mysql> create database student_details;

Query OK, 1 row affected (0.01 sec)

mysql> show databases;

mysql> use student_details;

Database changed

```
-----: CRUD: CREATE, READ, UPDATE, DELETE: -----

mysql> create table students(ID int not null auto_increment,FNAME
varchar(55),LNAME varchar(55),AGE int,primary key(ID));
mysql> insert into students(FNAME,LNAME,AGE)values('vinod','thapa',25);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME
students(FNAME,LNAME,AGE)values('vinod','thapa',25);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('vinod','bahadur',25);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('naran','kc',28);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into
students(FNAME,LNAME,AGE)values('thapa','technical',24);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('arjun','kc',26);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('binta','thapa',21);
Query OK, 1 row affected (0.01 sec)
mysgl> insert into students(FNAME,LNAME,AGE)values('ramesh','thapa',22);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('amrit','thapa',23);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('ram','chettri',23);
Query OK, 1 row affected (0.01 sec)
mysql> insert into students(FNAME,LNAME,AGE)values('kanxi','thapa',25);
Query OK, 1 row affected (0.01 sec)
mysql> show tables;
  Tables in student details
  students
  row in set (0.00 sec)
```

mysql> desc students;

```
Default
Field
                      Null
                              Key
                                               Extra
       Type
                              PRI
                                    NULL
                                               auto increment
ID
                      NO
        varchar(55)
FNAME
                       YES
                                    NULL
LNAME
        varchar(55)
                                    NULL
                      YES
AGE
        int
                      YES
                                    NULL
rows in set (0.00 sec)
```

mysql> select*from students;

+ ID	H FNAME	+ LNAME	++ AGE	
1	vinod	thapa	- 25	
2	vinod	bahadur	25	
3	naran	kc	28	
4	thapa	technical	24	
5	arjun	kc	26	
6	binta	thapa	21	
7	ramesh	thapa	22	
8	amrit	thapa	23	
9	ram	chettri	23	
10	kanxi	thapa	25	
 L0 rol				

-----: READ : -----

mysql> select*from students where age=25;

ID	FNAME	+ LNAME +	AGE
1 2 10	vinod vinod kanxi	thapa bahadur	25 25 25
		(0.00 sec)	

mysql> select FNAME from students where age=25;

```
+----+

| FNAME |

+----+

| vinod |

| vinod |

| kanxi |

+----+

3 rows in set (0.00 sec)
```

mysql> select FNAME,LNAME from students where age=25;

```
+----+
| FNAME | LNAME |
+----+
| vinod | thapa |
| vinod | bahadur |
| kanxi | thapa |
+----+
3 rows in set (0.00 sec)
```

-----: **UPDATE** : -----

mysql> update students set AGE=23 where FNAME='ramesh';

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select*from students;

ID	FNAME	LNAME	AGE
1	vinod	thapa	25
2	vinod	bahadur	25
3	naran	kc	28
4	thapa	technical	24
5	arjun	kc	26
6	binta	thapa	21
7	ramesh	thapa	23
8	amrit	thapa	23
9	ram	chettri	23
10	kanxi	thapa	25
 L0 rov	vs in set	+ (0.00 sec)	++

mysql> update students set AGE=55 where ID=10;

Query OK, 1 row affected (0.00 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select*from students;

+ ID		+ LNAME +	AGE	
1	vinod	thapa	25	
2	vinod	bahadur	25	
3	naran	kc	28	
4	thapa	technical	24	
5	arjun	kc	26	
6	binta	thapa	21	
7	ramesh	thapa	23	
8	amrit	thapa	23	
9	ram	chettri	23	
10	kanxi	thapa	55	
+	ttt			
10 rows in set (0.00 sec)				

-----: DELETE: -----

mysql> delete from students where FNAME='naran';

Query OK, 1 row affected (0.01 sec)

mysql> select*from students;

+	FNAME	+ LNAME	++ AGE		
1 1	vinod	+ thapa	25		
2	vinod	bahadur	25		
4	thapa	technical	24		
5	arjun	kc	26		
6	binta	thapa	21		
7	ramesh	thapa	23		
8	amrit	thapa	23		
9	ram	chettri	23		
10	kanxi	thapa	55		
+	++				
9 rows	9 rows in set (0.00 sec)				

mysql> delete from students where ID='7';

Query OK, 1 row affected (0.01 sec)

mysql> select*from students;

