

SQL: DDL(Data Definition language)

1. Commands : select||insert||update||delete
2. Aggregate function
3. Text func
4. Datetime func
5. Logic func
6. Sub query
7. Where
8. Group by: having,limit,offset
9. order

The screenshot shows the MySQL Workbench interface. In the top navigation bar, the database 'classicmodels' is selected. The left sidebar shows the schema 'classicmodels' with its tables: customers, employees, offices, orderdetails, orders, payments, products, and products. The main area displays a script editor with the following SQL code:

```

1 -- to use database
2 use classicmodels;
3 -- to show database
4 select * from customers;
5 -- count function
6 select count(*) from customers;
7 -- doesn't show duplicate value
8 select distinct state from customers;
9 -- count of distinct state

```

Below the script editor is a results grid titled 'customers 1'. It lists 131 rows of customer data with columns: customerNumber, customerName, contactLastName, contactFirstName, phone, addressLine1, addressLine2, city, state, postalCode, country, salesRepEmployeeNumber, and creditLimit.

To show database

The screenshot shows the MySQL Workbench interface. In the top navigation bar, the database 'classicmodels' is selected. The left sidebar shows the schema 'classicmodels' with its tables: customers, employees, offices, orderdetails, orders, payments, products, and products. The main area displays a script editor with the following SQL code:

```

15
16 se Execute the selected portion of the script or everything, if there is no selection.
17
18 select
19 sum(creditLimit) as total_limit,
20 min(creditLimit),
21 max(creditLimit),
22 avg(creditLimit),
23 count(creditLimit) from customers ;

```

Below the script editor is a results grid titled 'Result 2'. It shows a single row of aggregated data with columns: total_limit, min(creditLimit), max(creditLimit), avg(creditLimit), and count(creditLimit).

Aggregate function

- Sum
- Max
- Min
- Avg
- Count
- Round
- Floor
- Ceil
- Truncate

Text function:

- Upper
- Lower
- Right
- Left
- Mid
- replace

MySQL Workbench

khush - Vtaming - not support... X

File Edit View Query Database Server Tools Scripting Help

Navigator data_analytics classicmodels [databaselockedopen]

SCHEMAS

Filter objects

classicmodels

- Tables
- Views
- Stored Procedures
- Functions
- schemas
- sys
- world

employees

offices

orderdetails

orders

payments

productlines

products

customers

customername upper(customername) lower(customername) left(customername , 2) right(customername , 2) mid(customername , 2, 1) replace(customername , 'a', 'b')

From customers;

Result Grid Filter Rows Export Wrap Cell Content E

customername	upper(customername)	lower(customername)	left(customername , 2)	right(customername , 2)	mid(customername , 2, 1)	replace(customername , 'a', 'b')
Atelier graphique	ATELIER GRAPHIQUE	atelier graphique	Ate	gphique	a	Atel gphique
Signal Gift Stores	SIGNAL GIFT STORE	signal gift stores	Sig	nal gift stores	g	Signl Gft Stres
Australian Collectors, Co.	AUSTRALIAN COLLECTORS, CO.	australian collectors, co.	Aus	tralian collectors, co.	u	Aust llian Collectors, Co.
La Rochelle Gifts	LA ROCHELLE GIFTS	la rochelle gifts	La	rochelle gifts	a	L Rochele Gfts
Banne Min Imports	BANNE MIN IMPORTS	banne min imports	Ban	min imports	m	Bnn Min Impo
Min Gifts Distributors Ltd.	MIN GIFT DISTRIBUTORS LTD.	min gifts distributors ltd.	Min	gifts distributors ltd.	i	Min Gfts Distributors Ltd.
Havel & Zyzek Co.	HAVEL & ZYZEK CO	havel & zyzek co.	Hav	& zyzek co.	z	Havel & Zzyzek Co.
Bauer See Auto, Co.	BAUER SEE AUTO, CO.	bauer see auto, co.	Bau	er see auto, co.	a	Bauer See Auto, Co.
Min Wheels Co.	MIN WHEELS CO.	min wheels co.	Min	wheels co.	W	Min Wheels Co.

