E-Commerce Cassandra Practice Project

Scenario:

You are tasked with designing and implementing a Cassandra database for an e-commerce platform. The system should manage product categories, brands, and individual product details.

Database Design:

1. **Product Categories:**

   - Design a table named categories to store product category information.

2. **Product Brands:**

   - Design a table named brands to store product brand information.

3. **Products:**

   - Design a table named products to store individual product information.

Assessment Tasks:

1. Create a Keyspace:

- Write a CQL command to create a keyspace named EcommerceCatalog with a replication strategy of SimpleStrategy and a replication factor of 1.

2. Use the Keyspace:

- Write a command to use the EcommerceCatalog keyspace.

3. Create the Categories Table:

- Create a table named categories with the following columns:
  - category_id (UUID, primary key)
  - category_name (text)
  - description (text)
- Provide the CQL command for this.

4. Create the Brands Table:

- Create a table named brands with the following columns:
  - brand_id (UUID, primary key)
  - brand_name (text)

- o country_of_origin (text)
- Provide the CQL command for this.

5. Create the Products Table:

- Create a table named products with the following columns:
  - ➢ product_id (UUID, primary key)
  - ➢ product_name (text)
  - ➢ category_id (UUID)
  - ➢ brand_id (UUID)
  - ➢ price (decimal)
  - ➢ inventory_count (int)
  - ➢ description (text)

6. Insert Records into Categories Table:

- Insert the following records into the categories table:
  - ➢ (Generate UUID, 'Electronics', 'Electronic devices')
  - ➢ (Generate UUID, 'Computers', 'Laptops and desktops')
  - ➢ (Generate UUID, 'Smartphones', 'Mobile phones')
  - ➢ (Generate UUID, 'Clothing', 'Apparel')
  - ➢ (Generate UUID, 'Menswear', 'Clothing for men')
  - ➢ (Generate UUID, 'Womenswear', 'Clothing for women')
- Provide the CQL commands for this.

7. Insert Records into Brands Table:

- Insert the following records into the brands table:
  - ➢ (Generate UUID, 'TechCorp', 'USA')
  - ➢ (Generate UUID, 'StyleGen', 'Italy')
  - ➢ (Generate UUID, 'MobilePro', 'China')
  - ➢ (Generate UUID, 'FashionFit', 'UK')
  - ➢ (Generate UUID, 'ElectroMax', 'Japan')
  - ➢ (Generate UUID, 'HomeStyle', 'Canada')
- Provide the CQL commands for this.

8. Insert Records into Products Table:

- Insert the following records into the products table:

- ➢ (Generate UUID, 'Laptop X100', (UUID of 'Computers'), (UUID of 'TechCorp'), 1200.00, 50, 'High-performance laptop')
- ➢ (Generate UUID, 'Smartphone Z5', (UUID of 'Smartphones'), (UUID of 'MobilePro'), 800.00, 100, 'Latest smartphone')
- ➢ (Generate UUID, 'Mens Shirt', (UUID of 'Menswear'), (UUID of 'StyleGen'), 50.00, 150, 'Classic shirt')
- ➢ (Generate UUID, 'Womens Dress', (UUID of 'Womenswear'), (UUID of 'FashionFit'), 120.00, 110, 'Elegant dress')
- ➢ (Generate UUID, 'Desktop Pro 2000', (UUID of 'Computers'), (UUID of 'ElectroMax'), 1500.00, 30, 'Powerful desktop')
- ➢ (Generate UUID, 'Smartphone Lite', (UUID of 'Smartphones'), (UUID of 'MobilePro'), 300.00, 200, 'Budget phone')
- ➢ (Generate UUID, 'Mens Pants', (UUID of 'Menswear'), (UUID of 'FashionFit'), 75.00, 120, 'Comfortable pants')
- ➢ (Generate UUID, 'Womens Blouse', (UUID of 'Womenswear'), (UUID of 'StyleGen'), 80.00, 130, 'Stylish blouse')
- ➢ (Generate UUID, 'Laptop Mini', (UUID of 'Computers'), (UUID of 'TechCorp'), 700.00, 80, 'Portable laptop')
- ➢ (Generate UUID, 'Smartphone Pro', (UUID of 'Smartphones'), (UUID of 'ElectroMax'), 1100.00, 60, 'Professional phone')
- ➢ (Generate UUID, 'Mens Jacket', (UUID of 'Menswear'), (UUID of 'TechCorp'), 150.00, 90, 'Warm jacket')
- ➢ (Generate UUID, 'Womens Skirt', (UUID of 'Womenswear'), (UUID of 'FashionFit'), 60.00, 190, 'Casual skirt')
- ➢ (Generate UUID, 'Tablet Pro', (UUID of 'Computers'), (UUID of 'ElectroMax'), 900.00, 70, 'Professional tablet')
- ➢ (Generate UUID, 'Headphones Wireless', (UUID of 'Electronics'), (UUID of 'MobilePro'), 180.00, 160, 'High quality headphones')
- ➢ (Generate UUID, 'Smart TV', (UUID of 'Electronics'), (UUID of 'HomeStyle'), 600.00, 40, 'Smart television')
- Provide the CQL commands for this.

9. Batch Insert Records:

- Use a BEGIN BATCH command to insert the following records into the products table in one batch:
  - (Generate UUID, 'Sport T-Shirt', (UUID of 'Menswear'), (UUID of 'FashionFit'), 40.00, 250, 'Sporty t-shirt')
  - (Generate UUID, 'Portable SSD', (UUID of 'Electronics'), (UUID of 'TechCorp'), 120.00, 140, 'Fast portable storage')
- Update the price of 'Laptop X100' to 1250.00 within the same batch.
- Delete 'Smartphone Lite' from the products table within the same batch.
- Provide the CQL commands for this.

10. Update a Record:

- Write a command to update the description of the product 'Mens Shirt' to 'Premium classic shirt'.

11. Delete a Record:

- Write a command to delete the brand 'HomeStyle' from the brands table.

12. Create an Index:

- Create an index on the category_id column of the products table.

13. Query the Products Table:

- Write a query to select all products with a price greater than 500.00.

14. Retrieve Products by Brand:

- Write a query to retrieve all products from the brand 'TechCorp'.

15. Calculate the Average Price:

- Write a query to calculate the average price of all products in the 'Smartphones' category.

16. Find the Minimum Inventory Count:

- Write a query to find the minimum inventory count of any product.

17. Find the Maximum Inventory Count:

- Write a query to find the maximum inventory count of any product.

18. Count Products in a Category:

- Write a query to count the total number of products in the 'Computers' category.

19. Count Brands from a Country:

- Write a query to count the total number of brands in Japan.