A blue circle with white text

Description automatically generated

**COMSATS UNIVERSITY ISLAMABAD, ABBOTTABAD**

Design patterns lab Assignment # 02

***Submitted by:***

Laiba binte tahir FA21-BSE-019

Contents

[**Implementation of Facade pattern** 3](#_Toc185432623)

[Task -01 Home Theater System 3](#_Toc185432624)

[Code 3](#_Toc185432625)

[Class diagram 7](#_Toc185432626)

[Task-02 Flight booking 8](#_Toc185432627)

[Code 8](#_Toc185432628)

[Class diagram 10](#_Toc185432629)

[**Implementation of proxy design pattern:** 11](#_Toc185432630)

[Task 1: Caching Proxy in Web Applications 11](#_Toc185432631)

[Code 11](#_Toc185432632)

[Class diagram 12](#_Toc185432633)

[Task 2: Protection Proxy in Online Banking Systems 13](#_Toc185432634)

[Code 13](#_Toc185432635)

[Class Diagram 15](#_Toc185432636)

[**Implementation of observer pattern** 16](#_Toc185432637)

[Task -01 Weather application 16](#_Toc185432638)

[Code 16](#_Toc185432639)

[Class diagram 19](#_Toc185432640)

[Task -02 Chat application 20](#_Toc185432641)

[Code 20](#_Toc185432642)

[Class diagram: 23](#_Toc185432643)

[**Implementation of prototype design pattern:** 24](#_Toc185432644)

[Task 1: Cloning Shapes 24](#_Toc185432645)

[Code 24](#_Toc185432646)

[Class Diagram 26](#_Toc185432647)

[Task 2: Cloning Employee Records 27](#_Toc185432648)

[Code 27](#_Toc185432649)

[Class diagram 29](#_Toc185432650)

