

Writing a first C++ Program

File Streams

01/22/2009

Outline

1 Homework Assignment

2 Basic C++ Program Structure and Syntax

Input and Output Streams
File Streams
Functions

Homework Assignment

- 1 Read Chapter 5
 - *“Writing a first Program”*
- 2 Assignments (1), (2), and (3) of Section 5.15
 - See handout!
 - Due next Tuesday, January 27
 - Hand in a paper copy! (preferred)

Outline

1 Homework Assignment

2 Basic C++ Program Structure and Syntax

Input and Output Streams
File Streams
Functions

Input and Output Streams

```
# include <iostream.h>
```

```
main() {  
    int a, b = 1;  
  
    cin >> a;  
  
    if (a == b) {  
        a = 1;  
    }  
    else if (a == 5) {  
        ...  
    }  
    cout << endl << b << endl;  
}
```

- 1 The **cin** stream reads character or numeric input from the standard input device (the keyboard).

Input and Output Streams

```
# include <iostream.h>
```

```
main() {  
    int a, b = 1;  
  
    cin >> a;  
  
    if (a == b) {  
        a = 1;  
    }  
    else if (a == 5) {  
        ...  
    }  
    cout << endl << b << endl;  
}
```

- 1 The **cin** stream reads character or numeric input from the standard input device (the keyboard).
- 2 The **cout** stream is attached to the standard output device (the terminal).

Input and Output Streams

```
# include <iostream.h>
```

```
main() {
```

```
    int a, b = 1;
```

```
    cin >> a;
```

```
    if (a == b) {
```

```
        a = 1;
```

```
    }
```

```
    else if (a == 5) {
```

```
        ...
```

```
    }
```

```
    cout << endl << b << endl;
```

```
}
```

- 1 The **cin** stream reads character or numeric input from the standard input device (the keyboard).
- 2 The **cout** stream is attached to the standard output device (the terminal).
- 3 Under Linux:
a.out >> output.dat

File Streams

```
# include <iostream.h>
# include <fstream.h>

ifstream fin ("input.dat");
ofstream fout ("output.dat");

main() {
    int i, j;

    fin >> i >> j;
    fout << i * j << endl;
}
```

- 1 The disc file `input.dat` in the directory from which the program is being run is associated with a stream called `fin`.
- 2 In a similar way, the disc file `output.dat` is associated with a stream called `fout`.


```
# include <iostream.h>
# include <fstream.h>

ifstream fin ("input.dat");
ofstream fout ("output.dat");

main() {
    int i, j;

    fin >> i >> j;
    fout << i * j << endl;
}
```

File Streams

- 1 The disc file **input.dat** in the directory from which the program is being run is associated with a stream called **fin**.
- 2 In a similar way, the disc file **output.dat** is associated with a stream called **fout**.
- 3 **iostream.h**: Activates terminal and keyboard input and output
- 4 **fstream.h**: Activates input and output from the hard disk.

Functions

```
# include <iostream.h>
# include <fstream.h>

ofstream fout ("output.dat");

void output(int aI, int aJ) {
    if (fout.good()) {
        fout << aI << " " << aJ << endl;
    }
}

main() {
    int i, j;
    output(i, j);
}
```

- 1 The input variables are termed *arguments*.
- 2 A function can be called with either variables or constants as parameters.

Functions

```
# include <iostream.h>
# include <fstream.h>

ofstream fout ("output.dat");

int output(int aI, int aJ) {
    if (fout.good()) {
        fout << aI << " " << aJ << endl;
    }
    return aJ + 1;
}

main() {
    int i, j;
    i = output(i, j);
}
```

- 1 The input variables are termed *arguments*.
- 2 A function can be called with either variables or constants as parameters.

Functions

```
# include <iostream.h>
```

```
# include <fstream.h>
```

```
ofstream fout ("output.dat", ios::app);
```

```
int output(int aI, int aJ) {
```

```
    if (fout.good()) {
```

```
        fout << aI << " " << aJ << endl;
```

```
    }
```

```
    return aJ + 1;
```

```
}
```

```
main() {
```

```
    int i, j;
```

```
    i = output(i, j);
```

```
}
```

- 1 The input variables are termed *arguments*.
- 2 A function can be called with either variables or constants as parameters.