# Insurance broker Management System

## Project Description:

IBMS is a web-based application built with Java Servlets to streamline insurance broker operations. It efficiently handles customer data, policies, and claims using a file-based storage system (XML or JSON). The system's design emphasizes data organization and management through the Repository pattern, ensuring smooth CRUD operations.

## Key Features:

- **Comprehensive Data Management:** Easily add, modify, or delete customer records, and manage insurance policies and claims
- **Thread Safety:** Guarantees secure and reliable data handling in multi-threaded environments.
- **Flexible Data Storage:** Stores information in XML or JSON files for easy access and modification.
- **Collaborative Development:** Leverages GitHub for collaborative development and version control.

## Design Decision:

### Architecture:

The project consists of a layered architecture to enhance modularity and scalability:

1. **Servlet:** It handles the incoming HTTP request and generate corresponding responses.
2. **Service:** It encapsulates business login, such as validating data and processing request.
3. **Repository:** Manages the data storage

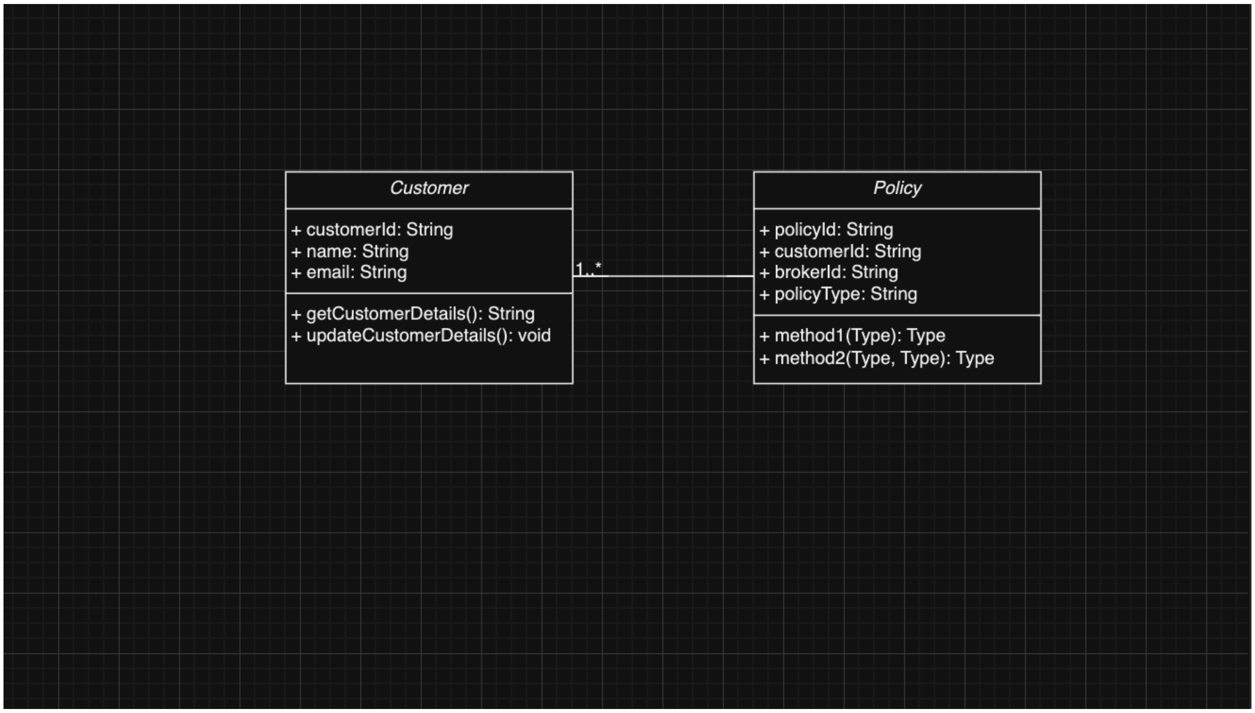
### File Storage Format

JSON files were chosen to store data due to their flexibility in representing hierarchical structures (like customer details and nested policy information). JSON offers lightweight storage and easy parsing.

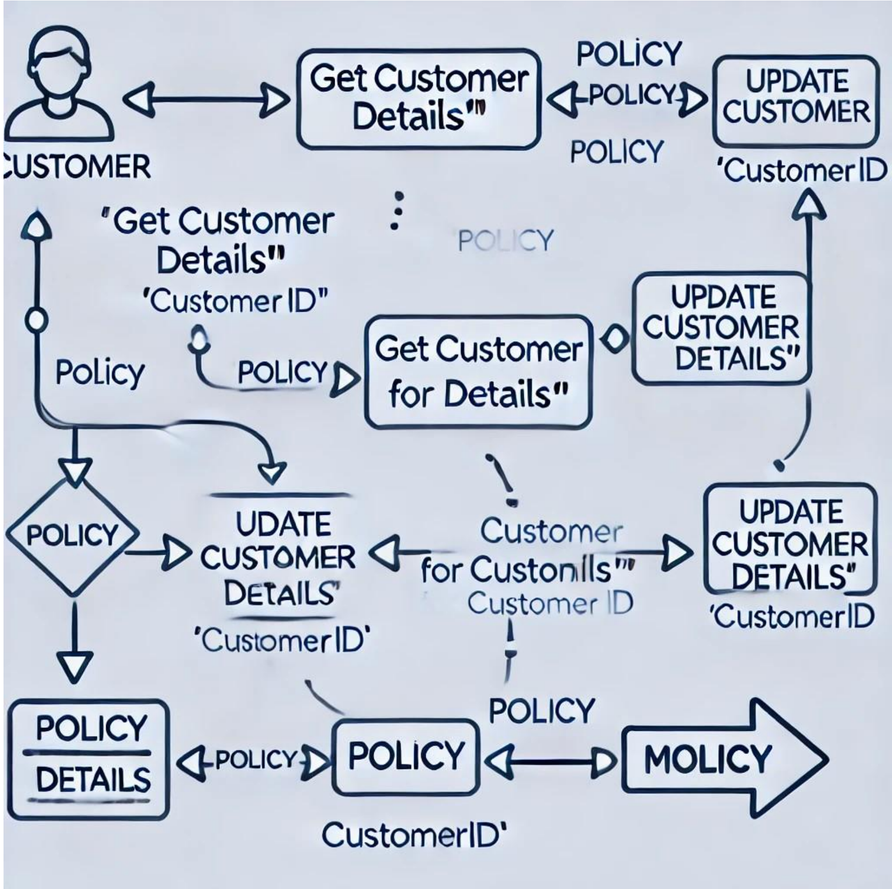
### Repository Design Pattern

We implemented the Repository design pattern to manage CRUD operations for customers, policies, and claims. This pattern separates the business logic from data access, making the codebase easier to maintain and scale.

