

Medicine Inventory Management

ABSTRACT:

- Medicine inventory is a large collection of medicines.
- Managing inventory requires monitoring of existing stock and placing orders for required medicines.
- We have considered two roles:
Admin - who manages medicine stocks and all the employees, and
Employee - who can view the inventory data and make requests for new medicines.
- There are 3 microservices, namely: Admin, Employee and Inventory.
- Authentication and authorization is ensured by employing JWT.
- On this basis, our Medicine Inventory Management System consists of 18 APIs.

ROLES and ACTIONS :

1. Admin

- a. View Inventory data
- b. Update Inventory data
- c. Delete Inventory data
- d. Insert Inventory data
- e. View employees
- f. Place Order
- g. Approve Requests made by employee

2. Staff/ Employee

- a. View Inventory data
- b. Make request for new medicine

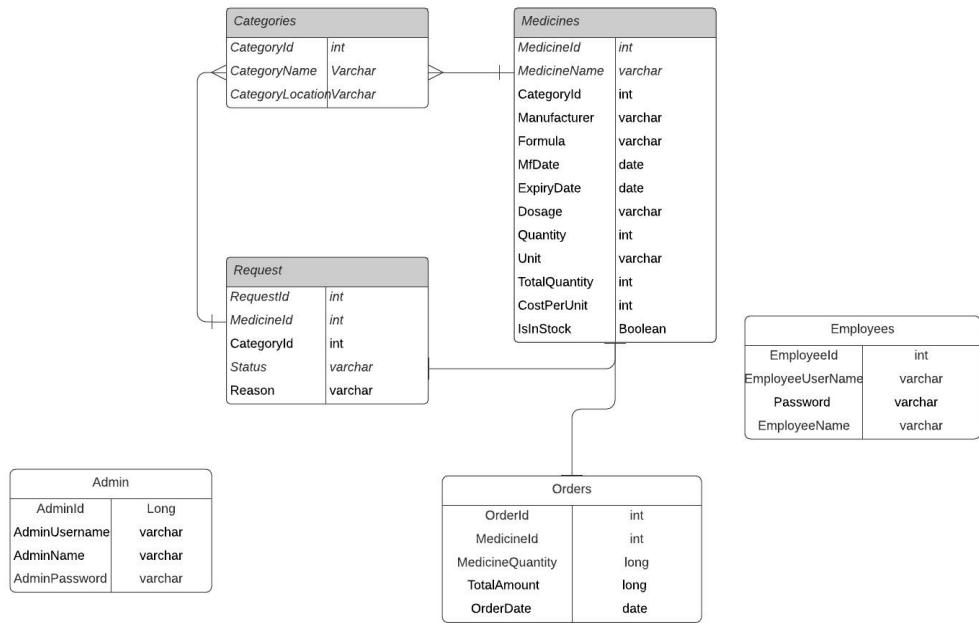
ENTITIES

1. Categories
 - a. CategoryId
 - b. CategoryName
 - c. Location
2. Medicines
 - a. Medicineld
 - b. MedicineName
 - c. CategoryId
 - d. Manufacturer
 - e. Formula
 - f. MfdDate
 - g. ExpDate
 - h. Dosage
 - i. Quantity
 - j. Unit
 - k. TotalQuantity
 - l. CostPerUnit
 - m. isInStock
3. Employees
 - a. EmployeeId
 - b. EmployeeUsername
 - c. EmployeeName
 - d. EmployeePassword
4. Orders
 - a. OrderId
 - b. Medicineld
 - c. Quantity
 - d. TotalAmount
 - e. OrderDate
 - f. OrderStatus
5. Requests
 - a. RequestId
 - b. Medicineld
 - c. MedicineName
 - d. Status
 - e. Reason
6. Admin
 - a. AdminId
 - b. AdminUsername
 - c. AdminName
 - d. AdminPassword

ER Diagram

Database ER diagram (crow's foot)

