Essential Skills to Be the Best Backend Developer in Rust

# 1. Programming Expertise

* • Mastery of Rust (memory safety, lifetimes, traits, etc.)
* • Understanding of system-level programming
* • Strong knowledge of asynchronous programming

# 2. Web Development Fundamentals

* • HTTP methods and status codes
* • RESTful API design principles
* • Web security (CORS, CSRF, XSS, SQL injection)

# 3. Rust Backend Frameworks

* • Axum – for building web APIs (recommended)
* • Actix-Web – for performance-intensive applications
* • Rocket – for easy prototyping (optional)

# 4. Database Mastery

* • SQL (PostgreSQL or MySQL)
* • ORMs and query builders (SQLx, Diesel, SeaORM)
* • Database design and normalization

# 5. Authentication and Security

* • Implement JWT-based authentication
* • Hash passwords securely (bcrypt, argon2)
* • Understand session management and authorization

# 6. Testing and Debugging

* • Unit testing and integration testing
* • Async test frameworks (tokio::test)
* • Using debuggers and logging (tracing, log crates)

# 7. DevOps and Deployment

* • Using Docker for containerization
* • Deploying to cloud servers (DigitalOcean, AWS, Railway)
* • CI/CD pipelines with GitHub Actions or GitLab CI

# 8. Version Control and Collaboration

* • Proficiency with Git and GitHub
* • Code reviews and collaboration workflows
* • Writing clean, maintainable, and documented code

# 9. Performance Optimization

* • Understand memory management in Rust
* • Optimize SQL queries and backend performance
* • Concurrency and parallelism with Tokio

# 10. Soft Skills and Mindset

* • Problem-solving and debugging mindset
* • Attention to detail
* • Continuous learning and adaptability
* • Effective communication and documentation