Lab 3 - wb 11/11/13

This week will cover while loops and for loops. Follow the demos below to cover this.

While Loop Demo

The following demo asks the user a question and keeps asking until the user gets it correct

```cpp
#include <iostream>

using namespace std;

int main()
{
    int answer;
    cout << "How many are in a bakers dozen?"<<endl;
    cin>>answer;

    while(answer != 13)//While the answer inputted is not 13 do the following
    {
        system("cls");//Clear the console screen
        cout<<"Incorrect, Please Try Again..."<<endl<<endl;
        cout << "How many are in a bakers dozen?"<<endl;
        cin>>answer;
    }
    system("cls");//Clear the console screen
    cout<<"Well done! You answered that correctly!";

    cin.ignore();
    cin.get();

    return 0;
}
```

For Loop Demo

The following demo outputs "*" the number of times the user asked

```cpp
#include <iostream>

using namespace std;

int main()
{
    int num;

    cout<<"Please enter a number: ";
    cin>>num;


    //for(initialise a variable; condition to test; change on each iteration)
    for(int i=0; i<num; ++i) //while i is less than entered number. Add 1 to i on each iteration
    {
        cout<<"*";
    }

    cin.ignore();
    cin.get();

    return 0;
}
```

Nested For Loop Demo
The following demo creates a staircase using "*" based on user input

```cpp
#include <iostream>

using namespace std;

int main()
{
    int num;

    cout<<"How many stairs are in your staircase?: ";
    cin>>num;


    for(int i=0; i<num; ++i)
    {
        for(int j=0; j <= i; ++j)
        {
            cout<<"*";
        }
        cout<<endl;
    }

    cin.ignore();
    cin.get();

    return 0;
}
```

Have A Go - Test Your Knowledge!

Challenge 1
Write a Guess my number game. Choose a random number and use a while loop to keep asking the user for a number until they get it correct. You can output Higher or Lower based on what the user inputted.

TIP
To generate a random number include time.h and stdlib.h at the top of your program (#include <stdlib.h>) & (#include <time.h>)

Then do the following in your main to generate a number between 1 and 100

```
int random_number;
// initialize random seed - You don't need to know too much about this
srand (time(NULL));

// generate secret number between 1 and 100
random_number = rand() % 100 + 1;
```

Challenge 2
Ask the user for a number. Output using for loops every number from 1 to the number the user entered on the screen.