CSE443 - Object Oriented Analysis and Design

Homework 1

1)

I should develop a software that can solve linear equations.And customer can change solve methods dynamically.

So I decide to create an solve method interface. If there will be more than 2 solve method , I just add one class and problem is solved.

Solver class uses this interface and any solver can use this methods.
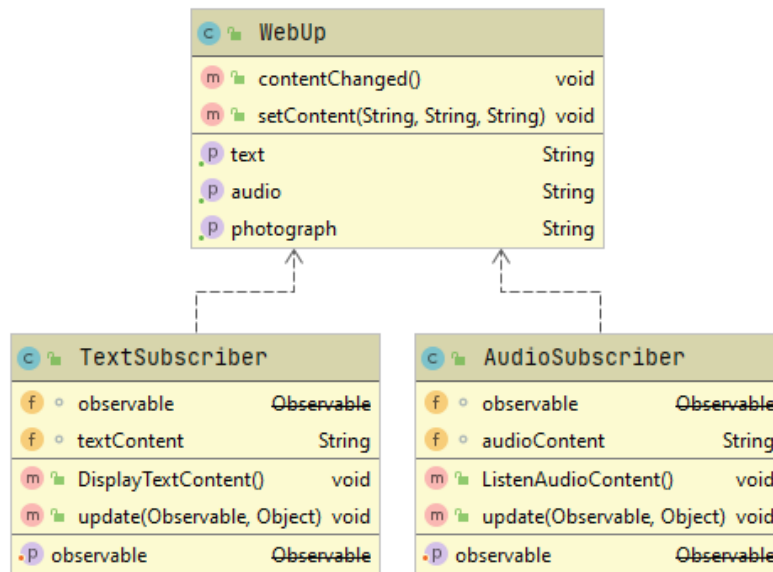
My Class Diagram:
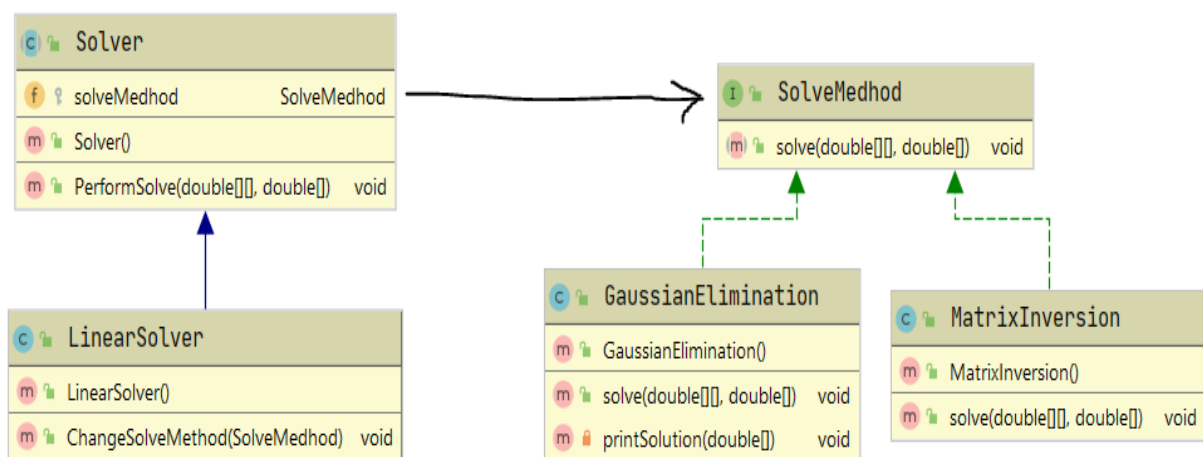
2)

I choose the observer pattern. Because subscribers do not have to check for updates.If there is an update subjects invokes their update method. And there is 2 method to get data from subject : Push and pull

