



Report

Topic: SET

Team Member

| | |
|--------------------------|---------|
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Present

Dr. Siripen Pongpaichet

ITCS241: Database Management System

The Faculty of Information and Communication Technology

Business Rule

- 1.Guides are identified by an employee ID.
- 2.A guide may be qualified to lead many different tours.
- 3.A tour can have many different qualified guides.
- 4.Every tour must be designed to visit at least three locations.
5. All locations are visited by only one tour at the same time.
- 6.For each location has a name, type, official description, visit date, street's name, street's number, zip code, district are kept.
- 7.A tour can have many scheduled outings.
- 8.Each scheduled outing is for a single tour and is scheduled for a particular date and time.
- 9.All outing must be associated with a tour
- 10.A guide must be assigned to each outing.
- 11.Each outing has one and only one guide.
- 12.One payment status affects many payments status.
- 13.A payment type is selected by one payment type.
- 14.A payment can have only one payment type.
- 15.A tourist made one payment.
- 16.One payment was made by one tourist.
- 17.Many bookings can be paid by one payment.
- 18.A booking has only one payment.
- 19.Every tourist who is a member can receive a promotion.
- 20.Many drivers can drive many vehicles.
- 21.Each vehicle is identified by vehicle ID, must have a license plate number, vehicle type, colour, province, and brand.
- 22.Guides take a test to be qualified to lead specific tour.
- 23.A tourist need to sign up once, and fill in username, password, credit card, Cer.ID/ passport number, title, first name, last name, gender, date of birth, email, phone number for registration.

24. Once sign up can be multiple times to booking.
25. Many bookings can contain many outings.
26. An accountant can make many payments.
27. A manager can create many promotions for tourist who is a member.
28. A manager receives bonus.
29. One promotion is created by one manager.
30. Thai are identified by a tourist ID.
31. Each tour has many tourists.
32. After you signed up, you can reserve many bookings.
33. Every tour must have Tour's ID, Tour type where type is specific or general, fee charged, approximate length (in hours), tour name, and details about tour.
34. One tourist must fill in data personal information such as T_ID, DOB, address, name, email, religion, phonenumber, gender.
35. Each tourist who is member must have name, email, member_ID, start_date, end_date and phone number.
36. Scenic exclusive tour have many employees, each employee has one position. Position employees have guide, driver, accountant, and manager.
37. Tourists have 2 types are foreigners and Thais.
38. Each employee should have data such as employee ID, title, first name, last name, gender, date of birth, email, address, religion, phone number, date of hire, and salary.
39. Scheduled outings for tour have data of name, ID, date, type, time, description.
40. Every employee who are guides should fill in qualification, date that they complete the qualification test, guide type (new or old type)
41. Drivers must have their own specific license.
42. Every accountant must fill in their typing speed, and math skills.

43. When the driver hits the road, the total cost will contain a fuel cost. then the cost is estimated by distance. Under 10 KM- 400 ₪, 20KM-800 ₪ and under 30KM-1200₪. every 10KM plus 400₪
44. Every vehicle has a unique license plate, so province depends on license plate.
45. Every payment specifies paid amount, paid date and time, description, check number recheck paid amount are equal or not.
46. Every payment type has payment type's ID, payment type names are way to pay, payment type is active or not if some payments type are active fill in "1" , if not fill in "0", and fee charged.
47. Every member has a phone number, start date, expired date, email. Every member's duration is 2 months.
48. For each tourist must have tourist's ID, title, first name, last name, gender, date of birth, email, Address, Religion, phone number, tourist's type.
49. Every vehicle has fixed pick up, destination, and fixed time in, time out.

EERD of the company

Step 1: Regular Entity

Tourist

| <u>T_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Tourist_type |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|

Employee

| <u>Employee_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Date_hired | Salary | Position_type |
|--------------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|------------|--------|---------------|
|--------------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|------------|--------|---------------|

Booking

| <u>Booking_ID</u> | Booking_type | Booking_description | Booked_start_date | Booked_end_date | Booking_status | Booking_title | Booking_datetime | Special_request | Total_cost |
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|

Tour

| <u>Tour_ID</u> | Tour_name | Tour_type | Hour | Fee_charged | Detail |
|----------------|-----------|-----------|------|-------------|--------|
|----------------|-----------|-----------|------|-------------|--------|

Location

| <u>Location_name</u> | Location_type | Official_description | Visit_date | Street_num | Street_name | Zip_code | District |
|----------------------|---------------|----------------------|------------|------------|-------------|----------|----------|
|----------------------|---------------|----------------------|------------|------------|-------------|----------|----------|

Schedule

| <u>Schedule_ID</u> | Schedule_name | Schedule_date | Schedule_time | Schedule_description |
|--------------------|---------------|---------------|---------------|----------------------|
|--------------------|---------------|---------------|---------------|----------------------|

Sign up

| <u>SU_username</u> | SU_password | Gender | Title | Fname | Lname | SU_phonenum | SU_email | SU_DOB | Cer.ID / Passportnum | SU_creditcard |
|--------------------|-------------|--------|-------|-------|-------|-------------|----------|--------|-------------------------|---------------|
|--------------------|-------------|--------|-------|-------|-------|-------------|----------|--------|-------------------------|---------------|

Payment

| <u>Payment_id</u> | Paid_amount | Paid_datetime | Checknum | Description |
|-------------------|-------------|---------------|----------|-------------|
|-------------------|-------------|---------------|----------|-------------|

Payment_Status

| <u>PS_ID</u> | PS_isActive | PS_description |
|--------------|-------------|----------------|
|--------------|-------------|----------------|

Payment_type

| <u>PT_ID</u> | PT_isActive | PT_name | PT_fee |
|--------------|-------------|---------|--------|
|--------------|-------------|---------|--------|

Promotion

| <u>Promotion_ID</u> | Promotion_name | Start_date | End_date | Price | Promotion_type | Discount | Promotion_title | Promotion_enabled | Description |
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|

Guide

| <u>Employee_ID</u> | Qualified | Date_completed_Qualification | Guide_type |
|--------------------|-----------|------------------------------|------------|
|--------------------|-----------|------------------------------|------------|

Accountant

| | | | |
|--------------------|--------------|------------|---------------|
| <u>Employee_ID</u> | Typing_speed | Math_skill | Certification |
|--------------------|--------------|------------|---------------|

Driver

| | |
|--------------------|------------------|
| <u>Employee_ID</u> | Specific_license |
|--------------------|------------------|

Manager

| | |
|--------------------|-------|
| <u>Employee_ID</u> | Bonus |
|--------------------|-------|

Vehicle

| | | | | | |
|-------------------|--------------|---------------|--------|----------|-------|
| <u>Vehical_ID</u> | Vehicle_type | License_plate | Colour | Province | Brand |
|-------------------|--------------|---------------|--------|----------|-------|

Foreigner

| | |
|-------------|-------------|
| <u>T_ID</u> | Passport_ID |
|-------------|-------------|

Thai

| | |
|-------------|--------|
| <u>T_ID</u> | Cer.ID |
|-------------|--------|

Step3: Binary 1: 1 → Relationship Type R

Sign up

| | | | | | | | | | | | |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|
| <u>SU_username</u> | SU_password | Title | Fname | Lname | Gender | SU_phonenum | SU_email | SU_DOB | Cer.ID / Passportnum | SU_creditcard | SUT_ID (FK) |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|

Tourist

| | | | | | | | | | | | |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|
| <u>T_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Tourist_type | TTour_ID (FK) |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|

Sign up

| | | | | | | | | | | | |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|
| <u>SU_username</u> | SU_password | Title | Fname | Lname | Gender | SU_phonenum | SU_email | SU_DOB | Cer.ID / Passportnum | SU_creditcard | SUT_ID (FK) |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|

Member

| | | | | | | | | |
|------------------|-------|-------|-------|-------|----------|------------|--------------|-------------------|
| <u>Member_ID</u> | Title | Fname | Lname | Email | Phonenum | Start_date | Expired_date | MSU_username (FK) |
|------------------|-------|-------|-------|-------|----------|------------|--------------|-------------------|

Tourist

| | | | | | | | | | | | |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|
| <u>T_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Tourist_type | TTour_ID (FK) |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|

Payment

| | | | | | | | | |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|
| <u>Payment_id</u> | Paid_amount | Paid_datetime | Description | Checknum | PT_ID (FK) | PPS_ID (FK) | PPT_ID (FK) | Employee_ID (FK) |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|

Step4: Binary 1:M → Relationship Type R

Sign up

| | | | | | | | | | | | |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|
| <u>SU_username</u> | SU_password | Title | Fname | Lname | Gender | SU_phonenum | SU_email | SU_DOB | Ccr.ID / Passportnum | SU_creditcard | SUT_ID (FK) |
|--------------------|-------------|-------|-------|-------|--------|-------------|----------|--------|-------------------------|---------------|-------------|

Booking

| | | | | | | | | | | | |
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|------------------|------------------|
| <u>Booking_ID</u> | Booking_type | Booking_description | Booked_start_date | Booked_end_date | Booking_status | Booking_title | Booking_datetime | Special_request | Total_cost | BSU_username(FK) | BPayment_ID (FK) |
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|------------------|------------------|

Tour

| | | | | | |
|----------------|-----------|-----------|------|-------------|--------|
| <u>Tour_ID</u> | Tour_name | Tour_type | Hour | Fee_charged | Detail |
|----------------|-----------|-----------|------|-------------|--------|

Tourist

| | | | | | | | | | | | |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|
| <u>T_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Tourist_type | TTour_ID (FK) |
|-------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|--------------|---------------|

Schedule

| | | | | | |
|--------------------|---------------|---------------|---------------|----------------------|---------------|
| <u>Schedule_ID</u> | Schedule_name | Schedule_date | Schedule_time | Schedule_description | STour_ID (FK) |
|--------------------|---------------|---------------|---------------|----------------------|---------------|

Tour

| | | | | | |
|----------------|-----------|-----------|------|-------------|--------|
| <u>Tour_ID</u> | Tour_name | Tour_type | Hour | Fee_charged | Detail |
|----------------|-----------|-----------|------|-------------|--------|

Payment_Status

| | | |
|--------------|-------------|----------------|
| <u>PS_ID</u> | PS_isActive | PS_description |
|--------------|-------------|----------------|

Payment

| | | | | | | | | |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|
| <u>Payment_id</u> | Paid_amount | Paid_datetime | Description | Checknum | PT_ID (FK) | PPS_ID (FK) | PPT_ID (FK) | Employee_ID (FK) |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|

