

PA1 B06901061 王廷峻

Socket Programming - TCP

Usage

```
1 cd B06901061/src/p1
2 python3 socket_server.py
3
4 # other terminals (allow to serve multiple clients)
5 python3 socket_client.py
6
7 # In client program
8 1. valid expression: <number> [+ - * / ^ %] + <number>
9 2. Invalid operands: <otherType> [+ - * / ^ %] + <otherType>
10 3. Invalid expression: other cases
11 4. Enter exit() or \n to terminate the program
```

Bonus

```
1 # Modulo Operation | Usage: <dividend> % <divisor>
2 # Power | Usage: <base> ^ <exponent>
```

Result of the calculator



```
~/Library/Mobile Documents/com-apple-CloudDocs/國立台灣大學NTU/108-2-電腦網路導論/hw/pa1/B06901061
$ cd src/p1
$ python3 socket_server.py
TCP server socket successfully created!
TCP socket binds to 127.0.0.1:12345
Start to listen to clients
Got the connection from ('127.0.0.1', 56636)
[] ['1']
[] ['2']
['%'] ['4', '9']
['%'] ['2138', '17']
[] ['x1b[C']
Client disconnected from ('127.0.0.1', 56636)
Got the connection from ('127.0.0.1', 56927)
['+'] ['11', '7']
['-'] ['11', '7']
['*'] ['11', '7']
['/'] ['11', '7']
['%'] ['11', '7']
['^'] ['11', '7']
Client disconnected from ('127.0.0.1', 56927)

~/Library/Mobile Documents/com-apple-CloudDocs/國立台灣大學NTU/108-2-電腦網路導論/hw/pa1/B06901061/src/p1
$ python socket_client.py
Successfully create a TCP client socket
Connect to server ('127.0.0.1', 12345)
Welcom to the calculator server. Input your problem ?
If you want to terminate the process, please enter exit()
11 + 7
Receive server message:
The answer is 18
11 - 7
Receive server message:
The answer is 4
11 * 7
Receive server message:
The answer is 77
11 / 7
Receive server message:
The answer is 1.5714285714285714
11 % 7
Receive server message:
The answer is 4
11 ^ 7
Receive server message:
The answer is 19487171
Thanks for using the calculator
```

Web server

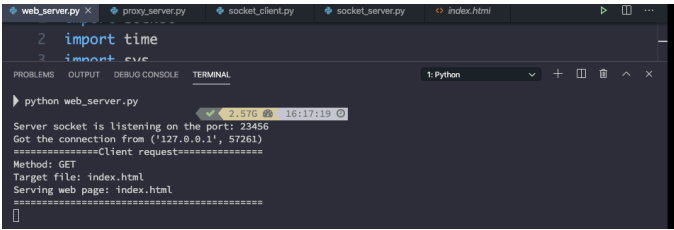

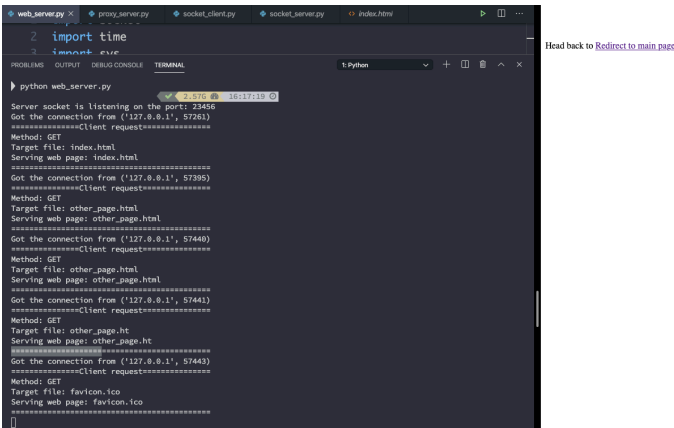
Usage

```

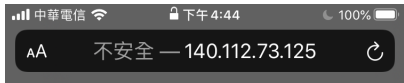
1 | cd B06901061/src/p2_a
2 | python3 web_server.py
3 |
4 | # Browsers (allow to server multiple clients)
5 | localhost:8081

