Database Management System

Hotel Management – Functional Dependencies

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Function Dependencies using Set notation

Functional Dependencies for Hotel table:

{hotel_id} -> {hotel_name, location, contact_info}

In the Hotel table, the hotel_id is the primary key and uniquely identifies each row in the table. The hotel_name and location are dependent on the hotel_id, as each hotel has a unique name and location. The contact_info is also dependent on the hotel_id, as each hotel has a unique contact information.

Functional Dependencies for RoomType table:

{roomtype_id} -> {room_type, room_price}

In the RoomType table, the roomtype_id is the primary key and uniquely identifies each row in the table. The room_type and room_price are dependent on the roomtype_id, as each room type has a unique type and price.

Functional Dependencies for Room table:

{room_id} -> {hotel_id, roomtype_id}

In the Room table, the room_id is the primary key and uniquely identifies each row in the table. The hotel_id and roomtype_id together uniquely identify each room. The hotel_id is dependent on the room_id, as each room belongs to a specific hotel. The roomtype_id is also dependent on the room_id, as each room has a specific type.

Functional Dependencies for Guest table:

{guest_id} -> {guest_name, guest_email, guest_phone_number}

In the Guest table, the guest_id is the primary key and uniquely identifies each row in the table. The guest_name, guest_email, and guest_phone_number are dependent on the guest_id, as each guest has a unique name, email, and phone number.

Functional Dependencies for Booking table:

{booking_id} -> {guest_id, room_id, checkin_date, checkout_date, requests}

{guest_id} -> {booking_id} {room_id}

-> {booking_id}

In the Booking table, the booking_id is the primary key and uniquely identifies each row in the table. The guest_id and room_id together uniquely identify each booking. The checkin_date, checkout_date, and requests are dependent on the booking_id, as each booking has a specific check-in and check-out date, as well as any specific requests made by the guest.

Functional Dependencies for Department table:

{dept_ID} -> {dept_name}

In the Department table, the dept_ID is the primary key and uniquely identifies each row in the table. The dept_name is dependent on the dept_ID, as each department has a unique name.

Functional Dependencies for Employee table:

{employee_id} -> {dept_id, employee_name, job_title, contact, hotel_id}

{dept_id} -> {employee_id, hotel_id}

In the Employee table, the employee_id is the primary key and uniquely identifies each row in the table. The dept_id and hotel_id together uniquely identify each employee. The employee_name, job_title, and contact are dependent on the employee_id, as each employee has a unique name, job title, and contact information.

Functional Dependencies for Service_Type table:

{service_type_id} -> {service_description}

In the Service_Type table, the service_type_id is the primary key and uniquely identifies each row in the table. The service_description is dependent on the service_type_id, as each service has a unique description.