Coding Assignment: File Server and CLI Implementation

Objective:

The goal of this assignment is to assess your ability to design and implement a file server that can be run in a Docker container. Additionally, you will create a command-line interface (CLI) to interact with the file server. This assignment will test your skills in server development, containerization, and CLI tool creation.

Task Description:

1. **File Server Implementation**:
    - Develop a file server that supports the following operations:
        - **Upload File**: Allow users to upload files to the server.
        - **Download File**: Enable users to download files from the server.
        - **List Files**: Provide a list of all files stored on the server.
        - **Delete File**: Allow users to delete files from the server.
    - The server should be able to handle multiple concurrent requests efficiently.
    - Ensure proper error handling and validation for each operation.
2. **Docker Containerization**:
    - Containerize the file server using Docker.
    - Provide a Dockerfile that specifies the environment and dependencies required to run the server.
    - Ensure that the server can be easily started and stopped using Docker commands.
3. **Command-Line Interface (CLI)**:
    - Implement a CLI tool that interacts with the file server.
    - The CLI should support the following commands:
        - `upload <file_path>`: Upload a file to the server.
        - `download <file_name>`: Download a file from the server.
        - `list`: List all files stored on the server.
        - `delete <file_name>`: Delete a file from the server.
    - Ensure that the CLI provides clear and informative feedback to the user for each operation.

Submission Requirements:

- Provide the source code for the file server and CLI tool.
- Include a README file with instructions on how to build and run the Docker container, as well as how to use the CLI tool.
- Ensure your code is well-documented and follows best practices for readability and maintainability.

Evaluation Criteria:

- **Functionality**: The file server and CLI tool should work as specified and handle edge cases gracefully.
- **Code Quality**: Code should be clean, well-organized, and follow best practices.
- **Documentation**: Clear instructions and documentation should be provided.
- **Efficiency**: The server should handle multiple concurrent requests efficiently.
- **Creativity**: Any additional features or improvements will be considered a plus.