**EXPERIMENT- 5**

**Implementation of SQL queries on n Case Study 1 & 4**

**(TRANSPORT DEPARTMENT) & (KL University ERP)**

PRE-LAB :

1. An amateur programmer has started learning SQL, after mastering other languages like C, JAVA. He is curious to know the primary difference between them. Can you help?
2. The said programmer is confused by ALTER and UPDATE commands. Can you help him out?
3. Define using some SQL Commands that can be used to obtain only the desired number of tuples without having duplicate values in the output?
4. When Drop and Truncate both erase the data in a table, how are they different?
5. .Explain some logical operators in SQL?
6. Give the syntax for checking if a string attribute i) Begins with ‘a’ ii) Ends with ‘a’ iii) Contains ‘a’
7. What operation should be used to combine two tables on a specific condition?

IN-LAB:

Implementation of basic SQL Queries DDL commands, DML commands, Integrity Constraints & Joins on Case Study 1 (**TRANSPORT DEPARTMENT)**

|  |  |
| --- | --- |
| **ENTITIES** | **ATTRIBUTES** |
| CUSTOMER | cust\_id,cust\_name,dob,city,street,state,pincode,ph\_no,deal\_no,photo\_identity,v\_id |
| VEHICLE | veh\_id,veh\_type,veh\_name,veh\_number |
| EDU\_BUS | edu\_id,edu\_name,ph\_no,city,street,state,pincode,deal\_no |
| DEALER | deal\_id,deal\_name,city,street,state,pincode,d\_no,ph\_int |
| BRANCH | branch\_id,b\_name,state,city,pincode,street,d\_no,phno1,phno2,c\_id,v\_id,e\_id |
| RENEWAL | brach\_id,c\_id,check\_license\_period |
| REGISTRATION | cust\_id,veh\_id,deal\_id,date |
| CONTRACT\_PERMISSION | veh\_id, branch\_id, no\_of\_days, amount\_per\_seat |

**Use the below Entities and attributes and implement the below SQL queries**

**CUSTOMER**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| cust\_id | cust\_name | dob | city | street | state | pincode | ph\_no | deal\_no | photo\_identity | v\_id |
| 41 | raju | 13-09-1996 | Guntur | Ramgopal street | Andhra Pradesh | 500213 | 9123456789 | 10 | y | 3 |
| 42 | hari | 19-06-2016 | Perambur | Mylapur | Tamil Nadu | 500211 | 1122334455 | 20 | n | 2 |
| 43 | giri | 20-01-1995 | Hyderabad | SR Nagar | Telangana | 500079 | 8877665544 | 30 | y | 4 |
| 44 | ramu | 17-07-1996 | Vijayawada | Benz circle | Andhra Pradesh | 512345 | 7654564321 | 40 | y | 5 |
| 45 | rahul | 08-12-1995 | Guntur | Raju Nagar | Andhra Pradesh | 523022 | 9999999998 | 50 | y | 7 |
| 46 | gopi | 13-08-1979 | Hyderabad | Gachibowli | Telangana | 567089 | 7787777775 | 10 | n | 1 |
| 47 | karthik | 15-01-2004 | Guntur | Chandramouli nagar | Andhra Pradesh | 546789 | 7788776633 | 20 | n | 6 |
| 48 | gopal | 06-12-2000 | Hyderabad | Ameerpet | Telangana | 500023 | 6734556345 | 30 | y | 8 |
| 49 | Dinesh | 10-12-2001 | Hyderabad | Kondapur | Telangana | 502033 | 6794537212 | 30 | n | 10 |
| 50 | Suresh | 25-03-1999 | Vijayawada | Poranki | Andhra Pradesh | 512022 | 7896543233 | 20 | y | 9 |