## Class Diagram:



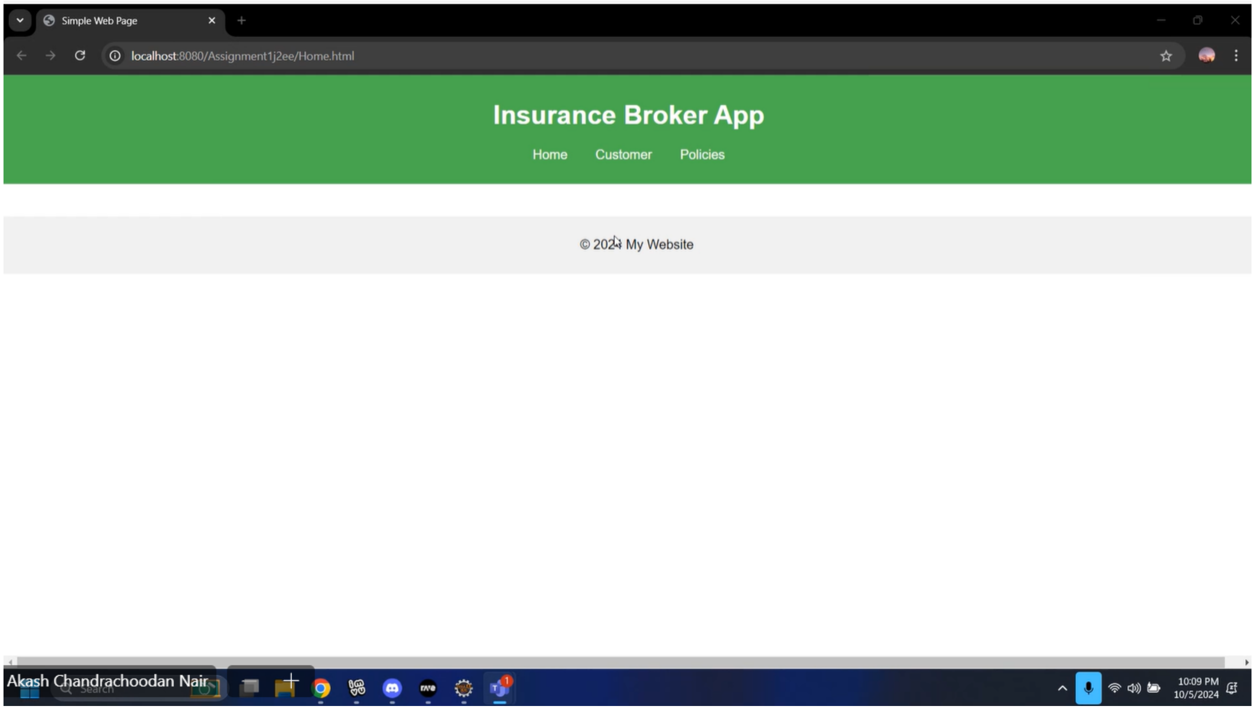
## Sequence Diagram:



## Collaboration Strategy

- **Task Distribution:** Team members focused on specific project modules and shared their code updates on GitHub.
- **Version Control:** Feature branches were used to isolate and test changes before merging them into the main codebase.
- **Code Quality Assurance:** Team members reviewed each other's code to ensure it met established standards.
- **Issue Tracking:** GitHub Issues served as a centralized platform for managing and addressing bugs and feature requests.

## Screenshot:


Simple Web Page
localhost:8080/Assignment1j2ee/Home.html
Insurance Broker App
Home
Customer
Policies
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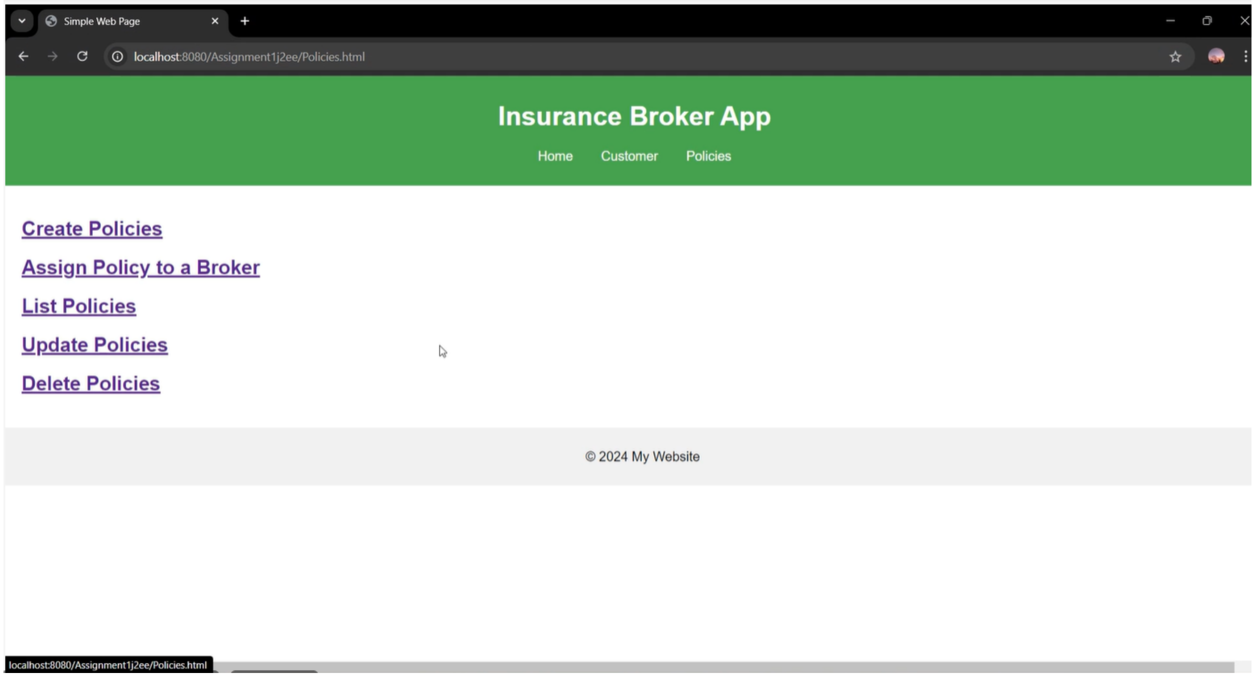
Search
10:09 PM
10/5/2024


Simple Web Page
localhost:8080/Assignment1j2ee/Policies.html
Home
Customer
Policies
localhost:8080/Assignment1j2ee/Policies.html

