

main.c



Run

```
1  #include<stdio.h>
2  #include<stdlib.h>
3  #include<string.h>
4
5  #define ALPHABET_SIZE 26
6
7  struct TrieNode{
8      struct TrieNode * children[ALPHABET_SIZE];
9      int isEndOfWord;
10 };
11 struct TrieNode *createNode(){
12     struct TrieNode *node = (struct TrieNode *) malloc(sizeof(struct TrieNode));
13     node->isEndOfWord = 0;
14     for(int i =0; i < ALPHABET_SIZE; i++)
15         node->children[i] = NULL;
16     return node;
17
18 };
19 void insert(struct TrieNode *root, const char *word){
20     struct TrieNode *current = root;
21     while(*word){
22         int index = *word - 'a';
23         if(!current -> children[index])
24             current->children[index] = createNode();
25         current = current->children[index];
26         word++;
27     }
```

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```
27     }
28     current->isEndOfWord = 1;
29 }
30 int countChildren(struct TrieNode *node, int *index){
31     int count = 0;
32     for(int i = 0; i < ALPHABET_SIZE; i++){
33         if(node->children[i]){
34             count++;
35             *index = i;
36         }
37     }
38     return count;
39 }
40
41 void longestCommonPrefix(struct TrieNode *root, char *prefix){
42     struct TrieNode * current = root;
43     int index;
44     int length = 0;
45
46     while(countChildren(current, &index) == 1 && !current->isEndOfWord){
47         prefix[length++] = 'a' + index;
48         current = current->children[index];
49     }
50     prefix[length] = '\0';
51 }
52
```

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Output

```
42 struct TrieNode * current = root;
43 int index;
44 int length = 0;
45
46 while(countChildren(current, &index) == 1 && !current->isEndOfWord){
47     prefix[length++] = 'a' + index;
48     current = current->children[index];
49 }
50 prefix[length] = '\0';
51 }
52
53 int main(){
54     char *words[] = { "flower", "flow", "flight"};
55     int n = sizeof(words) / sizeof(words[0]);
56     struct TrieNode *root = createNode();
57     for(int i = 0; i< n;i++)
58         insert(root, words[i]);
59     char prefix[100];
60     longestCommonPrefix(root, prefix);
61     if(strlen(prefix) > 0){
62         printf("Longest Common Prefix: %s\n",prefix);
63     }
64     else{
65         printf("No common Prefix\n");
66     }
67 }
```

Longest Common Prefix: fl

=== Code Execution Successful ===