**VEHICLE**

|  |  |  |  |
| --- | --- | --- | --- |
| veh\_id | veh\_type | veh\_name | veh\_number |
| 1 | 2\_wheeler | royal\_enfield | AP1234 |
| 2 | 3\_wheeler | auto | AP3421 |
| 3 | 2\_wheeler | royal\_enfield | TS213 |
| 4 | 4\_wheeler | fiat | AP2346 |
| 5 | 4\_wheeler | benz | TS1256 |
| 6 | 3\_wheeler | auto | TN5544 |
| 7 | 2\_wheeler | splendor | AP3214 |
| 8 | 2\_wheeler | bajaj | AP7895 |
| 9 | 2\_wheeler | royal\_enfield | AP2134 |
| 10 | 4\_wheeler | ambassador | TS4567 |

**EDU\_BUS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| edu\_id | edu\_name | ph\_no | city | street | state | pincode | deal\_no |
| 31 | dps | 1122334455 | Hyderabad | sanathnagar | Telangana | 512345 | 444 |
| 32 | klu | 4455667788 | guntur | vaddeswaram | Andhra Pradesh | 567432 | 111 |
| 33 | dav | 1234567896 | Hyderabad | jubilee hills | Telangana | 500897 | 333 |
| 34 | surya | 4356789321 | Hyderabad | bachupally | Telangana | 512098 | 111 |
| 35 | vit | 7788996578 | Hyderabad | kukatpally | Telangana | 500078 | 444 |
| 36 | rvrrjc | 2233445566 | Guntur | guntur | Andhra Pradesh | 523087 | 222 |
| 37 | vnr | 7766554322 | Hyderabad | miyapur | Telangana | 512312 | 333 |
| 38 | klh | 6178765777 | Hyderabad | aziznagar | Telangana | 502303 | 222 |
| 39 | bvrit | 8899776655 | Hyderabad | nizampet | Telangana | 506078 | 111 |
| 40 | cbit | 6547976543 | Hyderabad | gandipet | Telangana | 500064 | 111 |

**DEALER**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| deal\_id | deal\_name | city | street | state | pincode | d\_no | ph\_int |
| 51 | raju | Guntur | Raju Nagar | Andhra Pradesh | 612345 | 555 | 9988776655 |
| 52 | raghu | Hyderabad | Kukatpally | Telangana | 678890 | 666 | 8765489765 |
| 53 | kiran | Hyderabad | Bachupally | Telangana | 546789 | 777 | 7654312389 |
| 54 | ganesh | Hyderabad | Kondapur | Telangana | 456789 | 111 | 8790076543 |
| 55 | hari | Hyderabad | Ameerpet | Telangana | 534467 | 222 | 7896543245 |
| 56 | kiran | Hyderabad | Sanathnagar | Telangana | 512334 | 333 | 7788996655 |
| 57 | kamal | Hyderabad | Miyapur | Telangana | 504406 | 444 | 9123456789 |
| 58 | eswar | Guntur | Mangalagiri | Andhra Pradesh | 563456 | 888 | 8765456554 |
| 59 | david | Guntur | Tullur | Andhra Pradesh | 502344 | 999 | 7658897333 |
| 60 | praveen | Vijayawada | Benz Circle | Andhra Pradesh | 500023 | 122 | 8897653344 |

