

Customer Products:

Super class:

```
package Customers;

public class customer_details {

    customer_details(String product_Name, String product_Model, double
product_Price){
        this.product_Name=product_Name;
        this.product_Model=product_Model;
        this.product_Price=product_Price;
    }
    private String customer_Name;
    private String product_Name;
    private String product_Model;
    private double product_Price;

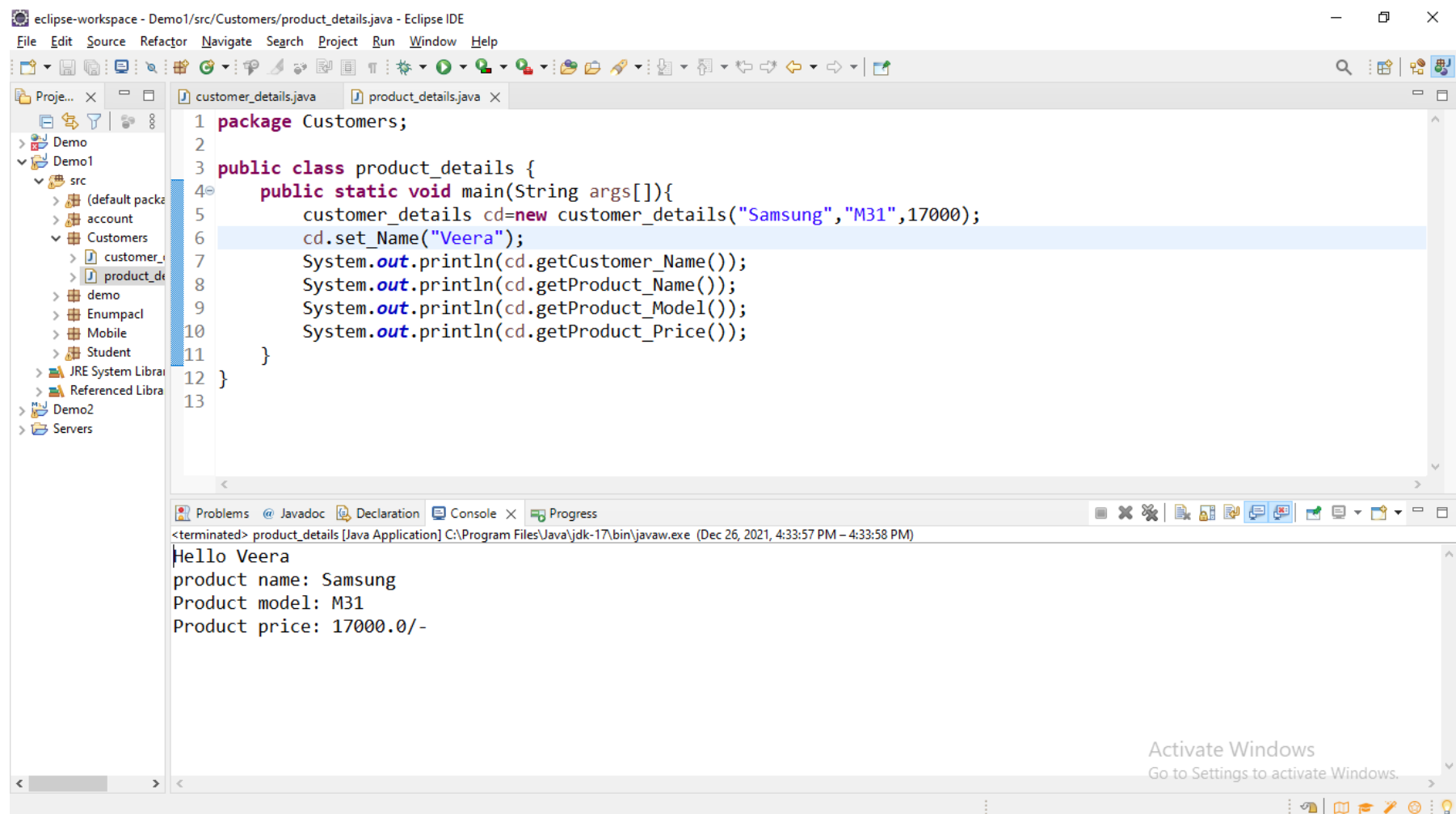
    public void set_Name(String name){
        customer_Name=name;
    }
    public String getCustomer_Name(){
        if(customer_Name!=null){
            return "Hello "+customer_Name;
        }
        return "Please set your name before getting name use 'set_Name
method'";
    }
    public String getProduct_Model(){
        return "Product model: "+product_Model;
    }
    public String getProduct_Price(){
        return "Product price: "+product_Price+"/-";
    }
    public String getProduct_Name(){
        return "product name: "+product_Name;
    }
}
```

