Student ID: ____

Full Names: ____

Enterprise Web Application Developer Test for GSA for CS425-SWE-202408

(August 2024)

Author: Professor Obinna Kalu, MSCS

1. The time allotted for completing this test is 2 hours.
2. You are expected to use your Computer with an IDE or any Code Editor tool of your choice to implement your solution for the question.
3. *For the tasks in the question, you are expected to take screenshot(s) of your result(s), save each into a .png or .jpg image file, placed inside a folder named, screenshots and include these in your submission, making sure to include all your project source code, pushed to a repository on your Github account. For the given question, when you have completed your own solution, you are required to take each of the set of 5 evidential sample screenshots, which have been included at the end of the question.*
4. Upon completion, to submit your work for review and grading, simply push your entire Project Source Code folder (including the screenshots folder) to a repository on your Github account. And send the repository's URL using Microsoft Teams chat to Professor Kalu (okalu@miu.edu).
5. **This GSA Selection test belongs to MIU CS Department and must not be taken away or copied or photographed or reproduced or transferred or shared or distributed**. **Any Violation will be penalized.**

Make sure to include the screenshots of your results, as required.

Enterprise Web Developer Test (70 points)

Evaluating your Software Development/Coding ability:

1. (70 points) **Implementing an Enterprise Web Application for a Retail supermarket**

Assume a national retail supermarket, named MartyWally, has hired you to design and develop a Supplier Relationship Management (SRM) web system for them, which they will be using to manage the inventory (list) of Products that they stock, along with the various Suppliers who do supply them with the products. They want you to implement a basic web application for this purpose.

Here is the simplified domain/solution model for the system:

A Product is supplied by a Supplier.

And, a Supplier can supply many Products.

Here are the attributes for the **Supplier** entity, including some useful descriptions and/or sample data values:

Supplier:

supplierId: Int (Primary Key field)

name, (required field) (e.g. Hallmark Agro Inc., Iowa Farms etc.)

contactPhone, (optional field) (e.g. (641) 451-0009, etc.)

Product:

productid: long (Primary key field)

name: String (required) (e.g. Santa sweet Apples, Chicken drumsticks, etc.)
unitPrice: (e.g. $1.09, $2.25 etc.)
quantityInStock: int,
dateSupplied: date (e.g. 2023-05-31)

Data:

Here is the company's existing data, which you are expected to input/populate into a database:

Products data:

Id	Name	Unit Price	Quantity	DateSupplied	Supplier Name	PhoneNumber
1.	Santa sweet apples	$1.09	124	2023-05-31	Iowa Farms	(641) 451-0009
2.	Chicken drumsticks	$2.25	18	2023-04-10	Iowa Farms	(641) 451-0009
3.	Dole Bananas	$0.55	1097	2023-05-15	Hallmark Agro, Inc.	

For this question, you are expected to do the following:

1. Sketch a simple UML Static (class) model for the solution. Indicating the two Classes, Attributes, Relationship and Multiplicities etc.

