Ex. No:11C **Date:22/10/2024**

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REMOTE PROCEDURE CALL FOR LIST OPERATIONS- XMLRPC

Aim:

To Implement an XML RPC code for the following functions, a. No of items in a list

Algorithm:

Server side:

1. Import `SimpleXMLRPCServer`.

2. Define list functions (`length`, `maximum`, `minimum`, `to_set`, ` concatenate`).

3. Create server on `localhost` with port `8000`.

4. Print "Listening on port 8000...".

5. Register functions with the server.

6. Start the server with `serve_forever()`.

7. Server listens and responds to client requests.

Client side:

1. Import `xmlrpc.client` to interact with the XML-RPC server.

2. Create a `ServerProxy` object to connect to the XML-RPC server at `http://localhost:8000/`.

3. Enter a loop to repeatedly prompt the user for input to start or stop operations.

4. If the user chooses to start (option 1), prompt the user to input elements for two separate lists (`a` and `b`), stopping when `-1` or `-2` is entered.

5. If the user chooses to stop (option 2), exit the loop.

6. Once the lists are gathered, print the contents of both lists (`a` and `b`).

7. Call the registered XML-RPC functions (`list_length`, `list_maximum`, `list_minimum`, `list_to_set`, `list_concate`) via the server proxy and print the results.

Program

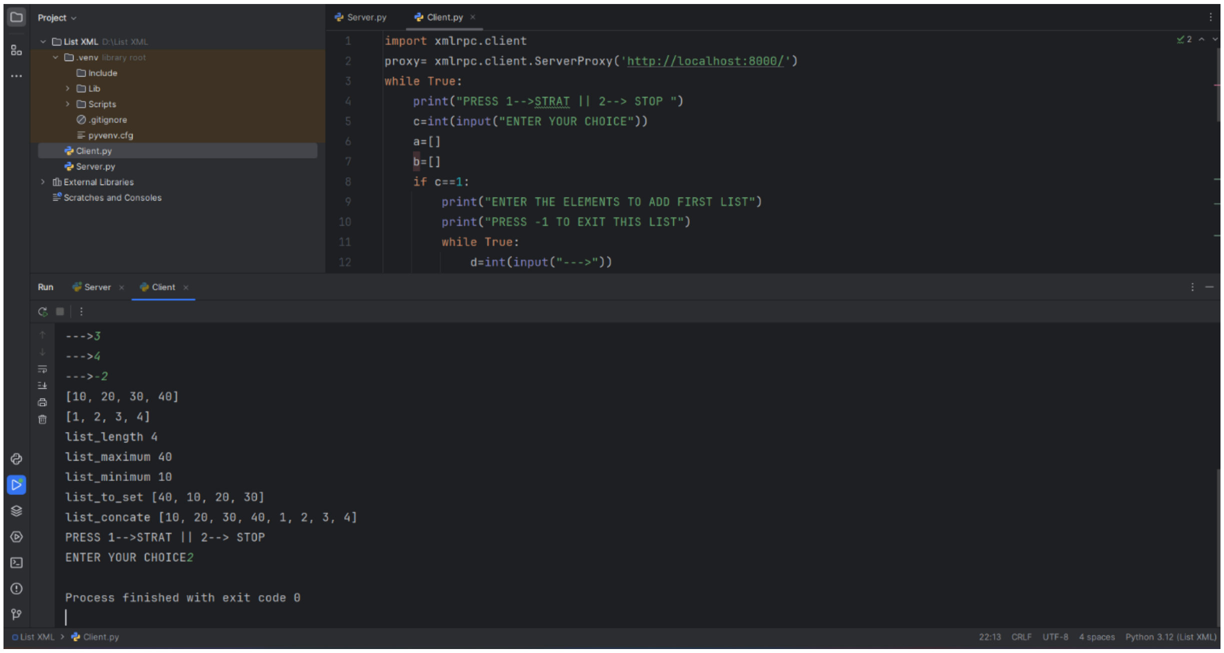
Server Side:

```
from xmlrpc.server import SimpleXMLRPCServer
def list_length(a):
        return len(a)
def list_maximum(a):
        return max(a)
def list_minimum(a):
        return min(a)
def list_to_set(a):
        f=list(set(a))
        return f
def list_concate(a,b):
        return a+b
server = SimpleXMLRPCServer(("localhost", 8000)) print("Listening on port 8000...")
server.register_function(list_length,"list_length")
server.register_function(list_maximum, "list_maximum")
server.register_function(list_minimum, "list_minimum")
server.register_function(list_to_set, "list_to_set")
server.register_function(list_concate, "list_concate")
server.serve_forever()
```

