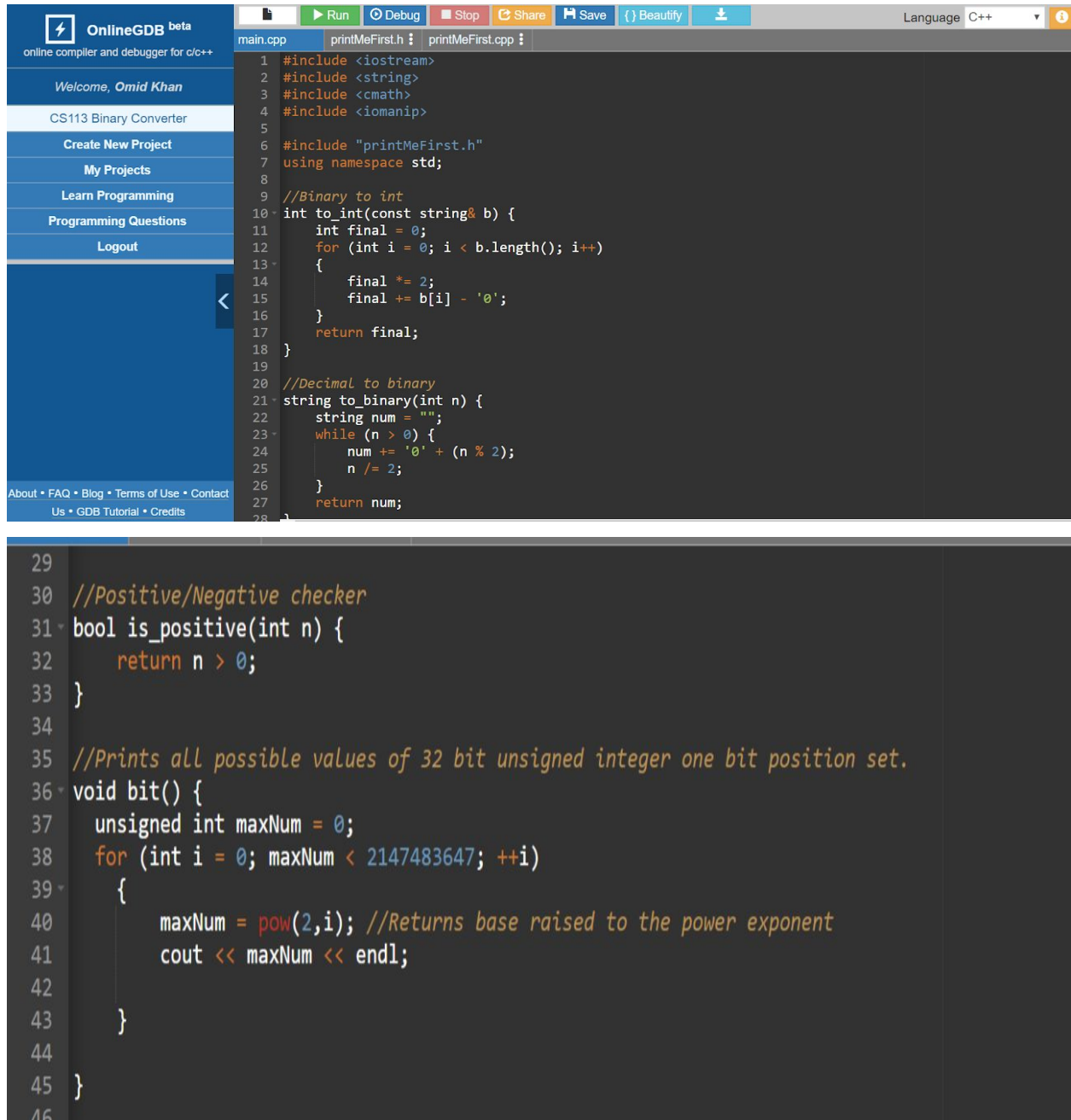


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Lab 3: Binary/Integer Converter



```
1 #include <iostream>
2 #include <string>
3 #include <cmath>
4 #include <iomanip>
5
6 #include "printMeFirst.h"
7 using namespace std;
8
9 //Binary to int
10 int to_int(const string& b) {
11     int final = 0;
12     for (int i = 0; i < b.length(); i++)
13     {
14         final *= 2;
15         final += b[i] - '0';
16     }
17     return final;
18 }
19
20 //Decimal to binary
21 string to_binary(int n) {
22     string num = "";
23     while (n > 0) {
24         num += '0' + (n % 2);
25         n /= 2;
26     }
27     return num;
28 }
29
30 //Positive/Negative checker
31 bool is_positive(int n) {
32     return n > 0;
33 }
34
35 //Prints all possible values of 32 bit unsigned integer one bit position set.
36 void bit() {
37     unsigned int maxNum = 0;
38     for (int i = 0; maxNum < 2147483647; ++i)
39     {
40         maxNum = pow(2,i); //Returns base raised to the power exponent
41         cout << maxNum << endl;
42     }
43 }
44
45 }
```

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```
43 }
44
45 }
46
47 int main() {
48     //Prints out details and date/time
49     printMeFirst("Omid Khan", "Lab3: CS-113 - Binary/Decimal Converter");
50
51
52     cout << "Algorithm to convert binary number into an integer: " << endl;
53     cout << to_int("01010") << endl;
54
55     cout << "\nAlgorithm to convert a decimal number to binary: " << endl;
56     cout << to_binary(10) << endl;
57
58     cout << "\nFunction to check if the number is positive or negative: " << endl;
59     cout << is_positive(1) << endl;
60     cout << is_positive(-1) << endl;
61
62     cout << "\nAlgorithm to print all possible values of 32 bit unsigned integer one bit position set: " << endl;
63     bit();
64
65     return 0;
66 }
67 }
```

input

Program written by: Omid Khan
Course info: Lab3: CS-113 - Binary/Decimal Converter
Date: Thu Sep 26 04:04:33 2019

Algorithm to convert binary number into an integer:
10

Algorithm to convert a decimal number to binary:
0101

Function to check if the number is positive or negative:
1
0

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```
Algorithm to print all possible values of 32 bit unsigned integer one bit position set:
```

```
1  
2  
4  
8  
16  
32  
64  
128  
256  
512  
1024  
2048  
4096  
8192  
16384  
32768  
65536  
131072  
262144  
524288  
1048576  
2097152  
4194304  
8388608  
16777216  
33554432  
67108864  
134217728
```

```
134217728  
268435456  
536870912  
1073741824  
2147483648
```

```
...Program finished with exit code 0  
Press ENTER to exit console.
```