2021 MCA MCAN-293 L - OBJECT ORIENTED PROGRAMMING WITH JAVA LAB

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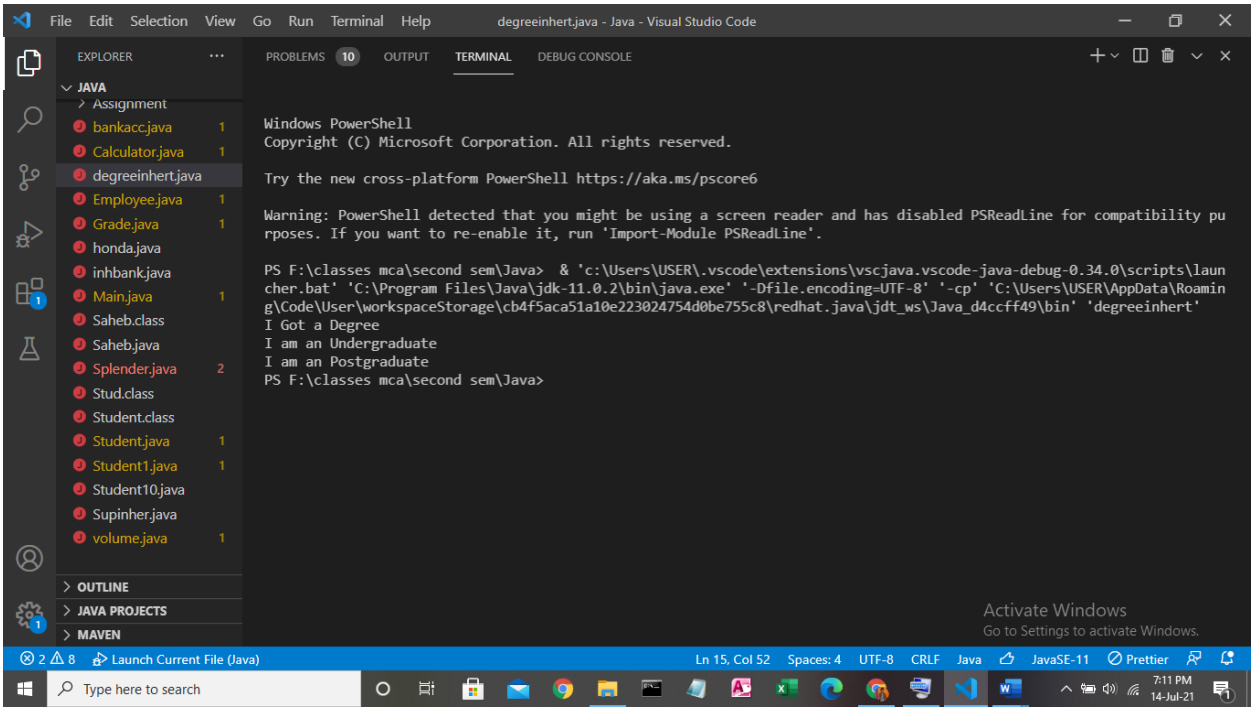
- **Create a class 'Degree' having a method 'getDegree' that prints "I got a degree". It has two subclasses namely 'Undergraduate' and 'Postgraduate' each having a method with the same name that prints "I am an Undergraduate" and "I am a Postgraduate" respectively. Call the method by creating an object of each of the three classes.**

```
1. class Degree {
2.     void getDegree() {
3.         System.out.println("I Got a Degree");
4.     }
5. }
6.
7. class Undergraduate extends Degree {
8.     void getDegree() {
9.         System.out.println("I am an Undergraduate");
10.    }
11.}
12.
13.class Postgraduate extends Degree {
14.    void getDegree() {
15.        System.out.println("I am an Postgraduate");
16.    }
17.}
18.
