Alibaba
Code Challenge

Technology Department

Write a component that can send a string message asynchronously and receive a response to and from a server.

What should be implemented

The server should be able to respond to the following messages:
- Request: "Hello" Response: "Hi" after a one second delay.
- Request: "Bye" Response: "Bye" The server closes the client connection.
- Request: "Ping" Response "Pong"
- Any other message should be considered invalid and an exception should be raised on the client.

The client and server must maintain an active connection
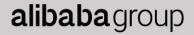The underlying protocol is of your choice as long as a single stable network connection is used.

The implementation should be thread safe
Simultaneous send operations should be completed successfully.

Interface
The client should implement the following interface:

```
Interface IClient{
    Task<string> SendAsync(string message);
}
```

Bonus implementation 1

Client requests should be sent down the wire as soon as possible, this means a previous request shouldn't block the client from sending new ones to the server. The server then processes the requests and sends back the response.

Bonus implementation 2

Implement the following interface instead of the basic one:

```
Interface IClient{
    Task<IResponseMessage> SendAsync(IRequestMessage requestMessage);
    Task<TResponseMessage> SendAsync<TResponseMessage>(IRequestMessage
requestMessage)
    where TResponseMessage: IResponseMessage;
}
```