Payment_type

| | | | |
|--------------|-------------|---------|--------|
| <u>PT_ID</u> | PT_isActive | PT_name | PT_fee |
|--------------|-------------|---------|--------|

Payment

| | | | | | | | | |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|
| <u>Payment_id</u> | Paid_amount | Paid_datetime | Description | Checknum | PT_ID (FK) | PPS_ID (FK) | PPT_ID (FK) | Employee_ID (FK) |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|

Booking

| | | | | | | | | | | | |
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|-------------------|-----------------|
| <u>Booking_ID</u> | Booking_type | Booking_description | Booked_start_date | Booked_end_date | Booking_status | Booking_title | Booking_datetime | Special_request | Total_cost | BSU_username (FK) | BPayment_ID(FK) |
|-------------------|--------------|---------------------|-------------------|-----------------|----------------|---------------|------------------|-----------------|------------|-------------------|-----------------|

Payment

| | | | | | | | | |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|
| <u>Payment_id</u> | Paid_amount | Paid_datetime | Description | Checknum | PT_ID (FK) | PPS_ID (FK) | PPT_ID (FK) | Employee_ID (FK) |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|

Accountant

| | | | |
|--------------------|--------------|------------|---------------|
| <u>Employee_ID</u> | Typing_speed | Math_skill | Certification |
|--------------------|--------------|------------|---------------|

Payment

| | | | | | | | | |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|
| <u>Payment_id</u> | Paid_amount | Paid_datetime | Description | Checknum | PT_ID (FK) | PPS_ID (FK) | PPT_ID (FK) | Employee_ID (FK) |
|-------------------|-------------|---------------|-------------|----------|------------|-------------|-------------|------------------|

Tour

| | | | | | |
|----------------|-----------|-----------|------|-------------|--------|
| <u>Tour_ID</u> | Tour_name | Tour_type | Hour | Fee_charged | Detail |
|----------------|-----------|-----------|------|-------------|--------|

Location

| | | | | | | | |
|---------------|---------------|----------------------|------------|-------------|----------|----------|---------------|
| Location_name | Location_type | Official_description | Street_num | Street_name | Zip_code | District | LTour_ID (FK) |
|---------------|---------------|----------------------|------------|-------------|----------|----------|---------------|

Member

| | | | | | |
|------------------|------------|--------------|-------------|-------|--------------------|
| <u>Member_ID</u> | Start_Date | Expired_date | Phonenumber | Email | MPromotion_ID (FK) |
|------------------|------------|--------------|-------------|-------|--------------------|

Promotion

| | | | | | | | | | | |
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|------------------|
| <u>Promotion_ID</u> | Promotion_name | Start_date | End_date | Price | Promotion_type | Discount | Promotion_title | Promotion_enabled | Description | Employee_ID (FK) |
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|------------------|

Manager

| | |
|--------------------|-------|
| <u>Employee_ID</u> | Bonus |
|--------------------|-------|

Promotion

| | | | | | | | | | | |
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|------------------|
| <u>Promotion_ID</u> | Promotion_name | Start_date | End_date | Price | Promotion_type | Discount | Promotion_title | Promotion_enabled | Description | Employee_ID (FK) |
|---------------------|----------------|------------|----------|-------|----------------|----------|-----------------|-------------------|-------------|------------------|

Step5: Binary M:N → Relationship Type R

contains

| | | |
|-------------------|--------------------|---------------|
| <u>Booking_id</u> | <u>Schedule_ID</u> | price_per_day |
|-------------------|--------------------|---------------|

can have

| | | | | | | | | | | |
|--------------------|----------------|-------------|------------|----------|---------|-------------|--------|------------|---------|----------|
| <u>Employee ID</u> | <u>Tour_id</u> | hourly_rate | Start_trip | End_trip | Pick up | Destination | Reward | Recreation | Sign in | Sign out |
|--------------------|----------------|-------------|------------|----------|---------|-------------|--------|------------|---------|----------|

drive

| | | | | | | | | | | |
|--------------------|-------------------|----------|-----------|---------|-------------|---------|----------|---------|----------|------|
| <u>Employee ID</u> | <u>Vehicle ID</u> | distance | Fuel cost | Pick up | Destination | Time in | Time out | Sign in | Sign out | Cost |
|--------------------|-------------------|----------|-----------|---------|-------------|---------|----------|---------|----------|------|

Step8: EERD

Employee

| | | | | | | | | | | | | |
|--------------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|------------|--------|---------------|
| <u>Employee_ID</u> | Title | Fname | Lname | Gender | Phonenum | Email | Religion | Address | DOB | Date_hired | Salary | Position_type |
|--------------------|-------|-------|-------|--------|----------|-------|----------|---------|-----|------------|--------|---------------|

Guide

| | | | |
|--------------------|-----------|------------------------------|------------|
| <u>Employee_ID</u> | Qualified | Date_completed_Qualification | Guide_type |
|--------------------|-----------|------------------------------|------------|

Accountant

| | | | |
|--------------------|--------------|------------|---------------|
| <u>Employee_ID</u> | Typing_speed | Math_skill | Certification |
|--------------------|--------------|------------|---------------|

Driver

| | |
|--------------------|------------------|
| <u>Employee_ID</u> | Specific_license |
|--------------------|------------------|

Manager

| | |
|--------------------|-------|
| <u>Employee_ID</u> | Bonus |
|--------------------|-------|

Tourist

| | | | | | | | | | | |
|-------------|-------|-------|-------|-----|----------|-------|----------|---------|-----|--------------|
| <u>T_ID</u> | Title | Fname | Lname | Sex | Phonenum | Email | Religion | Address | DOB | Tourist_type |
|-------------|-------|-------|-------|-----|----------|-------|----------|---------|-----|--------------|