**BRANCH**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| branch\_id | b\_name | state | city | pincode | street | d\_no | phno1 | phno2 | c\_id | v\_id | e\_id |
| 210 | kukatpally | Telangana | Hyderabad | 521010 | jntu | 53 | 9786543211 | 8765432189 | 41 | 1 | 31 |
| 211 | madhapur | Telangana | Hyderabad | 521011 | kondapur | 52 | 8877665544 | 8765987654 | 41 | 2 | 32 |
| 212 | hitech city | Telangana | Hyderabad | 521012 | gachibowli | 55 | 7968787877 | 8766543119 | 42 | 3 | 33 |
| 213 | miyapur | Telangana | Hyderabad | 520011 | bachupally | 51 | 7059910210 | 8767098584 | 43 | 1 | 34 |
| 214 | raju nagar | Andhra Pradesh | Guntur | 523456 | raju nagar | 53 | 6151032543 | 8767654049 | 44 | 4 | 35 |
| 215 | pnbs | Andhra Pradesh | Guntur | 526901 | pnbs | 55 | 5242154876 | 8768209514 | 44 | 5 | 36 |
| 216 | bachupally | Telangana | Hyderabad | 530346 | miyapur | 52 | 4333277209 | 8768764979 | 42 | 1 | 37 |
| 217 | ameerpet | Telangana | Hyderabad | 533791 | ameerpet | 52 | 3424399542 | 8769320444 | 46 | 7 | 38 |
| 218 | sanathnagar | Telangana | Hyderabad | 537236 | Erragadda | 52 | 2515521875 | 8769875909 | 47 | 8 | 39 |
| 219 | punjagutta | Telangana | Hyderabad | 540681 | punjagutta | 53 | 1606644208 | 8770431374 | 43 | 9 | 40 |

**RENEWAL** **REGISTRATION**

|  |  |  |
| --- | --- | --- |
| brach\_id | c\_id | check\_license\_period |
| 210 | 41 | 4 |
| 210 | 42 | 6 |
| 212 | 43 | 4 |
| 213 | 44 | 4 |
| 211 | 45 | 9 |
| 211 | 46 | 10 |
| 215 | 47 | 4 |
| 216 | 48 | 6 |
| 217 | 49 | 7 |
| 217 | 50 | 8 |

|  |  |  |  |
| --- | --- | --- | --- |
| cust\_id | veh\_id | deal\_id | date |
| 41 | 3 | 55 | 04-04-2014 |
| 42 | 2 | 54 | 02-09-2016 |
| 43 | 4 | 55 | 03-12-2015 |
| 44 | 5 | 52 | 29-09-2016 |
| 45 | 7 | 55 | 18-11-2013 |
| 46 | 1 | 51 | 10-06-2014 |
| 47 | 6 | 52 | 11-07-2011 |
| 48 | 8 | 52 | 12-06-2015 |
| 49 | 10 | 53 | 02-03-2014 |
| 50 | 9 | 53 | 11-10-2015 |

**CONTRACT\_PERMISSION**

|  |  |  |  |
| --- | --- | --- | --- |
| veh\_id | branch\_id | no\_of\_days | amount\_per\_seat |
| 4 | 210 | 15 | 200 |
| 5 | 210 | 43 | 100 |
| 10 | 212 | 15 | 400 |

1. Create the database in mysql and create the necessary tables for the given case study using appropriate keys and relationships between the tables
2. Insert atleast 10 records into every table that is implemented in the case study
3. Create a query to find the vehicles that are permitted by branches located in Andhra Pradesh
4. Create a query to find no.of.customers who had registered in month of July 2020
5. Display the list of 4-wheeler vehicles
6. Display the vehicles that were registered by the dealer name 'Raghu'.
7. Display the list of customers who have applied for new license.
8. Display the vehicles who have been given 30 days of contract permission.
9. Create a query to display all the records who applied for renewal of license
10. Display the count of vehicles of different types.
11. Create a query to display customer details who have 2-wheeler vehicle.
12. Create a query that displays the customer details whose license expires in 5 days.
13. Display the list of educational institutions who applied for permit.
14. Display the total number of vehicles license allotted by each branch.
15. Display the number of customer present under each dealer

Implementation of basic SQL Queries DDL commands, DML commands, Integrity Constraints & Joins on Case Study 4 (**KL UNIVERSITY ERP)**

