NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES

CS3005-Software Design & Architecture Lab

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Lab 11

Task-01

Consider microwave oven, it consists of components like transformer, capacitor, magnetron, waveguide and some more. To perform an operation these different components needs to be activated in a sequence. Every component has different outputs and inputs. Imagine you will have separate external controller for all these components using which you will heat the food.

Consider four separate classes that perform hidden functionality to run the microwave, name as:

Transformer.java "***Transformer running*** "

Capacitor.java ***"Capacitor running on 12w/s"***

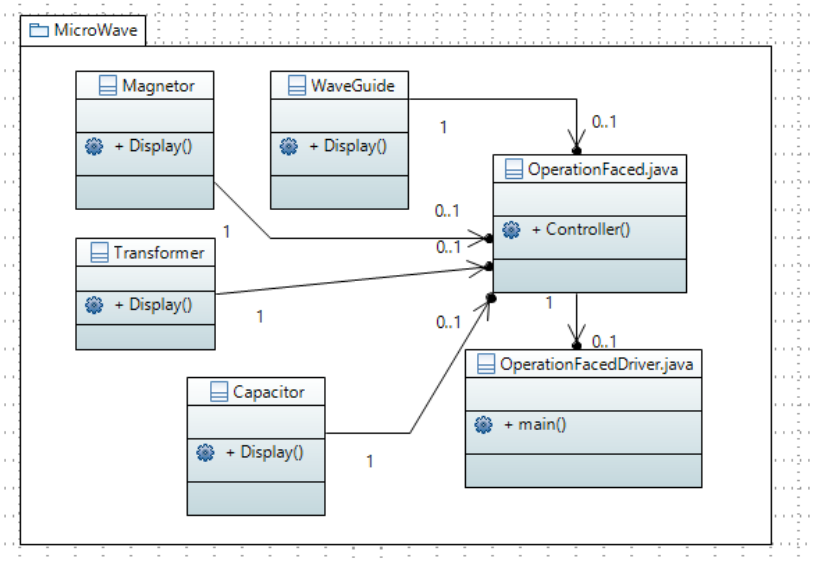
WaveGuide.java "***Waveguide produce 10frequency/s"***

Magnetron.java. "***Magnetron initialized successfully"***

There is one more class who is responsible to run above component sequentially named as OperationFaced.java, OperationFaced.java class define a member function with named as controller(), this invoke all four classes. And the instances of all four classes created inside OperationFaced.java class.

In OperationFacedDriver.java class initiate controller() method only.

1. ***Identify which pattern needs to implement.***
2. ***Implement all the classes with member function.***



Task-02

Lets suppose a system where bank transaction process of withdraw money and deposit money. You must create all the possible classes. First there is method called transection which is common both ***withdraw*** and ***Deposit*** procedure. That method must be implemented from bank. Create a java application.

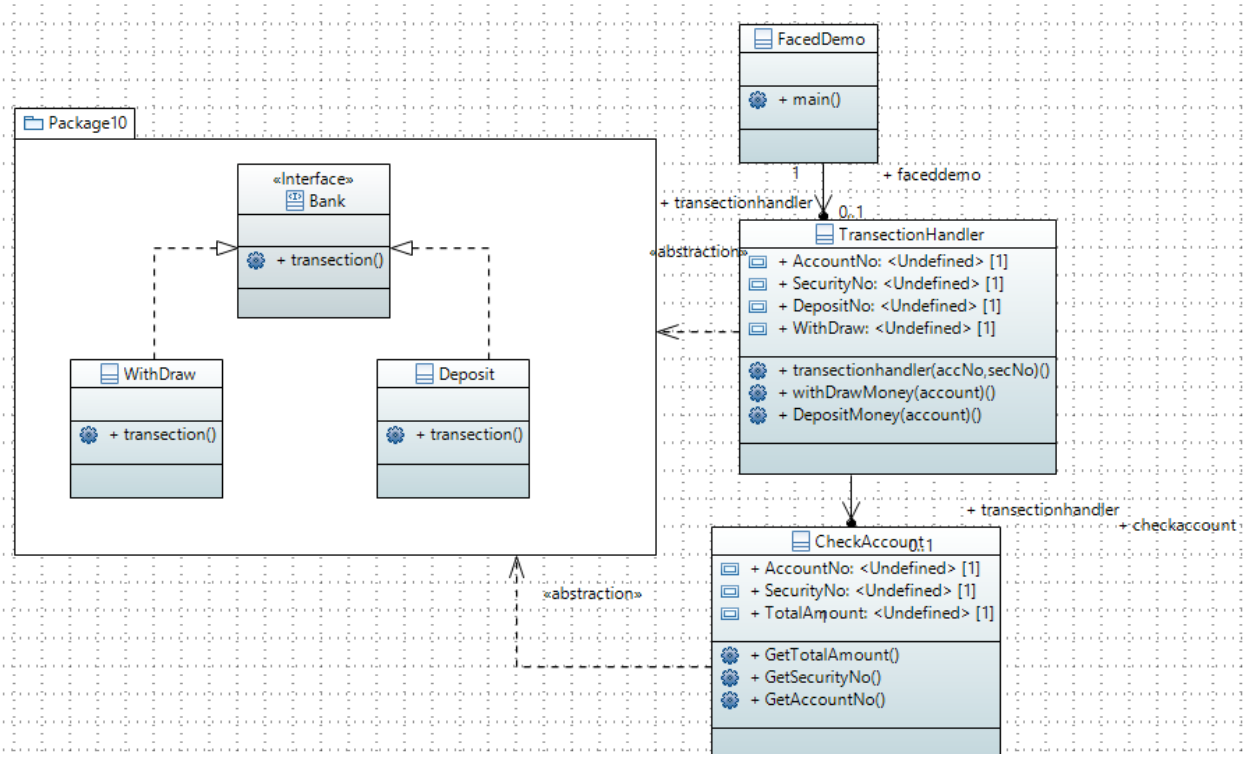
Then create an interface for Bank.

there are one more class CheckAccount.java, this class will responsible to get total amount , security number and account number, these assign hardcoded to the class and then get all the information.

