
LAB.1.A:-

1. A)Create the following relation for the student:

Student(regno:string,name:string, class:string, bdate:date,marks1:int,marks1:int, marks2:int, marks3:int)

Create the above tables by properly specifying the primary keys & foreign keys.

i. Enter at least five tuples of the above relation

ii. Demonstrate the usage of following clauses for the above relation
   a. Where c. Having
   b. Order By d. GroupBy

iii. Demonstrate the usage of following clauses for the above relation
   a. Sum c. Count e. Between
   b. Avg d. Like f. Max & Min

iv. Demonstrate the rollback and commit command for the above relation

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```
mysql> create table student(regno varchar(8) primary key,
    name varchar(10),
    class varchar(6),
    bdate date,
    marks1 int,
    marks2 int,
    marks3 int,
    marks4 int)engine =innodb;

mysql> desc student;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| regno  | varchar(8)  | NO   | PRI | NULL    |       |
| name   | varchar(10) | YES  |     | NULL    |       |
| class  | varchar(6)  | YES  |     | NULL    |       |
| bdate  | date        | YES  |     | NULL    |       |
| marks1 | int(11)     | YES  |     | NULL    |       |
| marks2 | int(11)     | YES  |     | NULL    |       |
| marks3 | int(11)     | YES  |     | NULL    |       |
| marks4 | int(11)     | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
8 rows in set (0.21 sec)
```

i. Enter at least five tuples of the above relation

```
mysql> insert into student values('u01','raju','bca','1997-08-12',45,50,80,60);
Query OK, 1 row affected (0.20 sec)

mysql> insert into student values('u02','ramu','bca','1995-08-12',54,60,80,70);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> insert into student values('u03','sangeetha','bca','1994-07-21',64,80,70,50);
Query OK, 1 row affected (0.00 sec)

mysql> insert into student values('u04','geetha','bsc','1998-04-21',44,70,40,50);
Query OK, 1 row affected (0.00 sec)

mysql> insert into student values('u05','kamala','bsc','1992-04-21',44,56,50,50);
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
5 rows in set (0.07 sec)1
```

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ii. Demonstrate the usage of following clauses for the above relation
a. Where c. Having
b. Order By d. GroupBy

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a. where clause

```
mysql> select * from student where class='bca';
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
3 rows in set (0.07 sec)
```

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b.order by

```
mysql> select * from student order by bdate;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
5 rows in set (0.04 sec)

mysql> select * from student order by bdate desc;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
```

```
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
5 rows in set (0.04 sec)


mysql> insert into student values('u06','heera','bsc','1996-04-21',44,70,40,50);
Query OK, 1 row affected (0.00 sec)

mysql> select class, sum(marks1) as 'total' from student group by class having
total>100;
+-------+-------+
| class | total |
+-------+-------+
| bca   |   163 |
| bsc   |   132 |
+-------+-------+
2 rows in set (0.00 sec)
```

GROUP BY

```
mysql>mysql> SELECT CLASS FROM STUDENT
 GROUP BY CLASS;
+-------+
| CLASS |
+-------+
| bca   |
| bsc   |
+-------+
2 rows in set (0.02 sec)
```

iii. Demonstrate the usage of following clauses for the above relation
a. Sum c. Count e. Between
b. Avg d. Like f. Max & Min

a. sum

```
mysql> select (marks1+marks2+marks3+marks4) as 'total marks' from student where
regno='u01';
+-------------+
| total marks |
+-------------+
|         235 |
+-------------+
1 row in set (0.00 sec)

mysql> select sum(marks1), avg(marks1),min(marks1), max(marks1),count(marks1) from
student;
+-------------+-------------+-------------+-------------+---------------+
| sum(marks1) | avg(marks1) | min(marks1) | max(marks1) | count(marks1) |
+-------------+-------------+-------------+-------------+---------------+
|         295 |     49.1667 |          44 |          64 |             6 |
+-------------+-------------+-------------+-------------+---------------+
1 row in set (0.09 sec)


mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
```

```
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u06   | heera     | bsc   | 1996-04-21 |     44 |     70 |     40 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
6 rows in set (0.00 sec)

