

DBMS ASSIGNMENT - 4

1. Order By Clause

Query : select * from students order by student_Marks ;

Output : Details of students ordered by marks.

The screenshot displays the MySQL Workbench interface. The 'Query' tab is active, showing the SQL query: `1. select * from students order by Student_Marks ;`. The 'Result Grid' shows the output of the query, which is a table of student details ordered by their marks. The table has five columns: Student_ID, Student_NAME, Student_DOB, Student_Gender, and Student_Marks. The data is as follows:

Student_ID	Student_NAME	Student_DOB	Student_Gender	Student_Marks
4	Alice	10/01/1999	F	60
5	Anamika	20/02/2000	F	62.5
8	Mahesh	22/02/2000	M	65.6
10	Aditya	12/01/1999	M	68.9
11	Rashmi	23/02/2000	F	69.5
7	Padmawati	11/01/1999	F	69.8
3	ANIRUDHA	03/03/2001	M	75.25
9	Varun	31/03/2001	M	76.8

The 'Output' tab at the bottom shows the execution details: '1 18:38:45 select * from students order by Student_Marks LIMIT 0, 1000' with a message '11 row(s) returned' and a duration of '0.000 sec / 0.000 sec'.

2. Group By and Having :

Query : select * from students group by Student_Gender,Student_Marks having Student_Marks > (select avg(Student_Marks) from students) ;

Output : Details of students grouped by gender and marks having marks greater than the average.

The screenshot displays the MySQL Workbench interface. The 'Query' tab is active, showing the following SQL query:

```
1 select * from students group by Student_Gender,Student_Marks
2 having Student_Marks > (select avg(Student_Marks) from students) ;
```

The 'Result Grid' shows the output of the query, displaying 5 rows of student data:

Student_ID	Student_NAME	Student_DOB	Student_Gender	Student_Marks
1	Rupesh	01/01/1999	M	79.77
2	bhargava	02/02/2000	M	80.1
3	ANIRUDHA	03/03/2001	M	75.25
6	Niharika	30/03/2001	F	84.6
9	Varun	31/03/2001	M	76.8

The 'Output' tab at the bottom shows the execution details:

#	Time	Action	Message	Duration / Fetch
1	18:38:45	select * from students order by Student_Marks LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec
2	19:10:59	select * from students group by Student_Gender,Student_Marks having Student_Marks > (select avg(Student_Marks) from st...	5 row(s) returned	0.204 sec / 0.000 sec

3. Aggregate Functions :

A . Count :

Query : select count(Student_ID) from students where Student_Marks > 70;

Output : number of STUDENTS whose MARKS is greater than 70

The screenshot displays the MySQL Workbench interface. The query editor contains the following SQL statement:

```
1 • select count(Student_ID) from students where Student_Marks > 70;
```

The result grid shows the output of the query:

count(Student_ID)
5

The output pane shows the execution log with three steps:

#	Time	Action	Message	Duration / Fetch
1	18:38:45	select * from students order by Student_Marks LIMIT 0, 1000	11 row(s) returned	0.000 sec / 0.000 sec
2	19:10:59	select * from students group by Student_Gender,Student_Marks having Student_Marks > (select avg(Student_Marks) from st...	5 row(s) returned	0.204 sec / 0.000 sec
3	19:27:22	select count(Student_ID) from students where Student_Marks > 70 LIMIT 0, 1000	1 row(s) returned	0.047 sec / 0.000 sec

B. Average

Query : select avg(Student_Marks) from Students Where Student_Gender = 'F' ;

