Program 7

Q] 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 uses both father and son’s age and throws an exception if son’s age is >=father’s age.

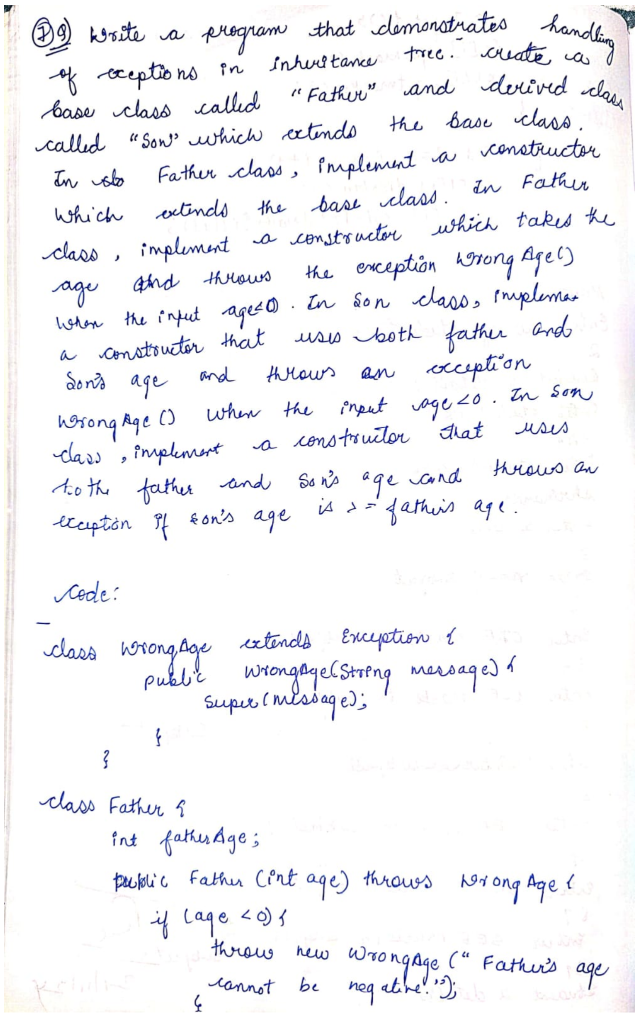
CODE:

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

class Father {
    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 {
    int sonAge;

    public Son(int fatherAge, int sonAge) throws WrongAgeException {
        super(fatherAge);
        if (sonAge >= fatherAge) {
            throw new WrongAgeException("Son's age cannot be greater than or
             equal to Father's age");
        }
        this.sonAge = sonAge;
    }
}

public class ExceptionInheritanceDemo {
    public static void main(String[] args) {
        try {
            Father father = new Father(45);
            Son son = new Son(45, 20);
            System.out.println("Father's age: " + father.age);
            System.out.println("Son's age: " + son.sonAge);
        } catch (WrongAgeException e) {
            System.out.println("Exception: " + e.getMessage());
        }

        try {
            Son invalidSon = new Son(30, 35);
        } catch (WrongAgeException e) {
            System.out.println("Exception: " + e.getMessage());
        }

        try {
            Father invalidFather = new Father(-5);
        } catch (WrongAgeException e) {
            System.out.println("Exception: " + e.getMessage());
        }
    }
}
```

OUTPUT:

