and only one event.
3. Each FACILITY_SERVICE must show the EVENT it is being used in.

EVENT / TICKET

1. Each EVENT can have zero, one, or many TICKETS available for purchase.
2. Each TICKET must belong to exactly one EVENT.
3. A ticket cannot exist without being associated with an event.

EVENT / FIELD_EVENT (Subtype)

1. FIELD_EVENT is a disjoint, total specialization of the EVENT entity.
2. Each FIELD_EVENT record corresponds to one and only one EVENT.
3. Every field event occurs outdoors in a large stadium area with defined field attributes (e.g., retractable roof, floor type).

EVENT / INDOOR_EVENT (Subtype)

1. INDOOR_EVENT is a disjoint, total specialization of the EVENT entity.
2. Each INDOOR_EVENT record corresponds to exactly one EVENT.
3. Indoor events occur in enclosed halls or rooms and include additional facility details such as floor number and capacity.

STAFF / FRONT_END_STAFF (Subtype)

1. FRONT_END_STAFF is a disjoint, Total specialization of EVENT_STAFF.
2. Every EVENT_STAFF member must be either FRONT_END_STAFF or BACK_END_STAFF, but not both.
3. Front-end staff roles include ushers, setup crew, and security personnel.

STAFF / BACK_END_STAFF (Subtype)

1. BACK_END_STAFF is a disjoint, Total specialization of EVENT_STAFF.

2. Every EVENT_STAFF member must be either FRONT_END_STAFF or BACK_END_STAFF, but not both.
3. Back-end staff roles include IT support, logistics, and technical setup crew.

EVENT_COORDINATOR / ORGANIZER

1. Each EVENT_COORDINATOR can assist multiple ORGANIZERS.
2. Each ORGANIZER is assisted by one and only one EVENT_COORDINATOR.
3. The coordinator provides operational and administrative support to organizers throughout event planning and execution.

ATTENDEE / BOOKING

1. Each ATTENDEE can make one, or many BOOKINGS.
2. Each BOOKING must be made by exactly one ATTENDEE.
3. A booking cannot exist without being linked to a registered attendee.

BOOKING / TICKET

1. Each BOOKING may include one or more TICKETS.
2. Each TICKET is linked to exactly one BOOKING.
3. A booking must have at least one valid ticket to be confirmed.

BOOKING / PAYMENT

1. Each BOOKING must have exactly one corresponding PAYMENT record.
2. Each PAYMENT record belongs to exactly one BOOKING.
3. A booking cannot be confirmed unless its payment has been recorded.

FACILITY_SERVICE / VENDOR

1. Each FACILITY_SERVICE is provided by one and only one VENDOR.
2. Each VENDOR can provide zero, one, or multiple FACILITY_SERVICES.
3. A facility service cannot exist without a valid vendor providing it.

FACILITY / EVENT

1. Each FACILITY can contain one or more EVENTS.
2. Each EVENT must occur in one and only one FACILITY.
3. The facility determines event capacity, layout, and available amenities.

DATA BOOK PART-2

Relational Schema

EVENT (**EVENT_ID**, FACILITY_ID, ORG_ID, EVENT_NAME, EVENT_TYPE, EVENT_DATE,
EVENT_CAPACITY, EVENT_STATUS, EVENT_ACCESS)

FIELD_EVENT (**EVENT_ID**, FIELD_TYPE, FIELD_AREA, FIELD_ROOF)

INDOOR_EVENT (**EVENT_ID**, INDOOR_CAPACITY, INDOOR_FLOOR_NUM)

STAFF (**STAFF_ID**, EVENT_ID, STAFF_FNAME, STAFF_LNAME, STAFF_ROLE, STAFF_SHIFT, STAFF_WAGE)

FRONT_END (**STAFF_ID**, FRONT_ROLE_DESC, FRONT_AREA)

BACK_END(**STAFF_ID**, BACK_ROLE_DESC, BACK_EQP)

ORGANIZER (**ORG_ID**, COORD_ID, ORG_NAME, ORG_PHONE_NUM, ORG_EMAIL,ORG_TYPE,)

ATTENDEE (**ATT_ID**, ATT_FNAME, ATT_LNAME, ATT_PHONE_NUM, ATT_EMAIL, ATT_REG_DATE, ATT_MEM_STATUS)