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APIs

1. [/medicine/createMedicine](#) - POST

Request:

```
{  
    "categoryId": 0,  
    "costPerUnit": 0,  
    "dosage": "string",  
    "expiryDate": "2021-03-08T06:40:15.876Z",  
    "formula": "string",  
    "isInStock": true,  
    "manufacturer": "string",  
    "medicineId": 0,  
    "medicineName": "string",  
    "mfdDate": "2021-03-08T06:40:15.876Z",  
    "quantity": 0,  
    "totalQuantity": 0,  
    "unit": "string"
```

Response:

```
{  
    "categoryId": 0,  
    "categoryName": "string",  
    "costPerUnit": 0,  
    "dosage": "string",  
    "expiryDate": "2021-03-08T06:45:49.981Z",  
    "formula": "string",  
    "isInStock": true,  
    "manufacturer": "string",  
    "medicineId": 0,  
    "medicineName": "string",  
    "mfdDate": "2021-03-08T06:45:49.981Z",  
    "quantity": 0,  
    "totalQuantity": 0,  
    "unit": "string"
```

2. [/medicine/deleteMedicine/{medicineId}](#) - DELETE

Request:

"medicineId"

Response:

```
"categoryId" 0  
"categoryName" "string"  
"costPerUnit" 0  
"dosage" "string"  
"expiryDate" "2021-03-08T06:47:36.522Z"  
"formula" "string"  
"isInStock"  
"manufacturer" "string"
```

```
"medicineId": 0
"medicineName": "string"
"mfdDate": "2021-03-08T06:47:36.522Z"
"quantity": 0
"totalQuantity": 0
"unit": "string"
```

3. [/medicine/updateMedicine/{medicineId}](#) - PUT

Request:

```
{
  "categoryId": 0,
  "costPerUnit": 0,
  "dosage": "string",
  "expiryDate": "2021-03-08T06:38:22.996Z",
  "formula": "string",
  "isInStock": true,
  "manufacturer": "string",
  "medicineId": 0,
  "medicineName": "string",
  "mfdDate": "2021-03-08T06:38:22.996Z",
  "quantity": 0,
  "totalQuantity": 0,
  "unit": "string"
```

Response:

```
{
  "categoryId": 0,
  "categoryName": "string",
  "costPerUnit": 0,
  "dosage": "string",
  "expiryDate": "2021-03-08T06:48:51.691Z",
  "formula": "string",
  "isInStock": true,
  "manufacturer": "string",
  "medicineId": 0,
  "medicineName": "string",
  "mfdDate": "2021-03-08T06:48:51.691Z",
  "quantity": 0,
  "totalQuantity": 0,
  "unit": "string"
}
```

4. [/medicine/viewMedicine](#) - GET

Request:

```
"medicineName": "string"
```

Response:

```
{  
    "categoryId": 0,  
    "categoryName": "string",  
    "costPerUnit": 0,  
    "dosage": "string",  
    "expiryDate": "2021-03-08T06:51:02.692Z",  
    "formula": "string",  
    "isInStock": true,  
    "manufacturer": "string",  
    "medicineId": 0,  
    "medicineName": "string",  
    "mfdDate": "2021-03-08T06:51:02.692Z",  
    "quantity": 0,  
    "totalQuantity": 0,  
    "unit": "string"
```

5. [/medicine/viewMedicineList](#) - GET

Response:

```
{  
    "categoryId": 0,  
    "categoryName": "string",  
    "costPerUnit": 0,  
    "dosage": "string",  
    "expiryDate": "2021-03-08T06:52:47.562Z",  
    "formula": "string",  
    "isInStock": true,  
    "manufacturer": "string",  
    "medicineId": 0,  
    "medicineName": "string",  
    "mfdDate": "2021-03-08T06:52:47.562Z",  
    "quantity": 0,  
    "totalQuantity": 0,  
    "unit": "string"
```