Now create 2 concrete class for withdraw transaction and deposit transaction.

Withdraw.java, ***Deposit***.java both classes will implement the ***transection()*** method from Bank class, in withdraw class check the amount with total amount, if GetTotalAmount is less then requesting amount then they show "***not enough balance***", other wise requesting will be minus from actual amount. In deposit class user and add amount in TotalAmount and show the message of ***successful added"*** and show the updated balance. In facedTestDemo class, only TransectionHandler object must be created with two argument(accountNo, seccurityNo).

TransectionHandler.class is responsible for checking the security no and account no, and instance of TransectionHandler invoke two methods (depositMoney(1200) and withDrawMoney(500)) from main class , these thwo methods check if they match with requesting details[account no, security no] then "***show access granted"*** and call transection method of both classes, deposit.java and with draw.java with amount as argument.



Task-03

There is online Store for shopping, where multiple user can use variety of features, each single user can access all the functionality.
Analyze the following Diagram and implement all these method for each class, Make sure one user perform all these activities with single handed instance, only one instance are responsible to run all these tasks for a particular associated user. Rest of concrete class must implement the interface and use only one instane to call the methods.
There is ***OrderInterface*** class that have two methods order() and payment().
Every Order and Payment display message from their respective class.
Order()- order is confirmed by MensWear/Womenwear/Kidswear
Payment()- order will be collected by cash for MensWear/Womenwear/Kidswear order

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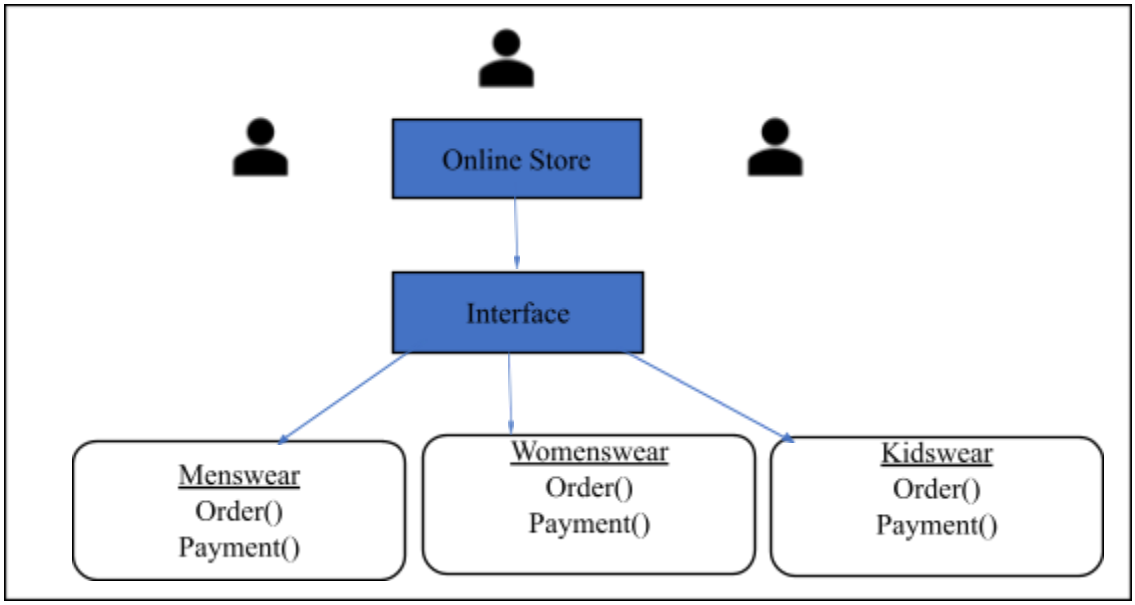
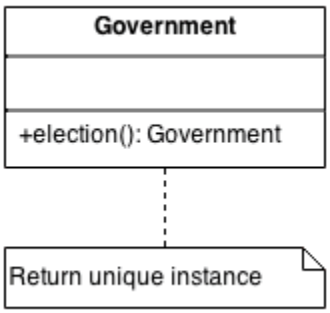


Task-4

The Singleton pattern ensures that a class has only one instance and provides a global point of access to that instance. It is named after the singleton set, which is defined to be a set containing one element. The office of the President of the United States is a Singleton.

The United States Constitution specifies the means by which a president is elected, limits the term of office, and defines the order of succession. As a result, there can be at most one active president at any given time. Regardless of the personal identity of the active president, the title, "The President of the United States" is a global point of access that identifies the person in the office.

For suppose main class called Singleton Driver. Java that created five separate instances for individual employees, all these employees called one similar methods ElectedPresident(), that method define and initialize in ElectedGoverment class, that will display only one message “Hello Ali, New President Elected name Imran Khan,”



“Ali” this name, that must be denote employee name.

For suppose Output be like:

Message-01 “Hello your friend-01, New President Elected name Imran Khan,”

Message-02 “Hello your friend-02 , New President Elected name Imran Khan,”

Message-03 “Hello your friend-03 , New President Elected name Imran Khan,”

Message-04 “Hello your friend-04 , New President Elected name Imran Khan,”

Message-05 “Hello your friend-05, New President Elected name Imran Khan,”

Make sure only one instance will be responsible to handle all the request,