TICKET (**TICKET_ID**, EVENT_ID, BOOKING_ID, TICKET_TYPE, TICKET_SEAT_NUM, TICKET_PRICE, TICKET_STATUS)

BOOKING (**BOOKING_ID**, ATT_ID, BOOKING_DATE, BOOKING_QUANTITY, BOOKING_STATUS, BOOKING_EXP_TIME)

PAYMENT (**PAY_ID**, BOOKING_ID, PAY_AMOUNT, PAY_DATE, PAY_STATUS, PAY_TRANS_ID)

SPONSOR (**SPONSOR_ID**, SPONSOR_NAME, SPONSOR_LEVEL, SPONSOR_AMOUNT, SPONSOR_EMAIL)

EVENT_SPONSOR (**EVENT_ID, SPONSOR_ID**)

FACILITY (**FACILITY_ID**, FACILITY_TYPE, FACILITY_CAPACITY,FACILITY_LEVEL)

FACILITY_SERVICE (**SERVICE_ID**, EVENT_ID, VENDOR_ID, SERVICE_CATEGORY, SERVICE_DESC,SERVICE_COST)

VENDOR (**VENDOR_ID**, VENDOR_NAME, VENDOR_CONTACT, VENDOR_EMAIL, VENDOR_PHONE_NUM,VENDOR_WEBSITE, VENDOR_PRICE_MODEL)

EVENT_COORDINATOR (**COORD_ID**, COORD_FNAME, COORD_LNAME,
COORD_PHONE_NUM, COORD_EMAIL)

Pre Normalization

Table below shows events data along with its organizers and facility being used inside the stadium. There are some null values because one event can
have multiple organizers and one facility can have multiple events going on. We have to fill these null values to eliminate repeating groups.

EVENT_ID	ORG_ID	EVENT_NAME	EVENT_TYPE	EVENT_DATE	EVENT_CAPACITY	EVENT_STATUS	EVENT_ACCESS	FACILITY_ID	FACILITY_TYPE	FACILITY_CAPACITY	FACILITY_LEVEL	ORG_NAME	ORG_PHONE_NUM	ORG_EMAIL	ORG_TYPE	COORD_ID
100001	000100	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled	Public	FH1	Field	70000	Event Level	Alpha Productions	555-321-7890	alpha@events.com	Coorporate	CD1
	000101											Prime Solutions	555-321-7890	contact@prime.com	Coorporate	
	000102											Yamaha	555-444-2211	contact@yamaha.com	Coorporate	
100002	000104	Private Party	Indoor Event	2025-09-02 16:00:00	100	Completed	Private	EH1	Exhibit Hall	1800	Event Level	Carrey	555-009-1211	carrey@gmaill.com	Individual	CD2
	000105											Alison	555-221-9900	Alison@gmail.com	Individual	

1-NF : Removal of Repeating Groups

EVENT_ID is used as primary key for this table and since we do not have a composite key, there are no partial dependencies. ORG_ID and FACILITY_ID form the transitive dependencies. Null values are filled.

EVENT_ID	ORG_ID	EVENT_NAME	EVENT_TYPE	EVENT_DATE	EVENT_CAPACITY	EVENT_STATUS	EVENT_ACCESS	FACILITY_ID	FACILITY_TYPE	FACILITY_CAPACITY	FACILITY_LEVEL	ORG_NAME	ORG_PHONE_NUM	ORG_EMAIL	ORG_TYPE	COORD_ID
100001	000100	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled	Public	FH1	Field	70000	Event Level	Alpha Productions	555-321-7890	alpha@events.com	Coorporate	CD1
100001	000101	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled	Public	FH1	Field	70000	Event Level	Prime Solutions	555-321-7890	contact@prime.com	Coorporate	CD1
100001	000102	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled	Public	FH1	Field	70000	Event Level	Yamaha	555-444-2211	contact@yamaha.com	Coorporate	CD1
100002	000104	Private Party	Indoor Event	2025-09-02 16:00:00	100	Completed	Private	EH1	Exhibit Hall	1800	Event Level	Carrey	555-009-1211	carrey@gmaill.com	Individual	CD2
100002	000105	Private Party	Indoor Event	2025-09-02 16:00:00	100	Completed	Private	EH1	Exhibit Hall	1800	Event Level	Alison	555-221-9900	Alison@gmail.com	Individual	CD2

