

## URL Shortener Service

### Use Cases :-



- (1) URL  $\longrightarrow$  Shortened URL
- (2) Shortened URL  $\longrightarrow$  Redirection to Original URL
- (3) Expiration duration of URL default 1YR
- (4) 100% Availability

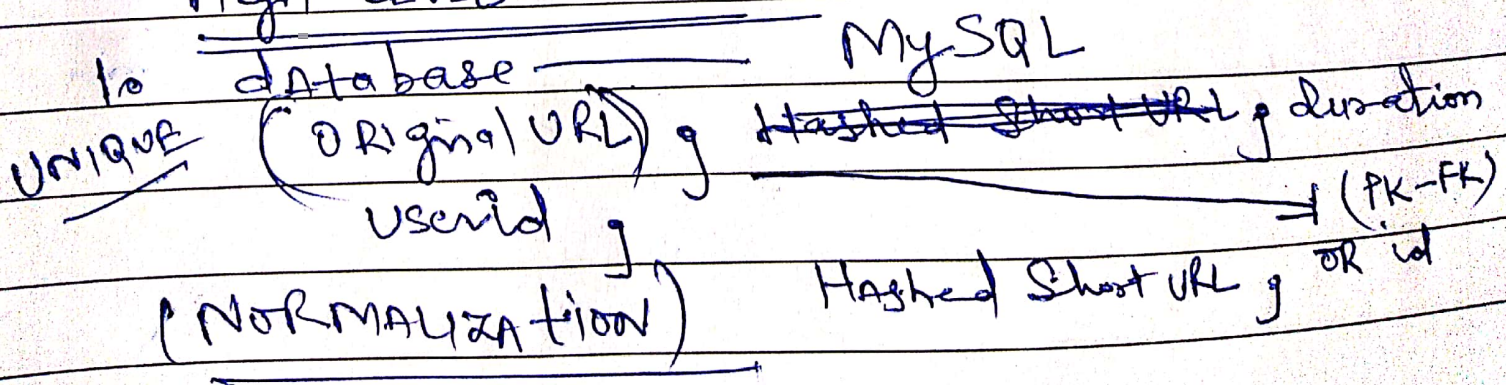
### CONSTRAINTS :-

- (1) 80:20 Ratio Read: Write  
More Read frequent  
Less Write