Child class (Main method):

```
package Customers;

public class product_details {
    public static void main(String args[]){
        customer_details cd=new customer_details("Samsung","M31",17000);
        cd.set_Name("Veera");
        System.out.println(cd.getCustomer_Name());
        System.out.println(cd.getProduct_Name());
        System.out.println(cd.getProduct_Model());
        System.out.println(cd.getProduct_Price());    }    }
```

Output:



The screenshot shows the Eclipse IDE interface. The top part displays the source code for `product_details.java` in the `Customers` package. The code defines a `product_details` class with a `main` method that creates a `customer_details` object, sets its name to "Veera", and prints its details. The bottom part shows the console output, which matches the printed statements in the code.

```
1 package Customers;
2
3 public class product_details {
4     public static void main(String args[]){
5         customer_details cd=new customer_details("Samsung","M31",17000);
6         cd.set_Name("Veera");
7         System.out.println(cd.getCustomer_Name());
8         System.out.println(cd.getProduct_Name());
9         System.out.println(cd.getProduct_Model());
10        System.out.println(cd.getProduct_Price());
11    }
12 }
13
```

Console Output:

```
<terminated> product_details [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 4:33:57 PM - 4:33:58 PM)
Hello Veera
product name: Samsung
Product model: M31
Product price: 17000.0/-
```

Mobile:

Super class:

```
package Mobile;

public class mobile {
    mobile(){System.out.println("From Mobile... ");}
    public void call() {System.out.println("u can call from mobile... ");}
    public void games() {System.out.println("U can play small games..");}
    public void sms() {System.out.println("U can send and recevice
meassages...");}
}
```

Child interface:

```
package Mobile;

public interface Music_player {

    void select_song();
    void next_song();
    void previous_song();
    void forward_song();
}
```

Child interface:

```
package Mobile;

    public interface whatsapp {

        void send_Message();
        void receive_message();
        void status();
        void voice_call();
        void video_call();
    }
```

