

# Currents: Coding with Cinder

Week 4: Memory Management / Particle System Revisited

Instructors

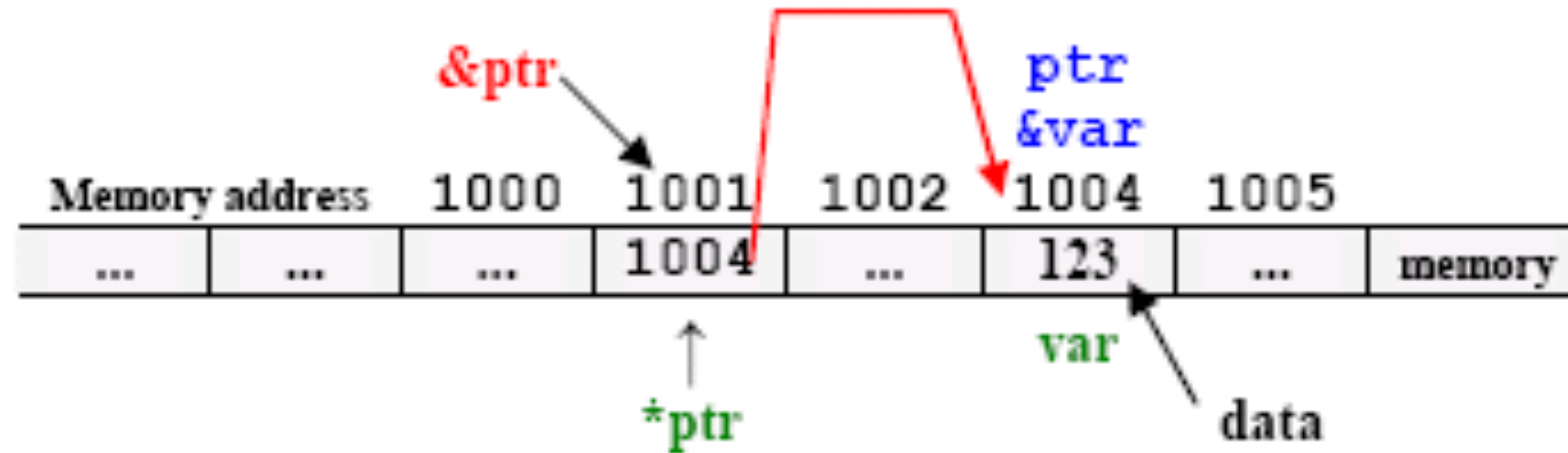
Luobin Wang ([luobin@newschool.edu](mailto:luobin@newschool.edu))

Weili Shi ([weili@newschool.edu](mailto:weili@newschool.edu))



