Bonus-RPC

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i.   What is RPC?

A: RPC 是將本地 server 裡的 function，利用 tcp/udp/http 等通訊方法，讓另一個在不同主機程式透過網路呼叫這個 function.

ii.   How to run your code?

A:首先打開兩個 terminal，一個作為 server，一個作為 client。

在 terminal(server)輸入 "docker pull killua000/bonus_rpc_x86"

```
[(base) jerrys_macbook_pro@jerrys-MacBook-Pro Desktop % docker pull killua000/bon]
us_rpc_x86
Using default tag: latest
latest: Pulling from killua000/bonus_rpc_x86
32de3c850997: Already exists
fa1d4c8d85a4: Already exists
c796299bbbdd: Already exists
81283a9569ad: Already exists
60b38700e7fb: Already exists
0f67f32c26d3: Already exists
4571fc720a51: Already exists
f938eb1c6191: Already exists
61498f7c3a63: Already exists
6cfb2b3a77f5: Already exists
10c487eae3c1: Already exists
Digest: sha256:a267fd4f838aa7c06b9e8f4f9ca8397777e10204ac2835b0ddb2aa5b68f7dafc
Status: Downloaded newer image for killua000/bonus_rpc_x86:latest
docker.io/killua000/bonus_rpc_x86:latest
```

再輸入 "docker run -it killua000/bonus_rpc_x86 /bin/bash"

```
[(base) jerrys_macbook_pro@jerrys-MacBook-Pro Desktop % docker run -it killua000/]
bonus_rpc_x86 /bin/bash
root@f7d0fe107cd6:/app#
```

接著記下 container-id (ex:f7d0fe107cd6)

在 terminal(client)輸入 "docker exec -it <container-id> /bin/bash"

(Ex: docker exec -it f7d0fe107cd6 /bin/bash)

```
[(base) jerrys_macbook_pro@jerrys-MacBook-Pro ~ % docker exec -it f7d0fe107cd6 /b]
in/bash
root@f7d0fe107cd6:/app#
```

在 terminal(server) 輸入 "python3 server.py"

在 terminal(client) 輸入 "python3 client.py"

```
[root@f7d0fe107cd6:/app# python3 client.py
Enter your first number:
```

```
bonus_rpc_x86 /bin/bash
[root@f7d0fe107cd6:/app# python3 server.py
server is online...
```

便可以在 client 做加法運算了

```
[root@f7d0fe107cd6:/app# python3 client.py
Enter your first number:7
Enter your second number:8
 15
root@f7d0fe107cd6:/app#
```

iii. Explain your client code and server code. How do they work?

A:下面是我的 server 的 code

```python
1    from xmlrpc.server import SimpleXMLRPCServer
2    def fun_add(a,b):
3        totle = a + b
4        return totle
5    if __name__ == '__main__':
6        s = SimpleXMLRPCServer(('localhost', 8080))
7        s.register_function(fun_add)
8        print ("server is online...")
9        s.serve_forever()
```

Server 端，我設定好加法 function 以及這個 function 被呼叫的方式
(fun_add)便讓它睡覺直到有人呼叫他。

下面是我 client 的 code

```python
1    from xmlrpc.client import ServerProxy
2    s = ServerProxy("http://localhost:8080")
3    a=input("Enter your first number:")
4    b=input("Enter your second number:")
5    print (s.fun_add(int(a),int(b)))
```

我直接將 client 連到 server 給的 http，根據使用者輸入的數字，使用
server 提供的 function 將他們相加。