6. [/medicine/viewMedicineToOrder](#) - GET

Response:

```
{  
    "categoryId": 0,  
    "categoryName": "string",  
    "costPerUnit": 0,  
    "dosage": "string",  
    "expiryDate": "2021-03-08T06:53:56.010Z",  
    "formula": "string",  
    "isInStock": true,  
    "manufacturer": "string",  
    "medicineId": 0,  
    "medicineName": "string",
```

```
        "mfdDate": "2021-03-08T06:53:56.010Z",
        "quantity": 0,
        "totalQuantity": 0,
        "unit": "string"
    }
]
```

7. [/order/createOrder](#) - POST

Request:

```
{
    "medicineId": 0,
    "medicineQuantity": 0,
    "orderDate": "2021-03-08T06:29:19.974Z",
    "orderId": 0,
    "totalAmount": 0
}
```

Response:

```
{
    "medicineId": 0,
    "medicineQuantity": 0,
    "orderDate": "2021-03-08T06:55:27.902Z",
    "orderId": 0,
    "totalAmount": 0
}
```

8. [/order/deleteOrderById/{orderId}](#) - DELETE

Request:

```
"orderId": 0,
```

Response:

```
{
    "medicineId": 0,
    "medicineQuantity": 0,
    "orderDate": "2021-03-08T06:59:07.597Z",
    "orderId": 0,
    "totalAmount": 0
}
```

9. [/order/viewOrderList](#) - GET

Response:

```
[
{
    "medicineId": 0,
    "medicineQuantity": 0,
    "orderDate": "2021-03-08T07:03:04.768Z",
    "totalAmount": 0
}
```

```
        "orderId": 0,
        "totalAmount": 0
    }
]
```

10. [/request/createRequest](#) - POST

```
Request: {
    "categoryId": 0,
    "medicineId": 0,
    "medicineQuantity": 0,
    "reason": "string",
    "requestId": 0
}
Response:
{
    "categoryId": 0,
    "medicineId": 0,
    "medicineQuantity": 0,
    "reason": "string",
    "requestId": 0
}
```

11. [/request/deleteRequest/{requestId}](#) - DELETE

```
Request:
    "requestId": int

Response:
{
    "categoryId": 0,
    "medicineId": 0,
    "medicineQuantity": 0,
    "reason": "string",
    "requestId": 0
}
```

12. [/request/updateRequest/{requestId}](#) - PUT

```
Request:
    "requestId": int

Response:
{
    "categoryId": 0,
    "medicineId": 0,
    "medicineQuantity": 0,
    "reason": "string",
```

```
        "requestId": 0
    }
13. /request/viewRequestList - GET
```

Response:

```
{
    "categoryId": 0,
    "medicineId": 0,
    "medicineQuantity": 0,
    "reason": "string",
    "requestId": 0
}
]
```

```
14. /register-as-admin - POST
```

Request:

```
{
    "adminId":
    "adminUsername" : "string"
    "adminPassword" : "password"
    "adminName"   : "string"
}
```

Response:

```
{
    "adminId":
    "adminUsername" : "string"
    "adminPassword" : "password"
    "adminName"   : "string"
}
```

```
15. /register-as-employee - POST
```

Request:

```
{
    "employeeId":
    "employeeUsername" : "string"
    "employeePassword" : "password"
    "employeeName"   : "string"
}
```

Response:

```
{
    "employeeId":
    "employeeUsername" : "string"
    "employeePassword" : "password"
    "employeeName"   : "string"
}
```

15. [/login-as-employee](#) - POST

Request:

```
{  
    "employeeUsername" : "string"  
    "employeePassword" : "password"  
}
```

Response:

```
{  
    "Jwt": "string"  
}
```

15. [/login-as-admin](#) - POST

Request:

```
{  
    "employeeUsername" : "string"  
    "employeePassword" : "password"  
}
```

Response:

