

COMP 189: Homework #6

Assigned Feb 19, 2022

Due Mar 7, 2022

59 points total

Instructions: For each problem, show all your work (required for credit). For answers requiring written answers, while no more than five or six sentences are expected, sufficient justification must be given for any position, opinion, or perspective taken.

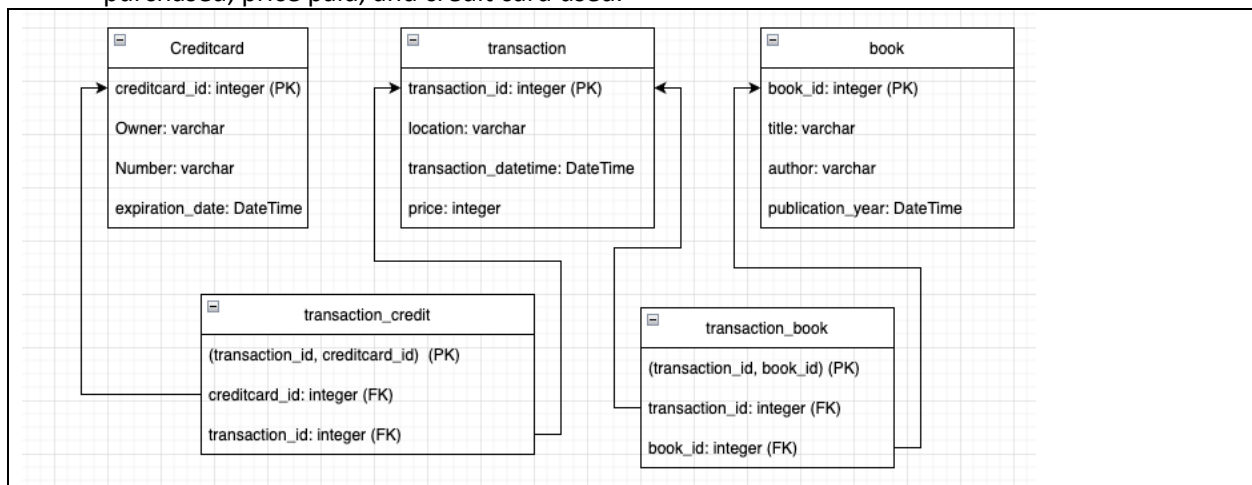
Submission Instructions: submit your solutions in PDF format through MyCourses Assignments.

Technical Exercises

1. Database Schema (16 pts)

You've been hired to build the database for Indigo's sales database. Write out the schema that supports the following:

- Books have a title, author, and publication year
- Credit cards have the name of the owner, credit card number, and expiration date
- Transactions have the transaction date, store where the transaction happened, the books purchased, price paid, and credit card used.



Your database schema should have five tables that apply the best practices we covered in class.

2. Film Database Structure (15 pts)

Write out the schema for the *film*, *actor*, *film_actor*, *film_category*, and *category* tables of the sakila database.

Film

film_id: integer (Primary Key)
title: varchar
description: varchar
release_year: integer
language_id: integer

original_language_id: integer
rental_duration: float
rental_rate: integer
length: integer
replacement_cost: float
rating: integer
special_features: varchar
Last_updated: datetime

Actor:

Actor_id: integer (Primary Key)
First_name: varchar
Last_name: varchar
Last_updated: datetime

Film_actor

Actor_id: varchar (Foreign Key to Actor)
Film_id: integer
Last_updated: datetime

Film_category

Film_id: integer (Foreign Key to film)
Category_id: varchar (Foreign Key to Category)
Last_updated: datetime

Category

Category_id: integer (Primary Key)
Name: varchar
Last_updated: datetime

3. Film Queries (18 pts)

Write SQL queries that answer the following needs using the sakila database. For these queries show a partial screen capture of the results you get when running this on the database (i.e., you don't need to show ALL transactions, just up to the first 5).

1. Fetch all fields for actors whose first name is 'Kirsten'.

```
SELECT * FROM actor WHERE first_name='Kirsten'
```

1 SELECT * FROM actor WHERE first_name='Kirsten'

Wrap Contents

Execute or Discard

Rows 2

CSV JSON

CSV JSON

actor_id	first_name	last_name	last_update
21	KIRSTEN	PALTROW	2006-02-15 04:34:33
92	KIRSTEN	AKROYD	2006-02-15 04:34:33

- Fetch the name and rental rate for all films that are longer than 1.5 hours.

