1. Project Description
2. Key Design Pattern
   1. UDP Datagram Design & Message Format
      1. General Description

We chose UDP as our network communication way in this project and we assume UDP protocol and the network condition is reliable. We set the maximum length for each UDP datagram to 4096 Bytes for programming’s convenience. Data[0] will stand for the message’s general type: ‘P’ stands for posting an article; ‘R’ stands for requesting all articles; ‘A’ stands for sending all articles and replies to certain client; ‘T’ stands for passing specific article or reply between servers; ‘Q’ stands for requesting unique number for articles or replies; ‘N’ stands for granting unique number to articles or replies to server which sent the request. ‘I’ stands for requesting full ID list. ‘P’ stands for replying all IPs’ list. ‘C’ stands for connect a server. ‘D’ stands for disconnect a server. The section 2.1.2 to 2.1.7 will illustrate detailed format for each request or reply. We’ll use ‘Data’ to represent the datagram char array.

* + 1. Posting and Requesting Articles and Replies

For posting articles or replys.

Data[0]: ‘P’

Data[1:5]: if this is an article, the field will be 0000. If this is a reply for a specific article or reply, here will be the unique id for the article or reply.

Data[5:4005]: will be the content for this reply

For requesting all articles or replys.

Data[0]: ‘R’

Data[1:22]: IP:Port

For sending all articles or replys to a client.

Data[0]: ‘A’

Data[1:5]: the total amount of articles and replies

Data[5:9]: the unique id for current

* + 1. Passing Specific Article between Servers
    2. Requesting and Granting Unique ID for Articles
    3. Articles and Replies Basic Format
    4. Getting All Servers’ IP List
    5. Connect and Disconnect A Server
  1. Some limits for the system
     1. Article and reply

We set the limit of 4000 characters for each