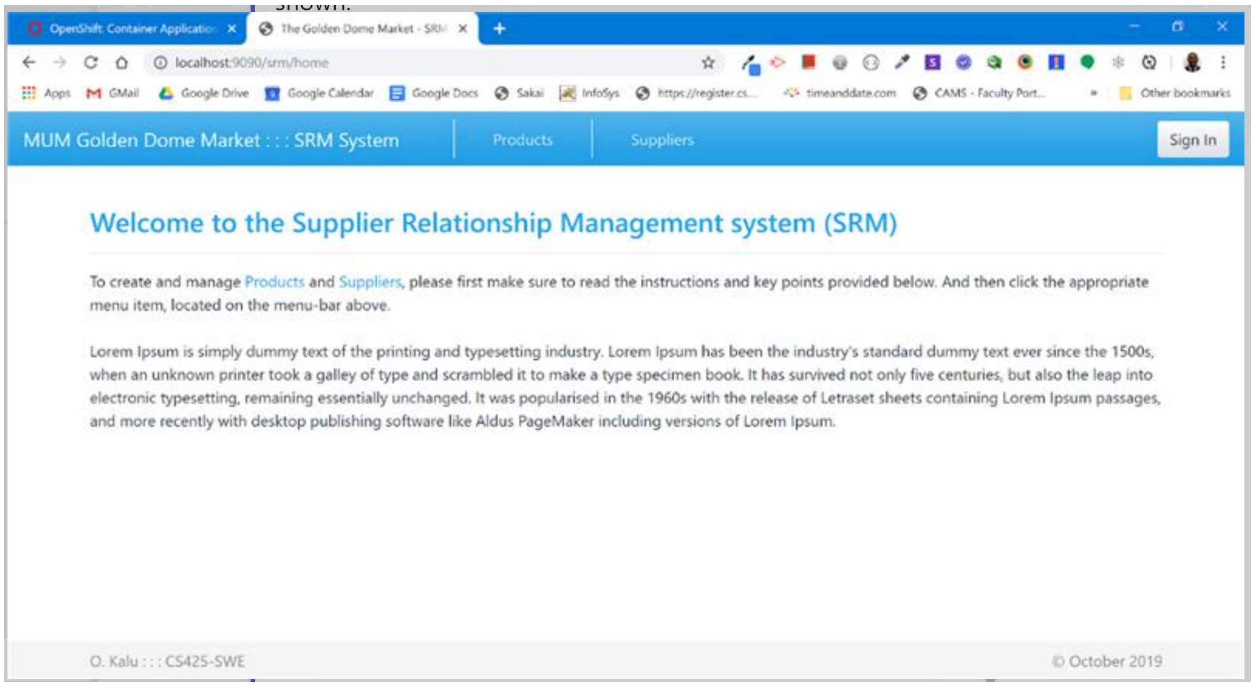
You are expected to implement only the following 3 features and use-cases:

1. Display a homepage which presents a menu (or hyperlink) of options for selection (see sample screenshot below).
2. Display list of all Products in the system (Allows the store manager to view a list of all the Products in the system). The company requires this list to be displayed sorted in ascending order of the Product Names (see sample screenshot below).
3. Implement a RESTful Web API endpoint which returns the list of Products data for a given Suppler by their SupplierId, in JSON format, when invoked at a URL endpoint such as: http://localhost:8080/srmweb/api/product/get/supplier/1

Shown below are sample User Interfaces.

Note: Your own UI design does NOT necessarily have to look exactly like these samples. But your UIs should contain all the necessary data, as expected.

Homepage:



MUM Golden Dome Market : : : SRM System | Products | Suppliers | Sign In

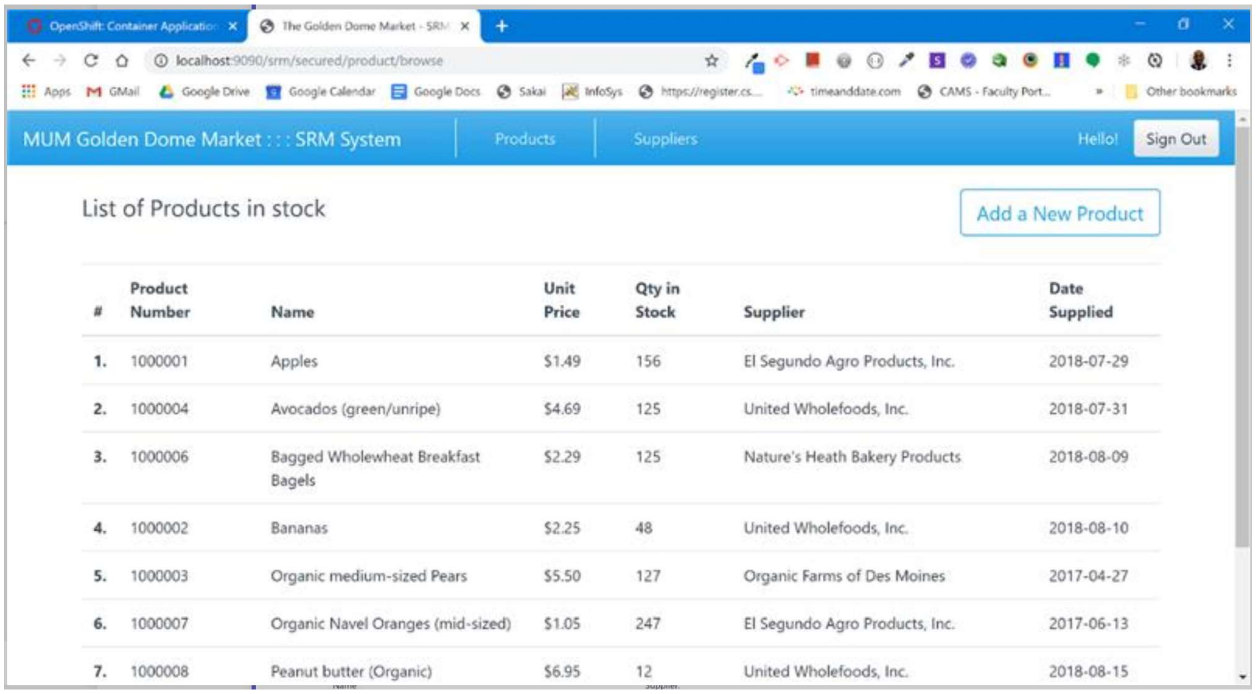
Welcome to the Supplier Relationship Management system (SRM)