19.class degreeinhert {
20.    public static void main(String[] args) {
21.        Degree obj = new Degree();
22.        obj.getDegree();
23.        Undergraduate obj1 = new Undergraduate();
24.        obj1.getDegree();
25.        Postgraduate obj2 = new Postgraduate();
26.        obj2.getDegree();
27.    }
28.}
```

OUTPUT

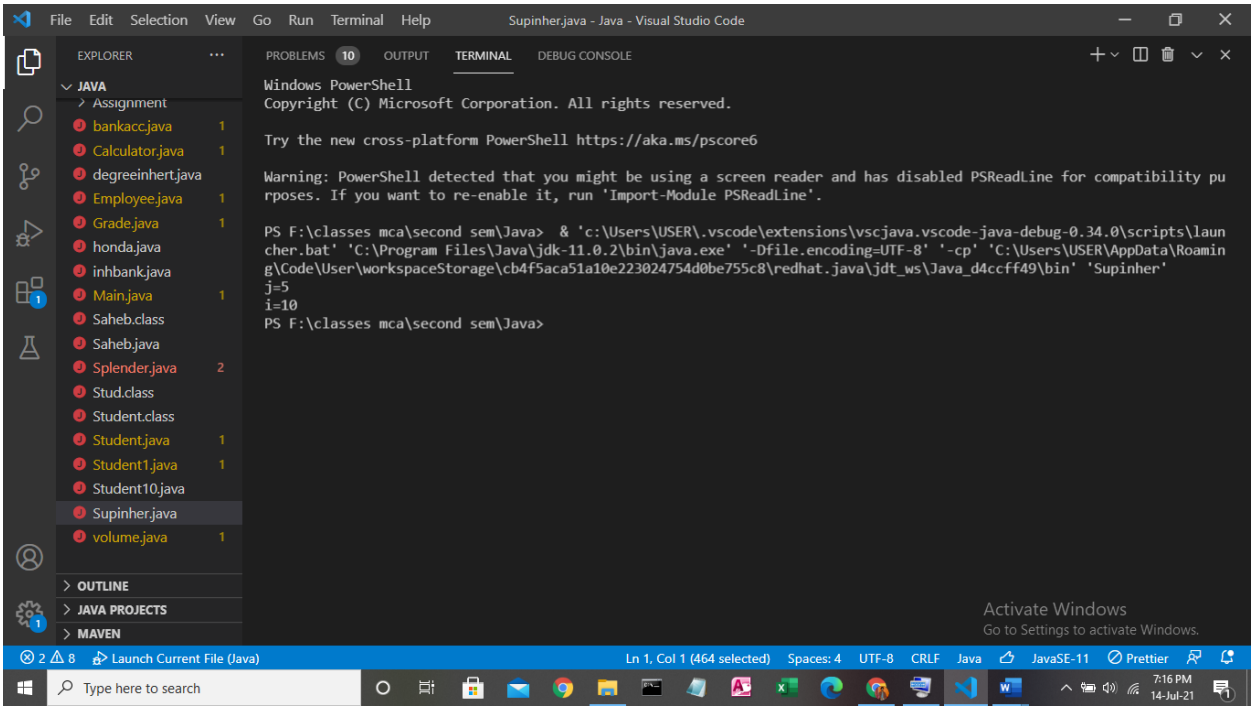


- **A class has an integer data member 'i' and a method named 'printNum' to print the value of 'i'. Its subclass also has an integer data member 'j' and a method named 'printNum' to print the value of 'j'. Make an object of the subclass and use it to assign a value to 'i' and to 'j'. Now call the method 'printNum' by this object.**
- **//code**

```
1. class A {
2.     int i;
3.
4.     A(int i) {
5.         this.i = i;
6.     }
7.
8.     void printNum() {
9.         System.out.println("i=" + i);
10.    }
11.}
12.
13.class B extends A {
14.    int j;
15.
```

```
16.     B(int j) {
17.         super(10);
18.         this.j = j;
19.     }
20.
21.     void printNum() {
22.         System.out.println("j=" + j + "\ni=" + i);
23.     }
24.}
25.
26.public class Supinher {
27.     public static void main(String[] args) {
28.         B obj = new B(5);
29.         obj.printNum();
30.     }
31.}
```

OUTPUT



- **A boy has his money deposited $1000, $1500 and $2000 in banks-Bank A, Bank B and Bank C respectively. We have to print the money deposited by him in a particular bank.**
  Create a class 'Bank' with a method 'getBalance' which returns 0. Make its three subclasses named 'BankA', 'BankB' and 'BankC' with a method with the same

name 'getBalance' which returns the amount deposited in that particular bank. Call the method 'getBalance' by the object of each of the three banks.

