

Electronic copies of handouts for L02 can be found at

<http://www.enel.ucalgary.ca/People/Norman/engg233-L02-fall2004/>

**loop-demo.cc:** Demonstrates basic properties of while and do statements ...

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

int main()
{
    int i = 4;
    cout << "Beginning of 1st loop." << endl;
    while (i > 0) {
        cout << "i = " << i << endl;
        i--;
    }
    cout << "End of 1st loop." << endl;

    i = 5;
    cout << "Beginning of 2nd loop." << endl;
    while (i < 3) {
        cout << "i = " << i << endl;
        i--;
    }
    cout << "End of 2nd loop." << endl;

    i = 5;
    cout << "Beginning of 3rd loop." << endl;
    while (i < 20) {
        i += 10;
        cout << "i = " << i << endl;
    }
    cout << "End of 3rd loop." << endl;

    i = 1;
    cout << "Beginning of 4th loop." << endl;
    do {
        cout << "i = " << i << endl;
        i *= 2;
    } while (i < 10);
    cout << "End of 4th loop." << endl;

    i = 50;
    cout << "Beginning of 5th loop." << endl;
    do {
        cout << "i = " << i << endl;
        i++;
    } while (i < 40);
    cout << "End of 5th loop." << endl;

    i = 3;
    cout << "Beginning of 6th loop." << endl;
    do {
        i--;
        cout << "i = " << i << endl;
    } while (i >= 0);
    cout << "End of 6th loop." << endl;

    return 0;
}
```

**infinite-loop.cc:** A very simple example of a loop that won't ever stop ...

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

int main()
{
    int i = 0, j = 0;
    while (i < 5) {
        cout << "i = " << i << endl;
        j++; // Oops, should have been i++;
    }
    return 0;
}
```

**Lab tip—how to kill a program that seems to be in an infinite loop:** In the terminal window where the program is running, type Ctrl+C (that is, hold down the **Ctrl** key and press the **C** key).

**Programming problem:** Write a program to add up any number of positive integers. Here's an example dialog:

```
This program adds up any number of positive integers.
Please type in your positive integers, separated by spaces.
Please use -1 to mark the end of the list.
10 20 30 -1
The sum of your 3 numbers is 60.
```

And here's another:

```
This program adds up any number of positive integers.
Please type in your positive integers, separated by spaces.
Please use -1 to mark the end of the list.
10 11 11 11 12 -1
The sum of your 5 numbers is 55.
```

Here's a *sketch* of a solution:

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

int main()
{
    const int sentinel = -1;
    int input_item = 0, sum = 0, count = 0;
    cout << "This program adds up any number of positive integers." << endl;
    cout <<
        "Please type in your positive integers, separated by spaces." << endl;
    cout << "Please use -1 to mark the end of the list." << endl;

    // Need to add a loop to read, count, and add up inputs.

    cout << "The sum of your " << count << " numbers is " << sum << '.' << endl;

    return 0;
}
```