# **Implementation of Facade pattern**

## Task -01 Home Theater System

### Code



A screen shot of a computer program

Description automatically generatedA screen shot of a computer program

Description automatically generated

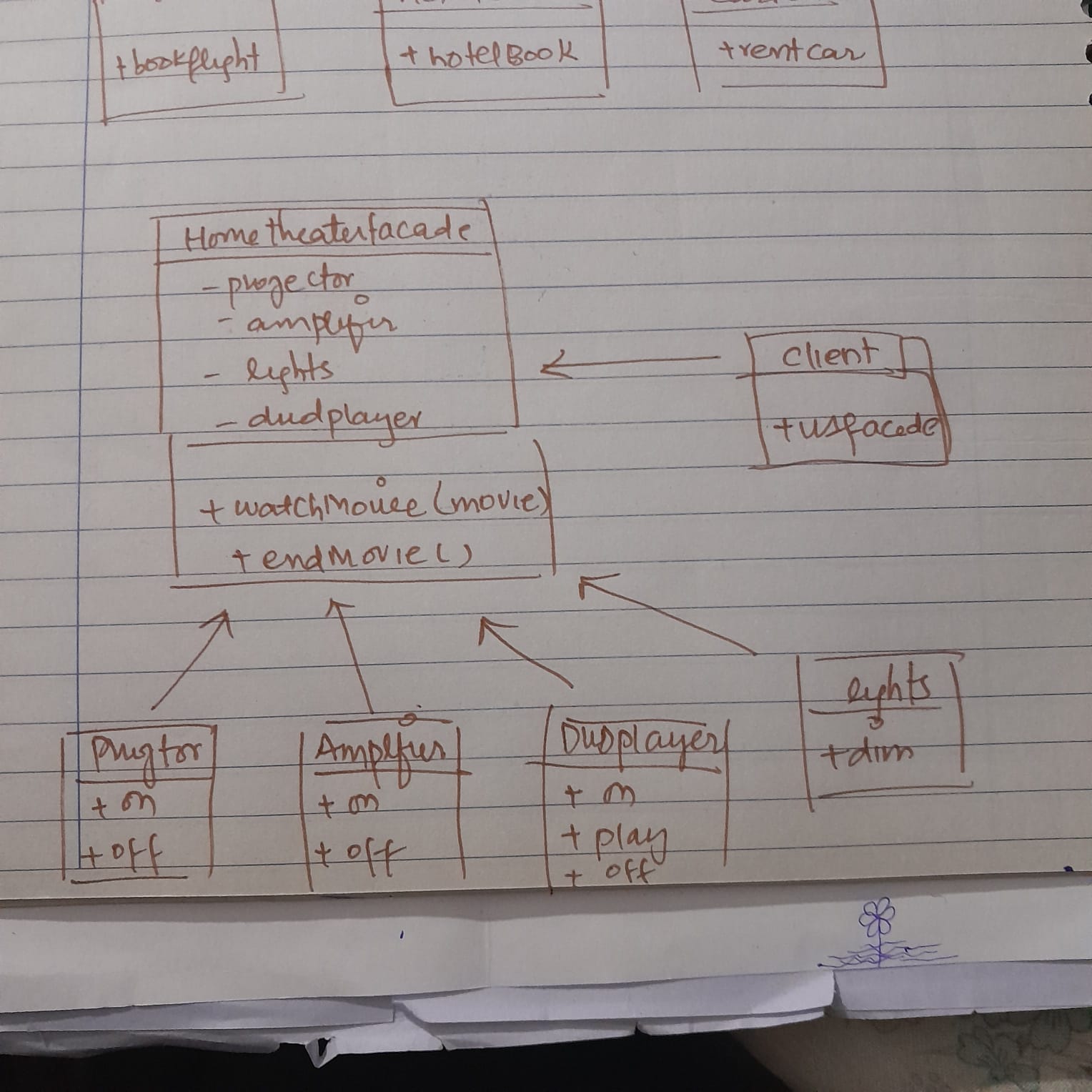
A screen shot of a computer program

Description automatically generated

A screenshot of a computer program

Description automatically generated

### Class diagram



## Task-02 Flight booking

### Code

A computer screen with colorful text

Description automatically generated

A computer screen shot of text

