**DESIGN PATTERNS AND PRINCIPLES**

**Exercise 11: Implementing Dependency Injection**

**Scenario:**

You are developing a customer management application where the service class depends on a repository class. Use Dependency Injection to manage these dependencies.

**Steps:**

1. **Create a New Java Project:**
   * Create a new Java project named DependencyInjectionExample.
2. **Define Repository Interface:**
   * Create an interface CustomerRepository with methods like findCustomerById().
3. **Implement Concrete Repository:**
   * Create a class CustomerRepositoryImpl that implements CustomerRepository.
4. **Define Service Class:**
   * Create a class CustomerService that depends on CustomerRepository.
5. **Implement Dependency Injection:**
   * Use constructor injection to inject CustomerRepository into CustomerService.
6. **Test the Dependency Injection Implementation:**
   * Create a main class to demonstrate creating a CustomerService with CustomerRepositoryImpl and using it to find a customer.

**DESCRIPTION:**

This program demonstrates Dependency Injection using constructor-based injection.

* CustomerRepository is an interface for fetching customer data.
* CustomerRepositoryImpl provides the actual implementation.
* CustomerService is the dependent class that uses the repository.
* Dependencies are injected via the constructor in the main class.

**PROGRAM:**

public class DependencyInjectionExample {

public static void main(String[] args) {

CustomerRepository repository = new CustomerRepositoryImpl();

CustomerService service = new CustomerService(repository);

service.getCustomerDetails("C102");

}

}

interface CustomerRepository {

String findCustomerById(String id);

}

class CustomerRepositoryImpl implements CustomerRepository {

public String findCustomerById(String id) {

return "Customer ID: " + id + ", Name: Keerthi, Email: keerthi@example.com";

}

}

class CustomerService {

private CustomerRepository repository;

public CustomerService(CustomerRepository repository) {

this.repository = repository;

}

public void getCustomerDetails(String id) {

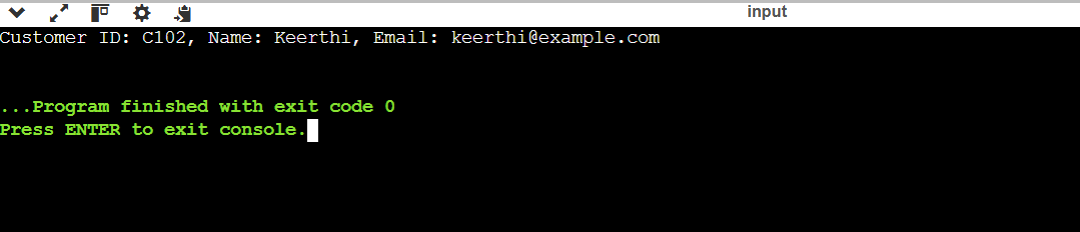
String details = repository.findCustomerById(id);

System.out.println(details);

}

}

**OUTPUT:**

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