

EX NO:11.D REMOTE PROCEDURE CALL FOR SORTING AN ARRAY - XMLRPC

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AIM:

To Implement an XML RPC code for sorting array

Algorithm:

Algorithm

Server Program

1. **Import Required Library:** Import the xmlrpc.server library, which provides functionalities for setting up an XML-RPC server.
2. **Define sort_array Function:**
 - Define a function called sort_array that takes a list (arr) as input.
 - Inside this function, return the sorted version of arr.
3. **Set Up Server:**
 - Create an instance of SimpleXMLRPCServer, specifying localhost as the host and 8000 as the port.
 - Print a message indicating the server is running.
4. **Register Function:**
 - Register the sort_array function with the XML-RPC server under the name "sort_array". This makes it available for remote calls.
5. **Run the Server:**
 - Call server.serve_forever() to start the server and keep it running indefinitely, waiting for client requests.

Client Program

1. **Import Required Library:** Import the xmlrpc.client library to enable communication with the XML-RPC server.
2. **Connect to Server:**
 - Create a ServerProxy object to connect to the server running on http://localhost:8000.
3. **Prepare Input Array:**
 - Define an array arr with some integer values that will be sent to the server for sorting.
4. **Call sort_array Method:**
 - Use the server.sort_array() function to send arr to the server for sorting.
 - Store the result (sorted array) in a variable sorted_arr.

5. Display Results:

- Print the original arr and the sorted_arr to verify the sorting operation was successful.

Program:

SERVER PROGRAM:

```
import xmlrpc.server

# Function to sort the array
def sort_array(arr):
    return sorted(arr)

# Setting up the server
with xmlrpc.server.SimpleXMLRPCServer(('localhost', 8000)) as server:
    print("Server is running...")
    # Registering the sort_array function as an XML-RPC method
    server.register_function(sort_array, 'sort_array')
    server.serve_forever()
```

CLIENT PROGRAM:

```
import xmlrpc.client

# Connect to the server
server = xmlrpc.client.ServerProxy('http://localhost:8000')

# Input array to be sorted
arr = [12, 4, 5, 3, 7, 2]

# Calling the sort_array method on the server
sorted_arr = server.sort_array(arr)

# Displaying the result
print("Original Array:", arr)
print("Sorted Array:", sorted_arr)
```

Output

SERVER OUTPUT

```
"C:\Users\Kaviya V\PycharmProjects\pythonProject2\.venv\Scripts\python.exe"  
Server is running...
```

CLIENT OUTPUT

```
"C:\Users\Kaviya V\PycharmProjects\pythonProject2\.venv\Scripts\python.exe"  
Original Array: [12, 4, 5, 3, 7, 2]  
Sorted Array: [2, 3, 4, 5, 7, 12]
```

```
Process finished with exit code 0
```

RESULT:

Procedure call for sorting an array - XMLRPC remoted.