

Homework 15: Trie

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Problem

Merry Christmas!

Trie is a kind of search tree, an ordered tree data structure used to store a dynamic set or associative array where keys are usually strings. In this homework, your job is to design two data structures, `Trie` and `Dictionary`.

Part A: Trie

Implement `Trie` with `insert` and `search` methods. All inputs are consist of lowercase letters.

```
1 trie.insert("chirstmas");
2 trie.search("christmas"); // returns true
3 trie.search("christ");    // returns false
```

```
1 class Trie
2 {
3     public:
4         Trie()
5         {
6             // TODO: Your code here.
7         }
8
9         void insert(string word)
10        {
11            // TODO: Your code here.
12        }
13
14        bool search(string word)
15        {
16            // TODO: Your code here.
17            return false;
18        }
19    };
```

Part B: Dictionary

Implement `Dictionary` with `insert` and `search` methods. All inputs are consist of lowercase letters or `*`, which means it could represent any one letter.

```
1 trie.insert("chirstmas");
2 trie.search("*****mas"); // returns true
3 trie.search("christ");    // returns false
```

```
1 class Dictionary
2 {
3     public:
4         Dictionary()
5         {
6             // TODO: Your code here.
7         }
8
9         void insert(string word)
10        {
11            // TODO: Your code here.
12        }
13
14        bool search(string word)
15        {
16            // TODO: Your code here.
17            return false;
18        }
19    };
```

Grading

Please execute `./grade.sh` on **macOS** or **Linux**.

- Trie: 50%
 - Test cases.
- Dictionary: 50%
 - Test cases.

Hand-in

Please execute `./handin.sh -id 5170219XXXXX` on **macOS** or **Linux**.

Use `./handin.sh -h` if you are not sure to the command.

Note

- Cheaters would receive zero point.

Deadline

2018-12-27 23:59:59