```
Father's age: 45
Son's age: 20
Exception: Son's age cannot be greater than or equal to Father's age
Exception: Father's age cannot be negative
```

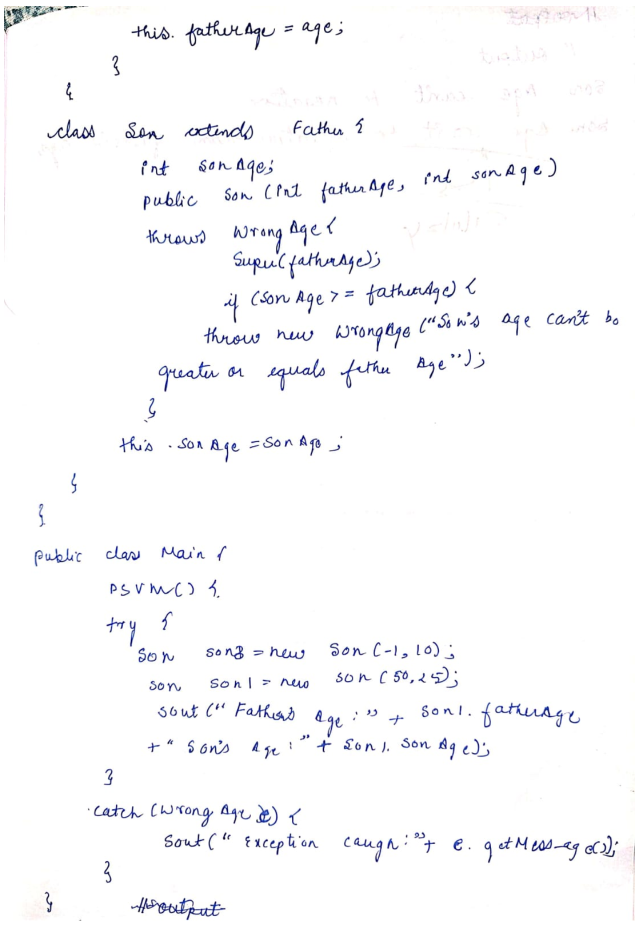
OBSERVATION:



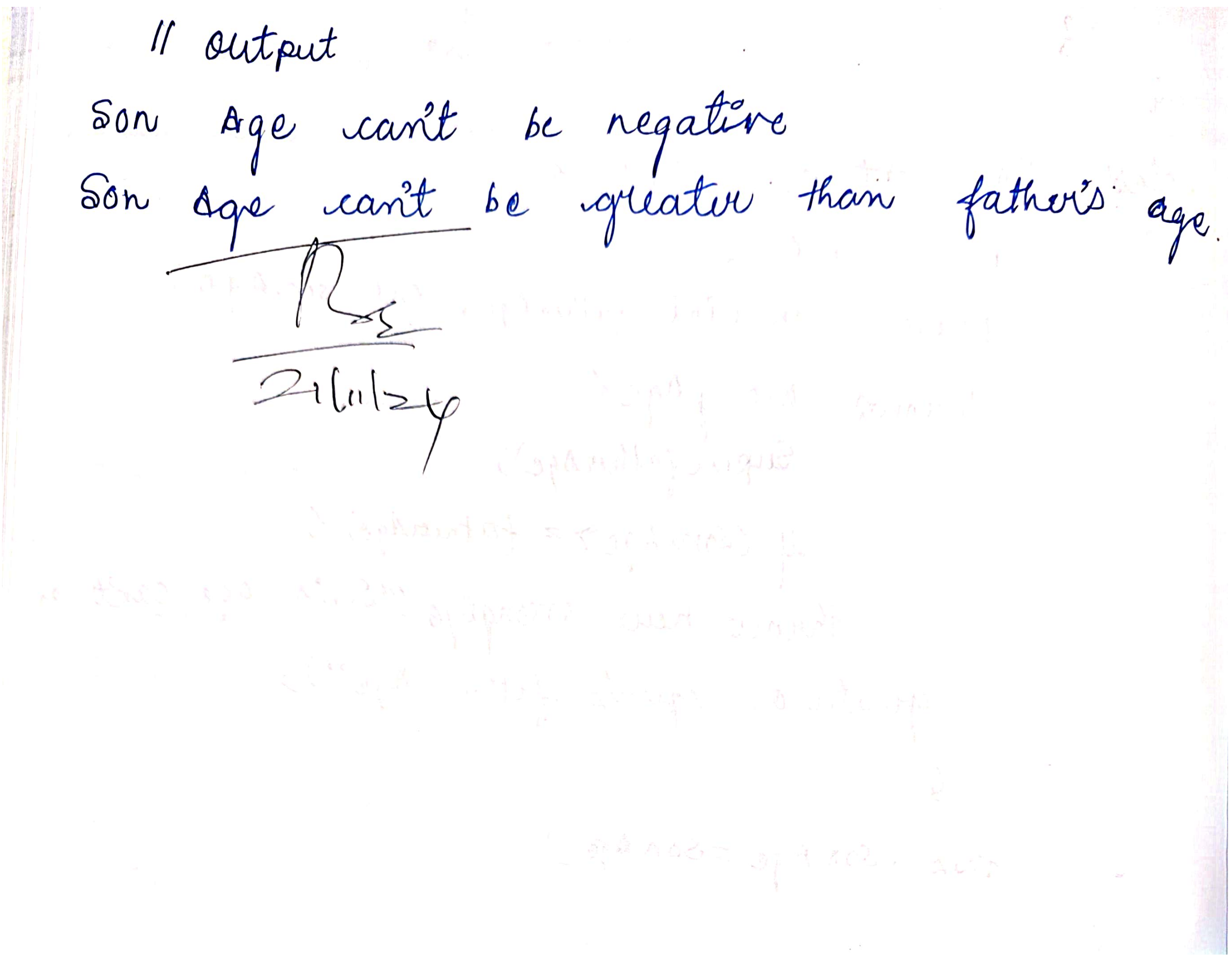
(7) 9) Write a program that demonstrates handling of exceptions in inheritance tree. Create a base class called "Father" and derived class called "Son" which extends the base class. In ~~the~~ Father class, implement a constructor which extends the base class. In Father class, implement a constructor which takes the age and throws the exception WrongAge() when the input age<0. In Son class, implement a constructor that uses both father and Son's age and throws an exception WrongAge() when the input age<0. In 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.

code:

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

class Father {
        int fatherAge;
        public Father (int age) throws WrongAge {
            if (age < 0) {
                throw new WrongAge(" Father's age
                cannot be negative.");
            }
```



```
        this. fatherAge = age;
      }
  }
class Son extends Father {
        int sonAge;
        public Son (int fatherAge, int sonAge)
        throws WrongAge {
              Super(fatherAge);
              if (sonAge >= fatherAge) {
           throw new WrongAge ("Son's age can't be
        greater or equals father Age");
        }
      this . sonAge = sonAge ;
  }
}
public class Main {
        PSVM() {
        try {
          Son   son8 = new  Son (-1, 10);
          son   son1 = new  son (50, 25);
           sout (" Father's Age :" + son1. fatherAge
          + " Son's Age :" + son1. sonAge);
        }
      catch (WrongAge e) {
            Sout (" Exception caugh :"+ e. getMessage());
        }
  }       ~~#output~~
```



// output

```
Son Age can't be negative
Son Age can't be greater than father's age.
```

[illegible]

21/11/24