SQL: DDL(Data Definition Language) statement:define or modify table structure. table structure: name of table,name of column, data type of column,constraint example: create, drop, alter DML(Data Manipulation Language): table records example: insert,update,delete DQL(Data Query language): select Data Type: char(n):fixed length varchar(n):variable length int float(p,s),decimal(p,s),numeric(p,s) float(p,s) => p =>precision=> total length s=> scale => no. of decimal places float(10,2) => _____.__ Date: 'YYYY-MM-DD' '2024-09-19' 'cdac' '2024-09-19' 1234.67 123 Creating of table: Create syntax: create table TableName(columnName1 dataType(size),columnName2 dataType(size)); Adding records into table: Insert Insert into TableName(columnName1,columnName2) values(value1,value2); Insert into TableName values(value1,value2); Retrieve records: Select 1. all records of all the columns 2. all records of selected columns 3 selected records of all columns: where condition 4. selected records of selected columns Modify Existing records: Update syntax: Update TableName set Column1=newValue,Column2=newvalue where condition; Removal of records from table: Delete Syntax: Delete from TableName where Condition; Alter table TableName: -Add column in table:ADD alter table TableName ADD newColumnName datatype(size); -remove column from table: DROP alter table tableName drop column columnName; -Modify data type/size:MODIFY alter table TableName Modify columnName newDatatype(newSize); - rename column: Change column alter table TableName Change Column oldname newname Datatype(size); -rename tableName: Rename alter table TableName rename to newTableName; remove table from database: Drop table TableName; Data Constraints: constraint Constrant_name Constraint_type primary key:is used to uniquely identify a record. value should be unique and it should be not null 1.At the time of table creation: i. at column level ii. at table level department: DeptID int(PK), Dname varchar(50), location varchar(50) 2.After table creation Foreign key:is used to establish relationship between tables. master table(parent table) details table(child table) employee: id int(pk), ename varchar(50),salary float(16,2),deptID int(FK) syntax: create table employee(id int,Ename varchar(50),salary float(16,2),deptid int, primary key(id), Constraint fk_deptid Foreign Key(DeptID) references department(deptid)); -- on delete cascade/set null on update cacade/set null unique key: create table department(DeptID int,Dname varchar(50),Location varchar(50),Constraint pk_DeptID unique(DeptID)); check constraint: create table employee1(id int,Ename varchar(50) not null,salary float(16,2),deptid int, primary key(id),Constraint fk_deptid Foreign Key(DeptID) references department(deptid), Constraint chk_salary check(salary>=20000)); Check(logical expression) : it will be enforced in 8.0.16 and later version. Not null:only at column level Operators: IN/ NOT IN: and OR Between..and Like: string pattern matching(% and _) % used to represent 0,1 or more character _(underscore) used to represent exactly a single character Conversion Function: cast(expression as data_type) convert(expresssion,data_type) Date_format(date_expression,format) %m => month no. %d => day number %b => month in abbreviated form %M => full month name %W => week day STR_to_Date(string,format) Function: single row function and multiple row function(group functions or aggregate function) single row function(scaler): number function,string function,date function, conversion function) multiple row function(group functions or aggregate function): avg,sum,count(expression),count(*) Group By: result based on grouping select column,aggregateFunc(column) from tableName where condition group by column having condition; select cust_no,count(ACCT_FD_NO) from acct_fd_cust_dtls where ACCT_FD_NO like'SB%' or ACCT_FD_NO like'CA%' group by cust_no having count(ACCT_FD_NO)>1; Join: cartesian product T1- 10 records T2 - 20 records 20*10 => 200 to avoid the problem of cartesian product, we use join condition with join query - to join n tables, there should be (n-1) join condition select employee.ename,employee.salary,department.dname from employee,department where employee.deptid=department.deptid ; select e.ename,e.salary,d.dname from employee e,department d where e.deptid=d.deptid Non-equi join: Select e.ename,e.salary,g.grade from employee e,empgrade g where e.salary Between g.lowest_salary and g.highest_salary;

