```
/*****************************************************************************
*       Author:                 Jessica Schuler
*       Date Created:           10-31-13
*       Last Modified Date:     1-1-13
*       Filename:               l6.cpp
*
*       Overview:
*             This program will take 2 user input numbers and add them
*             together.  It also multiplies those same 2 numbers.  The
*             program displays the outcomes from both iterative and
*             recursive programing.
*       Input:
*             The user inputs 2 numbers.
*
*       Output:
*             The output is the numbers added and then multiplied.
*
*
*****************************************************************************/

#include<iostream>

using std::cout;
using std::endl;
using std::cin;

int add_it(int first, int second);//declares iterative adding function
int add_rec(int first, int second);//declares recursive adding function
int mult_rec(int first, int second);//declares recursive multiplication
int mult_it(int first, int second);//declares iterative multiplication

int main()
{
    int first, second;//declares variables

    cout<<"Hello! Lets do some Math! "<<endl;
        cout<<"Pick one number: "<<endl;
    cin>>first;//asks for 1st user number input
    cout<<"Pick a second number: "<<endl;
    cin>>second;//asks for 2nd user number input

    cout<<endl;//line break for readibility of output

    cout<<"When adding the numbers we get: "<<endl;
    cout<<"Total using an iterative function: "
       <<add_it(first,second)<<endl;//calls iterative adding function
    cout<<"Total using a recursive function: "
       <<add_rec(first,second)<<endl;//calls recursive adding function

    cout<<endl;//line break for readibility of output

    cout<<"Now lets Multiply those numbers! "<<endl;
    cout<<"Total using an iterative function: "
       <<mult_it(first,second)<<endl;//calls iterative multiplication
    cout<<"Total using a recursive function: "
       <<mult_rec(first,second)<<endl;//calls recursive multiplication

    return 0;//ends main function
}

int add_it(int first, int second)//iterative adding function
{
    int result = first;
    for(int current = 0; current < second; ++current)
    {
        result++;
```

```
    }
    return result;
}

int mult_it(int first, int second)//iterative multiplication function
{
    int result = 0;
    for(int current =0; current<second; current++)
    {
        result+=first;
    }
    return result;
}

int add_rec(int first, int second)//recursive adding function
{
    if(second<=0)
    {
         return first;
    }
    else
    {
         return add_rec(++first,--second);
    }
}

int mult_rec(int first, int second)//recursive multiplication function
{
    if(second==0)
    {
       return 0;
    }
    else
    {
       return first + mult_rec(first,second-1);
    }
}
```