1. Create a table and insert minimum 5 records For **Facebook/ Adhar** and draw ER diagram. Demonstrate what is Hadoop and HBase
2. Create a table and insert minimum 5 records For **Twitter /Flipkart** and draw ER diagram. Discuss about Hive and advantages of Hive
3. Create a table For **Facebook/ Adhar** and perform following operations 1.Insert 2.Select 3.Delete
4. Create a table For **Twitter /Flipkart** and perform following operations 1.Insert 2.Update 3.Drop
5. Create a table For **Facebook/ Adhar** and perform following operations 1.Update 2.Aggregate function (Max, Min,Count) 3.Join operations (Inner Join ,Left Join,Right Join)
6. Create a table For **Twitter /Flipkart** and perform following operations 1.Alter 2.Aggregate function (Sum,Avg,Min) 3.Join operations(Full Join,Inner Join)

7. Write a function to update particular value in table and write a Stored Procedure to insert value in table (Assume any Table)

8. Write a trigger to insert , update record from Library system table

9. Write a cursor to insert , delete record from Employee table

10. Perform Create, Update, Delete operations in MongoDB

11. Perform Create, Read, Delete operations in MongoDB

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1. Create a Table as **employee** and the details are

S.No	Name	Designation	Branch
1	Ram	Manager	Chennai
2	Santhosh	Supervisor	Madurai
3	Hari	Assistant	Trichy

Perform the following:

- Alter the table by adding a column **Salary**
- Alter the table by modifying the column **Name**
- Describe the table **employee**
- Copy the table **employee** as **emp**
- Truncate the table
- Delete the Second row from the table
- Drop the table

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1. Create a Table as **bank** and the details are

S.No	Cust_Name	Acc_no	Balance	Cus_Branch
1	Ramesh	12378	100000	Adyar
2	Sam	12367	152500	Mylapore
3	Harish	12345	250000	Anna Salai

Perform the following:

- Simple Select
- Select with **where** clause
- Select with **comparison operator >**
- Select with **between** in the field **Balance**
- Update the **Cus_Branch** in the second row as **Poonamallee**

14. Implement MapReduce in MongoDB with suitable dataset

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1. Create a Table as **workers** and the details are

S.No	Name	Designation	Branch
1	Ram	Manager	Chennai
2	Santhosh	Supervisor	Madurai
3	Hari	Assistant	Trichy

Perform the following:

- Alter the table by adding a column **Salary**
- Alter the table by modifying the column **Name**
- Describe the table **employee**
- Copy the table **employee** as **emp**
- Truncate the table
- Delete the Second row from the table
- Drop the table

16.Write a function to insert and update the particular value in the table (Assume any Table)
17.write a Stored Procedure to insert and delete a value in the table (Assume any Table)
18.Write a trigger to insert, and update records from the Library system table
19.Write a cursor to insert, and delete records from the Employee table
20.Implement MapReduce example in MongoDB with the suitable dataset. A. Create a sample collection order with 10 documents. B. Perform the map-reduce operation on the orders collection to group by the cust_id, and calculate the sum of the price for each cust_id.
21.Create a function that takes two numbers as arguments and returns their sum, difference, product.
22.Create a trigger so that every time a record is inserted into the users table, a corresponding log is inserted into an "Audit" table.
23.Before any deletion on the "Users" table, create a trigger that will move the soon-to-be-deleted record to a "DeletedUsers" table.

24.Use a cursor to fetch and display the average salary of each department.
25.Write a Database Query for Nested queries Hotel table
26.Write a Database Query for Joins Banking table
27.Write a Database Query for Sub-queries of Manufacturing industry table
28. Consider the following relational schema and briefly answer the questions that follow: Emp(eid: integer, ename: string, age: integer, salary: real) Works(eid: integer, did: integer, pct time: integer) Dept(did: integer, budget: real, managerid: integer) 1. Define a table constraint on Emp that will ensure that every employee makes at least $10,000. 2. Define a table constraint on Dept that will ensure that all managers have age > 30. 3. Define an assertion on Dept that will ensure that all managers have age > 30.

1. Write a SQL statement to create a table job_history including columns employee_id, start_date, end_date, job_id and department_id and make sure that, the employee_id column does not contain any duplicate value at the time of insertion and the foreign key column job_id contain only those values which are exists in the jobs table.

Here is the structure of the table jobs;

```
------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| JOB_ID     | varchar(10)  | NO   | PRI |         |       |
| JOB_TITLE  | varchar(35)  | NO   |     | NULL    |       |
| MIN_SALARY | decimal(6,0) | YES  |     | NULL    |       |
| MAX_SALARY | decimal(6,0) | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
```

1. Write a SQL statement to create a table employees including columns employee_id, first_name, last_name, email, phone_number hire_date, job_id, salary, commission, manager_id and department_id and make sure that, the employee_id column does not contain any duplicate value at the time of insertion and the foreign key columns combined by department_id and manager_id columns contain only those unique combination values, which combinations are exists in the departments table.

