Variables

User Input

`std::cin`, which stands for "character input", reads user input from the keyboard.

Here, the user can enter a number, press `enter`, and that number will get stored in `tip`.

```cpp
int tip = 0;

std::cout << "Enter amount: ";
std::cin >> tip;
```

Variables

A variable refers to a storage location in the computer's memory that one can set aside to save, retrieve, and manipulate data.

```cpp
// Declare a variable
int score;

// Initialize a variable
score = 0;
```

Arithmetic Operators

C++ supports different types of arithmetic operators that can perform common mathematical operations:

- \+ addition
- – subtraction
- * multiplication
- / division
- % modulo (yields the remainder)

```cpp
int x = 0;

x = 4 + 2;  // x is now 6
x = 4 - 2;  // x is now 2
x = 4 * 2;  // x is now 8
x = 4 / 2;  // x is now 2
x = 4 % 2;  // x is now 0
```

int Type

`int` is a type for storing integer (whole) numbers. An integer typically requires 4 bytes of memory space and ranges from -2^{31} to 2^{31}.

```cpp
int year = 1991;
int age = 28;
```

double Type

`double` is a type for storing floating point (decimal) numbers. Double variables typically require 8 bytes of memory space.

```cpp
double price = 8.99;
double pi = 3.14159;
```

Chaining the Output

`std::cout` can output multiple values by chaining them using the output operator `<<`.

Here, the output would be `I'm 28.`

```cpp
int age = 28;

std::cout << "I'm " << age << ".\n";
```

char Type

`char` is a type for storing individual characters.

Characters are wrapped in single quotes `'`.
Characters typically require 1 byte of memory space and range from -128 to 127.

```cpp
char grade = 'A';
char punctuation = '?';
```

string Type

`std::string` is a type for storing text strings.

Strings are wrapped in double quotes `"`.

```cpp
std::string message = "good nite";
std::string user = "@sonnynomnom";
```

bool Type

`bool` is a type for storing `true` or `false` boolean values. Booleans typically require 1 byte of memory space.

```cpp
bool organ_donor = true;
bool late_to_work = false;
```