

1st Mini-Project: Chat Client & Server

Programming with Sockets

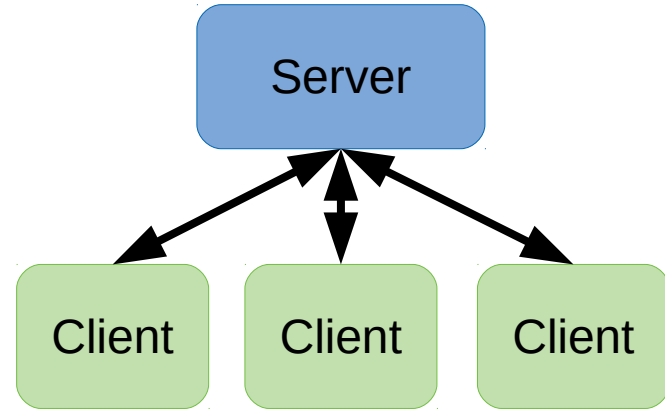
Overview

Learn how to program with
Sockets in C

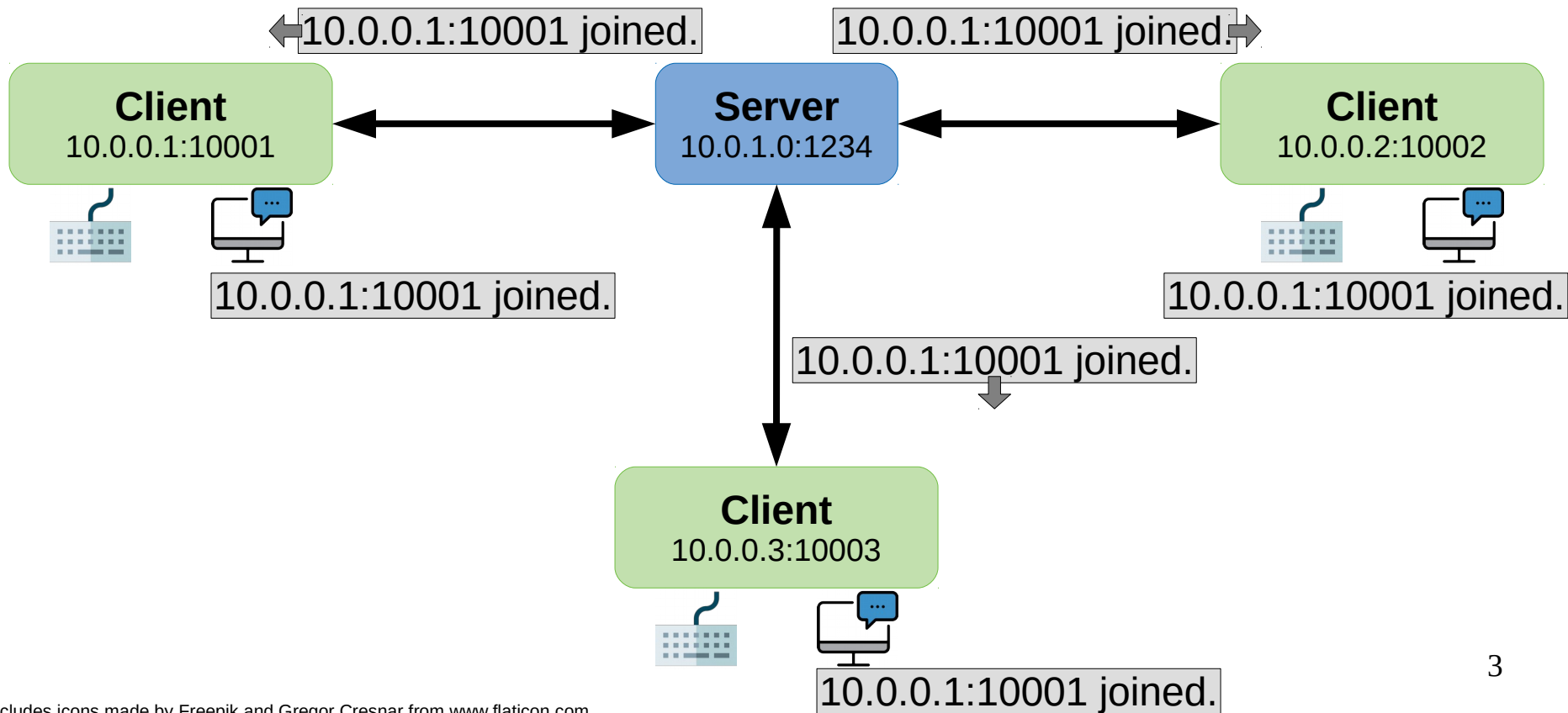
- Single threaded

Create chatroom service

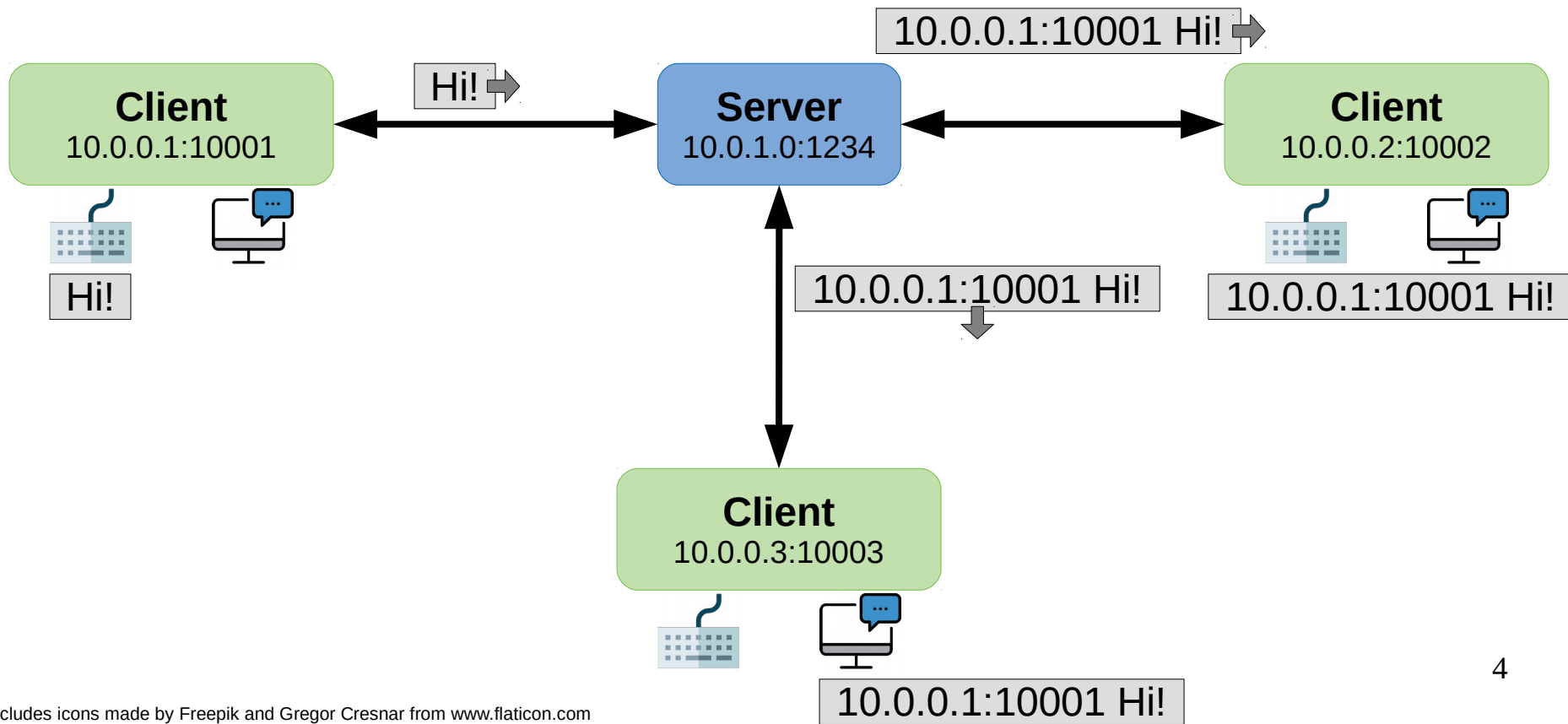
- **Client:**
Interacts with users
- **Server:**
Communication hub