SELECT title, rental_rate FROM film WHERE length>90

1 SELECT title, rental_rate FROM film WHERE length>90

Wrap Contents

Execute or Discard

Rows 675

CSV JSON

CSV JSON

title	rental_rate
AFFAIR PREJUD...	2.99
AFRICAN EGG	2.99
AGENT TRUMAN	2.99
ALABAMA DEVIL	2.99
ALAMO VIDEOT...	0.99
ALASKA PHANT...	0.99

- Fetch the name and description of all films that can be rented for more than 3 days.

SELECT title, description FROM film WHERE rental_duration > 3

1
SELECT title,description FROM film WHERE rental_duration > 3

Wrap Contents

i
Execute or Discard

Rows 797
CSV JSON CSV JSON

title	description
ACADEMY DIN...	A Epic Drama of a Feminist And a Mad Scientist who must Battle a Teacher in The Canadian Rockies
ADAPTATION H...	A Astounding Reflection of a Lumberjack And a Car who must Sink a Lumberjack in A Baloon Factory
AFFAIR PREJUD...	A Fanciful Documentary of a Frisbee And a Lumberjack who must Chase a Monkey in A Shark Tank
AFRICAN EGG	A Fast-Paced Documentary of a Pastry Chef And a Dentist who must Pursue a Forensic Psychologist in The Gulf of Mexico
AIRPLANE SIER...	A Touching Saga of a Hunter And a Butler who must Discover a Butler in A Jet Boat
AIRPORT POLL...	A Epic Tale of a Moose And a Girl who must Confront a Monkey in Ancient India

4. Fetch all the name of all Italian-language films.

SELECT * FROM film WHERE language_id=(SELECT language_id FROM language WHERE name='Italian')

Wrap Contents

i
Execute or Discard

Rows 0

film_id	title	description	release_year	language_id	original_langu...	rental_duration	rent
No results found							

5. Fetch the name and rental price of all comedies.

```
SELECT title, rental_rate from film where film_id IN(SELECT film_id FROM film_category WHERE category_id = (SELECT category_id FROM category where name='Comedy'))
```

```
1 IN(SELECT film_id FROM film_category WHERE category_id = (SELECT category_id FROM category where name='Comedy'))]
```

Wrap Contents

i

Execute or Discard

Rows 58

CSV JSON

CSV JSON

title	rental_rate
AIRPLANE SIER...	4.99
ANTHEM LUKE	4.99
BRINGING HYS...	2.99
CAPER MOTIONS	0.99
CAT CONEHEA...	4.99
CLOSER BANG	4.99

6. Fetch the names of all customers who spent more than \$5 in a single rental transaction.

```
SELECT first_name FROM customer WHERE customer_id IN(SELECT DISTINCT customer_id FROM payment where amount>5.00)
```

1

SELECT first_name FROM customer WHERE customer_id IN(SELECT DISTINCT customer_id FROM payment where amount>5.00)]

Wrap Contents

i

Execute or Discard

Rows 599

CSV JSON

CSV JSON

first_name
MARY
PATRICIA
LINDA
BARBARA
ELIZABETH
JENNIFER

4. Indigo Queries (10 pts)

Give the SQL queries for that answer the following needs using the database you designed in Question #1. No need to “show work” on this – though you’re welcome to add a sentence explaining your query which could be used for partial credit.

1. Fetch all books published in 2016.

```
SELECT * FROM book WHERE publication_year=2016;
```

This will select all information from the Book table where the Publication year is equal to 2016

2. Fetch all transactions associated with credit card number “1159 9936 0909 4454”

```
SELECT * FROM transaction WHERE transaction_id IN (  
  SELECT transaction_id FROM transaction_credit WHERE creditcard_id IN (  
    SELECT creditcard_id FROM creditcard WHERE number=1159993609094454  
  )  
)
```

3. Fetch all transactions that happened at stores located in Quebec.

```
SELECT * FROM transaction WHERE location="Quebec"
```