CASHING AND REDIS

1. What is a cache? What do you mean by caching? What are the benefits?
Ans-
cashing is the process of storing data in a cache
A cache is a temporary storage area
Cache is a type of memory that is used to increase the speed of data access. Normally, the data required for any process resides in the main memory. However, it is transferred to the cache memory temporarily if it is used frequently enough. The process of storing and accessing data from a cache is known as caching.

The data in a cache is generally stored in fast access hardware such as RAM (Random-access memory) and may also be used in correlation with a software component. A cache's primary purpose is to increase data retrieval performance by reducing the need to access the underlying slower storage layer.
Caching (pronounced "cashing") is the process of storing data in a cache.
...
benifits-
1- reduce network load
2- avoid recoumpation
3- reduce db load

2. What is cache hit? What is cache miss?
ANS- HIT- when server send any data on a cache memory and data found in cache memory then it call hit.
Miss-when server send any data on a cache memory and data not found in cache memory then it call miss.

3. What happens in case of cache miss? How should it be handled
Ans- when server send data on cache memory and data not found in cache memory then it called miss. when data is not found in cache memory we used database to find this data.and we get on cache memory.if no data in database we create new data in our database then we add this cache memory.

4. What is meant by Cache policy?(i.e when would be adding data to cache and when should you be deleting it)
ANS- This refers to policies for admission into the cache and eviction from the cache. When a query is executed, we must decide what part, if any, of the query result to add to the cache. If the cache is full, we must also decide which, if any, of the currently cached MQRs to evict from the cache.

5. What is redis? How does redis help in caching of data?

ANS- Redis, which stands for Remote Dictionary Server, is a fast an efficient , open source, in-memory, key-value ,catche store.

6. What are some common redis data types?
ANS-- Redis supports 5 types of data types.

Strings: Redis string is a sequence of bytes. ...
Hashes: A Redis hash is a collection of key value pairs. ...
Lists: Redis Lists are simply lists of strings, sorted by insertion order order.
Sets: Redis Sets are an unordered collection of strings. ...
Sorted Sets:

7. What is meant by TTL for a redis key?
ANS- Redis TTL command is used to get the remaining time of key expiry in seconds. Returns the remaining time to live of a key that has a timeout
TTL-- TIME TO LEAVE

8. How would you design a redis key? For example, let there be a requirement where we want to cache the interview ratings of each candidate of this batch. What key would you choose? What happens if you keep setting different values to the same key?
Ans- we should design a redis key for every students to their unique id for every user who is automatically generted by database. if we use same key for every students the database the response time of the cache memory is also increase.

9. What is the syntax of EXPIRE command? What does it do?
Ans- The EXPIRE command supports a set of options:

NX -- Set expiry only when the key has no expiry
XX -- Set expiry only when the key has an existing expiry
GT -- Set expiry only when the new expiry is greater than current one
LT -- Set expiry only when the new expiry is less than current one

10. Explain the flow of caching shortened url and the long url mapping in case of the Url Shortener project you implemented.
Ans- we use redis cache memory in our 3 rd project url shortner. first we make account on redis and creted new database. then in our vs code write a port number and end point url then we write the password of redis database then we connected with redis database.in redis database we use some important function to fetch and dat on redis.
.set-- this is use to store any types of value
.get--returs a specific value from a map object
.bind-- create a new function from an existing function
.promisify-- operte sync await function in javascript.

11. What are some common use case where caching is advantageous ?

Ans- benifits of caching-

1--reduce network calls

2-- avoid recumputation.

3-- reduce db load.

12. If caching improves performance of an api request, why not cache all the application's data instead of storing it in databases which is comparatively slower than a cache data store?

ans-- we can not store whole data on a cache memory for the following some reason ---

1- it is expensive memory or database.

2- when the large amount of data is increased then response time speed decresed.

3- it is short term temporarly memory.

4- when server is crashed our data is deleted on cache memory.