# Insurance Broker App

Create Policies

Assign Policy to a Broker

List Policies

Update Policies

Delete Policies

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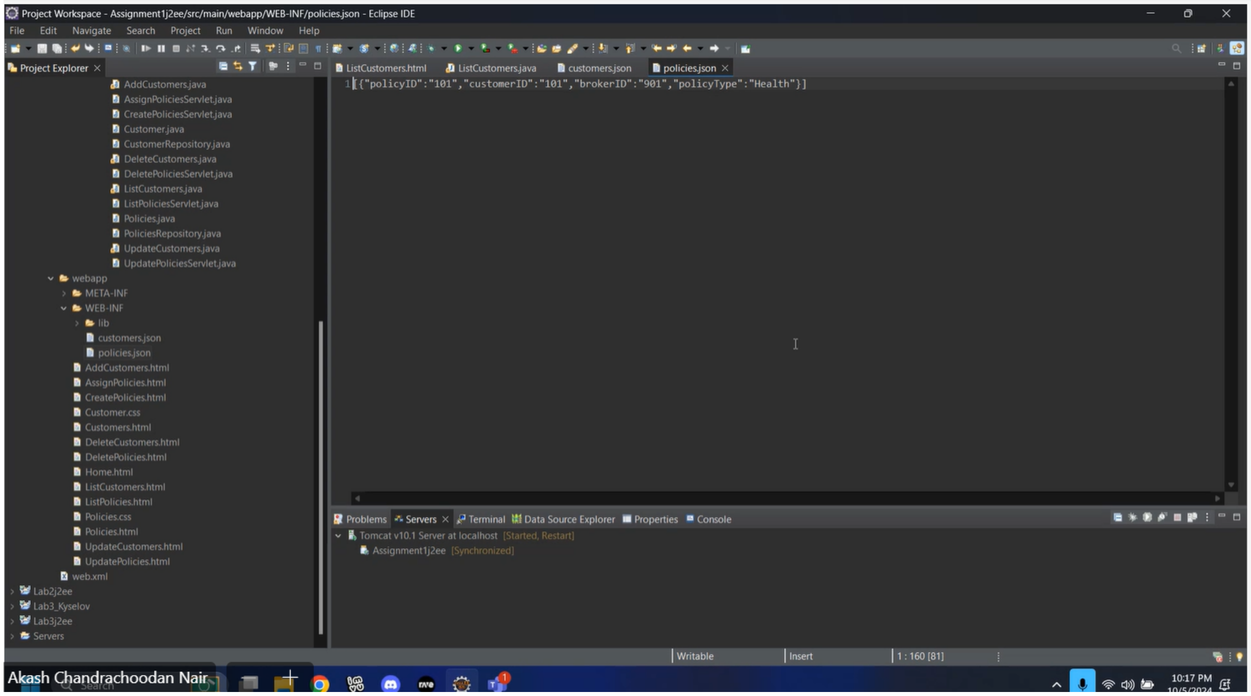
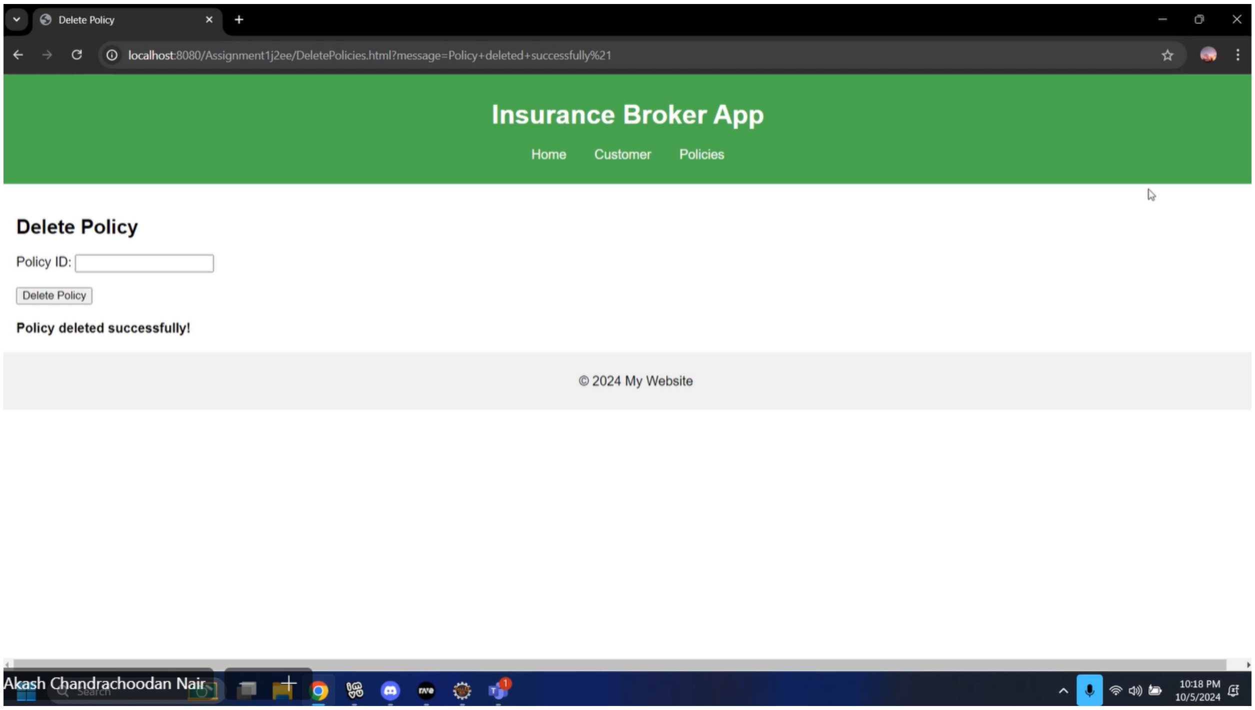


```
[{"policyID":"101","customerID":"101","brokerID":"901","policyType":"Health"}]
```


Delete Policy
localhost:8080/Assignment1j2ee/DeletePolicies.html?message=Policy+deleted+successfully%21

## Insurance Broker App

### Delete Policy

Policy ID:

**Policy deleted successfully!**

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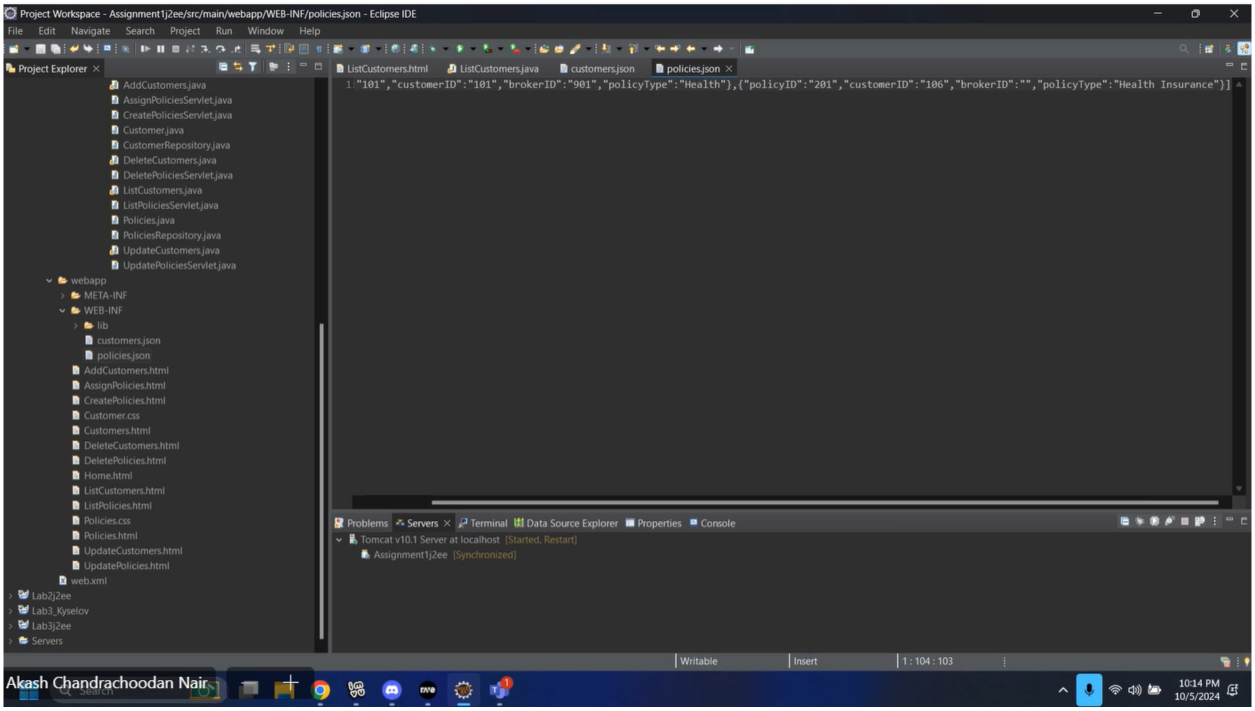
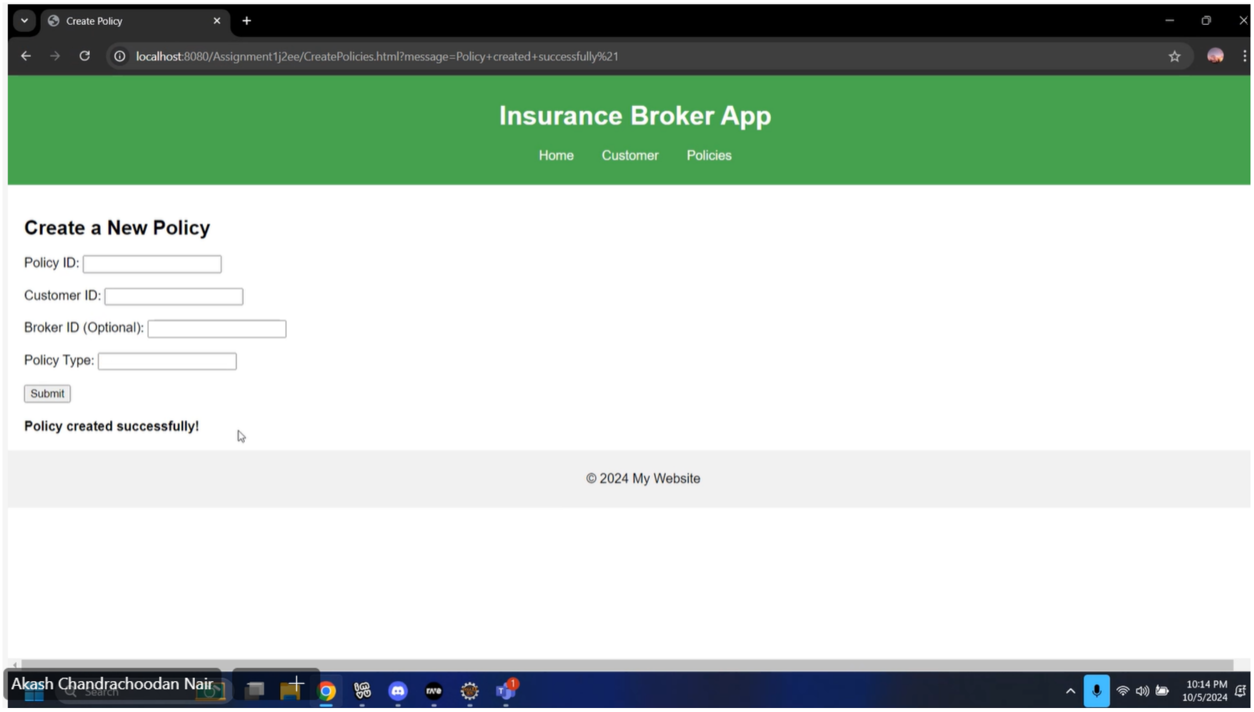


```
"101","customerID":"101","brokerID":"901","policyType":"Health"},{"policyID":"201","customerID":"106","brokerID":"","policyType":"Health Insurance"}]
```