Result 3 x

Action Output

Time Action Message Duration / Fetch

1 14:04:56 use classicmodels 0 rows(0) affected 0.000 sec / 0.000 sec

2 14:05:05 select from customers LIMIT 0, 10000 122 rows(0) returned 0.016 sec / 0.000 sec

3 14:05:40 select sum(isnotinpaid) as total_is_notinpaid; max(isnotinpaid), avg(isnotinpaid), count(isnotinpaid) from customers 1 row(s) returned 0.016 sec / 0.000 sec

4 14:05:54 select customername , upper(customername), lower(customername), left(customername , 2), right(customername , 2) , mid(customername , 2, 1) , replace(customername , 'a', 'b') from customers 122 rows(0) returned 0.016 sec / 0.000 sec

Object Info Session

22°C Sunny

MySQL Workbench

khush - Vtaming - not support... X

File Edit View Query Database Server Tools Scripting Help

Navigator data_analytics classicmodels [databaselockedopen]

SCHEMAS

Filter objects

classicmodels

- Tables
- Views
- Stored Procedures
- Functions
- schemas
- sys
- world

customers

customername

SubString_Index(customername, ' ', -1) from customers;

select contactfirstname,contactlastname, concat(contactfirstname, " ", contactlastname) from customers;

select group_concat(customername) from customers;

select replace(group_concat(customername), ' ', '') from customers;

Result Grid Filter Rows Export Wrap Cell Content E

CUSTOMERNAME	SubString_Index(customername, ' ', -1)
Atelier graphique	graphique
Signal Gift Stores	Stores
Australian Collectors, Co.	Co.
La Rochelle Gifts	Gifts
Banne Min Imports	Imports
Min Gifts Distributors Ltd.	Ltd.
Havel & Zyzek Co	Co
Bauer See Auto, Co.	Co.
Min Wheels Co.	Co.

Result 4 x Result 5 Result 6 Result 7 Result 8 Result 9

Action Output

Time Action Message Duration / Fetch

5 14:07:35 SELECT CUSTOMERNAME, SubString_Index(customername, ' ', -1) from customers LIMIT 0, 10000 122 rows(0) returned 0.000 sec / 0.000 sec

6 14:07:35 select contactfirstname,contactlastname, concat(contactfirstname, " ", contactlastname) from customers LIMIT ... 122 rows(0) returned 0.000 sec / 0.000 sec

7 14:07:35 select group_concat(customername) from customers LIMIT 0, 10000 1 row(s) returned 0.000 sec / 0.000 sec

8 14:07:35 select replace(group_concat(customername), ' ', '') from customers LIMIT 0, 10000 1 row(s) returned 0.000 sec / 0.000 sec

9 14:07:35 select concat(upper(left(customername, 1)),lower(mid(customername, 2,100))) from customers LIMIT 0, 10000 122 rows(0) returned 0.000 sec / 0.000 sec

10 14:07:35 select customername length(customername) from customers LIMIT 0, 10000 122 rows(0) returned 0.000 sec / 0.000 sec

Object Info Session

22°C Sunny

1.

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Schemas

classmodels

Tables

- customers
- employee
- offices
- orderdetails
- orders
- payments
- products
- views
- stored procedures
- functions
- data_analytics
- sakila
- sys
- world

No object selected

Result Grid

contactfirstname	contactlastname	concat(contactfirstname, " ", contactlastname)
Came	Schmit	Came Schmit
Jean	King	Jean King
Peter	Ferguson	Peter Ferguson
Jeanne	Luburne	Jeanne Luburne
Jonas	Bergforsen	Jonas Bergforsen
Susan	Nelson	Susan Nelson
Zbyszek	Piotrzeniewicz	Zbyszek Piotrzeniewicz
Roland	Kellie	Roland Kellie
Julie	Murphy	Julie Murphy

