Report 3

We will create a Python program that interacts with the MySQL database “AmazonWebPage” to perform various operations such as updating customer addresses, calculating the average price of products, retrieving customer names, etc. The program will be implemented in Python using MySQL as the database backend. Screenshots of the implementation of Python are provided below, showing the inputs and outputs. Run the Python program to ensure the output is the same as the screenshot. If there are any errors or unexpected behavior, troubleshoot accordingly.

SQL Queries

```
SELECT * FROM Customer WHERE email = %s;
```

```
SELECT * FROM Item WHERE cart_id = %s;
```

```
SELECT c.name AS customer_name, p.name AS product_name
FROM ShoppingCart sc
JOIN Customer c ON sc.customer_id = c.customer_id
JOIN Item i ON sc.cart_id = i.cart_id
JOIN Product p ON i.product_id = p.product_id;
```

```
SELECT p.name AS product_name, p.price, i.quantity
FROM Item i
JOIN Product p ON i.product_id = p.product_id
WHERE i.cart_id = %s;
```

```
UPDATE Customer SET address = %s WHERE customer_id = %s;
```

```
UPDATE Item SET quantity = %s WHERE item_id = %s;
```

Input:

```
import mysql.connector

cnx = mysql.connector.connect(user='root', password='******', host='localhost', database='AmazonWebPage')
cursor = cnx.cursor()

try:
    # Query 1: Retrieve customer information by email
    email = 'jerrycurls123@gmail.com'
    query = "SELECT * FROM Customer WHERE email = %s"
    cursor.execute(query, (email,))
    print("Query 1 Results:")
    for data in cursor:
        print(data)

    # Query 2: Retrieve items in a specific shopping cart
    cart_id = 202
    query = "SELECT * FROM Item WHERE cart_id = %s"
    cursor.execute(query, (cart_id,))
    print("\n Query 2 Results:")
    for data in cursor:
        print(data)

    # Query 3: Retrieve customer and product names for items in shopping carts
    query = """
    SELECT c.name AS customer_name, p.name AS product_name
    FROM ShoppingCart sc
    JOIN Customer c ON sc.customer_id = c.customer_id
    JOIN Item i ON sc.cart_id = i.cart_id
    JOIN Product p ON i.product_id = p.product_id
    """
    cursor.execute(query)
    print("\n Query 3 Results:")
    for data in cursor:
        print(data)

    # Query 4: Retrive product name, price, and quantity for a specific shopping cart
    cart_id = 202
    query = """
    SELECT p.name AS product_name, p.price, i.quantity
    FROM Item i
    JOIN Product p ON i.product_id = p.product_id
    WHERE i.cart_id = %s
    """
    cursor.execute(query, (cart_id,))
    print("\n Query 4 Results:")
    for data in cursor:
        print(data)

    # Query 5: Update customer address by customer ID
    new_address = '456 Elm St'
    customer_id = 2
    query = "UPDATE Customer SET address = %s WHERE customer_id = %s"
    cursor.execute(query, (new_address, customer_id))
    cnx.commit()
    print(f"\n Query 5: Address updated for customer ID {customer_id}")

    # Query 6: Update item quantity by item ID
    new_quantity = 3
    item_id = 302
    query = "UPDATE Item SET quantity = %s WHERE item_id = %s"
    cursor.execute(query, (new_quantity, item_id))
    cnx.commit()
    print(f"\n Query 6: Quantity updated for item ID {item_id}")

except mysql.connector.Error as err:
    print("Error", err)

cursor.close()
cnx.close()
```

Output:

```
Query 1 Results:
(1, 'Jerry Curl', 'jerrycurls123@gmail.com', '123 Main St')

 Query 2 Results:
(302, 102, 202, 3)

 Query 3 Results:
('Jerry Curl', 'Game Console')
('Coopants Mudson', 'Desktop')

 Query 4 Results:
('Desktop', Decimal('1199.99'), 3)

 Query 5: Address updated for customer ID 2

 Query 6: Quantity updated for item ID 302
```

SQL Procedure

```
DELIMITER //
CREATE PROCEDURE GetAveragePrice()
BEGIN
        SELECT AVG(price) AS average_price FROM Product;
END //
DELIMITER ;
```

SQL Function

```
CREATE FUNCTION GetCustomerName(customer_id INT) RETURNS VARCHAR(255)
DETERMINISTIC
BEGIN
   DECLARE customer_name VARCHAR(255);
   SELECT name INTO customer_name FROM Customer WHERE customer_id =
customer_id LIMIT 1;
   RETURN customer_name;
END //
DELIMITER ;
```

Input:

```
cnx = mysql.connector.connect(user='root', password='******', host='localhost', database='AmazonWebPage')
cursor = cnx.cursor()

try:
    # Call the procedure GetAveragePrice
    cursor.callproc('GetAveragePrice')
    for result in cursor.stored_results():
        avg_price = result.fetchone()[0]
        print("Average Price of Products:", avg_price)

except mysql.connector.Error as err:
    print("Error:", err)

try:
    cursor.execute("SELECT GetCustomerName(1) AS customer_name")
    customer_name = cursor.fetchone()[0]
    print("Customer Name:", customer_name)
except mysql.connector.Error as err:
    print("Error:", err)

cursor.close()
cnx.close()
```

Output:

```
()
Average Price of Products: 849.990000
Error 1172 (42000): Result consisted of more than one row
```