Title : Write a program for implementing single inheritance for student class.

Aim : To Learn about interface in java.

Objective : To implement concept of inheritance in java.

Theory :

Interface in Java :

An **interface in Java** is a blueprint of a class. It has static constants and abstract methods. The interface in Java is a mechanism to achieve abstraction. There can be only abstract methods in the Java interface, not method body. It is used to achieve abstraction and multiple inheritance in Java. In other words, you can say that interfaces can have abstract methods and variables. Java Interface also represents the IS-A relationship.

Syntax for Java Interfaces :

```
interface {
   // declare constant fields
   // declare methods that abstract
   // by default.
}
```

Uses of Interfaces in Java :

- *It is used to achieve total abstraction.*
- *Since java does not support multiple inheritances in the case of class, by using an interface it can achieve multiple inheritances.*
- *Any class can extend only 1 class, but can any class implement an infinite number of interfaces.*

- *It is also used to achieve loose coupling.*
- *Interfaces are used to implement abstraction.*

Procedure :

```
// Parent class
class Person {
    String name;
    int age;
    // Constructor
    Person(String name, int age) {
        this.name = name;
        this.age = age;
    }
    // Method to display details
    void displayDetails() {
        System.out.println("Name: " + name);
        System.out.println("Age: " + age);
    }
}
// Child class inheriting from Person
class Student extends Person {
    int rollNumber;
    String course;
    // Constructor
    Student(String name, int age, int rollNumber, String course) {
        super(name, age); // Call to parent class constructor
        this.rollNumber = rollNumber;
        this.course = course;
    }
    // Method to display details including student-specific details
    void displayStudentDetails() {
        displayDetails(); // Call to parent class method
        System.out.println("Roll Number: " + rollNumber);
        System.out.println("Course: " + course);
    }
}
// Main class
public class Main {
    public static void main(String[] args) {
        // Creating an instance of Student
        Student student = new Student("Your Name",21, 27, "Computer Science");
        // Calling method to display student details
        student.displayStudentDetails();
    }
}
```