mysql> select * from student where name like 'r%';
+-------+------+-------+------------+--------+--------+--------+--------+
| regno | name | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+------+-------+------------+--------+--------+--------+--------+
| u01   | raju | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
+-------+------+-------+------------+--------+--------+--------+--------+
2 rows in set (0.00 sec)

mysql> select * from student where name like '%ee%';
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u06   | heera     | bsc   | 1996-04-21 |     44 |     70 |     40 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
3 rows in set (0.00 sec)

mysql> select * from student where name like '_a%';
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
4 rows in set (0.00 sec)


mysql> select * from student where bdate between '1995-04-21' and '1997-08-12';
+-------+-------+-------+------------+--------+--------+--------+--------+
| regno | name  | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-------+-------+------------+--------+--------+--------+--------+
| u01   | raju  | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu  | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u06   | heera | bsc   | 1996-04-21 |     44 |     70 |     40 |     50 |
+-------+-------+-------+------------+--------+--------+--------+--------+
3 rows in set (0.00 sec)


iv. Demonstrate the rollback and commit command for the above relation


mysql> set autocommit=off;
Query OK, 0 rows affected (0.00 sec)

mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into student values('u06','basava','bsc','1992-06-21',44,56,50,50);
Query OK, 1 row affected (0.00 sec)

mysql> insert into student values('u07','pradeep','bsc','1992-06-28',48,56,56,50);
```

```
Query OK, 1 row affected (0.02 sec)

-- we have inserted two records into the table after we set autocommit =off , final
values in the table are as below

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u06   | basava    | bsc   | 1992-06-21 |     44 |     56 |     50 |     50 |
| u07   | pradeep   | bsc   | 1992-06-28 |     48 |     56 |     56 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
7 rows in set (0.00 sec)

--now if we perform rollback , the two records inserted after the autocommit off are
rollbacked(undo insertion).

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
5 rows in set (0.00 sec)

-- below savpoint demonstration:- for paritial rollback we create a point in the
transaction, so that all transaction after the savepoint are rollbacked. And te
records before the savepoint are not rollbacked;


mysql> savepoint p1;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into student values('u09','manjula','cbz','1998-06-28',48,56,56,50);
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u08   | rajdeep   | bba   | 1992-06-28 |     48 |     56 |     56 |     50 |
| u09   | manjula   | cbz   | 1998-06-28 |     48 |     56 |     56 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
7 rows in set (0.00 sec)

mysql> rollback to p1;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u08   | rajdeep   | bba   | 1992-06-28 |     48 |     56 |     56 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
6 rows in set (0.00 sec)
```

-- in the above table only one record is roll backed(i,e u09) which we have inserted after the creation of savepoint. before savepoint we have inserted(u08) which is not rolled back;

--now below we have inserted another record(u10) after that we have committed the transaction, after that we have rollbacked. Here the record insertion is not roll backed because we have commited after insertion.

```
mysql> insert into student values('u10','Heera','bsc','1997-06-28',48,56,56,50);
Query OK, 1 row affected (0.00 sec)

mysql> commit;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u08   | rajdeep   | bba   | 1992-06-28 |     48 |     56 |     56 |     50 |
| u10   | Heera     | bsc   | 1997-06-28 |     48 |     56 |     56 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
7 rows in set (0.00 sec)

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student;
+-------+-----------+-------+------------+--------+--------+--------+--------+
| regno | name      | class | bdate      | marks1 | marks2 | marks3 | marks4 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
| u01   | raju      | bca   | 1997-08-12 |     45 |     50 |     80 |     60 |
| u02   | ramu      | bca   | 1995-08-12 |     54 |     60 |     80 |     70 |
| u03   | sangeetha | bca   | 1994-07-21 |     64 |     80 |     70 |     50 |
| u04   | geetha    | bsc   | 1998-04-21 |     44 |     70 |     40 |     50 |
| u05   | kamala    | bsc   | 1992-04-21 |     44 |     56 |     50 |     50 |
| u08   | rajdeep   | bba   | 1992-06-28 |     48 |     56 |     56 |     50 |
| u10   | Heera     | bsc   | 1997-06-28 |     48 |     56 |     56 |     50 |
+-------+-----------+-------+------------+--------+--------+--------+--------+
7 rows in set (0.00 sec)
```