

Student management system

- Create database

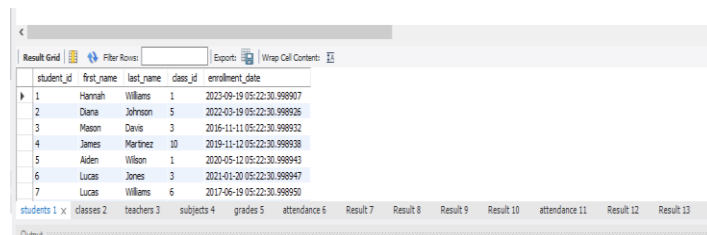
Create student_management_system;

Use student_management_system;

- Retrieve all table data

Select * from students;

Output:-

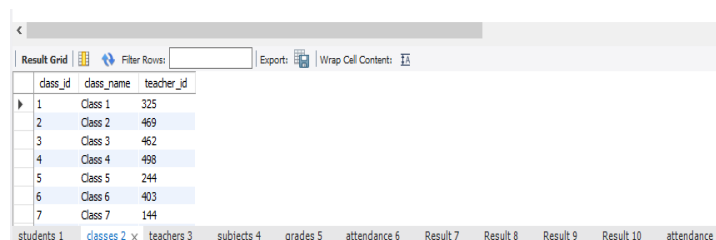


A screenshot of a database query result grid. The grid has a header row with columns: student_id, first_name, last_name, class_id, and enrollment_date. Below the header, there are 7 rows of data. The first row is highlighted. At the bottom of the grid, there are tabs for 'students 1 x', 'classes 2', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', 'attendance 11', 'Result 12', and 'Result 13'. The 'students 1 x' tab is selected.

student_id	first_name	last_name	class_id	enrollment_date
1	Hannah	Williams	1	2023-09-19 05:22:30.998907
2	Diana	Johnson	5	2022-03-19 05:22:30.998926
3	Mason	Davis	3	2016-11-11 05:22:30.998932
4	James	Martinez	10	2019-11-12 05:22:30.998938
5	Aiden	Wilson	1	2020-05-12 05:22:30.998943
6	Lucas	Jones	3	2021-01-20 05:22:30.998947
7	Lucas	Williams	6	2017-06-19 05:22:30.998950

Select * from classes;

Output:-

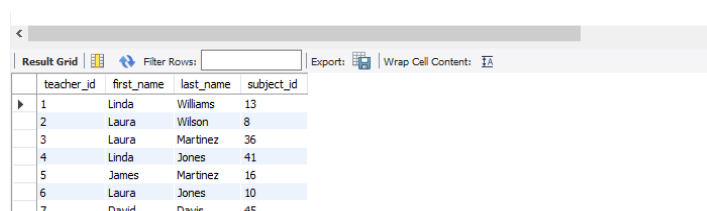


A screenshot of a database query result grid. The grid has a header row with columns: class_id, class_name, and teacher_id. Below the header, there are 7 rows of data. The first row is highlighted. At the bottom of the grid, there are tabs for 'students 1', 'classes 2 x', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 1'. The 'classes 2 x' tab is selected.

class_id	class_name	teacher_id
1	Class 1	325
2	Class 2	469
3	Class 3	462
4	Class 4	498
5	Class 5	244
6	Class 6	403
7	Class 7	144

Select * from teachers;

Output:-

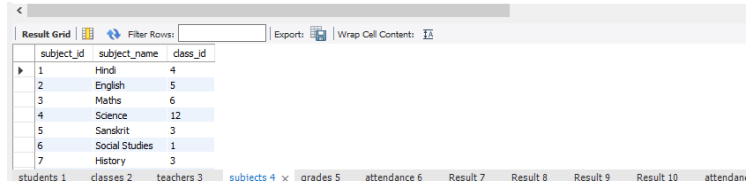


A screenshot of a database query result grid. The grid has a header row with columns: teacher_id, first_name, last_name, and subject_id. Below the header, there are 7 rows of data. The first row is highlighted. At the bottom of the grid, there are tabs for 'students 1', 'classes 2 x', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 1'. The 'teachers 3' tab is selected.

teacher_id	first_name	last_name	subject_id
1	Linda	Williams	13
2	Laura	Wilson	8
3	Laura	Martinez	36
4	Linda	Jones	41
5	James	Martinez	16
6	Laura	Jones	10
7	David	Davis	45

Select * from subjects;

