

# C++ Intro

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C++ is a **strongly typed** programming language where every variable has a type, name, value, and location in memory.

```
int value = 42;
```

# C++ Types

The **type** of a variable defines the contents of the variable. Every **type** is either:

- Primitive
- User-defined

# Primitive Types

There are just six common primitive types in C++:

- **int**, stores integers
- **char**, stores single characters/single byte
- **bool**, stores a Boolean (true or false)
- **float**, stores a floating point number
- **double**, stores a double-precision floating point number
- **void**, denotes the absence of a value

# User-Defined Types

An unbounded number of user-defined types can exist – we'll create many of our own!

Two very common user-defined types:

- `std::string`, a string (sequence of characters)
- `std::vector`, a dynamically-growing array

# C++ Programs

Every C++ program must contain a starting point. By the C++ standard, the starting point is a function:

```
int main()
```

By convention, the return value of main is **0** (zero) if the program was successful and non-zero on errors.

## cpp-intro/main.cpp

```
10 int main() {  
11     int i = 4;  
12     i = i + 2;  
13  
14     char c = 'a';  
15  
16     std::cout << i << " " << c << std::endl;  
17  
18     return 0;  
19 }
```