In our situation , subscriber want to take only data they wants so I use pull method.
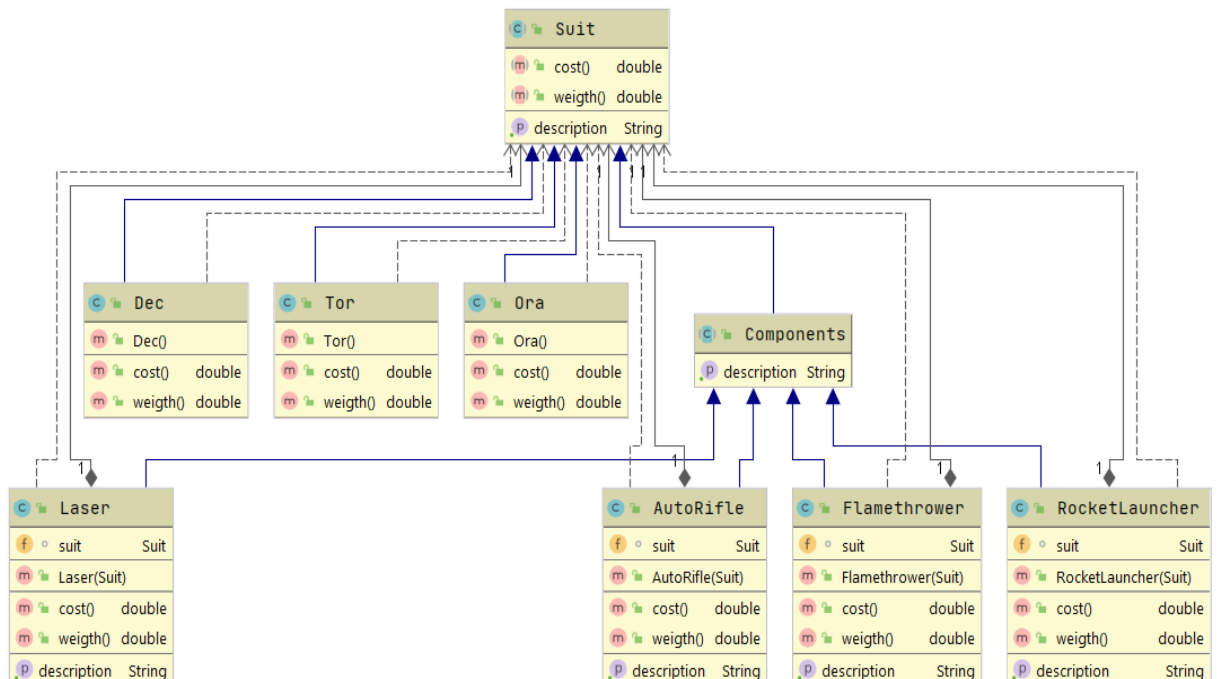
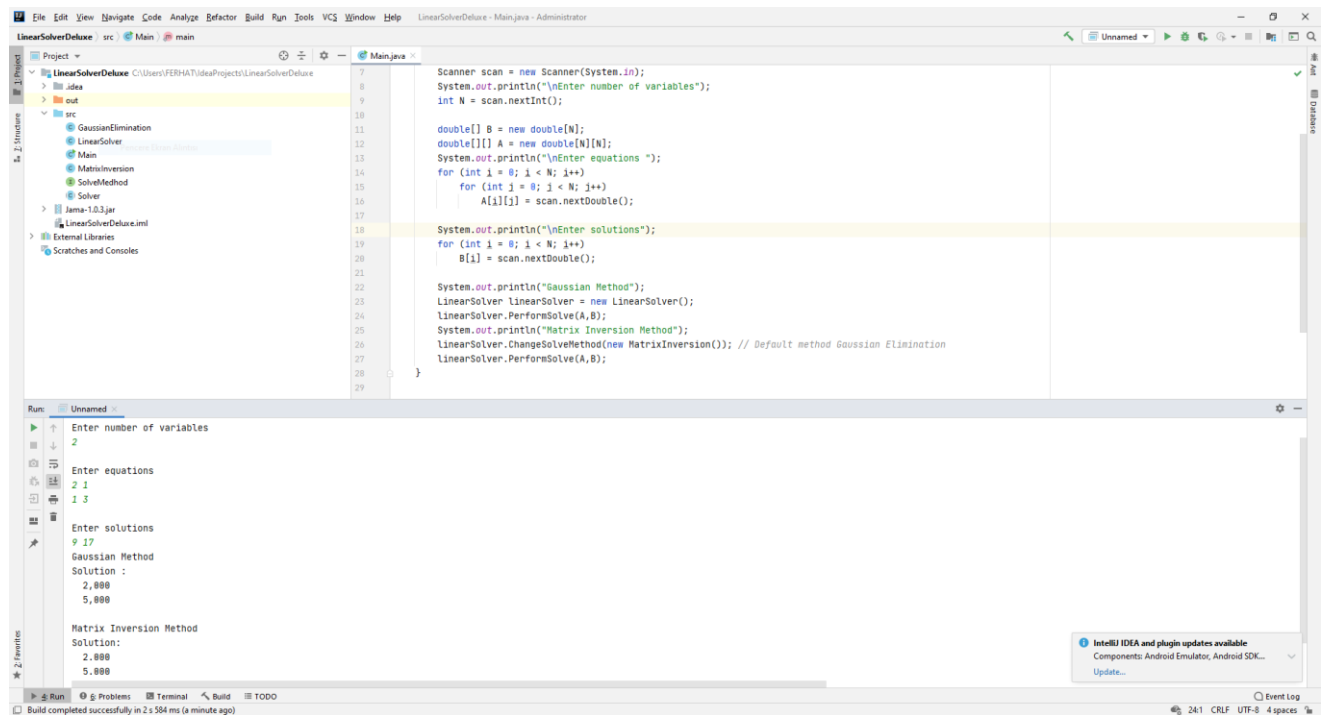I use observable-observer pattern in java.