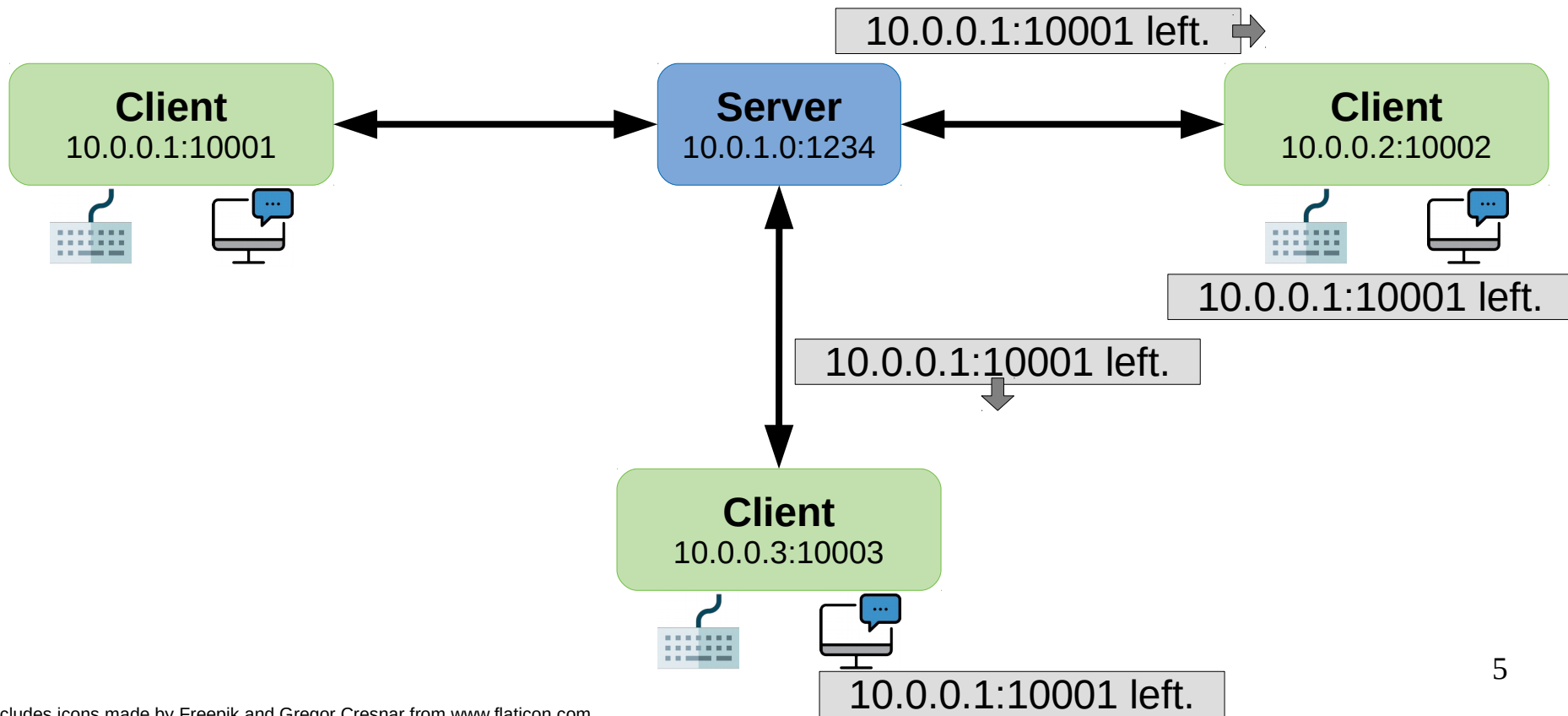
Overview



Overview



Overview



Chat Service in Action

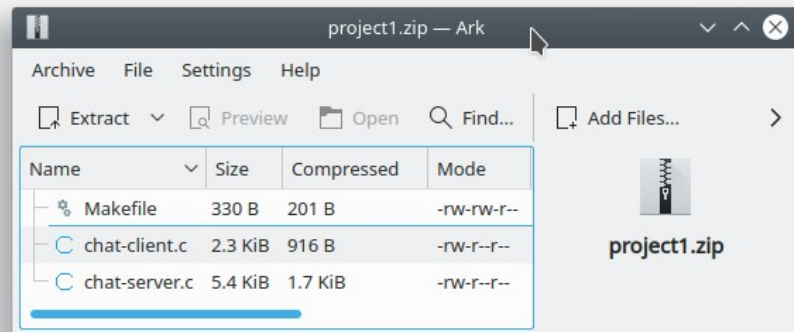
```
project-chat-service: bash — Konsole <3>
File Edit View Bookmarks Settings Help
david@Kubuntu:~/project-chat-service$ ./chat-server 1234
Listening on port: 1234
127.0.0.1:47374 joined.
127.0.0.1:47376 joined.
127.0.0.1:47374 Hi!
127.0.0.1:47376 Hello!
127.0.0.1:47376 left.
127.0.0.1:47374 left.
^C
david@Kubuntu:~/project-chat-service$
```

```
project-chat-service: bash — Konsole <2>
