Blockchain and Cryptocurrency

You need to build a Blockchain and Cryptocurrency from scratch. In your implementation, you should:

- Code the core Blockchain
- Build an API around the Blockchain
- Create a dynamic peer-to-peer server for multiple contributors
- Implement a proof-of-work system to balance users
- Create a transaction system for a Cryptocurrency

In addition to building a working software, you need to write a report that includes the following points:

1. How your code satisfies the clean code principles according to Robert Martin's "Clean Code" book.

2. How your code satisfies the effective Java code principles according to Joshua Bloch's "Effective Java" book.

3. Discuss the design patterns you used to implement your solution and why.

4. How your code satisfies the SOLID principles? You can refer to Robert Martin's "Clean Architecture" book, or any other reference.

5. Concurrency issues in your code and how you dealt with that.

6. Data structures you used and why.