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Enter password: ******* Welcome to the MySQL monitor. Commands end with ; or \g. Your MySQL connection id is 14 Server version: 5.7.13-log MySQL Community Server (GPL)

respective owners. Type 'help;' or '\h' for help. Type '\c' to clear the current input statement. mysql> use testdb; Database changed mysql> create table department(DeptID int primary key,Dname varchar(50),Location varchar(50)); Query OK, 0 rows affected (0.19 sec) mysql> desc department; +----------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +----------+-------------+------+-----+---------+-------+ | DeptID | int(11) | NO | PRI | NULL | | | Dname | varchar(50) | YES | | NULL | | | Location | varchar(50) | YES | | NULL | | +----------+-------------+------+-----+---------+-------+ 3 rows in set (0.00 sec) mysql> drop table department; Query OK, 0 rows affected (0.24 sec) mysql> create table department(DeptID int,Dname varchar(50),Location varchar(50),primary key(DeptID)); Query OK, 0 rows affected (0.21 sec) mysql> desc department; +----------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +----------+-------------+------+-----+---------+-------+ | DeptID | int(11) | NO | PRI | NULL | | | Dname | varchar(50) | YES | | NULL | | | Location | varchar(50) | YES | | NULL | | +----------+-------------+------+-----+---------+-------+ 3 rows in set (0.00 sec) mysql> drop table department; Query OK, 0 rows affected (0.10 sec) mysql> create table department(DeptID int,Dname varchar(50),Location varchar(50),Constraint pk_DeptID primary key(DeptID)); Query OK, 0 rows affected (0.20 sec) mysql> desc department; +----------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +----------+-------------+------+-----+---------+-------+ | DeptID | int(11) | NO | PRI | NULL | | | Dname | varchar(50) | YES | | NULL | | | Location | varchar(50) | YES | | NULL | | +----------+-------------+------+-----+---------+-------+ 3 rows in set (0.00 sec) mysql> Show create table department; +------------+--+ | Table | Create Table | +------------+--+ | department | CREATE TABLE `department` (`DeptID` int(11) NOT NULL, `Dname` varchar(50) DEFAULT NULL, `Location` varchar(50) DEFAULT NULL, PRIMARY KEY (`DeptID`)) ENGINE=InnoDB DEFAULT CHARSET=utf8 | +------------+--+ 1 row in set (0.00 sec) mysql> create table employee(id int,Ename varchar(50),salary float(16,2),deptid int,primary key(id),Constraint fk_deptid Foreign Key(DeptID) references department(deptid)); Query OK, 0 rows affected (0.22 sec) mysql> desc employee; +--------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +--------+-------------+------+-----+---------+-------+ | id | int(11) | NO | PRI | NULL | | | Ename | varchar(50) | YES | | NULL | | | salary | float(16,2) | YES | | NULL | | | deptid | int(11) | YES | MUL | NULL | | +--------+-------------+------+-----+---------+-------+ 4 rows in set (0.00 sec) mysql> insert into department values(10,'Development','Mumbai'); Query OK, 1 row affected (0.02 sec) mysql> insert into department values(20,'Research','Bangaluru'); Query OK, 1 row affected (0.02 sec) mysql> insert into department values(20,'Sales and Marketing','Delhi'); ERROR 1062 (23000): Duplicate entry '20' for key 'PRIMARY' mysql> insert into department values(30,'Sales and Marketing','Delhi'); Query OK, 1 row affected (0.03 sec) mysql> select * from