

Experiment : Basic Select Commands

◦ Aim - To understand and implement basic select commands in SQL

◦ Theory -

→ Arithmetic Operators

+ : Addition

- : Subtraction

* : Multiplication

/ : Division

→ Comparison Operators

= : Equal to

<> : Not equal

< : Less than

> : Greater than

<= : Less than equal to

>= : Greater than equal to

IN (list) : Match any list of values

LIKE : Match a character pattern

IS Null : Is a null value

Between ... AND... : Between two values

→ Logical Values

AND : Returns true if both conditions are true

OR : Returns true if either condition is true

NOT : Returns true if the condition is false

Concatenation Operator (||)

- Concatenates the columns of any data type
- Resultant column will be a single column

Operator Precedence

Order Valuated	Operators
1	Parenthesis
2	All arithmetic operations
3	All comparison operators
4	NOT
5	AND
6	OR

Where Clause

- Specify the selection of rows retrieved by the where clause
- Syntax:

```

Select column1, column2...
From table
Where condition ;
  
```

Order By Clause

- Sorts rows by order - ASC/DESC
- Syntax

```

Select column1, column2...
From table
Order By sort-column DESC ;
  
```


Queries:

1Q) Update all records of stock table by increasing qty by 10

→ Update stock set $qty = qty + 10;$

2Q) Delete all records from LabTech table where date is less than '1999-01-01'

→ Delete from LabTech where $date < '1999-01-01'$

3Q) Display name of hospital as 'Hospital Name' as Hospital ID as 'ID' of table hospital

→ Select Name as HospitalName, Hospital ID as ID from Hospital;

4Q) List concatenated value of name and empID of manager table

→ Select Concat (Name, EmpID) from Manager;

5Q) List all the 'B+'ve donor's name from Donor table

→ Select firstName from Donor where bloodType = 'B+';

6Q) List all the details of blood table for Date of Reg before 2022/01/18

→ select * from blood where DateOfReg < '2022-01-18';

Question 1 – Output

```
mysql> select * from stock;
```

StockID	BloodID	Qty
S101	B101	115
S102	B102	220
S103	B103	890
S104	B104	90
S105	B105	45
S106	B106	25
S107	B107	102
S108	B108	108

```
8 rows in set (0.05 sec)
```

```
mysql> update stock set qty=qty+10;
```

```
Query OK, 8 rows affected (0.50 sec)
```

```
Rows matched: 8  Changed: 8  Warnings: 0
```

```
mysql> select * from stock;
```

StockID	BloodID	Qty
S101	B101	125
S102	B102	230
S103	B103	900
S104	B104	100
S105	B105	55
S106	B106	35
S107	B107	112
S108	B108	118

```
8 rows in set (0.00 sec)
```

Question 2 – Output

```
mysql> select * from labtech;
```

firstName	lastname	address	email	phone	dob
Alex	Paul	Australia	xyz@gmail.com	4556789098	2000-03-01
Tom	h	USA	tom@gmail.com	NULL	1998-01-05
Pam	K	UK	pam@gmail.com	NULL	2001-01-06
Lia	KL	Norway	lia@gmail.com	NULL	2002-02-02

```
4 rows in set (0.00 sec)
```

```
mysql> delete from labtech where date<'1999=01=01';
ERROR 1054 (42S22): Unknown column 'date' in 'where clause'
mysql> delete from labtech where dob<'1999=01=01';
Query OK, 1 row affected (0.25 sec)
```

```
mysql> select * from labtech;
```

firstName	lastname	address	email	phone	dob
Alex	Paul	Australia	xyz@gmail.com	4556789098	2000-03-01
Pam	K	UK	pam@gmail.com	NULL	2001-01-06
Lia	KL	Norway	lia@gmail.com	NULL	2002-02-02

```
3 rows in set (0.00 sec)
```

Question 3 – Output

```
mysql> desc hospital;
```

Field	Type	Null	Key	Default	Extra
HospitalID	varchar(10)	NO	PRI	NULL	
OrderID	varchar(30)	NO		NULL	
Name	varchar(30)	NO		NULL	
Phone	varchar(30)	YES		NULL	
Address	varchar(50)	YES		NULL	

```
5 rows in set (0.13 sec)
```

```
mysql> select name as HospitalName, HospitalID AS ID FROM HOSPITAL;
```

