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EXERCISE 5

AIM:

To develop a simple XML-RPC client-server application in Python that performs basic arithmetic operations (addition, subtraction, multiplication, and division) remotely.

ALGORITHM:

SERVER:

1. Import SimpleXMLRPCServer.
2. Define functions: add, subtract, multiply, and divide.
3. Create an XML-RPC server on "localhost" and port 8000.
4. Register the arithmetic functions with the server.
5. Run the server using serve_forever ().

CLIENT:

1. Import `xmlrpc.client` and create a `ServerProxy` to connect to the server.
2. Get two numbers from the user.
3. Ask the user to choose an operation (add, subtract, multiply, divide).
4. Call the corresponding remote function on the server using the proxy.
5. Display the result returned from the server.

CODE:

SERVER:

```
from xmlrpc.server import SimpleXMLRPCServer

def add(x, y):

    return x + y

def subtract(x, y):

    return x - y

def multiply(x, y):
```

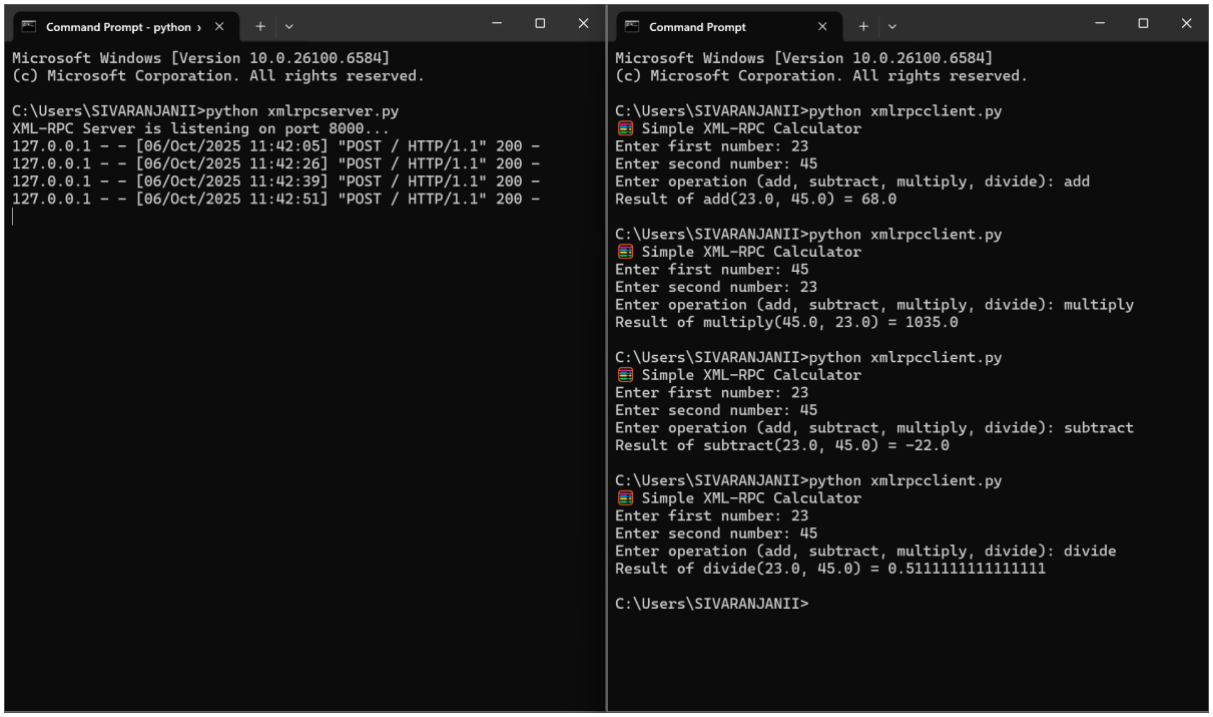
```
    return x * y
def divide(x, y):
    if y == 0:
        return "Error: Division by zero"
    return x / y
server = SimpleXMLRPCServer(("localhost", 8000))
print("XML-RPC Server is listening on port 8000...")
server.register_function(add, "add")
server.register_function(subtract, "subtract")
server.register_function(multiply, "multiply")
server.register_function(divide, "divide")
server.serve_forever()
```

CLIENT:

```
import xmlrpc.client
proxy = xmlrpc.client.ServerProxy("http://localhost:8000/")
def get_number(prompt):
    while True:
        try:
            return float(input(prompt))
        except ValueError:
            print("Please enter a valid number.")
def get_operation():
    operations = {"add", "subtract", "multiply", "divide"}
    while True:
```

```
        op = input("Enter operation (add, subtract, multiply, divide): ").strip().lower()
        if op in operations:
            return op
        print("Invalid operation. Try again.")
def main():
    print("Simple XML-RPC Calculator")
    x = get_number("Enter first number: ")
    y = get_number("Enter second number: ")
    op = get_operation()
    try:
        result = getattr(proxy, op)(x, y)
        print(f"Result of {op}({x}, {y}) = {result}")
    except Exception as e:
        print("Error:", e)
if __name__ == "__main__":
    main()
```

OUTPUT:



RESULT:

The program successfully implements an XML-RPC-based calculator, where the server provides arithmetic operations and the client performs remote function calls to compute results.