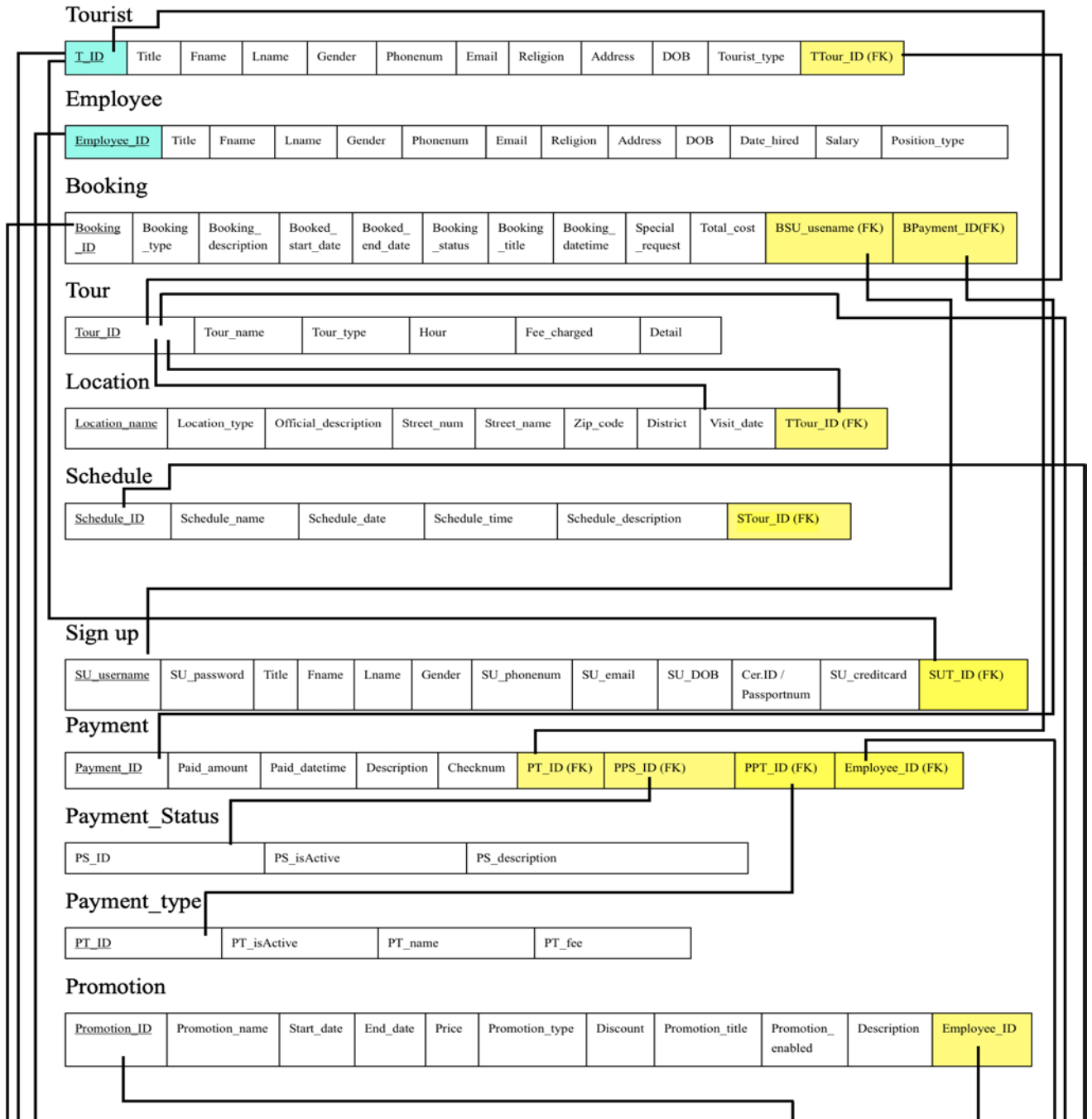
Foreigner

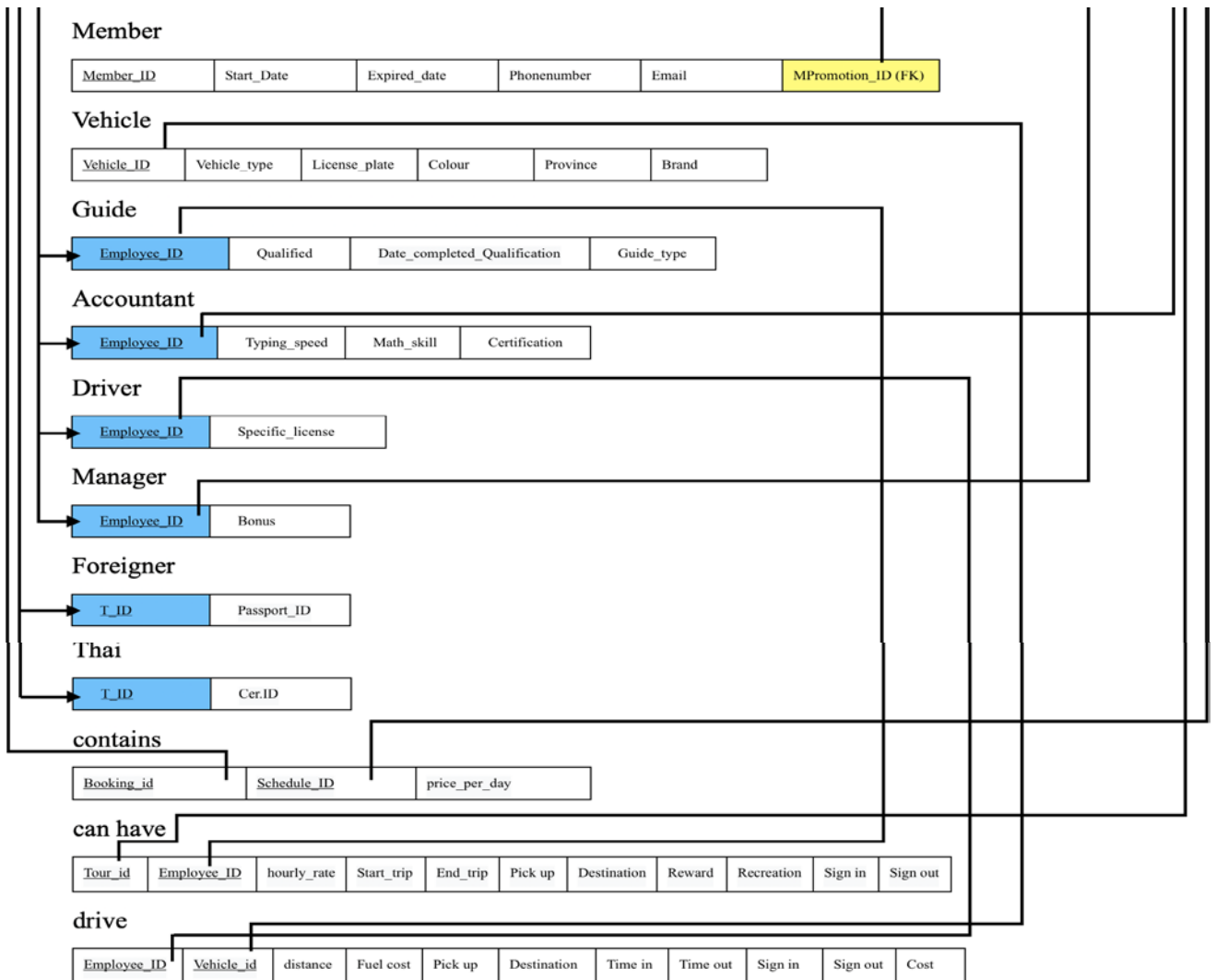
| | |
|-------------|-------------|
| <u>T_ID</u> | Passport_ID |
|-------------|-------------|

Thai

| | |
|-------------|--------|
| <u>T_ID</u> | Cer.ID |
|-------------|--------|

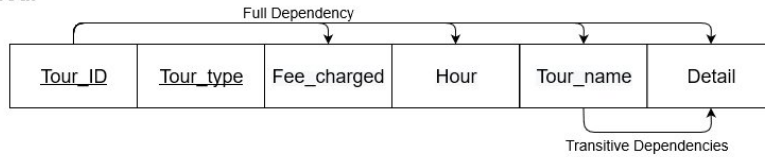
Final relational Schema



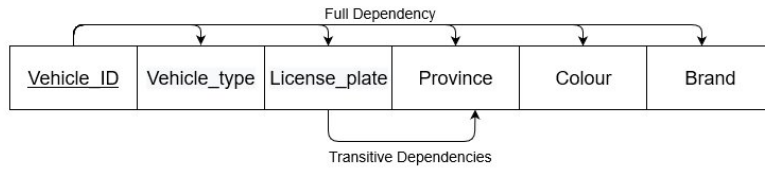


Functional Dependencies

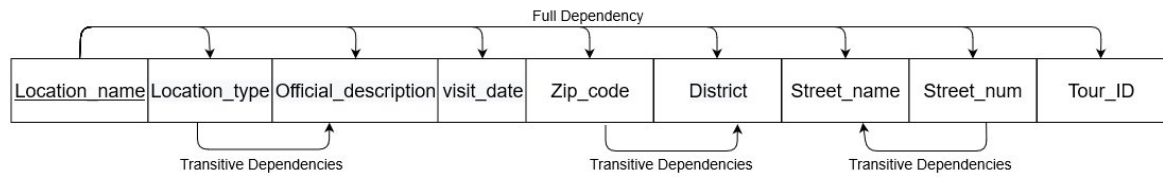
Tour



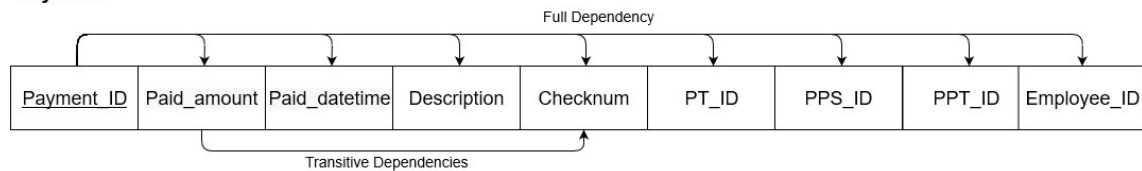
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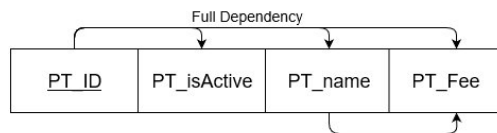
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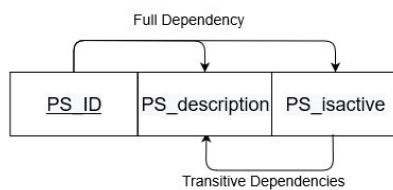
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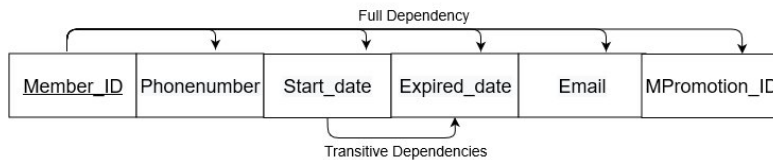
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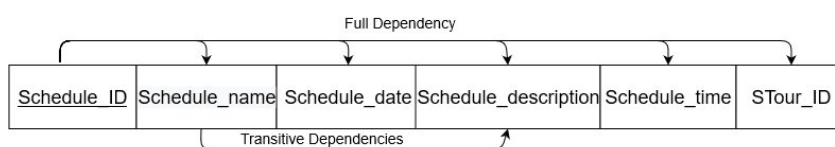
Payment_Status



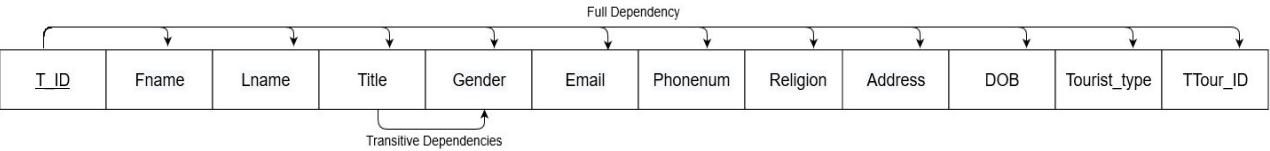
Member



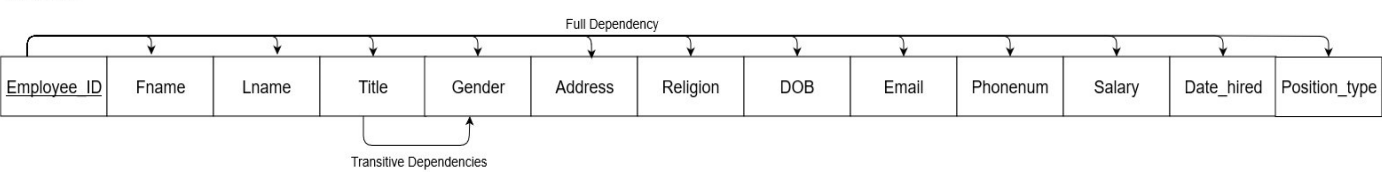
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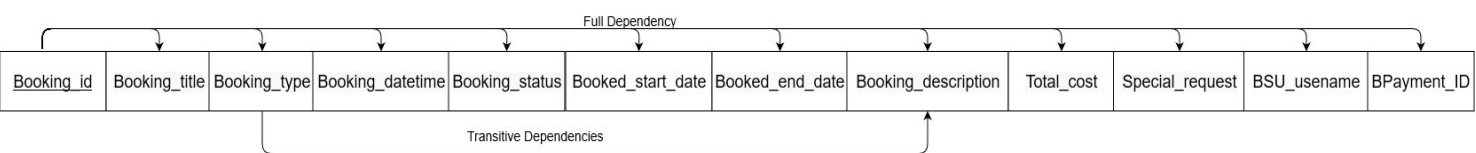
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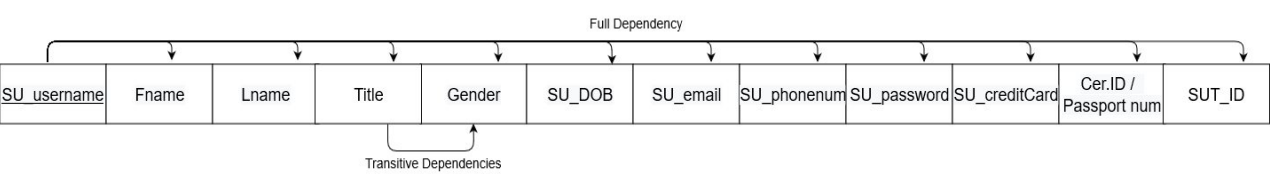
Employee



