```cpp
1  // PalindromeStringIterator.cpp
2  #include "PalindromeStringIterator.h"
3
4  void PalindromeStringIterator::moveToNextIndex()
5  {
6      while (fIndex < static_cast<int>(fString.length()) && !std::isalpha
         (fString[fIndex]))
7      {
8          ++fIndex;
9      }
10 }
11
12 void PalindromeStringIterator::moveToPreviousIndex()
13 {
14     while (fIndex >= 0 && !std::isalpha(fString[fIndex]))
15     {
16         --fIndex;
17     }
18 }
19
20 PalindromeStringIterator::PalindromeStringIterator(const std::string&
      aString)
21     : fString(aString), fIndex(0)
22 {
23     moveToNextIndex();
24 }
25
26 char PalindromeStringIterator::operator*() const noexcept
27 {
28     return std::toupper(fString[fIndex]);
29 }
30
31 PalindromeStringIterator& PalindromeStringIterator::operator++() noexcept
32 {
33     ++fIndex;
34     moveToNextIndex();
35     return *this;
36 }
37
38 PalindromeStringIterator PalindromeStringIterator::operator++(int) noexcept
39 {
40     PalindromeStringIterator old = *this;
41     ++(*this);
42     return old;
43 }
44
45 PalindromeStringIterator& PalindromeStringIterator::operator--() noexcept
46 {
47     --fIndex;
```

```cpp
48        moveToPreviousIndex();
49        return *this;
50    }
51
52    PalindromeStringIterator PalindromeStringIterator::operator--(int) noexcept
53    {
54        PalindromeStringIterator old = *this;
55        --(*this);
56        return old;
57    }
58
59    bool PalindromeStringIterator::operator==(const PalindromeStringIterator&  ⤶
       aOther) const noexcept
60    {
61        return fIndex == aOther.fIndex;
62    }
63
64    bool PalindromeStringIterator::operator!=(const PalindromeStringIterator&  ⤶
       aOther) const noexcept
65    {
66        return !(*this == aOther);
67    }
68
69    PalindromeStringIterator PalindromeStringIterator::begin() const noexcept
70    {
71        PalindromeStringIterator iter(*this);
72        iter.fIndex = 0;
73        iter.moveToNextIndex();
74        return iter;
75    }
76
77    PalindromeStringIterator PalindromeStringIterator::end() const noexcept
78    {
79        PalindromeStringIterator iter(*this);
80        iter.fIndex = fString.length();
81        return iter;
82    }
83
84    PalindromeStringIterator PalindromeStringIterator::rbegin() const noexcept
85    {
86        PalindromeStringIterator iter(*this);
87        iter.fIndex = static_cast<int>(fString.length()) - 1;
88        iter.moveToPreviousIndex();
89        return iter;
90    }
91
92    PalindromeStringIterator PalindromeStringIterator::rend() const noexcept
93    {
94        PalindromeStringIterator iter(*this);
```

```
95        iter.fIndex = −1;
96        return iter;
97    }
98
```