

CS-182
Program #2
Nested IF statements
& For Loops

Date Given: Wed., December 13, 2000

Date Due: Wed., December 20, 2000

Three outlaws have stolen a stagecoach shipment of gold bars. They escape to their hideout and agree to divide up the loot in the morning. However, as soon as one of the bandits hears the others snoring, he decides to bury his one-third of the loot for safe-keeping. After dividing the bars into *three equal piles*, he discovers that there is *one extra bar* left, which he adds to his pile, and buries it. The remaining two piles are merged back into one pile, so the others won't notice the missing gold bars.

In turn, the other two outlaws awake, each while the other two are sleeping, and also divide the remaining loot into thirds and discovers one extra gold bar (which they add to their own pile and stash away for safe keeping).

In the morning, the outlaws proceed to divide up the remaining gold bars and discover that there is, once again, one gold bar left over. An argument ensues over the last gold bar and the outlaws shoot each other dead.

Although the moral to this story is that crime doesn't pay, there is also a puzzling question: How many gold bars were in the original pile? Your assignment is to write a C++ program that prints out the possible number of gold bars in the shipment (assume that there were no more than 1000 gold bars).

To solve this problem, your program will need to "simulate" the actions of the outlaws with respect to dividing up the gold. This can be done with nested IF statements, using the integer division (/) and modulo division (%) operators. Once you have this done, you can nest the IF statements within a FOR loop that repeats the actions for integer values between 1 and 1000. Your program should find several values between 1 and 1000 that can be successfully divided up according to the Outlaws scenario. Print out those values in a table-like format in your output file.

As always, turn in the commented C++ source listing, along with the printed output from your program and your written report, via email to blessing@msoe.edu by the above due date. In case you don't remember how to send output to a file for printing, I've included a demonstration program below:

The following program demonstrates how to write output to a file (which can later be printed):

```
#include <iostream>
#include <fstream>
using namespace std;

void main()
{
    ofstream file("outfile.txt");
    cout << "This goes to the console" << endl;
    file << "This goes to the output file" << endl;
}
```

Once the necessary header files are included, the `ofstream` class and the `cout`, `cin`, and `cerr` objects become known to your program. Your compiler may require you to drop the “.h” suffix on the file names and add a directive ‘`using namespace std;`’ (without the quotes) following the `#include` statements.

Once the program terminates, there will be a new file in the current directory named `outfile.txt`, which can be printed just like any other text file.