File Edit View Bookmarks Settings Help
david@Kubuntu:~/project-chat-service$ ./chat-client localhost 1234
127.0.0.1:47374 joined.
127.0.0.1:47376 joined.
Hi!
127.0.0.1:47376 Hello!
127.0.0.1:47376 left.
david@Kubuntu:~/project-chat-service$
```

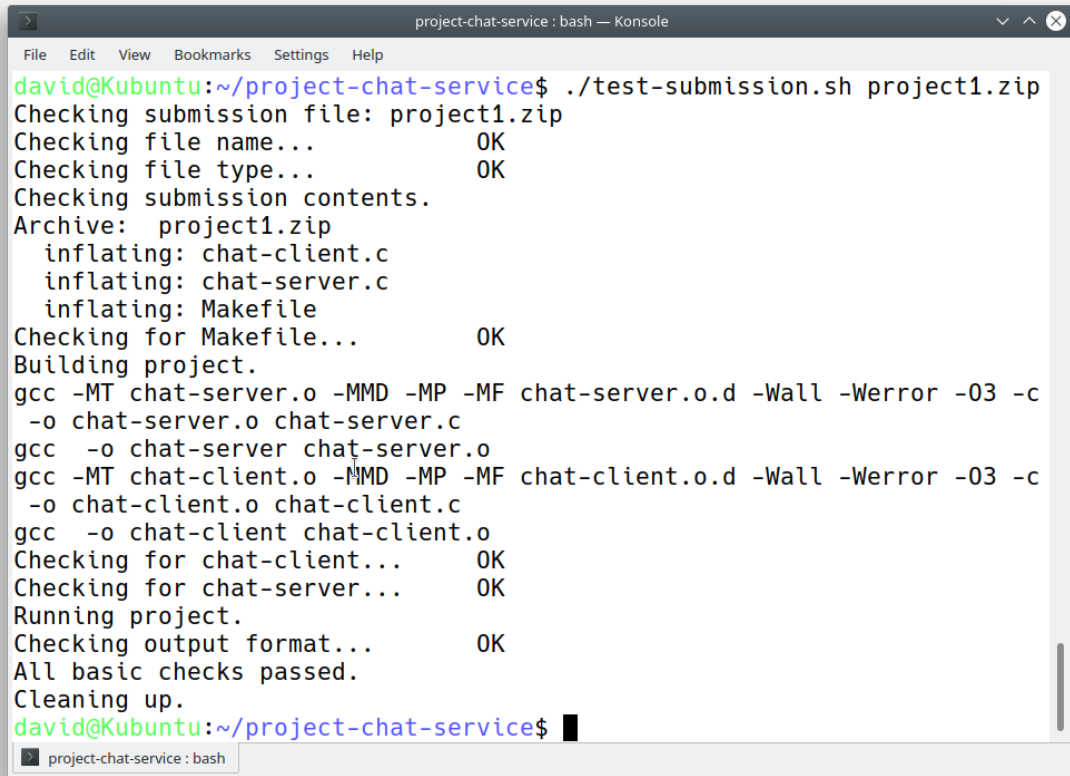
```
project-chat-service: bash — Konsole
File Edit View Bookmarks Settings Help
david@Kubuntu:~/project-chat-service$ ./chat-client localhost 1234
127.0.0.1:47376 joined.
127.0.0.1:47374 Hi!
Hello!
david@Kubuntu:~/project-chat-service$
```