My class diagram:

3)

I choose the decorator pattern.Because Every component can wear on suit and they all have weigth and cost.If I use decorator I add component and suit later.And maintenance costs are low.

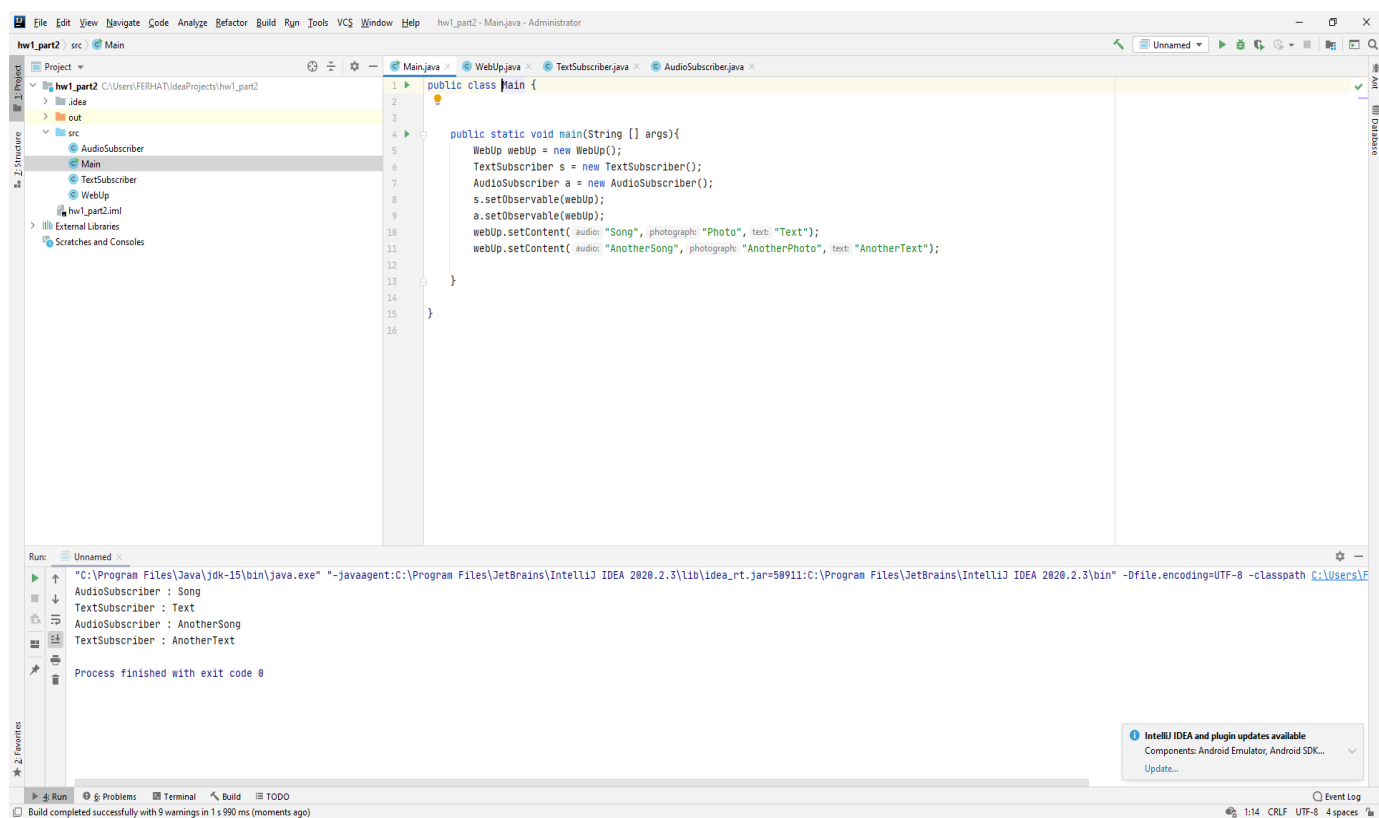I use inttelij idea ide to write code and draw class diagrams.

Test Results:

1)

2)

3)


```java
public class Main {

    public static void main(String [] args){
        Suit suit = new Tor();
        suit = new Flamethrower(suit);
        suit = new AutoRifle(suit);
        suit = new RocketLauncher(suit);

        System.out.println(suit.getDescription() + "\n Cost : " + suit.cost() + "k TL  Weigth : " + suit.weigth() + " kg");

    }

}
```

```
"C:\Program Files\Java\jdk-15\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2020.2.3\lib\idea_rt.jar=50933:C:\Program Files\JetBrains\IntelliJ IDEA 2020.2.3\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\F
Tor Suit , Flamethrower , AutoRifle , RocketLauncher
 Cost : 5230.0k TL  Weigth : 61.0 kg

Process finished with exit code 0
```