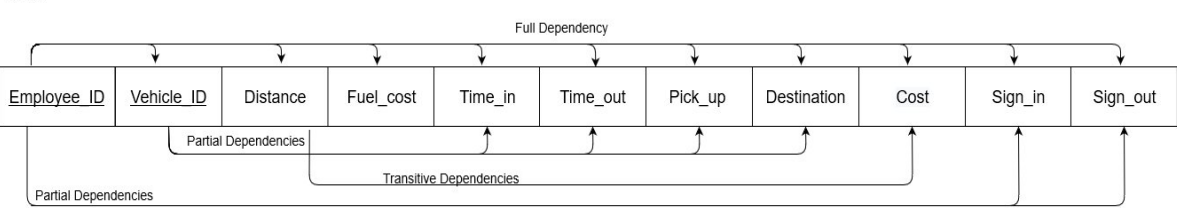
Booking



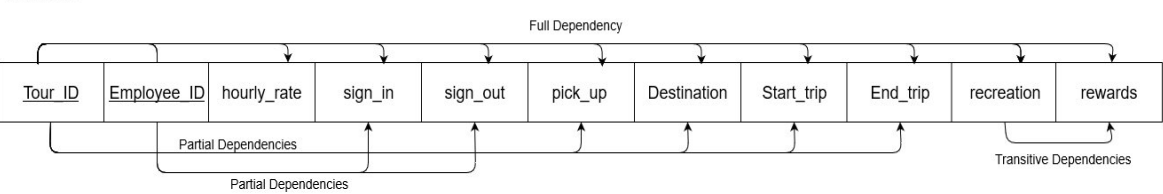
Sign up



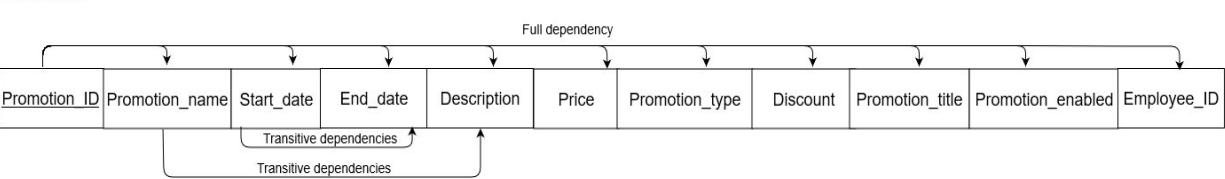
Drive



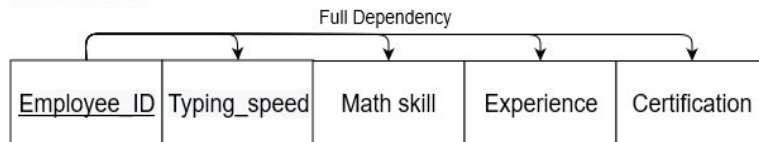
Can have



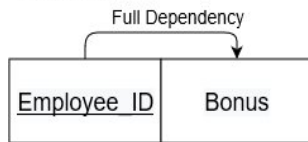
Promotion



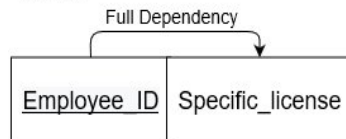
Accountant



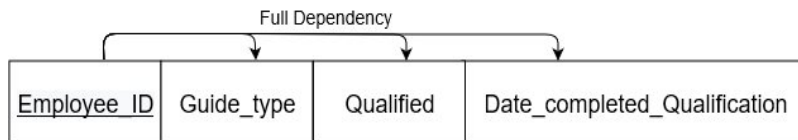
Manager



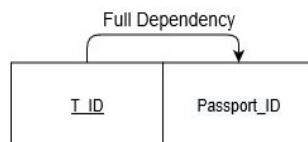
Driver



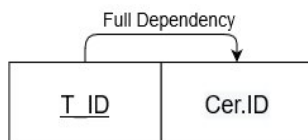
Guide



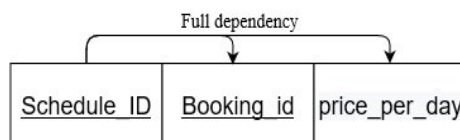
Foreigner



Thai



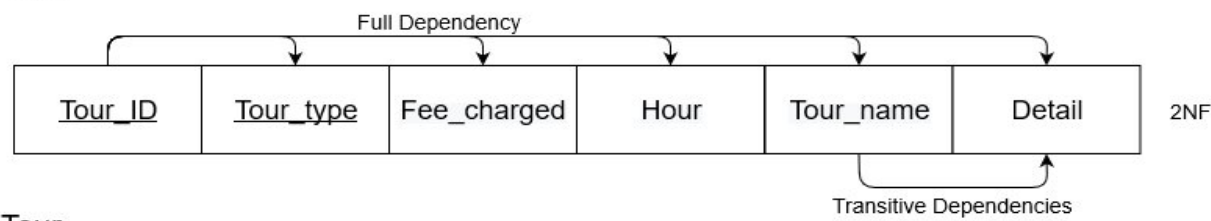
contains



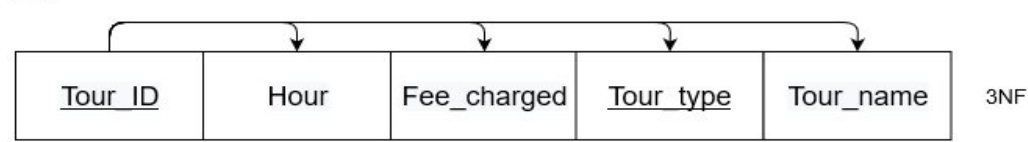
Remark: Entity Accountant, Manager, Driver, Guide, Foreigner, Thai and contains is a Third Normal Form.

