

## (1). "2.1 Fetch a Web page"□□□□□□

```
slxie@Xie:~/minnow$ telnet cs144.keithw.org 80
Trying 104.196.238.229...
Connected to cs144.keithw.org.
Escape character is '^]'.
GET /hello HTTP/1.1
Host: cs144.keithw.org

HTTP/1.1 200 OK
Date: Fri, 31 Oct 2025 10:26:58 GMT
Server: Apache
Last-Modified: Thu, 13 Dec 2018 15:45:29 GMT
ETag: "e-57ce93446cb64"
Accept-Ranges: bytes
Content-Length: 14
Content-Type: text/plain

Hello, CS144!
Connection: close
HTTP/1.1 400 Bad Request
Date: Fri, 31 Oct 2025 10:27:17 GMT
Server: Apache
Content-Length: 226
Connection: close
Content-Type: text/html; charset=iso-8859-1

<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html><head>
<title>400 Bad Request</title>
</head><body>
<h1>Bad Request</h1>
<p>Your browser sent a request that this server could not understand.<br />
</p>
</body></html>
Connection closed by foreign host.
slxie@Xie:~/minnow$
```

```
slxie@Xie:~/minnow$ telnet cs144.keithw.org 80
Trying 104.196.238.229...
Connected to cs144.keithw.org.
Escape character is '^]'.
GET /lab0/23302010021 HTTP/1.1
Host: cs144.keithw.org

HTTP/1.1 200 OK
Date: Fri, 31 Oct 2025 11:17:52 GMT
Server: Apache
X-You-Said-Your-SunetID-Was: 23302010021
X-Your-Code-Is: 578786
Content-length: 115
Vary: Accept-Encoding
Content-Type: text/plain

Hello! You told us that your SUNet ID was "23302010021". Please see the HTTP headers (above)
for your secret code.
Connection closed by foreign host.
slxie@Xie:~/minnow$
```

```
slxie@Xie:~/minnow$ netcat -v -l -p 9090
Listening on 0.0.0.0 9090
Connection received on localhost 45224
hello world from netcat
hello world too
^C
slxie@Xie:~/minnow$
```

```
slxie@Xie:~/minnow$ telnet localhost 9090
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^]'.
hello world from netcat
hello world too
Connection closed by foreign host.
slxie@Xie:~/minnow$
```

(2). "3.4 Writing wget"□□□□□□□□

```
slxie@Xie:~/minnow$ cmake --build build --target check_webget
Test project /home/slxie/minnow/build
  Start 1: compile with bug-checkers
1/2 Test #1: compile with bug-checkers ..... Passed    0.15 sec
  Start 2: t_webget
2/2 Test #2: t_webget ..... Passed    1.06 sec

100% tests passed, 0 tests failed out of 2

Total Test time (real) =  1.21 sec
Built target check_webget
```

(3). "4 An in-memory reliable byte stream"□□□□□□□□

```
slxie@Xie:~/minnow$ cmake --build build --target check0
Test project /home/slxie/minnow/build
  Start 1: compile with bug-checkers
1/10 Test #1: compile with bug-checkers ..... Passed    0.16 sec
  Start 2: t_webget
2/10 Test #2: t_webget ..... Passed    1.05 sec
  Start 3: byte_stream_basics
3/10 Test #3: byte_stream_basics ..... Passed    0.01 sec
  Start 4: byte_stream_capacity
4/10 Test #4: byte_stream_capacity ..... Passed    0.01 sec
  Start 5: byte_stream_one_write
5/10 Test #5: byte_stream_one_write ..... Passed    0.01 sec
  Start 6: byte_stream_two_writes
6/10 Test #6: byte_stream_two_writes ..... Passed    0.01 sec
  Start 7: byte_stream_many_writes
7/10 Test #7: byte_stream_many_writes ..... Passed    0.04 sec
  Start 8: byte_stream_stress_test
8/10 Test #8: byte_stream_stress_test ..... Passed    0.02 sec
  Start 37: compile with optimization
9/10 Test #37: compile with optimization ..... Passed    0.07 sec
  Start 38: byte_stream_speed_test
        ByteStream throughput: 18.07 Gbit/s
10/10 Test #38: byte_stream_speed_test ..... Passed    0.07 sec

100% tests passed, 0 tests failed out of 10

Total Test time (real) = 1.45 sec
Built target check0
```