ASSIGNMENT NO. 5

Kunal More

1) Create a base class BankAccount with methods like deposit() and withdraw(). Derive a class SavingsAccount that overrides the withdraw() method to impose a limit on the withdrawal amount. Write a program that demonstrates the use of overridden methods and proper access modifiers & return the details.

```
package mam.assignment_5;

import java.util.Scanner;

class BankAccount {
    private double balance;

    public BankAccount(double initialBalance) {
        this.balance = initialBalance;
    }

    public void deposit(double amount) {
        if (amount > 0) {
            balance += amount;
        }
    }

    public boolean withdraw(double amount) {
        if (amount > 0 && amount <= balance) {
            balance -= amount;
            return true;
        }
        return false;
    }

    public double getBalance() {
        return balance;
    }
}

class SavingsAccount extends BankAccount {
    private double withdrawalLimit;

    public SavingsAccount(double initialBalance, double
withdrawalLimit) {
```

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```
        super(initialBalance);
        this.withdrawalLimit = withdrawalLimit;
    }

    @Override
    public boolean withdraw(double amount) {
        if (amount > withdrawalLimit) {
            return false;
        }
        return super.withdraw(amount);
    }

    public double getWithdrawalLimit() {
        return withdrawalLimit;
    }
}

public class p1 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter initial balance for
Savings Account: ");
        double initialBalance = scanner.nextDouble();

        System.out.print("Enter withdrawal limit: ");
        double withdrawalLimit = scanner.nextDouble();

        SavingsAccount account = new
SavingsAccount(initialBalance, withdrawalLimit);

        System.out.print("Enter amount to deposit: ");
        double depositAmount = scanner.nextDouble();
        account.deposit(depositAmount);
        System.out.println("Current Balance: " +
account.getBalance());

        System.out.print("Enter amount to withdraw: ");
        double withdrawAmount = scanner.nextDouble();
        if (account.withdraw(withdrawAmount)) {
            System.out.println("Withdrawal successful.
Current Balance: " + account.getBalance());
```

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```
        } else {
            System.out.println("Withdrawal failed. Either
insufficient balance or exceeded withdrawal limit.");
        }
    }
}
```

```
58
59          System.out.print("Enter withdrawal limit: ");
60          double withdrawalLimit = scanner.nextDouble();
```

Console × Problems Debug Shell

p1 (9) [Java Application] C:\Users\ACER\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_22.0.2.v

```
Enter initial balance for Savings Account: 4000
Enter withdrawal limit: 2000
Enter amount to deposit: 4000
Current Balance: 8000.0
Enter amount to withdraw:
```

2) Create a base class Vehicle with attributes like make and year. Provide a constructor in Vehicle to initialize these attributes. Derive a class Car that has an additional attribute model and write a constructor that initializes make, year, and model. Write a program to create a Car object and display its details.

3) Create a base class Animal with attributes like name, and methods like eat() and sleep(). Create a subclass Dog that inherits from Animal and has an additional method bark(). Write a program to demonstrate the use of inheritance by creating objects of Animal and Dog and calling their methods.

4) Build a class Student which contains details about the Student and compile and run its instance.

5) Write a Java program to create a base class Vehicle with methods startEngine() and stopEngine(). Create two subclasses Car and Motorcycle. Override the startEngine() and stopEngine() methods in each subclass to start and stop the engines differently.