HospitalName	ID
Ruby Hall	H101
Apollo	H102
Columbia Asia	H103
Nobel Hospital	H104
Care Hospital	H105

```
5 rows in set (0.04 sec)
```

Question 4 – Output

```
mysql> select * from manager;
```

EmpID	Name	Phone	Address	email
M101	Jay	8989870904	123,Pune	jay@gmail.com
M102	Sia	45454570904	678,Chennai	sia23@gmail.com
M103	Aja	8787870904	890,Delhi	aja@gmail.com
M104	Max	7787870904	55,Mumbai	max@gmail.com

```
4 rows in set (0.03 sec)
```

```
mysql> select Concat(Name,EmpID) from manager;
```

Concat(Name,EmpID)
JayM101
SiaM102
AjaM103
MaxM104

```
4 rows in set (0.03 sec)
```

Question 5 – Output

```
mysql> select * from donor;
```

donorID	firstName	lastname	address	phone	dob	bloodType	quantity
101	Alex	Paul	Germany	4556789098	2000-03-01	O+	230.12
102	Bell	Decroix	Dutch	3333339098	2003-05-06	B+	111.12
103	Cass	James	US	6556569098	2001-06-11	AB+	356.89
104	Jess	Day	UK	678977098	2002-08-04	O-	456.77
106	Jerry	k	Finland	NULL	NULL	B+	211.78
107	Terry	P	NULL	NULL	NULL	AB+	211.78
108	Mia	M	US	56789907	2000-03-07	B+	431.18
109	Anna	May	UK	223489907	2004-05-07	B-	543.18

```
8 rows in set (0.02 sec)
```

```
mysql> Select firstName from Donor where bloodType='B+';
```

firstName
Bell
Jerry
Mia

Question 6 – Output

```
mysql> select * from blood;
+-----+-----+-----+-----+
| BloodID | BloodType | BloodBankID | DateOfReg |
+-----+-----+-----+-----+
| B101    | A+        | BB101       | 2022-01-07 |
| B102    | B+        | BB102       | 2022-01-22 |
| B103    | O+        | BB102       | 2022-02-22 |
| B104    | AB+       | BB103       | 2022-01-09 |
| B105    | A-        | BB105       | 2022-01-19 |
| B106    | B-        | BB104       | 2022-01-29 |
| B107    | O-        | BB103       | 2022-01-18 |
| B108    | AB-       | BB105       | 2022-01-15 |
+-----+-----+-----+-----+
8 rows in set (0.25 sec)

mysql> select * from blood where DateOfReg<'2022-01-18';
+-----+-----+-----+-----+
| BloodID | BloodType | BloodBankID | DateOfReg |
+-----+-----+-----+-----+
| B101    | A+        | BB101       | 2022-01-07 |
| B104    | AB+       | BB103       | 2022-01-09 |
| B108    | AB-       | BB105       | 2022-01-15 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

Question 7 – Output

```
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 'mysql> select * from donor;' at line 1
mysql> select * from donor;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastname | address | phone | dob | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101     | Alex      | Paul     | Germany | 4556789098 | 2000-03-01 | O+        | 230.12 |
| 102     | Bell      | Decroix  | Dutch   | 3333339098 | 2003-05-06 | B+        | 111.12 |
| 103     | Cass      | James    | US      | 6556569098 | 2001-06-11 | AB+       | 356.89 |
| 104     | Jess      | Day      | UK      | 678977098  | 2002-08-04 | O-        | 456.77 |
| 106     | Jerry     | k        | Finland | NULL       | NULL      | B+        | 211.78 |
| 107     | Terry     | P        | NULL    | NULL       | NULL      | AB+       | 211.78 |
| 108     | Mia       | M        | US      | 56789907   | 2000-03-07 | B+        | 431.18 |
| 109     | Anna      | May      | UK      | 223489907  | 2004-05-07 | B-        | 543.18 |
+-----+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> select firstName,lastName from donor where donorID IN (103,106,109,101);
+-----+-----+
| firstName | lastName |
+-----+-----+
| Alex      | Paul     |
| Cass      | James    |
| Jerry     | k        |
| Anna      | May      |
+-----+-----+
4 rows in set (0.00 sec)
```


Q7) List the names of donors whose donor ID's are 103, 106, 109, 101

→ Select firstName, lastName from Donor
Where Donor IN (103, 106, 109, 101);

Q8) List the first Names of all donors who are not of blood type AB+

→ Select firstName from Donor where BloodType <> 'AB+';

Q9) List all Blood Types which are not in blood banks with ID - BB101, BB102, BB104

→ Select BloodType from Blood Where BloodType NOT IN ('BB101', 'BB102', 'BB104');

Q10) List the name of all donors whose DOB lies between '2001-01-01' and '2003-01-01'

→ Select firstName from donor where DOB Between '2001-01-01' AND '2003-01-01'

Q11) Select all distinct locations stored in address of donor table

→ Select DISTINCT Address from donor;

Q12) List all donors residing in US

→ Select firstName from Donor Where Address = 'US';

Question 8 – Output

