Question # 01

In a web programming language of your choice, provide code and tests for a method which multiplies a value by 321, without using loops, the multiply operator, or divide operator.

Samina Haq

```java
import java.util.Scanner;

/*In a web programming language of your choice, provide code and tests for a
method which multiplies a value by 321, without using loops, the multiply
operator, or divide operator.*/

public class Q1 {

	public static void main(String[] args) {
		System.out.println("Enter value");
		int value;
		int res = 0;
		Scanner scan = new Scanner(System.in);
		value = scan.nextInt();
		int GivenValue = 321;
		res = russianPeasant(GivenValue, value);
		System.out.print(res);

	}

	static int russianPeasant(int val1, int val2) {

		int res = 0;

		while (val2 > 0) {

			if ((val2 & 1) != 0)
				//System.out.print(res);
				res = res + val1;

			val1 = val1 << 1;
			val2 = val2 >> 1;
		}
		return res;
	}

}
```

Test Cases:

```
Enter value
10
3210
```

```
Enter value
1
321
```

```
Enter value
0
0
```

Question # 02

```
/* Create a table called Customers */
CREATE TABLE Customers(Id integer PRIMARY KEY, Name text);

/* Create few records in this table */
INSERT INTO Customers VALUES(1,'Ryan');
INSERT INTO Customers VALUES(2,'Jonathan');
INSERT INTO Customers VALUES(3,'Colin');
INSERT INTO Customers VALUES(4,'Syed');


/* Create a table called Customer_Addresses */
CREATE TABLE Customer_Address(Id integer PRIMARY KEY,CUSTOMER_ID integer, STREET_ADDRESS text,
POSTAL_CODE integer, COUNTRY text);

/* Create few records in this table */
INSERT INTO Customer_Address VALUES(1, 3,'123 Big Walk Way', 75023, 'US');
INSERT INTO Customer_Address VALUES(2, 2,'509 Charter Road', 90021, 'US');
INSERT INTO Customer_Address VALUES(3, 1,'999 Night Stalker Road',12345, 'Us');
```

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2. Based on the following schema tables, **using an SQL statement**, select all contacts in the table and their address information. **Omit any records that do not have an address.** Show the output of your queries as returned from the SQL statement.

Customers	
ID	**NAME**
1	Ryan
2	Jonathan
3	Colin
4	Syed

Customer_Addresses				
ID	**CUSTOMER_ID**	**STREET_ADDRESS**	**POSTAL_CODE**	**COUNTRY**
1	2	123 Big Walk Way	75023	US
2	3	509 Charter Road	90021	US
3	1	999 Night Stalker Road	12345	US

```
--Query
select c.Id as ID ,
      c.Name as Name,
      ca.STREET_ADDRESS as Address,
      ca.POSTAL_CODE as Postal_Code,
      ca.COUNTRY as Country
   from Customers c inner join Customer_Address ca
   on c.Id = ca.CUSTOMER_ID
   order by ID;
```

Result

```
$sqlite3 database.sdb < main.sql
1|Ryan|999 Night Stalker Road|12345|Us
2|Jonathan|509 Charter Road|90021|US
3|Colin|123 Big Walk Way|75023|US
```