Client Side:

```
import xmlrpc.client
proxy= xmlrpc.client.ServerProxy('http://localhost:8000/')  while True:
 print("PRESS 1-->STRAT || 2--> STOP ")
 c=int(input("ENTER YOUR CHOICE"))
 a=[]
 b=[]
 if c==1:
 print("ENTER THE ELEMENTS TO ADD FIRST LIST")  print("PRESS -1 TO
EXIT THIS LIST")
 while True:
 d=int(input("--->"))
 if d==-1:
 break
 a.append(d)
 print("ENTER THE ELEMENTS TO ADD SECOND LIST")  print("PRESS -2 TO
EXIT THIS LIST")
 while True:
 e=int(input("--->"))
 if e==-2:
 break
 b.append(e)
 if c==2:
 break
print(a)
print(b)
print("list_length",proxy.list_length(a))
print("list_maximum",proxy.list_maximum(a))
print("list_minimum",proxy.list_minimum(a))
print("list_to_set",proxy.list_to_set(a))
print("list_concate",proxy.list_concate(a,b))
```

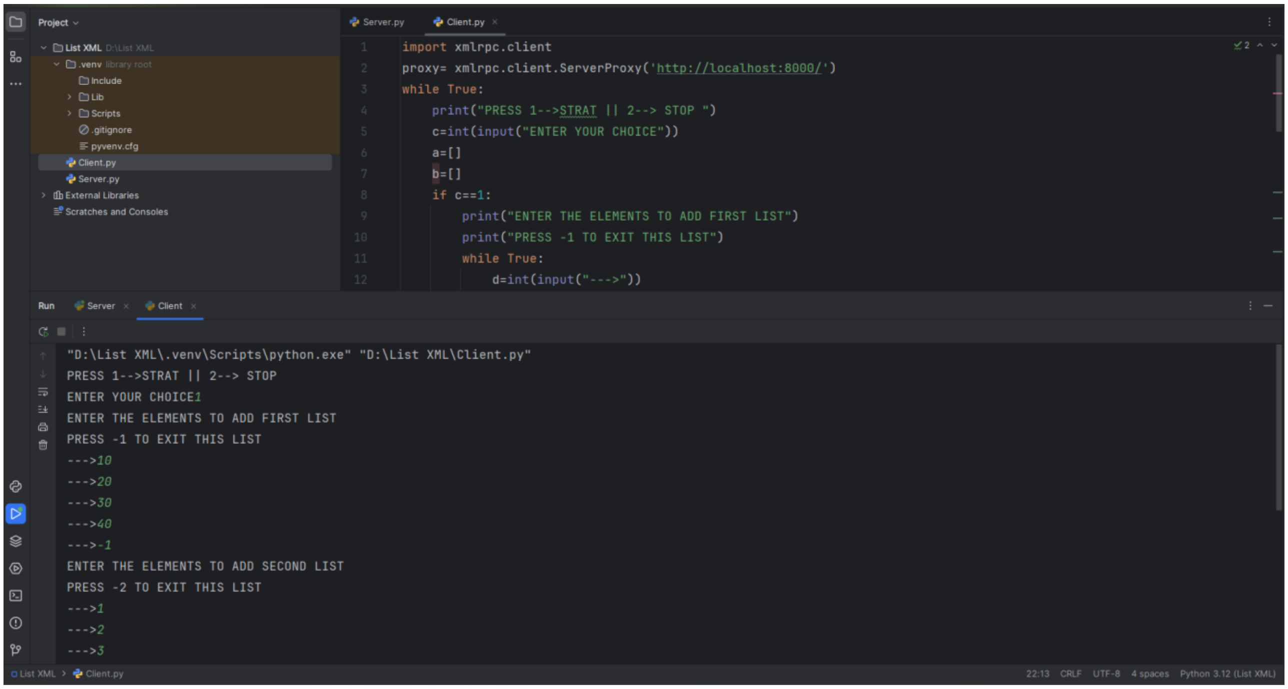
Output:



```
import xmlrpc.client
proxy= xmlrpc.client.ServerProxy('http://localhost:8000/')
while True:
    print("PRESS 1-->STRAT || 2--> STOP ")
    c=int(input("ENTER YOUR CHOICE"))
    a=[]
    b=[]
    if c==1:
        print("ENTER THE ELEMENTS TO ADD FIRST LIST")
        print("PRESS -1 TO EXIT THIS LIST")
        while True:
            d=int(input("--->"))
```

