ULAB

UNIVERSITY OF LIBERAL ARTS
BANGLADESH

Lab Task: 1

Course code: CSE2104

Course Title: Object Oriented Programming

Section: 2

Semester: Summer 2023

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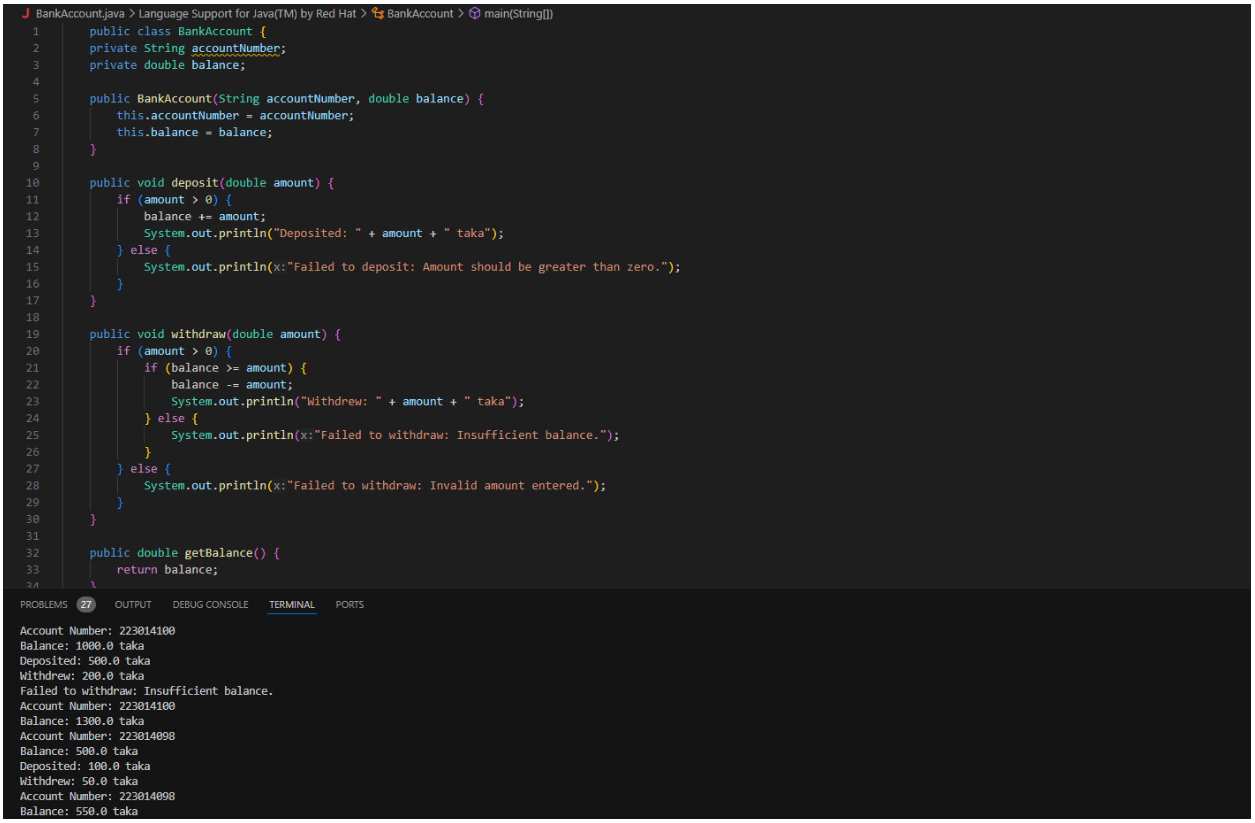
Problem 1 : Create a class called BankAccount with instance variables accountNumber and balance. Add methods to deposit and withdraw money from the account .Create objects of BankAccount and perform deposit and withdrawal operations.

Answer :

```
public class BankAccount {
    private String accountNumber;
    private double balance;

    public BankAccount(String accountNumber, double balance) {
        this.accountNumber = accountNumber;
        this.balance = balance;
    }

    public void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
            System.out.println("Deposited: " + amount + " taka");
        } else {
            System.out.println("Failed to deposit: Amount should be greater than zero.");
        }
    }

    public void withdraw(double amount) {
        if (amount > 0) {
            if (balance >= amount) {
                balance -= amount;
                System.out.println("Withdrew: " + amount + " taka");
            } else {
                System.out.println("Failed to withdraw: Insufficient balance.");
            }
        } else {
            System.out.println("Failed to withdraw: Invalid amount entered.");
        }
    }
    public double getBalance() {
        return balance;
    }
    public void display() {
        System.out.println("Account Number: " + accountNumber);
        System.out.println("Balance: " + balance + " taka");
    }

    public static void main(String[] args) {
        BankAccount account1 = new BankAccount("223014100", 1000.0);
        account1.display();
        account1.deposit(500.0);
        account1.withdraw(200.0);
        account1.withdraw(2000.0);
        account1.display();
        BankAccount account2 = new BankAccount("223014098", 500.0);
        account2.display();
        account2.deposit(100.0);
        account 2.withdraw(50.0);
        account2.display();
    }
}
```

