 Anhui University Data Science and Big Data Technology

 **Job intention:** Software Dev Engineer Intern

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**Lei Xu**

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 github: <https://github.com/Ye-Yu-Mo>

 Blog Link：https://ye-yu-mo.github.io

**Personal skills**

**Programming skills/data structures**

* Familiar with the basic syntax system of C/C++, familiar with the three major characteristics of object-oriented, and have C++ project experience.
* Familiar with common data structures and sorting algorithms, such as sequential lists, linked lists, stacks, queues, heaps, hash tables, etc.
* Familiar with common sorting algorithms and search structures, such as heap sort, quick sort, AVL tree, red-black tree, etc.
* Familiar with C/C++ dynamic memory management, the use of generic programming and templates, and C/C++ exception handling.
* Familiar with C++11 features such as smart pointers, type conversions, rvalue references, wrappers, and thread libraries.
* Familiar with the use of major containers in the STL standard library, familiar with their underlying implementation principles, and have implementation experience for some containers.
* Familiar with basic design patterns, such as singleton pattern, factory pattern, builder pattern, proxy pattern, etc.

**Linux/Network/Database**

* Familiar with common commands and related development tools in Linux environment.
* Familiar with Linux process concepts, process status, process address space, process control, inter-process communication, basic IO, etc.
* Familiar with Linux thread concepts, thread safety, multithreading, thread pools, synchronization and mutual exclusion mechanisms, production and consumption models, etc.
* Familiar with Linux network programming concepts and socket programming under Linux.
* Familiar with TCP/IP four-layer architecture, and familiar with common protocols and principles of each layer, such as HTTP, TCP, UDP, etc.
* Familiar with multiplexing technology and its principles, such as select, poll, epoll, and have written a simple Reactor model based on epoll.
* Familiar with the basic syntax of MySQL, understand database indexes and database transactions, and understand certain database principles.
* Familiar with the usage of Docker and able to use Docker to package and deploy the environment.

**Project Experience**

**Implementation of message queue based on C++**

Technology stack: C++, Protobuf, muduo library, SQLite3, g++, gdb, Gtest

**Project Introduction**: Based on the learning of blocking queues (BlockingQueue), a simple message queue (MQ) is simulated and implemented, referring to the functional features of RabbitMQ. It aims to decouple backend development through the producer-consumer model, improve concurrent processing capabilities, and support cross-host message delivery.

* Implement the producer-consumer model to support efficient message production and consumption
* Customize the application layer protocol, use native socket and muduo library to encapsulate TCP long connection, and improve high concurrency processing capabilities.
* Protobuf is used for message serialization to ensure efficient and stable data transmission.
* Support data persistence, use SQLite3 to store message information.

**Core Features**: Decoupling of producers and consumers and reliable message delivery are achieved through message queues, routing and other mechanisms

**Development Environment**: WSL(Ubuntu 22.04) VSCode/Vim Makefile

**Project Link**:<https://github.com/Ye-Yu-Mo/Message-Queues>

**Synchronous and asynchronous logging system based on C++**

Technology stack: C++, singleton mode, builder mode, native socket encapsulation

**Project Introduction**: Through the double buffer mechanism and multiple design patterns, a synchronous and asynchronous logging system with scalable implementation is implemented

* Supports multi-directional log landing, comes with a console, single file, rolling file mode, and supports self-expansion landing.
* Supports synchronous and asynchronous log writing to prevent the log thread from blocking the execution of the business thread.
* Supports multi-threaded concurrent writing and uses double buffers to reduce lock conflicts between production and consumption models.
* Supports server landing and server configuration through INI files.

**Project Link**: <https://github.com/Ye-Yu-Mo/LogSystem>

**Awards**

CET-4, third prize in the Lanqiao Cup provincial competition, software copyright

CSDN blog visits exceeded 150,000 (<https://blog.csdn.net/ye_yumo>)