1-NF DEPENDENCY DIAGRAM

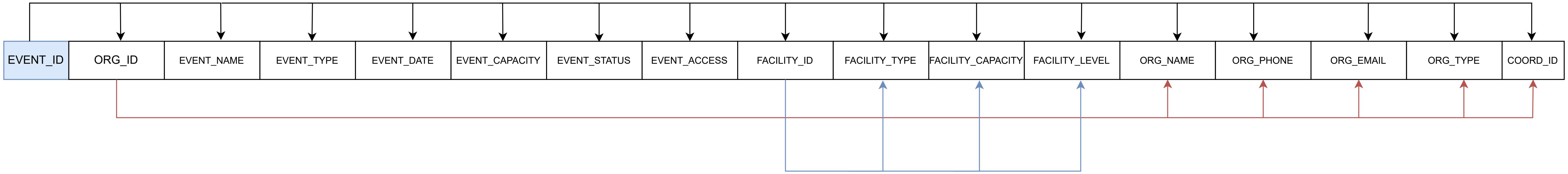
1 NF (**EVENT_ID (PK)**, ORG_ID, EVENT_NAME, EVENT_TYPE, EVENT_DATE, EVENT_CAPACITY, EVENT_STATUS, EVENT_ACCESS, FACILITY_ID, FACILITY_TYPE, FACILITY_CAPACITY, FACILITY_LEVEL, ORG_NAME, ORG_PHONE, ORG_EMAIL, ORG_TYPE, COORD_ID)

No Partial Dependecies

Transitive Dependencies

ORG_ID --> ORG_NAME, ORG_PHONE, ORG_EMAIL, ORG_TYPE, COORD_ID

FACILITY_ID --> FACILITY_TYPE, FACILITY_CAPACITY, FACILITY_LEVEL,



2-NF DEPENDENCY DIAGRAM

Table remains same

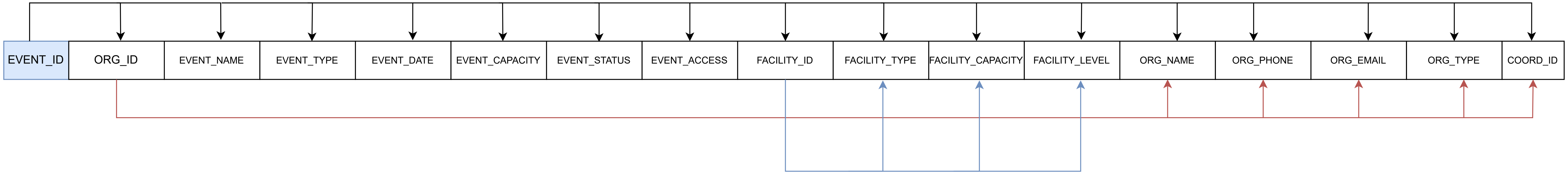
2 NF (**EVENT_ID (PK)**, ORG_ID, EVENT_NAME, EVENT_TYPE, EVENT_DATE, EVENT_CAPACITY, EVENT_STATUS, EVENT_ACCESS, FACILITY_ID, FACILITY_TYPE, FACILITY_CAPACITY, FACILITY_LEVEL, ORG_NAME, ORG_PHONE, ORG_EMAIL, ORG_TYPE, COORD_ID)

No Partial Dependecies

Transitive Dependencies

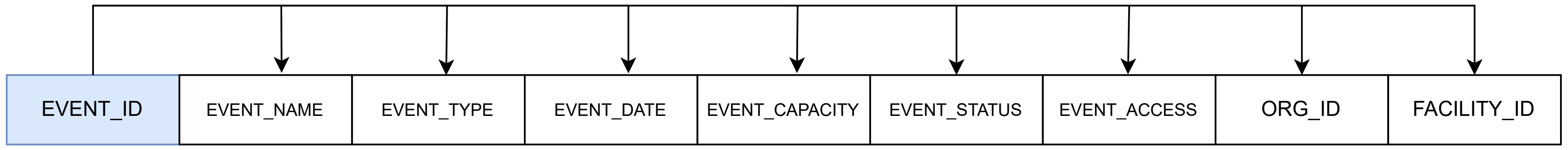
ORG_ID --> ORG_NAME, ORG_PHONE, ORG_EMAIL, ORG_TYPE, COORD_ID

