

DCN Lab - How to compile & run C programs (selected experiments)

These are the C socket / networking experiments you specifically asked to practice.

Folder structure

```
c_programs/          # All C socket / networking programs
```

How to compile & run the C programs (Linux / WSL)

```
gcc <filename>.c -o <binary>
./<binary>
```

For client-server pairs, **start the server in one terminal, then the client in another.**

#	Topic	Files	How to run
5	TCP message exchange	05_tcp_client_server_msg_server.c / _client.c	server then client
6	UDP client-server	06_udp_server.c / 06_udp_client.c	server then client
7	DNS lookup	07_dns_lookup.c	./dnslookup www.google.com
8	IPv4 validation	08_ipv4_validate.c	./ipv4check then type IP
9	TCP chat application	09_tcp_chat_server.c / _client.c	server then client
10	HTTP client	10_http_client.c	./httpclient www.example.com /
11	TCP file transfer	11_tcp_file_transfer_server.c / _client.c	server then ./fileclient sample.txt
12/14	TCP reverse string	12_tcp_reverse_string_server.c / _client.c	server then client
13/15	TCP command execution	13_tcp_cmd_exec_server.c / _client.c	server then client; type ls, date, pwd
16	UDP time	16_udp_time_server.c / _client.c	server then client
17	TCP forking multi-client	17_tcp_fork_multiclient_server.c / 17_tcp_fork_client.c	server, then multiple clients
18	Hamming distance	18_hamming_distance.c	./hamming
19	TCP string length	19_tcp_string_length_s	server then client

#	Topic	Files	How to run
		erver.c / _client.c	
20	Checksum / parity check	20_checksum_parity.c	./checksum
21a	IPC: message queue	21a_msg_queue_sender.c / _receiver.c	sender then receiver
21b	IPC: shared memory	21b_shared_mem_writer.c / _reader.c	writer then reader

Notes on practicing in VS Code

- Install the C/C++ extension by Microsoft for the C programs.
- Use WSL or a Linux environment to compile and run the programs.
- Open the terminal in VS Code (Ctrl+) and use the gcc` commands above.