Child class (Main class):

```
package Mobile;

public class Smart_phone extends mobile implements Music_player, whatsapp {

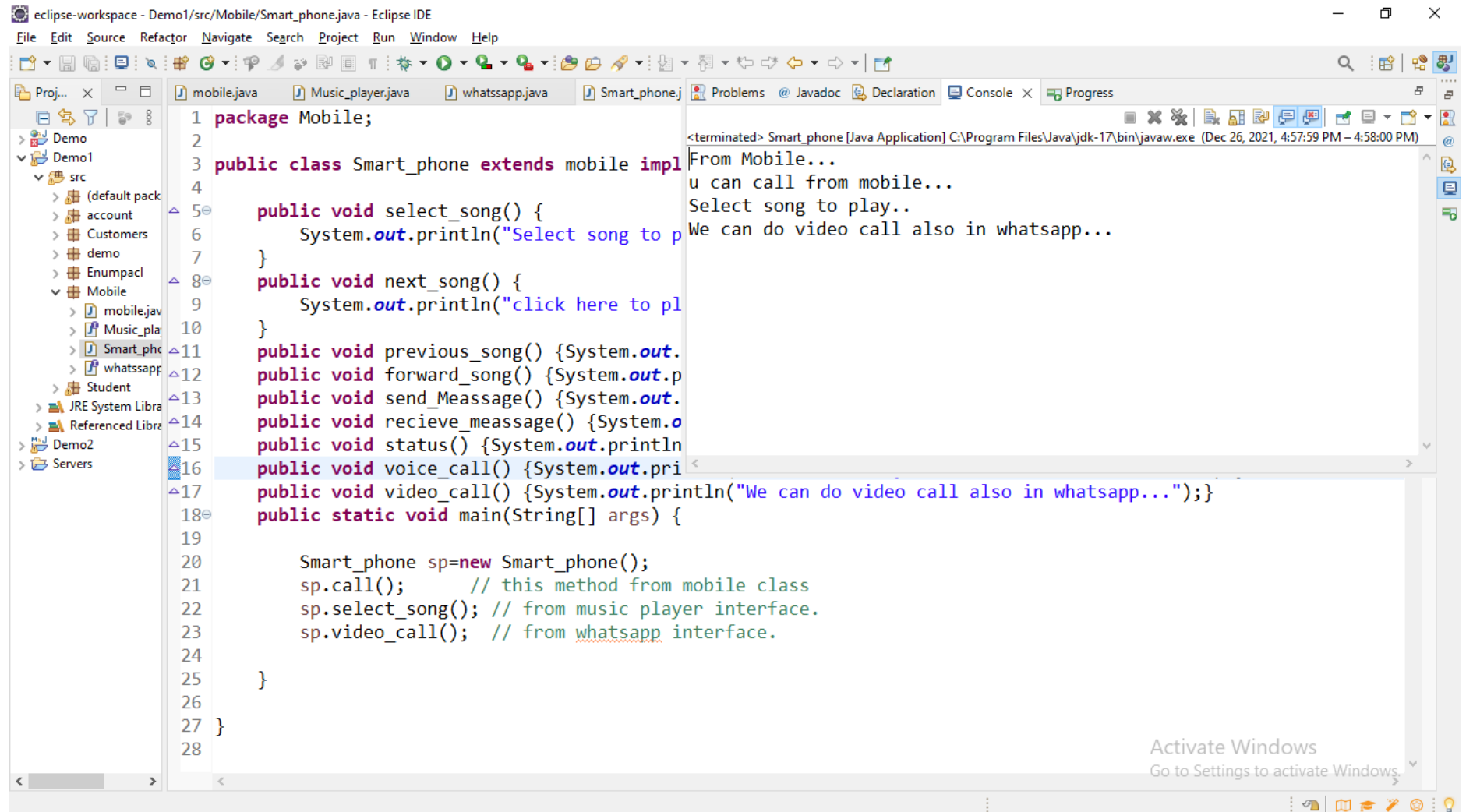
    public void select_song() {
        System.out.println("Select song to play..");
    }
    public void next_song() {
        System.out.println("click here to play next song...");
    }
    public void previous_song() {System.out.println("Click here to previous
song...");}
    public void forward_song() {System.out.println("click to forward
song...");}
    public void send_Message() {System.out.println("Send message from
whatsapp");}
    public void receive_message() {System.out.println("Receive message from
whatsapp");}
    public void status() {System.out.println("we keep status and we see others
status also");}
    public void voice_call() {System.out.println("We can call any one who r in
our contacts..");}
    public void video_call() {System.out.println("We can do video call also in
whatsapp...");}
    public static void main(String[] args) {

        Smart_phone sp=new Smart_phone();
        sp.call();          // this method from mobile class
        sp.select_song(); // from music player interface.
        sp.video_call();   // from whatsapp interface.

    }

}
```

Output:



The screenshot shows the Eclipse IDE with the file `Smart_phone.java` open. The code defines a `Smart_phone` class that implements the `mobile` interface. The console output shows the execution of the `main` method, which calls `call()`, `select_song()`, and `video_call()` on a `Smart_phone` object. The output is as follows:

```
<terminated> Smart_phone [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 4:57:59 PM - 4:58:00 PM)
From Mobile...
u can call from mobile...
Select song to play..
We can do video call also in whatsapp...
```

Account:

