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EXPT: 5 DEVELOP A SIMPLE CALCULATOR USING XML-RPC

AIM:

Build a simple XML-RPC server that provides calculator functions and a client that calls them.

ALGORITHM:

SERVER ALGORITHM:

1. Start
2. Import the SimpleXMLRPCServer class from xmlrpc.server.
3. Define the arithmetic functions:
    - add(a, b) → returns a + b
    - sub(a, b) → returns a – b
    - mul(a, b) → returns a × b
    - div(a, b) → returns a ÷ b
    - mod(a, b) → returns a % b
4. Create an XML-RPC server object bound to **localhost** on port **8000**.
5. Display a message: *"Listening on port 8000..."*.
6. Register all arithmetic functions with the server using register_function().
7. Start the server by calling serve_forever() so it waits for client requests.
8. Stop (the server runs indefinitely).

CLIENT ALGORITHM

1. Start
2. Import the xmlrpc.client module.
3. Create a proxy object using
   ServerProxy("http://localhost:8000/")
   to connect to the XML-RPC server.
4. Repeat for a fixed number of iterations (e.g., 5 times):
    1. Accept two integer inputs from the user (a and b).
    2. Call each remote function using the proxy:

- proxy.add(a, b)
- proxy.sub(a, b)
- proxy.mul(a, b)
- proxy.div(a, b)
- proxy.mod(a, b)

3. Display the results received from the server.

5. End loop.
6. Stop

CODE:

SERVER:

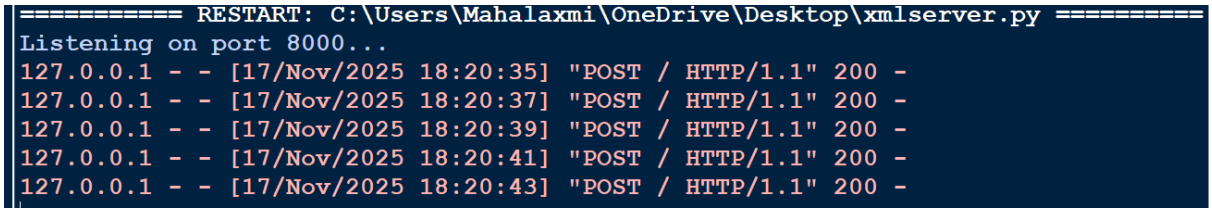
```
from xmlrpc.server import SimpleXMLRPCServer
def add(a,b):
    return a+b
def sub(a,b):
    return a-b
def mul(a,b):
    return a*b
def div(a,b):
    return a/b
def mod(a,b):
    return a%b
server=SimpleXMLRPCServer(("localhost",8000))
print("Listening on port 8000...")
server.register_function(add,"add")
server.register_function(sub,"sub")
server.register_function(mul,"mul")
server.register_function(div,"div")
server.register_function(mod,"mod")
```

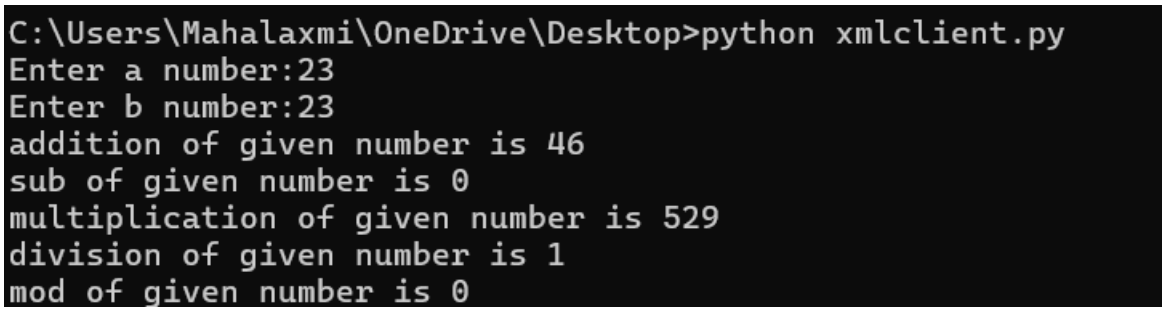
server.serve_forever()

CLIENT:

```
import xmlrpc.client
proxy=xmlrpc.client.ServerProxy("http://localhost:8000/")
for i in range(5):
    a=int(input("Enter a number:"))
    b=int(input("Enter b number:"))
    print("addition of given number is %d "%((proxy.add(a,b))))
    print("sub of given number is %d "%((proxy.sub(a,b))))
    print("multiplication of given number is %d "%((proxy.mul(a,b))))
    print("division of given number is %d "%((proxy.div(a,b))))
    print("mod of given number is %d "%((proxy.mod(a,b))))
```

OUTPUT:





RESULT:

The XML-RPC calculator server successfully provided remote arithmetic functions. The client connected to the server and received correct results for addition, subtraction, multiplication, division, and modulo.