Question # 03

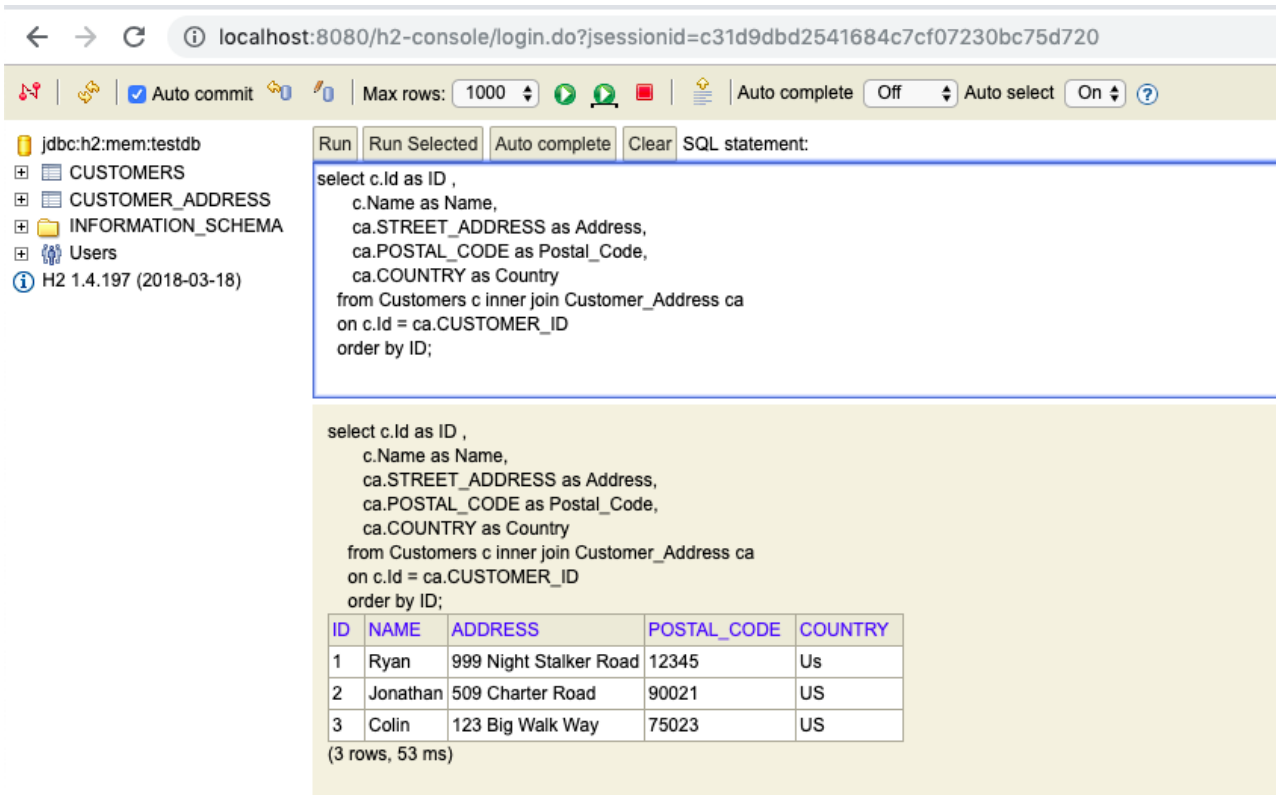
3. Based on the table information in Question 2, write a REST based javascript service (any framework of your choice) which interfaces with these tables. Write any associated unit tests necessary.

