

Lesson 2 Student Workbook

Program Structure and Variables

Today you will make a C++ program easier to read and more useful by using variables. Your program will store information about a practice robot and print a clear robot profile.

Key Words

Word	Meaning
variable	A named value used by a program.
string	Text inside quotation marks.
int	A whole number.
double	A decimal number.
comment	A note for people reading the code.
indentation	Spaces that show which code belongs together.

A Robot Profile Program

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

using namespace std;

int main() {
    string robotName = "PracticeBot";
    int teamNumber = 12345;
    double batteryVoltage = 12.6;
    int motorCount = 4;

    cout << "Robot name: " << robotName << endl;
    cout << "Team number: " << teamNumber << endl;
    cout << "Battery voltage: " << batteryVoltage << " volts" << endl;
    cout << "Motor count: " << motorCount << endl;

    return 0;
}
```

What Each Variable Stores

Variable	Type	Example
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robotName	string	"PracticeBot"
teamNumber	int	12345
batteryVoltage	double	12.6
motorCount	int	4

Naming Rules

- Use names that explain the value.
- Do not use spaces in variable names.
- Begin with a letter.
- Use camelCase for names with more than one word, such as batteryVoltage.
- Avoid punctuation except underscore when your teacher allows it.

Try It

1. Create a folder named Lesson02_Variables.
2. Create a file named main.cpp.
3. Type or open the starter program.
4. Compile with `g++ main.cpp -o variables.exe`.
5. Run with `.\variables.exe`.
6. Change the variable values and run again.

Reflection

Which variable did you change first? _____

What changed in the program output? _____

Why are clear variable names useful? _____