Assume the structure of departments table below.

```
| Field          | Type         | Null | Key | Default |Extra
+----------------+--------------+------+-----+---------+-----
| DEPARTMENT_ID   | decimal(4,0) | NO   | PRI | 0       |       |
| DEPARTMENT_NAME | varchar(30)  | NO   |     | NULL    |       |
| MANAGER_ID      | decimal(6,0) | NO   | PRI | 0       |       |
| LOCATION_ID     | decimal(4,0) | YES  |     | NULL    |       |
+----------------+--------------+------+-----+---------+-----
```

Write a SQL statement to rename the table countries to country_new.

Write a SQL statement to add a primary key for a combination of columns location_id and country_id.

Here is the structure of the table locations.

```
---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| LOCATION_ID    | decimal(4,0) | YES |    | NULL    |       |
| STREET_ADDRESS | varchar(40)  | YES |    | NULL    |       |
| POSTAL_CODE    | varchar(12)  | YES |    | NULL    |       |
| CITY           | varchar(30)  | YES |    | NULL    |       |
| STATE_PROVINCE | varchar(25)  | YES |    | NULL    |       |
| COUNTRY_ID     | varchar(2)   | YES |    | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
```

Write a SQL statement that displays all the information about all salespeople.

Sample table: salesman

```
salesman_id |    name    |   city   | commission
-------------+------------+----------+------------
       5001 | James Hoog | New York |       0.15
       5002 | Nail Knite | Paris    |       0.13
       5005 | Pit Alex   | London   |       0.11
       5006 | Mc Lyon    | Paris    |       0.14
       5007 | Paul Adam  | Rome     |       0.13
       5003 | Lauson Hen | San Jose |       0.12
```

Write a SQL statement to display specific columns such as names and commissions for all salespeople.

Sample table: salesman

salesman_id	name	city	commission
5001	James Hoog	New York	0.15
5002	Nail Knite	Paris	0.13
5005	Pit Alex	London	0.11
5006	Mc Lyon	Paris	0.14
5007	Paul Adam	Rome	0.13
5003	Lauson Hen	San Jose	0.12

Write a query to display the columns in a specific order, such as order date, salesman ID, order number, and purchase amount for all orders.

Sample table: orders

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.5	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70002	65.26	2012-10-05	3002	5001
70004	110.5	2012-08-17	3009	5003
70007	948.5	2012-09-10	3005	5002
70005	2400.6	2012-07-27	3007	5001
70008	5760	2012-09-10	3002	5001
70010	1983.43	2012-10-10	3004	5006
70003	2480.4	2012-10-10	3009	5003
70012	250.45	2012-06-27	3008	5002
70011	75.29	2012-08-17	3003	5007
70013	3045.6	2012-04-25	3002	5001

From the following table, write a SQL query to identify the unique salespeople ID. Return salesman_id.

Sample table: orders

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.5	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70002	65.26	2012-10-05	3002	5001
70004	110.5	2012-08-17	3009	5003
70007	948.5	2012-09-10	3005	5002
70005	2400.6	2012-07-27	3007	5001
70008	5760	2012-09-10	3002	5001
70010	1983.43	2012-10-10	3004	5006
70003	2480.4	2012-10-10	3009	5003
70012	250.45	2012-06-27	3008	5002
70011	75.29	2012-08-17	3003	5007
70013	3045.6	2012-04-25	3002	5001

From the following table, write a SQL query to locate salespeople who live in the city of 'Paris'. Return salesperson's name, city.

Sample table: salesman

salesman_id	name	city	commission
5001	James Hoog	New York	0.15
5002	Nail Knite	Paris	0.13
5005	Pit Alex	London	0.11
5006	Mc Lyon	Paris	0.14
5007	Paul Adam	Rome	0.13
5003	Lauson Hen	San Jose	0.12

. From the following table, write a SQL query to find customers whose grade is 200. Return customer_id, cust_name, city, grade, salesman_id.

Sample table: customer

customer_id	cust_name	city	grade	salesman_id
3002	Nick Rimando	New York	100	5001
3007	Brad Davis	New York	200	5001
3005	Graham Zusi	California	200	5002
3008	Julian Green	London	300	5002
3004	Fabian Johnson	Paris	300	5006
3009	Geoff Cameron	Berlin	100	5003
3003	Jozy Altidor	Moscow	200	5007
3001	Brad Guzan	London		5005

Write a query to display employee details (Name, Department, Salary and Job) from EMP table.

8. Design sample database, draw ER diagram and Study of MySQL Database Management System.
   A. Draw an ER diagram for the following application from the hospital:
      - A doctor has one or more patients to treat
      - Each doctor has an unique Doctor ID
      - Each patient has a name, phone number, address and date of birth
      - Patient entity is a weak entity
      - Age is a derived attribute

   B. Draw an ER diagram for the following application from the manufacturing industry:
      - Each supplier has a unique name.
      - More than one supplier can be located in the same city.
      - Each part has a unique part number.
      - Each part has a colour.
      - A supplier can supply more than one part.
      - A part can be supplied by more than one supplier.