department; +--------+---------------------+-----------+ | DeptID | Dname | Location | +--------+---------------------+-----------+ | 10 | Development | Mumbai | | 20 | Research | Bangaluru | | 30 | Sales and Marketing | Delhi | +--------+---------------------+-----------+ 3 rows in set (0.00 sec) mysql> insert into employee(1,'Ram',980000,10); ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '1,'Ram',980000,10)' at line 1 mysql> insert into employee values(1,'Ram',980000,10); Query OK, 1 row affected (0.04 sec) mysql> insert into employee values(2,'Rahim',980000,10); Query OK, 1 row affected (0.03 sec) mysql> insert into employee values(3,'Ranbir',980000,40); ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails (`testdb`.`employee`, CONSTRAINT `fk_deptid` FOREIGN KEY (`deptid`) REFERENCES `department` (`DeptID`)) mysql> insert into employee values(3,'Ranbir',980000,30); Query OK, 1 row affected (0.02 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | +----+--------+-----------+--------+ 3 rows in set (0.00 sec) mysql> select * from department; +--------+---------------------+-----------+ | DeptID | Dname | Location | +--------+---------------------+-----------+ | 10 | Development | Mumbai | | 20 | Research | Bangaluru | | 30 | Sales and Marketing | Delhi | +--------+---------------------+-----------+ 3 rows in set (0.00 sec) mysql> delete from department where deptid=10; ERROR 1451 (23000): Cannot

delete or update a parent row: a foreign key constraint fails (`testdb`.`employee`, CONSTRAINT `fk_deptid` FOREIGN KEY (`deptid`) REFERENCES `department` (`DeptID`)) mysql> create table employee1(id int,Ename varchar(50),salary float(16,2),deptid int,primary key(id),Constraint fk_deptid Foreign Key(DeptID) references department(deptid),Constraint chk_salary check(salary>=20000)); ERROR 1022 (23000): Can't write; duplicate key in table 'employee1' mysql> alter table Employee add Constraint chk_salary check(salary>=20000); Query OK, 0 rows affected (0.02 sec) Records: 0 Duplicates: 0 Warnings: 0 mysql> show create table employee; +----------+---------- ---------- ---------- ----------+ | Table | Create Table | +----------+---------- ---------- ---------- ----------+ | employee | CREATE TABLE `employee` (`id` int(11) NOT NULL, `Ename` varchar(50) DEFAULT NULL, `salary` float(16,2) DEFAULT NULL, `deptid` int(11) DEFAULT NULL, PRIMARY KEY (`id`), KEY `fk_deptid` (`deptid`), CONSTRAINT `fk_deptid` FOREIGN KEY (`deptid`) REFERENCES `department` (`DeptID`)) ENGINE=InnoDB DEFAULT CHARSET=utf8 | +----------+---------- ---------- ---------- ----------+ 1 row in set (0.00 sec) mysql> insert into employee values(4,'John',15000,20); Query OK, 1 row affected (0.06 sec) mysql> select 2*2; +-----+ | 2*2 | +-----+ | 4 | +-----+ 1 row in set (0.00 sec) mysql> select 2*2 as "Calculate" -> ; +-----------+ | Calculate | +-----------+ | 4 | +-----------+ 1 row in set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select Ename from employee where deptid in(10,20); +-------+ | Ename | +-------+ | Ram | | Rahim | | John | +-------+ 3 rows in set (0.03 sec) mysql> select Ename from employee where deptid not in(10,20); +--------+ | Ename | +--------+ | Ranbir | +--------+ 1 row in set (0.00 sec) mysql> select Ename from employee where deptid =10 or deptid=20; +-------+ | Ename | +-------+ | Ram | | Rahim | | John | +-------+ 3 rows in set (0.00 sec) mysql> select Ename from employee where deptid =10 and deptid=20; Empty set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select Ename from employee where deptid =10 and salary=980000.00; +-------+ | Ename | +-------+ | Ram | | Rahim | +-------+ 2 rows in set (0.00 sec) mysql> select Ename from employee where salary between 10000 and 50000; +-------+ | Ename | +-------+ | John | +-------+ 1 row in set (0.00 sec) mysql> select Ename from employee where salary >=10000 and salary<=50000; +-------+ | Ename | +-------+ | John | +-------+ 1 row in