To create and manage Products and Suppliers, please first make sure to read the instructions and key points provided below. And then click the appropriate menu item, located on the menu-bar above.

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

O. Kalu : : : CS425-SWE © October 2019

List of all Products (note: Should be Sorted in ascending order of their Name):



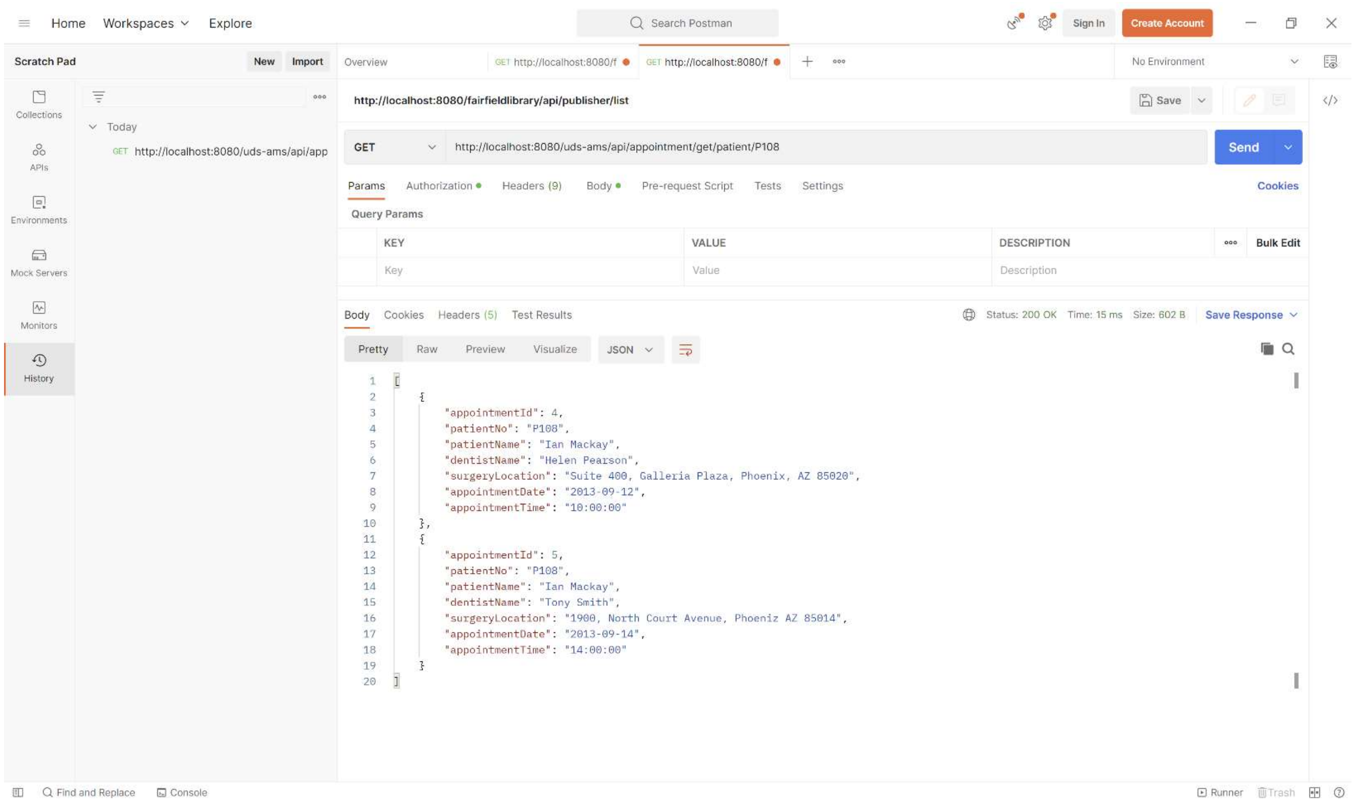
MUM Golden Dome Market : : : SRM System | Products | Suppliers | Hello! | Sign Out

