SQL

1. What are the different types of statements in SQL?
   1. DDL - create, drop, alter etc.
   2. DML - insert, update, delete etc.
   3. DQL - select etc.
   4. DCL - grant, revoke etc.
   5. TCL
   6. https://www.javatpoint.com/dbms-sql-command
2. Why truncate is faster than delete?
   1. because delete can have a rollback feature, so it has to keep some backup to implement rollback. but truncate, drop etc cannot be rolled back.
3. What are different types of constraints in SQL?
   1. https://www.w3schools.com/sql/sql\_constraints.asp
4. What is the order of execution in a SELECT statement?
   1. https://www.almabetter.com/bytes/tutorials/sql/sql-order-of-execution
5. How filter operation is performed in SQL?
   1. using where clause
6. What are the kind of joins you can make in SQL?
   1. cross
   2. inner
   3. left
   4. right
   5. full outer
   6. self
7. What are different types of aggregations in SQL?
   1. simple - sum, min, max, count etc.
   2. grouping - string\_agg, sum, max, min etc.
   3. window agg
8. What are different set operations that you can perform in SQL?
   1. union
   2. union all
   3. intersect
   4. except
9. What is the difference between union and union all?
   1. union all will keep duplicates, but union, intersect, except etc. will remove duplicates.
10. What is pivot / unpivot in SQL?
    1. https://www.javatpoint.com/sql-server-pivot
11. What are different conditional expressions that you can use in SQL?
    1. case when
    2. if
12. What are views in SQL?
13. What are subqueries in SQL?
14. What is CTE in SQL?
15. Which one will you choose - subquery or cte?
    1. u can use a cte multiple times by declaring it once, hence performance wise it will be better.
16. What are some important system defined functions in SQL?
    1. string - len, upper, lower, trim, concat, substring, charindex, replace, translate etc.
    2. numeric - sum, count, abs, etc.
    3. date - datepart, dateadd, datediff etc.
    4. advanced - cast, isnull, coalesce etc.
    5. https://www.w3schools.com/sql/sql\_ref\_sqlserver.asp
17. What are window functions in SQL?
18. What are the different ranking functions? Explain each one of them using examples.
19. What are user-defined functions in SQL?
20. What are stored procedures in SQL?
21. What is the difference between a stored procedure and user-defined function?
22. What is indexing? How it helps in querying data?
23. What are the different types of indexes?
    1. clustered - physical distribution
    2. non-clustered - logical distribution pointing to physical location
24. Can we create more than one clustered index?
    1. no, because we can’t distribute data physically in more than one way
25. Why insert operation is slower if u have indexes and how can u remedy it?
    1. insert is slower because during/after every insert it tries to update the index.
    2. to remedy, we can drop the index, do the entire insert and then create the index again.
26. What is the output of below question
    1. ‘east’, 150 (the agg function will ignore nulls and it will calculate (100+200)/2)

region, sales

‘east’, 100

‘east’, null

‘east’, 200

select region, avg(sales) as avg\_sales

from

tab

group by region

1. What is the output of below question
   1. 10, 8, 10

a table has total 10 rows, state column has 2 nulls

count(1), count(state), count(\*)

1. What is the output of below question
   1. no result

select \* from tab where null=null;

1. What is the output of below question
   1. for first query, it will either return an empty set or error. for second query it will return the 2nd record.

customer\_id, age

1, 15

2, null

3, 26

4, 50

select \* from tab where age = null;

select \* from tab where age is null;

1. Write query to find - employees whose salary is more than their manager
   1. select <req\_columns> from employee e1 inner join employee e2 on e1.manager\_id = e2.emp\_id where e1.salary > e2.salary;

emp\_id, dept, salary, manager\_id

1, ‘hr’, 3000, 4

2, ‘finance’, 5000, 3

3, ‘finance’, 2000, 1

4, ‘IT’, 5000, 7

…

1. If you want to compare one column values to another column values in a single table, how can you perform that?
   1. lag, lead
   2. self join (with those columns in join condition)
2. How to remove duplicates based on some column(s)?
   1. first using group by figure out the rows you DON’T want to delete, then left join those rows with original table, then in delete condition mention to delete those rows where right table has NULL values
3. ---