

Question 1

Design and implement a simple replicated service, where a client can contact to a replica server and can execute “insert” and “get” commands:

- insert (**key**, **value**),
 - when (**key**, **value**) is inserted it has to be replicated with all (alive) replica servers
 - if **key** exists already, the **value** should overwrite the old value (this change has to be replicated too)
- get **value** for a given **key**, or **None** if there is no value for the **key**

Keys and values are strings or bytes. Communication between clients and replicas is TCP or UDP. For replication use a package based on a consensus protocol (e.g., `PySyncObj`). Run a few replica servers and demonstrate that crashing some of them does not stop the service.