Create Policy
localhost:8080/Assignment1j2ee/CreatePolicies.html?message=Policy+created+successfully%21
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10:14 PM
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## Insurance Broker App

Home Customer Policies

### Create a New Policy

Policy ID:

Customer ID:

Broker ID (Optional):

Policy Type:

Submit

**Policy created successfully!**

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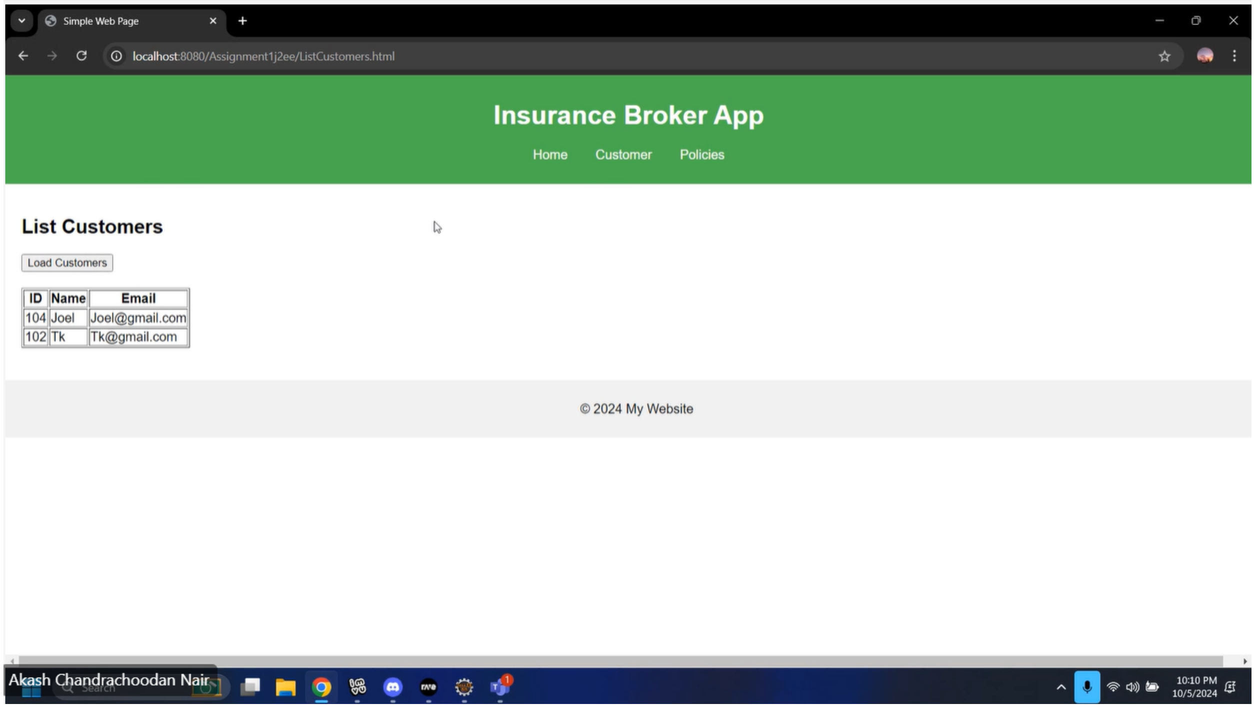
Simple Web Page
localhost:8080/Assignment1j2ee/ListCustomers.html
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10/5/2024

## Insurance Broker App

Home Customer Policies

### List Customers

Load Customers

| ID | Name | Email |
|---|---|---|
| 104 | Joel | Joel@gmail.com |
| 102 | Tk | Tk@gmail.com |

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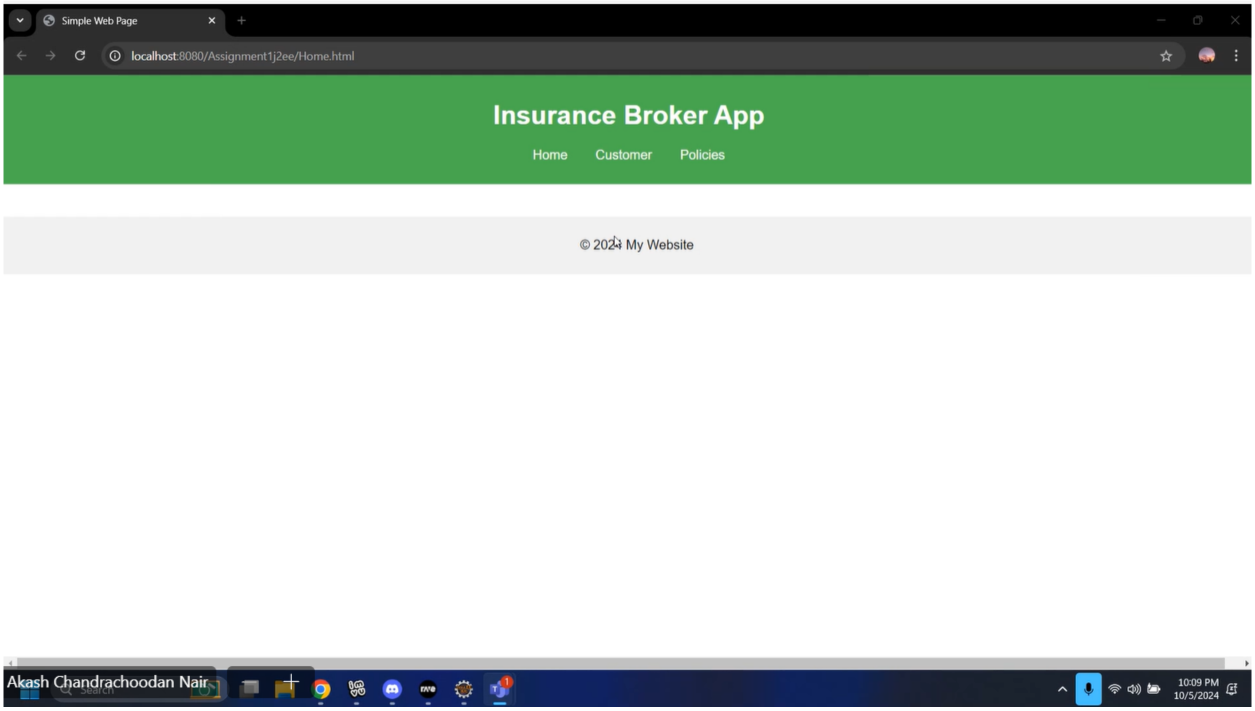
Simple Web Page
localhost:8080/Assignment1j2ee/Home.html