Samina Haq

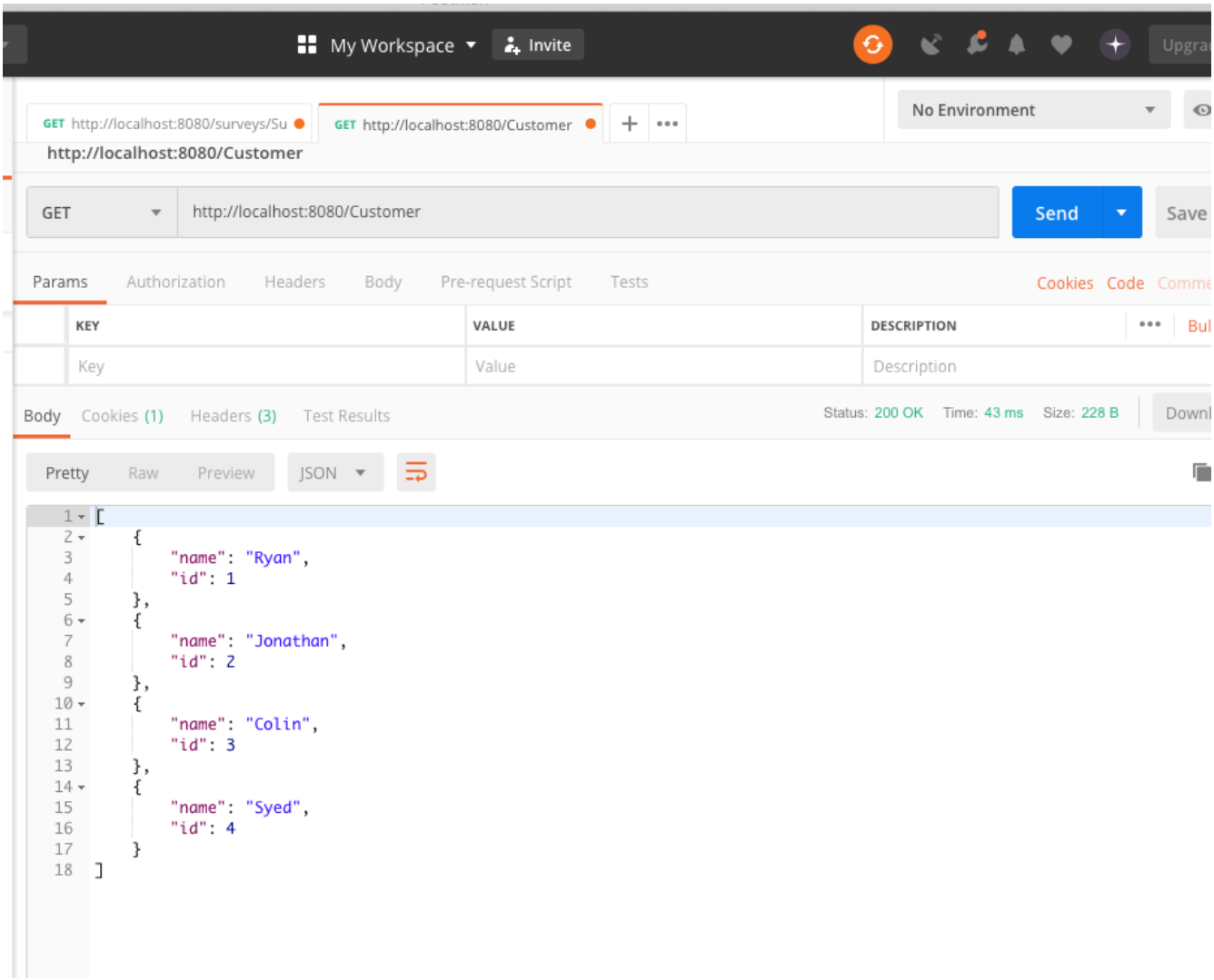
According to my understanding toward the assignment I built these following features, please feel free to ask if i miss any features that I was asked to do in this assignment