- **//CODE**

```
class Bank {
    int bal;

    Bank() {
        this.bal = 0;
    }

    void getBalance() {
        System.out.println(bal);
    }
}

class BankA extends Bank {
    int bal;

    BankA(int bal) {
        this.bal = bal;
    }

    void getBalance() {
        System.out.println("Balance=" + bal);
    }
}

class BankB extends Bank {
    BankB(int bal) {
        this.bal = bal;
    }

    void getBalance() {
        System.out.println("Balance=" + bal);
    }
}

class BankC extends Bank {
    BankC(int bal) {
        this.bal = bal;
    }

    void getBalance() {
        System.out.println("Balance=" + bal);
```

```
    }
}

public class inhbank {
    public static void main(String[] args) {
        BankA obj = new BankA(1000);
        obj.getBalance();
        BankB obj1 = new BankB(1500);
        obj1.getBalance();
        BankC obj2 = new BankC(2000);
        obj2.getBalance();
    }
}
```

- **All the banks operating in India are controlled by RBI. RBI has set a well defined guideline (e.g. minimum interest rate, minimum balance allowed, maximum withdrawal limit etc) which all banks must follow. For example, suppose RBI has set minimum interest rate applicable to a saving bank account to be 4% annually; however, banks are free to use 4% interest rate or to set any rates above it.**

  Write a JAVA program to implement bank functionality in the above scenario and demonstrate the dynamic polymorphism concept. Note: Create few classes namely Customer, Account, RBI (Base Class) and few derived classes (SBI, ICICI, PNB etc). Assume and implement required member variables and functions in each class.
- **//CODE**

```
import java.util.Scanner;

class Rbi {
    int inter, minbal, maxwith;

    Rbi() {
        inter = 4;
        minbal = 0;
        maxwith = 50000;
    }

    void dis() {
        System.out.println("Miniumum Interest Rate=" + inter);
        System.out.println("Miniumum Balance=" + minbal);
        System.out.println("Maximum Withdrawl limit=" + maxwith);
    }
}
```

```
18.
19.class Sbi extends Rbi {
20.    int a, a1, a2;
21.
22.    Sbi() {
23.        inter = 5;
24.    }
25.
26.    void cust(int a) {
27.        this.a = a;
28.    }
29.
30.    // void dis() {
31.    // System.out.println("Miniumum Interest Rate of SBI BANK=" + inter);
32.    // System.out.println("Miniumum Balance of SBI BANK=" + minbal);
33.    // System.out.println("Maximum Withdrawl limit of SBI BANK=" + maxwith
   );
34.    // }
35.    void custde() {
36.        a1 = (a * inter) / 100;
37.        a2 = a + a1;
38.        System.out.println("\nPrinting amount details");
39.        System.out.println("-------------------------");
40.        System.out.println("amount is " + a);
41.        System.out.println("Interest amount is " + a1);
42.        System.out.println("Total amount is " + a2);
43.    }
44.}
45.
46.class Icici extends Rbi {
47.    int a, a1, a2;
48.
49.    Icici() {
50.        minbal = 10000;
51.    }
52.
53.    void cust(int a) {
54.        this.a = a;
55.    }
56.