set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select * from employee where Ename like'R%'; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | +----+--------+-----------+--------+ 3 rows in set (0.00 sec) mysql> select * from employee where Ename like'%m'; +----+-------+-----------+--------+ | id | Ename | salary | deptid | +----+-------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | +----+-------+-----------+--------+ 2 rows in set (0.00 sec) mysql> select * from employee where Ename like'%m%'; +----+-------+-----------+--------+ | id | Ename | salary | deptid | +----+-------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | +----+-------+-----------+--------+ 2 rows in set (0.00 sec) mysql> select * from employee where Ename like'_a%'; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | +----+--------+-----------+--------+ 3 rows in set (0.00 sec) mysql> select * from employee where Ename like'_a_'; +----+-------+-----------+--------+ | id | Ename | salary | deptid | +----+-------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | +----+-------+-----------+--------+ 1 row in set (0.00 sec) mysql> select * from employee where Ename like'_a__'; Empty set (0.00

sec) mysql> select power(2,3); +------------+ | power(2,3) | +------------+ | 8 | +------------+ 1 row in set (0.03 sec) mysql> select round(2912.564,1); +------------------+ | round(2912.564,1) | +------------------+ | 2912.6 | +------------------+ 1 row in set (0.00 sec) mysql> select round(2912.564); +----------------+ | round(2912.564) | +----------------+ | 2913 | +----------------+ 1 row in set (0.00 sec) mysql> select mod(21,2); +-----------+ | mod(21,2) | +-----------+ | 1 | +-----------+ 1 row in set (0.00 sec) mysql> select Upper("Data Analytics"); +------------------------+ | Upper("Data Analytics") | +------------------------+ | DATA ANALYTICS | +------------------------+ 1 row in set (0.00 sec) mysql> select Lower("Data Analytics"); +------------------------+ | Lower("Data Analytics") | +------------------------+ | data analytics | +------------------------+ 1 row in set (0.00 sec) mysql> select Length("Data Analytics"); +-------------------------+ | Length("Data Analytics") | +-------------------------+ | 14 | +-------------------------+ 1 row in set (0.00 sec) mysql> select substring("Data Analytics",1,4); +-------------------------------+ | substring("Data Analytics",1,4) | +-------------------------------+ | Data | +-------------------------------+ 1 row in set (0.00 sec) mysql> select substring("Data Analytics",6,14); +---------------------------------+ | substring("Data Analytics",6,14) | +---------------------------------+ | Analytics | +---------------------------------+ 1 row in set (0.00 sec) mysql> select Left("Computer",4); +--------------------+ | Left("Computer",4) | +--------------------+ | Comp | +--------------------+ 1 row in set (0.00 sec) mysql> select Right("Computer",4); +---------------------+ | Right("Computer",4) | +---------------------+ | uter | +---------------------+ 1 row in set (0.00 sec) mysql> select INSTR("Data Analytics","Analytics") -> ; +-----------------------------------+ | INSTR("Data Analytics","Analytics") | +-----------------------------------+ | 6 | +-----------------------------------+ 1 row in set (0.00 sec) mysql> Select Now(); +---------------------+ | Now() | +---------------------+ | 2024-09-20 12:45:06 | +---------------------+ 1 row in set (0.00 sec) mysql> Select Date(now()) -> ; +-------------+ | Date(now()) | +-------------+ | 2024-09-20 | +-------------+ 1 row in set (0.00 sec) mysql> select Month(Now()); +--------------+ | Month(Now()) | +--------------+ | 9 | +--------------+ 1 row in set (0.00 sec) mysql> select MonthName(Now()); +------------------+ | MonthName(Now()) | +------------------+ | September | +------------------+ 1 row in set (0.01 sec) mysql> select Year("2024-03-23"); +--------------------+ | Year("2024-03-23") | +--------------------+ | 2024 | +--------------------+ 1 row in set (0.00 sec) mysql> select cast('1234' as UNSIGNED); +--------------------------+ | cast('1234' as UNSIGNED) | +--------------------------+ | 1234 | +--------------------------+ 1 row in set (0.00 sec) mysql> select cast('1234.78' as decimal(7,2)); +--------------------------------+ | cast('1234.78' as decimal(7,2)) | +--------------------------------+ | 1234.78 | +--------------------------------+ 1 row in set (0.00 sec) mysql> select convert('1234.78',decimal(7,2)); +--------------------------------+ | convert('1234.78',decimal(7,2)) | +--------------------------------+ | 1234.78 | +--------------------------------+ 1 row in set (0.00 sec) mysql> Select Date_format('2024-09-20','%M %d, %Y'); +--------------------------------------+ | Date_format('2024-09-20','%M %d, %Y') | +--------------------------------------+ | September 20, 2024 | +--------------------------------------+ 1 row in set (0.00 sec) mysql> Select Date_format('2024-09-20','%W, %M %d, %Y'); +--+ | Date_format('2024-09-20','%W, %M %d, %Y') | +--+ | Friday, September 20, 2024 | +--+ 1 row in set (0.00 sec) mysql> select str_to_date('20-09-2024','%d-%m-%Y'); '> '> ; '> '> wq '> ^C mysql> select str_to_date('20-09-2024','%d-%m-%Y'); +-----------------------------------+ | str_to_date('20-09-2024','%d-%m-%Y') | +-----------------------------------+ | 2024-09-20 | +-----------------------------------+ 1 row in set (0.00 sec) mysql> mysql> select * from employee -> ; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select avg(salary) from employee; +---------------+ | avg(salary) | +---------------+ | 738750.000000 | +---------------+ 1 row in set (0.01 sec) mysql> select sum(salary) as "Total Salary" from employee; +--------------+ | Total Salary | +--------------+ | 2955000.00 | +--------------+ 1 row in set (0.00 sec) mysql> selct Count(id) from employee; ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'selct Count(id) from employee' at line 1 mysql> select Count(id) from employee; +-----------+ | Count(id) | +-----------+ | 4 | +-----------+ 1 row in set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select deptid,avg(salary) from employee group by deptid; +--------+---------------+ | deptid | avg(salary) | +--------+---------------+ | 10 |

980000.000000 | | 20 | 15000.000000 | | 30 | 980000.000000 | +--------+---------------+ 3 rows in set (0.01 sec) mysql> CREATE TABLE "ACCT_FD_CUST_DTLS"(-> "ACCT_FD_NO" VARCHAR2(10), -> "ACCT_FD_NO" VARCHAR2(10), ^C mysql> CREATE TABLE "ACCT_FD_CUST_DTLS"(-> "ACCT_FD_NO" VARCHAR2(10), -> ^CUST_NO" VARCHAR(10)); mysql> CREATE TABLE "ACCT_FD_CUST_DTLS"(-> "ACCT_FD_NO" VARCHAR(10), -> "CUST_NO" VARCHAR(10)); ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near '"ACCT_FD_CUST_DTLS"("ACCT_FD_NO" VARCHAR(10), "CUST_NO" VARCHAR(10))' at line 1 mysql> CREATE TABLE ACCT_FD_CUST_DTLS(-> ACCT_FD_NO VARCHAR(10), -> CUST_NO VARCHAR(10)); Query OK, 0 rows affected (0.19 sec) mysql> desc acct_fd_cust_dtls; +------------+-------------+------+-----+---------+-------+ | Field | Type | Null | Key | Default | Extra | +------------+-------------+------+-----+---------+-------+ | ACCT_FD_NO | varchar(10) | YES | | NULL | | | CUST_NO | varchar(10) | YES | | NULL | | +------------+-------------+------+-----+---------+-------+ 2 rows in set (0.00 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB1', 'C1'); Query OK, 1 row affected (0.04 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA2', 'C2'); Query OK, 1 row affected (0.04 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA2', 'C3'); Query OK, 1 row affected (0.08 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB3', 'C4'); Query OK, 1 row affected (0.04 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA4', 'C4'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA4', 'C5'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB5', 