<u>Output:</u>



BankAccount.java > Language Support for Java(TM) by Red Hat > BankAccount > main(String[])

```
public class BankAccount {
private String accountNumber;
private double balance;

public BankAccount(String accountNumber, double balance) {
    this.accountNumber = accountNumber;
    this.balance = balance;
}

public void deposit(double amount) {
    if (amount > 0) {
        balance += amount;
        System.out.println("Deposited: " + amount + " taka");
    } else {
        System.out.println(x:"Failed to deposit: Amount should be greater than zero.");
    }
}

public void withdraw(double amount) {
    if (amount > 0) {
        if (balance >= amount) {
            balance -= amount;
            System.out.println("Withdrew: " + amount + " taka");
        } else {
            System.out.println(x:"Failed to withdraw: Insufficient balance.");
        }
    } else {
        System.out.println(x:"Failed to withdraw: Invalid amount entered.");
    }
}

public double getBalance() {
    return balance;
```

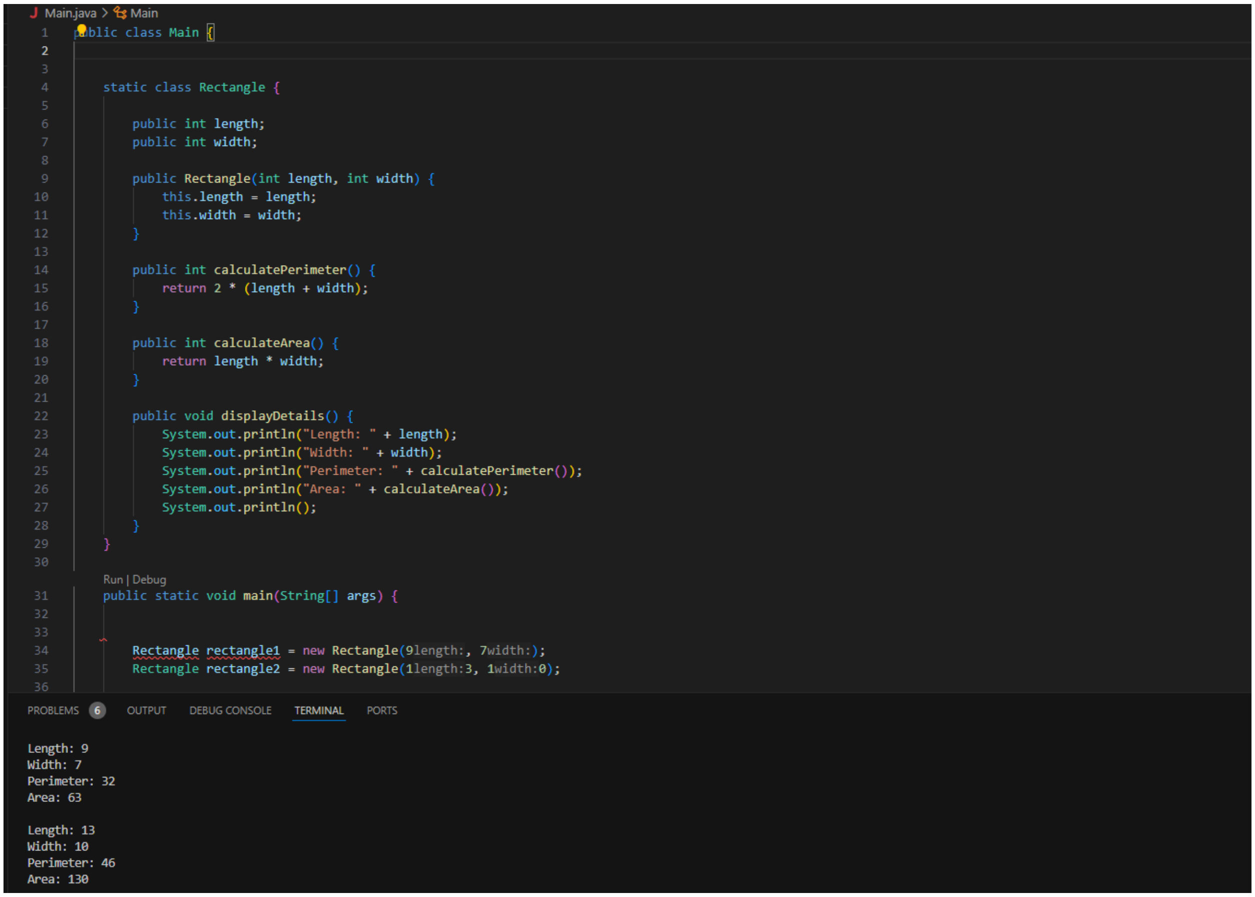
```
Account Number: 223014100
Balance: 1000.0 taka
Deposited: 500.0 taka
Withdrew: 200.0 taka
Failed to withdraw: Insufficient balance.
Account Number: 223014100
Balance: 1300.0 taka
Account Number: 223014098
Balance: 500.0 taka
Deposited: 100.0 taka
Withdrew: 50.0 taka
Account Number: 223014098
Balance: 550.0 taka
```

