16/2/24

Program - 7

Q) Write a program that demonstrates handling of exceptions i 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 age throws the exception WrongAge() when the input age<0. In Son class, implement a constructor that cases both father & son's age & throws an exception if son's age>=fat

Algorithm

1. Start
2. Create an user defined exception WrongAge that throws an error.
3. Create a base class Father.
4. A constructor is used accept the father's age. and if age<0, throws an exception Wrongage that prints Age cannot be negative.
5. Create a class Son that extends to ~~another class~~ Father
6. Create a constructor to accept sonage & get data of father's age from superclass.
7. If ~~throws~~ an exception WrongAge if son's age is greater than father's age.
8. Create a class fatherson & take input for father's & son's age
9. Write a try and catch block to ~~get~~ the find the error.
10. ~~Stop~~ Create an object s of Son datatype and pass Sonage & Father age as arguments.
12. Print Son's age
13. Print Father's age
14. If catch block encounters any ~~ex~~exception e, it prints error
15. Stop

```
import java.util.Scanner;
class WrongAge extends Exception {
      public WrongAge(String message) {
            super(message);
      }

}


   class Father {
       int fatherAge;
       public Father (int fatherAge) throws
    WrongAge {
            if (fatherAge < 0) {
                  throw new WrongAge ("Age cannot be negative");
                this.fatherAge = fatherAge;
            }
   }


   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 must be less than
                                          Father's age"); }
              this.sonAge = sonAge;
          }
   }
```

```
public class fatherson {
    public static void main (String[] args) {
        Scanner in = new Scanner (System.in);
        System.out.println ("Enter father's age & son's age:");
        int fage = in.nextInt();
        int sage = in.nextInt();
        try
        {   Son s = new Son (fage, sage);
            System.out.println ("Father's age: " + s.fatherAge);
            System.out.println (" Son's age: " + s.sonAge);
        }
        catch (Wrong Age e) {
            System.out.println ("Error :" + e.getMessage());
        }
    }catch (Exception e) {
}       System.out.println ("Error:" +e);
```

O/P:
```
Enter father's age & son's age
45
32
Father's age : 45
Son's age : 32
```

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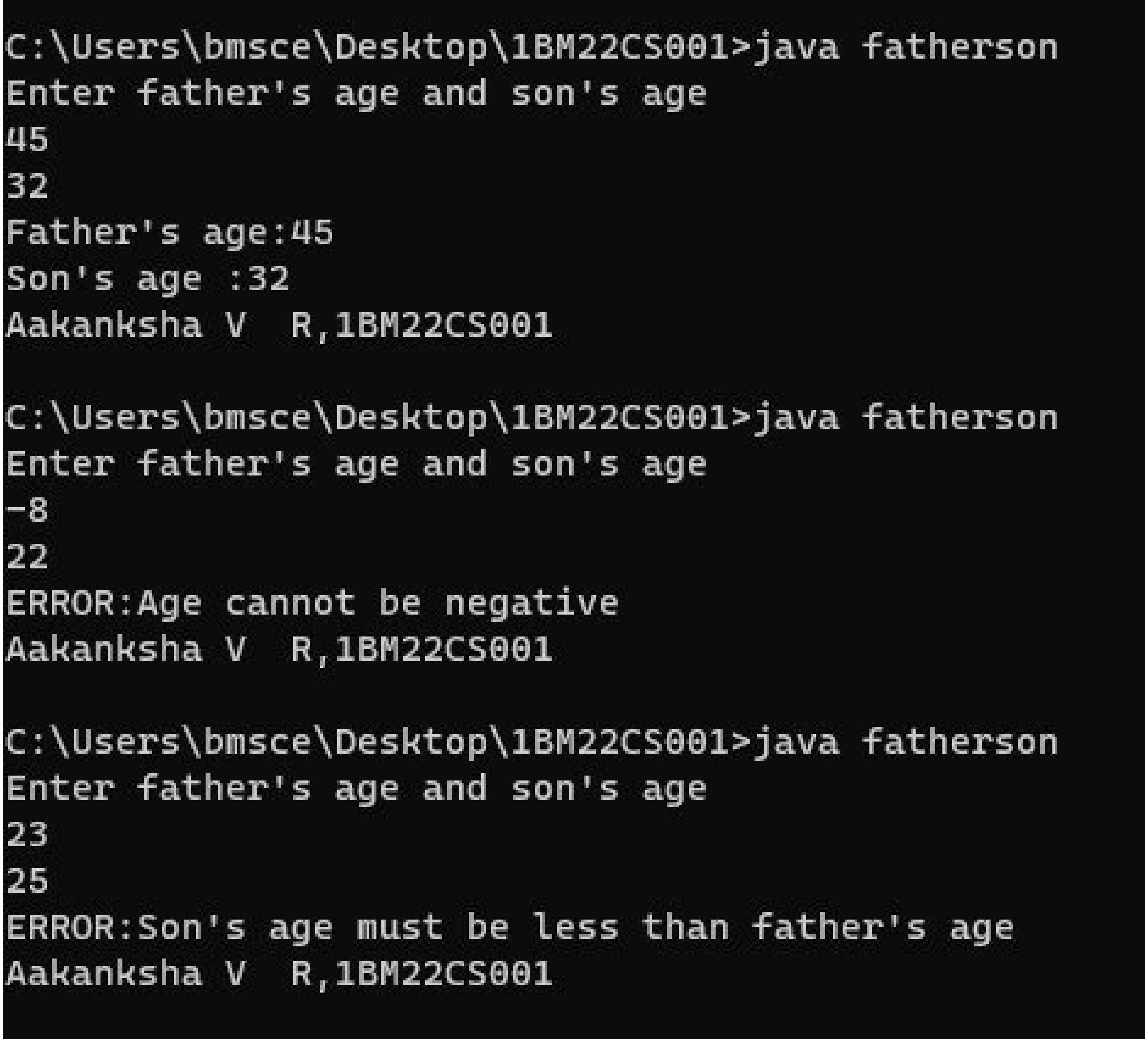
O/P2
```
Enter father's age & son's age
-8
22
ERROR : Age cannot be negative
```

O/P3:
```
Enter father's age & son's age
23
25
ERROR : Son's age must be less than father's age
```



```
C:\Users\bmsce\Desktop\1BM22CS001>java fatherson
Enter father's age and son's age
45
32
Father's age:45
Son's age :32
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C:\Users\bmsce\Desktop\1BM22CS001>java fatherson
Enter father's age and son's age
-8
22
ERROR:Age cannot be negative
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C:\Users\bmsce\Desktop\1BM22CS001>java fatherson
Enter father's age and son's age
23
25
ERROR:Son's age must be less than father's age
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```