Dylan Phoutthavong

February 20th, 2024

CSCI 3287

Practical Assignment 01

1. Based on the Invoice database below.

INVOICE

Invoice_number	Client_id	Payment
1001	1	0
1002	2	800
1003	3	9000
1004	2	2500

PRODUCT

Product_id	Description	Category	Price
10	Watch	1	250
20	Computer	1	900
30	Bike	3	1200
40	Tire	4	200
50	Database	5	88

CATEGORY

Category_id	Category
1	Electronic
3	Sports
4	Automotive
5	Books

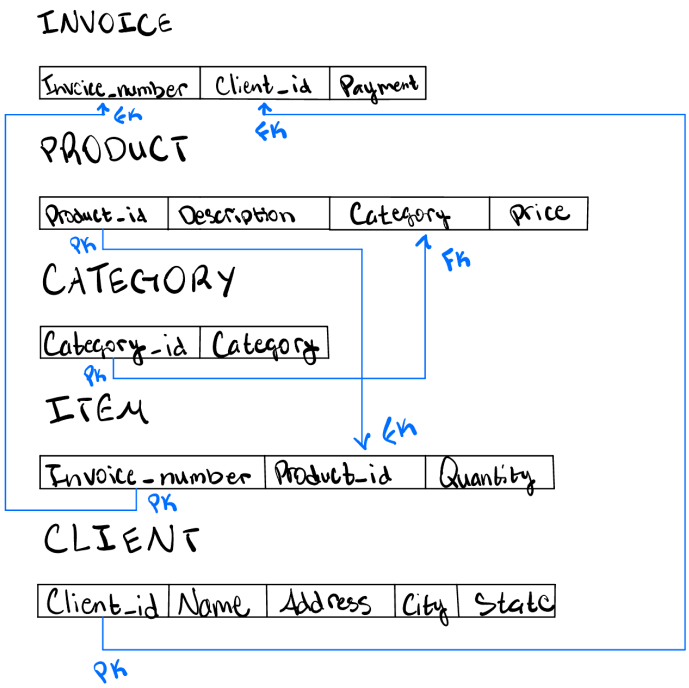
ITEM

Invoice_number	Product_id	Quantity
1001	10	3
1001	30	1
1002	40	4
1003	20	10
1004	10	10

CLIENT

Client_id	Name	Address	City	State
1	S-MART	2389 Smart ln	Denver	CO
2	Have it all	123 Warehouse st	Pueblo	CO
3	Everything++	555 Storage ave	Topeka	KS

A. Create a Database Schema (not an EER Diagram) for describing the Invoice database.



B. Identify the integrity constraints: (1) Key constraints, (2) Entity integrity, (3) Referential integrity or (4) no constraint violation. Discuss all integrity constraints violated by each operation.

a. Insert <1005, 30, 2> into ITEM relation.

- Violations: Foreign Key Constraint
    - Invoice_number 1005 does not exist in INVOICE

b. Insert <60, 'Appliance', 6, 100> into PRODUCT relation.

- Violations: Foreign Key Constraint
    - Category 6 does not exist as a category_id in CATEGORY

c. Update the Product_id attribute of the PRODUCT tuple with Product_id = 50 to 60.

- Violations: NONE

d. Update the Product_id attribute of the ITEM tuple with Product_id = 40 to 60.

- Violations: Foreign Key Constraint
    - Product_id 60 does not exist as a Product_id in PRODUCT

e. Delete the INVOICE tuples with Payment = 0.

- Violations: NONE

2. Create an EER Diagram for a parking garage database.