

Deadline: February 02-06, 2026 (respective classes)

Assignment 1

Implement a TCP-based key-value store. The server implements the key-value store and clients make use of it. The server must accept clients' connections and serve their requests for 'get' and 'put' key value pairs. All key-value pairs should be stored by the server only in memory. Keys and values are strings.

The client accepts a variable no of command line arguments where the first argument is the server hostname followed by port no. It should be followed by any sequence of "get <key>" and/or "put <key> <value>".

```
./client 192.168.124.5 5555 put city Kolkata put country India get country get city get Institute
```

India

Kolkata

<blank>

The server should be running on a TCP port. The server should support multiple clients and maintain their key-value stores separately.

Implement authorization so that only few clients having the role "manager" can access other's key-value stores. A user is assigned the "guest" role by default. The server can upgrade a "guest" user to a "manager" user.

Two versions of the program will be:

- (i) Command line and implemented using Java/Python/C++ socket programming
- (ii) Web application with web browser as the client side using Node JS (authorization part can be skipped here)