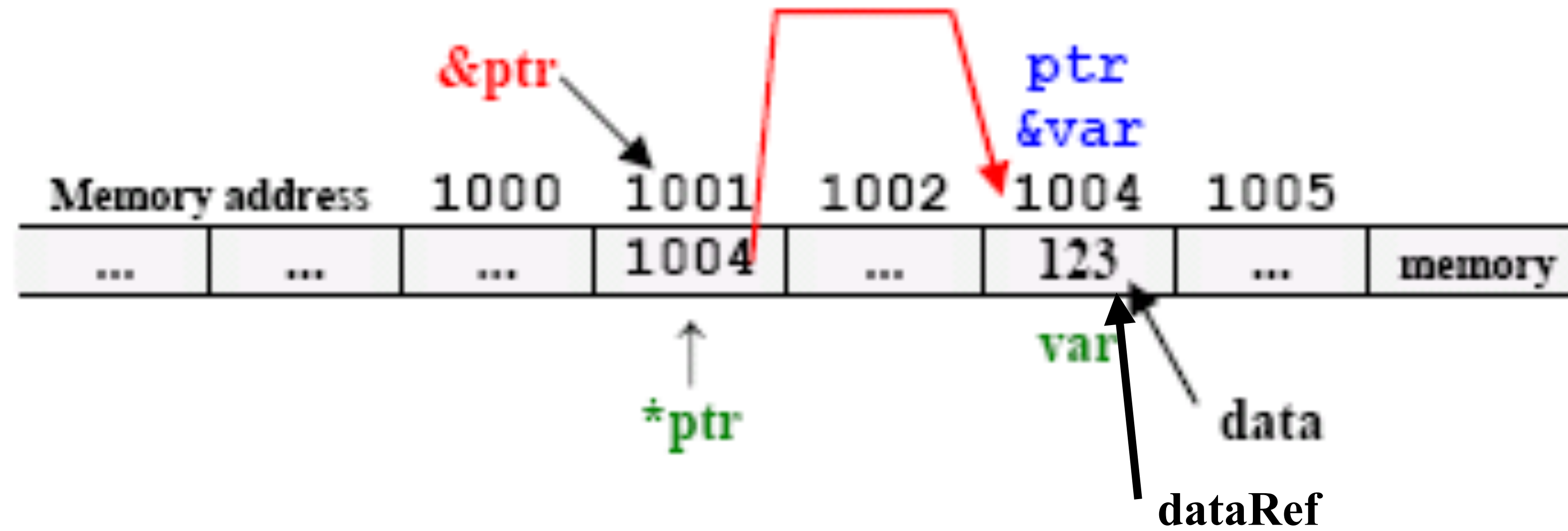
# Memory Management

The glory of being a C++ programmer. And the price you pay to one.



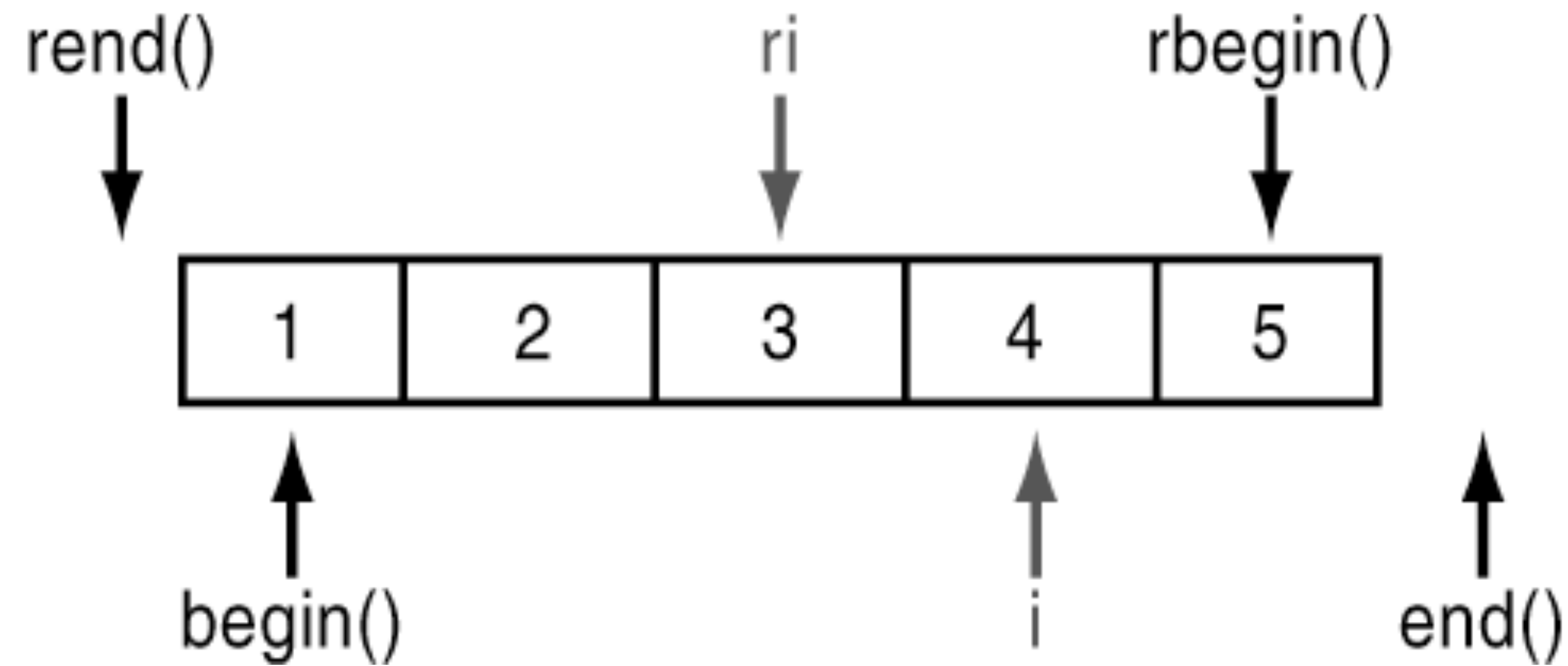
# Pointer

A pointer stores the memory address of the object it points to.



