

CECS 282 Lab 1
Team 6
Nathan Lai
Danny Nguyen

SOURCE CODE

```
/**
    CECS 282 LAB 1.2: Displays the decimal number equivalent
    of a binary string
    @authors Danny Nguyen, Nathan Lai
    @file Lab1.2.cpp
    @version 5.11 8/25/20
*/
#include <iostream>
#include <string>
using namespace std;

/**
    Converts binary string into a decimal equivalent
    @param binaryString - binary input from the user
    @return decimalNum - the decimal equivalent of binary string
*/
int bin2Dec(const string& binaryString) {
    int decimalNum = 0;
    // Amount of numbers checked
    int k = 0;
    // Loop through each character from left to right
    for(int i = binaryString.length() - 1; i >= 0; i--) {

        // Check character at index of string
        char binaryChar = binaryString.at(i);

        if(binaryChar == '1') {
            int twoMultiple = 1;

            // Power function of a binary number
            for(int j = 0; j < k; j++){
                twoMultiple *= 2;
            }
            decimalNum += twoMultiple;
        }
        k++;
    }
    return decimalNum;
}
```

CECS 282 Lab 1

Team 6

Nathan Lai

Danny Nguyen

}

// Controls operation of the program

int main() {

 string binaryString;

 // Checks that the input is valid

 bool done = false;

 // Gets a binary string from the user

 while (done != true) {

 cout << "Enter binary numbers: ";

 cin >> binaryString;

 done = true;

 // Checks each character from left to right

 for(int i = binaryString.length() - 1; i >= 0; i--) {

 char binaryChar = binaryString.at(i);

 // Detects nonbinary characters and gets another input

 if(binaryChar != '1' && binaryChar != '0') {

 done = false;

 cout << "Invalid input. Try again" << endl;

 break;

 }

 }

}

 // Returns the decimal equivalent of binary string

 cout << "The decimal equivalent value is: ";

 cout << bin2Dec(binaryString);

 return 0;

}

CECS 282 Lab 1

Team 6

Nathan Lai

Danny Nguyen

RUNTIME OUTPUT

```
D:\CSULB Code\CECS 282 Lab\Assignment 1\Lab1.2.exe
Enter binary numbers: 1101
The decimal equivalent value is: 13
-----
Process exited after 4.529 seconds with return value 0
Press any key to continue . . .
```

```
D:\CSULB Code\CECS 282 Lab\Assignment 1\Lab1.2.exe
Enter binary numbers: 0001
The decimal equivalent value is: 1
-----
Process exited after 6.212 seconds with return value 0
Press any key to continue . . .
```

```
D:\CSULB Code\CECS 282 Lab\Assignment 1\Lab1.2.exe
Enter binary numbers: 0000
The decimal equivalent value is: 0
-----
Process exited after 2.112 seconds with return value 0
Press any key to continue . . .
```

```
D:\CSULB Code\CECS 282 Lab\Assignment 1\Lab1.2.exe
Enter binary numbers: 1111
The decimal equivalent value is: 15
-----
Process exited after 1.714 seconds with return value 0
Press any key to continue . . .
```

```
D:\CSULB Code\CECS 282 Lab\Assignment 1\Lab1.2.exe
Enter binary numbers: 7646
Invalid input. Try again
Enter binary numbers: dfghtdrghj
Invalid input. Try again
Enter binary numbers: 1010
The decimal equivalent value is: 10
-----
Process exited after 9.641 seconds with return value 0
Press any key to continue . . .
```