Submission

- Submit project1.zip to Fénix
 - Code
 - Makefile in base folder
 - No build artifacts
- Must build with **make**
 - Generate chat-client & chat-server



Pre-Submission Checks

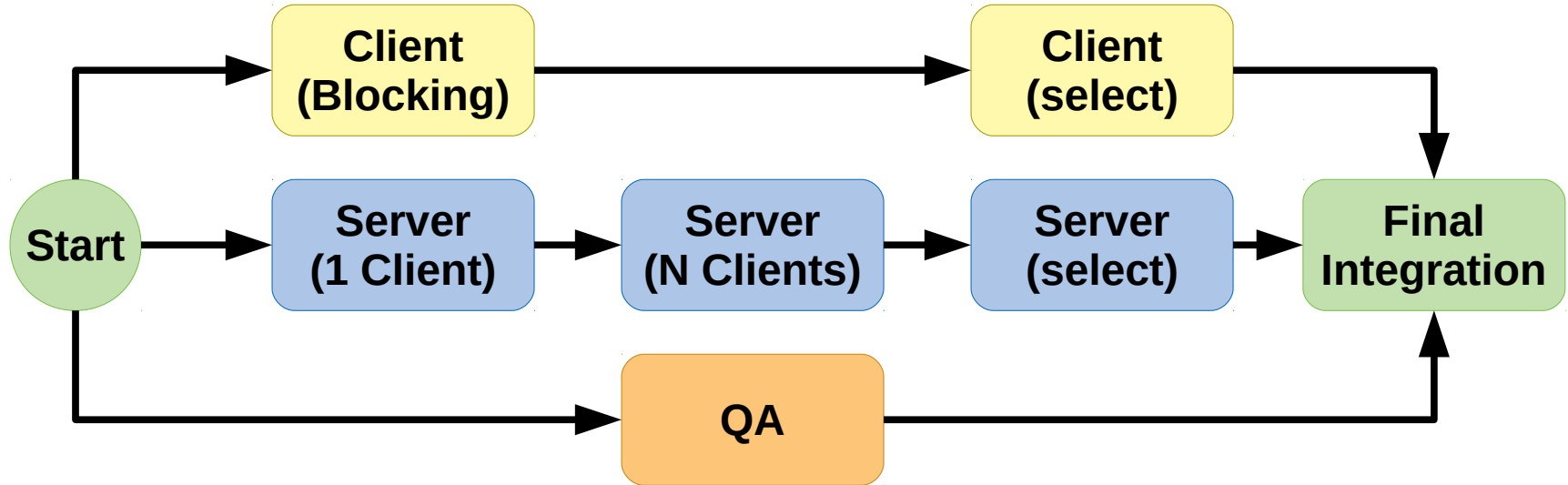
A terminal window titled "project-chat-service : bash — Konsole" showing the execution of a script. The script performs various checks on "project1.zip", including file name, type, and contents. It then builds the project using gcc, creating chat-server.o and chat-client.o, and finally checks the output format. All checks pass, and the script cleans up.

```
project-chat-service : bash — Konsole
File Edit View Bookmarks Settings Help
david@Kubuntu:~/project-chat-service$ ./test-submission.sh project1.zip
Checking submission file: project1.zip
Checking file name... OK
Checking file type... OK
Checking submission contents.
Archive: project1.zip
  inflating: chat-client.c
  inflating: chat-server.c
  inflating: Makefile
Checking for Makefile... OK
Building project.
gcc -MT chat-server.o -MMD -MP -MF chat-server.o.d -Wall -Werror -O3 -c
  -o chat-server.o chat-server.c
gcc -o chat-server chat-server.o
gcc -MT chat-client.o -MMD -MP -MF chat-client.o.d -Wall -Werror -O3 -c
  -o chat-client.o chat-client.c
gcc -o chat-client chat-client.o
Checking for chat-client... OK
Checking for chat-server... OK
Running project.
Checking output format... OK
All basic checks passed.
Cleaning up.
david@Kubuntu:~/project-chat-service$
```

