

6.32 C++ example: Domain name validation with vectors

zyDE 6.32.1: Validate domain names with vectors.

Vectors are useful to process lists.

A **top-level domain** (TLD) name is the last part of an Internet domain name like .com in example.com. A **core generic top-level domain** (core gTLD) is a TLD that is either .com, .net, .org, or .info. A **restricted top-level domain** is a TLD that is either .biz, .name, or .pro. A **second-level domain** is a single name that precedes a TLD as in apple in apple.com.

The following program repeatedly prompts for a domain name, and indicates whether that domain name consists of a second-level domain followed by a core gTLD. Valid core gTLD's are stored in a vector. For this program, a valid domain name must contain only one period, such as apple.com, but not support.apple.com. The program ends when the user enters -1.

1. Run the program and enter domain names to validate.
2. Extend the program to also recognize restricted TLDs using a vector, and statements to validate against that vector. The program should also report whether the TLD is a core gTLD or a restricted gTLD. Run the program again.

Load default template...

```
1 #include <iostream>
2 #include <vector>
3 using namespace std;
4
5 int main() {
6     // Define the list of valid core gTLDs
7     const int NUM_ELEMENTS = 4;
8     vector<string> validCoreGtld(NUM_ELEMENTS);
9     // FIXME: Declare a vector named validRestrictedGtld that has the names
10    //         of the restricted domains, .biz, .name, and .pro
11    string  inputName;
12    string  searchName;
13    string  theGtld;
14    bool isValidDomainName;
15    bool isCoreGtld;
16    bool isRestrictedGtld;
17    int periodCounter;
18    int periodPosition;
```

apple.com
APPLE.com
apple.comm
...

Run

Feedback?

zyDE 6.32.2: Validate domain names with vectors (solution).

A solution to the problem follows.

Load default template...

```
1 #include <iostream>
2 #include <vector>
3 using namespace std;
4
5 int main() {
6     // Define the list of valid core gTLDs
7     const int NUM_ELEMENTS_CORE = 4;
8     vector<string> validCoreGtld(NUM_ELEMENTS_CORE);
9     const int NUM_ELEMENTS_RSTR = 3;
10    vector<string> validRestrictedGtld(NUM_ELEMENTS_RSTR);
11    string  inputName;
12    string  searchName;
13    string  theGtld;
14    bool isValidDomainName;
15    bool isCoreGtld;
16    bool isRestrictedGtld;
17    int periodCounter;
18    int periodPosition;
```

apple.com
APPLE.com
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...

Run

Feedback?