Output : average marks of female students

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select avg(Student_Marks) from students where Student_Gender = 'F' ;
```

The query results are displayed in the Result Grid, showing a single row with the value 69.28000030517578.

The left sidebar shows the SCHEMAS pane with the 'students' table selected. The table structure is listed below:

Table: students

Columns:

- Student_ID
- Student_NAME
- Student_DOB
- Student_Gender
- Student_Marks

The bottom pane shows the Output tab with a table of query results:

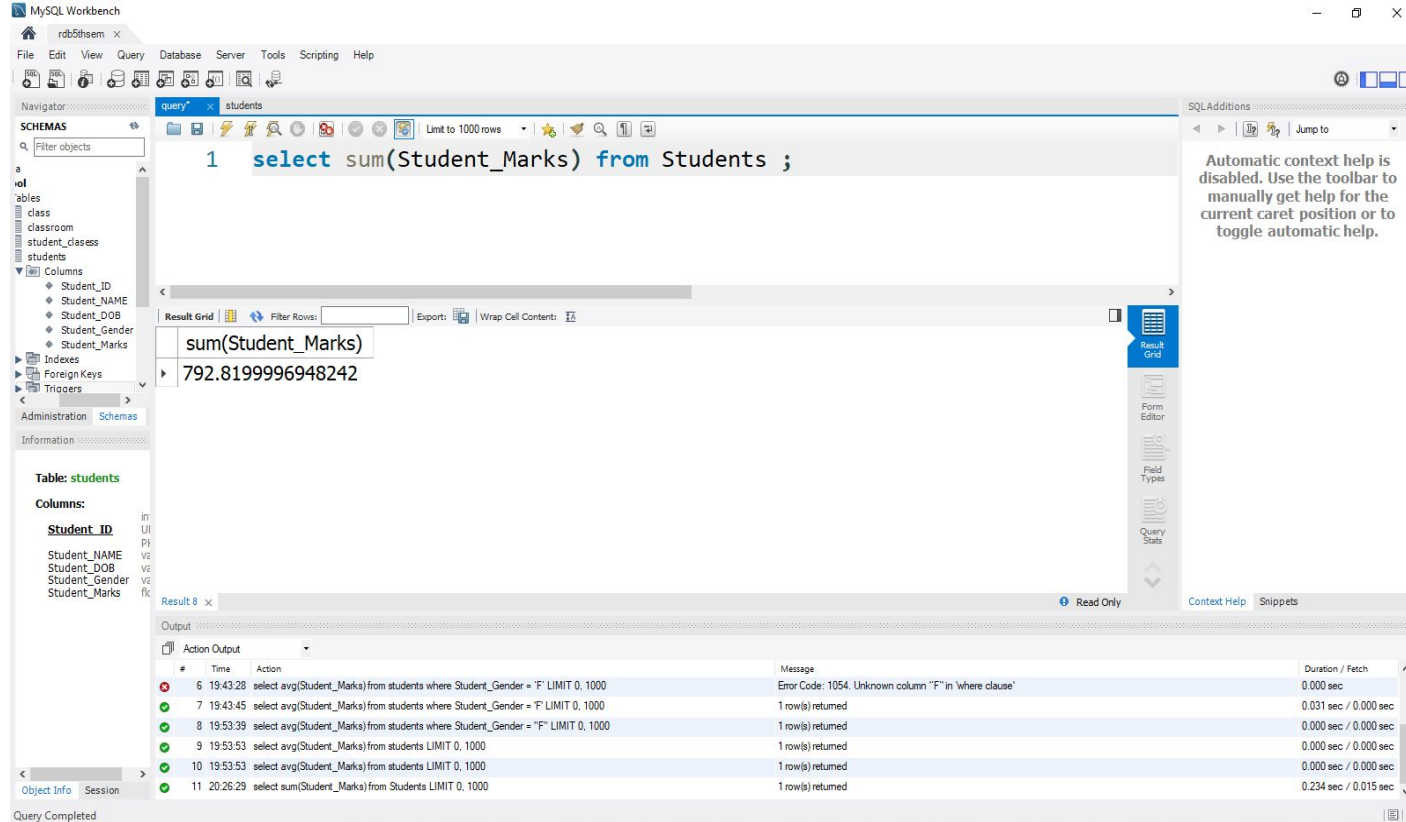
#	Time	Action	Message	Duration / Fetch
2	19:10:59	select * from students group by Student_Gender, Student_Marks having Student_Marks > (select avg(Student_Marks) from ...	5 row(s) returned	0.204 sec / 0.000 sec
3	19:27:22	select count(Student_ID) from students where Student_Marks > 70 LIMIT 0, 1000	1 row(s) returned	0.047 sec / 0.000 sec
4	19:41:54	select avg(Student_Marks) from STUDENT where STUDENT_GENDER = 'F' LIMIT 0, 1000	Error Code: 1146. Table 'school.student' doesn't exist	1.062 sec
5	19:42:49	select avg(Student_Marks) from students where STUDENT_GENDER = 'F' LIMIT 0, 1000	Error Code: 1054. Unknown column 'F' in 'where clause'	0.094 sec
6	19:43:28	select avg(Student_Marks) from students where Student_Gender = 'F' LIMIT 0, 1000	Error Code: 1054. Unknown column 'F' in 'where clause'	0.000 sec
7	19:43:45	select avg(Student_Marks) from students where Student_Gender = 'F' LIMIT 0, 1000	1 row(s) returned	0.031 sec / 0.000 sec

The status bar at the bottom indicates "Query Completed".

C . Sum :

Query : select sum(Student_Marks) from Students ;

Output : Total Marks of all the students (Can be useful in predicting students avg marks in school)



The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1 select sum(Student_Marks) from Students ;
```

The result grid displays the output of the query:

sum(Student_Marks)
792.8199996948242

The left sidebar shows the database schema for 'students' with columns: Student_ID, Student_NAME, Student_DOB, Student_Gender, and Student_Marks. The bottom panel shows the 'Output' tab with a table of query results:

