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1 // Problem: Design Browser History
2 // Language: C++ (Beginner Friendly)
3 // Concept: Stack (Back and Forward Navigation)
4
5 #include <iostream>
6 #include <stack>
7 #include <string>
8 using namespace std;
9
10 class BrowserHistory {
11     stack<string> backStack; // To store visited pages (for going back)
12     stack<string> forwardStack; // To store pages when going forward
13     string current; // Current page
14
15 public:
16     // Constructor: start with a homepage
17     BrowserHistory(string homepage) {
18         current = homepage;
19         cout << "Started browser at: " << homepage << endl;
20     }
21
22     // Visit a new page
23     void visit(string url) {
24         backStack.push(current); // Save current page in back history
25         current = url; // Move to new page
26         while (!forwardStack.empty()) // Clear forward history after new visit
27             forwardStack.pop();
28         cout << "Visited: " << url << endl;
29     }
30
31     // Go back 'steps' times
32     void back(int steps) {
33         while (steps-- > 0 && !backStack.empty()) {
34             forwardStack.push(current); // Move current to forward history
35             current = backStack.top(); // Go back to previous page
36             backStack.pop();
37         }
38         cout << "Current page after going back: " << current << endl;
39     }
40
41     // Go forward 'steps' times
42     void forward(int steps) {
43         while (steps-- > 0 && !forwardStack.empty()) {
44             backStack.push(current); // Move current to back history
45             current = forwardStack.top(); // Move forward
46             forwardStack.pop();
47         }
48         cout << "Current page after going forward: " << current << endl;
49     }
50
51     // Get current page
52     string getCurrentPage() {
53         return current;
54     }
55 };
56
57 int main() {
58     // Create a browser history with homepage
59     BrowserHistory browser("leetcode.com");
60
61     // Perform some actions
62     browser.visit("google.com");
63     browser.visit("facebook.com");
64     browser.visit("youtube.com");
65
66     browser.back(1); // Go back once

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67     browser.back(1);        // Go back again
68     browser.forward(1);     // Go forward once
69
70     cout << "Final page open: " << browser.getCurrentPage() << endl;
71     return 0;
72 }
```