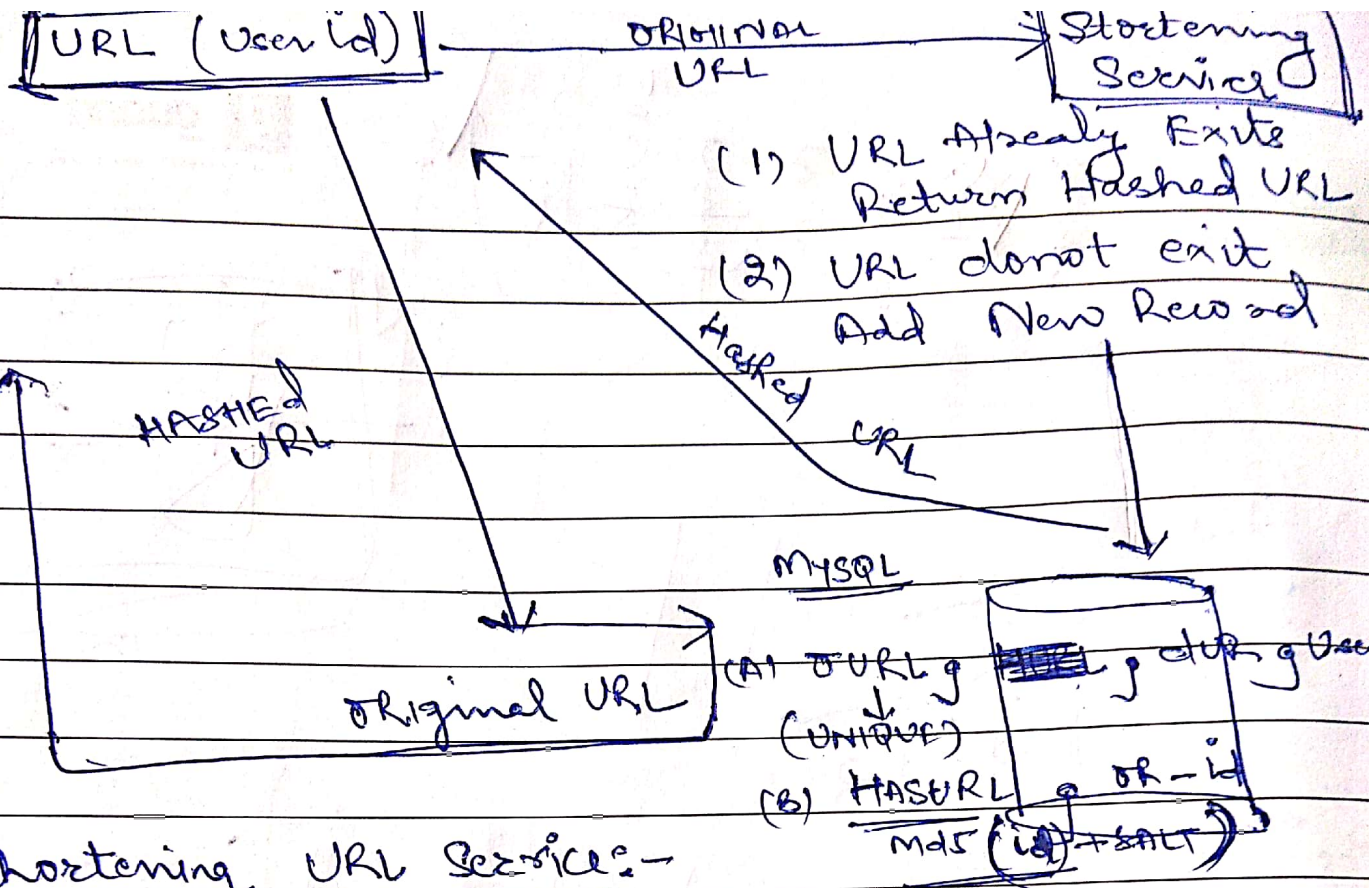
- (2) 100  $\longrightarrow$  Per day  
30 x 100  $\longrightarrow$  Per month  
12 x 30 x 100  $\longrightarrow$  Per Year  
5 x 12 x 30 x 100  $\longrightarrow$  Per 5 Year  
 $\approx$  180,000

- (3) API?  
Web Server Website?

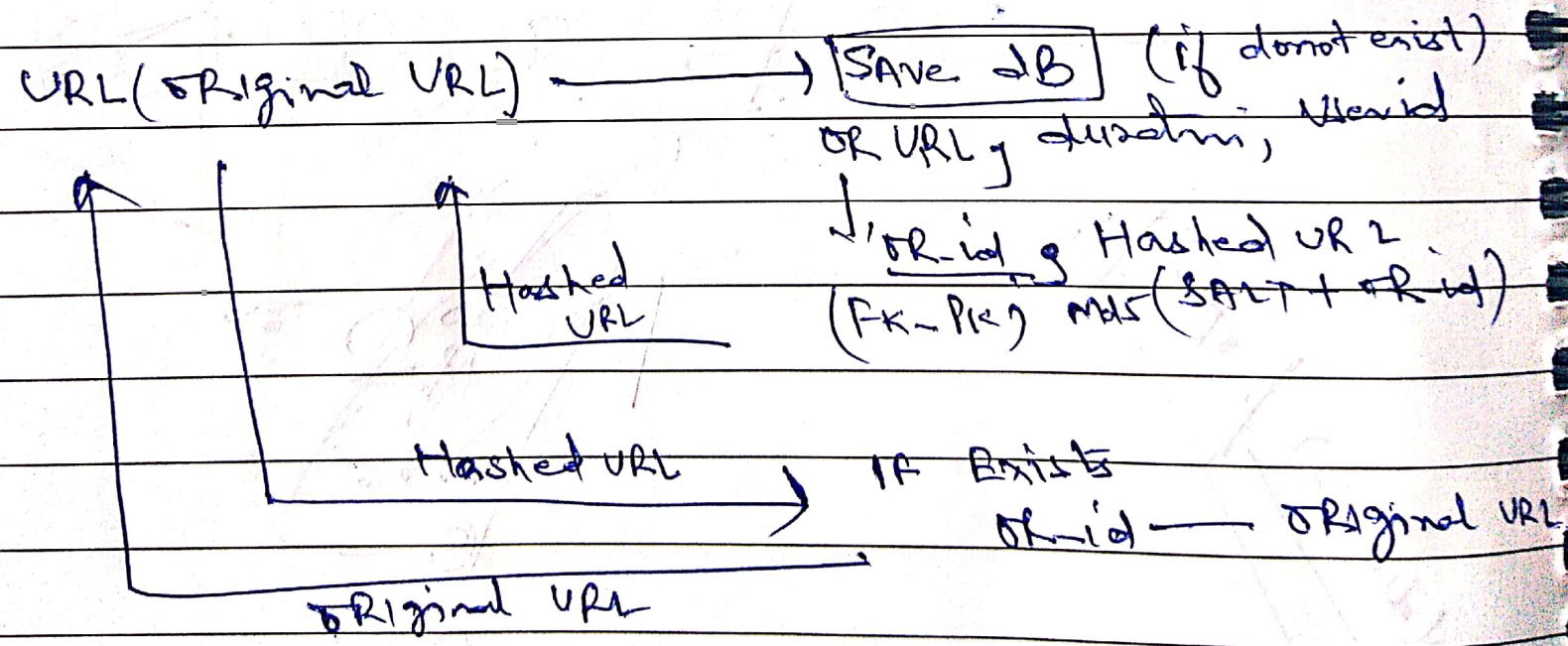
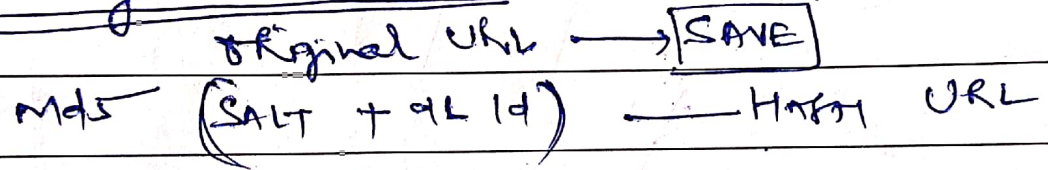
### High LEVEL DESIGN :-