Problem 2:- Create a class rectangle with properties such as length and width. Add methods to calculate the perimeter and area of the rectangle. Create objects and display their corresponding perimeter and area.

Answer:

```
public class Main {


    static class Rectangle {

        public int length;
        public int width;

        public Rectangle(int length, int width) {
            this.length = length;
            this.width = width;
        }

        public int calculatePerimeter() {
            return 2 * (length + width);
        }

        public int calculateArea() {
            return length * width;
        }

        public void displayDetails() {
            System.out.println("Length: " + length);
            System.out.println("Width: " + width);
            System.out.println("Perimeter: " + calculatePerimeter());
            System.out.println("Area: " + calculateArea());
            System.out.println();
        }
    }

    public static void main(String[] args) {


        Rectangle rectangle1 = new Rectangle(9, 7);
        Rectangle rectangle2 = new Rectangle(13, 10);

        rectangle1.displayDetails();
        rectangle2.displayDetails();
    }
}
```

Output:



```
public class Main {


    static class Rectangle {

        public int length;
        public int width;

        public Rectangle(int length, int width) {
            this.length = length;
            this.width = width;
        }

        public int calculatePerimeter() {
            return 2 * (length + width);
        }

        public int calculateArea() {
            return length * width;
        }

        public void displayDetails() {
            System.out.println("Length: " + length);
            System.out.println("Width: " + width);
            System.out.println("Perimeter: " + calculatePerimeter());
            System.out.println("Area: " + calculateArea());
            System.out.println();
        }
    }

    public static void main(String[] args) {


        Rectangle rectangle1 = new Rectangle(9length:, 7width:);
        Rectangle rectangle2 = new Rectangle(1length:3, 1width:0);