Account class (super class):

```
package account;

public class Account {

    public void savings_Account_Details() throws Exception{
        System.out.print("Loading");
        for(int i=0;i<=6;i++) {Thread.sleep(300);System.err.print(".");}
        System.out.println();
        System.out.println("Account Number: 2872428282382");
        Thread.sleep(1000);
        System.out.println("Ifsc Code: SBI10009");
        Thread.sleep(1000);
        System.out.println("Account Holder Name: veera");
        Thread.sleep(1000);
        System.out.println("Account Type: Savings Account");
        Thread.sleep(1000);
        System.out.println();
        System.out.println("***** Thanks Visit Again *****");
    }

    public void loan_Account_Details() throws Exception{
        System.out.print("Loading");
```

```

        for(int i=0;i<=6;i++) {Thread.sleep(300);System.err.print(".");}
        System.out.println();
        System.out.println("Account Number: 8997799821");
        Thread.sleep(1000);
        System.out.println("Ifsc Code: ICICI10009");
        Thread.sleep(1000);
        System.out.println("Account Holder Name: suresh");
        Thread.sleep(1000);
        System.out.println("Account Type: loan Account");
        Thread.sleep(1000);
        System.out.println();
        System.out.println("***** Thanks Visit Again *****");
    }
}

Loan class (child class / main class):

    package account;

import java.util.Scanner;

public class Loan extends Account {

    public void loan_Details() throws Exception{
        System.out.print("Loading");
        for(int i=0;i<=6;i++) {Thread.sleep(300);System.err.print(".");}
        System.out.println();
        System.out.println("Account Type: loan Account...");
        Thread.sleep(1000);
        System.out.println("Loan amount: 200000/-");
        Thread.sleep(1000);
        System.out.println("Monthly Emi: 20000");
        Thread.sleep(1000);
        System.out.println("Intrest amount: 10000/-");
        Thread.sleep(1000);
        System.out.println();
        System.out.println("***** Thanks Visit Again *****");
    }

    public static void main(String[] args) throws Exception {
        Loan l=new Loan();
        System.out.println("you are in loan account details...");
        Thread.sleep(3000);
        Scanner sc=new Scanner(System.in);
        System.out.println("Please Select Account detals for 'Account'+"\n"+"
For loan details enter 'loan'");
        String input=sc.nextLine();
        if(input.equalsIgnoreCase("account")) {
            l.loan_Account_Details();
        }
        else if(input.equalsIgnoreCase("loan")) {
            l.loan_Details();
        }
        else {

```



```

        System.err.println("Please enter correct input check again....");
    }

}

}

```

Output:

The screenshot shows the Eclipse IDE with the file `Savings.java` open. The code defines a `Savings` class that extends `Account`. It includes a `saving_Account()` method that prints account details and a `main` method that creates a `Savings` object and calls `saving_Account()`. The console output shows the execution of the program, displaying account details and a message to visit again.

```

1 package account;
2
3 import java.util.Scanner;
4
5 public class Savings extends Account {
6
7     public void saving_Account() throws Exception {
8         System.out.print("Loading");
9         for(int i=0;i<=6;i++) {Thread.sleep(300);System.err.print(".");}
10        System.out.println();
11        System.out.println("Account Type: Savings Account");
12        Thread.sleep(1000);
13        System.out.println("debit card details: 9992/8292/8299 , *** ");
14        Thread.sleep(1000);
15        System.out.println("debit card withdraw: 10000/day");
16        Thread.sleep(1000);
17        System.out.println("credit card money: 20000/day , CCPoints:150 ");
18        Thread.sleep(1000);
19        System.out.println();
20        System.out.println("***** Thanks Visit Again *****");
21    }
22
23    public static void main(String[] args) throws Exception {
24        Savings s=new Savings();
25        System.out.println("you are in saving account details...");
26        Thread.sleep(3000);
27        Scanner sc=new Scanner(System.in);
28        System.out.println("Please Select Account details for 'Account'"+'\n'+
29        "Card and other details enter 'card'
30        String input=sc.nextLine();

```

Console Output:

```

<terminated> Savings [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 5:10:09 PM – 5:10:24 PM)
you are in saving account details...
Please Select Account details for 'Account'
Card and other details enter 'card'
account
Loading.....
.Account Number: 2872428282382
Ifsc Code: SBI10009
Account Holder Name: veera
Account Type: Savings Account
***** Thanks Visit Again *****

```

Savings account (child class / main class):

```

package account;

import java.util.Scanner;

public class Savings extends Account {

    public void saving_Account() throws Exception{
        System.out.print("Loading");
        for(int i=0;i<=6;i++) {Thread.sleep(300);System.err.print(".");}
        System.out.println();
        System.out.println("Account Type: Savings Account");
        Thread.sleep(1000);
        System.out.println("debit card details: 9992/8292/8299 , *** ");
        Thread.sleep(1000);
        System.out.println("debit card withdraw: 10000/day");
        Thread.sleep(1000);
        System.out.println("credit card money: 20000/day , CCPoints:150 ");
        Thread.sleep(1000);
        System.out.println();
    }
}

```

```

        System.out.println("***** Thanks Visit Again *****");
    }
    public static void main(String[] args) throws Exception {
        Savings s=new Savings();
        System.out.println("you are in saving account details...");
        Thread.sleep(3000);
        Scanner sc=new Scanner(System.in);
        System.out.println("Please Select Account details for
'Account'+"\n"+"Card and other details enter 'card'");
        String input=sc.nextLine();
        if(input.equalsIgnoreCase("account")) {
            s.savings_Account_Details();
        }
        else if(input.equalsIgnoreCase("card")) {
            s.saving_Account();
        }
        else {
            System.err.println("Please enter correct input check again....");
        }
    }
}

```

Output:

The screenshot shows the Eclipse IDE interface. The main editor window displays the `Loan.java` file, which is part of the `account` package. The code defines a `Loan` class that extends `Account` and implements the `loan_Details()` method. The `main` method in the `Loan` class prompts the user to select account details and handles the input. The console window on the right shows the output of the program, which includes the prompt "you are in loan account details...", the prompt "Please Select Account details for 'Account' For loan details enter 'loan'", the user input "loan", and the subsequent output of loan details: "Loading.....", "Account Type: loan Account...", "Loan amount: 2000000/-", "Monthly Emi: 20000", and "Intrest amount: 10000/-". The program concludes with the message "***** Thanks Visit Again *****".

```

1 package account;
2
3 import java.util.Scanner;
4
5 public class Loan extends Account {
6
7     public void loan_Details() throws Except
8         System.out.print("Loading");
9         for(int i=0;i<=6;i++) {Thread.sleep(
10            System.out.println();
11            System.out.println("Account Type: lo
12            Thread.sleep(1000);
13            System.out.println("Loan amount: 200
14            Thread.sleep(1000);
15            System.out.println("Monthly Emi: 200
16            Thread.sleep(1000);
17            System.out.println("Intrest amount: 10000/-");
18            Thread.sleep(1000);
19            System.out.println();
20            System.out.println("***** Thanks Visit Again *****");
21        }
22    }
23    public static void main(String[] args) throws Exception {
24        Loan l=new Loan();
25        System.out.println("you are in loan account details...");
26        Thread.sleep(3000);
27        Scanner sc=new Scanner(System.in);
28        System.out.println("Please Select Account details for 'Account'+"\n"+" For loan details enter 'loan'");
29        String input=sc.nextLine();

```

```

<terminated> Loan [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 5:11:29 PM - 5:11:41 PM)
you are in loan account details...
Please Select Account details for 'Account'
For loan details enter 'loan'
loan
Loading.....
Account Type: loan Account...
Loan amount: 2000000/-
Monthly Emi: 20000
Intrest amount: 10000/-
***** Thanks Visit Again *****

```

Student details:

