**Peer Review: Group 88 - EchoChat Distributed Secure Chat System**

**Overview**  
Group 88's EchoChat presents a sophisticated distributed chat system with a modern web frontend and robust backend architecture. The project demonstrates strong software engineering practices with comprehensive documentation and a well-structured technology stack.

**Strengths**

* **Excellent Architecture**: Clean separation of concerns with dedicated servers for WebSocket communication, file handling, and authentication
* **Modern Technology Stack**: Use of Maven, Java 11, JWT authentication, and Vue.js frontend shows contemporary development practices
* **Comprehensive Documentation**: Clear quick-start guide with demo accounts and multiple operation modes (web and CLI)
* **Security Features**: JWT authentication, rate limiting, and SOCP protocol with encryption support
* **Professional Configuration**: Well-structured pom.xml with appropriate dependencies including Bouncy Castle for cryptography

**Security Concerns**

* **Weak Demo Passwords**: "demo123" passwords for all accounts represent a security risk and poor practice
* **Debug Endpoint Exposure**: /api/debug/users endpoint could leak sensitive user information in production
* **Large File Uploads**: 256MB maximum file size could enable denial-of-service attacks
* **Missing Transport Security**: No mention of TLS/SSL implementation for production deployment

**Areas for Improvement**

* Implement stronger password policies and remove hardcoded demo credentials
* Secure or remove debug endpoints in production environments
* Add file type validation and virus scanning for uploads
* Document encryption implementation details and key management
* Consider implementing end-to-end encryption for enhanced privacy

**Overall Assessment**  
Group 88 has delivered a professionally engineered chat system with excellent architectural design and comprehensive features. The project demonstrates strong understanding of distributed systems and modern web technologies. While the implementation shows good security awareness with JWT and rate limiting, several security hardening measures are needed before production deployment. The clear documentation and dual-mode operation (web + CLI) are particularly commendable.

**Recommendation**: High-quality implementation with minor security improvements required. The project demonstrates advanced software engineering capabilities suitable for enterprise environments.