FACILITY_ID --> FACILITY_TYPE, FACILITY_CAPACITY, FACILITY_LEVEL,

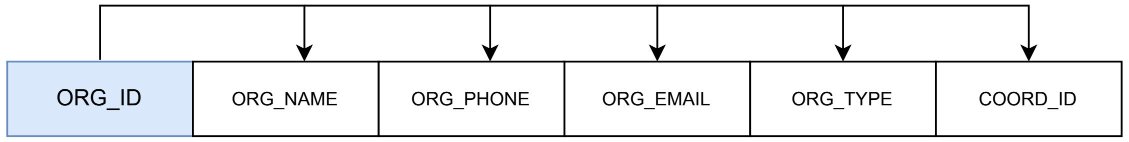


3-NF DEPENDENCY DIAGRAM

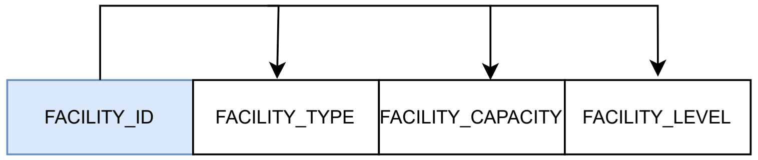
Transitive dependencies are eliminated by forming separate tables for ORGANIZER and FACILITY.
ORG_ID and FACILITY_ID are used as foreign keys in EVENT table.



EVENT (**EVENT_ID,** ORG_ID, FACILITY_ID, EVENT_NAME, EVENT_TYPE, EVENT_CAPACITY, EVENT_STATUS, EVENT_ACCESS, ORG_ID



ORGANIZER (**ORG_ID,** COORD_ID, ORG_NAME, ORG_PHONE, ORG_EMAIL, ORG_TYPE)



FACILITY (**FACILITY_ID**, FACILITY_TYPE, FACILITY_CAPACITY, FACILITY_LEVEL)