Description automatically generated

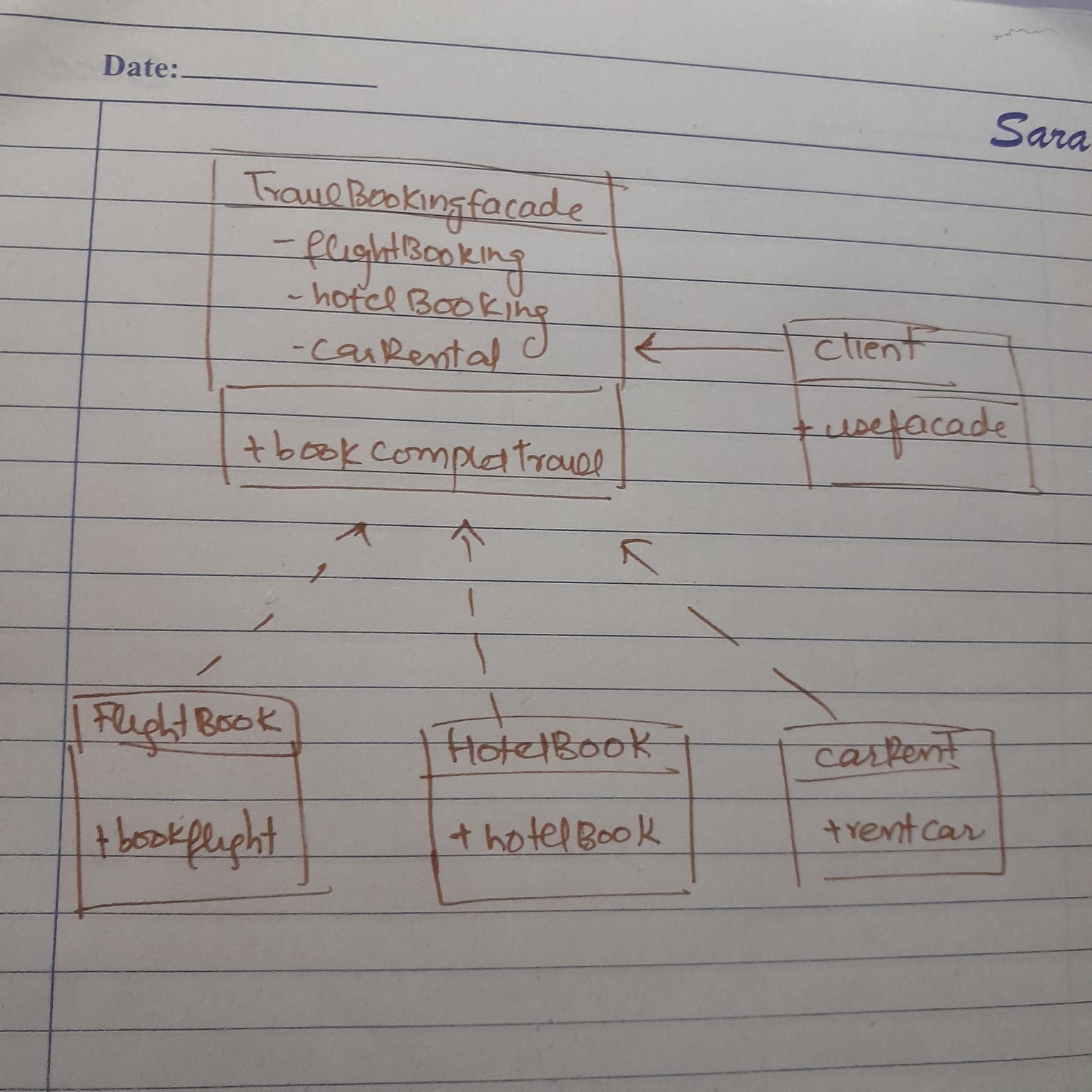
A computer screen shot of text

Description automatically generated

A screenshot of a computer screen

Description automatically generated

### Class diagram



# **Implementation of proxy design pattern:**

## Task 1: Caching Proxy in Web Applications

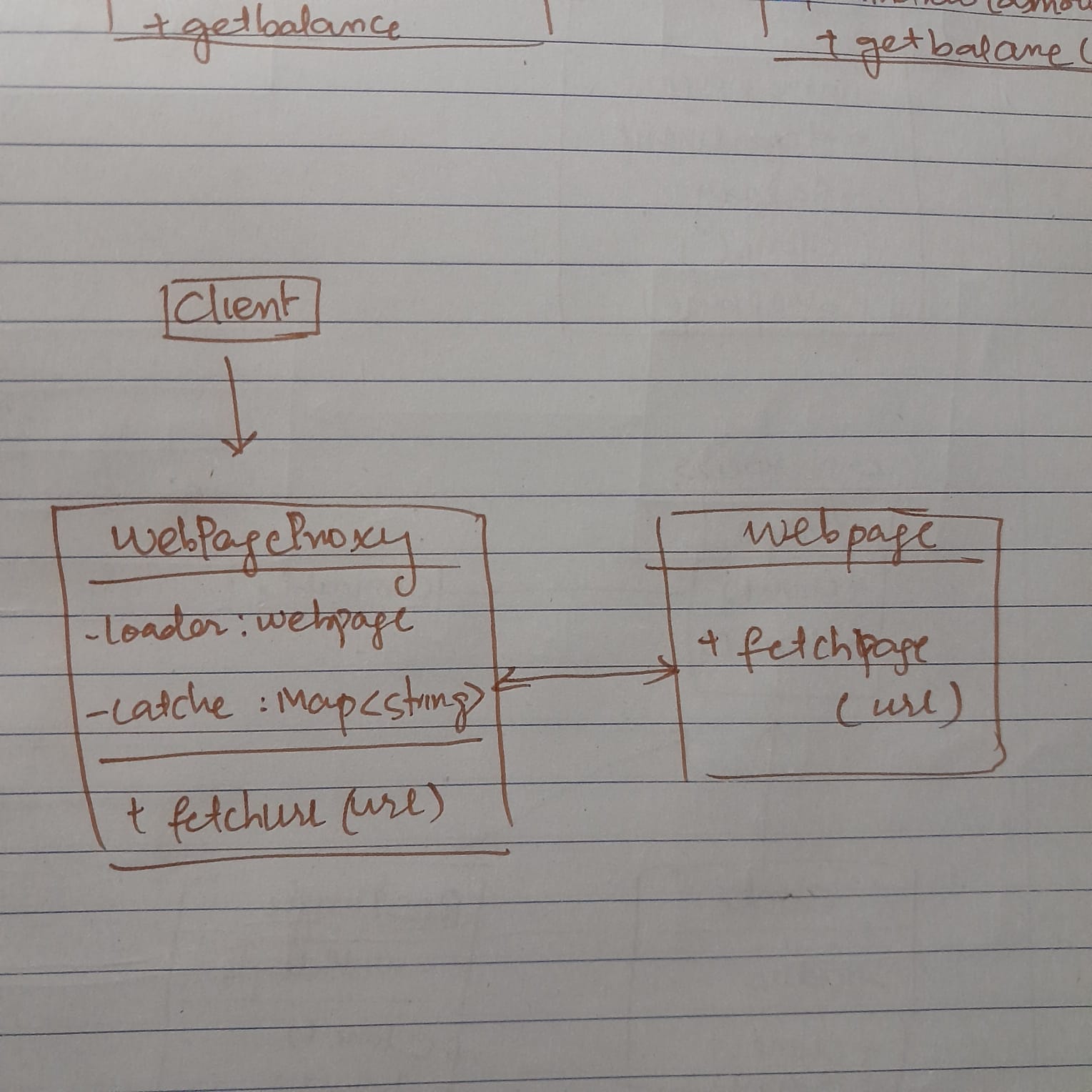
### Code



A computer screen shot of a code

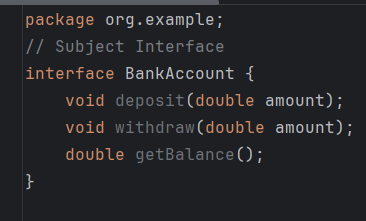
Description automatically generated

### Class diagram



## Task 2: Protection Proxy in Online Banking Systems

### Code



A computer screen shot of text