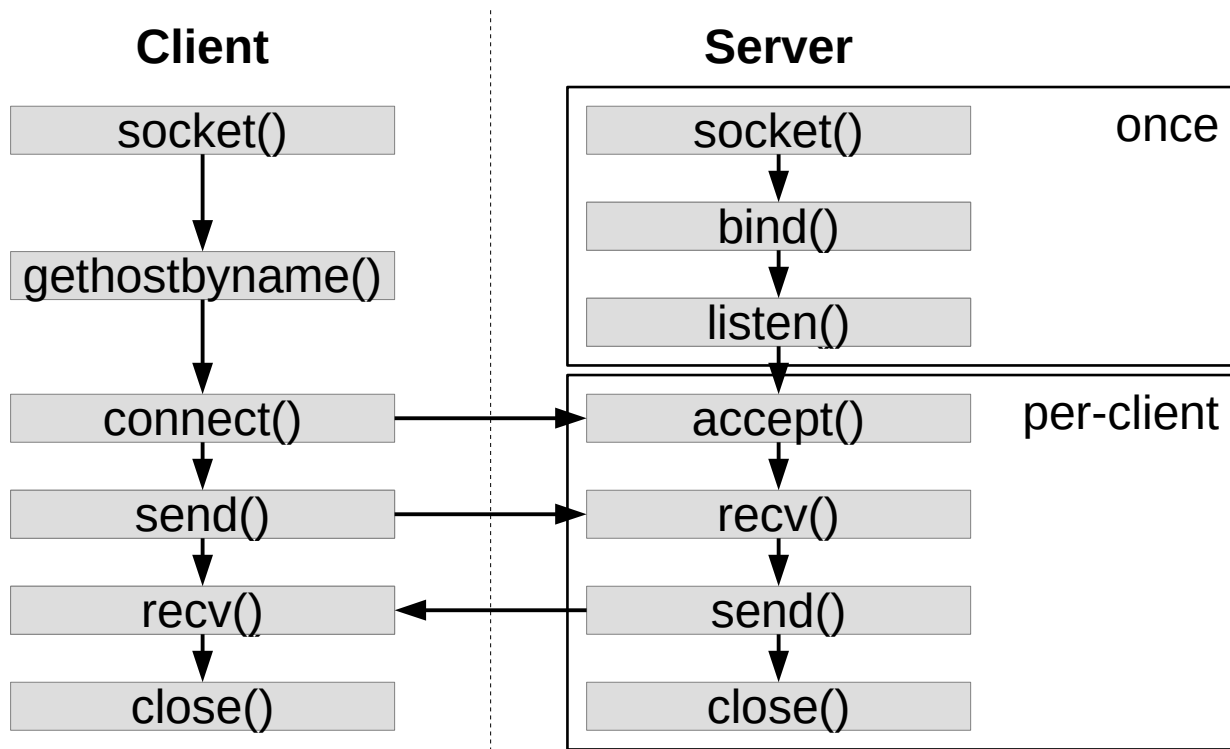

Advice: Debugging

- Standard error will be ignored during grading
 - `fprintf(stderr, ...)`
- Telnet client can be used to debug chat-server
 - `telnet <host> <port>`
- Netcat server can be used to debug client
 - `nc -l <port>`
- Testing
 - Look into **test-submission.sh** for ideas.

Advice: Task Breakdown



Sockets 101



Sockets 101

