OOPS LAB

Week 5

1)

Create a class Mobile with constructor and a method basicMobile().

Create a subclass CameraMobile which extends Mobile class , with constructor and a method newFeature().

Create a subclass AndroidMobile which extends CameraMobile, with constructor and a method androidMobile().

display the details of the Android Mobile class by creating the instance. .

```
class Mobile{

}
class CameraMobile extends Mobile {
}
class AndroidMobile extends CameraMobile {
}
```

expected output:

```
Basic Mobile is Manufactured
Camera Mobile is Manufactured
Android Mobile is Manufactured
Camera Mobile with 5MG px
Touch Screen Mobile is Manufactured
```

For example:

Result
Basic Mobile is Manufactured Camera Mobile is Manufactured Android Mobile is Manufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured

```
class Mobile{
    public Mobile(){
        System.out.println("Basic Mobile is Manufactured");
    }
}
class CameraMobile extends Mobile{
    public CameraMobile(){
        System.out.println("Camera Mobile is Manufactured");
    }
    public void newFeature(){
        System.out.println("Camera Mobile with 5MG px");
    }
}
class AndroidMobile extends CameraMobile{
    public AndroidMobile(){
        System.out.println("Android Mobile is Manufactured");
    }
```

```
    void androidMobile(){
        System.out.println("Touch Screen Mobile is Manufactured");
    }
}
class prog{
    public static void main(String[] args){
        AndroidMobile o=new AndroidMobile();
        o.newFeature();
        o.androidMobile();
    }
}
```

	Expected	Got	
✓	Basic Mobile is Manufactured Camera Mobile is Manufactured Android Mobile is Manufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured	Basic Mobile is Manufactured Camera Mobile is Manufactured Android Mobile is Manufactured Camera Mobile with 5MG px Touch Screen Mobile is Manufactured	✓

Passed all tests! ✓

2)

Create a class known as "BankAccount" with methods called deposit() and withdraw().

Create a subclass called SavingsAccount that overrides the withdraw() method to prevent withdrawals if the account balance falls below one hundred.

For example:

Result
Create a Bank Account object (A/c No. BA1234) with initial balance of $500: Deposit $1000 into account BA1234: New balance after depositing $1000: $1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 Create a SavingsAccount object (A/c No. SA1000) with initial balance of $300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0

Answer: (penalty regime: 0 %)

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

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

```
    // Method to deposit an amount into the account
    public void deposit(double amount) {
        // Increase the balance by the deposit amount
        balance+=amount;

    }

    public void withdraw(double amount) {
        if (balance >= amount) {
            balance -= amount;
        } else {
            System.out.println("Insufficient balance");
        }
    }

    // Method to get the current balance
    public double getBalance() {
        // Return the current balance
        return balance;

    }
}

 class SavingsAccount extends BankAccount {
    // Constructor to initialize account number and balance
    public SavingsAccount(String accountNumber, double balance) {
        // Call the parent class constructor
        super(accountNumber,balance);

    }
```

