The default server port is 9999 and the default server host is 127.0.0.1, so both the client and the server are on the local machine but on two separate windows. You can modify these arguments in the programs.

1. Server:

The server program is implemented and can be executed using the command:

java server numberShuttles (the default value is 7)

When the server started successfully, it will output its port and address. The main server will create another thread called subServerThread to server the client when a client connection is accepted.

The server is mainly composed of shuttle, coordinator and supervisor. They will start when they are called by the client. It also has a classnamed monitor which plays an important role in scheduling shuttle threads. Besides, when the day is end (it is set for 60 seconds by default,) the terminalThread will shudown all server threads except for the main server and all the client sockets wiil be closed.

1. Client:

The client is implemented and can be executed using the command:

java client numberShuttles (the default value is 7)

The client is mainly composed of shuttleClient, coordinatorClient and supervisor client. They have to start in order. The shuttleClient will start numberShuttles shuttles.

Each shuttleClient will send a series of messages includes start, cruis, waitRecharge and waitTakeoff. The server will make the corresponding processing after the message is received and will send the result to the client.

The data structure of message is: threadType Types and method Method.

Types is: SHUTTLE, SUPERVISOR, and COORDINATOR.

Method is: CRUIS, WAITRECHARGE, WAITTAKEOFF, TAKEOFF, OPENSTATION,

RECHARGE, and START.

The TAKEOFF message is sended by the supervisorClient and other messages are sended by the coordinatorCient. When the shuttle has been taken off. The server will response a ROLL message and then the shuttleClient will send its message again. The coordinator client and the supervisorClient are the same. But the START message will only be sended once. When they receive message "end of the day," they will close the connection to the server and they are ended. They should be restarted when testing needed again.