List of Products in stock

Add a New Product

#	Product Number	Name	Unit Price	Qty in Stock	Supplier	Date Supplied
1.	1000001	Apples	$1.49	156	El Segundo Agro Products, Inc.	2018-07-29
2.	1000004	Avocados (green/unripe)	$4.69	125	United Wholefoods, Inc.	2018-07-31
3.	1000006	Bagged Wholewheat Breakfast Bagels	$2.29	125	Nature's Heath Bakery Products	2018-08-09
4.	1000002	Bananas	$2.25	48	United Wholefoods, Inc.	2018-08-10
5.	1000003	Organic medium-sized Pears	$5.50	127	Organic Farms of Des Moines	2017-04-27
6.	1000007	Organic Navel Oranges (mid-sized)	$1.05	247	El Segundo Agro Products, Inc.	2017-06-13
7.	1000008	Peanut butter (Organic)	$6.95	12	United Wholefoods, Inc.	2018-08-15

RESTful (Web) API endpoint url for List of Products by Supplier ID:

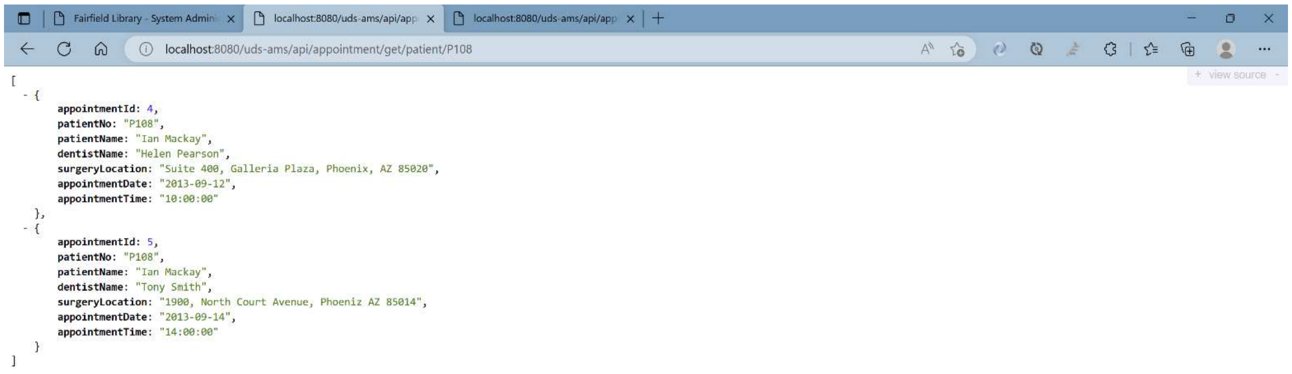


http://localhost:8080/fairfieldlibrary/api/publisher/list

GET http://localhost:8080/uds-ams/api/appointment/get/patient/P108

Status: 200 OK Time: 15 ms Size: 602 B

```
[
    {
        "appointmentId": 4,
        "patientNo": "P108",
        "patientName": "Ian Mackay",
        "dentistName": "Helen Pearson",
        "surgeryLocation": "Suite 400, Galleria Plaza, Phoenix, AZ 85020",
        "appointmentDate": "2013-09-12",
        "appointmentTime": "10:00:00"
    },
    {
        "appointmentId": 5,
        "patientNo": "P108",
        "patientName": "Ian Mackay",
        "dentistName": "Tony Smith",
        "surgeryLocation": "1900, North Court Avenue, Phoeniz AZ 85014",
        "appointmentDate": "2013-09-14",
        "appointmentTime": "14:00:00"
    }
]
```

