



# CS150 Intro to CS I

Fall 2012

# Chapter 3

## Formatting Output

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- Reading: Chapter 3 (3.7 pp. 111-120)
- Good Problems to Work: pp. 119-120[3.17, 3.19]

# Formatting Output

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- How can we force output to look a particular way?
  1. Precision of numbers
  2. Spacing around the output

```
Here are some floating point numbers:
```

```
72.0
```

```
72.00
```

```
72.000
```

```
Here is a table of data:
```

```
  4   cat   15
100    6   2.1
```

# Precision

---

```
const double PI = 3.141592653589793;  
cout << PI << endl; // default output 3.14159
```

- Floating-point numbers can be rounded to a number of significant digits (precision)

```
cout << setprecision (3) << PI; // output 3.14
```

# Precision

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- Precision can also be used to set the number of digits after the decimal point
- What is the output?

```
const double PI = 3.141592653589793;
```

```
cout << fixed << setprecision (2) << PI;
```

# Precision of numbers

---

```
#include <iostream>
#include <iomanip> //New Library!

using namespace std;

int main()
{
    const double PI = 3.141592653589793;

    cout << PI << endl; // default output
    cout << fixed << setprecision (4) << PI << endl;
    cout << fixed << setprecision (3) << PI << endl;
    cout << fixed << setprecision (2) << PI << endl;
    cout << fixed << setprecision (1) << PI << endl;

    return EXIT_SUCCESS;
}
```

# Precision

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- Precision and fixed are sticky (i.e they remain in effect until changed)
- What is the output?

```
const double PI = 3.141592653589793;  
cout << fixed << setprecision (4) << PI << endl;  
cout << setprecision (2) << PI << endl;  
cout << PI << endl;
```

# Output with Spacing

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

using namespace std;

int main()
{
    string name = "cs150";
    int integer = 42;

    cout << setw (6) << name << setw (6) << integer << endl;
    cout << setw (4) << integer << endl;

    return EXIT_SUCCESS;
}
```



# setw

---

- setw is not sticky
  - you must specify setw every time you want a specific field width specified
- What is the output?

```
int integer = 42;  
cout << setw (6) << integer << integer << endl;
```

# Problem

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- Write a program segment that allows the user the ability to input two integer values. Display both integer values as shown below, always displaying the smaller number first.

```
Please enter two numbers: 100 9
The numbers are:
                    9
                   100
```