TABLE: EVENT

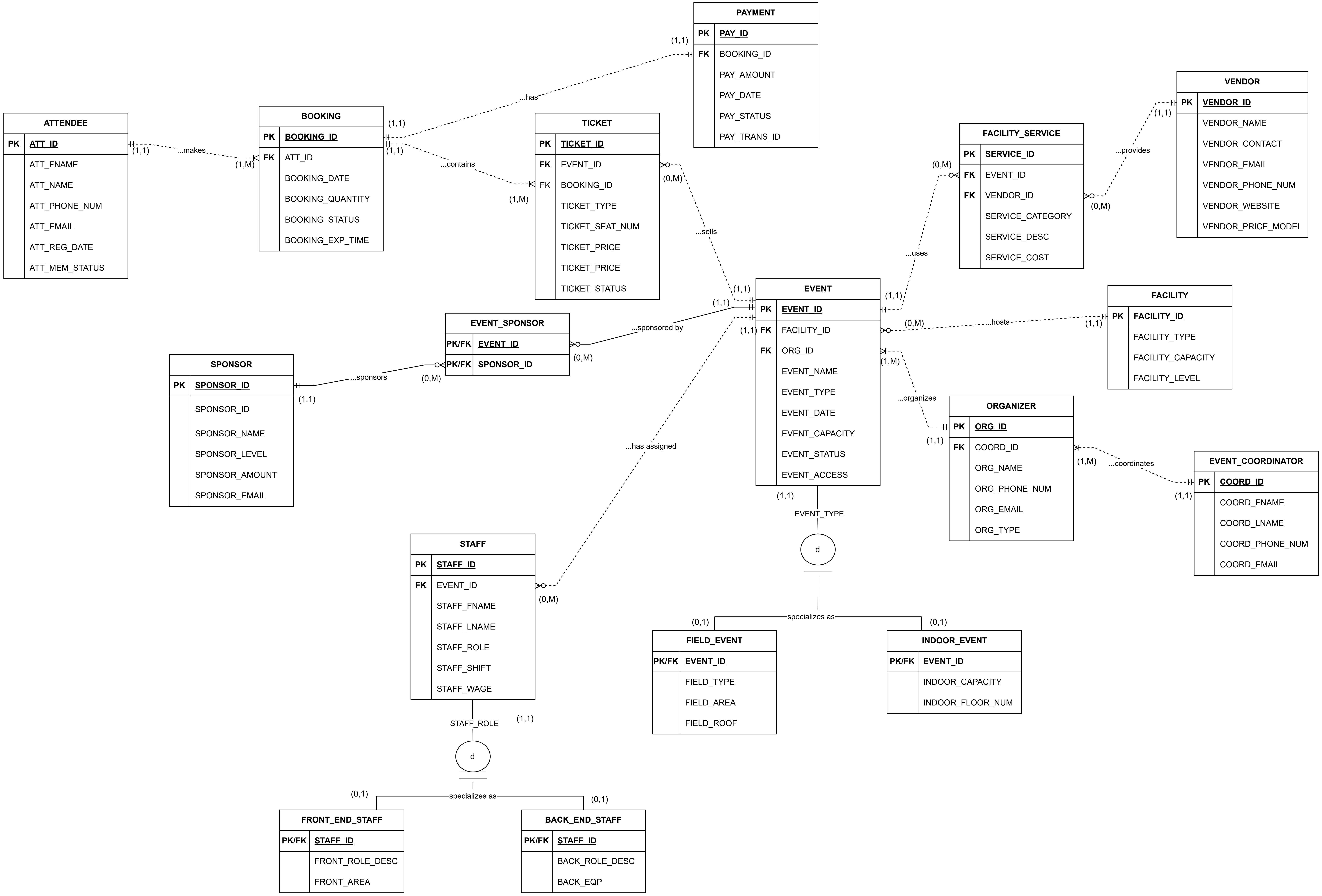
EVENT_ID	ORG_ID	EVENT_NAME	EVENT_TYPE	EVENT_DATE	EVENT_CAPACITY	EVENT_STATUS
100001	000100	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled
100001	000101	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled
100001	000102	BOA Grand National Championships	Field Event	2025-12-15 19:00:00	50000	Scheduled
100002	000104	Private Party	Indoor Event	2025-09-02 16:00:00	100	Completed
100002	000105	Private Party	Indoor Event	2025-09-02 16:00:00	100	Completed

TABLE: FACILITY

FACILITY_ID	FACILITY_TYPE	FACILITY_CAPACITY	FACILITY_LEVEL
FH1	Field	70000	Event Level
EH1	Exhibit Hall	500	Event Level

TABLE: ORGANIZER

ORG_ID	ORG_NAME	ORG_PHONE	ORG_EMAIL	ORG_TYPE	COORD_ID
000100	Alpha Productions	555-321-7890	alpha@events.com	Coorporate	CD1
000101	Prime Solutions	555-321-7890	contact@prime.com	Coorporate	CD1
000102	Yamaha	555-444-2211	contact@yamaha.com	Coorporate	CD1
000104	Carrey	555-009-1211	carrey@gmaill.com	Individual	CD2
000105	Alison	555-221-9900	Alison@gmail.com	Individual	CD2