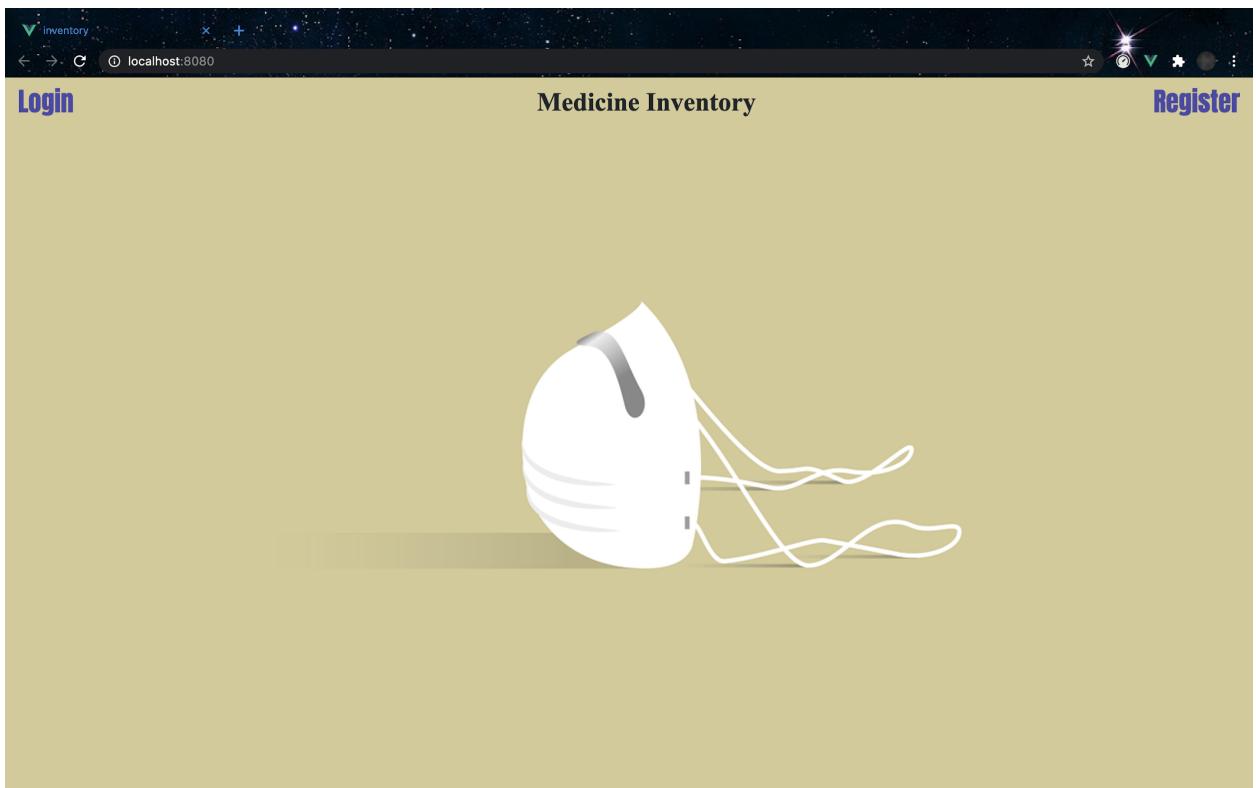
```
{  
    "Jwt": "string"  
}
```

