

```
1 // Cos3008-Mid
2 //Created By NUR E SIAM
3
4
5 #include <stdio.h>
6 #include "KeyProvider.h"
7 #include <cctype>
8 #include <cassert>
9
10 KeyProvider::KeyProvider(const std::string& aKeyword, const std::string&
    aSource) noexcept
11 {
12     fIndex = 0;
13     std::string Ckeyword = preprocessString(aKeyword);
14     std::string Csource = preprocessString(aSource);
15
16     // goes through the length of preprocessed aSource, and for each
    letter, applies a preprocessed aKeyword letter
17     for (size_t i = 0; i < Csource.length(); i++)
18     {
19         fKeys += Ckeyword[i % Ckeyword.length()];
20     }
21
22     assert(fKeys.length() == Csource.length());
23 }
24
25 std::string KeyProvider::preprocessString(const std::string& aString)
    noexcept
26 {
27     // For each loop that goes through each letter of aString
28     // Checks that it complies to isalpha()
29     // make it uppercase with toupper()
30     // return string
31
32     std::string pString;
33     for (char c : aString)
34     {
35         if (isalpha(c))
36         {
37             pString += toupper(c);
38         }
39     }
40     return pString;
41 }
42
43 char KeyProvider::operator*() const noexcept
44 {
45     return fKeys[fIndex];
46 }
```

```
47
48 KeyProvider& KeyProvider::operator++() noexcept
49 {
50     ++fIndex;
51     return *this;
52 }
53
54 KeyProvider KeyProvider::operator++(int) noexcept
55 {
56     // Return's a copy before advancing
57     KeyProvider temp = *this;
58     ++(*this);
59     return temp;
60 }
61
62 bool KeyProvider::operator==(const KeyProvider& aOther) const noexcept
63 {
64     return fIndex == aOther.fIndex && fKeys == aOther.fKeys;
65 }
66
67 bool KeyProvider::operator!=(const KeyProvider& aOther) const noexcept
68 {
69     return !(*this == aOther);
70 }
71
72 KeyProvider KeyProvider::begin() const noexcept
73 {
74     KeyProvider temp(*this); // Creates a copy
75     temp.fIndex = 0;
76     return temp; // Return's the old copy
77 }
78
79 KeyProvider KeyProvider::end() const noexcept
80 {
81     KeyProvider temp(*this);
82     temp.fIndex = fKeys.length();
83     return temp;
84 }
85
```