Database Normalization

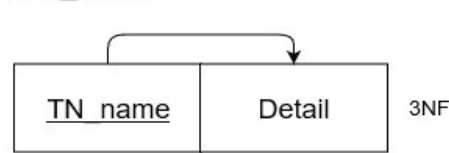
Tour



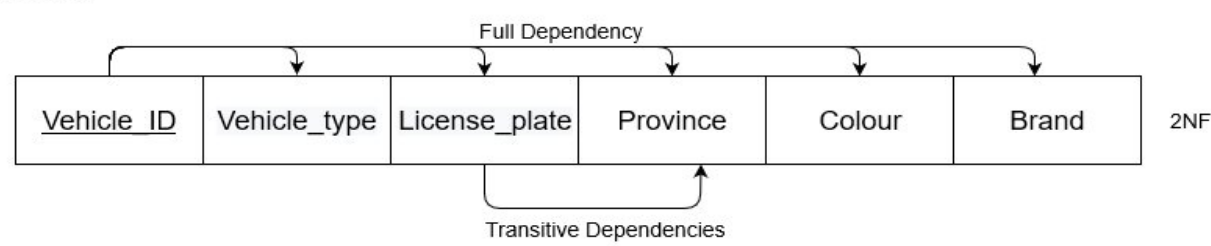
Tour



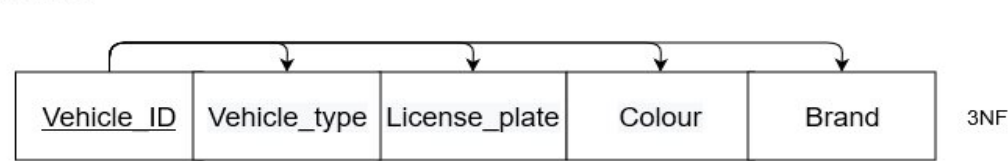
Tour_name



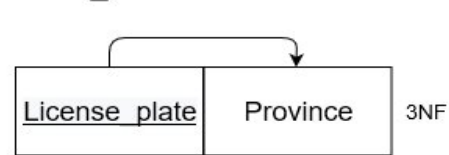
Vehicle



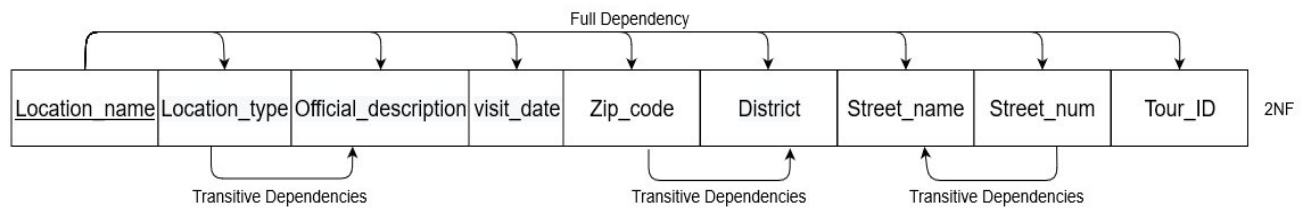
Vehical



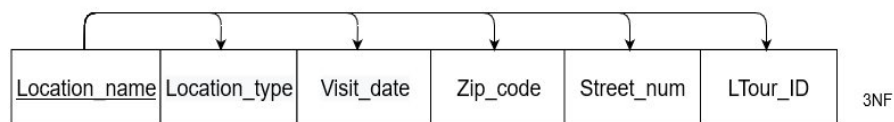
Vehical_license



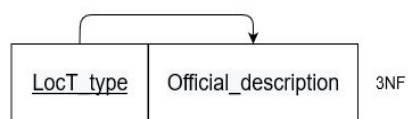
Location



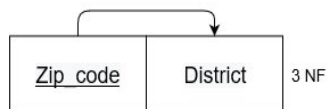
Location



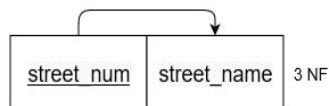
Location_type



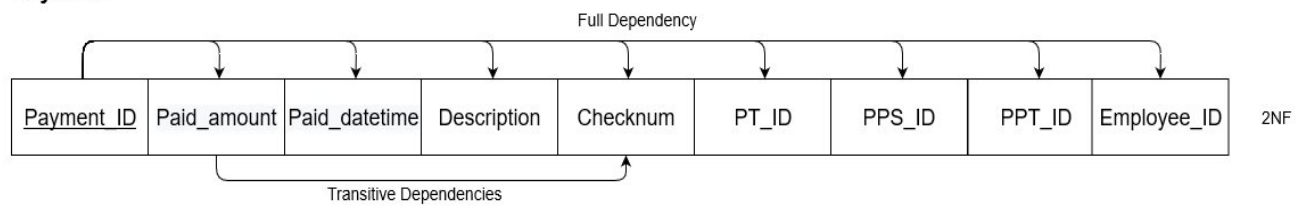
Location_zipcode



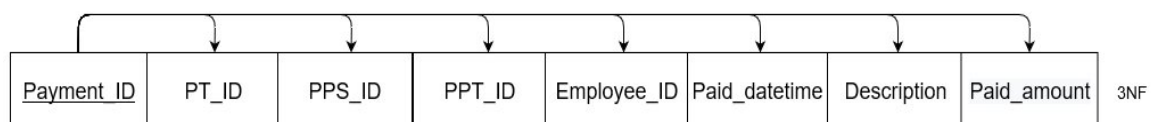
Location_street



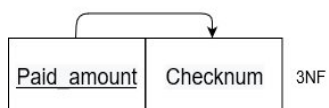
Payment



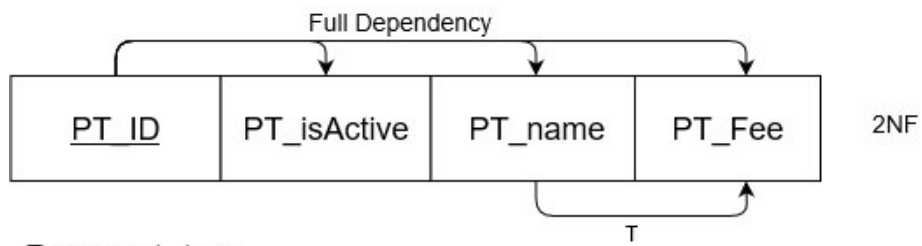
Payment



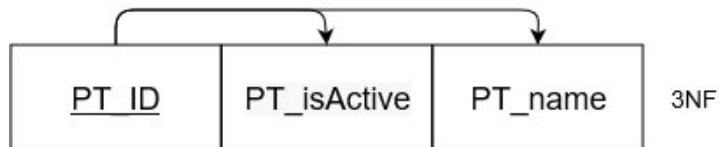
Payment_recheck



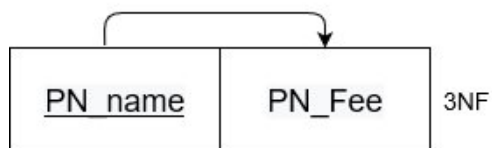
Payment_Type



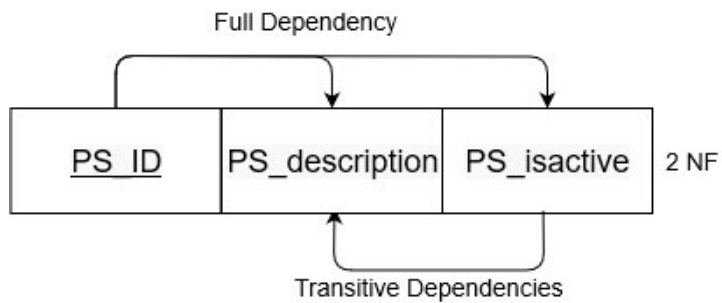
Payment_type



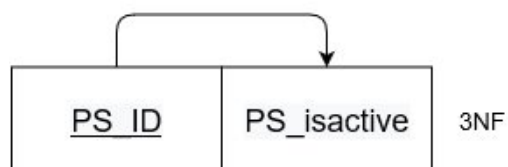
Payment_name



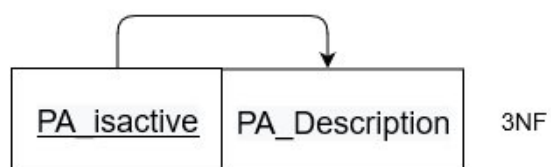
Payment_Status



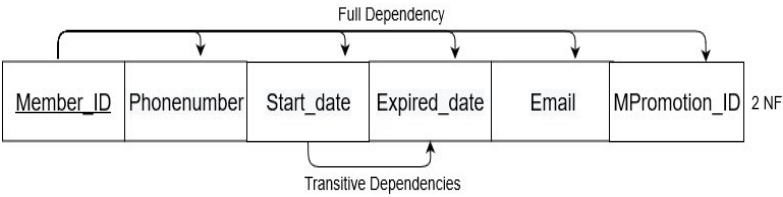
Payment_status



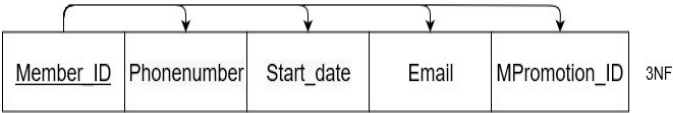
Payment active



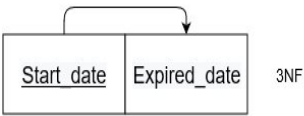
Member



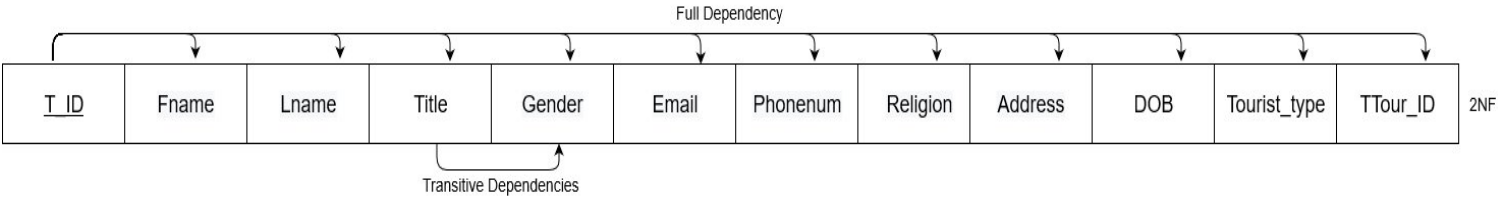
Member



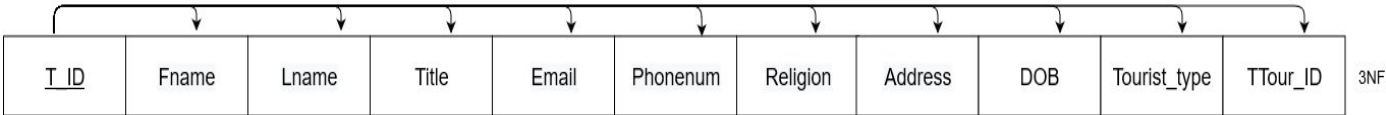
Member_duration



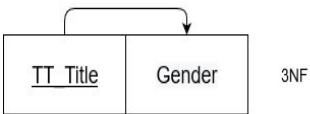
Tourist



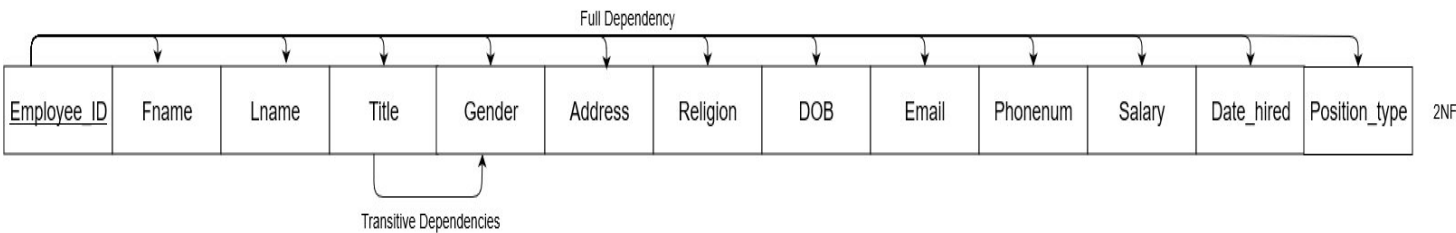
Tourist



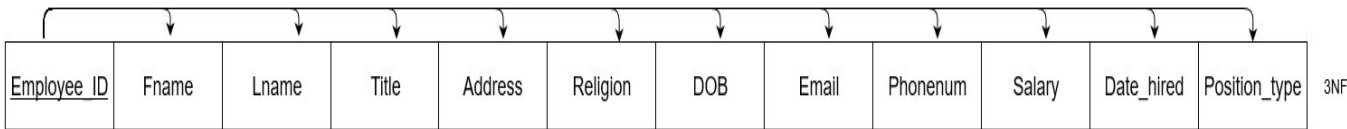
Toursit_title



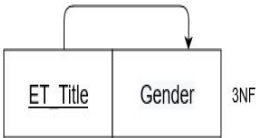
Employee



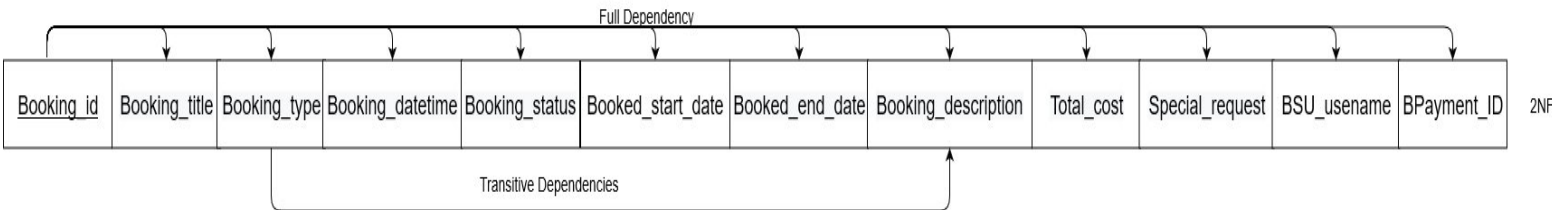
Employee



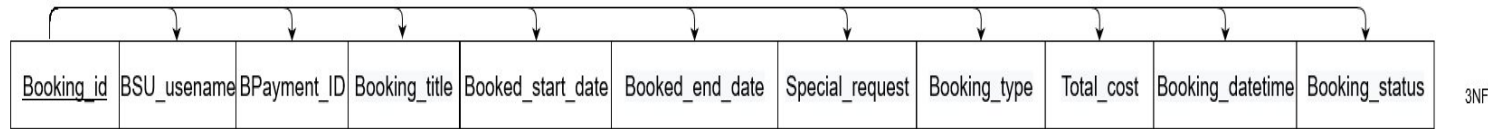
Employee_title



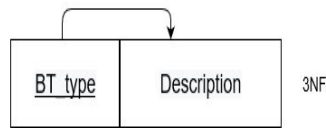
Booking



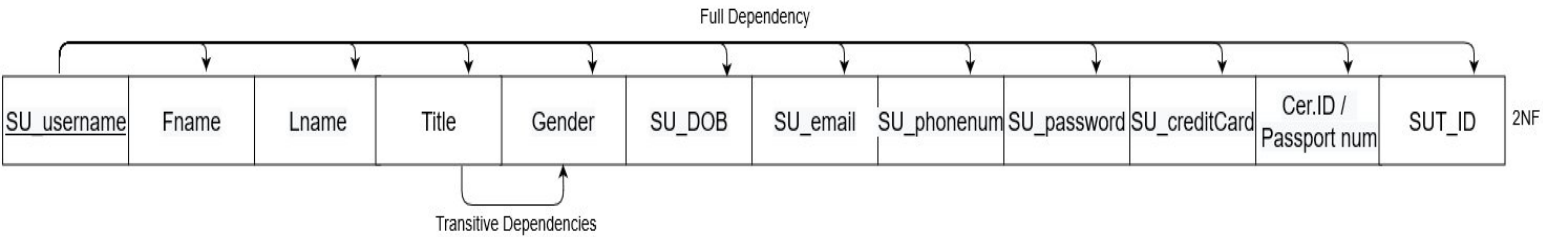
Booking



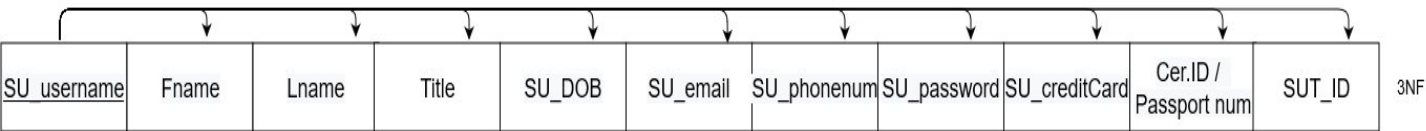
Booking_type



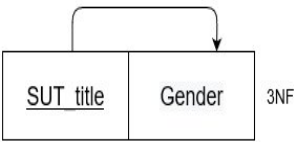
Sign up



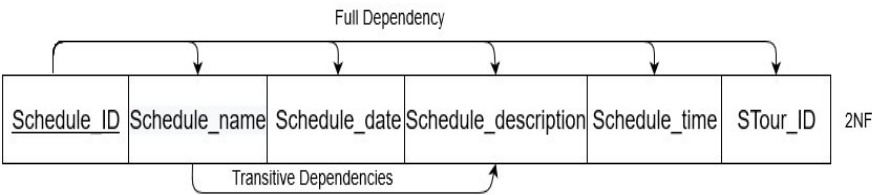
Sign up



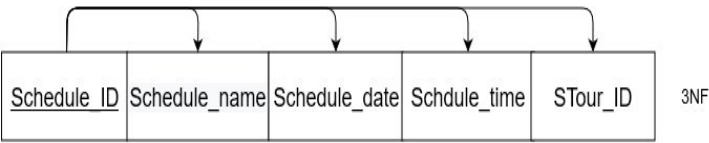
Sign up_title



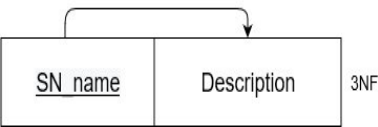
Schedule



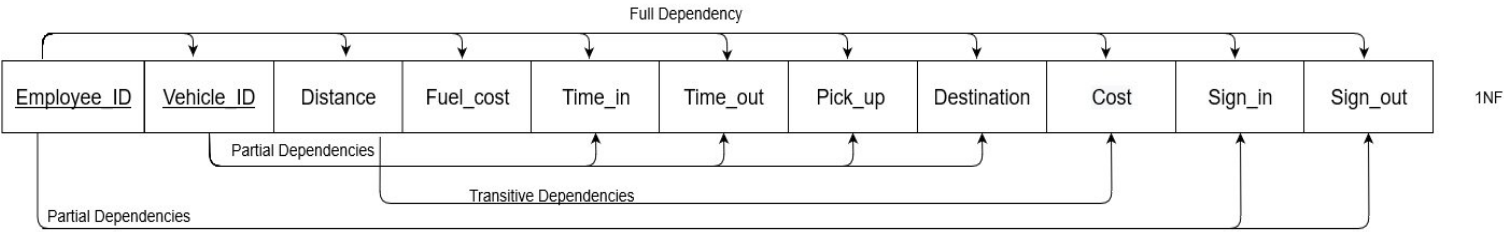
Schedule



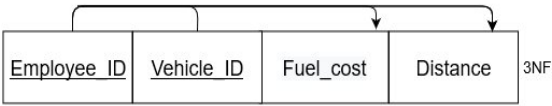
Schedule_name



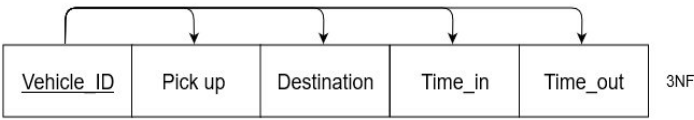
Drive



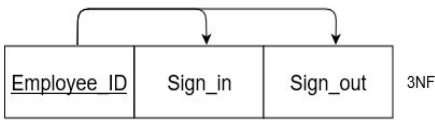
Drive



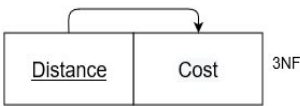
D_point



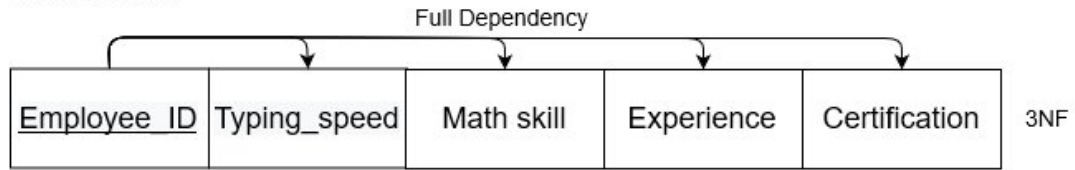
D_sign



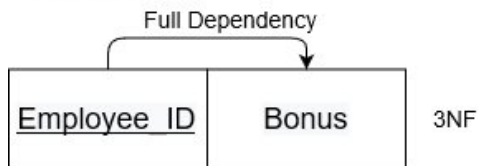
D_distance



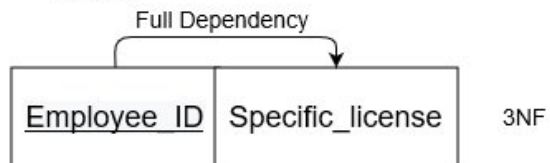
Accountant



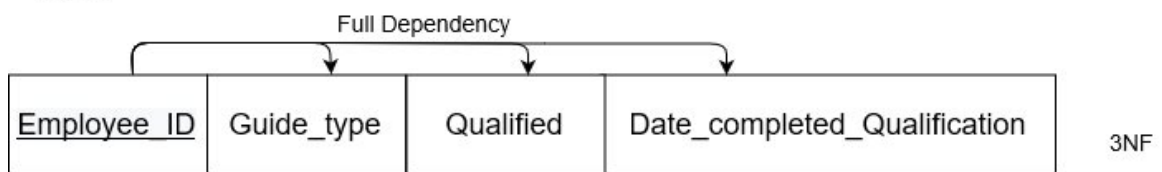
Manager



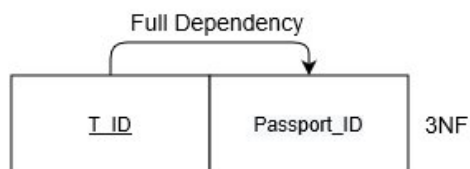
Driver



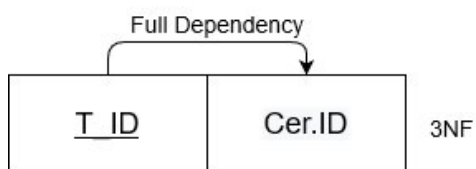
Guide



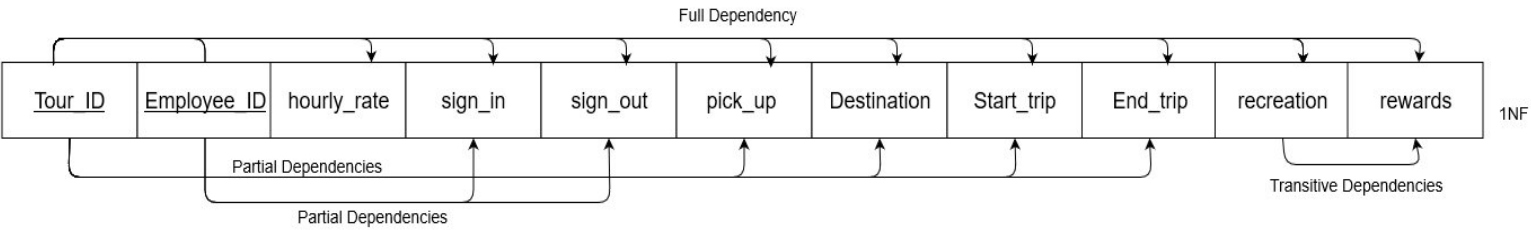
Foreigner



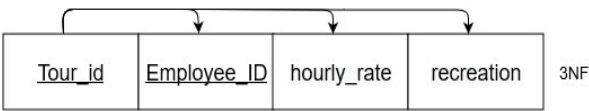
Thai



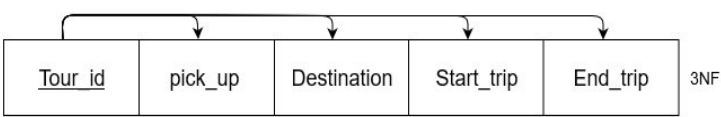
Can have



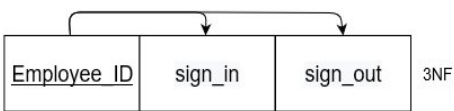
Can have



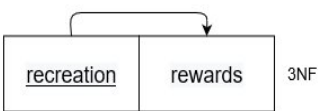
C_datetime



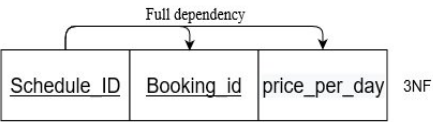
C_sign



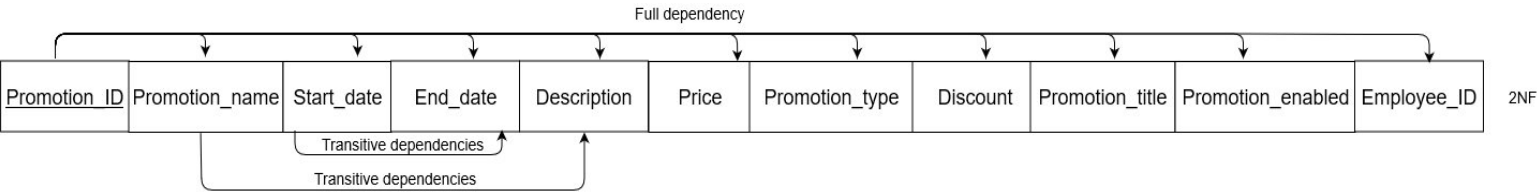
C_recreation



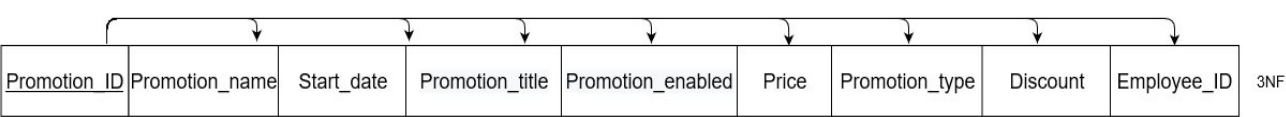
contains



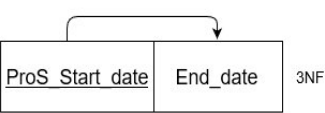
Promotion



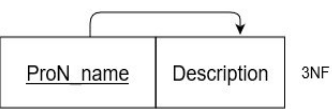
Promotion



Pro_start



Pro_name



Data Dictionary

| Table Name | Attribute Name | Contents | Type | Form at | Nulla ble | Rang e | Key | FK Referenced Table |
|----------------|------------------------------|--|---------------|------------|-----------|--------|-----|--------------------------|
| Employee | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Fname | Employee's firstname | nvarchar (30) | xxxxxxx | | | | |
| | Lname | Employee's lastname | nvarchar (30) | xxxxxxx | | | | |
| | Title | Employee's title | nvarchar 5) | xxxxxxx | | | FK | Employee_title(ET_title) |