Action Output

#	Time	Action	Message	Duration / Fetch
1	14:07:35	SELECT CUSTOMERNAME, Substring_Index(customername, "-",1) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
2	14:07:35	select contactfirstname, contactlastname, concat(contactfirstname, " ", contactlastname) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
3	14:07:35	select group_concat(customername) from customers LIMIT 0, 10000	1 rows/returned	0.000 sec / 0.000 sec
4	14:07:35	select replace(group_concat(customername),",","") from customers LIMIT 0, 10000	1 rows/returned	0.000 sec / 0.000 sec
5	14:07:35	select concat(concat(customername, "1"),lower(concat(customername, "2")))) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
6	14:07:35	select customername,length(customername) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec

Object Info Session

2.

MySQL Workbench

File Edit View Query Database Server Tools Scripting Help

Schemas

classmodels

Tables

- customers
- employee
- offices
- orderdetails
- orders
- payments
- products
- views
- stored procedures
- functions
- data_analytics
- sakila
- sys
- world

No object selected

Result Grid

group_concat(customername)
Atelier graphique,Signal Gif Stores,Australien C...

Action Output

#	Time	Action	Message	Duration / Fetch
1	14:07:35	SELECT CUSTOMERNAME, Substring_Index(customername, "-",1) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
2	14:07:35	select contactfirstname, contactlastname, concat(contactfirstname, " ", contactlastname) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
3	14:07:35	select group_concat(customername) from customers LIMIT 0, 10000	1 rows/returned	0.000 sec / 0.000 sec
4	14:07:35	select replace(group_concat(customername),",","") from customers LIMIT 0, 10000	1 rows/returned	0.000 sec / 0.000 sec
5	14:07:35	select concat(concat(customername, "1"),lower(concat(customername, "2")))) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
6	14:07:35	select customername,length(customername) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec

Object Info Session

3.

MySQL Workbench

khush - Warning - not support... X

File Edit View Query Database Server Tools Scripting Help

Navigator: data_analytics classicmodels datanalysis(query)

SCHEMAS

Tables

Customers Employees Offices Orderdetails Orders Payments Productlines Products Views Stored Procedures Functions Schemas sys world

data_analytics classicmodels datanalysis(query)

```

34 •   SELECT CUSTOMERNAME,
35   Substring_index(customername, "-",1) from customers;
36
37 •   select contactfirstname,contactlastname, concat(contactfirstname, " ",contactlastname) from customers;
38
39 •   select group_concat(customername) from customers;
40
41 •   select replace(group_concat(customername),",","");
42

```

Result Grid | Filter Rows Export Wrap Cell Contents

replace(group_concat(customername),",","");
Atelier graphique-Signal Gift Stores-Austral C...

No object selected Result 4 Result 5 Result 6 Result 7 Result 8 Result 9 Read Only

Action Output

#	Time	Action	Message	Duration / Fetch
5	14:07:35	SELECT CUSTOMERNAME, Substring_index(customername, "-",1) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
6	14:07:35	select contactfirstname,contactlastname, concat(contactfirstname, " ",contactlastname) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
7	14:07:35	select group_concat(customername) from customers LIMIT 0, 10000	1 row(s)/returned	0.000 sec / 0.000 sec
8	14:07:35	select replace(group_concat(customername),",",""); from customers LIMIT 0, 10000	1 row(s)/returned	0.000 sec / 0.000 sec
9	14:07:35	select concat(upper(left(customername,1)),lower(mid(customername,2,100))) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
10	14:07:35	select customername,length(customername) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec

Object Info Session 22°C Sunny 25-11-2025 14:08

4.

