

Duration: a couple of hours.

The task is expected to be done in Golang.

Design a data format for communication between client and DB server.

Don't use any built-in encoding/decoding API provided in Golang.

One of ClickHouse's competitive advantages is performance. Our integrations shouldn't add a significant overhead to the communication protocol. Design an algorithm of data encoding for communication over the network.

Please, add comments about expected time and space complexity of your solution.

We'd appreciate your comments how to add support for more types in the input.

Provide your solution as a runnable module.

```
DataInput: Array of string, Int32, DataInput
func encode(toSend DataInput) string
func decode(received string) DataInput
```

Constraints:

- toSend array max length: 1000
- toSend contains heterogeneous values, unknown in advance
- max string length: 1.000.000
- strings can contain any UTF-8 symbols

Example:

```
originalData := DataInput{"foo", DataInput{"bar", int32(42)}}
decode(encode(originalData))
```