   C. Draw an ER diagram for the following application from the ABC Company:
      - Employees work for many projects and each project has many employees
      - Each employee has an unique Emp_No
      - Each employee has a name and name consists of first name, middle name and last name
      - Each project has an unique number and name

9. Data Definition Commands for creating database and tables (relations)
   A. Create a Table for Manufacturing industry / Hospital/ Company with min 5 columns add primary key.
   B. Alter any one column from the above table.
   C. Rename two columns from the above table
   D. Truncate the table
   E. Drop the table.

10. Data Manipulation Commands for updating and retrieving of data from Tables and Transaction Control statements
   A. Insert 5 values in the Table for Manufacturing industry / Hospital/ Company.
   B. Update the values from the tables Manufacturing industry / Hospital/ Company.
   C. Delete minimum 2 values from Manufacturing industry / Hospital/ Company table

11. Database Querying – Simple queries, Queries using aggregate functions, GROUP BY, and HAVING clauses. (https://learnsql.com/blog/examples-of-sql-group-by/)
   A. Write a Group-by query for one/two columns in Manufacturing industry / Hospital/ Company table
   B. Write a Having clause query for Manufacturing industry / Hospital/ Company table
   C. Write a queries to make use of aggregate functions Count(), Sum(), Avg(),Min(),Max()

Consider the following relational schema and briefly answer the questions that follow:
Emp(eid: integer, ename: string, age: integer, salary: real)

Works(eid: integer, did: integer, pct time: integer)

Dept(did: integer, budget: real, managerid: integer)

1. Define a table constraint on Emp that will ensure that every employee makes at

least $10,000.

2. Define a table constraint on Dept that will ensure that all managers have age > 30.

3. Define an assertion on Dept that will ensure that all managers have age > 30.

Compare this assertion with the equivalent table constraint. Explain which is better.

To apply the concept of Aggregating Data using Group functions

(1) List total deposit of customer having account date after 1-jan-96

(2) List total deposit of customers living in city Nagpur

(3) List maximum deposit of customers living in bombay.

(4) Display the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number.

(5) Write a query that displays the difference between the highest and lowest salaries. Label the column DIFFERENCE.

(6) Create a query that will display the total number of employees and, of that total, the number of employees hired in 1995, 1996, 1997, and 1998.

Displaying data from Multiple Tables (join)

(1) Give details of customers ANIL.

(2) Give name of customer who are borrowers and depositors and having living city Nagpur

(3) Give city as their city name of customers having same living branch.

(4) Write a query to display the last name, department number, and department name for all employees.

(5) Create a unique listing of all jobs that are in department 30. Include the location of the department in the output

Create the below given table and insert the data accordingly.

Job (job_id, job_title, min_sal, max_sal)

Employee (emp_no, emp_name, emp_sal, emp_comm, dept_no)

deposit(a_no,cname,bname,amount,a_date).

borrow(loanno,cname,bname,amount).

Insert the data for all tables.

To Perform various data manipulation commands, aggregate functions and sorting concept on all created tables.

(1) List total deposit from deposit.
(2) List total loan from karolbagh branch
(3) Give maximum loan from branch vrce.
(4) Count total number of customers.
(5) Count total number of customer's cities

Create a database with suitable example using MongoDB and implement

 Inserting and saving document (batch insert, insert validation)

 Removing document

 Updating document (document replacement, using modifiers, upserts, updating

documents, returning updated documents)

Execute at least 10 queries on any suitable MongoDB database that demonstrates following querying

techniques:

 find and findOne (specific values)

 $gt, $lt

 delete and deleteOne

Execute at least 10 queries on any suitable MongoDB database that demonstrates following:

 $ where queries

 CRUD Database commands

Implement the aggregation and indexing with suitable example in MongoDB. Demonstrate the following:

 Aggregation framework

 Create and drop different types of indexes and explain () to show the advantages of the indexes.

Create a database with suitable example using MongoDB and implement

 Inserting and saving document (batch insert, insert validation)

 Removing document

 Updating document

Consider the table and solve the quries:
Sailors(sid, sname, rating, age)
Boats(bid, bname,color)
Reserves(sid,bid,day)

1. Find the names of sailors who have reserved boat number 103
2. Find the names of sailors who have never reserved boat number 103
3. Find the names of sailors who have reserved a red boat
4. Find the colors of boats reserved by Lubber
5. Find the names of sailors who have reserved at least one boat

1)DEPT Table
deptno number(2,0),
dname varchar2(14),
loc varchar2(13),
Primary key deptno

2)EMP Table
empno number(4,0),
ename varchar2(10),
job varchar2(9),
mgr number(4,0),
hiredate date,
sal number(7,2),
comm number(7,2),
deptno number(2,0),
Pk empno
Fk deptno

QUERIES

1. List all the employees who have at least one person reporting to them.
2. List the employee details if and only if more than 5 employees are present in department no 10
3. List the name of the employees with their immediate higher authority.
4. List all the employees who do not manage any one.
5. List the employee details whose salary is greater than the lowest salary of an employee belonging to deptno 20.