Team name - data worms

Team id - 26

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Group Project Phase 3

Mapping ER Model to Relational Model

- All weak entities have the foreign key of strong entity in them.

Partners (Foreign key - Event id)

Performance (Foreign key - Performer id)

Spectator (Foreign key- Event id)

- All multivalued attributes have been dealt by creating a relation with foreign keys.

Role in Equipments , Role in Partner , Event_ids in Employee , Equipments and Performers.

- All composite attributes are broken and their atomic attributes are written .

Address (Building_name , Street , City , Zip , State)

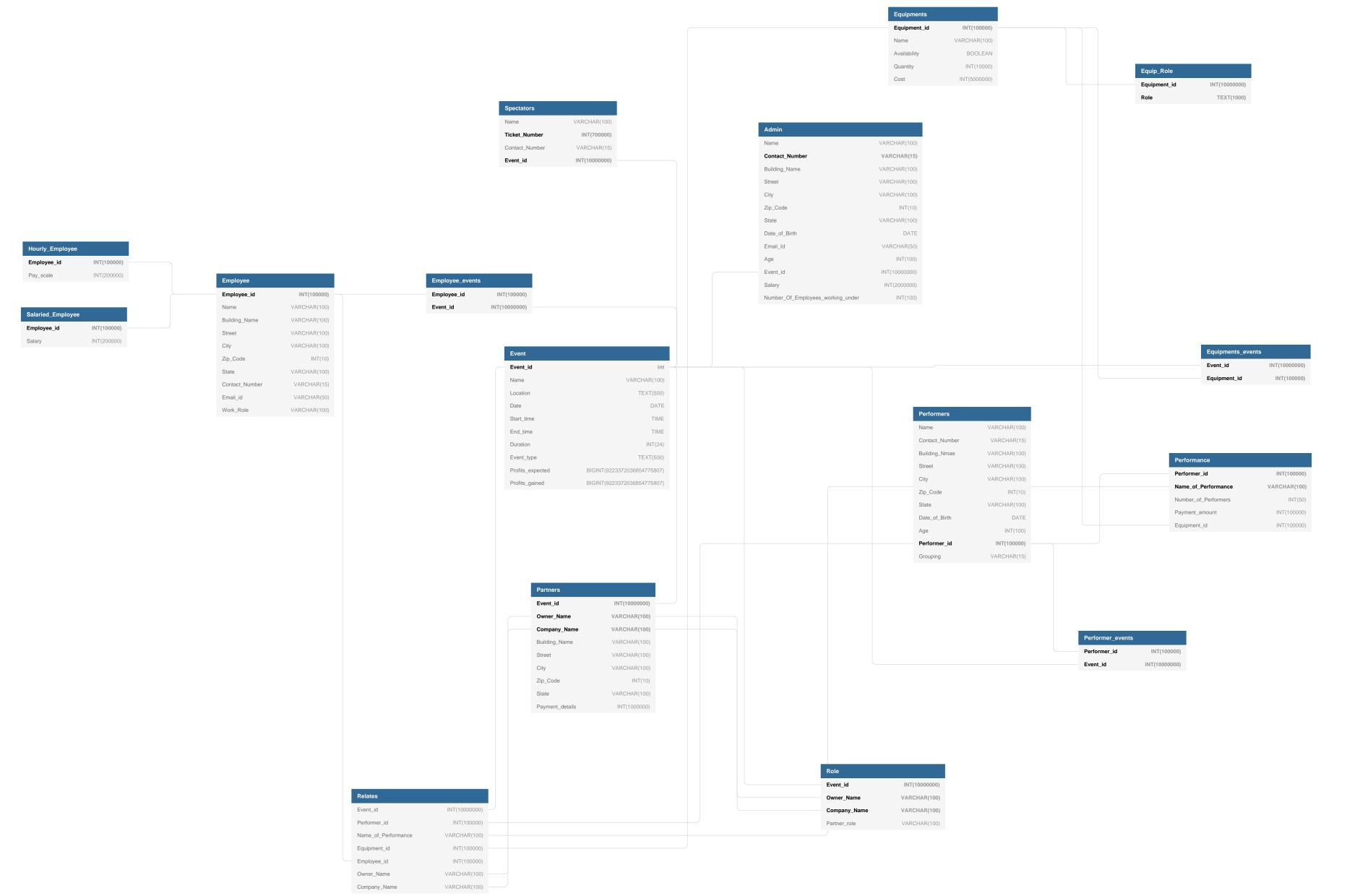Name in entity Partner (Company_Name , Owner_Name)

- All 1:1 and 1:N relationships are dealt by using foreign key method .

