**Exercise 11: Implementing Dependency Injection**

import java.util.\*;

class Customer {

private String id;

private String name;

public Customer(String id, String name) {

this.id = id;

this.name = name;

}

public String getId() {

return id;

}

public String getName() {

return name;

}

}

interface CustomerRepository {

Customer findCustomerById(String id);

}

class CustomerRepositoryImpl implements CustomerRepository {

private Map<String, Customer> customerData = new HashMap<>();

public CustomerRepositoryImpl() {

// Pre-populated data

customerData.put("C101", new Customer("C101", "Alice"));

customerData.put("C102", new Customer("C102", "Bob"));

}

@Override

public Customer findCustomerById(String id) {

return customerData.get(id);

}

}

class CustomerService {

private CustomerRepository customerRepository;

public CustomerService(CustomerRepository customerRepository) {

this.customerRepository = customerRepository;

}

public void displayCustomer(String customerId) {

Customer customer = customerRepository.findCustomerById(customerId);

if (customer != null) {

System.out.println("Customer Found:");

System.out.println("ID : " + customer.getId());

System.out.println("Name : " + customer.getName());

} else {

System.out.println("Customer with ID " + customerId + " not found.");

}

}

}

public class Main {

public static void main(String[] args) {

CustomerRepository repository = new CustomerRepositoryImpl();

CustomerService service = new CustomerService(repository);

service.displayCustomer("C101");

service.displayCustomer("C999");

}

}

