VARIABLES & MEMORY ADDRESSES

All variables have an address
Variables have:
- Name
- Address or location in memory
- Content

counter: 123 0x000000ab
VARIABLE CONCEPTS

• Machine code does not use variable names, it uses the variable’s address
• The compiler maps the name to an address
• In a program, the name can represent the address or the content stored at that address
  • Name used as an address
    • counter = 5;
  • Name used as the content
    • balance = counter * 10;
    • cout << counter << endl;
MEMORY VIEWED AS AN ARRAY
POINTER VARIABLES

- Pointers are variables that hold or store the memory addresses of other variables or data
- An address is a location in main memory that cannot change
- C++ provides several operators that operate on pointers