```
mysql> select * from donor;
```

donorID	firstName	lastname	address	phone	dob	bloodType	quantity
101	Alex	Paul	Germany	4556789098	2000-03-01	O+	230.12
102	Bell	Decroix	Dutch	3333339098	2003-05-06	B+	111.12
103	Cass	James	US	6556569098	2001-06-11	AB+	356.89
104	Jess	Day	UK	678977098	2002-08-04	O-	456.77
106	Jerry	k	Finland	NULL	NULL	B+	211.78
107	Terry	P	NULL	NULL	NULL	AB+	211.78
108	Mia	M	US	56789907	2000-03-07	B+	431.18
109	Anna	May	UK	223489907	2004-05-07	B-	543.18

```
8 rows in set (0.00 sec)
```



```
mysql> SELECT FIRSTNAME FROM DONOR WHERE BLOODTYPE <> 'AB+';
```

FIRSTNAME
Alex
Bell
Jess
Jerry
Mia
Anna

```
6 rows in set (0.00 sec)
```

Question 9 – Output

```
mysql> SELECT * FROM BLOOD;
```

BloodID	BloodType	BloodBankID	DateOfReg
B101	A+	BB101	2022-01-07
B102	B+	BB102	2022-01-22
B103	O+	BB102	2022-02-22
B104	AB+	BB103	2022-01-09
B105	A-	BB105	2022-01-19
B106	B-	BB104	2022-01-29
B107	O-	BB103	2022-01-18
B108	AB-	BB105	2022-01-15

```
8 rows in set (0.00 sec)
```



```
mysql> SELECT BLOODTYPE FROM BLOOD WHERE BLOODBANKID NOT IN ('BB101','BB102','BB104');
```

BLOODTYPE
AB+
O-
A-
AB-

```
4 rows in set (0.06 sec)
```

Question 10 – Output

```
mysql> SELECT * FROM DONOR;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastname | address | phone | dob | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+
| 101 | Alex | Paul | Germany | 4556789098 | 2000-03-01 | O+ | 230.12 |
| 102 | Bell | Decroix | Dutch | 3333339098 | 2003-05-06 | B+ | 111.12 |
| 103 | Cass | James | US | 6556569098 | 2001-06-11 | AB+ | 356.89 |
| 104 | Jess | Day | UK | 678977098 | 2002-08-04 | O- | 456.77 |
| 106 | Jerry | k | Finland | NULL | NULL | B+ | 211.78 |
| 107 | Terry | P | NULL | NULL | NULL | AB+ | 211.78 |
| 108 | Mia | M | US | 56789907 | 2000-03-07 | B+ | 431.18 |
| 109 | Anna | May | UK | 223489907 | 2004-05-07 | B- | 543.18 |
+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> SELECT FIRSTNAME FROM DONOR WHERE DOB BETWEEN '2001-01-01' AND '2003-01-01';
+-----+
| FIRSTNAME |
+-----+
| Cass |
| Jess |
+-----+
2 rows in set (0.03 sec)
```

Question 11 – Output

```
mysql> SELECT DISTINCT ADDRESS FROM DONOR;
+-----+
| ADDRESS |
+-----+
| Germany |
| Dutch |
| US |
| UK |
| Finland |
| NULL |
+-----+
6 rows in set (0.03 sec)
```

Question 12 – Output

