

## PROJECT STRUCTURE

Server.java and Client.java are abstract class that define some common behavior shared by TCP and UDP implementations. TCPServer.java & TCPClient.java and UDPServer.java & UDPClient.java extend Server.java and Client.java.

## BEHAVIOR

The Server will keep running until being shut down by ctrl + C. The Client will keep trying to connect to Server until the Server is available. The Client will disconnect after 10 seconds if no input occurs. If there're 2 or more than 2 Clients try to connect to Server, only 1 will connect successfully and the others will sleep until the Server is available again.

## COMPILATION

```
$ javac TCPServer.java TCPClient.java UDPServer.java UDPClient.java
```

## RUN

### Server init

```
$ java TCPServer
```

or

```
$ java UDPServer
```

### Client init

```
$ java TCPClient
```

or

```
$ java UDPClient
```

### Operations

The prompt shows

```
> Enter operation, GET, PUT, DELETE
```

Type

\$ `GET` or `PUT` or `Delete`

The prompt shows

> Enter key

Type

\$ <Any key>

If the prompt shows

> Enter value

Type

\$ <Any Value>

## EXAMPLES

TCP:

```
→ Project 1 git:(master) x java TCPServer 1234
Feb 01, 2019 4:57:10 PM TCPServer main
INFO: Listening to port 1234
Connected
Feb 01, 2019 4:57:32 PM Server execute
INFO: Received PUT, fff, ggg
Feb 01, 2019 4:57:32 PM Server execute
WARNING: fff, ggg stored
Feb 01, 2019 4:57:35 PM Server execute
INFO: Received GET, fff,
Feb 01, 2019 4:57:35 PM Server execute
WARNING: Key does not exist
Feb 01, 2019 4:57:41 PM Server execute
INFO: Received DELETE, fff,
Feb 01, 2019 4:57:41 PM Server execute
WARNING: Removed fff, ggg
Feb 01, 2019 4:57:45 PM Server execute
INFO: Received GET, fff,
Feb 01, 2019 4:57:45 PM Server execute
WARNING: Key does not exist
```

```
→ Project 1 git:(master) x java TCPClient localhost 1234
Connected
Enter operation, GET, PUT, DELETE
PUT
Enter key
fff
Enter value
ggg
Feb 01, 2019 4:57:32 PM Client execute
INFO: fff, ggg stored
Enter operation, GET, PUT, DELETE
GET
Enter key
fff
Feb 01, 2019 4:57:35 PM Client execute
INFO: Value is ggg
Enter operation, GET, PUT, DELETE
DELETE
Enter key
fff
Feb 01, 2019 4:57:41 PM Client execute
INFO: Removed fff, ggg
```

UDP:

```
→ Project 1 git:(master) java UDPServer 1234
Feb 01, 2019 5:13:23 PM UDPServer main
INFO: Listening to port 1234
Connected
Feb 01, 2019 5:13:30 PM UDPServer receiveSocketData
INFO: Received data of length 106 from /127.0.0.1:52886
Feb 01, 2019 5:13:30 PM Server execute
INFO: Received PUT, fff, ggg
Feb 01, 2019 5:13:30 PM Server execute
WARNING: fff, ggg stored
Feb 01, 2019 5:13:33 PM UDPServer receiveSocketData
INFO: Received data of length 103 from /127.0.0.1:52886
Feb 01, 2019 5:13:33 PM Server execute
INFO: Received GET, fff,
Feb 01, 2019 5:13:33 PM Server execute
WARNING: Key does not exist
Feb 01, 2019 5:13:36 PM UDPServer receiveSocketData
INFO: Received data of length 106 from /127.0.0.1:52886
Feb 01, 2019 5:13:36 PM Server execute
INFO: Received DELETE, fff,
Feb 01, 2019 5:13:36 PM Server execute
WARNING: Removed fff, ggg
Feb 01, 2019 5:13:38 PM UDPServer receiveSocketData
INFO: Received data of length 103 from /127.0.0.1:52886
Feb 01, 2019 5:13:38 PM Server execute
INFO: Received GET, fff,
Feb 01, 2019 5:13:38 PM Server execute
WARNING: Key does not exist
```

```
→ Project 1 git:(master) java UDPClient localhost 1234
Enter operation, GET, PUT, DELETE
PUT
Enter key
fff
Enter value
ggg
Feb 01, 2019 5:13:30 PM UDPClient receiveString
INFO: Received String 'fff, ggg stored' from /127.0.0.1:1234
Feb 01, 2019 5:13:30 PM Client execute
INFO: fff, ggg stored
Enter operation, GET, PUT, DELETE
GET
Enter key
fff
Feb 01, 2019 5:13:33 PM UDPClient receiveString
INFO: Received String 'Value is ggg' from /127.0.0.1:1234
Feb 01, 2019 5:13:33 PM Client execute
INFO: Value is ggg
Enter operation, GET, PUT, DELETE
DELETE
Enter key
fff
Feb 01, 2019 5:13:36 PM UDPClient receiveString
INFO: Received String 'Removed fff, ggg' from /127.0.0.1:1234
Feb 01, 2019 5:13:36 PM Client execute
INFO: Removed fff, ggg
Enter operation, GET, PUT, DELETE
GET
Enter key
fff
Feb 01, 2019 5:13:38 PM UDPClient receiveString
INFO: Received String 'Key does not exist' from /127.0.0.1:1234
Feb 01, 2019 5:13:38 PM Client execute
INFO: Key does not exist
Enter operation, GET, PUT, DELETE
□
```