57.    void custde() {
58.        a1 = (a * inter) / 100;
59.        a2 = a + a1;
60.        System.out.println("\nPrinting amount details");
61.        System.out.println("-------------------------");
```

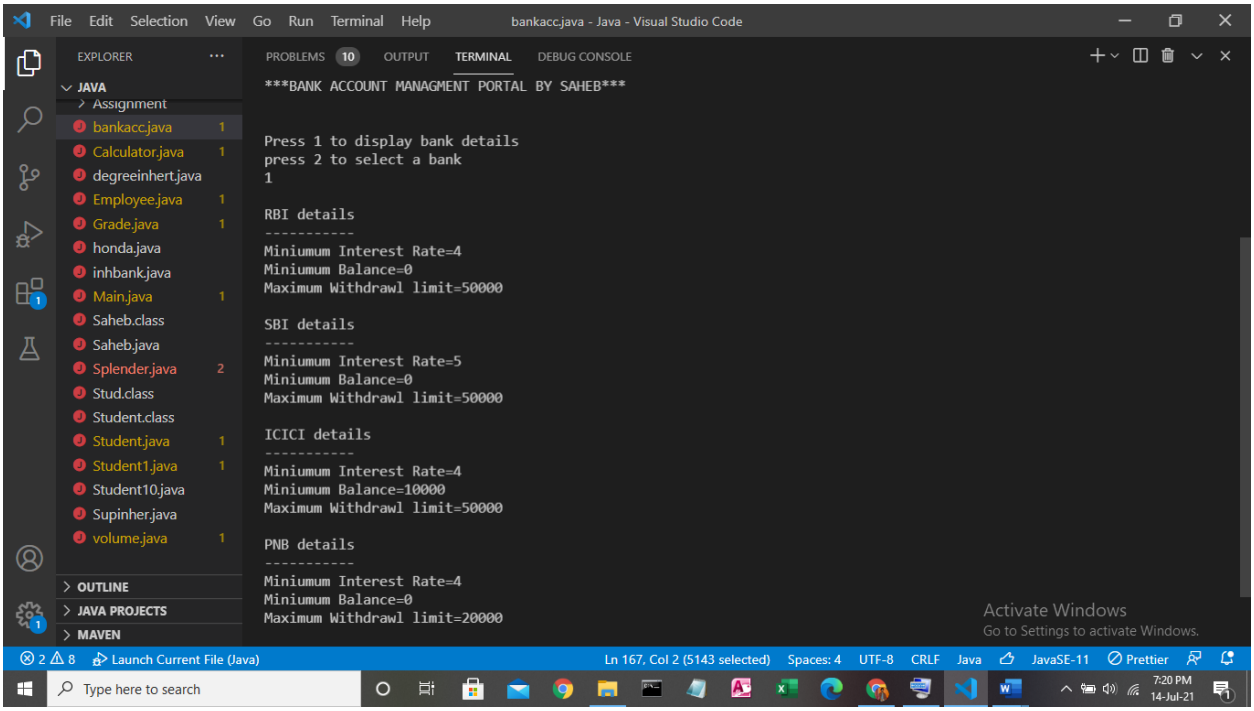
```
        System.out.println("amount is " + a);
        System.out.println("Interest amount is " + a1);
        System.out.println("Total amount is " + a2);

    }
    // void dis() {
    // System.out.println("Miniumum Interest Rate of ICICI BANK=" + inter)
   ;
    // System.out.println("Miniumum Balance of ICICI BANK=" + minbal);
    // System.out.println("Maximum Withdrawl limit of ICICI BANK=" + maxwi
   th);
    // }
}

class Pnb extends Rbi {
    int a, a1, a2;

    Pnb() {
        maxwith = 20000;
    }

    void cust(int a) {
        this.a = a;
    }

    void custde() {
        a1 = (a * inter) / 100;
        a2 = a + a1;
        System.out.println("\nPrinting amount details");
        System.out.println("-------------------------");
        System.out.println("amount is " + a);
        System.out.println("Interest amount is " + a1);
        System.out.println("Total amount is " + a2);

    }
    // void dis() {
    // System.out.println("Miniumum Interest Rate of PNB BANK=" + inter);
    // System.out.println("Miniumum Balance of PNB BANK=" + minbal);
    // System.out.println("Maximum Withdrawl limit of PNB BANK=" + maxwith
   );
    // }
      }

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

```
104.             Scanner sc = new Scanner(System.in);
105.             int inp, sel, a;
106.             System.out.println("\n\n\n***BANK ACCOUNT MANAGMENT PORTAL B
   Y SAHEB***");
107.             // else
108.             // {
109.             // System.out.println("Wrong Choice");
110.             // }
111.             while (true) {
112.                 System.out.println("\n\nPress 1 to display bank details"
   );
113.                 System.out.println("press 2 to select a bank");
114.                 inp = sc.nextInt();
115.                 if (inp == 1) {
116.                     System.out.println("\nRBI details");
117.                     System.out.println("-----------");
118.                     Rbi obj = new Rbi();
119.                     obj.dis();
120.