## Insurance Broker App

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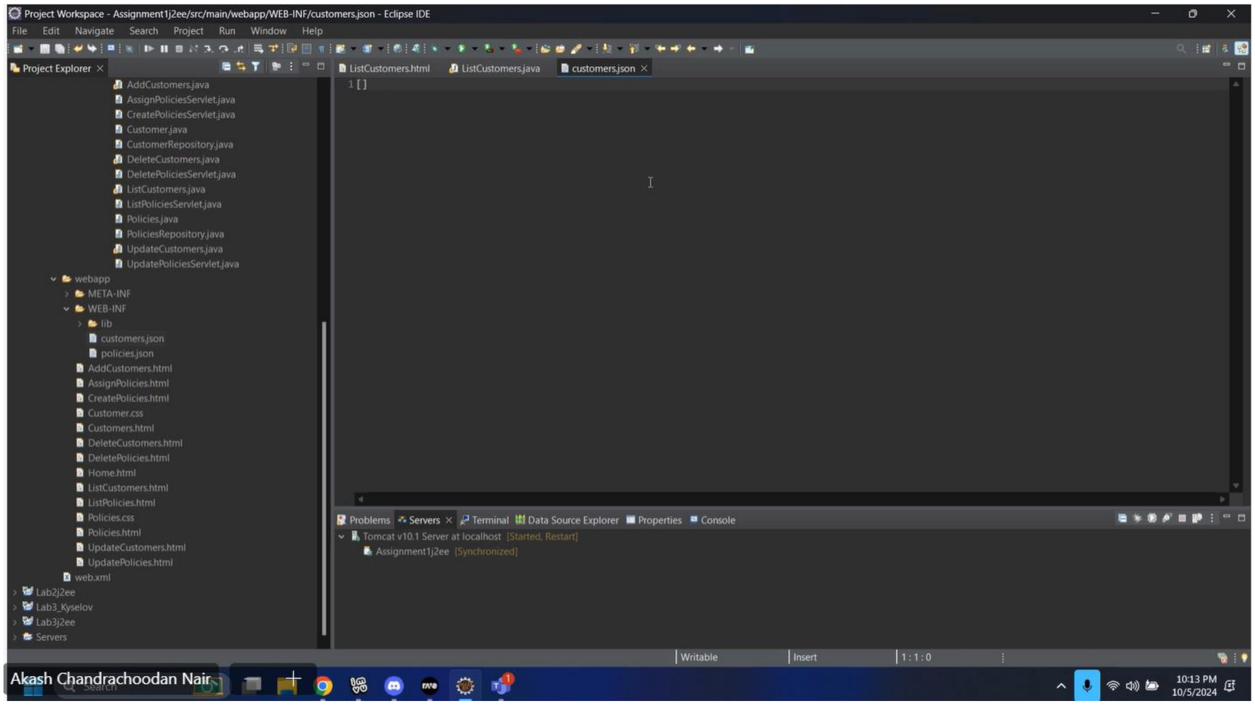
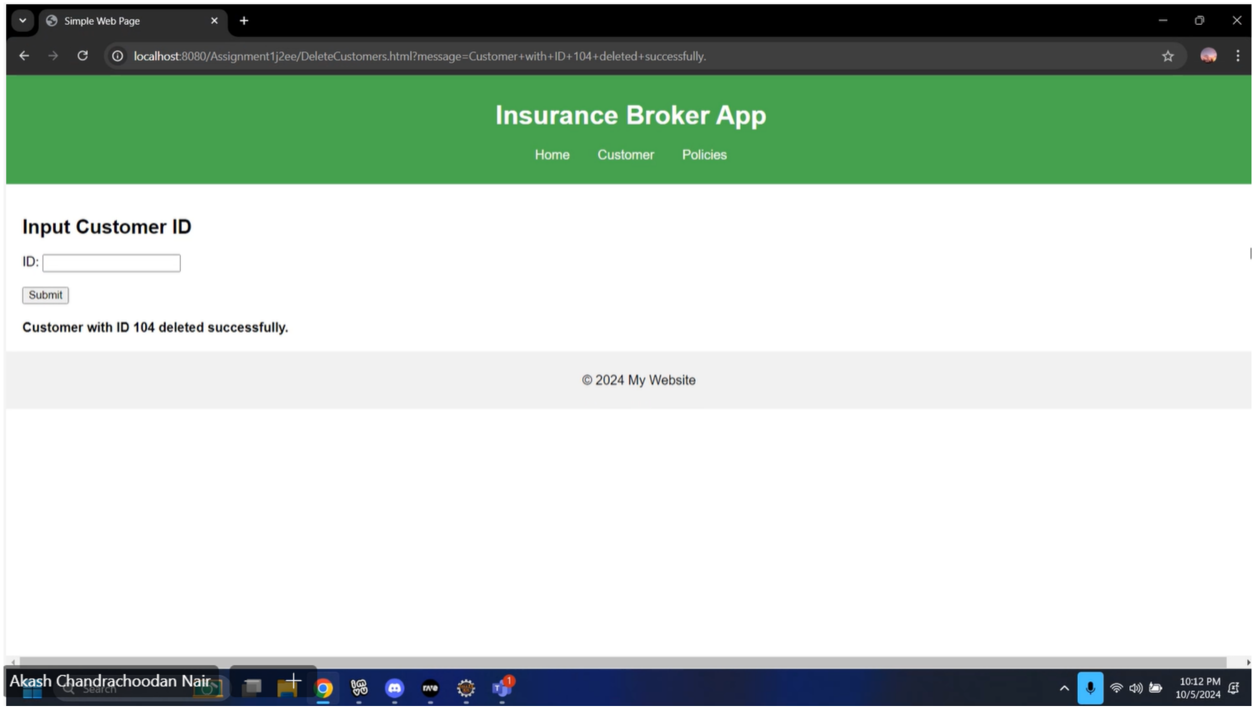

Project Workspace - Assignment1j2ee/src/main/webapp/WEB-INF/customers.json - Eclipse IDE

```
[]
```

Tomcat v10.1 Server at localhost [Started, Restart]
Assignment1j2ee [Synchronized]