Use the below tables to solve the given queries

**STUDENT**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **REGNO** | **NAME** | **MOBILENO** | **EMAILID** | **ADDRESS** | **BRANCH** |
| 1000 | Hari | 9988776655 | [abcd@gmail.com](mailto:abcd@gmail.com) | Vijayawada | CSE |
| 2000 | Gopal | 7654328998 | [pqr@gmail.com](mailto:pqr@gmail.com) | Hyderabad | ECE |
| 3000 | Suresh | 8067543567 | [asdf@gmail.com](mailto:asdf@gmail.com) | Guntur | EEE |
| 1001 | Jaya | 9876543246 | [ptyui@gmail.com](mailto:ptyui@gmail.com) | Hyderabad | CSE |
| 1002 | Kiran | 7864569878 | [kjhyu@gmail.com](mailto:kjhyu@gmail.com) | Hyderabad | CSE |
| 2001 | Kalyan | 8765498755 | [kieee@gmail.com](mailto:kieee@gmail.com) | Hyderabad | ECE |

**FACULTY**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **FID** | **FNAME** | **Designation** | **Salary** | **FMOBILE** | **FMAIL** | **FADD** | **BRANCH** |
| 5001 | Krishna | Asst.Prof | 35000 | 9988773211 | [hhhh@gmail.com](mailto:hhhh@gmail.com) | Vijayawada | CSE |
| 5002 | Hari | Assoc.Prof | 75000 | 7876543334 | [kiuyt@gmail.com](mailto:kiuyt@gmail.com) | Hyderabad | CSE |
| 5003 | Mohan | Asst.Prof | 40000 | 8678987689 | [klptre@gmail.com](mailto:klptre@gmail.com) | Hyderabad | ECE |
| 5004 | Giri | Asst.Prof. | 30000 | 7896578967 | [dfgh@gmail.com](mailto:dfgh@gmail.com) | Hyderabad | CSE |

**COURSE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CCODE** | **CNAME** | **BRANCH** | **YEAR** | **SEMESTER** |
| 18CS2101 | DBMS | CSE | 2 | 1 |
| 18CS2102 | EP | CSE | 2 | 1 |
| 18CS2103 | Os | CSE | 2 | 1 |
| 18CS3101 | WE | CSE | 3 | 1 |

**Stu\_Reg\_Courses**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **REGNO** | **YEAR** | **SEMESTER** | **COURSECODE** | **BRANCH** | **FID** |
| 1000 | 2 | 1 | 18C2101 | CSE | 5002 |
| 1001 | 2 | 1 | 18C2102 | CSE | 5001 |
| 1002 | 2 | 1 | 18C2103 | CSE | 5001 |

**LIBRARY\_Books**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ACCNO** | **BTITLE** | **AUTHOR** | **PUBLISHER** | **EDITION** | **PRICE** | **No.Copies** |
| 101 | DBMS | RaghuramaKrishna | Pearson | 5 | 350 | 10 |
| 102 | OS | Tanenbom | Willman | 4 | 300 | 15 |
| 103 | Let Us C | Kanetkar | Pearson | 7 | 600 | 25 |
| 104 | Java Complete Reference | Peter Naughton | Pearson | 6 | 500 | 30 |

**Acad\_Performance:** **ISSUE REGISTER:**

|  |  |  |  |
| --- | --- | --- | --- |
| REGID | YEAR | SEMESTER | CGPA |
| 1000 | 1 | 1 | 9.3 |
| 1001 | 1 | 1 | 9.2 |
| 1002 | 1 | 1 | 9.1 |
| 2000 | 1 | 2 | 9.1 |
| 2001 | 1 | 2 | 9.3 |
| 3000 | 1 | 2 | 9.2 |

|  |  |  |
| --- | --- | --- |
| RegNo | ACCNO | ISSUEDATE |
| 2000 | 101 | 01/05/2020 |
| 1001 | 102 | 05/06/2020 |
| 1002 | 101 | 09/05/2020 |

