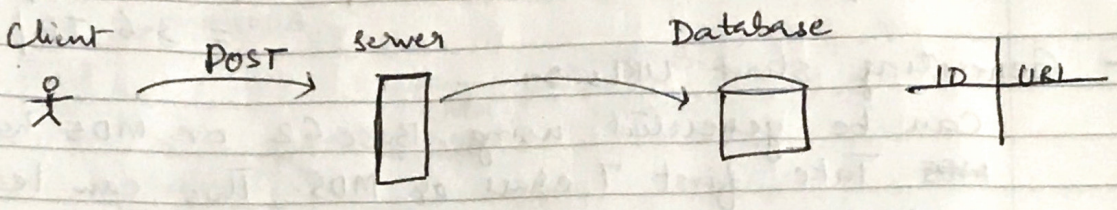
URL Shortner : Given a URL, return short version.



Approach 1 :

DB Generates ID for each URL. ID is incremental. User creates short URL by POST request. Databases can handle billion rows easily. Writing will be fast, because writing will be at end. If index of primary keys is B^+ tree, writing will be slow. LSM index will be fast. with MySQL.

Not suitable because ids are predictable.

#2 : User provides short URL also.

Short_URL is PK. Generate SHA hash of short URL and take the first 8 characters to save in DB. If insert fails due to unique constraint on short_URL, the server will regenerate the URL using salting. The salt also needs to be stored in this case.

URL	Short_URL

Questions to ask : What will be the traffic? Do we need to scale? How many characters in URL.

→ 1M users/day. = 30M/month, 7 characters

Data Capacity Modeling :

long_url : 2KB (2048 chars)
short_url : 17 Bytes (17 chars)
created_at : 7 Bytes (7 chars)
exp_at : 7 bytes (7 chars)