MySQL Workbench

khush - Warning - not support... X

File Edit View Query Database Server Tools Scripting Help

Navigator: data_analytics classicmodels datanalysis(query)

SCHEMAS

Tables

Customers Employees Offices Orderdetails Orders Payments Productlines Products Views Stored Procedures Functions Schemas sys world

data_analytics classicmodels datanalysis(query)

```

37 •   select contactfirstname,contactlastname, concat(contactfirstname, " ",contactlastname) from customers;
38
39 •   select group_concat(customername) from customers;
40
41 •   select replace(group_concat(customername),",","");
42
43 •   select concat(upper(left(customername,1)),lower(mid(customername,2,100))) from customers;
44
45 •   select customername,length(customername) from customers;

```

Result Grid | Filter Rows Export Wrap Cell Contents

concat(upper(left(customername,1)),lower(mid(customername,2,100)))

Atelier graphique
Signal gift stores
Australian collectors, co.
La rochelle gift
Bonne mini imports
Mini gifts distributors ltd.
Have & zhyzrek co.
Bauer see auto, co.
Mini wheels co.
Land of toys inc.

No object selected Result 4 Result 5 Result 6 Result 7 Result 8 Result 9 Read Only

Action Output

#	Time	Action	Message	Duration / Fetch
5	14:07:35	SELECT CUSTOMERNAME, Substring_index(customername, "-",1) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
6	14:07:35	select contactfirstname,contactlastname, concat(contactfirstname, " ",contactlastname) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
7	14:07:35	select group_concat(customername) from customers LIMIT 0, 10000	1 row(s)/returned	0.000 sec / 0.000 sec
8	14:07:35	select replace(group_concat(customername),",",""); from customers LIMIT 0, 10000	1 row(s)/returned	0.000 sec / 0.000 sec
9	14:07:35	select concat(upper(left(customername,1)),lower(mid(customername,2,100))) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec
10	14:07:35	select customername,length(customername) from customers LIMIT 0, 10000	122 rows/returned	0.000 sec / 0.000 sec

Object Info Session 22°C Sunny 25-11-2025 14:08

5.

MySQL Workbench

Khush - Training - not support... X

File Edit View Query Database Server Tools Scripting Help

Navigator data_analytics* classicmodels* database(queries)

SCHEMAS

- classicmodels
 - Tables: customers, employees, offices, orderdetails, orders, payments, productlines, products, views
 - Stored Procedures
 - Functions
 - data_analytics
 - salina
 - sys
 - world

Administration Schemas Information

No object selected

```

37 • select contactfirstname,contactlastname, concat(contactfirstname, " ",contactlastname) from customers;
38
39 • select group_concat(customername) from customers;
40
41 • select replace(group_concat(customername),",","") from customers;
42
43 • select concat(upper(left(customername,1)),lower(mid(customername,2,100))) from customers;
44
45 • select customername,length(customername) from customers;

```

Result Grid | Filter Rows Export: Wrap Cell Content:

customername	length(customername)
Able Gifts	17
Gifts Off Stores	18
Australian Collectors Co.	26
La Rochelle Gifts	17
Bearne Min Imports	18
Mini Gifts Distributors Ltd.	28
Havel & Zyzzyx Co.	18
Blauer See Auto. Co.	20
Minis Wheels Co.	15
Land of Toys Inc.	17

Result 4 Result 5 Result 6 Result 7 Result 8 Result 9 x Read Only

Action Output

#	Time	Action	Message	Duration / Fetch
5	14:07:35	SELECT CUSTOMERNAME, Substring_Index(customername, "-",1) from customers LIMIT 0, 10000	122 rows returned	0.000 sec / 0.000 sec
6	14:07:35	select contactfirstname,concat(contactfirstname," ",contactlastname) from customers LIMIT ...	122 row(s) returned	0.000 sec / 0.000 sec
7	14:07:35	select group_concat(customername) from customers LIMIT 0, 10000	1 row(s) returned	0.000 sec / 0.000 sec
8	14:07:35	select replace(group_concat(customername),",","") from customers LIMIT 0, 10000	1 row(s) returned	0.000 sec / 0.000 sec
9	14:07:35	select concat(upper(left(customername,1)),lower(mid(customername,2,100))) from customers LIMIT 0, 10000	122 row(s) returned	0.000 sec / 0.000 sec
10	14:07:35	select customername,length(customername) from customers;	122 row(s) returned	0.000 sec / 0.000 sec

