

# Prerequisites

- 1. Use python3.x

## How to run server

```
python socket_server.py
```

Server will be hosted on 127.0.0.1::5000

## How to connect to server

```
python client_server.py
```

## Funcion supported by server

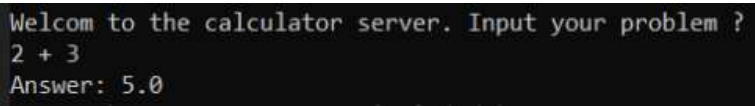
Definition:

```
NONZERO = ([1-9][0-9]*) | (0.[0-9]*[1-9]) | ([1-9][0-9]*.[0-9]+)
NUM = NONZERO | 0
INT = ([1-9]+[0-9]*) | 0
```

Operator name	Operator	Format	Example	Result
Plus	+	NUM + NUM	2 + 3	5
Minus	-	NUM - NUM	1 - 1	0
Multiply	*	NUM * NUM	1 * 2	2
Divide	/	NUM / NONZERO	1 / 2	0.5
Power	**	INT ** INT	2 ** 3	8
Mod	%	INT % INT	12 % 10	2
AND	&	[01] & [01]	1 & 1	1
OR		[01]   [01]	0   1	1
Factorial	!	INT !	4 !	24

## Screenshot

### Plus:



### Minus:

```
Welcom to the calculator server. Input your problem ?  
1 - 1  
Answer: 0.0
```

## › Multiply:

```
Welcom to the calculator server. Input your problem ?  
1 * 2  
Answer: 2.0
```

## › Divide:

```
Welcom to the calculator server. Input your problem ?  
1 / 2  
Answer: 0.5
```

## › Power:

```
Welcom to the calculator server. Input your problem ?  
2 ** 3  
Answer: 8
```

## › Mod:

```
Welcom to the calculator server. Input your problem ?  
12 % 10  
Answer: 2
```

## › AND:

```
Welcom to the calculator server. Input your problem ?  
1 & 1  
Answer: 1
```

## › OR:

```
Welcom to the calculator server. Input your problem ?  
0 | 1  
Answer: 1
```

## › Factorial:

```
Welcom to the calculator server. Input your problem ?  
4 !  
Answer: 24
```

# Webserver Usage

---

```
python web_server.py
```

Web server will be hosted on 127.0.0.1::8888

## Page Url

---

index.html: [127.0.0.1:8888/index.html](http://127.0.0.1:8888/index.html)



other.html: [127.0.0.1:8888/other.html](http://127.0.0.1:8888/other.html)



404.html: [127.0.0.1:8888/lala.html](http://127.0.0.1:8888/lala.html)



# Proxy Usage

```
python proxy_server.py
```

The proxy will be hosted at port 8080 and connected to web server.

## Proxy url:

index.html: [127.0.0.1:8080/index.html](http://127.0.0.1:8080/index.html)

other.html: [127.0.0.1:8080/other.html](http://127.0.0.1:8080/other.html)

404.html: [127.0.0.1:8080/lala.html](http://127.0.0.1:8080/lala.html)

## Screenshots

## No cache

Browser:



Proxy log:

```
Proxy ready to serve...
Received a connection from: ('127.0.0.1', 45646)
Proxy ready to serve...
----- client_request -----
{'method': 'GET', 'url': '/index.html', 'version': 'HTTP/1.1'} {'Host': '127.0.0.1:8080', 'User-Agent': 'Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:75.0) Gecko/20100101 Firefox/75.0', 'Accept': 'text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8', 'Accept-Language': 'en-US,en;q=0.5', 'Accept-Encoding': 'gzip, deflate', 'Connection': 'keep-alive', 'Upgrade-Insecure-Requests': '1'}
-----
index.html
----- Web Server Response -----
{'version': 'HTTP/1.0', 'code': 200, 'phrase': 'OK'} {'Content-Type': 'text/html', 'Content-Length': '160', 'Connection': 'close'} <!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

<a href="other.html" target="_self">go to other.html</a>

</body>
</html>
```

# Cached

---

## Proxy log:

```
-----
Received a connection from: ('127.0.0.1', 45650)
Proxy ready to serve...
----- client_request -----
{'method': 'GET', 'url': '/index.html', 'version': 'HTTP/1.1'} {'Host': '127.0.0.1:8080', 'User-Agent': 'Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:75.0) Gecko/20100101 Firefox/75.0', 'Accept': 'text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,*/*;q=0.8', 'Accept-Language': 'en-US,en;q=0.5', 'Accept-Encoding': 'gzip, deflate', 'Connection': 'keep-alive', 'Upgrade-Insecure-Requests': '1'}
-----
index.html
Read from cache
```