Event -> Spectator

Event -> Admin

Event -> Employee has been handled differently due to multivalued Employee_ids . This is the similar case in Equipments and Performers.

- For all n>2 relations a relation having foreign keys has been created.

- For subclasses we mapped foreign key.

Equipments

Equipment_id	INT(100000)
Name	VARCHAR(100)
Availability	BOOLEAN
Quantity	INT(100000)
Cost	INT(5000000)

Equip_Role

Equipment_id	INT(10000000)
Role	TEXT(1000)

Spectators

Name	VARCHAR(100)
Ticket_Number	INT(700000)
Contact_Number	VARCHAR(15)
Event_id	INT(10000000)

Admin

Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Date_of_Birth	DATE
Email_Id	VARCHAR(50)
Age	INT(100)
Event_id	INT(10000000)
Salary	INT(2000000)
Number_Of_Employees_working_under	INT(100)

Hourly_Employee

Employee_id	INT(100000)
Pay_scale	INT(200000)

Employee

Employee_id	INT(100000)
Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Contact_Number	VARCHAR(15)
Email_id	VARCHAR(50)
Work_Role	VARCHAR(100)

Employee_events

Employee_id	INT(100000)
Event_id	INT(10000000)

Salaried_Employee

Employee_id	INT(100000)
Salary	INT(200000)

Event

Event_id	int
Name	VARCHAR(100)
Location	TEXT(500)
Date	DATE
Start_time	TIME
End_time	TIME
Duration	INT(24)
Event_type	TEXT(500)
Profits_expected	BIGINT(9223372036854775807)
Profits_gained	BIGINT(9223372036854775807)

Equipments_events

Event_id	INT(10000000)
Equipment_id	INT(100000)

Performers

Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Nmae	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Date_of_Birth	DATE
Age	INT(100)
Performer_id	INT(100000)
Grouping	VARCHAR(15)

Performance

Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Number_of_Performers	INT(50)
Payment_amount	INT(100000)
Equipment_id	INT(100000)

Partners

Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Payment_details	INT(1000000)

Performer_events

Performer_id	INT(100000)
Event_id	INT(10000000)

Role

Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Partner_role	VARCHAR(100)

Relates

Event_id	INT(10000000)
Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Equipment_id	INT(100000)
Employee_id	INT(100000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)

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Checking 1NF form

The model is already in 1nf form since , all composite attributes and multivalued attributes have already been resolved (while creating relational model). So , the condition "The only attribute values permitted by 1NF are single atomic (or indivisible) values" is satisfied.

Checking 2NF form

A relation schema R is in 2NF if every nonprime attribute A in R is fully functionally dependent on the primary key of R. Test need not be done when single attribute keys are present .

In Partners , Owner_Name and Company_Name can determine Building_name , Street , City , Zip , State , while a combination of Event _id ,Owner_Name and Company_Name will be required only for Payment_details.

In case of Performance , both Performer_id and Name_of_Performance are required.

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Equipments

Column	Type
Equipment_id	INT(100000)
Name	VARCHAR(100)
Availability	BOOLEAN
Quantity	INT(100000)
Cost	INT(5000000)

Equip_Role

Column	Type
Equipment_id	INT(10000000)
Role	TEXT(1000)

Spectators

Column	Type
Name	VARCHAR(100)
Ticket_Number	INT(700000)
Contact_Number	VARCHAR(15)
Event_id	INT(10000000)

Admin

Column	Type
Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Date_of_Birth	DATE
Email_Id	VARCHAR(50)
Age	INT(100)
Event_id	INT(10000000)
Salary	INT(2000000)
Number_Of_Employees_working_under	INT(100)

Hourly_Employee

Column	Type
Employee_id	INT(100000)
Pay_scale	INT(200000)

Salaried_Employee

Column	Type
Employee_id	INT(100000)
Salary	INT(200000)

Employee

Column	Type
Employee_id	INT(100000)
Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Contact_Number	VARCHAR(15)
Email_id	VARCHAR(50)
Work_Role	VARCHAR(100)