```

Result

Request <code>index.html</code>	Http Request
 <pre> python web_server.py Server socket is listening on the port: 23456 Got the connection from ('127.0.0.1', 57261) =====Client request===== Method: GET Target file: index.html Serving web page: index.html ===== </pre>	GET / HTTP/1.1 Host: 127.0.0.1:23456
Request <code>other_page.html</code>	Http Request
 <pre> python web_server.py Server socket is listening on the port: 23456 Got the connection from ('127.0.0.1', 57261) =====Client request===== Method: GET Target file: index.html Serving web page: index.html ===== Got the connection from ('127.0.0.1', 57395) =====Client request===== Method: GET Target file: other_page.html Serving web page: other_page.html ===== </pre>	GET /other_page.html? HTTP/1.1 Host: 127.0.0.1:23456
404 Not found	Http Request
 <pre> python web_server.py Server socket is listening on the port: 23456 Got the connection from ('127.0.0.1', 57261) =====Client request===== Method: GET Target file: index.html Serving web page: index.html ===== Got the connection from ('127.0.0.1', 57395) =====Client request===== Method: GET Target file: other_page.html Serving web page: other_page.html ===== Got the connection from ('127.0.0.1', 57440) =====Client request===== Method: GET Target file: other_page.html Serving web page: other_page.html ===== Got the connection from ('127.0.0.1', 57441) =====Client request===== Method: GET Target file: other_page.html Serving web page: other_page.html ===== Got the connection from ('127.0.0.1', 57443) =====Client request===== Method: GET Target file: favicon.ico Serving web page: favicon.ico ===== </pre> <p>Error 404: File not found</p> <p>Head back to Redirect to main page.</p>	GET /123? HTTP/1.1 Host: 127.0.0.1:23456

Request from cellphone



Mike B06901061@NTUEEPage 1 [Go to page 2](#)

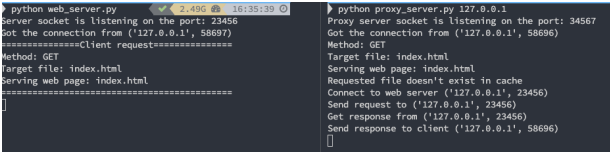
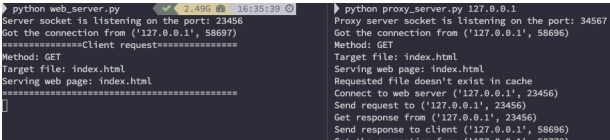


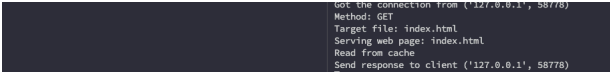
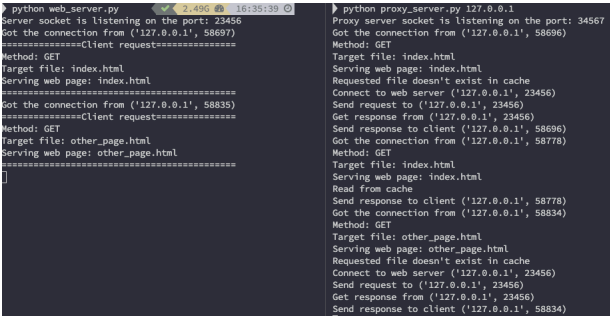
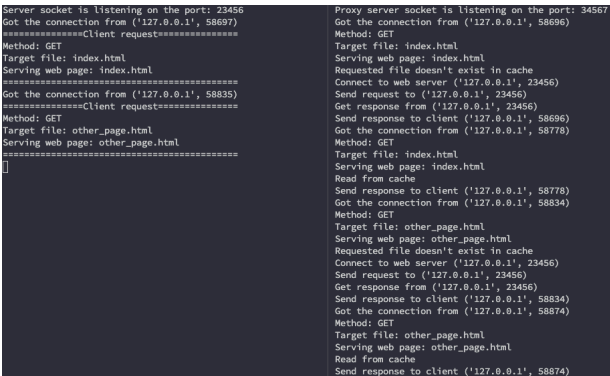
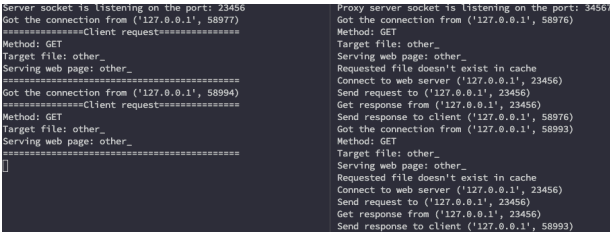
Proxy server

Usage

```
1 # Serve as the endpoint device (default host and port: (localhost, 8081))
2 cd B06901061/src/p2_a
3 python3 web_server.py
4
5 cd B06901061/src/p2_b
6 python3 proxy_server.py <proxyHost>
7
8 # Browsers (allow to server multiple clients) send request to proxy server
9 <proxyHost>:34566
```

Result

Request index.html (web server / proxy server)	Result	File Existed
	Mike B06901061@NTUEEPage 1 Go to page 2	X
Request index.html	Result	File Existed
	Mike B06901061@NTUEEPage 1 Go to page 2	O

			
Request	other_page.html	Result	File Existed
		Mike B06901061@NTUEEPage 2Go to page 1	X
Request	other_page.html	Result	File Existed
		Mike B06901061@NTUEEPage 2Go to page 1	O
404 Not found		Result	File Existed
		Error 404: File not found Head back to Redirect to main page.	X
html of a not found page won't be stored in cache			