

**EX NO: 11C**

**Date:22.10.24**

## **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
- b. Smallest element in a list
- c. Largest element in the list
- d. Converting a list to a set.

### **Algorithm:**

Here's the algorithm for the XML-RPC server and client operations provided in your code:

---

### **Server-Side Algorithm**

#### **1. Define Server Functions:**

- Define functions to perform the following operations on lists:
  - list\_length: Returns the length of a given list.
  - list\_maximum: Returns the maximum element in a given list.
  - list\_minimum: Returns the minimum element in a given list.
  - list\_to\_set: Converts a list to a set (removing duplicates) and returns it as a list.
  - list\_concat: Concatenates two lists and returns the result.

#### **2. Initialize XML-RPC Server:**

- Initialize the server on localhost with port 8000.

#### **3. Register Functions:**

- Register each function defined above to make them available to clients.

#### **4. Start the Server:**

- Begin listening for client requests using serve\_forever.
- 

### **Client-Side Algorithm**

**1. Initialize XML-RPC Client:**

- Establish a proxy connection to the XML-RPC server on `http://localhost:8000/`.

**2. Display Options:**

- Display options to the user:
  - **Option 1:** Start list operations.
  - **Option 2:** Exit the program.

**3. Input Choice:**

- Accept the user's choice:
  - If the choice is 2, exit the program.
  - If the choice is 1, proceed with list operations.

**4. Create Lists:**

- **Input First List:**
  - Prompt the user to enter elements for the first list.
  - Accept integers from the user and append them to list a.
  - Break out of the input loop when the user enters -1.
- **Input Second List:**
  - Prompt the user to enter elements for the second list.
  - Accept integers from the user and append them to list b. ■
  - Break out of the input loop when the user enters -2.

**5. Display Lists:**

- Print the contents of both lists a and b.

**6. Call Server Functions:**

- Invoke each server function using the proxy:
  - `list_length`: Pass list a and print the length.
  - `list_maximum`: Pass list a and print the maximum value.
  - `list_minimum`: Pass list a and print the minimum value.
  - `list_to_set`: Pass list a, remove duplicates, and print the result.
  - `list_concat`: Pass both lists a and b, concatenate them, and print the result.

**7. Repeat or Exit:**

- Repeat from Step 2 until the user chooses to exit.

**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_le
```

```
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:****Server output:**

Listening on port 8000...

**Client output:**

PRESS 1-->START || 2--> STOP

ENTER THE ELEMENTS TO ADD FIRST LIST

PRESS -1 TO EXIT THIS LIST

5

3

8

5

-1

ENTER THE ELEMENTS TO ADD SECOND LIST

PRESS -2 TO EXIT THIS LIST

7

2

3

-2

First list: [5, 3, 8, 5] Second list:

[7, 2, 3] list\_length: 4

list\_maximum: 8 list\_minimum:

3 list\_to\_set: [3, 5, 8] list\_concate:

[5, 3, 8, 5, 7, 2, 3]

PRESS 1--> START || 2-->

STOP ENTER YOUR CHOICE:

2

**NAME: HARINL.D.S**

**ROLL NO: 231901009**

**RESULT:**

Procedure call for list operations - XMLRPC is remoted.