121.                     System.out.println("\nSBI details");
122.                     System.out.println("-----------");
123.                     Sbi obj1 = new Sbi();
124.                     obj1.dis();
125.
126.                     System.out.println("\nICICI details");
127.                     System.out.println("-----------");
128.                     Icici obj2 = new Icici();
129.                     obj2.dis();
130.
131.                     System.out.println("\nPNB details");
132.                     System.out.println("-----------");
133.                     Pnb obj3 = new Pnb();
134.                     obj3.dis();
135.                 } else if (inp == 2) {
136.                     System.out.println("Press 1 for RBI");
137.                     System.out.println("Press 2 for ICICI");
138.                     System.out.println("Press 3 for PNB");
139.                     sel = sc.nextInt();
140.                     if (sel == 1) {
141.                         System.out.println("Enter your amount:");
142.                         a = sc.nextInt();
143.                         Sbi obj = new Sbi();
144.                         obj.cust(a);
145.                         obj.custde();
146.                     } else if (sel == 2) {
```

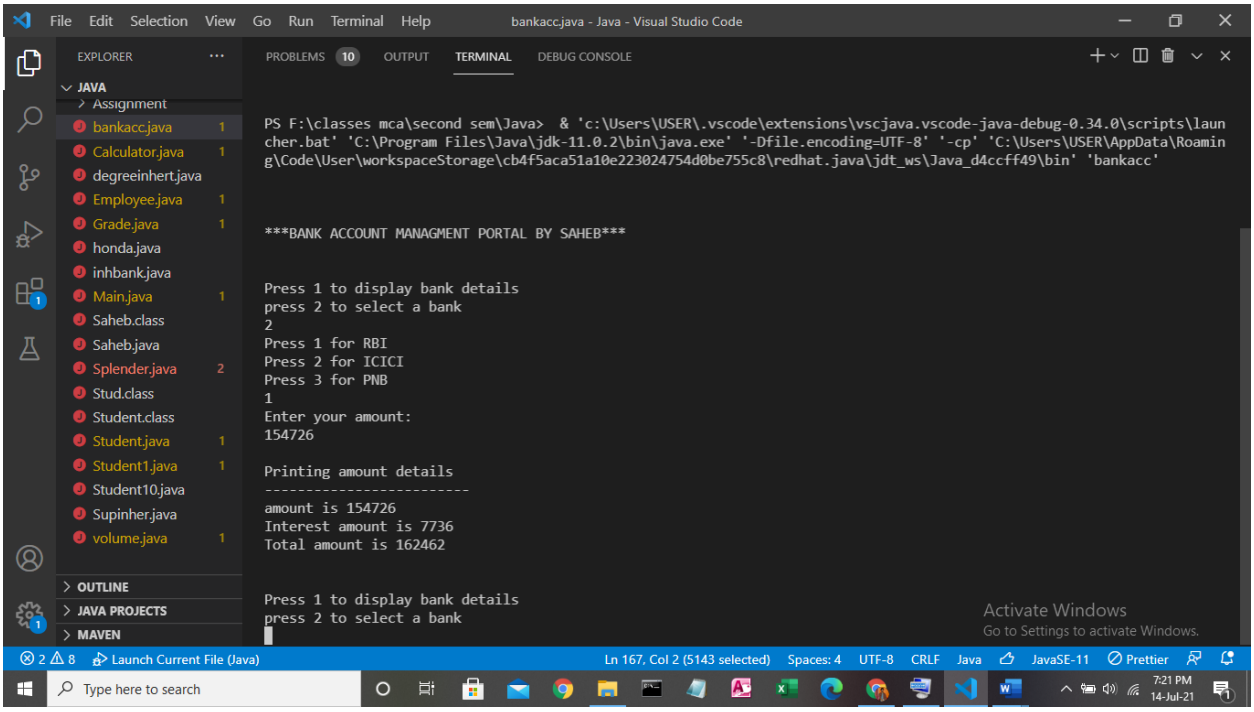
```
147.                         System.out.println("Enter your amount:");
148.                         a = sc.nextInt();
149.                         Icici obj = new Icici();
150.                         obj.cust(a);
151.                         obj.custde();
152.                     } else if (sel == 3) {
153.                         System.out.println("Enter your amount:");
154.                         a = sc.nextInt();
155.                         Pnb obj = new Pnb();
156.                         obj.cust(a);
157.                         obj.custde();
158.                     } else {
159.                         System.out.println("Wrong Choice");
160.                     }
161.