Output:-



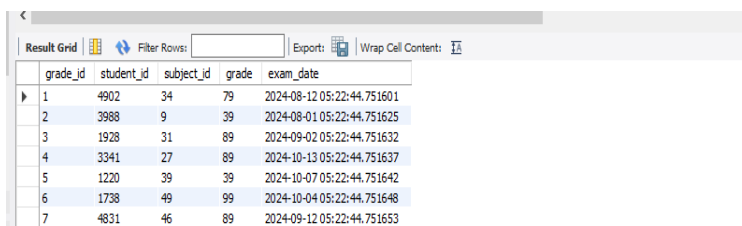
The screenshot shows a database query result grid with the following data:

subject_id	subject_name	class_id
1	Hindi	4
2	English	5
3	Maths	6
4	Science	12
5	Sanskrit	3
6	Social Studies	1
7	History	3

The interface includes a 'Result Grid' header, a 'Filter Rows' input field, and an 'Export' button. The bottom of the grid shows a tabbed interface with tabs for 'students 1', 'classes 2', 'teachers 3', 'subjects 4' (selected), 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 11'.

Select * from grades;

Output:-



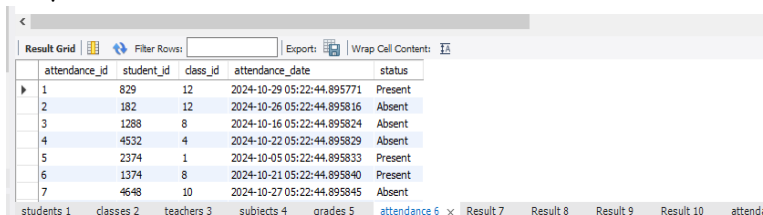
The screenshot shows a database query result grid with the following data:

grade_id	student_id	subject_id	grade	exam_date
1	4902	34	79	2024-08-12 05:22:44.751601
2	3988	9	39	2024-08-01 05:22:44.751625
3	1928	31	89	2024-09-02 05:22:44.751632
4	3341	27	89	2024-10-13 05:22:44.751637
5	1220	39	39	2024-10-07 05:22:44.751642
6	1738	49	99	2024-10-04 05:22:44.751648
7	4831	46	89	2024-09-12 05:22:44.751653

The interface includes a 'Result Grid' header, a 'Filter Rows' input field, and an 'Export' button. The bottom of the grid shows a tabbed interface with tabs for 'students 1', 'classes 2', 'teachers 3', 'subjects 4', 'grades 5' (selected), 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 11'.

Select * from attendance;

Output:-



The screenshot shows a database query result grid with the following data:

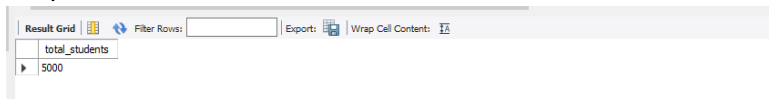
attendance_id	student_id	class_id	attendance_date	status
1	829	12	2024-10-29 05:22:44.895771	Present
2	182	12	2024-10-26 05:22:44.895816	Absent
3	1288	8	2024-10-16 05:22:44.895824	Absent
4	4532	4	2024-10-22 05:22:44.895829	Absent
5	2374	1	2024-10-05 05:22:44.895833	Present
6	1374	8	2024-10-21 05:22:44.895840	Present
7	4648	10	2024-10-27 05:22:44.895845	Absent

The interface includes a 'Result Grid' header, a 'Filter Rows' input field, and an 'Export' button. The bottom of the grid shows a tabbed interface with tabs for 'students 1', 'classes 2', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6' (selected), 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 11'.

- count no of students and teachers

Select count(*) as total_students from students;

Output:-



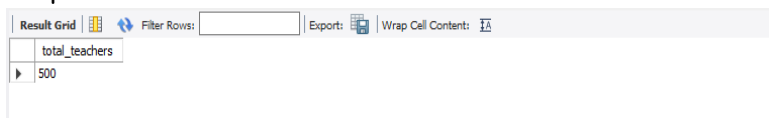
The screenshot shows a database query result grid with the following data:

total_students
5000

The interface includes a 'Result Grid' header, a 'Filter Rows' input field, and an 'Export' button. The bottom of the grid shows a tabbed interface with tabs for 'students 1', 'classes 2', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 11'.

Select count(*) as total_teachers from teachers;

Output:-



The screenshot shows a database query result grid with the following data:

total_teachers
500

The interface includes a 'Result Grid' header, a 'Filter Rows' input field, and an 'Export' button. The bottom of the grid shows a tabbed interface with tabs for 'students 1', 'classes 2', 'teachers 3', 'subjects 4', 'grades 5', 'attendance 6', 'Result 7', 'Result 8', 'Result 9', 'Result 10', and 'attendance 11'.

