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Q Write a Program that demonstrates handling of exceptions in inheritance tree. Create a base class called "Father" and a 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 < 0. In the Son class, implement a constructor that uses both father and son's age and throws an exception if Son's age is >= father's age.

Ans

```
class WrongAgeException extends Exception {
    public String toString() {
        return "WrongAgeException";
    }
}

class Father {
    int age;
    Father(int age) throws WrongAgeException {
        if (age < 0)
        {
            throw new WrongAgeException();
        }
        this.age = age;
    }
```

```
int getAge(){
    return age;
  }
}

Class Son extends Father
{ int sonAge;
  Son(int fatherAge, int sonAge) throws
          WrongAgeException {
    super(fatherAge);
    if (sonAge < 0 || sonAge >= fatherAge) {
      throw new WrongAgeException();
    }
    this.sonAge = sonAge;
  }
int getSonAge(){
    return sonAge;
  }
}

public class ExceptionHandlingInheritance {
  public static void main(String[] args)
  {
    try{ Father f1 = new
                Father(40);
```

```
System.out.println("Father's age : " + f1.getAge());
Son s1
try {
        System.out.println("Enter father's age:");
        int fatherAge = scanner.nextInt();
        Father f1 = new Father(fatherAge);
        System.out.println("Father's age:" +
                f1.getAge());
        System.out.print("Enter Son's age:");
        int sonAge = scanner.nextInt();
        Son s1 = new Son(fatherAge, sonAge);
        System.out.println("Son's Age :" +
                s1.getSonAge());
    }
    catch(WrongAgeException e) {
        System.out.println("Exception
                caught"+e);
    }
  }
}
```

Output

```
Enter father's age : 12
Father's age: 12
Enter Son's age : 34
Exception Caught : WrongAgeException

Enter Father's age : 12
Father's age: 12
Enter son's age : -23
Exception Caught: WrongAgeException
```

Enter father's age : -33
Exception Caught : WrongAge Exception

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```java
import java.util.Scanner;
class WrongAgeException extends Exception {
    public String toString() {
        return "WrongAgeException";
    }
}

class Father {
    int age;

    Father(int age) throws WrongAgeException {
        if (age < 0) {
            throw new WrongAgeException();
        }
        this.age = age;
    }

    int getAge() {
        return age;
    }
}

class Son extends Father {
    int sonAge;

    Son(int fatherAge, int sonAge) throws WrongAgeException {
        super(fatherAge);
        if (sonAge < 0 || sonAge >= fatherAge) {
            throw new WrongAgeException();
        }
        this.sonAge = sonAge;
    }

    int getSonAge() {
        return sonAge;
    }
}

public class lab7 {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        try {

            System.out.print("Enter Father's age: ");
            int fatherAge = scanner.nextInt();

            Father f1 = new Father(fatherAge);
            System.out.println("Father's age: " + f1.getAge());
            System.out.print("Enter Son's age: ");
            int sonAge = scanner.nextInt();

            Son s1 = new Son(fatherAge, sonAge);
            System.out.println("Son's age: " + s1.getSonAge());

        } catch (WrongAgeException e) {
            System.out.println("Exception caught: " + e);
        } finally {
            scanner.close();
        }
    }
}
```

```
C:\1bm23cs299>java lab7
Enter Father's age: 12
Father's age: 12
Enter Son's age: 34
Exception caught: WrongAgeException

C:\1bm23cs299>java lab7
Enter Father's age: 12
Father's age: 12
Enter Son's age: -23
Exception caught: WrongAgeException

C:\1bm23cs299>java lab7
Enter Father's age: -33
Exception caught: WrongAgeException
```