Please find complete project at this following Git repository , I used Spring framework for this task

https://github.com/saminahaq/REST



ID	NAME	ADDRESS	POSTAL_CODE	COUNTRY
1	Ryan	999 Night Stalker Road	12345	Us
2	Jonathan	509 Charter Road	90021	US
3	Colin	123 Big Walk Way	75023	US


My Workspace
Invite
GET http://localhost:8080/surveys/Su
GET http://localhost:8080/Customer
No Environment
http://localhost:8080/Customer
GET
http://localhost:8080/Customer
Send
Save
Params
Authorization
Headers
Body
Pre-request Script
Tests
Cookies
Code
KEY
VALUE
DESCRIPTION
Key
Value
Description
Body
Cookies (1)
Headers (3)
Test Results
Status: 200 OK
Time: 43 ms
Size: 228 B
Pretty
Raw
Preview
JSON
[
{
"name": "Ryan",
"id": 1
},
{
"name": "Jonathan",
"id": 2
},
{
"name": "Colin",
"id": 3
},
{
"name": "Syed",
"id": 4
}
]

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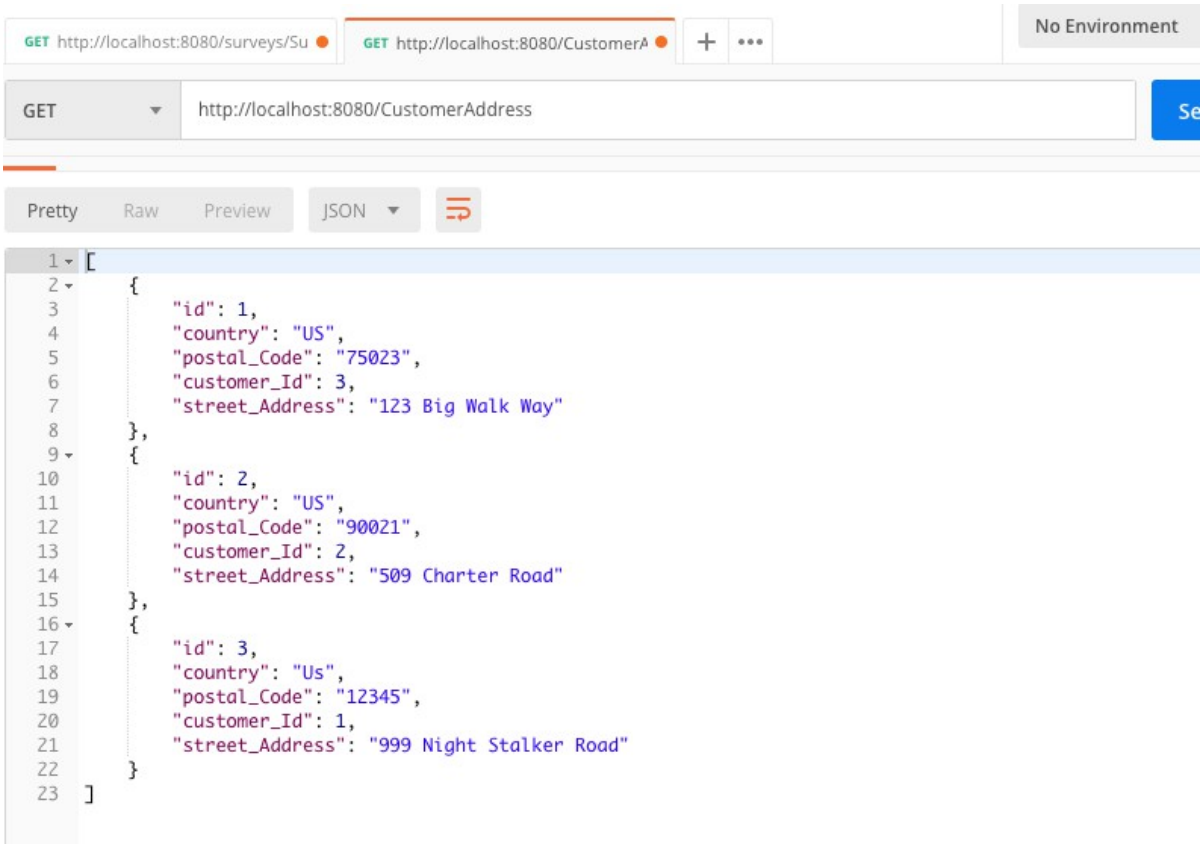
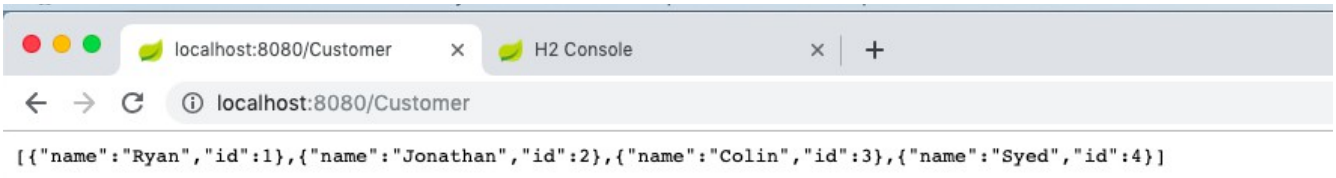
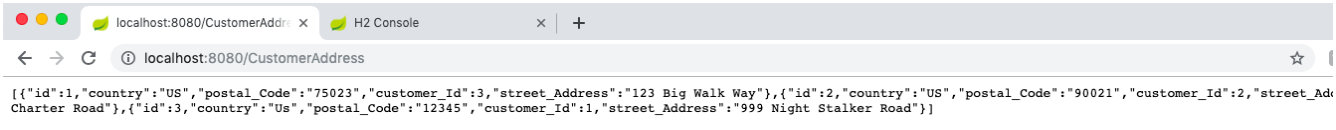

GET http://localhost:8080/surveys/Su
GET http://localhost:8080/CustomerA
No Environment
GET
http://localhost:8080/CustomerAddress
Pretty
Raw
Preview
JSON
[
{
"id": 1,
"country": "US",
"postal_Code": "75023",
"customer_Id": 3,
"street_Address": "123 Big Walk Way"
},
{
"id": 2,
"country": "US",
"postal_Code": "90021",
"customer_Id": 2,
"street_Address": "509 Charter Road"
},
{
"id": 3,
"country": "Us",
"postal_Code": "12345",
"customer_Id": 1,
"street_Address": "999 Night Stalker Road"
}
]


localhost:8080/Customer
H2 Console
localhost:8080/Customer
[{"name":"Ryan","id":1},{"name":"Jonathan","id":2},{"name":"Colin","id":3},{"name":"Syed","id":4}]


H2 Console
localhost:8080/CustomerAddress
[{"id":1,"country":"US","postal_Code":"75023","customer_Id":3,"street_Address":"123 Big Walk Way"},{"id":2,"country":"US","postal_Code":"90021","customer_Id":2,"street_Ad
Charter Road"},{"id":3,"country":"Us","postal_Code":"12345","customer_Id":1,"street_Address":"999 Night Stalker Road"}]