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<div align="center">'Wordsort.c' Testing Strategy</div>

To ensure that my program is working correctly, I used the following test cases to test whether my program would give me the corresponding outputs, given certain inputs I thought could bring issues. The structure of the input is as follows.

<div align="center">n (number of words/queries desired)</div>

<div align="center">act (act=1 inserting action, act=2 query action), reqWord (requested word)</div>

TEST CASE 1:

Tests the overall corresponding results of simple inputs.

Input:

14

1 cake

1 elephant

1 cat

1 zebra

1 zebra

2 zebra

2 elephant

1 zebra

1 elephant

2 cat

2 mouse

1 mouse

2 act

2 mouse

Output:

2 2

1 1

1 2

-1 -1

-1 -1

1 3

zebra 3

elephant 2

cake 1

cat 1

mouse 1

TEST CASE 2:

Tests the maximum length the words can be (length ≤ 20).

Input:

9

1 anthropomorphization

1 anthropomorphization

1 anthropomorphization

1 internationalization

1 internationalization

1 undiscriminativeness

2 anthropomorphization

2 internationalization

2 undiscriminativeness

Output:

3 0

2 1

1 2

anthropomorphization 3

internationalization 2

undiscriminativeness 1

TEST CASE 3:

This test case tests the alphabetical order of words when frequencies are equal and the minimum length of each word

(length=1).

Input:

20

1 z

1 w

1 h

1 g

1 f

1 e

1 d

1 c

1 b

1 a

1 z

1 w

1 h

1 g

1 f

1 e

1 d

1 c

1 b

1 a

Output:

a 2

b 2

c 2

d 2

e 2

f 2

g 2

h 2

w 2

z 2

TEST CASE 4:

This test case is generated by code, which tests that at most 100,000 actions out of 200,000 will be of type 1

(inserting a word).

Since at most 100,000 actions will be insertions, we will at most have 100,000 nodes (aka words).

There will be 100,000 insertions of the words "dog", "cat", "horse", "bird", "lizard".

Following the insertions, here will be 100,000 queries of "dog", "cat", "horse", "bird", "lizard".

Make lines 50, 51, 52, and lines [100-108] a comment.

Uncomment lines [54-98].

The maximum height of this test case will be 2.

Since the queries are occurring after the insertions, the query of each word will be the same. There will be

100,000/5=20,000 repeated queries per word.

Input:

200000

Output:

...

QUERY 99996

2 dog

20000 0

QUERY 99997

2 cat

20000 1

QUERY 99998

2 horse

20000 1

QUERY 99999

2 bird

20000 2

QUERY 100000

2 lizard

20000 2

bird 20000

cat 20000

dog 20000

horse 20000

lizard 20000