许磊　　**Lei Xu**

Job intention: Software Dev Engineer Intern

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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)