Simple Web Page
localhost:8080/Assignment1j2ee/DeleteCustomers.html?message=Customer+with+ID+104+deleted+successfully.
Insurance Broker App
Home
Customer
Policies
Input Customer ID
ID:
Submit
Customer with ID 104 deleted successfully.
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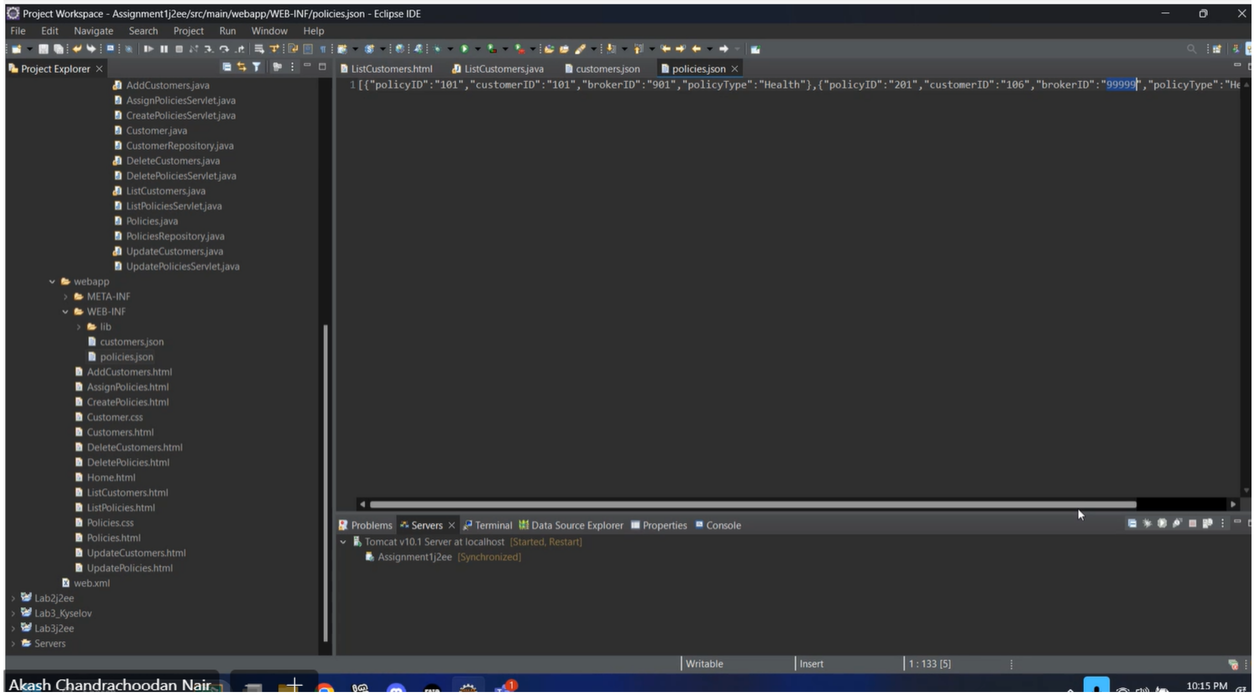
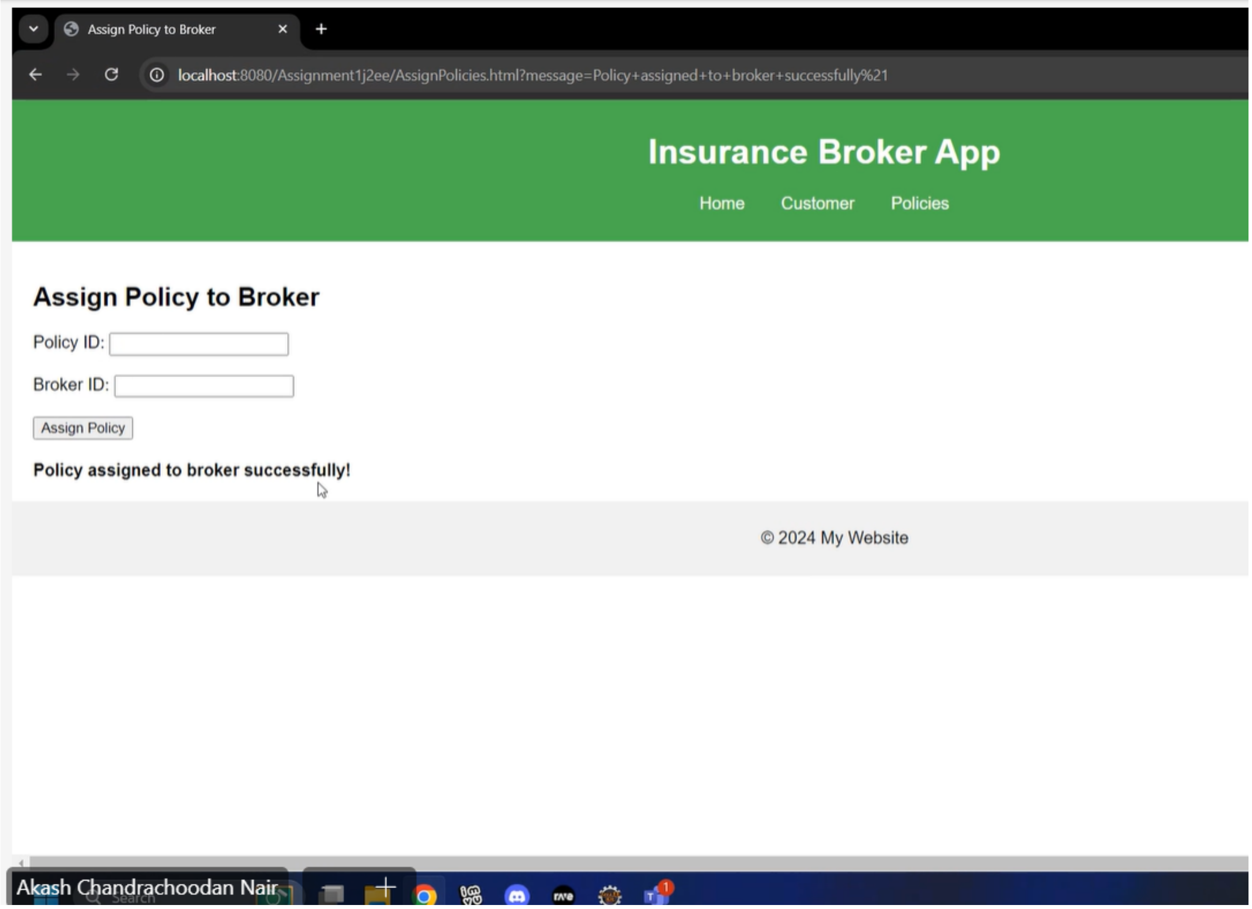


```
[{"policyID":"101","customerID":"101","brokerID":"901","policyType":"Health"},{"policyID":"201","customerID":"106","brokerID":"99999","policyType":"He
```


Assign Policy to Broker
localhost:8080/Assignment1j2ee/AssignPolicies.html?message=Policy+assigned+to+broker+successfully%21
Home
Customer
Policies
Assign Policy
Akash Chandrachoodan Nair

Insurance Broker App

Assign Policy to Broker

Policy ID:

Broker ID:

**Policy assigned to broker successfully!**

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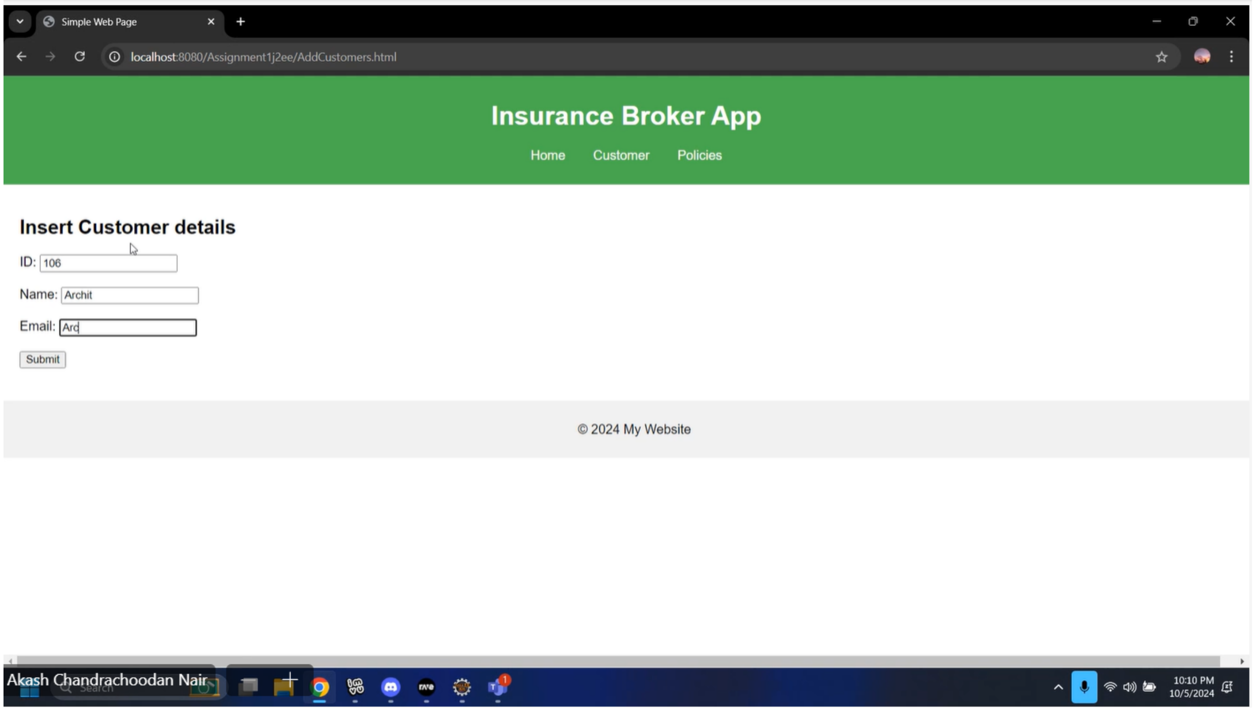
Simple Web Page
localhost:8080/Assignment1j2ee/AddCustomers.html
Home
Customer
Policies
Submit
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Insurance Broker App

Insert Customer details

ID: 106

Name: Archit

Email: Arc

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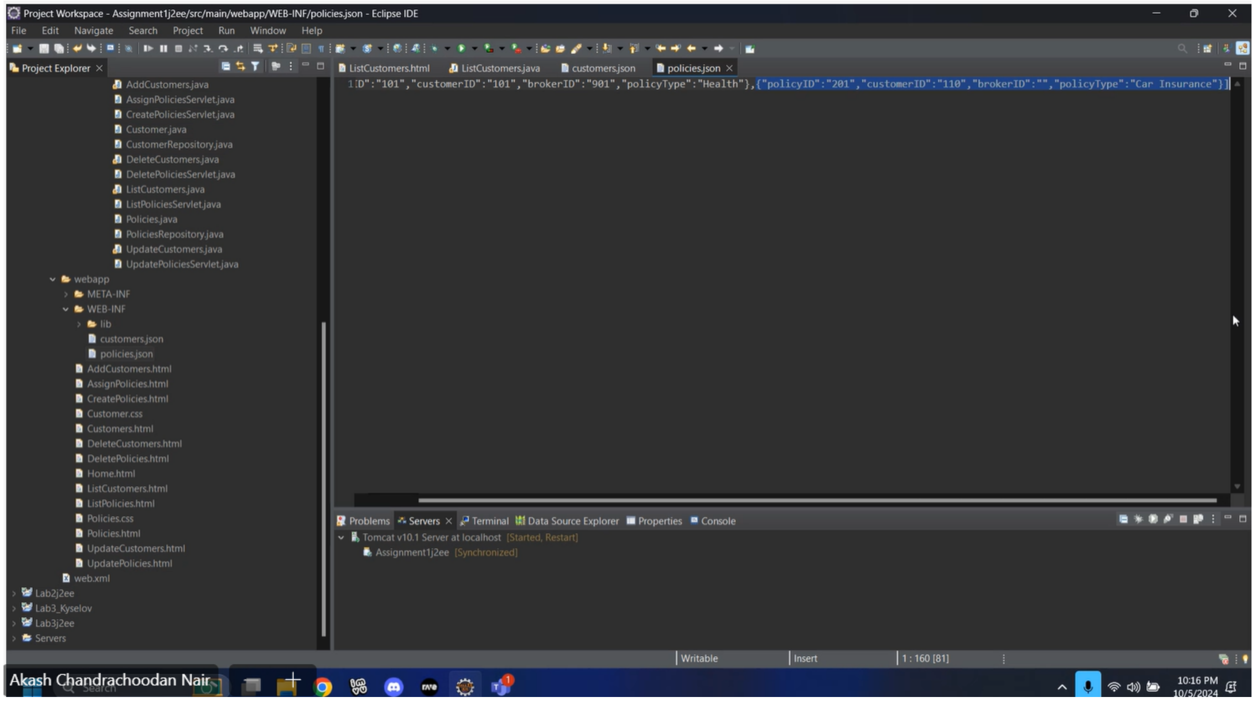
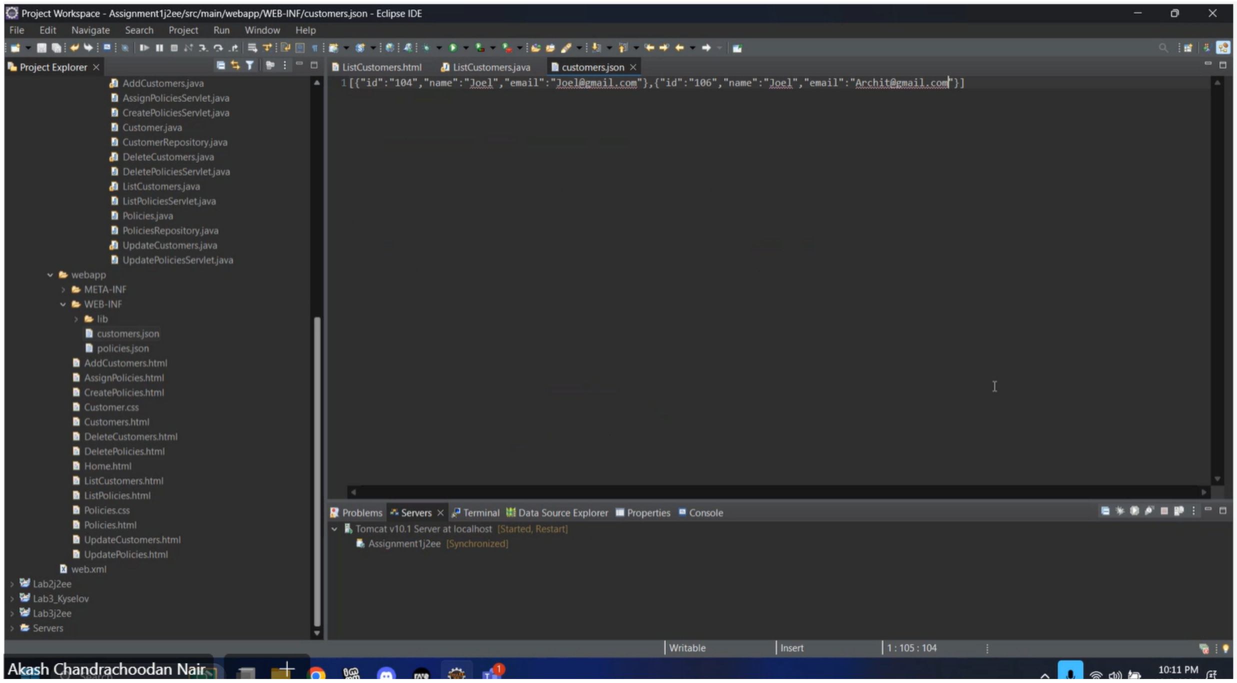