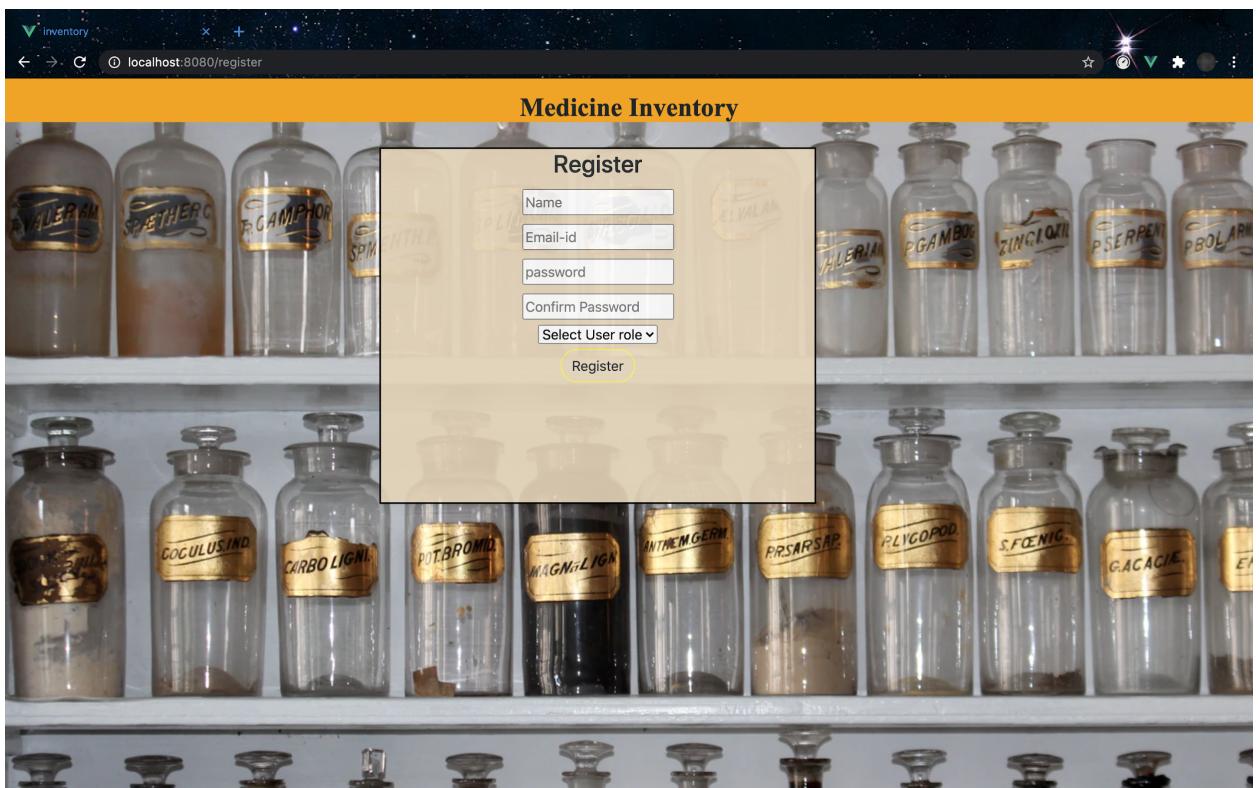
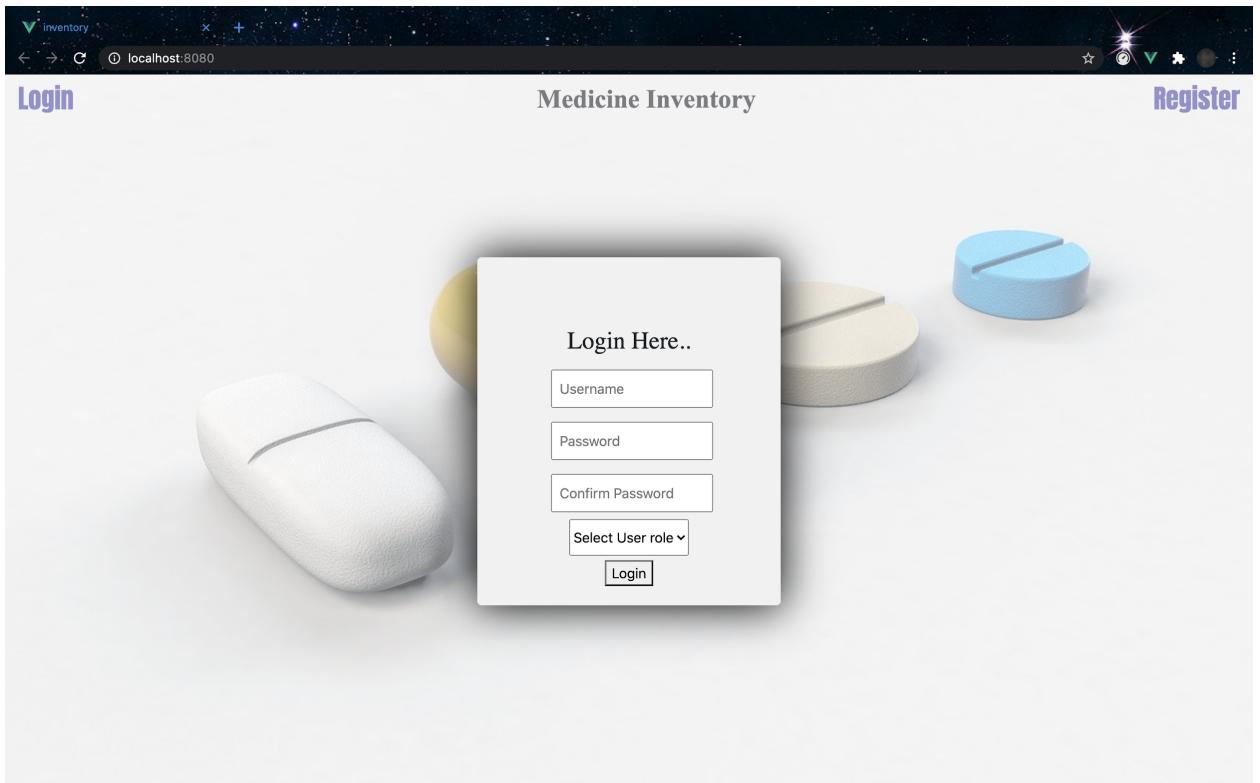
16. [/get-employee-list](#) - GET

