S.No: 1	Exp. Name: ***Model a liquid using object-oriented principles***	Date:2025-09-10

Aim:

Write a Java program to model the properties of a liquid, specifically water, using abstraction and inheritance. The program should include an abstract superclass **Liquid** with attributes for **boiling point** and **freezing point**, a constructor to initialize these attributes, and abstract methods **evaporate()** and **freeze()**. Create a subclass **Water** that extends **Liquid**, implementing the **evaporate()** and **freeze()** methods to describe the processes at the respective temperatures. The program should prompt the user to input the **boiling point** and **freezing point** of water, then display these points and the actions of evaporation and freezing.

Input Format:

- The first line contains a double value representing the **boiling point** of water in degrees Celsius.
- The second line contains a double value representing the **freezing point** of water in degrees Celsius.

Output Format:

- The first line displays "Boiling Point: <boilingpoint> degrees Celsius".
- The second line displays "Freezing Point: <freezingpoint> degrees Celsius".
- The third line displays "Water is evaporating at <boilingpoint> degrees Celsius.".
- The fourth line displays "Water is freezing at <freezingpoint> degrees Celsius.".

Note:

- Refer to the sample test cases for print statements.

Source Code:

q35758/Boil_freeze_Point.java

```
package q35758;
import java.util.Scanner;
abstract class Liquid {
    double boilingPoint;
   double freezingPoint;
    public abstract void evaporate();
   public abstract void freeze();


}

class Water extends Liquid {
    Water(double boilingPoint, double freezingPoint){
      this.boilingPoint = boilingPoint;
      this.freezingPoint = freezingPoint;
   }
   public void evaporate(){
      System.out.println("Water is evaporating at "+ boilingPoint + " degrees Celsiu
s.");
   }
   public void freeze(){
      System.out.println("Water is freezing at " + freezingPoint + " degrees Celsiu
s.");
   }
```

```
    //Type your content here




}

public class Boil_freeze_Point {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Boiling point: ");
        double boilingPoint = scanner.nextDouble();
        System.out.print("Freezing point: ");
        double freezingPoint = scanner.nextDouble();

        Water water = new Water(boilingPoint, freezingPoint);

        System.out.println("Boiling Point: " + water.boilingPoint + " degrees Celsiu
s");
        System.out.println("Freezing Point: " + water.freezingPoint + " degrees Celsi
us");

        water.evaporate();
        water.freeze();

        scanner.close();
    }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Boiling point: 100.0
Freezing point: 0.0
Boiling Point: 100.0 degrees Celsius
Freezing Point: 0.0 degrees Celsius
Water is evaporating at 100.0 degrees Celsius.
Water is freezing at 0.0 degrees Celsius.

Test Case - 2
User Output
Boiling point: 80.50
Freezing point: 2.50
Boiling Point: 80.5 degrees Celsius
Freezing Point: 2.5 degrees Celsius
Water is evaporating at 80.5 degrees Celsius.
Water is freezing at 2.5 degrees Celsius.