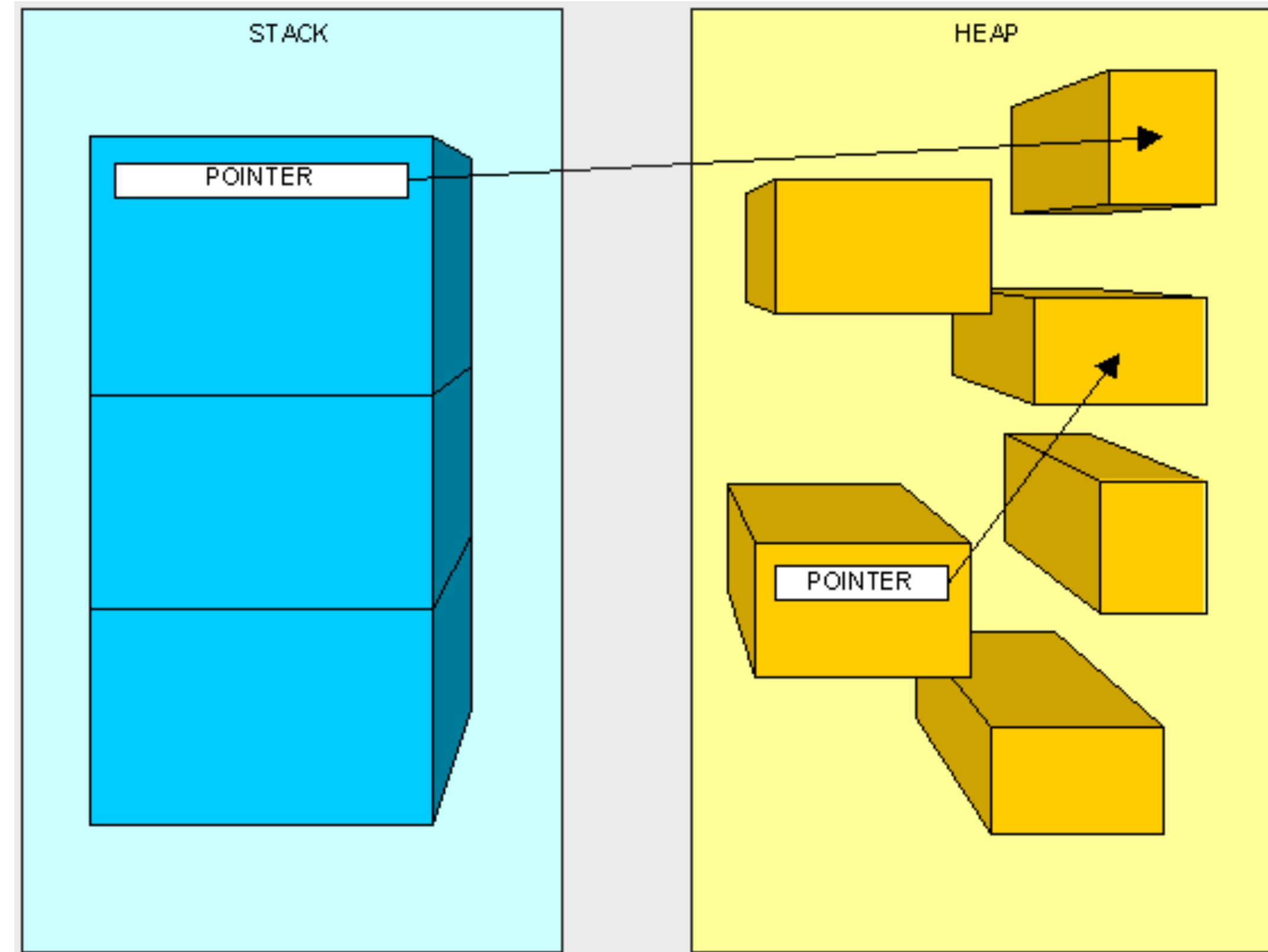
# Reference

A reference is an alias of the object it refers to.



