

Resource Management Solutions

Resource Management

- Give some examples of classes in the C++ standard library which manage resources
 - `std::string` and `std::vector` manage allocated memory
 - `std::fstream` manages files

Classes which Manage Resources

- What is meant by RAII?
 - RAII stands for Resource Acquisition Is Initialization. It is an idiom for writing classes which manage resources
 - The resource is stored as a private member of the class
 - The class constructor acquires ownership of the resource
 - The class's public member functions control access to the resource
 - The class's destructor releases the resource
 - When an object of the class is copied or assigned to, the target object acquires its own version of the resource

Advantages of RAII

- What are the advantages of RAII?
 - Obtaining access to the resource is straightforward and deterministic. Either the object is successfully created, or the resource is not usable by the program
 - Using the resource is straightforward. Just call the object's member functions
 - Releasing the resource is straightforward and deterministic. The resource is released when the object goes out of scope, either at the end of a block or when an exception is thrown
 - Only one object can own a given resource at a time