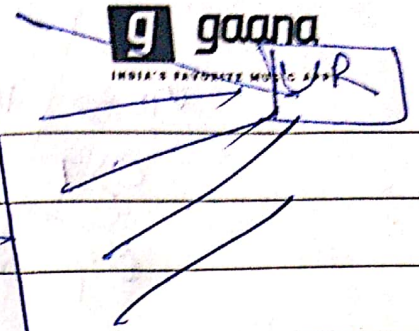
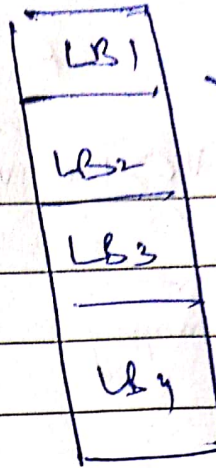
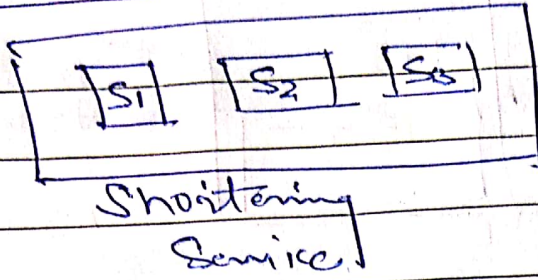
### Shortening URL Service:-





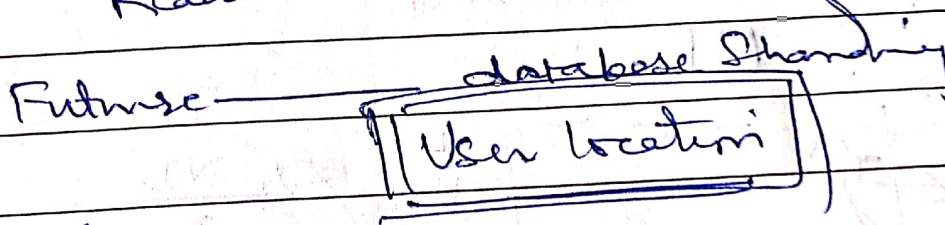
## SCALABILITY :-

### (1) Web Server



### (2) DATA-BASE :-

Master — Slave Model  
writes — Master  
Reads — Slave



VERTICAL  
SHARDING  
Model

### (3) Cache

Aerospike — 100% availability  
cluster management