| | Address | Employee's address | nvarchar (5) | xxxxxx | | | | |
| | DOB | Employee's date of birth | date | yyyy-mm-dd | | | | |
| | Email | Employee's email | nvarchar (30) | xxxxxxx | | | | |
| | Religion | Employee's religion | nvarchar (20) | xxxxxxx | | | | |
| | Salary | Employee's salary | decimal(7,2) | 12345.67 | | | | |
| | Phonenum | Employee's phonenumbr | nvarchar (10) | xxxxxxx | | | | |
| | Date_hired | Employee's date of hire | date | yyyy-mm-dd | | | | |
| Employee_title | ET_Title | Employee's title | nvarchar 5) | xxxxxxx | | | PK | |
| | Gender | Employee's gender | char(1) | X | | F,M | | |
| Guide | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Qualified | Guide's qualified | nvarchar (30) | xxxxxxx | | | | |
| | Date_completed_qualification | Date that guide completed qualification test | date | yyyy-mm-dd | | | | |

| | | | | | | | | |
|------------|------------------|----------------------------|---------------|----------|--|--|----|------------------------|
| | Guide_type | Guide's type | nvarchar (5) | xxxxxx | | | | |
| Driver | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Specific_license | Driver's specific license | nvarchar (20) | xxxxxxx | | | | |
| Accountant | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Typing_speed | Accountant's typing speed | nvarchar (10) | xxxxxxx | | | | |
| | Math_skill | Accountant's math skill | nvarchar (10) | xxxxxxx | | | | |
| | Certification | Accountant's certification | int | x | | | | |
| Manager | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Bonus | Bonus's manager | decimal(7,2) | 12345.67 | | | | |
| Tour | Tour_ID | Tour's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Tour_name | Tour's name | nvarchar (30) | xxxxxxx | | | FK | Employee_name(TN_name) |
| | Fee_charged | Tour's fee charged | nvarchar (5) | xxxxxx | | | | |
| | Hour | Tour's hour | decimal(4,2) | 12.34 | | | | |
| | Tour_type | Tour's type | nvarchar (10) | xxxxxxx | | | | |
| Tour_name | TN_name | Tour's name | nvarchar (30) | xxxxxxx | | | PK | |
| | Detail | Tour's detail | nvarchar (50) | xxxxxxx | | | | |
| Booking | Booking_id | Booking's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Booking_type | Booking's type | nvarchar (5) | xxxxxx | | | FK | Booking_type(BT_type) |
| | Booking_status | Booking's status | nvarchar (10) | xxxxxxx | | | | |

| | | | | | | | | |
|---------------|--------------------|----------------------------|---------------|-----------------------|---|--|----|-----------------------------|
| | Booking_title | Booking's title | nvarchar (30) | xxxxxxx | | | | |
| | Booking_datetime | Booking's date&time | datetime | yyyy-mm-dd , hh:mi:ss | | | | |
| | Booking_start_date | Booking's start (check in) | date | yyyy-mm-dd | | | | |
| | Booking_end_date | Booking's end (check out) | date | yyyy-mm-dd | | | | |
| | Total_cost | Cost of total Booking | decimal(7,2) | 12345.67 | | | | |
| | Special_request | Request's special booking | nvarchar (30) | xxxxxxx | Y | | | |
| | BSU_username | Sign up's username | nvarchar (30) | xxxxxxx | | | FK | Sign up(SU_username) |
| | BPayment_ID | Payment's ID | nvarchar (30) | xxxxxxx | | | FK | Payment(Payment_ID) |
| Booking_type | BT_type | Booking's type | nvarchar (5) | xxxxxx | | | PK | |
| | Description | Booking's description | nvarchar (50) | xxxxxxx | | | | |
| Location | Location_name | Location's name | nvarchar (30) | xxxxxxx | | | PK | |
| | Location_type | Location's type | nvarchar (10) | xxxxxxx | | | FK | Location_type(locT_type) |
| | Visit_date | Location's visit date | date | yyyy-mm-dd | | | | |