- list all classes and their respective teacher

```
select classes.class_name,concat(teachers.first_name,' ',teachers.last_name)as
teacher_name
from classes
join teachers on classes.teacher_id=teachers.teacher_id;
```

Output:-

class_name	teacher_name
Class 7	John Smith
Class 12	Michael Jones
Class 9	Laura Wilson
Class 5	Robert Miller
Class 8	John Garcia
Class 10	Emily Miller
Class 1	Michael Davis

- get the grades of a specific student (e.g.) student_id=1

```
Select subjects.subject_name, grades.Grade, grades.exam_date
From grades
Join subjects on grades.subject_id=subjects.subject_id
Where grades.student_id=1;
```

Output:-

subject_name	grade	exam_date
Financial Accounting	79	2024-09-17 05:22:44.770011

- retrieve attendance records for a specific student(e.g. student_id=1)

```
Select attendance_date, status
From attendance
Where student_id=10;
```

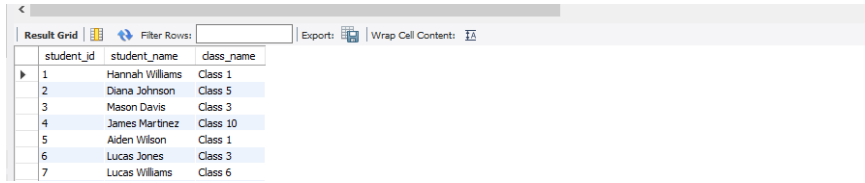
Output:-

attendance_date	status
2024-10-14 05:22:44.897700	Absent
2024-10-14 05:22:44.943294	Absent

- list all students along with their class name

```
select students.student_id,concat(students.first_name,' ',students.last_name) as
student_name,classes.class_name
from students
join classes on students.class_id=classes.class_id;
```

Output:-



student_id	student_name	class_name
1	Hannah Williams	Class 1
2	Diana Johnson	Class 5
3	Mason Davis	Class 3
4	James Martinez	Class 10
5	Aiden Wilson	Class 1
6	Lucas Jones	Class 3
7	Lucas Williams	Class 6

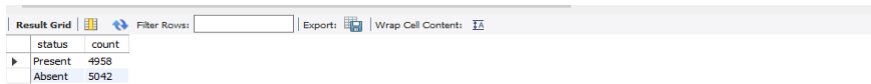
- count attendance (e.g. present, absent)

Select status, count (*) as count

From attendance

Group by status;

Output:-



status	count
Present	4958
Absent	5042

- list students with their last attendance date

select students.student_id,

concat(students.first_name,' ',students.last_name)as student_name,

max(attendance.attendance_date) as last_attendance_date

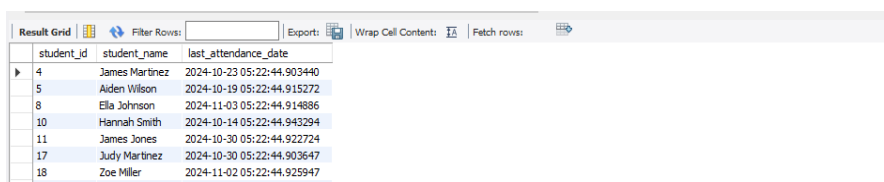
from students

left join attendance on students.student_id=attendance.student_id

group by students.student_id,students.first_name,students.last_name

limit 0,5000;

Output:-



student_id	student_name	last_attendance_date
4	James Martinez	2024-10-23 05:22:44.903440
5	Aiden Wilson	2024-10-19 05:22:44.915272
8	Ella Johnson	2024-11-03 05:22:44.914886
10	Hannah Smith	2024-10-14 05:22:44.943294
11	James Jones	2024-10-30 05:22:44.922724
17	Judy Martinez	2024-10-30 05:22:44.903647
18	Zoe Miller	2024-11-02 05:22:44.925947

- student who failed i.e. grade greater than c

select distinct concat(students.first_name,' ',students.last_name) as student_name,

classes.class_name,

grades.grade

from students

join grades on students.student_id=grades.student_id

join subjects on grades.subject_id=subjects.subject_id

join classes on subjects.class_id=classes.class_id

where grades.grade>'c'

order by classes.class_name,student_name;

