TK1 Exercise 2

Team members:

Praveen Kumar Pendyala	2919474
Ramachandra Kamath Arbettu	2792374
Yanai Avi Gonen	1107805
Krishna Chaitanya	2364582

Task 1.1

RPC with at-most-once failure semantics.

Client-side:

1. Tag each request with a unique id
2. Re-transmit requests which didn't receive response within a fixed amount of time
3. Process response corresponding to each request at most once
4. To achieve 3, maintain state info corresponding to whether a request's response has been processed or not.

Server-side:

1. Maintain the results of execution of each request - at most one execution per request id.
2. For duplicate requests, send response from cache and avoid executing again

Task 1.2

a. The process of encoding local data structures into types suitable for transmission to a remote process or device or program.

b. No structural info in CDR, since both sides know from IDL "what comes next" in message.

   Advantages :

   1. Size of the encoded message would be smaller since no space has been used to store explicit typing information
   2. Faster communication.

   Disadvantages :

   1. No possibility to ignore a few fields - empty fields would still have to be encoded with length set as 0. This could increase the size of the encoded message, relatively, in situations where there are a large number of empty fields.
   2. IDL definition should be known to server and client in advance

Task 1.3

a. RRA vs RR

   Advantages : (RRA over RR)
   1. Increased reliability of communication
   2. Saves server resources when re-executing a request is an expensive task

   Disadvantages: (RRA over RR)
   1. More network traffic corresponding to each request
   2. Each handshake takes longer - 3 steps instead of 2.
   3. Additional resource utilization on server and client for state info of the ACK

b. Yes. When a reply fails to reach the client, the server would have to resend the reply to get an ACK from the client.