1) The challenge payload format[1] is:

Description	Length	Data Type
Operation	1 byte	char
Left operand	4 bytes	uint32_t
Right operand	4 bytes	uint32_t

The challenge is sent in the payload field and the payload length field indicates how many bytes of the payload field are valid.

2) Valid operations are

- Addition denoted as +
- Subtraction denoted as −
- Multiplication denoted as ∗
- Integer division denoted as /
- Remainder division denoted as %

3) The challenge response payload format[1] is:

Description	Length	Data Type
Challenge response	8 bytes	uint64_t

The challenge response is sent in the payload field and the payload length field indicates how many bytes of the payload field are valid.

4) The encryption function must be called with the actual size of the payload (the input length parameter). The payload length argument cannot not be larger than 96 bytes in order to leave room for the encryption. This, of course, means the input to be encrypted/decrypted cannot be larger than 96 bytes.

5) The following text on page 2 of the assignment is revised to clarify which fields are required for each message code and how to handle optional fields.

"Only the user name field may be null terminated (max length 16 bytes). The full message must always be sent for the challenge and challenge response (all fields are required). The challenge request, success, and failure messages only require the message code and user name fields and the remaining fields shall be ignored by the receiver if sent. The error message only requires the message code field and the remaining fields shell be ignored by the receiver if sent."

6) Added an ASCII art diagram of the challenge/response protocol format on page 2 of the assignment to clarify the alignment of the fields.

[1] Size on the CS server using clang

7) Numeric values should always be sent in network byte order. The payload length, challenge values, and challenge response are all numeric values that should always be sent in network byte order. See htonl(3) and htobe64(3) and related functions for converting between host and network byte order.

8) Clarify expected client output and provide output examples for client on page 4.

9) The payload length field is 4 bytes and should be interpreted as a *uint32_t*.