

## **E-Commerce Cassandra Assessment: 20.03.2025**

### **Instructions**

1. Copy your CQL commands onto a Microsoft Word document.
2. Save the document with your name and email to [anyway@ortsa.org.za](mailto:anyway@ortsa.org.za).
3. Correctly number your answers in the document.

### **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)
  - 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.