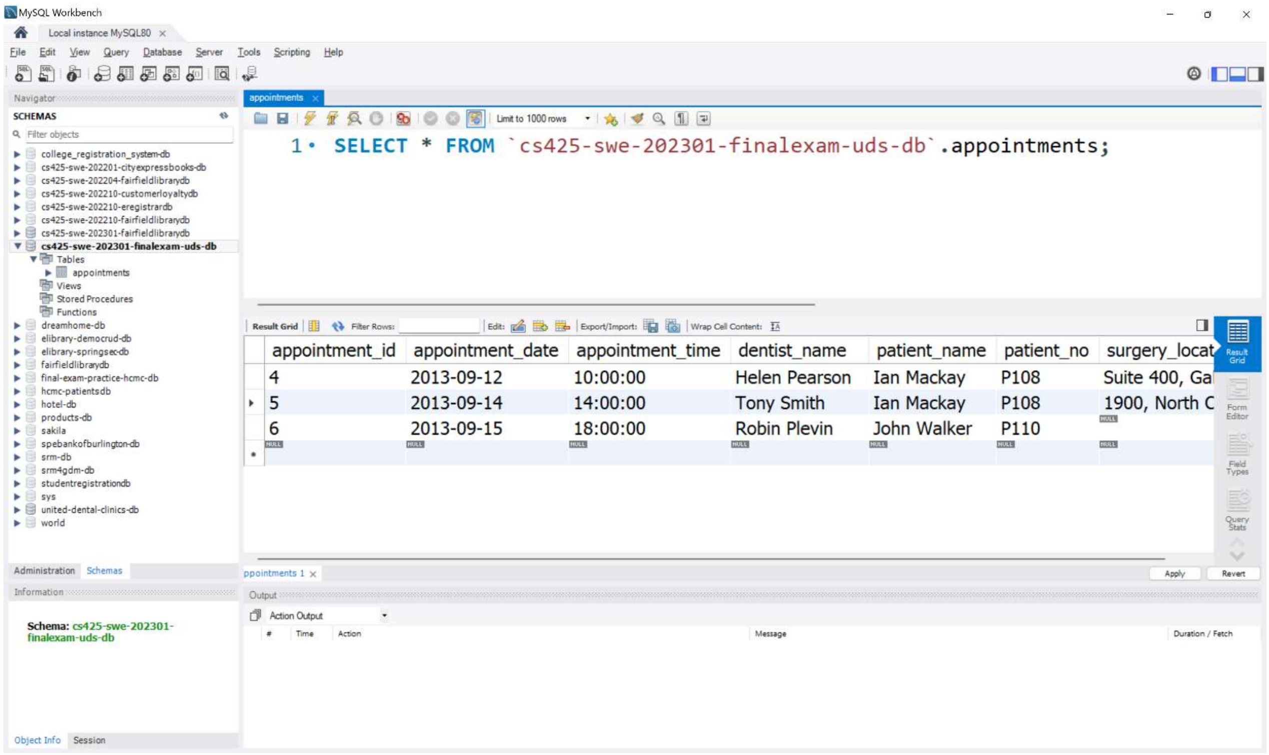

Fairfield Library - System Admin
localhost:8080/uds-ams/api/app
localhost:8080/uds-ams/api/app
view source

localhost:8080/uds-ams/api/appointment/get/patient/P108

```
[
  - {
        appointmentId: 4,
        patientNo: "P108",
        patientName: "Ian Mackay",
        dentistName: "Helen Pearson",
        surgeryLocation: "Suite 400, Galleria Plaza, Phoenix, AZ 85020",
        appointmentDate: "2013-09-12",
        appointmentTime: "10:00:00"
    },
  - {
        appointmentId: 5,
        patientNo: "P108",
        patientName: "Ian Mackay",
        dentistName: "Tony Smith",
        surgeryLocation: "1900, North Court Avenue, Phoeniz AZ 85014",
        appointmentDate: "2013-09-14",
        appointmentTime: "14:00:00"
    }
]
```

Database Table screenshot (take a screenshot of your database tables, similar to the one pasted below):

Appointments table



```sql
SELECT * FROM `cs425-swe-202301-finalexam-uds-db`.appointments;
```

appointment_id	appointment_date	appointment_time	dentist_name	patient_name	patient_no	surgery_locat
4	2013-09-12	10:00:00	Helen Pearson	Ian Mackay	P108	Suite 400, Ga
5	2013-09-14	14:00:00	Tony Smith	Ian Mackay	P108	1900, North C
6	2013-09-15	18:00:00	Robin Plevin	John Walker	P110	NULL
NULL	NULL	NULL	NULL	NULL	NULL	NULL

//-- The End --//