**CEBD 1250 – Big Data Storage: Homework for Class 4**

* Write a SQL query to get the third highest salary of an employee from employee\_table

select salary from employee\_table

order by salary desc

offset N-2 rows

fetch next 1 rows only

* Write a SQL query to find the names of employees that begin with ‘A’

select \* from table where name like (A%)

* What is the difference between ‘HAVING’ CLAUSE and a ‘WHERE’ CLAUSE

Where clause is used for filtering rows and it applies on each and every row, while having clause is used to filter groups in SQL.

* List, and explain the elements of an Entities and Relationships model

There are three components of an entity relationship diagram:

* [Entities](https://whatis.techtarget.com/definition/entity), which are objects or concepts that can have data stored about them.
* Attributes, which are properties or characteristics of entities. An ERD attribute can be denoted as a primary key, which identifies a unique attribute, or a foreign key, which can be assigned to multiple attributes.
* The relationships between and among those entities.
  + A one-to-one relationship – Example, if each customer in a database is associated with one mailing address.
  + A one-to-many relationship – Example, a single customer might place an order for multiple products. The customer is associated with multiple entities, but all those entities have a single connection back to the same customer.
  + A many-to-many relationship – Example, at a company where all call center agents work with multiple customers, each agent is associated with multiple customers, and multiple customers might also be associated with multiple agents.

* What are the different categories of SQL statements, what does each group do
  + **DML** (Data Manipulation Language) – if you want to play with your data

Core Commands: Select, insert, update, delete

* + **DDL** (Data Definition Language) – if you want a new object

Core Commands: Create, Alter, Drop, Truncate

* + **TCL** (Transaction Control Language) – if you want to undo something that you did

Core Commands: Commit, Roll back, Save point

* + **DCL** (Data Control Language) - Gives you access

Core Commands: Grant revoke

* List, and explain, the different types of joins

Joins are used to combine tables based on a related column.

* + - Self Join –  A self join is a regular join, but the table is joined with itself. Example: Select column\_name(s) from table A T1, table A T2 where condition;
    - Inner Join – An inner join returns records at the intersection of the two tables. Example: select \* from Table A INNER JOIN Table B ON a.key = b.key
    - Left Join – A left join returns all records from table A and any matching records from table B. Example: select \* from Table A LEFT JOIN Table B ON a.key = b.key
    - Right Join – Right join is a mirror version of the left join. Example: select \* from Table A RIGHT JOIN Table B ON a.key = b.key
    - Full Outer Join – Returns all records when there is a match in either left (table A) or right (table B) table records. Example: select \* from Table A FULL OUTER JOIN Table B ON a.key = b.key

* What is the difference between NULL value, Zero, and Blank space

Null is an absence of value, where a field having null is not allocated any memory.

Zero is a number value (integer).

Blank is an empty string value.