

```
1 #include "FibonacciSequenceGenerator.h"
2 #include <stdexcept>
3 #include <climits>
4
5
6 FibonacciSequenceGenerator::FibonacciSequenceGenerator(const std::string& aID) noexcept : fID(aID), fPrevious(0), fCurrent(1) {
7     //Construct the FibonacciSequenceGenerator
8 }
9
10 const std::string& FibonacciSequenceGenerator::id() const noexcept {
11     //Get the ID of the FibonacciSequenceGenerator
12     return this->fID;
13 }
14
15 const long long& FibonacciSequenceGenerator::operator*() const noexcept {
16     //Get the current value, which will be use as the main value of FibonacciSequenceGenerator (using operator*())
17     return this->fCurrent;
18 }
19
20 FibonacciSequenceGenerator::operator bool() const noexcept {
21     //Return true if there are any next available number (not reach limit of long long). Depends on hasNext() function
22     return this->hasNext();
23 }
24
25 void FibonacciSequenceGenerator::reset() noexcept {
26     //Reset the previous and current to 0 and 1 consecutively
27     this->fPrevious = 0;
28     this->fCurrent = 1;
29 }
30
31 bool FibonacciSequenceGenerator::hasNext() const noexcept {
32     //Check that current value must greater than 0 and lower than the long long limit (which is 2^64 - 1)
33     return this->fCurrent >= 0 && this->fPrevious <= (LLONG_MAX - this->fCurrent);
34 }
35
36 void FibonacciSequenceGenerator::next() noexcept {
37     //If value is greater than limit of long long -> Raise overflow_error
38     if (!this->hasNext())
39         throw std::overflow_error("Fibonacci sequence overflow");
40     else {
41         //Set a temporary value as previous + current
42         long long temporary = this->fCurrent + this->fPrevious;
43         //Previous be the current value
44         this->fPrevious = this->fCurrent;
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45         //Current value be the temporary value
46         this->fCurrent = temporary;
47
48     }
49 }
```