| | Zip_code | Location's zipcode | nchar(5) | xxxxxxx | | | FK | Location_zipcode(Zip_code) |
| | Street_num | Location's no. of street | nvarchar (10) | xxxxxxx | | | FK | Location_street(Street_num) |
| | LTour_ID | Tour's ID | nvarchar (5) | xxxxxxx | | | FK | Tour(Tour_ID) |
| Location_type | LocT_type | Location's type | nvarchar (10) | xxxxxxx | | | PK | |

| | | | | | | | | |
|------------------|----------------------|--------------------------|--------------|------------|--|--|----|-------------------------|
| | Official_description | Location's description | nvarchar(50) | xxxxxxx | | | | |
| Location_zipcode | Zip_code | Location's zipcode | nchar(5) | xxxxxxx | | | PK | |
| | District | Location's district | nvarchar(30) | xxxxxxx | | | | |
| Location_street | Steet_num | Location's no. of street | nvarchar(10) | xxxxxxx | | | PK | |
| | Street_name | Location's street name | nvarchar(30) | xxxxxxx | | | | |
| Schedule | Schedule_ID | Schedule's id | nvarchar(5) | xxxxxx | | | PK | |
| | Schedule_name | Schedule's name | nvarchar(30) | xxxxxxx | | | FK | Schedule_name(SN_name) |
| | Schedule_date | Schedule's date | date | yyyy-mm-dd | | | | |
| | Schedule_time | Schedule's time | nvarchar(10) | xxxxxxx | | | | |
| | STour_ID | Tour's ID | nvarchar(5) | xxxxxx | | | FK | Tour(Tour_ID) |
| Schedule_name | SN_name | Schedule's name | nvarchar(30) | xxxxxxx | | | PK | |
| | Description | Schedule's description | nvarchar(50) | xxxxxxx | | | | |
| Tourist | T_ID | Tourist's id | nvarchar(5) | xxxxxx | | | PK | |
| | Fname | Tourist's firstname | nvarchar(30) | xxxxxxx | | | | |
| | Lname | Tourist's lastname | nvarchar(30) | xxxxxxx | | | | |
| | Title | Tourist's title | nvarchar(5) | xxxxxx | | | FK | Tourist_title(TT_title) |
| | Email | Tourist's email | nvarchar(50) | xxxxxxx | | | | |
| | DOB | Tourist's date of birth | date | yyyy-mm-dd | | | | |
| | Religion | Tourist's religion | nvarchar(10) | xxxxxxx | | | | |
| | Address | Tourist's address | nvarchar(50) | xxxxxxx | | | | |

| | | | | | | | | |
|-------------------------|-------------------|------------------------------|------------------|------------------------------|--|-----|----|--------------------------------------|
| | Phonenum | Tourist's phonenum ber | nvarchar (10) | xxxxxxx | | | | |
| | Tourist_type | Tourist's Types | nvarchar (50) | xxxxxxx | | | | |
| | TTour_ID | Tour's ID | nvarchar (10) | xxxxxxx | | | FK | Tour(Tour_ ID) |
| Tourist_t itle | TT_Title | Tourist's title | nvarchar (30) | xxxxxxx | | | PK | |
| | Gender | Tourist's gender | nvarchar (1) | X | | F,M | | |
| Member | Member_ID | Member's id | nvarchar (10) | xxxxxxx | | | PK | |
| | Email | Member's email | nvarchar (50) | xxxxxxx | | | | |
| | Phonenum ber | Member's phonenum ber | nvarchar (10) | xxxxxxx | | | | |
| | Start_date | Member's start date | date | yyyy-mm- dd | | | FK | Member_d uration(Sta rt_date) |
| | MPromotion _ID | Promotion's ID | nvarchar (5) | xxxxxx | | | FK | Promotion(Promtion_I D) |
| Member _duratio n | Start_date | Member's start date | date | yyyy-mm- dd | | | PK | |
| | Expired_dat e | Member's expired date | date | yyyy-mm- dd | | | | |
| Payment | Payment_ID | Payment's id | nvarchar (5) | xxxxxx | | | PK | |
| | Paid_amon t | Payment 's amount | decimal(7,2) | 12345.67 | | | FK | Payment_r echeck(Pai d_amount) |
| | Paid_dateti me | Payment 's date&time | datetim e | yyyy-mm- dd , hh:mi:ss | | | | |
| | Description | Payment 's descripton | nvarchar (50) | xxxxxxx | | | | |
| | PT_ID | Tourist's ID | nvarchar (5) | xxxxxx | | | FK | Tourist(P_I D) |
| | PPT_ID | Payment type's ID | nvarchar (5) | xxxxxx | | | FK | Payment_t ype(PT_ID) |