Project Workspace - Assignment1j2ee/src/main/webapp/WEB-INF/policies.json - Eclipse IDE

```
D":"101","customerID":"101","brokerID":"901","policyType":"Health"},{"policyID":"201","customerID":"110","brokerID":"","policyType":"Car Insurance"}]
```

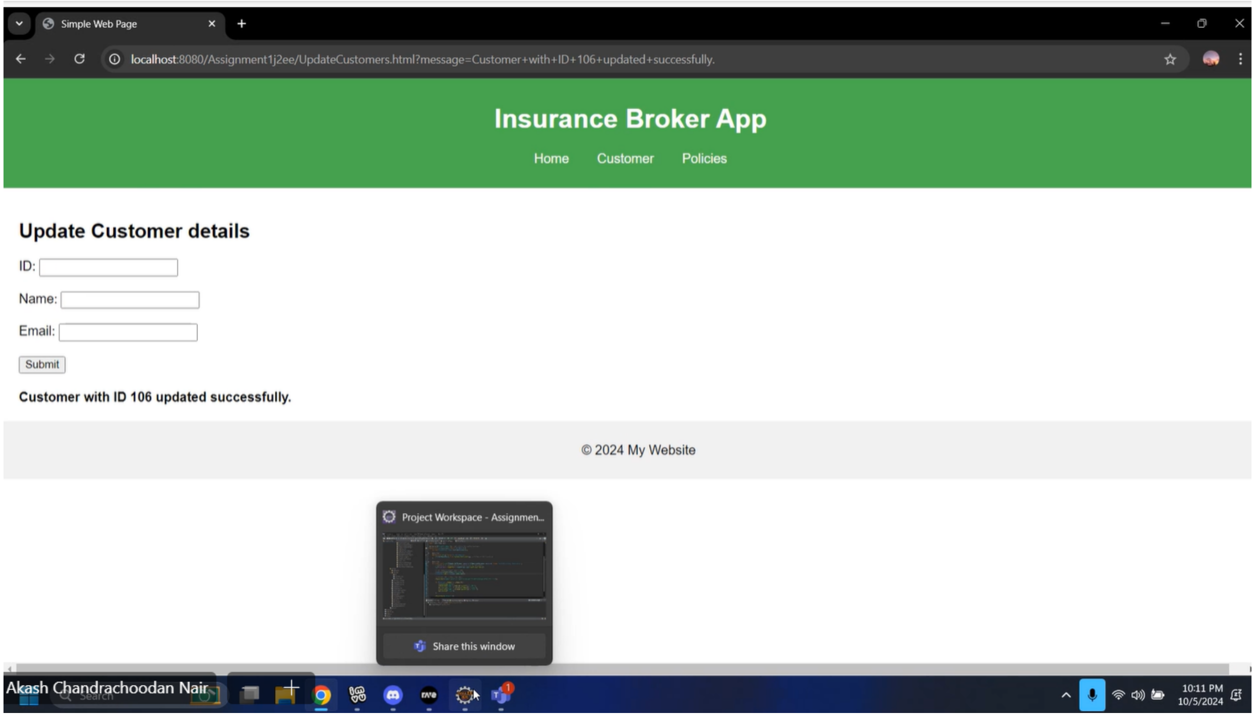
Tomcat v10.1 Server at localhost [Started, Restart]
Assignment1j2ee [Synchronized]



Project Workspace - Assignment1j2ee/src/main/webapp/WEB-INF/customers.json - Eclipse IDE

```
[{"id":"104","name":"Joel","email":"Joel@gmail.com"},{"id":"106","name":"Joel","email":"Archit@gmail.com"}]
```

Tomcat v10.1 Server at localhost [Started, Restart]
Assignment1j2ee [Synchronized]



localhost:8080/Assignment1j2ee/UpdateCustomers.html?message=Customer+with+ID+106+updated+successfully.

Insurance Broker App

### Update Customer details

ID:

Name:

Email:

**Customer with ID 106 updated successfully.**

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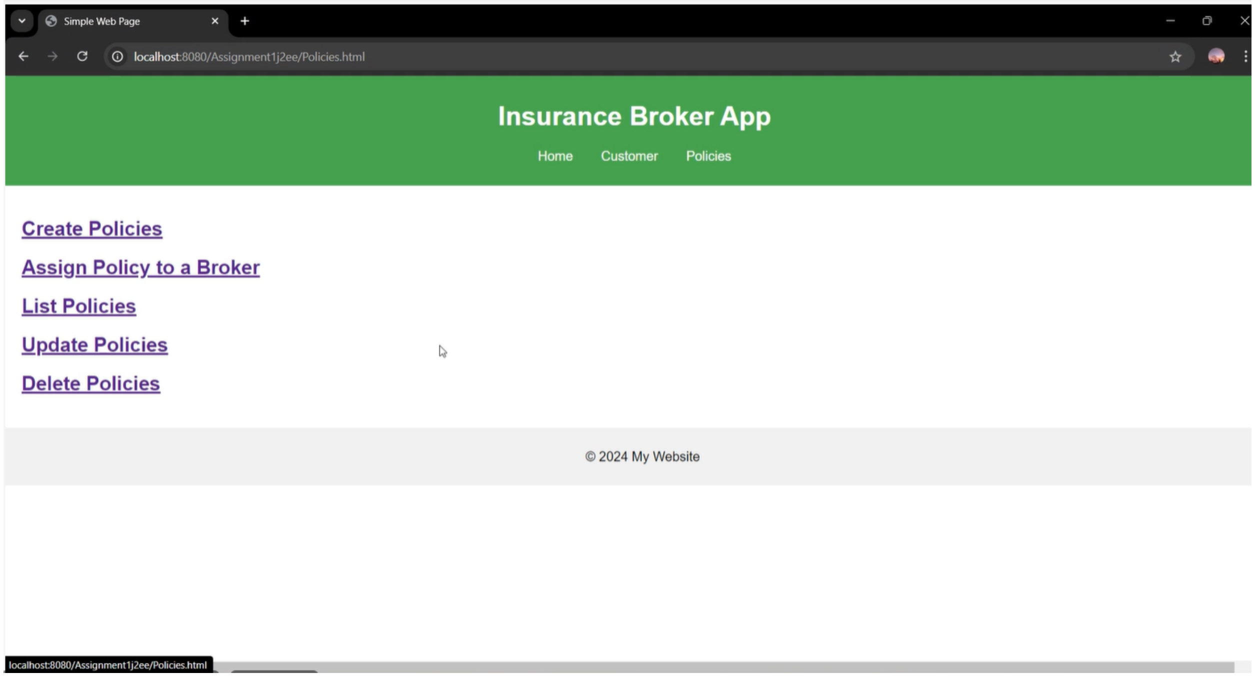

localhost:8080/Assignment1j2ee/Policies.html

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localhost:8080/Assignment1j2ee/Policies.html