```
mysql> SELECT * FROM DONOR;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastname | address | phone | dob | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+
| 101 | Alex | Paul | Germany | 4556789098 | 2000-03-01 | O+ | 230.12 |
| 102 | Bell | Decroix | Dutch | 3333339098 | 2003-05-06 | B+ | 111.12 |
| 103 | Cass | James | US | 6556569098 | 2001-06-11 | AB+ | 356.89 |
| 104 | Jess | Day | UK | 678977098 | 2002-08-04 | O- | 456.77 |
| 106 | Jerry | k | Finland | NULL | NULL | B+ | 211.78 |
| 107 | Terry | P | NULL | NULL | NULL | AB+ | 211.78 |
| 108 | Mia | M | US | 56789907 | 2000-03-07 | B+ | 431.18 |
| 109 | Anna | May | UK | 223489907 | 2004-05-07 | B- | 543.18 |
+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> SELECT FIRSTNAME FROM DONOR WHERE ADDRESS='US';
+-----+
| FIRSTNAME |
+-----+
| Cass |
| Mia |
+-----+
```

Q13) List all details of donors whose phone is not stored

→ Select * from donor where phone is NULL;

Q14) List names- first and last of all donors whose Date of birth is not registered

→ Select firstName, lastName from donor where dob is NULL;

Q15) List Hospital ID and Name of all hospitals in Pune

→ Select Name, HospitalID from Hospital Where Address = 'Pune';

Q16) List all details of managers whose name starts and ends with 'A';

→ Select * from manager where name like 'a%.a';

Q17) List all details of managers whose names have 'i' as the second character.

→ Select * from manager where name like '_i%';

Q18) Sort donor table in ascending order by dob and list firstName, lastName and DonorID

→ Select firstName, lastName, DonorID from DONOR
ORDER BY dob ASC;

Question 13 – Output

```
mysql> SELECT * FROM DONOR WHERE PHONE IS NULL;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastname | address | phone | dob | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+
| 106 | Jerry | k | Finland | NULL | NULL | B+ | 211.78 |
| 107 | Terry | P | NULL | NULL | NULL | AB+ | 211.78 |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

Question 14 – Output

```
mysql> SELECT FIRSTNAME, LASTNAME FROM DONOR WHERE DOB IS NULL;
+-----+-----+
| FIRSTNAME | LASTNAME |
+-----+-----+
| Jerry | k |
| Terry | P |
+-----+-----+
2 rows in set (0.00 sec)
```

Question 15 – Output

```
mysql> SELECT * FROM HOSPITAL;
+-----+-----+-----+-----+-----+
| HospitalID | OrderID | Name | Phone | Address |
+-----+-----+-----+-----+-----+
| H101 | 0101 | Ruby Hall | 3467876543 | Pune |
| H102 | 0102 | Apollo | 6678776543 | Mumbai |
| H103 | 0103 | Columbia Asia | 6758986543 | Chennai |
| H104 | 0104 | Nobel Hospital | 9898986543 | Pune |
| H105 | 0105 | Care Hospital | 9076786543 | Delhi |
+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)

mysql> SELECT NAME, HOSPITALID FROM HOSPITAL WHERE Address='Pune';
+-----+-----+
| NAME | HOSPITALID |
+-----+-----+
| Ruby Hall | H101 |
| Nobel Hospital | H104 |
+-----+-----+
2 rows in set (0.00 sec)
```

Question 16 – Output

```
mysql> select * from manager;
+-----+-----+-----+-----+-----+
| EmpID | Name  | Phone      | Address    | email          |
+-----+-----+-----+-----+-----+
| M101  | Jay   | 8989870904 | 123,Pune   | jay@gmail.com  |
| M102  | Sia   | 45454570904 | 678,Chennai | sia23@gmail.com |
| M103  | Aja   | 8787870904 | 890,Delhi  | aja@gmail.com   |
| M104  | Max   | 7787870904 | 55,Mumbai  | max@gmail.com   |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> select * from manager where name like 'a%a';
+-----+-----+-----+-----+-----+
| EmpID | Name  | Phone      | Address    | email          |
+-----+-----+-----+-----+-----+
| M103  | Aja   | 8787870904 | 890,Delhi  | aja@gmail.com   |
+-----+-----+-----+-----+-----+
1 row in set (0.04 sec)
```

Question 17 – Output

```
mysql> select * from manager where name like '_i%';
+-----+-----+-----+-----+-----+
| EmpID | Name  | Phone      | Address    | email          |
+-----+-----+-----+-----+-----+
| M102  | Sia   | 45454570904 | 678,Chennai | sia23@gmail.com |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

Question 18 – Output

