Week 6

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Q7. 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 cases both father and son’s age and throws an exception if son’s age is >=father’s age.

Code :

```
import java.util.*;

class Father {
    int f_age;

    public Father(int fa) // Father Constructor
    {
        try {
            if (f_age < 0)
                throw new Exception("Error! Age is less than 0");
            else
                f_age = fa;
        } catch (Exception e) // This never gets caught!?!
        {
            System.out.println("Caught : " + e);
        }
    }
}

class Son extends Father {
    int s_age;

    public Son(int fa, int sa) // Son's Constructor
    {
        super(fa);
        try {
            s_age=sa;
```

```
            if (s_age < 0)
                throw new Exception("Error! Son's age is less than 0");
            else if (s_age >= f_age)
                throw new Exception("Error! Son's age cannot be more than the
Father's age");
            else
                s_age = sa;
        } catch (Exception e) {
            System.out.println("Caught : " + e);
        }
    }

    void display() {
        System.out.println("Father's age = " + f_age);
        System.out.println("Son's age = " + s_age);
    }
}

class InheritanceTree extends Exception {
    public static void main(String args[]) {
        int a, b;
        System.out.println("Enter the father's age");
        Scanner sc = new Scanner(System.in);
        a = sc.nextInt();
        System.out.println("Enter the son's age");
        b = sc.nextInt();
        Son ob1 = new Son(a, b);
        ob1.display();
    }
}
```

Output :

```
C:\Users\Admin\Desktop\1BM21CS229>javac inheritencetree.java

C:\Users\Admin\Desktop\1BM21CS229>java InheritanceTree
Enter the father's age
51
Enter the son's age
24
Father's age = 51
Son's age = 24

C:\Users\Admin\Desktop\1BM21CS229>java InheritanceTree
Enter the father's age
-20
Enter the son's age
-10
Caught : java.lang.Exception: Error! Son's age is less than 0
Father's age = -20
Son's age = -10

C:\Users\Admin\Desktop\1BM21CS229>java InheritanceTree
Enter the father's age
54
Enter the son's age
56
Caught : java.lang.Exception: Error! Son's age cannot be more than the Father's age
Father's age = 54
Son's age = 56
```

```
C:\Users\Admin\Desktop\1BM21CS229>java InheritanceTree
Enter the father's age
-10
Enter the son's age
-20
Caught : java.lang.Exception: Error! Age is less than 0
Caught : java.lang.Exception: Error! Son's age is less than 0
Father's age = 0
Son's age = -20

C:\Users\Admin\Desktop\1BM21CS229>
```