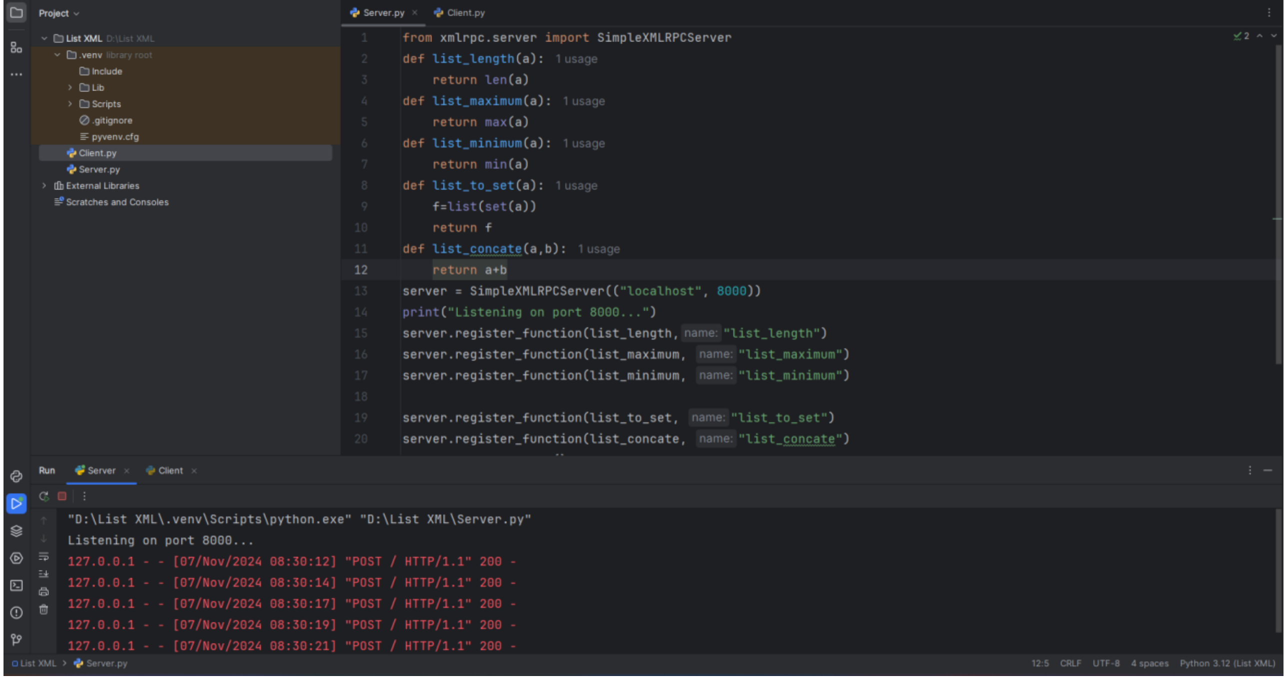
```
--->3
--->4
--->-2
[10, 20, 30, 40]
[1, 2, 3, 4]
list_length 4
list_maximum 40
list_minimum 10
list_to_set [40, 10, 20, 30]
list_concate [10, 20, 30, 40, 1, 2, 3, 4]
PRESS 1-->STRAT || 2--> STOP
ENTER YOUR CHOICE2

Process finished with exit code 0
```



```
import xmlrpc.client
proxy= xmlrpc.client.ServerProxy('http://localhost:8000/')
while True:
    print("PRESS 1-->STRAT || 2--> STOP ")
    c=int(input("ENTER YOUR CHOICE"))
    a=[]
    b=[]
    if c==1:
        print("ENTER THE ELEMENTS TO ADD FIRST LIST")
        print("PRESS -1 TO EXIT THIS LIST")
        while True:
            d=int(input("--->"))
```

```
"D:\List XML\.venv\Scripts\python.exe" "D:\List XML\Client.py"
PRESS 1-->STRAT || 2--> STOP
ENTER YOUR CHOICE1
ENTER THE ELEMENTS TO ADD FIRST LIST
PRESS -1 TO EXIT THIS LIST
--->10
--->20
--->30
--->40
--->-1
ENTER THE ELEMENTS TO ADD SECOND LIST
PRESS -2 TO EXIT THIS LIST
--->1
--->2
--->3
```



```python
from xmlrpc.server import SimpleXMLRPCServer
def list_length(a):
    return len(a)
def list_maximum(a):
    return max(a)
def list_minimum(a):
    return min(a)
def list_to_set(a):
    f=list(set(a))
    return f
def list_concate(a,b):
    return a+b
server = SimpleXMLRPCServer(("localhost", 8000))
print("Listening on port 8000...")
server.register_function(list_length, "list_length")
server.register_function(list_maximum, "list_maximum")
server.register_function(list_minimum, "list_minimum")

server.register_function(list_to_set, "list_to_set")
server.register_function(list_concate, "list_concate")
```

```
"D:\List XML\.venv\Scripts\python.exe" "D:\List XML\Server.py"
Listening on port 8000...
127.0.0.1 - - [07/Nov/2024 08:30:12] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2024 08:30:14] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2024 08:30:17] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2024 08:30:19] "POST / HTTP/1.1" 200 -
127.0.0.1 - - [07/Nov/2024 08:30:21] "POST / HTTP/1.1" 200 -
```

Result:

Thus, the list operations using Remote Procedure Call was executed.