Lab Number:	10
Student Name:	Raveena Pitale
Roll No :	27

Title:

1. Write a java program to implement Multiple Inheritance using Interfaces. Create an interface called Management with selectCandidate() method. Another interface called Department with allotSubject() method. Class called HOD will implements these two interfaces and define the methods and access them with valid objects.

Learning Objective:

> Students will be able to implement multiple inheritance using Interface concepts

Learning Outcome:

*   Understanding the abstraction concept and hiding of the unnecessary code using interfaces.

Course Outcome:

ECL304.4	1. Implement different programming applications using packaging.

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Theory:

- **What is complete abstraction and how is it achieved in JAVA?**

  Abstraction is a process of hiding the implementation details from the user, only the functionality will be provided to the user. In other words, the user will have the information on what the object does instead of how it does it.

  Since all the methods of the interface are abstract and the user doesn't know how a method is written except the method signature/prototype. Using interfaces, you can achieve (complete) abstraction.

- **Explain multiple inheritance and how is it performed in Java?**

  Multiple inheritance in Java programming is achieved or implemented using interfaces. Java does not support multiple inheritance using classes.In simple term, a class can inherit only one class and multiple interfaces in a java programs.

  Hence, Java does not support multiple inheritance using classes. But, we can achieve it using interfaces.

  "A class can extend only one class but it can implement multiple interfaces."

  For ex. This example is extending only one class A and implementing multiple interfaces i.e. IB and IC.
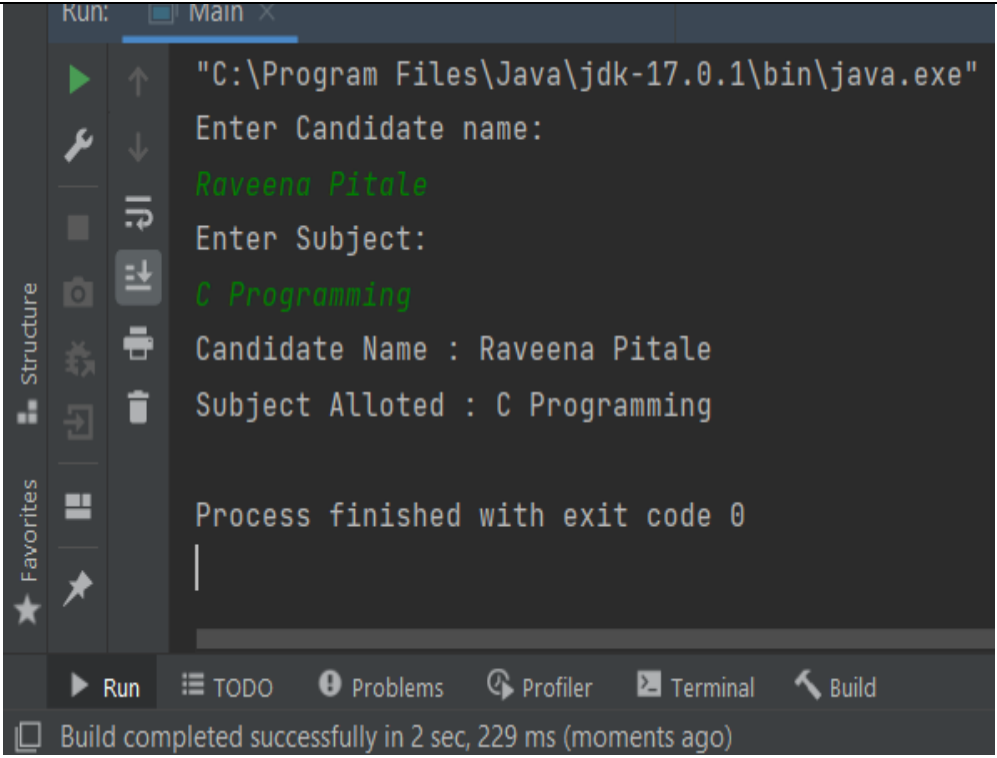
  class A{}

  interface IB{}

  interface IC{}

  class D extends A implements IB, IC{

  }

Algorithm :	1.Start
	2.Create interface - Management and declare select candidate() in it
	3.Create interface - Department and declare allotsubject() in it
	4.Create a class HOD to inherit interface management and department and to take input of details
	5.Create the object of the HOD class in main function and call the methods.
	6.Print the result
	7.End
Program:	

```java
package com.company;
import java.util.*;

interface Management
{
    void selectCandidate();
}

interface Department
{
    void  allotSubject();
}

class HOD implements Department, Management
{
    String Candidate;
    String Subject;
    void getdata()
    {
        Scanner in=new Scanner(System.in);
        System.out.println("Enter Candidate name:");
        Candidate=in.nextLine();
        System.out.println("Enter Subject:");
        Subject=in.nextLine();
    }
    public void selectCandidate()
    {
        System.out.println("Candidate Name : "+Candidate );
    }
    public void allotSubject()
    {
        System.out.println("Subject Alloted : "+Subject);
    }
}

class Main
{
    public static void main (String[] args)
    {
        HOD ob = new HOD();
        ob.getdata();
```

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| | ```
        ob.selectCandidate();
        ob.allotSubject();
    }
}
``` |
| **Input given:** | Candidate name : Raveena Pitale

Subject : C Programming |
| **Output Screenshot:** | Run: Main

"C:\Program Files\Java\jdk-17.0.1\bin\java.exe"
Enter Candidate name:
Raveena Pitale
Enter Subject:
C Programming
Candidate Name : Raveena Pitale
Subject Alloted : C Programming

Process finished with exit code 0

▶ Run   ☰ TODO   ❶ Problems   ⏣ Profiler   ⅀ Terminal   ⚒ Build
▢ Build completed successfully in 2 sec, 229 ms (moments ago) |