Response:

```
{  
    "employeeId":  
    "employeeUsername" : "string"  
    "employeePassword" : "password"  
    "employeeName" : "string"  
}
```

UI Screenshots :





Screenshot of the application's main menu page.

The browser title bar shows "inventory" and the URL "localhost:8080/admin".

The top navigation bar includes "View Inventory", "Search" (with a search input field), "Search" (with a magnifying glass icon), and "Logout".

The main menu items are:

- Manage Inventory (with a clipboard icon)
- Manage Request (with a document icon)
- Manage Order (with a shopping cart icon)
- View Employees List (with a user icon)

A quote is displayed: "*'Laughter is the best medicine - unless you're diabetic, then insulin comes pretty high on the list'*".

A central graphic features three stylized human figures with documents and envelopes, enclosed in a dashed circle. Below it is the text "Administration team".

Screenshot of the "Manage Inventory" page.

The browser title bar shows "inventory" and the URL "localhost:8080/manage-inventory/".

The top navigation bar includes "View Inventory", "Search" (with a search input field), "Search" (with a magnifying glass icon), and "Logout".

Three large blue buttons are displayed:

- Add an item
- Update Inventory
- Delete an item

Screenshot of the 'View Inventory' page from a web application. The URL is localhost:8080/view-inventory. The page shows a table of medicine inventory with the following data:

Medicine Id	Medicine Name	Category Id	Category Name	Formula	Dosage	Cost	Manufacturer	MFD Date	EXP Date	Quantity	Total Quantity	Is In Stock?
3	Fluivir Capsule	2	Antiviral	Oseltamivir Phosphate (75mg)	75mg	470	Hetero Drugs Ltd	2020-03-08	2021-06-02	10 tablets	30	true
7	Dopamine INJ	3	Cardiac	Dopamine (200mg/5ml)	5ml	29	TTL Healthcare Ltd	2021-01-01	2021-05-11	1 injection	25	true
4	Benadryl Syrup	1	Analgesics	Diphenhydramine (14.08mg/5ml)	-	65	Johnson & Johnson Ltd	2020-08-27	2021-02-01	150 ml	0	false
8	Ocuvir Skin Cream	2	Antiviral	Acyclovir (5% w/w)	-	65	FDC Ltd	2020-08-05	2021-12-02	1 cream	20	true
6	Irban	3	Cardiac	Ivabradine (5mg)	5mg	400	GVT Ltd	2021-04-10	2021-03-09	5 tablets	120	true

Screenshot of the 'Apply for a Medicine request' form page from a web application. The URL is localhost:8080/employee. The page contains the following form fields:

- Category Id:
- Medicine Id:
- Medicine Quantity:
- Reason:

Apply for a Medicine request