'C1'); Query OK, 1 row affected (0.05 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB5', 'C4'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB6', 'C5'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB6', 'C7'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA7', 'C6'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA7', 'C8'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB8', 'C9'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB9', 'C3'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB9', 'C10'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA10', 'C10'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA10', 'C9'); Query OK, 1 row affected (0.02 sec) mysql> mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB11', 'C1'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA12', 'C2'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA12', 'C3'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB13', 'C4'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA14', 'C4'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('CA14', 'C5'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB15', 'C1'); Query OK, 1 row affected (0.04 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('SB15', 'C4'); Query OK, 1 row affected (0.03 sec) mysql> mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS1', 'C2'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS1', 'C3'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS2', 'C4'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS2', 'C5'); Query OK, 1 row

affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS2', 'C5'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS3', 'C6'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS3', 'C8'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS4', 'C10'); Query OK, 1 row affected (0.02 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS4', 'C9'); Query OK, 1 row affected (0.03 sec) mysql> INSERT INTO ACCT_FD_CUST_DTLS (ACCT_FD_NO, CUST_NO) VALUES('FS5', 'C5'); Query OK, 1 row affected (0.11 sec) mysql> select * from ACCT_FD_CUST_DTLS; +------------+---------+ | ACCT_FD_NO | CUST_NO | +------------+---------+ | SB1 | C1 | | CA2 | C2 | | CA2 | C3 | | SB3 | C4 | | CA4 | C4 | | CA4 | C5 | | SB5 | C1 | | SB5 | C4 | | SB6 | C5 | | SB6 | C7 | | CA7 | C6 | | CA7 | C8 | | SB8 | C9 | | SB9 | C3 | | SB9 | C10 | | CA10 | C10 | | CA10 | C9 | | SB11 | C1 | | CA12 | C2 | | CA12 | C3 | | SB13 | C4 | | CA14 | C4 | | CA14 | C5 | | SB15 | C1 | | SB15 | C4 | | FS1 | C2 | | FS1 | C3 | | FS2 | C4 | | FS2 | C5 | | FS2 | C5 | | FS3 | C6 | | FS3 | C8 | | FS4 | C10 | | FS4 | C9 | | FS5 | C5 | +------------+---------+ 35 rows in set (0.00 sec) mysql> select cust_no,count(ACCT_FD_NO) from acct_fd_cust_dtls group by cust_no; +---------+------------------+ | cust_no | count(ACCT_FD_NO) | +---------+------------------+ | C1 | 4 | | C10 | 3 | | C2 | 3 | | C3 | 4 | | C4 | 7 | | C5 | 6 | | C6 | 2 | | C7 | 1 | | C8 | 2 | | C9 | 3 | +---------+------------------+ 10 rows in set (0.00 sec) mysql> select cust_no,count(ACCT_FD_NO) from acct_fd_cust_dtls group by cust_no having count(ACCT_FD_NO)>1; +---------+------------------+ | cust_no | count(ACCT_FD_NO) | +---------+------------------+ | C1 | 4 | | C10 | 3 | | C2 | 3 | | C3 | 4 | | C4 | 7 | | C5 | 6 | | C6 | 2 | | C8 | 2 | | C9 | 3 | +---------+------------------+ 9 rows in set (0.00 sec) mysql> select cust_no,count(ACCT_FD_NO) from acct_fd_cust_dtls group by cust_no having count(ACCT_FD_NO)>1; +---------+------------------+ | cust_no | count(ACCT_FD_NO) | +---------+------------------+ | C1 | 4 | | C10 | 3 | | C2 | 3 | | C3 | 4 | | C4 | 7 | | C5 | 6 | | C6 | 2 | | C8 | 2 | | C9 | 3 | +---------+------------------+ 9 rows in set (0.00 sec) mysql> select cust_no,count(ACCT_FD_NO) -> from acct_fd_cust_dtls -> where ACCT_FD_NO like'SB%' or ACCT_FD_NO like'CA%' -> group by cust_no -> having