

## 1 What's the difference between a view and a table in sql?

Answer:

SQL table: Table is a preliminary storage for storing data and information in RDBMS. A table is a collection of related data entries and it consists of columns and rows.

VS

SQL view: A view is a virtual relation, built on top of other tables or views, and do not hold data themselves. The views will change as underlying data in tables change. A view is kind of like a collection of select statement, hiding the complexity of the database tables from certain users.

## 2 How does a GROUP BY statement in SQL work?

Answer:

The SQL GROUP BY statement can be used in a SELECT statement to collect data across multiple records and group the results based on one or multiple columns with specified values.

The statement is often used with aggregate functions to get statistical data based on each group set.

## 3 What is HTTP and how do HTTP requests work?

Answer:

What is HTTP?

HTTP stands for Hypertext Transfer Protocol and is used to structure requests and responses over the internet. The transfer of resources happens mainly using TCP (Transmission Control Protocol).

How do HTTP requests work?

As a request-response protocol, HTTP clients generally use Transmission Control Protocol (TCP) connections to communicate with servers. The content of HTTP request and response usually contain a header and an optional body.

HTTP utilizes specific request methods, mainly including:

- GET requests a specific resource from connected server
- POST adds content, messages, or data to an existing web resource
- PUT directly update an existing web resource with new content
- DELETE gets rid of a specified resource
- HEAD requests a specific resource without the body content
- CONNECT converts the request connection to a transparent TCP/IP tunnel

Additionally, HTTP response status codes indicate whether a specific HTTP request has been successfully completed, mainly including:

- 200 OK: This means the request was successful

201 Created: This means the resource has been created

400 Bad Request: The request cannot be processed because of bad request syntax

404 Not Found: This says the server wasn't able to find the requested page

#### 4 What are the characteristic of a RESTful API?

Answer:

**Client-server based architecture:** By separating the user interface concerns from the data storage concerns, the scalability gets improved.

**Stateless:** A REST HTTP request consists of all the data needed by the server to understand and give back the response. Session state keep entirely on client.

**Cacheable:** If a response is labeled as cacheable, then a client cache is given the right to reuse that response data for later, equivalent requests.

**Uniform interface:** REST is defined by four interface constraints:

identification of resources (unique url in REST APIs);

manipulation of resources through representations (the value/response of the Resource based on the media-type);

self-descriptive messages (formats that client can parse this representation, like json and XML );

hypermedia as the engine of application state

**Layered system:** allows an architecture to be composed of hierarchical layers

**Code on demand:** REST allows client functionality to be extended by downloading and executing code in the form of applets or scripts

5 Given the two tables 'Birth Info' and 'Astrological Info', what is the result of the following queries in table form

a LEFT JOIN

name	birth_month	astrological_sign
Don	September	Virgo
Meghna	June	Gemini
Aly	January	Aquarius
Ara	September	Virgo
Kirit	May	Null

b OUTER JOIN

name	birth_month	astrological_sign
Aly	January	Aquarius
Don	September	Virgo
Ara	September	Virgo
Meghna	June	Gemini
Kirit	May	Null

c

name	birth_month	astrological_sign
Don	September	Virgo
Meghna	June	Gemini
Aly	January	Aquarius
Ara	September	Virgo

d

name	birth_month	astrological_sign
Aly	January	Aquarius
Don	September	Virgo
Ara	September	Virgo
Meghna	June	Gemini

6 What do these HTTP response codes mean:

Code	Meaning
200	OK
201	Created
400	Bad Request
401	Unauthorized
300	Multiple Choice
403	Forbidden
404	Not found
500	Internal Server Error