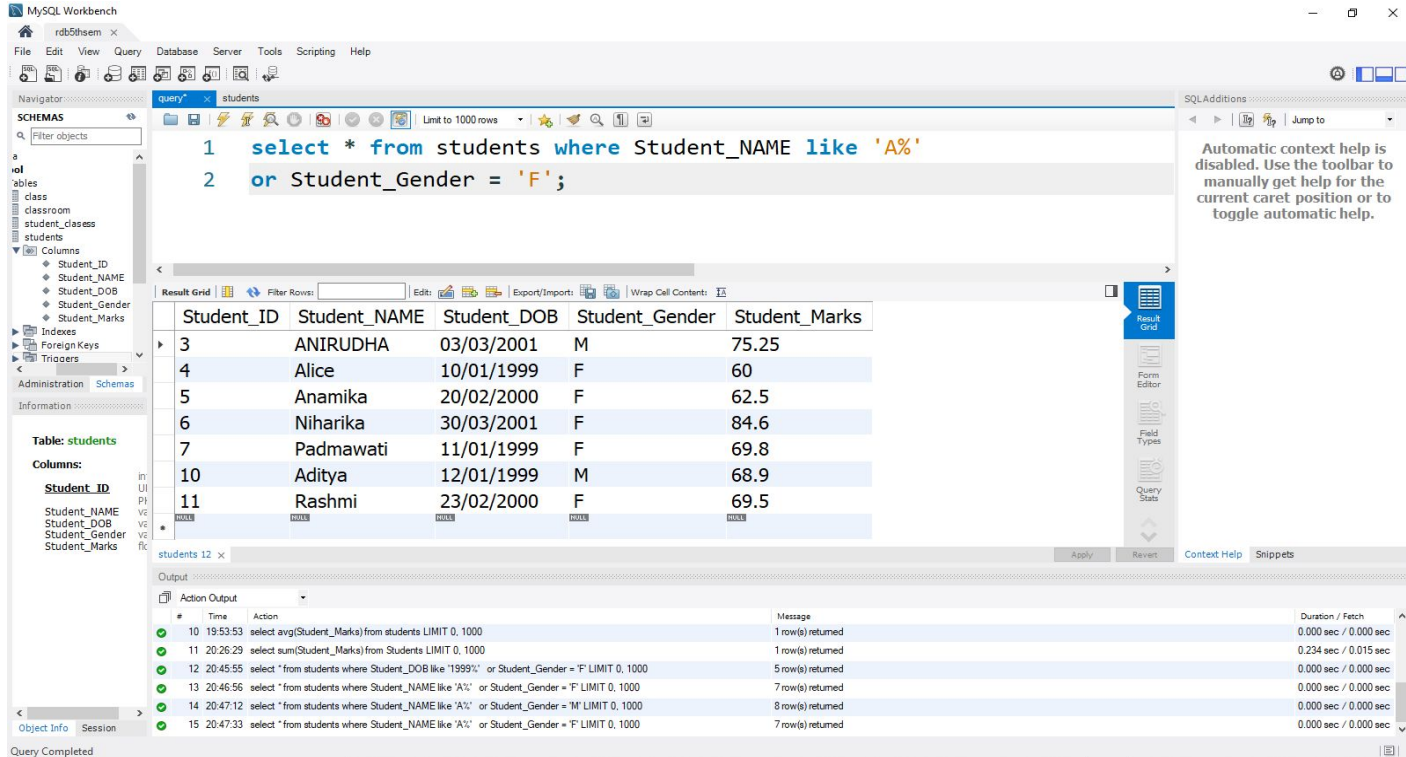
#	Time	Action	Message	Duration / Fetch
6	19:43:28	select avg(Student_Marks) from students where Student_Gender = 'F' LIMIT 0, 1000	Error Code: 1054. Unknown column 'F' in 'where clause'	0.000 sec
7	19:43:45	select avg(Student_Marks) from students where Student_Gender = 'F' LIMIT 0, 1000	1 row(s) returned	0.031 sec / 0.000 sec
8	19:53:39	select avg(Student_Marks) from students where Student_Gender = 'F' LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
9	19:53:53	select avg(Student_Marks) from students LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
10	19:53:53	select avg(Student_Marks) from students LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
11	20:26:29	select sum(Student_Marks) from Students LIMIT 0, 1000	1 row(s) returned	0.234 sec / 0.015 sec

4. Logical operators especially with LIKE

A . % operator :

Query: select * from students where Student_NAME like 'A%' or Student_Gender = 'F';

Output : details of students whose name start with A or Female student



The screenshot displays the MySQL Workbench interface. The query editor at the top contains the following SQL query:

```
1 select * from students where Student_NAME like 'A%';
2 or Student_Gender = 'F';
```