Description automatically generated

A screen shot of a computer program

Description automatically generated

A screen shot of a computer program

Description automatically generated

A screenshot of a computer

Description automatically generated

### Class Diagram

A piece of paper with writing on it

Description automatically generated

# **Implementation of observer pattern**

## Task -01 Weather application

### Code

A screen shot of a computer code

Description automatically generated

A screen shot of a computer code

Description automatically generated

A screen shot of a computer program

Description automatically generated

A screen shot of a computer program

Description automatically generated

A screenshot of a computer

Description automatically generated

### Class diagram

A piece of paper with writing on it

Description automatically generated

## Task -02 Chat application

### Code



A screen shot of a computer program

Description automatically generated

A screen shot of a computer program

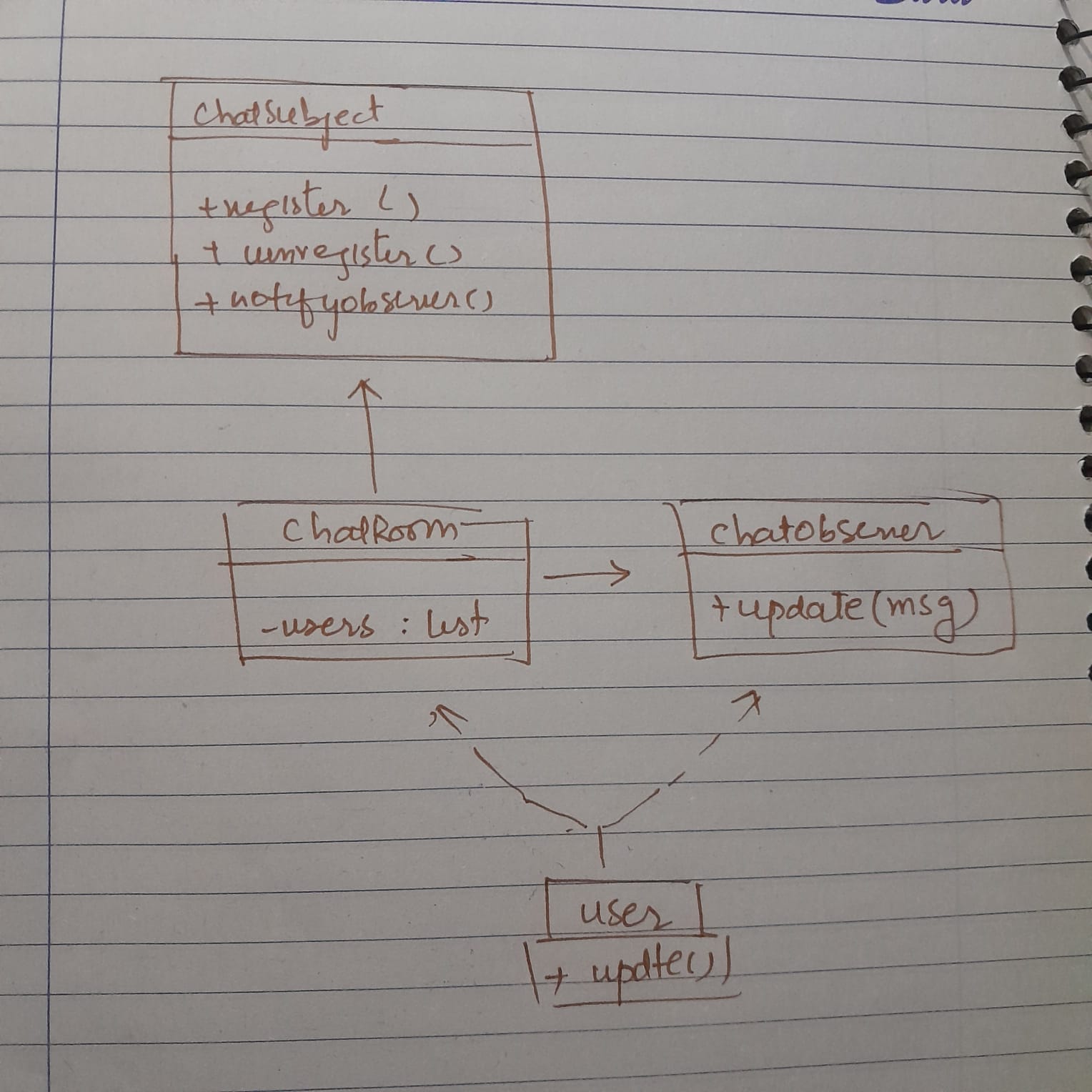
Description automatically generatedA screen shot of a computer program