count(ACCT_FD_NO)>1; +---------+------------------+ | cust_no | count(ACCT_FD_NO) | +---------+------------------+ | C1 | 4 | | C10 | 2 | | C2 | 2 | | C3 | 3 | | C4 | 6 | | C5 | 3 | | C9 | 2 | +---------+------------------+ 7 rows in set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set (0.00 sec) mysql> select * from department; +--------+--------------------+-----------+ | DeptID | Dname | Location | +--------+--------------------+-----------+ | 10 | Development | Mumbai | | 20 | Research | Bangaluru | | 30 | Sales and Marketing | Delhi | +--------+--------------------+-----------+ 3 rows in set (0.00 sec) mysql> select employee.ename,employee.salary,department.dname -> from employee,department -> where employee.deptid=department.deptid; +--------+-----------+--------------------+ | ename | salary | dname | +--------+-----------+--------------------+ | Ram | 980000.00 | Development | | Rahim | 980000.00 | Development | | Ranbir | 980000.00 | Sales and Marketing | | John | 15000.00 | Research | +--------+-----------+--------------------+ 4 rows in set (0.00 sec) mysql> select e.ename,e.salary,d.dname -> from employee e,department d -> where e.deptid=d.deptid; +--------+-----------+--------------------+ | ename | salary | dname | +--------+-----------+--------------------+ | Ram | 980000.00 | Development | | Rahim | 980000.00 | Development | | Ranbir | 980000.00 | Sales and Marketing | | John | 15000.00 | Research | +--------+-----------+--------------------+ 4 rows in set (0.00 sec) mysql> create table empGrade(grade varchar(2) primary key,lowest_salary float(16,2),highest_salary float(16,2)); Query OK, 0 rows affected (0.20 sec) mysql> insert into empgrade values('A',100000,1000000); Query OK, 1 row affected (0.02 sec) mysql> insert into empgrade values('B',10000,100000); Query OK, 1 row affected (0.03 sec) mysql> insert into empgrade values('C',1000,10000); Query OK, 1 row affected (0.03 sec) mysql> select * from empgrade; +-------+--------------+---------------+ | grade | lowest_salary | highest_salary | +-------+--------------+---------------+ | A | 100000.00 | 1000000.00 | | B | 10000.00 | 100000.00 | | C | 1000.00 | 10000.00 | +-------+--------------+---------------+ 3 rows in set (0.00 sec) mysql> select * from employee; +----+--------+-----------+--------+ | id | Ename | salary | deptid | +----+--------+-----------+--------+ | 1 | Ram | 980000.00 | 10 | | 2 | Rahim | 980000.00 | 10 | | 3 | Ranbir | 980000.00 | 30 | | 4 | John | 15000.00 | 20 | +----+--------+-----------+--------+ 4 rows in set

(0.00 sec) mysql> Select e.ename,e.salary,g.grade -> from employee e,empgrade g -> where e.salary Between g.lowest_salary and g.highest_salary; +--------+----------+-------+ | ename | salary | grade | +--------+----------+-------+ | Ram | 980000.00 | A | | Rahim | 980000.00 | A | | Ranbir | 980000.00 | A | | John | 15000.00 | B | +--------+----------+-------+ 4 rows in set (0.00 sec) ========== Working with Database by using python programming: Steps: - import required python library(module and packages) of underlying database - Establish the connection with database -open the connection before executing the command(sql query) - Display the information retreived from the database as per your requirement. - close the connection once the task is completed. Step1 - import required python library(module and packages) of underlying database pip command utility: pip install mysql-connector-python C:\Users\CDAC>pip install mysql-connector-python Collecting mysql-connector-python Downloading mysql_connector_python-9.0.0-cp312-cp312-win_amd64.whl.metadata (2.0 kB) Downloading mysql_connector_python-9.0.0-cp312-cp312-win_amd64.whl (14.3 MB) ---------- 14.3/14.3 MB 8.2 MB/s eta 0:00:00 Installing collected packages: mysql-connector-python Successfully installed mysql-connector-python-9.0.0 Step2- Establish the connection with database host:localhost database user password port