The query results are shown in a table with the following columns: Student_ID, Student_NAME, Student_DOB, Student_Gender, and Student_Marks. The results are as follows:

Student_ID	Student_NAME	Student_DOB	Student_Gender	Student_Marks
3	ANIRUDHA	03/03/2001	M	75.25
4	Alice	10/01/1999	F	60
5	Anamika	20/02/2000	F	62.5
6	Niharika	30/03/2001	F	84.6
7	Padmawati	11/01/1999	F	69.8
10	Aditya	12/01/1999	M	68.9
11	Rashmi	23/02/2000	F	69.5

The output pane at the bottom shows the execution log with the following messages:

#	Time	Action	Message	Duration / Fetch
10	19:53:53	select avg(Student_Marks) from students LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec
11	20:26:29	select sum(Student_Marks) from Students LIMIT 0, 1000	1 row(s) returned	0.234 sec / 0.015 sec
12	20:45:55	select * from students where Student_DOB like '1999%' or Student_Gender = 'F' LIMIT 0, 1000	5 row(s) returned	0.000 sec / 0.000 sec
13	20:46:56	select * from students where Student_NAME like 'A%' or Student_Gender = 'F' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
14	20:47:12	select * from students where Student_NAME like 'A%' or Student_Gender = 'M' LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
15	20:47:33	select * from students where Student_NAME like 'A%' or Student_Gender = 'F' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

B . '_' operator :

Query : select * from students where Student_NAME like '_l%';

Output : details of students whose name contains character l at 2nd position

The screenshot shows the MySQL Workbench interface. The query editor contains the following SQL query:

```
1. select * from students where Student_NAME like '_l%';
```

The query results are displayed in the Result Grid, showing one row of data:

Student_ID	Student_NAME	Student_DOB	Student_Gender	Student_Marks
4	Alice	10/01/1999	F	60

The left sidebar shows the Schemas pane with the 'students' table selected. The bottom pane shows the Output window with the following log:

#	Time	Action	Message	Duration / Fetch
13	20:46:56	select * from students where Student_NAME like 'A%' or Student_Gender = 'F' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
14	20:47:12	select * from students where Student_NAME like 'A%' or Student_Gender = 'M' LIMIT 0, 1000	8 row(s) returned	0.000 sec / 0.000 sec
15	20:47:33	select * from students where Student_NAME like 'A%' or Student_Gender = 'F' LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
16	21:00:25	select * from students where Student_NAME like 'J' LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
17	21:00:42	select * from students where Student_NAME like 'L' LIMIT 0, 1000	0 row(s) returned	0.000 sec / 0.000 sec
18	21:01:12	select * from students where Student_NAME like '_l%' LIMIT 0, 1000	1 row(s) returned	0.000 sec / 0.000 sec

The status bar at the bottom indicates "Query Completed".

5. Nested Queries :

5.1.Simple Subquery :

Query : **select Student_NAME from Students where Student_ID = (select Student_ID from students where Student_NAME like '%a%') ;**

Output : Student_name whose name contains “a” in any position using Student_id

The screenshot displays the MySQL Workbench interface. The 'Schemas' pane on the left shows the 'students' table structure with columns: Student_ID, Student_NAME, Student_DOB, Student_Gender, and Student_Marks. The 'Query' editor in the center contains the following SQL query:

```
1 • select Student_NAME from Students where Student_ID =  
2 (select Student_ID from students where Student_NAME like '%a%' ) ;
```

The 'Result Grid' pane shows the output of the query, displaying a single row with the name 'Alice' under the 'Student_NAME' column.

The 'Output' pane at the bottom shows the execution log, indicating that the query was executed successfully and returned 1 row(s).

Table: students
Columns:
Student_ID
Student_NAME
Student_DOB
Student_Gender
Student_Marks

Students 16 x

Output

#	Time	Action	Message	Duration / Fetch
19	21:12:57	select Student_NAME from Students where Student_ID = (select Student_ID from students where Student_Gender = 'F'	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version...	0.031 sec
20	21:13:48	select Student_NAME from Students where Student_ID =(select Student_ID from students where Student_Gender = 'F'	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version...	0.000 sec
21	21:14:18	select Student_NAME from Students where Student_ID =(select Student_ID from students where Student_Gender = 'F'	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version...	0.000 sec
22	21:14:56	select Student_NAME from Students where Student_ID = (select Student_ID from students where Student_Gender = 'F'	Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version...	0.000 sec
23	21:17:09	select Student_NAME from Students where Student_ID = (select Student_ID from students where Student_Gender = 'F')...	Error Code: 1242. Subquery returns more than 1 row	0.078 sec
24	21:19:20	select Student_NAME from Students where Student_ID = (select Student_ID from students where Student_NAME like 'a...'	1 row(s) returned	0.063 sec / 0.000 sec

Query Completed