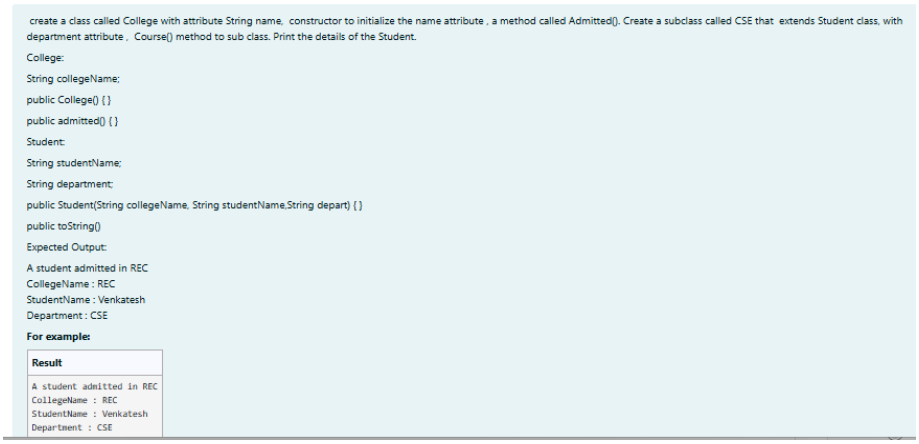
```
    // Override the withdraw method from the parent class
    @Override
    public void withdraw(double amount) {
        // Check if the withdrawal would cause the balance to drop below $100
        if (getBalance() - amount < 100) {
            // Print a message if the minimum balance requirement is not met
            System.out.println("Minimum balance of $100 required!");
        } else {
            // Call the parent class withdraw method
            super.withdraw(amount);
        }
    }
}

class prog {

    public static void main(String[] args) {
        // Print message to indicate creation of a BankAccount object
        System.out.println("Create a Bank Account object (A/c No. BA1234) with initial balance of $500:");
        // Create a BankAccount object (A/c No. "BA1234") with initial balance of $500
        BankAccount BA1234 = new BankAccount("BA1234", 500);
        // Print message to indicate deposit action
        System.out.println("Deposit $1000 into account BA1234:");
        // Deposit $1000 into account BA1234
        BA1234.deposit(1000);

        System.out.println("New balance after depositing $1000: $"+ BA1234.getBalance());

        // Print the new balance after deposit
```

```
        // Print message to indicate withdrawal action
        System.out.println("Withdraw $600 from account BA1234:");
        // Withdraw $600 from account BA1234
        BA1234.withdraw(600);

        // Print the new balance after withdrawal
        System.out.println("New balance after withdrawing $600: $" + BA1234.getBalance());

        // Print message to indicate creation of another SavingsAccount object
        System.out.println("Create a SavingsAccount object (A/c No. SA1000) with initial balance of $300:");
        // Create a SavingsAccount object (A/c No. "SA1000") with initial balance of $300
        SavingsAccount SA1000 = new SavingsAccount("SA1000", 300);

        // Print message to indicate withdrawal action
        System.out.println("Try to withdraw $250 from SA1000!");
        // Withdraw $250 from SA1000 (balance falls below $100)
        SA1000.withdraw(250);
        // Print the balance after attempting to withdraw $250
        System.out.println("Balance after trying to withdraw $250: $" + SA1000.getBalance());
    }
}
```


	Expected	Got	
✓	Create a Bank Account object (A/c No. BA1234) with initial balance of $500: Deposit $1000 into account BA1234: New balance after depositing $1000: $1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 Create a SavingsAccount object (A/c No. SA1000) with initial balance of $300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0	Create a Bank Account object (A/c No. BA1234) with initial balance of $500: Deposit $1000 into account BA1234: New balance after depositing $1000: $1500.0 Withdraw $600 from account BA1234: New balance after withdrawing $600: $900.0 Create a SavingsAccount object (A/c No. SA1000) with initial balance of $300: Try to withdraw $250 from SA1000! Minimum balance of $100 required! Balance after trying to withdraw $250: $300.0	✓

Passed all tests! ✓

3)


create a class called College with attribute String name, constructor to initialize the name attribute , a method called Admitted(). Create a subclass called CSE that extends Student class, with department attribute , Course() method to sub class. Print the details of the Student.

College:

String collegeName;

public College() { }

public admitted() { }

Student:

String studentName;

String department;

public Student(String collegeName, String studentName,String depart) { }

public toString()

Expected Output:

A student admitted in REC
CollegeName : REC
StudentName : Venkatesh
Department : CSE

For example:

Result
A student admitted in REC CollegeName : REC StudentName : Venkatesh Department : CSE

```
class College
{
protected   String collegeName;

public College(String collegeNameP) {
   // initialize the instance variables
   collegeName= collegeNameP;
   }

public void admitted() {
   System.out.println("A student admitted in "+collegeName);
}
}
class Student extends College{

String studentName;
String depart;

public Student(String collegeNameP, String studentNameP,String departP) {
  // initialize the instance variables
  super(collegeNameP);
  studentName=studentNameP;
  depart=departP;
```

```
}


public String toString(){
   // return the details of the student
   return "CollegeName : "+collegeName+"\nStudentName : "+studentName+"\nDepartment :
"+depart ;
}
}
class prog {
public static void main (String[] args) {
      Student  s1 = new Student("REC","Venkatesh","CSE");


      s1.admitted();                    // invoke the admitted() method
      System.out.println(s1.toString());
}
}
```

	Expected	Got	
✓	A student admitted in REC CollegeName : REC StudentName : Venkatesh Department : CSE	A student admitted in REC CollegeName : REC StudentName : Venkatesh Department : CSE	✓

Passed all tests! ✓