03. Integer Variables - extras

The following shows you how to format your output.

First you can create a "window" for an output. Try this

```
#include <iostream>

int main()
{
    int x = 42;

    std::cout << "1: [" << x << "]\n"
              << "2: [" << "abc" << "]\n";

    return 0;
}
```

No surprises.

Now try this:

```
#include <iostream>
#include <iomanip>

int main()
{
    int x = 42;

    std::cout << "1: [" << std::setw(5)
              << x << "]\n"
              << "2: [" << "abc" << "]\n";

    return 0;
}
```

and then this

```
#include <iostream>
#include <iomanip>

int main()
{
    int x = 42;

    std::cout << "1: [" << std::setw(5) << x << "]\n"
              << "2: [" << std::setw(8) << "abc"
              << "]\n";

    return 0;
}
```

The `std::setw(5)` creates a window of size 5 for output. Get it?

Next try this:

```
#include <iostream>
#include <iomanip>

int main()
{
    int x = 42;

    std::cout << "1: [" << std::setw(5)
              << std::setfill('*')
              << x << "]\n"
              << "2: [" << std::setw(8) << "abc"
              << "]\n";

    return 0;
}
```

And also this:

```
#include <iostream>
#include <iomanip>

int main()
{
    int x = 42;

    std::cout << "1: [" << std::setw(5)
              << std::setfill('*')
              << x << "]\n"
              << "2: [" << std::setw(8)
              << std::setfill('.')
              << "abc"
              << "]\n";

    return 0;
}
```

and this:

```
#include <iostream>
#include <iomanip>

int main()
{
    int x = 42;

    std::cout << "1: [" << std::setw(5)
              << std::setfill('*')
              << x << "]\n"
              << "2: [" << std::setw(8)
              << std::setfill(' ')
              << "abc"
              << "]\n";
```

```
    return 0;
}
```

The **std::setfill('*')** will put the character '*' into the unused space in the output window.

There are many other ways to manipulate outputs. See chapter on floating point numbers