**FEE:** **OTHER\_FEE:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BRANCH | Fee\_Type | YEAR | SEMESTER | FEEAMOUNT |
| CSE | Tuition Fee | 1 | 1 | 125000 |
| ECE | Tuition Fee | 1 | 1 | 100000 |
| ME | Tuition Fee | 1 | 1 | 80000 |
| EEE | Tuition Fee | 1 | 1 | 70000 |

|  |  |
| --- | --- |
| FEE\_TYPE | FEE\_AMOUNT |
| BUS | 15000 |
| HOSTEL | 80000 |
| SPORTS | 10000 |
| PT | 20000 |

1. Create the database in mysql and create the necessary tables for the given case study using appropriate keys and relationships between the tables
2. Insert atleast 10 records into every table that is implemented in the case study
3. Write a query to find the number of students who got the CGPA 9 & above in year wise?
4. Display all faculties who stay in Vijayawada
5. Write a query to display faculty id , fname, salary who is/are drawing highest salary in faculty id order.
6. Write sql query to display all the faculty whose salary is greater than the average salary of all the faculty.
7. Write a query to display the faculty details for all courses registered by a student;
8. Display the number of books issued to each student with his details
9. Display the number of students registered under each faculty
10. Display the number of students who registered in ERP

POST-LAB:

1. Suppose that a website contains two tables, the Customers table and the Orders table. Write a SQL query to find all customers who never order anything.

Table: **Customers** Table: **Orders**

|  |  |
| --- | --- |
| Id | Name |
| 1 | Joe |
| 2 | Henry |
| 3 | Sam |
| 4 | Max |

|  |  |
| --- | --- |
| Id | CustomerId |
| 1 | 3 |
| 2 | 1 |

2. Given a Weather table, write a SQL query to find all dates' Ids with higher temperature compared to its previous (yesterday's) dates.

|  |  |  |
| --- | --- | --- |
| Id(INT) | RecordDate(DATE) | Temperature(INT) |
| 1 | 01-01-2015 | 10 |
| 2 | 02-01-2015 | 25 |
| 3 | 03-01-2015 | 20 |
| 4 | 04-01-2015 | 30 |

3.There is a table World

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **name** | **continent** | **area** | **population** | **gdp** |
| Afghanistan | Asia | 652230 | 25500100 | 20343000 |
| Albania | Europe | 28748 | 2831741 | 12960000 |
| Algeria | Africa | 2381741 | 37100000 | 188681000 |
| Andorra | Europe | 468 | 78115 | 3712000 |
| Angola | Africa | 1246700 | 20609294 | 100990000 |

A country is big if it has an area of bigger than 3 million square km or a population of more than 25 million. Write a SQL solution to output big countries' name, population and area.

4. A city built a new stadium, each day many people visit it and the stats are saved as these columns: id, visit\_date, people. Write a query to display the records which have 3 or more consecutive rows and the amount of people more than 100. Each day only have one row record, and the dates are increasing with id increasing.

**Stadium**:

|  |  |  |
| --- | --- | --- |
| **id** | **visit\_date** | **people** |
| 1 | 01-01-2017 | 10 |
| 2 | 02-01-2017 | 109 |
| 3 | 03-01-2017 | 150 |
| 4 | 04-01-2017 | 99 |
| 5 | 05-01-2017 | 145 |
| 6 | 06-01-2017 | 1455 |
| 7 | 07-01-2017 | 199 |
| 8 | 08-01-2017 | 188 |

5. The **Employee** table holds all employees. Every employee has an Id, a salary, and there is also a column for the department Id. Write a SQL query to find employees who have the highest salary in each of the departments

|  |  |  |  |
| --- | --- | --- | --- |
| **Id** | **Name** | **Salary** | **DepartmentId** |
| 1 | Joe | 70000 | 1 |
| 2 | Jim | 90000 | 1 |
| 3 | Henry | 80000 | 2 |
| 4 | Sam | 60000 | 2 |
| 5 | Max | 90000 | 1 |

**Department**

|  |  |
| --- | --- |
| **Id** | **Name** |
| 1 | IT |
| 2 | Sales |