

Lab Program 6:

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 < 0. In Son class, implement a constructor that takes both father and son's age and throws an exception if son's age is >= father's age.

Code:

```
LAB PROGRAM 6: EXCEPTIONS IN INHERITANCE TREE

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 < 0. In Son class, implement a constructor that takes both father and son's age and throws an exception if son's age is >= father's age.

import java.util.*;

class WrongAgeException extends Exception {
    String msg = new String();
    WrongAgeException(String z) {
        msg = z;
    }
    public String toString() {
        return msg;
    }
}

class Father {
    int f-age;
    Father() throws WrongAgeException {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter Father's age:");
        f-age = s.nextInt();
        if (f-age < 0) {
            throw new WrongAgeException("Father's age < 0");
        }
    }
}
```

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throws new WrongAgeException("Father's age < 0");
}

void display() {
    System.out.println("Father's age: " + f-age);
}

class Son extends Father {
    int s-age;
    Son() throws WrongAgeException {
        Scanner s = new Scanner(System.in);
        System.out.println("Enter son's age:");
        s-age = s.nextInt();
        if (s-age < 0) {
            throw new WrongAgeException("Son's age < 0");
        }
        else if (s-age > f-age) {
            throw new WrongAgeException("Son's age is > than father's age!");
        }
    }
    void display() {
        System.out.println("Father's age: " + f-age);
        System.out.println("Son's age: " + s-age);
    }
}
```

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class excep {
    public static void main (String[] args) {
        try {
            Father f = new Father();
            f.display();
            Son s = new Son();
            s.display();
        }
        catch (Wrong Age Exception e) {
            System.out.println(e);
        }
    }
}

```

OUTPUT:

1. Enter father's age: 65
 Father age: 65.
 Enter father's age: 65
 Enter son's age: 32.
 Father's age: 65
 Son age: 32.

2nd Case:

Enter father's age: -2
 Father age < 0

3. Enter father's age: 37
 Father age: 37
 Enter father's age: 34

Enter son's age:
 -2
 Son age < 0

4. Enter father's age: 43
 43
 Enter father's age: 43
 Enter father's age: 43.
 Enter son's age: 45
 45
 Son age is > that Father's age!

Output:

```
PS C:\Users\aadis> & 'C:\Users\aadis\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.5.8-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:1424' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\aadis\AppData\Local\Temp\vscodesws_f298e\jdt_ws\jdt.ls-java-project\bin' 'Lab_6_java'
Enter father's age:
65
Father age: 65
Enter father's age:
65
Enter son's age:
32
Father age: 65
Son age: 32
PS C:\Users\aadis> & 'C:\Users\aadis\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.5.8-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:1438' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\aadis\AppData\Local\Temp\vscodesws_f298e\jdt_ws\jdt.ls-java-project\bin' 'Lab_6_java'
Enter father's age:
-2
Father age < 0
PS C:\Users\aadis> & 'C:\Users\aadis\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.5.8-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:1445' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\aadis\AppData\Local\Temp\vscodesws_f298e\jdt_ws\jdt.ls-java-project\bin' 'Lab_6_java'
Enter father's age:
34
Father age: 34
Enter father's age:
34
Enter son's age:
-2
Son age < 0
PS C:\Users\aadis> & 'C:\Users\aadis\AppData\Local\Programs\Eclipse Adoptium\jdk-17.0.5.8-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:1452' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\aadis\AppData\Local\Temp\vscodesws_f298e\jdt_ws\jdt.ls-java-project\bin' 'Lab_6_java'
Enter father's age:
43
Father age: 43
Enter father's age:
43
Enter son's age:
45
Son age is > that father's age!
```