7) 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 i.e father class, implement a constructor which takes the age and throws the exception WrongAge when the input age < 0, implement another constructor that uses both father and son age and throws exception if son age >= father's age.

```
import java.util.Scanner;

class WrongAge extends Exception {
    public WrongAge (String msg) {
        super(msg);
    }
}

class SonAge extends Exception {
    public SonAge (String msg)
    {
        super(msg);
    }
}

class Father {
    int age;
    public Father (int age) throws WrongAge {
        if (age < 0)
            throw new WrongAge ("Wrong age");
    }
    public int getAge() {
        return age;
    }
}
```

```
class son extends Father {
    int sonAge();

    public Son(int fatherage, int sonAge) throws
    WrongAgeException, SonAgeException {
        super(fatherage);

        if (sonAge >= fatherAge {
            throw new SonAgeException("Son's age cannot be
            greater than or = to father's age");
        }
        this.sonAge = sonAge() {
            return sonAge;
        }
    }

public class exception {
    public static void main(String[] args) {

while (true) {
    Scanner sc = new Scanner(System.in);
    Sout("Enter Father's age");
    int fatherage = sc.nextInt();
    Sout("Enter son's age.");
    int sonAge = sc.nextInt();

    try {
        Son son = new son(fatherAge, sonAge);
        System.out.println("Accepted");
        }
        catch(WrongAgeException e) {
            Sout(" " e);
        }
```

```
catch ( Son Age Exception e) {
    Sout( e.getMessage() );
}
}
}
```

Output

1) Enter father's age - 45
Enter Son's age 4
Wrong Age exception

2) Enter father's age 12
Enter Son's age 24
Son Age Exception.

3) Enter father's age 34
Enter Son's age -2
Wrong age exception

4) Enter father's age 22
Enter Son's age 1
Accepted

```
import java.util.Scanner;

class WrongAgeException extends Exception {
    public WrongAgeException(String message) {
        super(message);
    }
}


class Father {
    protected int fatherAge;

       public Father(int age) throws WrongAgeException {
        if (age < 0) {
            throw new WrongAgeException("Father's age cannot be negative.");
        }
        this.fatherAge = 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 class exception {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```
public class exception {
    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);
        } catch (WrongAgeException e) {
            System.err.println("Exception caught: " + e.getMessage());
        } catch (Exception e) {
            System.err.println("Invalid input. Please enter valid integers for ages.");
        } finally {

        }
    }
}
```

```
C:\Users\shett\OneDrive\Documents\javaclasslab>javac exception.java

C:\Users\shett\OneDrive\Documents\javaclasslab>java exception
Enter Father's age: -45
Enter Son's age: 4
Exception caught: Father's age cannot be negative.

C:\Users\shett\OneDrive\Documents\javaclasslab>java exception
Enter Father's age: 12
Enter Son's age: 24
Exception caught: Son's age cannot be greater than or equal to Father's age.

C:\Users\shett\OneDrive\Documents\javaclasslab>java exception
Enter Father's age: 34
Enter Son's age: -2
Exception caught: Son's age cannot be negative.

C:\Users\shett\OneDrive\Documents\javaclasslab>java exception
Enter Father's age: 22
Enter Son's age: 1

C:\Users\shett\OneDrive\Documents\javaclasslab>
```