PROGRAM 7

Write a program that demonstrates handling of exceptions in inheritance tree. Create a base class called “Father” and derived class called “Son” which extends the base class. In Father class, implement a constructor which takes the age and throws the exception WrongAge( ) when the input age=father’s age.

import java.util.Scanner;

class WrongAgeException extends Exception {

    public WrongAgeException(String message) {

        super(message);

    }

}

class Father {

    protected int age;

    public Father(int age) throws WrongAgeException {

        if (age < 0) {

            throw new WrongAgeException("Father's age cannot be negative.");

        }

        this.age = age;

    }

}

class Son extends Father {

    private int sonAge;

    public Son(int fatherAge, int sonAge) throws WrongAgeException {

        super(fatherAge);

        if (sonAge < 0) {

            throw new WrongAgeException("Son's age cannot be negative.");

        }

        if (sonAge >= fatherAge) {

            throw new WrongAgeException("Son's age cannot be greater than or equal to father's age.");

        }

        this.sonAge = sonAge;

    }

    public void displayAges() {

        System.out.println("Father's Age: " + age);

        System.out.println("Son's Age: " + sonAge);

    }

}

public class FamilyAgeTest {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        try {

            System.out.print("Enter father's age: ");

            int fatherAge = scanner.nextInt();

            System.out.print("Enter son's age: ");

            int sonAge = scanner.nextInt();

            Son son = new Son(fatherAge, sonAge);

            son.displayAges();

        } catch (WrongAgeException e) {

            System.out.println("Error: " + e.getMessage());

        } catch (Exception e) {

            System.out.println("Invalid input. Please enter valid ages.");

        }

}}

Output:

