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Data Communication

Socket Programming Assignment

**The Application Protocol:**

**Architecture**: Client/Server

**Protocol:**

* Message Types:

Request, Confirmation Response, Failure Response

* Message Syntax:

**Request** – [Head], [Body]

**[Head] 🡪**

file path <= Max 30 bytes of ASCII ended by a space character

format to = 1 byte of ASCII ended by a space character

target <= 8 bytes of ASCII ended but the null character

**[Body] 🡪**

**Type 0:**

Type = 1 byte of binary characters (0 in this case) ended by space character

Amount = 1 byte of binary characters ended by space character

N number of Numbers = N 2-byte binary characters, each delimited by a space and ended with n/ character.

**Type 1:**

Type = 1 byte of binary characters (1 in this case) ended by space character

Amount = 3 bytes of ASCII characters

N number of Numbers = N unsigned integers (16bit unsigned binary) separated by a comma followed by a space and ended with a space with no preceding comma.

**Confirmation Response** – [Body]

**[Body] 🡪** = 6 bytes of ASCII character ended by a null character.

**Failure Response** – [Body]

**[Body] 🡪** = 12 bytes of ASCII characters with a space after 6 and ended by a null character

* Message Semantics:

**Request** – [Head], [Body]

**[Head]** 🡪

file path: the string that represents the path to the file being sent, and name of file

format to: a number that represents which format changes need to be done

target: the string that represents the name of the file to save the newly formatted units

**[Body] 🡪**

A line of strings separated by spaces or spaces and commas that are the type, the amount of numbers, and the numbers

**Confirmation Response** – [Body]

**[Body] 🡪**

A string with the message success

**Failure Response** – [Body]

**[Body] 🡪**

A string with the message format error.

* Rules:

Requests are sent by the client only.

Confirmation Responses are sent by the server only.

Failure Responses are sent by the server only.

One confirmation response can be sent for one request.

Multiple failure responses can be sent for one request.

One request can be sent per TCP session.