162.                 } else {
163.                     System.out.println("Wrong Choice");
164.                 }
165.             }
166.         }
167.     }
```

OUTPUT

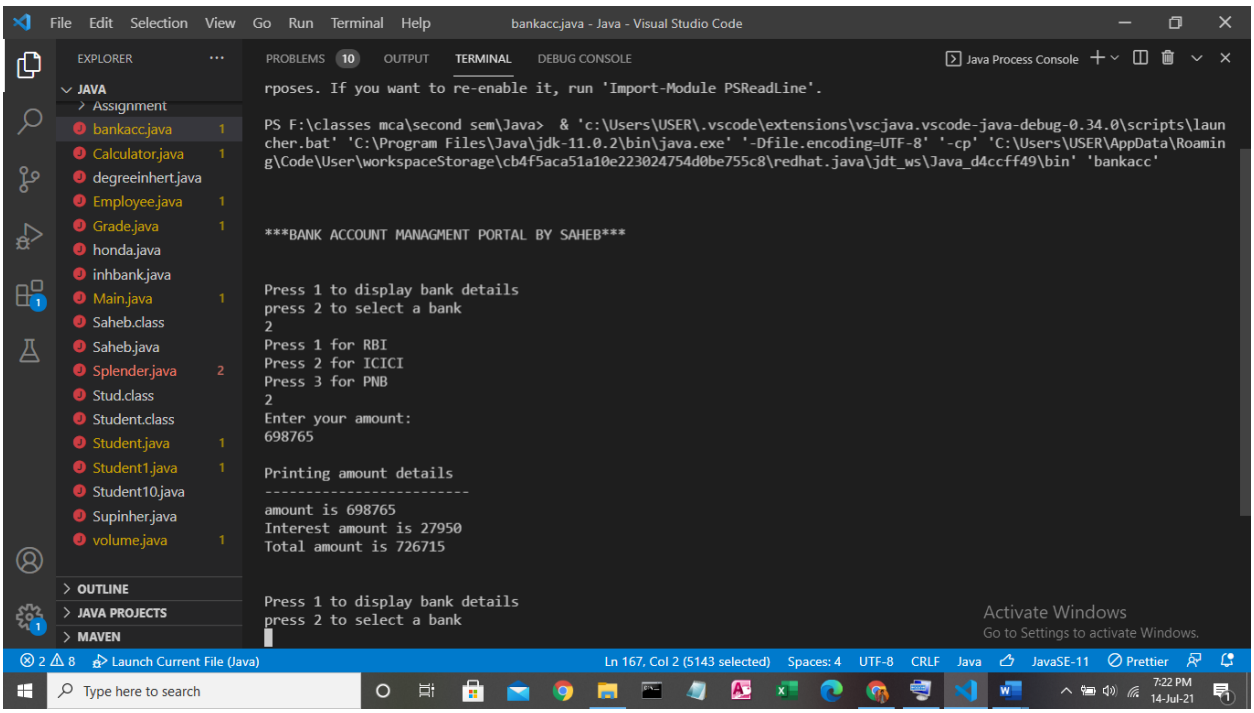
SCREEN1:



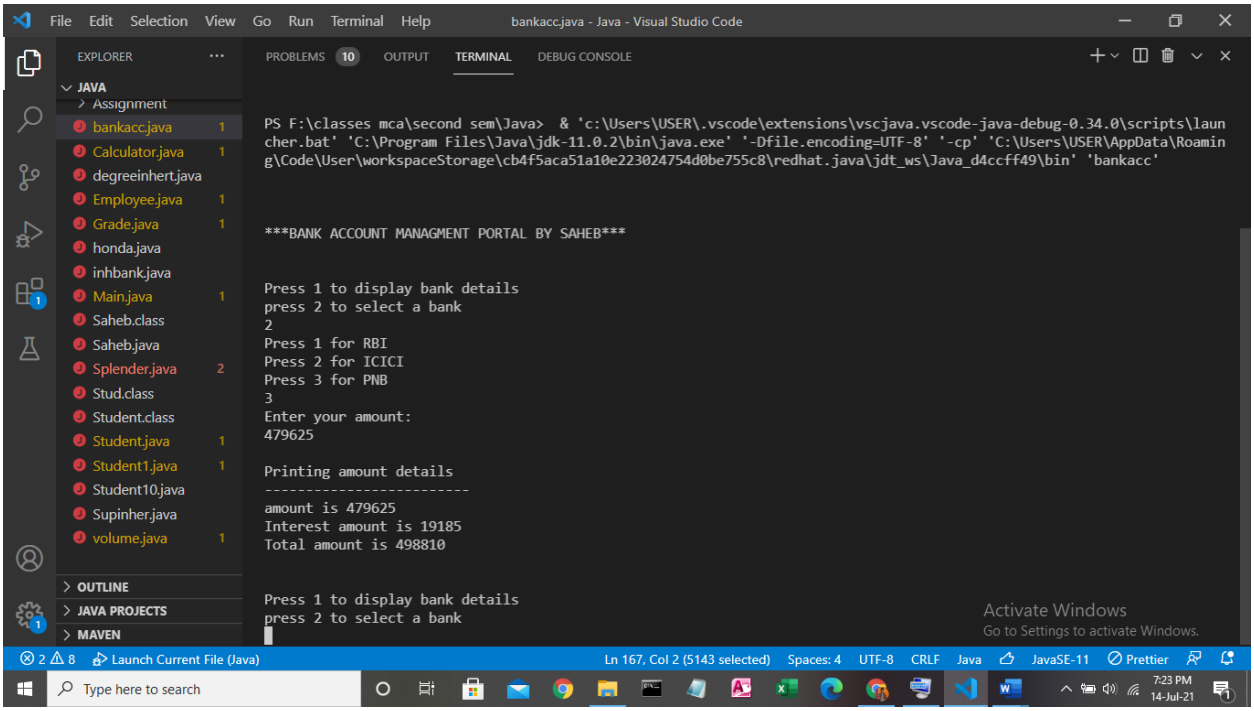
SCREEN2:



SCREEN3:



SCREEN4:


File Edit Selection View Go Run Terminal Help
bankacc.java - Java - Visual Studio Code
EXPLORER
JAVA
Assignment
bankacc.java 1
Calculator.java 1
degreeinhert.java
Employee.java 1
Grade.java 1
honda.java
inhbank.java
Main.java 1
Saheb.class
Saheb.java
Splender.java 2
Stud.class
Student.class
Student.java 1
Student1.java 1
Student10.java
Supinher.java
volume.java 1
OUTLINE
JAVA PROJECTS
MAVEN
PROBLEMS 10
OUTPUT
TERMINAL
DEBUG CONSOLE
PS F:\classes mca\second sem\Java> & 'c:\Users\USER\.vscode\extensions\vscjava.vscode-java-debug-0.34.0\scripts\launcher.bat' 'C:\Program Files\Java\jdk-11.0.2\bin\java.exe' '-Dfile.encoding=UTF-8' '-cp' 'C:\Users\USER\AppData\Roaming\Code\User\workspaceStorage\cb4f5aca51a10e223024754d0be755c8\redhat.java\jdt_ws\Java_d4ccff49\bin' 'bankacc'
BANK ACCOUNT MANAGMENT PORTAL BY SAHEB
Press 1 to display bank details
press 2 to select a bank
2
Press 1 for RBI
Press 2 for ICICI
Press 3 for PNB
3
Enter your amount:
479625
Printing amount details
amount is 479625
Interest amount is 19185
Total amount is 498810
Press 1 to display bank details
press 2 to select a bank
Activate Windows
Go to Settings to activate Windows.
2 8 Launch Current File (Java)
Ln 167, Col 2 (5143 selected) Spaces: 4 UTF-8 CRLF Java JavaSE-11 Prettier
Type here to search
7:23 PM
14-Jul-21