Student details (super class):

```
package Student;
```

```
import java.util.Scanner;
```

```
public class Student_details {
```

```
    private String id;  
    private String name;  
    private int total_marks=100;  
    private int sub1_marks;  
    private int sub2_marks;  
    private int sub3_marks;  
    private String sub1;  
    private String sub2;  
    private String sub3;
```

```
    Student_details(String id,String name,int marks,int marks1,int marks2){  
        this.id=id;  
        this.name=name;  
        sub1_marks=makes;  
        sub2_marks=makes1;  
        sub3_marks=makes2;  
    }
```

```
    public String get_Details(){  
  
        if(sub1 !=null && sub2 !=null && sub3 !=null){  
            int total=sub1_marks+sub2_marks+sub3_marks;  
            return "Student Id: "+id+" Student Name: "+name+"\n"+"subject 1:  
"+sub1+" Marks"+sub1_marks+"\n"+  
                "subject 2: "+sub2+" Marks"+sub2_marks+"\n"+"subject 3:  
"+sub3+" Marks"+sub3_marks+"\n"+"Total Marks: "+total;  
        }  
        else if(sub1 !=null && sub2 !=null){  
            int total1=sub1_marks+sub2_marks;  
            return "Student Id: "+id+" Student Name: "+name+"\n"+"subject 1:  
"+sub1+" Marks"+sub1_marks+"\n"+  
                "subject 2: "+sub2+" Marks"+sub2_marks+"\n"+"Total Marks:  
"+total1;  
        }  
        return "Please select 3 or 2 subjects";  
    }  
  
    public void set_subjects(String ...sub){  
        if(sub.length==3){  
            sub1=sub[0];  
            sub2=sub[1];  
            sub3=sub[2];  
        }  
    }
```



```

        else if(sub.length==2)
        {
            sub1=sub[0];
            sub2=sub[1];
        }
        else{
            System.out.println("please select 3 or 2 subjects...");
        }
    }

    public String get_subjects() {
        if (sub1 != null && sub2 != null && sub3 != null) {
            return "Student id: " + id + " student Name: " + name + "\n" +
"Subject 1: " + sub1 + "\n" + "Subject 2: " + sub2 + "\n"
            + "Subject 3: " + sub3;
        } else if (sub1 != null && sub2 != null) {
            return "Student id: " + id + " student Name: " + name + "\n" +
"Subject 1: " + sub1 + "\n" + "Subject 2: " + sub2;
        }
        return "Please select atleast 2 or 3 subjects...";
    }
}

```

Results (child class / main class):

```

    package Student;

import java.util.Scanner;

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

        Student_details sd[]= new Student_details[4];
        sd[0]=new Student_details("1","veera",60,50,65);
        sd[1]=new Student_details("2","soujanya",70,65,60);
        sd[2]=new Student_details("3","sony",75,80,46);
        sd[3]=new Student_details("4","rafi",73,75,80);

        sd[0].set_subjects("JAVA","web","python");
        sd[1].set_subjects("JAVA","web");
        sd[2].set_subjects("web","python");
        sd[3].set_subjects("JAVA","python");

        Scanner sc=new Scanner(System.in);
        System.out.println("Please enter u r password");
        int valid=sc.nextInt();
        if(valid==1234){
            System.out.println("What u want to see subjects and marks or total
details for subjects please " +"\n"+
            "Enter 'sub' total details please enter 'total'");
            Scanner sc1=new Scanner(System.in);
            String enter=sc1.nextLine();

```

```

        if(enter.equalsIgnoreCase("total")){
            System.out.println("Enter id to find details:");
            int id=sc1.nextInt();
            try{
                System.out.println(sd[id-1].get_Details());
            }catch(Exception e){
                System.err.println("Please enter correct student id");
            }
        }
        else if(enter.equalsIgnoreCase("sub")){
            System.out.println("Enter id to find subjects:");
            int id=sc1.nextInt();
            try{
                System.out.println(sd[id-1].get_subjects());
            }catch(Exception e){
                System.err.println("Please enter correct student id");
            }
        }
        else{
            System.out.println("please select correct input...");
        }
    }
    else{
        System.out.println("Wrong Password please enter correct password...");
    }
}
}
}

```

Output 1 (subjects):