Description automatically generated

A screen shot of a computer program

Description automatically generated

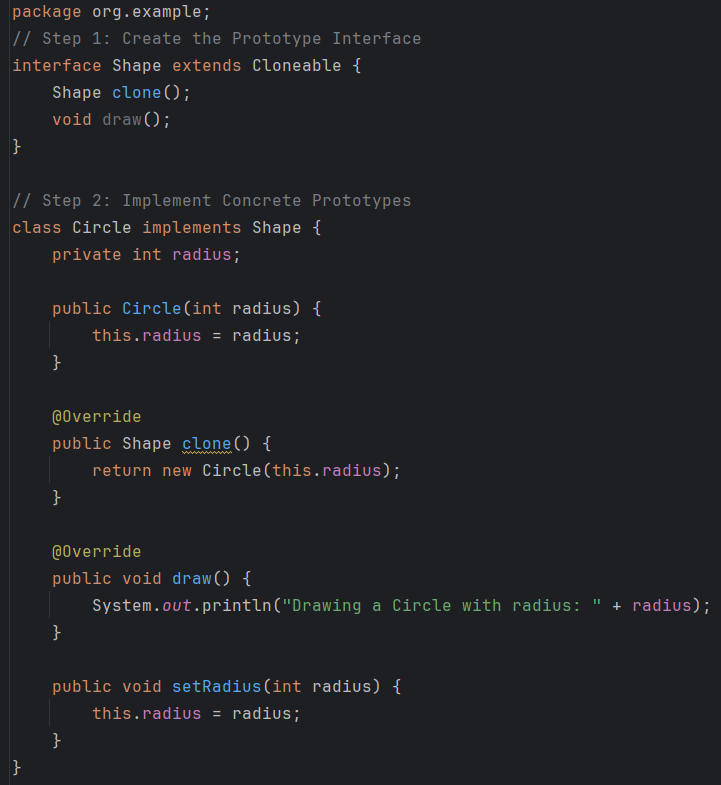
### Class diagram:



# **Implementation of prototype design pattern:**

## Task 1: Cloning Shapes

### Code



A computer screen with text and images

Description automatically generated

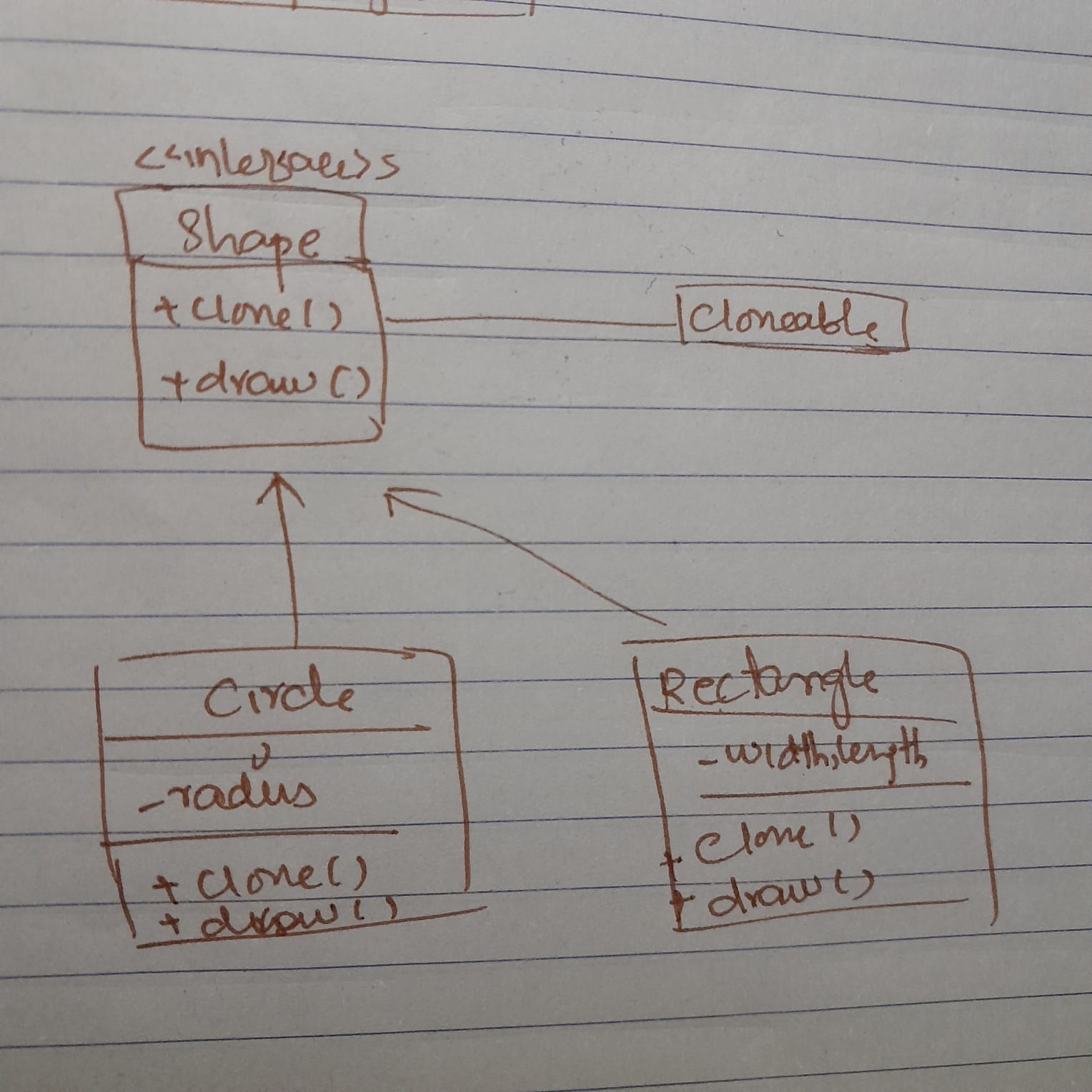
A screen shot of a computer program

Description automatically generated

A screenshot of a computer

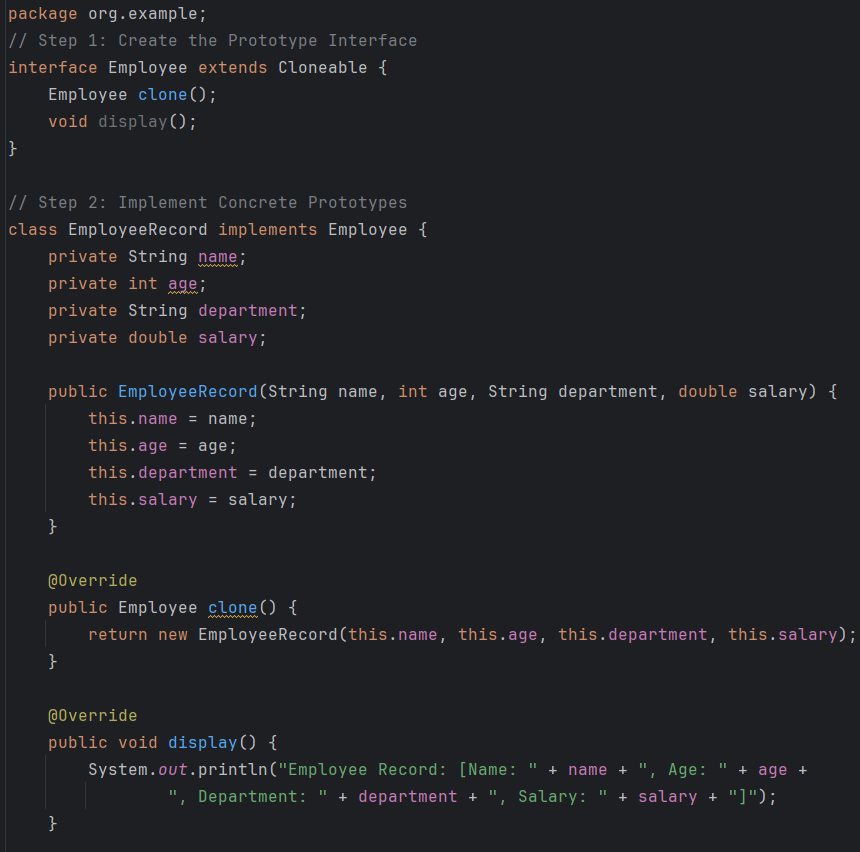
Description automatically generated

### Class Diagram



## Task 2: Cloning Employee Records

### Code



A computer screen shot of a program code

Description automatically generated

A screenshot of a computer program

Description automatically generated

### Class diagram

A close-up of a paper

Description automatically generated