Object Info Session 22°C Sunny 25-11-2025 14:08 ENG IN

6.

data_analytics* classicmodels* database(queries)*

```

48 • select now();
49 • select current_date();
50 • select paymentdate,
51 year(paymentdate),
52 month(paymentdate),
53 day(paymentdate),
54 dayname(paymentdate) from payments ;
55 • select orderdate ,shippeddate, datediff(shippeddate,orderdate) from orders;
56 • select round(avg(datediff(shippeddate,orderdate)),0)from orders; -- error

```

Result Grid | Filter Rows Export: Wrap Cell Content:

paymentdate	year(paymentdate)	month(paymentdate)	day(paymentdate)	dayname(paymentdate)
2004-10-19	2004	10	19	Tuesday
2003-06-05	2003	6	5	Thursday
2004-12-18	2004	12	18	Saturday
2004-12-17	2004	12	17	Friday
2003-06-06	2003	6	6	Friday
2004-08-20	2004	8	20	Friday
2003-05-20	2003	5	20	Tuesday
2004-12-15	2004	12	15	Wednesday
2003-05-31	2003	5	31	Saturday
2004-03-10	2004	3	10	Wednesday

Result 12 x

Datetime function

data_analytics* classicmodels* dataanalytics(ques)*

```

63    -- done number,text,date function
64    -- if condition
65 •  select* , if(amount>=0 and amount<=10000,"10k","other") from payments;
66 •  select*, case
67    when amount>=0 and amount<=5000 then "low"
68    when amount>=5001 and amount<=1000 then "medium"
69    else "high"
70   end from payments;
71   -- sub query[nested query]

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	customerNumber	checkNumber	paymentDate	amount	if(amount>=0 and amount<=10000,"10k","other")
▶	103	HQ336336	2004-10-19	6066.78	10k
	103	JM555205	2003-06-05	14571.44	other
	103	OM314933	2004-12-18	1676.14	10k
	112	BO864823	2004-12-17	14191.12	other
	112	HQ55022	2003-06-06	32641.98	other
	112	ND748579	2004-08-20	33347.88	other
	114	GG31455	2003-05-20	45864.03	other
	114	MA765515	2004-12-15	82261.22	other
	114	NP603840	2003-05-31	7565.08	10k
	114	NP77552	2004-02-10	14801.74	other

Result 13 x

If condition

data_analytics* classicmodels* dataanalytics(ques)*

```

63    -- done number,text,date function
64    -- if condition
65 •  select* , if(amount>=0 and amount<=10000,"10k","other") from payments;
66 •  select*, case
67    when amount>=0 and amount<=5000 then "low"
68    when amount>=5001 and amount<=1000 then "medium"
69    else "high"
70   end from payments;
71   -- sub query[nested query]

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: |

	customerNumber	checkNumber	paymentDate	amount	case when amount>=0 and amount<=5000 then "low" when amount>=5001 and amount<=1000 then "medium" else "high" end
▶	103	HQ336336	2004-10-19	6066.78	high
	103	JM555205	2003-06-05	14571.44	high
	103	OM314933	2004-12-18	1676.14	low
	112	BO864823	2004-12-17	14191.12	high
	112	HQ55022	2003-06-06	32641.98	high
	112	ND748579	2004-08-20	33347.88	high

Case else

data_analytics* classicmodels* dataanalytics(ques)*

```

69     else "high";
70   end from payments;
71   -- sub query[nested query]
72 •   select* from payments;
73 •   select*from customers;
74
75 •   select sum(amount) from payments;
76 •   select sum(creditlimit) from customers;
77 •   select sum(amount)/(select sum(creditlimit) from customers) from payments;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sum(amount)/(select sum(creditlimit) from customers)
1.072621

Sub query

data_analytics* classicmodels* dataanalytics(ques)*