```

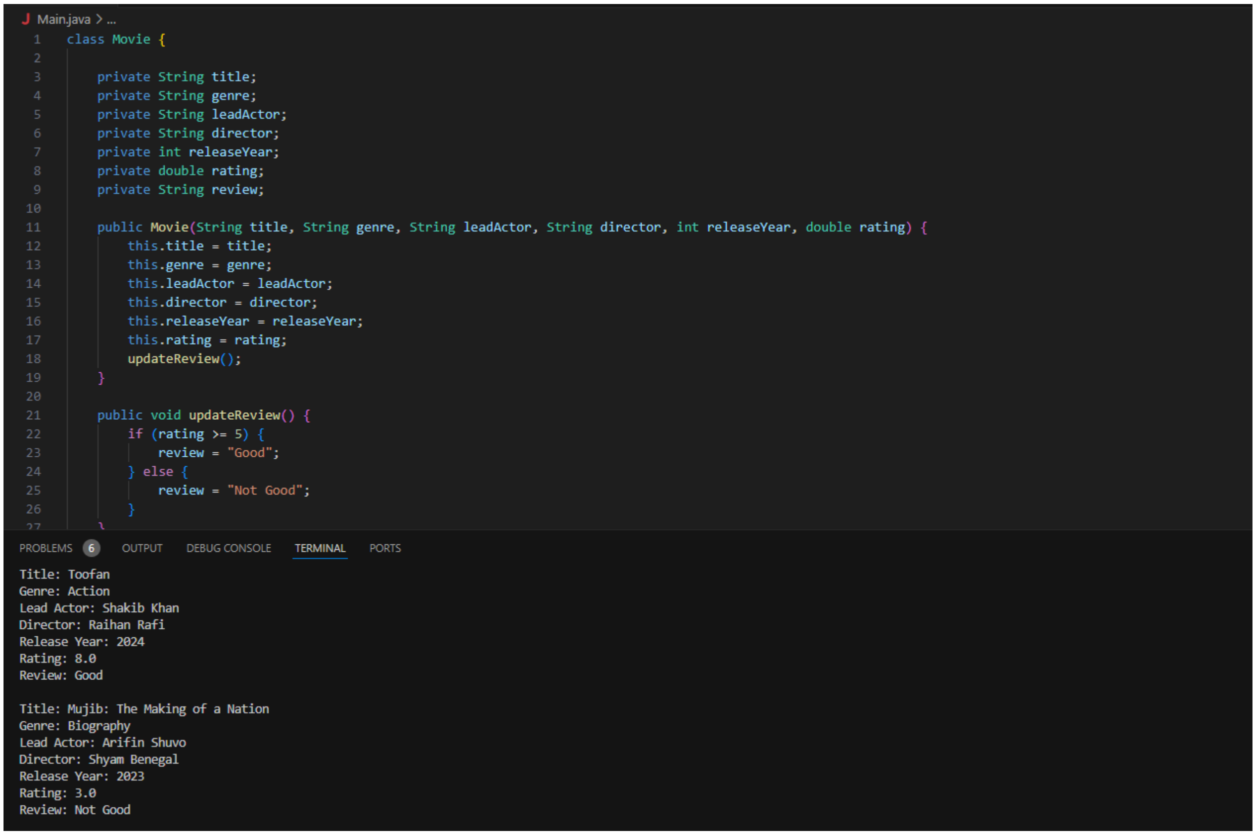
```
Length: 9
Width: 7
Perimeter: 32
Area: 63

Length: 13
Width: 10
Perimeter: 46
Area: 130
```

Problem 3: 3. Create a class called movie which as properties such as title, genre, lead actor, director, release year, rating and review. Create two movie objects and display their properties. If the rating is <5, the review should be “Not Good”. Otherwise, the review would be “Good”.

<u>Answer :</u>

```
class Movie {

    private String title;
    private String genre;
    private String leadActor;
    private String director;
    private int releaseYear;
    private double rating;
    private String review;

    public Movie(String title, String genre, String leadActor, String director, int
releaseYear, double rating) {
        this.title = title;
        this.genre = genre;
        this.leadActor = leadActor;
        this.director = director;
        this.releaseYear = releaseYear;
        this.rating = rating;
        updateReview();
    }

    public void updateReview() {
        if (rating >= 5) {
            review = "Good";
        } else {
            review = "Not Good";
        }
    }
    public void displayDetails() {
        System.out.println("Title: " + title);
        System.out.println("Genre: " + genre);
        System.out.println("Lead Actor: " + leadActor);
        System.out.println("Director: " + director);
        System.out.println("Release Year: " + releaseYear);
        System.out.println("Rating: " + rating);
        System.out.println("Review: " + review);
        System.out.println();
    }
}
public class Main {
    public static void main(String[] args) {

        Movie movie1 = new Movie("Toofan", "Action", "Shakib Khan", "Raihan Rafi", 2024, 8.0);
        Movie movie2 = new Movie("Mujib: The Making of a Nation", "Biography", "Arifin Shuvo", "Shyam Benegal", 2023, 3.0);

        movie1.displayDetails();
        movie2.displayDetails();
    }
}
```

Output:



```
class Movie {

    private String title;
    private String genre;
    private String leadActor;
    private String director;
    private int releaseYear;
    private double rating;
    private String review;

    public Movie(String title, String genre, String leadActor, String director, int releaseYear, double rating) {
        this.title = title;
        this.genre = genre;
        this.leadActor = leadActor;
        this.director = director;
        this.releaseYear = releaseYear;
        this.rating = rating;
        updateReview();
    }

    public void updateReview() {
        if (rating >= 5) {
            review = "Good";
        } else {
            review = "Not Good";
        }
    }
```

```
Title: Toofan
Genre: Action
Lead Actor: Shakib Khan
Director: Raihan Rafi
Release Year: 2024
Rating: 8.0
Review: Good

Title: Mujib: The Making of a Nation
Genre: Biography
Lead Actor: Arifin Shuvo
Director: Shyam Benegal
Release Year: 2023
Rating: 3.0
Review: Not Good
```