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package TrendTracker;

import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;
import java.util.*;

public class MainTest {

    public static void main(String[] args) {

        // Setup
        ArrayList<String> R = new ArrayList<String>();
        String s, line;

        // Test constructor, size(), popularity(), tweeted()
        trendtracker T1 = new trendtracker("small.txt");
        test(T1.size() == 4);
        test(T1.popularity("#algorithms") == 0);
        test(T1.popularity("#cs4all") == 0);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 0);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#programming");
        test(T1.popularity("#algorithms") == 0);
        test(T1.popularity("#cs4all") == 0);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 1);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#programming");
        test(T1.popularity("#algorithms") == 0);
        test(T1.popularity("#cs4all") == 0);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 2);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#programming");
        test(T1.popularity("#algorithms") == 0);
        test(T1.popularity("#cs4all") == 0);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 3);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#cs4all");
        test(T1.popularity("#algorithms") == 0);
        test(T1.popularity("#cs4all") == 1);
        test(T1.popularity("#programming") == 3);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#algorithms");
        test(T1.popularity("#algorithms") == 1);
        test(T1.popularity("#cs4all") == 1);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 3);
        test(T1.popularity("#CS") == 0);

        T1.tweeted("#cs4all");
        test(T1.popularity("#algorithms") == 1);
        test(T1.popularity("#cs4all") == 2);
        test(T1.popularity("#datastructures") == -1);
        test(T1.popularity("#programming") == 3);
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test(T1.popularity("#CS") == 0);

T1.tweeted("#datastructures");
test(T1.popularity("#algorithms") == 1);
test(T1.popularity("#cs4all") == 2);
test(T1.popularity("#datastructures") == -1);
test(T1.popularity("#programming") == 3);
test(T1.popularity("#CS") == 0);

trendtracker T2 = new trendtracker("small.txt");
T2.tweeted("#programming");
T2.tweeted("#programming");
T2.tweeted("#programming");
T2.tweeted("#programming");
T2.tweeted("#programming");
T2.tweeted("#CS");
T2.tweeted("#CS");
T2.tweeted("#CS");
T2.tweeted("#CS");
T2.tweeted("#cs4all");
T2.tweeted("#cs4all");
T2.tweeted("#cs4all");
T2.tweeted("#algorithms");
T2.tweeted("#algorithms");
test(T2.popularity("#algorithms") == 2);
test(T2.popularity("#cs4all") == 3);
test(T2.popularity("#programming") == 5);
test(T2.popularity("#CS") == 4);

// Enforce no usage of global variables
test(T1.popularity("#algorithms") == 1);
test(T1.popularity("#cs4all") == 2);
test(T1.popularity("#programming") == 3);
test(T1.popularity("#CS") == 0);

// Test top_trend(), top_three_trends()
trendtracker T3 = new trendtracker("small.txt");
T3.top_three_trends(R);
test(R.size() == 3);

T3.tweeted("#programming");
test(T3.top_trend().compareTo("#programming") == 0);
T3.top_three_trends(R);
test(R.get(0).compareTo("#programming") == 0);

T3.tweeted("#CS");
T3.tweeted("#CS");
test(T3.top_trend().compareTo("#CS") == 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#CS") == 0);
test(R.get(1).compareTo("#programming") == 0);

T3.tweeted("#algorithms");
T3.tweeted("#algorithms");
T3.tweeted("#algorithms");
test(T3.top_trend().compareTo("#algorithms") == 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#algorithms") == 0);
test(R.get(1).compareTo("#CS") == 0);
test(R.get(2).compareTo("#programming") == 0);

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T3.tweeted("#cs4all");
T3.tweeted("#cs4all");
T3.tweeted("#cs4all");
T3.tweeted("#cs4all");
test(T3.top_trend().compareTo("#cs4all") == 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#cs4all")== 0);
test(R.get(1).compareTo("#algorithms") == 0);
test(R.get(2).compareTo("#CS") == 0);

// At this point:
// cs4all: 4
// algorithms: 3
// C++: 2
// programming: 1

T3.tweeted("#programming");
T3.tweeted("#programming");
T3.tweeted("#programming");
T3.tweeted("#programming");
test(T3.top_trend().compareTo("#programming") == 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#programming") == 0);
test(R.get(1).compareTo("#cs4all") == 0);
test(R.get(2).compareTo("#algorithms")== 0);

// At this point:
// programming: 5
// cs4all: 4
// algorithms: 3
// C++: 2

T3.tweeted("#cs4all");
T3.tweeted("#cs4all");
T3.tweeted("#algorithms");
test(T3.top_trend().compareTo("#cs4all")== 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#cs4all") == 0);
test(R.get(1).compareTo("#programming") == 0);
test(R.get(2).compareTo("#algorithms")== 0);

// At this point:
// cs4all: 6
// programming: 5
// algorithms: 4
// C++: 2

for (int i = 0; i < 10000; ++i)
    T3.tweeted("#CS");
test(T3.top_trend().compareTo("#CS") == 0);
T3.top_three_trends(R);
//test(R.size() == 3);
test(R.get(0).compareTo("#CS") == 0);
test(R.get(1).compareTo("#cs4all")== 0);
test(R.get(2).compareTo("#programming")== 0);

trendtracker T4 = new trendtracker("hashtags.txt");
test(T4.size() == 300000);

BufferedReader f;

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try {
    f = new BufferedReader(new FileReader("tweeted.txt"));
    String L = f.readLine();
    while (L!=null)
    {
        T4.tweeted(L);
        L = f.readLine();
    }
    f.close();
} catch (IOException e) {
    e.printStackTrace();
}

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test(T4.popularity("#programming") == 10);
test(T4.popularity("#computer") == 9);
test(T4.popularity("#is") == 8);
test(T4.popularity("#very") == 7);
test(T4.popularity("#fun") == 6);
test(T4.popularity("#but") == 5);
test(T4.popularity("#sometimes") == 5);
test(T4.popularity("#can") == 5);
test(T4.popularity("#be") == 5);
test(T4.popularity("#challenging") == 5);

test(T4.top_trend().compareTo("#programming") == 0);

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T4.top_three_trends(R);
test(R.get(0).compareTo("#programming") == 0);
test(R.get(1).compareTo("#computer") == 0);
test(R.get(2).compareTo("#is") == 0);

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// Test a Trendtracker with a single hashtag
trendtracker T5 = new trendtracker("tiny.txt");
test(T5.size() == 1);
test(T5.popularity("#solo") == 0);
test(T5.popularity("#duo") == -1);
T5.tweeted("#solo");
test(T5.popularity("#solo") == 1);
test(T5.popularity("#duo") == -1);
test(T5.top_trend().compareTo("#solo") == 0);
T5.top_three_trends(R);
test(R.size() == 1);
test(R.get(0).compareTo("#solo") == 0);

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System.out.println("Assignment complete.");

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}

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public static void test(Boolean a) {
    if (a) {}
        //System.out.println("Match!!!");
    else
        System.out.println("Fail!");
    return;
}

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}

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