Output:-

student_name	class_name	grade
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- Average number of teaching subjects per teacher

```
Select  
t.teacher_id,  
t.first_name,  
t.last_name,  
count(distinct s.subject_id)as teaching_subject_count  
from teachers t  
left join subjects s on t.subject_id=s.subject_id  
group by t.teacher_id,t.first_name,t.last_name;
```

teacher_id	first_name	last_name	teaching_subject_count
1	Linda	Williams	1
2	Laura	Wilson	1
3	Laura	Martinez	1
4	Linda	Jones	1
5	James	Martinez	1
6	Laura	Jones	1
7	David	Davis	1

- count of students in each class

```
select c.class_name,count(s.student_id) as student_count  
from classes c  
join students s on c.class_id =s.class_id  
group by c.class_name;
```

Output:-

class_name	student_count
Class 1	398
Class 5	391
Class 3	436
Class 10	387
Class 6	396
Class 8	414
Class 12	440

- most common grade in each subject

```
select sub.subject_name,g.grade,count(g.grade) as grade_count  
from grades g  
join subjects sub on g.subject_id=sub.subject_id  
group by sub.subject_name,g.grade
```

order by sub.subject_name,grade_count desc;

Output:-

Result Grid			
Filter Rows:		Export:	Wrap Cell Content: IA
	subject_name	grade	grade_count
▶	Agricultural Science	89	57
	Agricultural Science	39	44
	Agricultural Science	69	43
	Agricultural Science	79	38
	Agricultural Science	99	35
	Artificial Intelligence	79	52
	Artificial Intelligence	69	48

- changing grades to marks

```
set sql_safe_updates=0;
update grades
set grade=case
when grade='a'then 99
when grade='b'then 89
when grade='c'then 79
when grade='d'then 69
when grade='e'then 49
when grade='f'then 39
end
where grade in('a','b','c','d','e','f');
select * from grades;
```

Output:-

Result Grid			
Filter Rows:		Export:	Wrap Cell Content: IA
	subject_name	grade	grade_count
▶	Agricultural Science	89	57
	Agricultural Science	39	44
	Agricultural Science	69	43
	Agricultural Science	79	38
	Agricultural Science	99	35
	Artificial Intelligence	79	52
	Artificial Intelligence	69	48

- maximum and minimum marks per subject

```
select subject_id,max(grade) as max_grade,min(grade) as min_grade
from grades
group by subject_id;
```

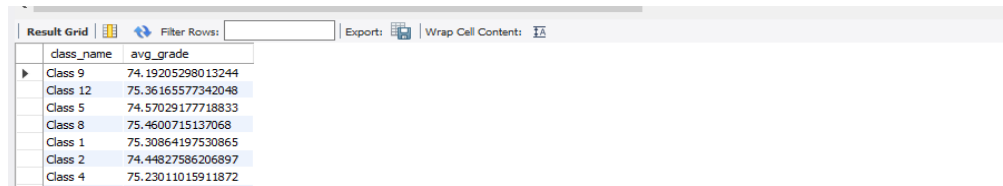
Output:-

Result Grid			
Filter Rows:		Export:	Wrap Cell Content: IA
	subject_id	max_grade	min_grade
▶	34	99	39
	9	99	39
	31	99	39
	27	99	39
	39	99	39
	49	99	39
	46	99	39

- average marks per class

```
select c.class_name,avg(g.grade) as avg_grade
from grades g
join students s on g.student_id=s.student_id
join classes c on s.class_id=c.class_id
group by c.class_name;
```

Output:-



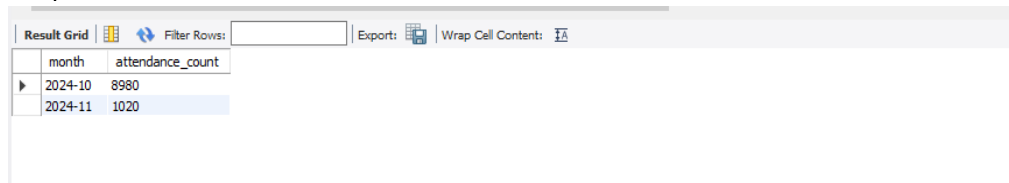
The screenshot shows a database query result grid with two columns: 'class_name' and 'avg_grade'. The data is as follows:

class_name	avg_grade
Class 9	74.19205298013244
Class 12	75.36165577342048
Class 5	74.57029177718833
Class 8	75.4600715137068
Class 1	75.30864197530865
Class 2	74.44827586206897
Class 4	75.23011015911872

- monthly attendance count

```
select date_format(attendance_date,'%Y-%m') as month,count(*) as attendance_count
from attendance
group by month
order by month;
```

Output:-



The screenshot shows a database query result grid with two columns: 'month' and 'attendance_count'. The data is as follows:

month	attendance_count
2024-10	8980
2024-11	1020