**EXERCISE 1: IMPLEMENTING THE SINGLETON PATTERN**

class GameSettings {

    private static GameSettings instance;

    private int volume;

    private String difficulty;

    private GameSettings() {

        volume = 50;

        difficulty = "Normal";

        System.out.println("Game settings initialized.");

    }

    public static GameSettings getInstance() {

        if (instance == null) {

            instance = new GameSettings();

        }

        return instance;

    }

    public int getVolume() {

        return volume;

    }

    public void setVolume(int volume) {

        this.volume = volume;

    }

    public String getDifficulty() {

        return difficulty;

    }

    public void setDifficulty(String difficulty) {

        this.difficulty = difficulty;

    }

}

public class Main {

    public static void main(String[] args) {

        GameSettings settings1 = GameSettings.getInstance();

        settings1.setVolume(80);

        settings1.setDifficulty("Hard");

        GameSettings settings2 = GameSettings.getInstance();

        System.out.println("Volume: " + settings2.getVolume());

        System.out.println("Difficulty: " + settings2.getDifficulty());

        System.out.println("Same instance? " + (settings1 == settings2));

    }

}

**OUTPUT:**

