Ex No : 11 D **Date :7/11/2024**

Remote procedure call for Sorting Array of Elements - XML RPC

AIM:

To Implement an XML RPC code for sorting an array of elements

Program :

Server Side:

```
from xmlrpc.server import SimpleXMLRPCServer,
SimpleXMLRPCRequestHandler
import logging

# Set up logging for better error tracking
logging.basicConfig(level=logging.DEBUG, format='%(asctime)s -
%(levelname)s - %(message)s')

# Define the function to sort the list
def sort_list(a):
    """Sorts the list in ascending order"""
    try:
        # Sorting the list in ascending order
        return sorted(a)
    except Exception as e:
        logging.error(f"Error in sort_list: {e}")
        raise ValueError("Invalid input for sort_list")

# Create a custom request handler (optional)
class RequestHandler(SimpleXMLRPCRequestHandler):
    rpc_paths = ('/RPC2',)  # This is the default XML-RPC path

# Set up the XML-RPC server
def start_server():
    try:
        # Create the XML-RPC server
        with SimpleXMLRPCServer(("localhost", 8000),
requestHandler=RequestHandler) as server:
            logging.info("XML-RPC Server started on port 8000...")
            # Register the sort_list function
            server.register_function(sort_list, "sort_list")

            # Serve requests indefinitely
            server.serve_forever()

    except Exception as e:
        logging.error(f"An error occurred while starting the server:
{e}")
        raise SystemExit("Server failed to start.")

if __name__ == "__main__":
    start_server()
```

Client Side:

```
import xmlrpc.client

# Try to establish connection with the server
try:
    # Set up the server proxy to connect to the XML-RPC server
    proxy = xmlrpc.client.ServerProxy('http://localhost:8000/RPC2')  # Make sure to use the correct path '/RPC2'

    # Check the connection by calling a simple method (e.g., list_length) that doesn't require arguments
    print("Attempting to connect to server...")

    # Example list to sort
    a = [5, 3, 8, 1, 2]

    # Print the original list
    print("Original List:", a)

    # Attempt to call the sort_list method on the server
    sorted_list = proxy.sort_list(a)
    print("Sorted List from the server:", sorted_list)
```

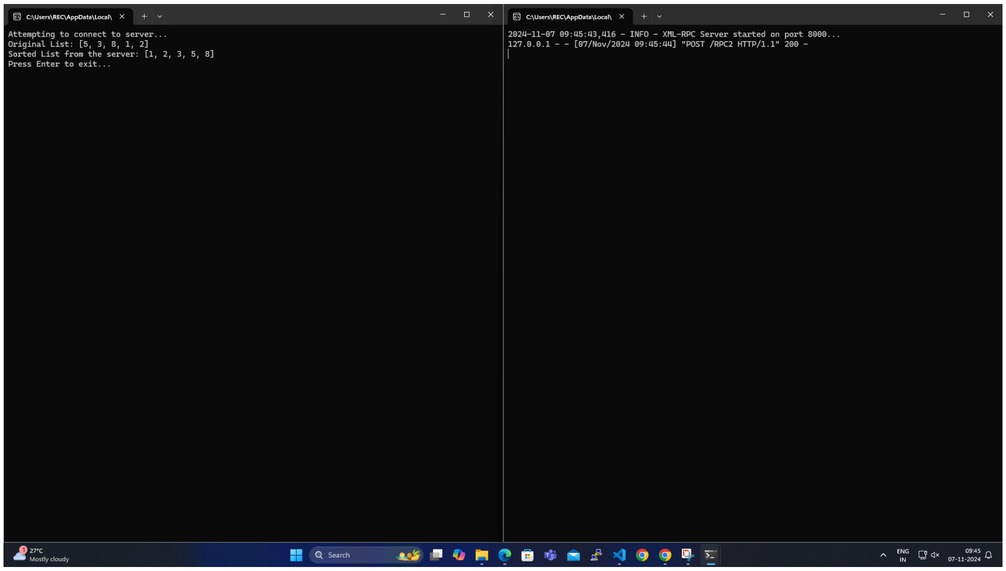
```
except xmlrpc.client.Fault as fault:
    print(f"XML-RPC Fault occurred: {fault.faultString} (Code: {fault.faultCode})")

except xmlrpc.client.ProtocolError as err:
    print(f"XML-RPC ProtocolError: {err.errmsg}")
    print(f"URL: {err.url}")
    print(f"Headers: {err.headers}")

except Exception as e:
    print(f"An unexpected error occurred: {e}")

# Keep the client open for review of the output
input("Press Enter to exit...")
```

Output :



```
Attempting to connect to server...
Original List: [5, 3, 8, 1, 2]
Sorted List from the server: [1, 2, 3, 5, 8]
Press Enter to exit...
```

```
2024-11-07 09:45:43,416 - INFO - XML-RPC Server started on port 8000...
127.0.0.1 - - [07/Nov/2024 09:45:44] "POST /RPC2 HTTP/1.1" 200 -
```

Result: Thus , a remote procedure for sorting an array is done using XMLRPC