Team Project 2

Driver Class	SnowBallFactory.java
Abstract class	SnowFlake.java
SnowFlake Types (8 to 35)	TypeName.java (i.e. Sheaths.java)

The weather in Tampa Florida is warm most all year round. This does lead to the interesting scenario where some people have never seen snow. To help enlighten those individuals on the wonders of snow we have designed our very own Snow Factory. We as that you help make this a reality by implementing our designs.

We require an Abstract class called *SnowFlake*. SnowFlake will require any class extending it to set the following variables:

- type
- radius
- diameter
- meltModifier (0.05)
- Random Number Generator (static)
- snowFall (static)

The following methods are required:

- getType()
- getDiameter()
- getRadius()
- toString()

The follwing method is abstract:

- melt();

The list to the right contains the common types of SnowFlakes. Create a class that extends the SnowFlake class for each of them.

Source: http://www.snowcrystals.com/guide/snowtypes4.jpg

Each snowflake should do the following:

1. Initialize the variables in the super class
    1. The diameter should be of a random size of type double multiplied by a factor of randomly numbers from 8 to 10.
    2. The radius is half the size of the diameter
    3. The type is the one defined in the table
2. the melt method should reduce the size of the diameter by a factor of (the type plus the meltModifier). This can be accomplished by dividing the diameter by (the type plus the meltModifier)

Type	Description
1	Simple Prisms
2	Solid Columns
3	Sheaths
4	Scrolls On Plates
5	Triangular Forms
6	Hexagonal Plates
7	Hollow Columns
8	Cups
9	Columns on Plates
10	12-branched Star
11	Stellar Plates
12	Bullet Rosettes
13	Capped Columns
14	Split Plates & Stars
15	Radiating Plates
16	Sectored Plates
17	Isolated Bullets
18	Multiply Capped Columns
19	Skeletal Forms
20	Radiating Dendrites
21	Simple Star
22	Simple Needles
23	Capped Bullets
24	Twin Columns
25	Irregulars
26	Stellar Dendrites
27	Needle Clusters
28	Double Plates
29	Arrowhead twins
30	Rimed
31	Fernlike Stellar Dendrites
32	Crossed needles
33	Hollow Plates
34	Crossed Plates
35	Graupel

Now that we have the types of snow flakes defined we need to consider a Factory that will produce them. Forutunately, a skeleton has been provided. You will be required to make some changes to make the program work. We will focus on the recursive function

createSnowBall.

1. createSnowBall
    1. This method has three parameters
        1. desiredSize
        2. currentSize
        3. ArrayList<SnowFlake> snowBall
    2. This method will recurisively call the create snowball method untill the desired size is reached.
    3. If the current size is not greater than the desired size
        1. we will add a snowflake to the snowball using the createSnowFlake method
        2. increase the current size to account for the new snowflake.

Extra Credit: Implement all 35 types of snowflakes.