

Week 1 Checklist: TCP Echo Server

Goal

Build a single-client TCP echo server in C. Set up the project repository, implement the basic server logic, test with `telnet`, and document progress in the README.

1. Repository Setup

- Create root folder: `secure-multiplayer-game-server/`
- Add subfolder: `server/`
- Create files: `server.c`, `Makefile`
- Initialize Git: `git init`
- Add `.gitignore`
- Create `README.md`
- Commit initial structure

2. Server Development

- Include headers: `stdio.h`, `stdlib.h`, `string.h`, `unistd.h`, `arpa/inet.h`, `sys/socket.h`
- Create socket using `socket()`
- Bind to IP and port using `bind()`
- Listen for connections with `listen()`
- Accept one client using `accept()`
- Receive data using `recv()`
- Echo data using `send()`
- Close sockets with `close()`
- Handle errors with `perror()`

3. Testing

- Compile: `gcc -o server server.c`
- Run server: `./server`
- In a second terminal, test with:

```
telnet 127.0.0.1 8080
```
- Confirm input is echoed
- Test disconnect handling
- Try empty input and large strings

4. Documentation

- Update `README.md` with:
 - Project overview
 - Week 1 features
 - How to build
 - How to test
 - Limitations and next steps
 - Link to project plan PDF (optional)
- Stage and commit changes

5. Done

- Push to GitHub or save a backup
- Mark Week 1 complete
- Save screenshots or logs for demo