| | | | | | | | | |
|-----------------|----------------|------------------------------|---------------|----------|--|--|----|-----------------------|
| | PPS_ID | Payment status's ID | nvarchar (5) | xxxxxx | | | FK | Payment_status(PS_ID) |
| | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | FK | Employee(Employee_ID) |
| Payment_recheck | Paid_amount | Payment's amount | decimal(7,2) | 12345.67 | | | PK | |
| | Checknum | Payment's check number | decimal(7,2) | 12345.67 | | | | |
| Payment_Status | PS_ID | Payment status's id | nvarchar (5) | xxxxxx | | | PK | |
| | PS_isactive | Payment status's is active | int | x | | | | |
| | Ps_description | Payment status's description | nvarchar (10) | xxxxxxx | | | | |
| Payment active | PA_isactive | Payment type is active | int | x | | | PK | |
| | PA_Description | Payment active's description | nvarchar (30) | xxxxxx | | | | |
| Payment_Type | PT_ID | Payment type's id | nvarchar (5) | xxxxxx | | | PK | |
| | PT_name | Payment type's name | nvarchar (10) | xxxxxxx | | | | |
| | PT_isactive | Payment type is active | int | x | | | | |
| | PT_Fee | Payment type's fee | nvarchar (5) | xxxxxx | | | | |
| Payment_name | PN_name | Payment's name | nvarchar (30) | xxxxxx | | | PK | |
| | PN_Fee | Payment's fee | nvarchar (5) | xxxxxx | | | | |
| Promotion | Promotion_ID | Promotion's id | nvarchar (5) | xxxxxx | | | PK | |
| | Promotion_name | Promotion's name | nvarchar (30) | xxxxxxx | | | FK | Pro_name(ProN_name) |

| | | | | | | | | |
|-----------------|-------------------|-------------------------|--------------|------------|--|--|----|------------------------------------|
| | Start_date | Promotion's start date | date | yyyy-mm-dd | | | FK | Pro_start(P roS_start_ date) |
| | Price | Promotion's price | decimal(7,2) | 12345.67 | | | | |
| | Promotion_type | Promotion's type | nvarchar(30) | xxxxxxx | | | | |
| | Discount | Promotion's discount | nvarchar(5) | xxxxxx | | | | |
| | Promotion_title | Promotion's title | nvarchar(30) | xxxxxxx | | | | |
| | Promotion_enabled | Promotion's enabled | int | x | | | | |
| | Employee_ID | Employee's ID | nvarchar(5) | xxxxxx | | | FK | Employee(Employee_ ID) |
| Pro_start | ProS_start_date | Promotion's start date | date | yyyy-mm-dd | | | PK | |
| | End_date | Promotion's end date | date | yyyy-mm-dd | | | | |
| Pro_name | ProN_name | Promotion's name | nvarchar(30) | xxxxxx | | | PK | |
| | Description | Promotion's description | nvarchar(30) | xxxxxx | | | | |
| Vehicle | Vehicle_ID | Vehicle's id | nvarchar(5) | xxxxxx | | | PK | |
| | Vehicle_type | Vehicle's type | nvarchar(5) | xxxxxx | | | | |
| | License_plate | Vehicle's license plate | nvarchar(10) | xxxxxxx | | | FK | Vehicle_license(Licens e_plate) |
| | Colour | Vehicle's colour | nvarchar(10) | xxxxxxx | | | | |
| | Brand | Vehicle's brand | nvarchar(20) | xxxxxxx | | | | |
| Vehicle_license | License_plate | Vehicle's license plate | nvarchar(10) | xxxxxxx | | | PK | |
| | Province | Vehicle's province | nvarchar(5) | xxxxxx | | | | |
| Sign up | SU_username | Sign up's username | nvarchar(30) | xxxxxxx | | | PK | |
| | Fname | Sign up's firstname | nvarchar(30) | xxxxxxx | | | | |

| | | | | | | | | |
|---------------|---------------------------|-------------------------|---------------|------------|--|-----|-------|---------------------------|
| | Lname | Sign up's lastname | nvarchar (30) | xxxxxx | | | | |
| | Title | Sign up's title | nvarchar (5) | xxxxx | | | FK | sign up_title(SU_T_title) |
| | SU_email | sign up's email | nvarchar (50) | xxxxxxx | | | | |
| | SU_phonenumber | Sign up's phone number | nvarchar (10) | xxxxxxx | | | | |
| | SU_DOB | Sign up's date of birth | date | yyyy-mm-dd | | | | |
| | SU_password | Sign up's password | nvarchar (30) | xxxxxxx | | | | |
| | SU_creditCard | credit card's number | nvarchar (10) | xxxxxxx | | | | |
| | <u>Cer.ID/Passportnum</u> | Cer.ID/passport number | nvarchar (13) | xxxxxxx | | | | |
| | SUT_ID | Tourist's ID | nvarchar (5) | xxxxxx | | | FK | Tourist(T_ID) |
| Sign up_title | SUT_title | Sign up's title | nvarchar (5) | xxxxxx | | | PK | |
| | Gender | Sign up's gender | char(1) | X | | F,M | | |
| Tour | Tour_ID | Tour's ID | nvarchar (5) | xxxxxx | | | PK | |
| | Tour_type | Tour's type | nvarchar (10) | xxxxxxx | | | | |
| | Fee_charged | Tour's fee charged | nvarchar (20) | xxxxxxx | | | | |
| | Hour | Tour's hour | nvarchar (10) | xxxxxxx | | | | |
| | Tour_name | Tour's name | nvarchar (30) | xxxxxxx | | | FK | Tour_name (TN_name) |
| Tour_name | TN_name | Tour's name | nvarchar (30) | xxxxxxx | | | PK | |
| | detail | Tour's detail | nvarchar (30) | xxxxxxx | | | | |
| Drive | Employee_ID | Employee's ID | nvarchar (5) | xxxxxx | | | PK,FK | Driver(Employee_ID) |
| | Vehicle_ID | Vehicle's ID | nvarchar (5) | xxxxxx | | | PK,FK | Vehicle(Vehicle_ID) |

| | | | | | | | | |
|------------|---------------|------------------------------|--------------|----------------------|--|--|-------|--------------------------|
| | Distance | Distance of vehicle | decimal(6,2) | 1234.56 | | | FK | D_distance (Distance) |
| | Fuel_cost | fuel cost | decimal(6,2) | 1234.56 | | | | |
| D_point | Vehicle_ID | Vehicle's ID | nvarchar(5) | xxxxxxx | | | PK,FK | Vehicle(Vehicle_ID) |
| | Pick up | pick up(place) | nvarchar(30) | xxxxxx | | | | |
| | Destination | destination(place) | nvarchar(30) | xxxxxx | | | | |
| | Time_in | Vehicle's start(time) | datetime | yyyy-mm-dd, hh:mi:ss | | | | |
| | Time_out | Vehicle's end(time) | datetime | yyyy-mm-dd, hh:mi:ss | | | | |
| D_sign | Employee_ID | Employee's ID | nvarchar(5) | xxxxxx | | | PK,FK | Driver(Employee_ID) |
| | Sign_in | Employee's sign in | nvarchar(30) | xxxxxxx | | | | |
| | Sign_out | Employee's sign out | nvarchar(30) | xxxxxxx | | | | |
| D_distance | Distance | Distance of vehicle | decimal(6,2) | 1234.56 | | | PK | |
| | Cost | Total cost | decimal(6,2) | 1234.56 | | | | |
| Foreigner | T_ID | Tourist's ID | nvarchar(5) | xxxxxx | | | PK | |
| | Passport_ID | Foreigner's Passport ID | char(9) | xxxxxxxxxx | | | | |
| Thai | T_ID | Tourist's ID | nvarchar(5) | xxxxxx | | | PK | |
| | <u>Cer.ID</u> | Thai certificate of identity | char(13) | xxxxxxxxxx xxxx | | | | |
| Can have | Tour_ID | Tour's ID | nvarchar(5) | xxxxxx | | | PK,FK | Tour(Tour_ID) |
| | Employee_ID | Employee's ID | nvarchar(5) | xxxxxx | | | PK,FK | Guide(Employee_ID) |
| | hourly_rate | hourly rate to pay | decimal(7,2) | 12345.67 | | | | |
| | recreation | Recreation during trip | nvarchar(30) | xxxxxxx | | | FK | C_recreation(recreation) |

| | | | | | | | | |
|------------------|-------------------|---------------------------|------------------|-----------------------------|--|--|-----------|-------------------------------|
| C_dateti me | Tour_id | Tour's ID | nvarchar (5) | xxxxxx | | | PK,F K | Tour(Tour_ ID) |
| | pick_up | pick up(place) | nvarchar (30) | xxxxxxx | | | | |
| | Destination | destination(place) | nvarchar (30) | xxxxxxx | | | | |
| | Start_trip | date time start trip | datetim e | yyyy-mm- dd, hh:mi:ss | | | | |
| | End_trip | date time end trip | datetim e | yyyy-mm- dd, hh:mi:ss | | | | |
| C_sign | Employee_I D | Employee's ID | nvarchar (5) | xxxxxx | | | PK,F K | Guide(Emp loyee_ID) |
| | sign_in | Employee's sign in | nvarchar (30) | xxxxxxx | | | | |
| | sign_out | Employee's sign out | nvarchar (30) | xxxxxxx | | | | |
| C_recrea tion | recreation | Recreation during trip | nvarchar (30) | xxxxxxx | | | PK | |
| | rewards | Reward from trip | nvarchar (30) | xxxxxxx | | | | |
| contains | Schedule_ID | Schedule 's ID | nvarchar (5) | xxxxxx | | | PK,F K | Schedule(S chedule_ID) |
| | Booking_ID | Booking'sID | nvarchar (5) | xxxxxx | | | PK,F K | Booking(Bo oking_ID) |
| | price_per_d ay | price per day | decimal(7,2) | xxxxxxx | | | | |

References

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