The screenshot shows the Eclipse IDE with the file `Results.java` open. The code defines a `Results` class with a `main` method that prompts the user for a password and then for a choice between 'total' and 'sub'. The console output shows the program running successfully, displaying the subjects for the first student (Veera).

```

1 package Student;
2
3 import java.util.Scanner;
4
5 public class Results {
6     public static void main(String args[]){
7
8         Student_details sd[] = new Student_details[4];
9         sd[0] = new Student_details("1", "veera", "1234", "JAVA", "web", "python");
10        sd[1] = new Student_details("2", "souj", "1234", "JAVA", "web", "python");
11        sd[2] = new Student_details("3", "sony", "1234", "JAVA", "web", "python");
12        sd[3] = new Student_details("4", "rafi", "1234", "JAVA", "web", "python");
13
14        sd[0].set_subjects("JAVA", "web", "python");
15        sd[1].set_subjects("JAVA", "web", "python");
16        sd[2].set_subjects("web", "python", "python");
17        sd[3].set_subjects("JAVA", "python", "python");
18
19
20        Scanner sc = new Scanner(System.in);
21        System.out.println("Please enter u r password");
22        int valid = sc.nextInt();
23        if(valid == 1234){
24            System.out.println("What u want to see subjects and marks or total details for subjects please " +
25                "Enter 'sub' total details please enter 'total'");
26            Scanner sc1 = new Scanner(System.in);
27            String enter = sc1.nextLine();
28            if(enter.equalsIgnoreCase("total")){
29                System.out.println("Enter id to find details:");
30            }
31            else if(enter.equalsIgnoreCase("sub")){
32                System.out.println("Enter id to find subjects:");
33            }
34            else{
35                System.out.println("please select correct input...");
36            }
37        }
38        else{
39            System.out.println("Wrong Password please enter correct password...");
40        }
41    }
42 }

```

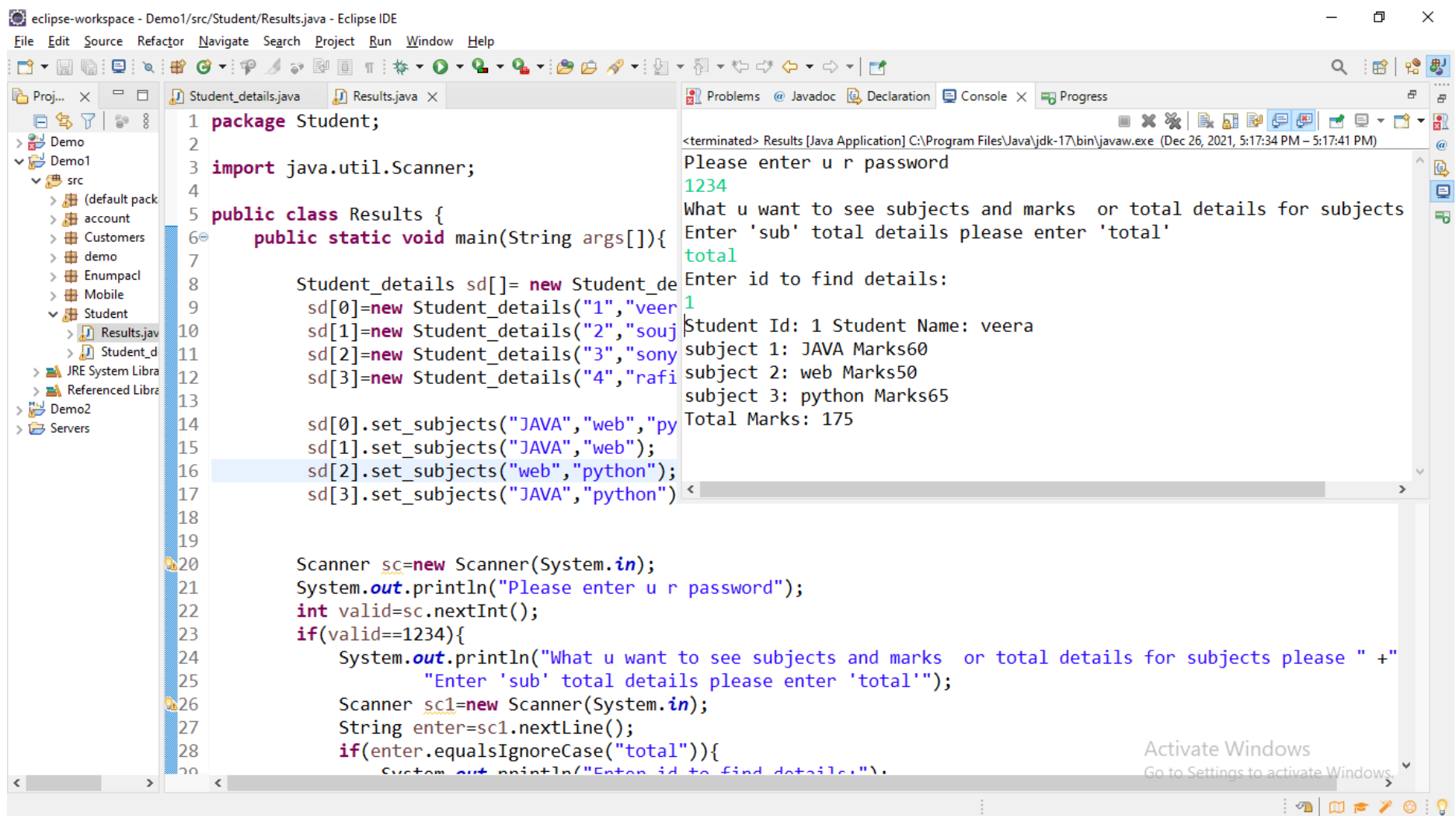
Console Output:

```

<terminated> Results [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 5:15:47 PM - 5:15:56 PM)
Please enter u r password
1234
What u want to see subjects and marks or total details for subjects please " +
Enter 'sub' total details please enter 'total'
sub
Enter id to find subjects:
1
Student id: 1 student Name: veera
Subject 1: JAVA
Subject 2: web
Subject 3: python

