

Searching Strings Solutions

Searching a string

- Write a program which creates a string with the characters "Hello world"
- Find the following characters or substrings in the string and display suitable output. Make sure you handle the case where the search is unsuccessful
 - 'o'
 - "or"
 - 'O'

Searching a string

- Explain your results
 - For 'o' and "or", the find() call returns the index of the first occurrence
 - 'O' is not found, because the search is case-sensitive and the string does not contain an upper-case 'O'. in this case, find() returns string::npos

find()

- Explain what the code does and how it works
- Convert it into a working program which prints out str
- What results do you expect?

```
string str {"Hello world"};
size_t pos = str.find('o');

if (pos != string::npos) {
    str[pos] = 'p';
}
else {
    cout << "Could not find the search string\n";
}
```

find()

- `find()` searches for the letter 'o' in the `std::string` `str`, starting from the beginning
- The return value is the index of the first occurrence of 'o'
- This is compared to `string::npos`
- If they are equal, the index is invalid, and we conclude that 'o' does not occur in `str`
- If they are not equal, the index is valid
- We then modify the corresponding element's value to 'p'
- The program prints out "Hellp world"

rfind()

- Explain what the `std::string` member function `rfind()` does
 - It searches for the first occurrence of its argument, similar to `find()`, except that it starts searching from the back of the string
- Repeat the previous exercise but using `rfind()` instead of `find()`. What result do you expect?
 - The program prints out "Hello wrld"

More Search Functions

- Explain what the code below does
- Convert it into a working program
- What output do you expect?

```
string vowels {"aeiou"};  
cout << str.find_first_of(vowels) << endl;  
cout << str.find_last_of(vowels) << endl;  
cout << str.find_first_not_of(vowels) << endl;  
cout << str.find_last_not_of(vowels) << endl;
```

More Search Functions

- It finds occurrences of any of the characters a, e, i, o, u in str
- The program prints out the indexes of the first vowel, the last vowel, the first consonant (or number, punctuation, etc) and the last non-vowel

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