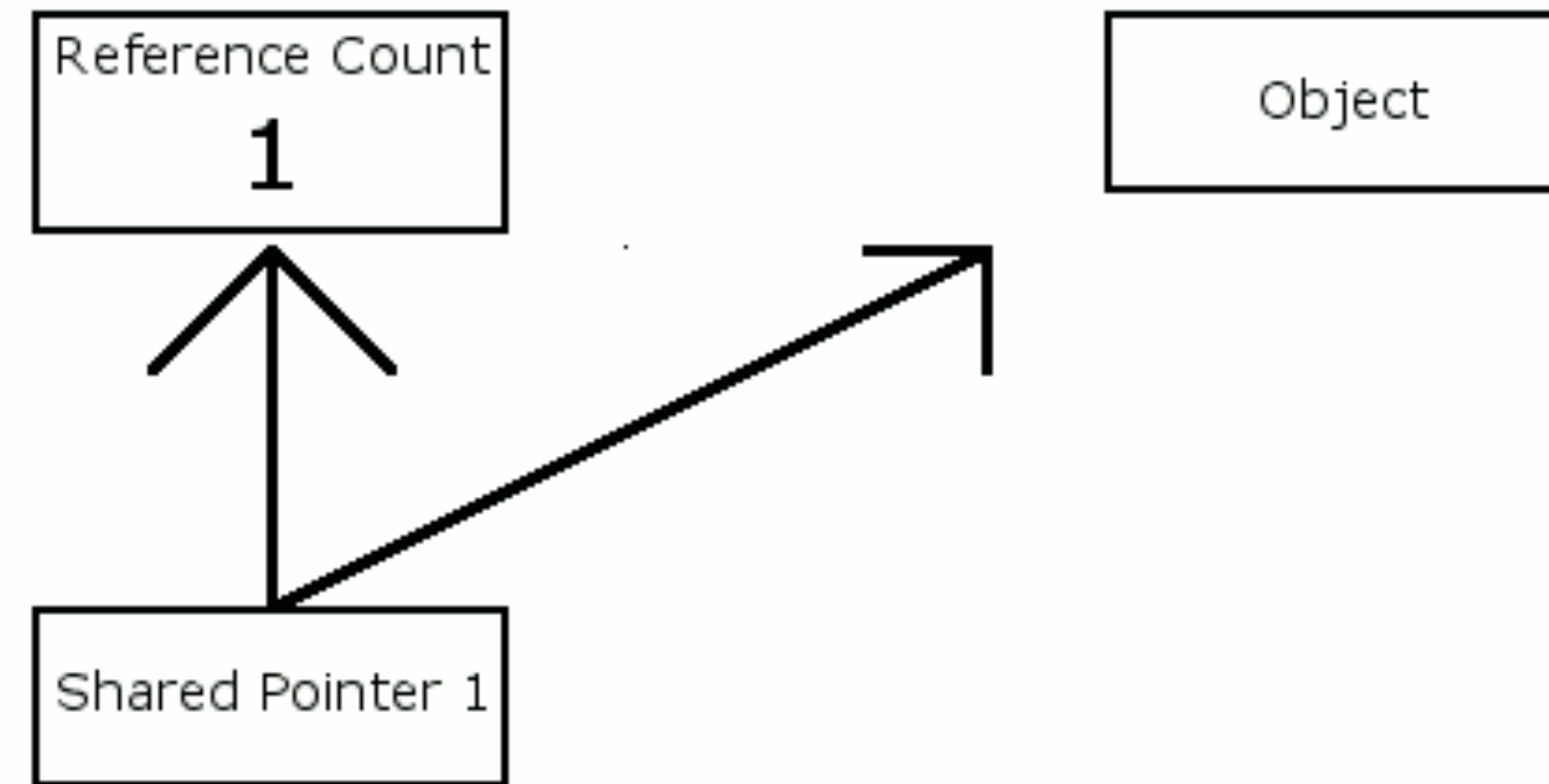
# Iterator

Iterators behave like pointers, indicating addresses within a container.



# Dynamic Memory

Memory in your C++ program is divided into two parts: the **stack** for local variables and the **heap** for dynamically created objects.



Object is allocated along with the reference count, which is initialised with a value of 1.

# Shared Pointer

Shared pointer automatically manages dynamic allocated memory using reference counting.