Lab5 Java

Question 1:

```java
interface BankInterface {
    double getBalance();
    double getInterestRate();
}

class BankA implements BankInterface {
    private double balance;

    public BankA(double balance) {
        this.balance = balance;
    }


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

```java
public class Main {
    public static void main(String[] args) {

        BankInterface bankA = new BankA(10000);
        BankInterface bankB = new BankB(150000);
        BankInterface bankC = new BankC(200000);


        System.out.println("Bank A - Balance: " + bankA.getBalance() + ", Interest Rate: " + (bankA.getInterestRate() * 100) + "%");
        System.out.println("Bank B - Balance: " + bankB.getBalance() + ", Interest Rate: " + (bankB.getInterestRate() * 100) + "%");
        System.out.println("Bank C - Balance: " + bankC.getBalance() + ", Interest Rate: " + (bankC.getInterestRate() * 100) + "%");
    }
}
```

Result:

```
C:\Users\John Justine\Documents\Debuging>java Main
Bank A - Balance: 10000.0, Interest Rate: 7.000000000000001%
Bank B - Balance: 150000.0, Interest Rate: 7.3999999999999995%
Bank C - Balance: 200000.0, Interest Rate: 7.9%
```

Question 2:

```java
interface WaterConservationSystem {
    int calculateTrappedWater(int[] blockHeights);
}
abstract class RainySeasonConservation implements WaterConservationSystem {
}
class CityBlockConservation extends RainySeasonConservation {
    public int calculateTrappedWater(int[] blockHeights) {
        if (blockHeights == null || blockHeights.length <= 2) {
            return 0;
        }
        int n = blockHeights.length;
        int[] l_block_Height = new int[n];
        int[] r_block_Height = new int[n];
        l_block_Height[0] = blockHeights[0];
        for (int i = 1; i < n; i++) {
            l_block_Height[i] = Math.max(l_block_Height[i - 1], blockHeights[i]);
        }
        r_block_Height[n - 1] = blockHeights[n - 1];
        for (int i = n - 2; i >= 0; i--) {
            r_block_Height[i] = Math.max(r_block_Height[i + 1], blockHeights[i]);
        }
        int trappedWater = 0;
        for (int i = 0; i < n; i++) {
```

Result

```
C:\Users\John Justine\Desktop>java Main
Trapped Water: 10

C:\Users\John Justine\Desktop>
```