PAYMENT
PK PAY_ID
FK BOOKING_ID
PAY_AMOUNT
PAY_DATE
PAY_STATUS
PAY_TRANS_ID
(1,1)
...has
(1,1)
ATTENDEE
PK ATT_ID
ATT_FNAME
ATT_NAME
ATT_PHONE_NUM
ATT_EMAIL
ATT_REG_DATE
ATT_MEM_STATUS
(1,1)
...makes
(1,M)
BOOKING
PK BOOKING_ID
FK ATT_ID
BOOKING_DATE
BOOKING_QUANTITY
BOOKING_STATUS
BOOKING_EXP_TIME
(1,1)
...contains
(1,M)
TICKET
PK TICKET_ID
FK EVENT_ID
FK BOOKING_ID
TICKET_TYPE
TICKET_SEAT_NUM
TICKET_PRICE
TICKET_PRICE
TICKET_STATUS
(0,M)
...sells
(1,1)
VENDOR
PK VENDOR_ID
VENDOR_NAME
VENDOR_CONTACT
VENDOR_EMAIL
VENDOR_PHONE_NUM
VENDOR_WEBSITE
VENDOR_PRICE_MODEL
(1,1)
...provides
(0,M)
FACILITY_SERVICE
PK SERVICE_ID
FK EVENT_ID
FK VENDOR_ID
SERVICE_CATEGORY
SERVICE_DESC
SERVICE_COST
(0,M)
...uses
(1,1)
EVENT
PK EVENT_ID
FK FACILITY_ID
FK ORG_ID
EVENT_NAME
EVENT_TYPE
EVENT_DATE
EVENT_CAPACITY
EVENT_STATUS
EVENT_ACCESS
(1,1)
(1,1)
EVENT_SPONSOR
PK/FK EVENT_ID
PK/FK SPONSOR_ID
...sponsored by
(0,M)
SPONSOR
PK SPONSOR_ID
SPONSOR_ID
SPONSOR_NAME
SPONSOR_LEVEL
SPONSOR_AMOUNT
SPONSOR_EMAIL
(1,1)
...sponsors
(0,M)
FACILITY
PK FACILITY_ID
FACILITY_TYPE
FACILITY_CAPACITY
FACILITY_LEVEL
(0,M)
...hosts
(1,1)
(1,M)
...organizes
(1,1)
ORGANIZER
PK ORG_ID
FK COORD_ID
ORG_NAME
ORG_PHONE_NUM
ORG_EMAIL
ORG_TYPE
(1,M)
...coordinates
(1,1)
EVENT_COORDINATOR
PK COORD_ID
COORD_FNAME
COORD_LNAME
COORD_PHONE_NUM
COORD_EMAIL
(1,1)
...has assigned
(0,M)
STAFF
PK STAFF_ID
FK EVENT_ID
STAFF_FNAME
STAFF_LNAME
STAFF_ROLE
STAFF_SHIFT
STAFF_WAGE
(1,1)
STAFF_ROLE
d
specializes as
(0,1)
(0,1)
FRONT_END_STAFF
PK/FK STAFF_ID
FRONT_ROLE_DESC
FRONT_AREA
BACK_END_STAFF
PK/FK STAFF_ID
BACK_ROLE_DESC
BACK_EQP
(1,1)
EVENT_TYPE
d
specializes as
(0,1)
(0,1)
FIELD_EVENT
PK/FK EVENT_ID
FIELD_TYPE
FIELD_AREA
FIELD_ROOF
INDOOR_EVENT
PK/FK EVENT_ID
INDOOR_CAPACITY
INDOOR_FLOOR_NUM

SQL-Queries

Q1. “What events are scheduled on December 12, 2025?”

```
SELECT EVENT_ID,
       EVENT_NAME,
       EVENT_TYPE,
       EVENT_DATE
FROM EVENT
WHERE DATE(EVENT_DATE) = '2025-12-12';
```

Q2. “What is the name and phone number of the organizer for each event?”

```
SELECT E.EVENT_NAME,
       O.ORG_NAME,
       O.ORG_PHONE_NUM
FROM EVENT E
JOIN ORGANIZER O
    ON E.ORG_ID = O.ORG_ID;
```

Q3 “Which events have generated ticket revenue from sold tickets that is higher than the average sold-ticket revenue across all events?”

```
SELECT
    e.EVENT_ID,
    e.EVENT_NAME,
    SUM(t.TICKET_PRICE) AS sold_ticket_revenue
FROM EVENT e
JOIN TICKET t ON e.EVENT_ID = t.EVENT_ID
WHERE t.TICKET_STATUS = 'Sold'
GROUP BY e.EVENT_ID, e.EVENT_NAME
HAVING SUM(t.TICKET_PRICE) >
       (
           SELECT AVG(event_revenue)
           FROM (
               SELECT SUM(TICKET_PRICE) AS event_revenue
               FROM TICKET
               WHERE TICKET_STATUS = 'Sold'
               GROUP BY EVENT_ID
           ) AS sold_revenue_per_event
       );
```