```

124    -- where clause: filter
125 •   select*from customers where city="Las Vegas";
126 •   select*from customers where country !="USA";
127 •   select*from customers where creditlimit>=100000;
128 •   select *from customers where creditlimit between 150000 and 250000;
129 •   select * from customers where country like "aus%";
130 •   select*from customers where country like "%a%";
131 •   select*from customers where country like "%B_gium";
132 •   select*from customers where country in ("australia","belgium");

```

Where clause

data_analytics* classicmodels* dataanalytics(ques)*

```

133
134    -- 25 nov 2025 tuesday
135    -- group by
136 •   use classicmodels;
137 •   select country,sum(creditlimit) from customers group by country;
138 •   select country,city,sum(creditlimit) from customers group by country,city;
139
140    -- ordern by: find top and bottom records
141 •   select country,sum(creditlimit) as cr from customers group by country order by cr desc;

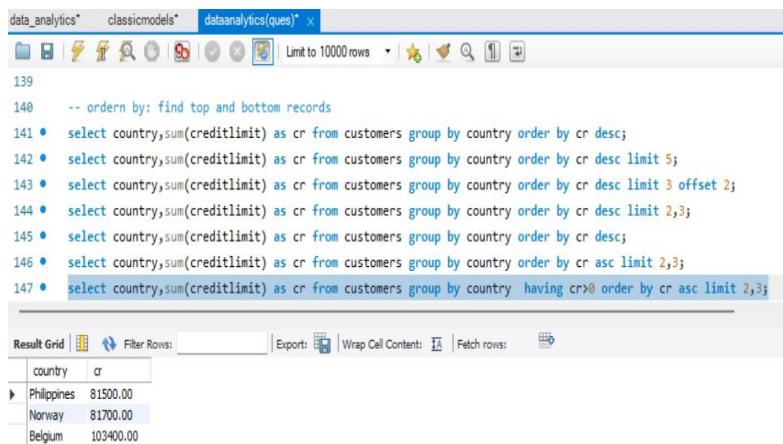
```

Group by

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

country	city	sum(creditlimit)
France	Nantes	139200.00
USA	Las Vegas	71800.00
Australia	Melbourne	117300.00
Norway	Stavern	81700.00
USA	San Rafael	210500.00
Poland	Warszawa	0.00
Germany	Frankfurt	59700.00
USA	San Francisco	169600.00
USA	NYC	437100.00
Spain	Madrid	391800.00

Order by:



The screenshot shows a MySQL Workbench interface with three tabs: 'data_analytics*', 'classicmodels*', and 'dataanalytics(ques)*'. The 'dataanalytics(ques)*' tab is active, displaying a query editor and a result grid. The query editor contains the following code:

```
139
140 -- ordern by: find top and bottom records
141 • select country,sum(creditlimit) as cr from customers group by country order by cr desc;
142 • select country,sum(creditlimit) as cr from customers group by country order by cr desc limit 5;
143 • select country,sum(creditlimit) as cr from customers group by country order by cr desc limit 3 offset 2;
144 • select country,sum(creditlimit) as cr from customers group by country order by cr desc limit 2,3;
145 • select country,sum(creditlimit) as cr from customers group by country order by cr desc;
146 • select country,sum(creditlimit) as cr from customers group by country order by cr asc limit 2,3;
147 • select country,sum(creditlimit) as cr from customers group by country having cr>0 order by cr asc limit 2,3;
```

The result grid shows the following data:

country	cr
Philippines	81500.00
Norway	81700.00
Belgium	103400.00

Sequence:

- A. Select
- B. Column,func
- C. Table name
- D. Where
- E. Group by
- F. Having
- G. Limit
- H. Offset