```
mysql> select * from donor;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastname | address | phone      | dob        | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101     | Alex      | Paul     | Germany | 4556789098 | 2000-03-01 | O+        | 230.12   |
| 102     | Bell      | Decroix  | Dutch   | 3333339098 | 2003-05-06 | B+        | 111.12   |
| 103     | Cass      | James    | US      | 6556569098 | 2001-06-11 | AB+       | 356.89   |
| 104     | Jess      | Day      | UK      | 678977098  | 2002-08-04 | O-        | 456.77   |
| 106     | Jerry     | k        | Finland | NULL       | NULL      | B+        | 211.78   |
| 107     | Terry     | P        | NULL    | NULL       | NULL      | AB+       | 211.78   |
| 108     | Mia       | M        | US      | 56789907   | 2000-03-07 | B+        | 431.18   |
| 109     | Anna      | May      | UK      | 223489907  | 2004-05-07 | B-        | 543.18   |
+-----+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> select firstName,LastName,donorID FROM Donor ORDER BY DOB ASC;
+-----+-----+-----+
| firstName | LastName | donorID |
+-----+-----+-----+
| Jerry     | k        | 106     |
| Terry     | P        | 107     |
| Alex      | Paul     | 101     |
| Mia       | M        | 108     |
| Cass      | James    | 103     |
| Jess      | Day      | 104     |
| Bell      | Decroix  | 102     |
| Anna      | May      | 109     |
+-----+-----+-----+
1 row in set (0.00 sec)
```

Q19) Sort stock table in descending order by Qty and display the Stock ID and Qty.

→ select stock ID, Qty from stock Order By Qty Desc;

Q20) List Donor ID, first Name, last Name after sorting donor table in ascending order by DOB then descending order by Quantity.

→ select donor ID, first Name, last Name
From Donor
Order By DOB Asc, Quantity Desc;

o Result

Basic select commands were understood and implemented in SQL

Question 19 – Output

```
mysql>
mysql> SELECT * FROM STOCK;
+-----+-----+-----+
| StockID | BloodID | Qty |
+-----+-----+-----+
| S101    | B101    | 125 |
| S102    | B102    | 230 |
| S103    | B103    | 900 |
| S104    | B104    | 100 |
| S105    | B105    | 55  |
| S106    | B106    | 35  |
| S107    | B107    | 112 |
| S108    | B108    | 118 |
+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> SELECT STOCKID,QTY FROM STOCK ORDER BY Qty DESC;
+-----+-----+
| STOCKID | QTY |
+-----+-----+
| S103    | 900 |
| S102    | 230 |
| S101    | 125 |
| S108    | 118 |
| S107    | 112 |
| S104    | 100 |
| S105    | 55  |
| S106    | 35  |
+-----+-----+
8 rows in set (0.00 sec)
```

Question 20 – Output

```
mysql> select * from donor;
+-----+-----+-----+-----+-----+-----+-----+-----+
| donorID | firstName | lastName | address | phone | dob | bloodType | quantity |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | Alex | Paul | Germany | 4556789098 | 2000-03-01 | O+ | 230.12 |
| 102 | Bell | Decroix | Dutch | 3333339098 | 2003-05-06 | B+ | 111.12 |
| 103 | Cass | James | US | 6556569098 | 2001-06-11 | AB+ | 356.89 |
| 104 | Jess | Day | UK | 678977098 | 2002-08-04 | O- | 456.77 |
| 106 | Jerry | k | Finland | NULL | NULL | B+ | 211.78 |
| 107 | Terry | P | NULL | NULL | NULL | AB+ | 211.78 |
| 108 | Mia | M | US | 56789907 | 2000-03-07 | B+ | 431.18 |
| 109 | Anna | May | UK | 223489907 | 2004-05-07 | B- | 543.18 |
+-----+-----+-----+-----+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> Select donorID,fistName,lastName from donor order by DOB ASC,QUANTITY DESC;
ERROR 1054 (42S22): Unknown column 'fistName' in 'field list'
mysql>
mysql> Select donorID,firstName,lastName from donor order by DOB ASC,QUANTITY DESC;
+-----+-----+-----+
| donorID | firstName | lastName |
+-----+-----+-----+
| 106 | Jerry | k |
| 107 | Terry | P |
| 101 | Alex | Paul |
| 108 | Mia | M |
| 103 | Cass | James |
| 104 | Jess | Day |
| 102 | Bell | Decroix |
| 109 | Anna | May |
+-----+-----+-----+
8 rows in set (0.00 sec)
```