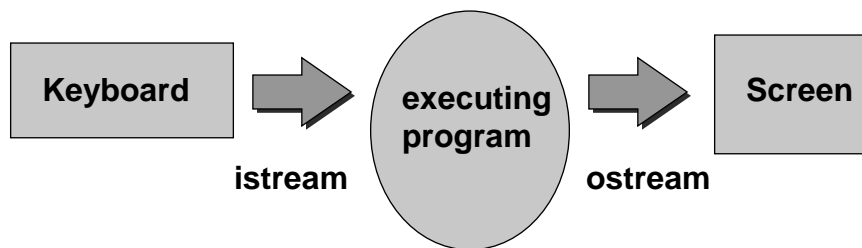


## No I/O is built into C++

- instead, a library provides input stream and output stream



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## <iostream> is header file

- for a library that defines 3 objects
  - an istream object named cin (keyboard)
  - an ostream object named cout (screen)
  - an ostream object named cerr (screen)

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## Insertion Operator ( << )

- the insertion operator << takes 2 operands
- the left operand is a stream expression, such as cout
- the right operand is an expression of simple type, or a string, or a manipulator

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## Output Statements

### SYNTAX (revised)

```
cout << ExpressionOrManipulator  
      << ExpressionOrManipulator ... ;
```

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## Output Statements

### SYNTAX

```
cout << Expression << Expression ... ;
```

These examples yield the same output.

```
cout << "The answer is " ;  
cout << 3 * 4 ;
```

```
cout << "The answer is " << 3 * 4 ;
```

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## Giving a Value to a Variable

In your program you can assign (give) a value to the variable by using the assignment operator =

```
ageOfDog = 12 ;
```

or by another method, such as

```
cout << "How old is your dog?" ;  
cin >> ageOfDog ;
```

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## >> is a binary operator

>> is called the input or extraction operator

>> is left associative

<u>EXPRESSION</u>	<u>HAS VALUE</u>
cin >> age	cin

### STATEMENT

```
cin >> age >> weight ;
```

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## Extraction Operator ( >> )

- variable cin is predefined to denote an input stream from the standard input device ( the keyboard )
- the extraction operator >> called “get from” takes 2 operands. The left operand is a stream expression, such as cin--the right operand is a variable of simple type.
- operator >> attempts to extract the next item from the input stream and store its value in the right operand variable

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## Input Statements

### SYNTAX

```
cin >> Variable >> Variable . . . ;
```

These examples yield the same result.

```
cin >> length ;  
cin >> width ;
```

```
cin >> length >> width ;
```

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## Whitespace Characters Include . . .

- blanks
- tabs
- end-of-line (newline) characters

**The newline character is created by hitting Enter or Return at the keyboard, or by using the manipulator endl or “\n” in a program.**

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