Employee_events

Column	Type
Employee_id	INT(10000000)
Event_id	INT(10000000)

Equipments_events

Column	Type
Event_id	INT(10000000)
Equipment_id	INT(10000000)

Event

Column	Type
Event_id	int
Name	VARCHAR(100)
Location	TEXT(500)
Date	DATE
Start_time	TIME
End_time	TIME
Duration	INT(24)
Event_type	TEXT(500)
Profits_expected	BIGINT(9223372036854775807)
Profits_gained	BIGINT(9223372036854775807)

Performers

Column	Type
Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Nmae	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)
Date_of_Birth	DATE
Age	INT(100)
Performer_id	INT(100000)
Grouping	VARCHAR(15)

Performance

Column	Type
Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Number_of_Performers	INT(50)
Payment_amount	INT(100000)
Equipment_id	INT(100000)

Partner_payment

Column	Type
Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Payment_details	INT(10000000)

Partners

Column	Type
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)

Performer_events

Column	Type
Performer_id	INT(100000)
Event_id	INT(10000000)

Role

Column	Type
Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Partner_role	VARCHAR(100)

Relates

Column	Type
Event_id	INT(10000000)
Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Equipment_id	INT(100000)
Employee_id	INT(100000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)

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Checking 3NF form

The attributes Building_name , Street , City , Zip , State wherever present will violate the conditions for 3nf form . Similarly other two derived attributes Age and Duration also violate 3nf because they are dependent on attributes other than primary key.

3nf was achieved by separately mapping City to Zip_code and state as , Performer_id to age and Contact_Number (in Admin) to Age.

City_details

City	VARCHAR(100)
Zip_Code	INT(10)
State	VARCHAR(100)

Equipments

Equipment_id	INT(100000)
Name	VARCHAR(100)
Availability	BOOLEAN
Quantity	INT(100000)
Cost	INT(5000000)

Equip_Role

| Equipment_id | INT(10000000) |
| Role | TEXT(1000) |

Spectators

Name	VARCHAR(100)
Ticket_Number	INT(700000)
Contact_Number	VARCHAR(15)
Event_id	INT(10000000)

Admin

Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Date_of_Birth	DATE
Email_id	VARCHAR(50)
Event_id	INT(10000000)
Salary	INT(2000000)
Number_Of_Employees_working_under	INT(100)

Admin_age

| Contact_Number | VARCHAR(15) |
| Age | INT(100) |

Time

| Event_id | int |
| Duration | INT(24) |

Hourly_Employee

| Employee_id | INT(100000) |
| Pay_scale | INT(200000) |

Salaried_Employee

| Employee_id | INT(100000) |
| Salary | INT(200000) |

Employee

Employee_id	INT(100000)
Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Contact_Number	VARCHAR(15)
Email_id	VARCHAR(50)
Work_Role	VARCHAR(100)

Employee_events

| Employee_id | INT(100000) |
| Event_id | INT(10000000) |

Event

Event_id	int
Name	VARCHAR(100)
Location	TEXT(500)
Date	DATE
Start_time	TIME
End_time	TIME
Event_type	TEXT(500)
Profits_expected	BIGINT(9223372036854775807)
Profits_gained	BIGINT(9223372036854775807)

Equipments_events

| Event_id | INT(10000000) |
| Equipment_id | INT(100000) |

Performers

Name	VARCHAR(100)
Contact_Number	VARCHAR(15)
Building_Nmae	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)
Date_of_Birth	DATE
Performer_id	INT(100000)
Grouping	VARCHAR(15)

Performance

Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Number_of_Performers	INT(50)
Payment_amount	INT(100000)
Equipment_id	INT(100000)

Partner_payment

Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Payment_details	INT(1000000)

Partners

Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Building_Name	VARCHAR(100)
Street	VARCHAR(100)
City	VARCHAR(100)

Performer_age

| Age | INT(100) |
| Performer_id | INT(100000) |

Performer_events

| Performer_id | INT(100000) |
| Event_id | INT(10000000) |

Role

Event_id	INT(10000000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)
Partner_role	VARCHAR(100)

Relates

Event_id	INT(10000000)
Performer_id	INT(100000)
Name_of_Performance	VARCHAR(100)
Equipment_id	INT(100000)
Employee_id	INT(100000)
Owner_Name	VARCHAR(100)
Company_Name	VARCHAR(100)