CS120 - Computer Science I
Lab #9
Fall 2014

The purpose of this lab is to gain experience with converting numerical representations between various bases.

For this lab you will write the C++ function described below:

```
int basetoint(string strng, int base);
```

, where strng is astring object, which contains the "digits" of a number, and base is an int that specifies the base of the number represented in the character string. The function should return the int value represented by the string. If an error occurs, the function should return a -1.

The function should handle bases from 2 to 16.

Your function should check for two kinds of errors:

- Make sure that the given base values are in the specified range [2-16].

- Make sure that the characters of the input value are all legal for the specified base (i.e. if the input base value was 2, then the only legal character values are '0' and '1'.)

Example Output

Here is a simple main program, and some example output. Underlined text is user input.

```cpp
#include <iostream>
#include <string>
using namespace std;

int main()
  {
    int val, base, result;
    string strng;

    while(1)  // This creates an infinite loop, use <ctrl>-C to get out
      {
        cout << "Enter a string of digits, followed by a base ";
        cin >> strng >> base;
        result = basetoint(strng, base);
        if(result < 0) cout << "An error occurred" << endl;
        else cout << "The result is " << result << endl;

      } // END while

  } // END main
```

```
$ ./a.out
Enter a string of digits, followed by a base: 123 10
The result is 123
Enter a string of digits, followed by a base: A3 16
The result is 163
Enter a string of digits, followed by a base: 131 27
An error occurred
Enter a string of digits, followed by a base: ^C
$
```