```

Output 2 (All details):



The screenshot shows the Eclipse IDE interface. The left sidebar displays a project hierarchy with 'Demo1' containing 'src' and 'Results.java'. The main editor window shows the code for 'Results.java'. The code defines a 'Student' package, imports 'java.util.Scanner', and creates a 'Results' class with a 'main' method. The 'main' method initializes an array of 'Student_details' objects, sets their subjects, and uses a 'Scanner' to prompt the user for a password and a choice between 'sub' (subjects and marks) and 'total' (total details). The console output on the right shows the execution results, including the password '1234', the choice 'total', and the calculated total marks of 175.

```
1 package Student;
2
3 import java.util.Scanner;
4
5 public class Results {
6     public static void main(String args[]){
7
8         Student_details sd[] = new Student_details[4];
9         sd[0] = new Student_details("1", "veera");
10        sd[1] = new Student_details("2", "souj");
11        sd[2] = new Student_details("3", "sony");
12        sd[3] = new Student_details("4", "rafi");
13
14        sd[0].set_subjects("JAVA", "web", "python");
15        sd[1].set_subjects("JAVA", "web");
16        sd[2].set_subjects("web", "python");
17        sd[3].set_subjects("JAVA", "python");
18
19
20        Scanner sc = new Scanner(System.in);
21        System.out.println("Please enter u r password");
22        int valid = sc.nextInt();
23        if(valid == 1234){
24            System.out.println("What u want to see subjects and marks or total details for subjects please " +
25                "Enter 'sub' total details please enter 'total'");
26            Scanner sc1 = new Scanner(System.in);
27            String enter = sc1.nextLine();
28            if(enter.equalsIgnoreCase("total")){
29                System.out.println("Enter id to find details:");
30                int id = sc1.nextInt();
31                for(int i = 0; i < sd.length; i++){
32                    if(sd[i].getId() == id){
33                        System.out.println("Student Id: " + sd[i].getId() + " Student Name: " + sd[i].getName() +
34                            " subject 1: " + sd[i].getSubject1() + " Marks: " + sd[i].getMarks1() +
35                            " subject 2: " + sd[i].getSubject2() + " Marks: " + sd[i].getMarks2() +
36                            " subject 3: " + sd[i].getSubject3() + " Marks: " + sd[i].getMarks3() +
37                            " Total Marks: " + sd[i].getTotalMarks());
38                    }
39                }
40            }
41        }
42    }
43 }
```

Console Output:

```
<terminated> Results [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (Dec 26, 2021, 5:17:34 PM - 5:17:41 PM)
Please enter u r password
1234
What u want to see subjects and marks or total details for subjects please " +
Enter 'sub' total details please enter 'total'
total
Enter id to find details:
1
Student Id: 1 Student Name: veera
subject 1: JAVA Marks60
subject 2: web Marks50
subject 3: python Marks65
Total Marks: 175
```