ID		LNAME	AGE
1	vinod	thapa	25
2	vinod	bahadur	25
4	thapa	technical	24
5	arjun	kc	26
6	binta	thapa	21
8	amrit	thapa	23
9	ram	chettri	23
10	kanxi	thapa	55
rows		(0.00 sec)	++

mysql> insert into students values(7,'ramesh','thapa',23);

Query OK, 1 row affected (0.01 sec)

mysql> select*from students;

+	FNAME	+ LNAME +	++ AGE	
1 1	vinod	thapa	25	
2	vinod	bahadur	25	
4	thapa	technical	24	
5	arjun	kc	26	
6	binta	thapa	21	
7	ramesh	thapa	23	
8	amrit	thapa	23	
9	ram	chettri	23	
10	kanxi	thapa	55	
+	++			
9 rows	9 rows in set (0.00 sec)			

-----: DISTINCT : -----

mysql> select FNAME from students;

```
+----+
| FNAME |
+----+
| vinod |
| vinod |
| thapa |
| arjun |
| binta |
| ramesh |
| amrit |
| ram |
| kanxi |
+----+
9 rows in set (0.00 sec)
```

mysql> select distinct FNAME from students;

```
+-----+
| FNAME |
+-----+
| vinod |
| thapa |
| arjun |
| binta |
| ramesh |
| amrit |
| ram |
| kanxi |
+-----+
8 rows in set (0.00 sec)
```

mysql> select FNAME,AGE from students;

+ FNAME	+ + AGE
+ vinod	25
vinod	25
thapa	24
arjun	26
binta	21
ramesh	23
amrit	23
ram	23
kanxi	55
+	++
9 rows in	set (0.00 sec)

mysql> select distinct AGE from students;

```
+----+

| AGE |

+----+

| 25 |

| 24 |

| 26 |

| 21 |

| 23 |

| 55 |

+----+

6 rows in set (0.00 sec)
```

mysql> select distinct FNAME,AGE from students;

```
FNAME | AGE
 vinod
            25
 thapa
            24
 arjun
            26
 binta
            21
 ramesh
            23
 amrit
            23
 ram
            23
            55
 kanxi
8 rows in set (0.00 sec)
```

-----: ORDER BY : -----

mysql> select age from students order by age;

```
+----+
| age |
+----+
| 21 |
| 23 |
| 23 |
| 23 |
| 24 |
| 25 |
| 26 |
| 55 |
+----+
9 rows in set (0.00 sec)
```

mysql> select FNAME from students order by age;

mysql> select FNAME,LNAME,AGE from students order by AGE;

+ FNAME	LNAME	++ AGE	
binta	thapa	21	
ramesh	thapa	23	
amrit	thapa	23	
ram	chettri	23	
thapa	technical	24	
vinod	thapa	25	
vinod	bahadur	25	
arjun	kc	26	
kanxi	thapa	55	
++ 9 rows in set (0.00 sec)			

-----: LIMIT : -----

mysql> select FNAME,LNAME,AGE from students order by AGE limit 5;

+ FNAME	+ LNAME +	++ AGE	
binta	thapa	21	
ramesh	thapa	23	
amrit	thapa	23	
ram	chettri	23	
thapa	technical	24	
+	+	++	
5 rows in set (0.00 sec)			

-----: LIKE : -----

mysql> select FNAME from students where FNAME like'%in%';

```
+----+

| FNAME |

+----+

| vinod |

| vinod |

| binta |

+----+

3 rows in set (0.00 sec)
```

mysql> select LNAME from students where FNAME like '%ha%';

mysql> select LNAME from students where LNAME like '%ha%';

```
+-----+
| LNAME |
+-----+
| thapa |
| bahadur |
| thapa |
+-----+
6 rows in set (0.00 sec)
```

```
-----: BASIC FUNCTION: ------
```

mysql> select max(age) from students;

```
+-----+
| max(age) |
+------+
| 55 |
+-----+
1 row in set (0.00 sec)
```

mysql> select min(age) from students;

```
+-----+
| min(age) |
+-----+
| 21 |
+-----+
1 row in set (0.00 sec)
```

mysql> select sum(age) from students;

```
+-----+
| sum(age) |
+-----+
| 245 |
+-----+
1 row in set (0.00 sec)
```

mysql> select count(id) from students;

```
+-----+
| count(id) |
+-----+
| 9 |
+-----+
1 row in set (0.00 sec)
```

mysql> select avg(age) from students;

```
+-----+
| avg(age) |
+-----+
| 27.2222 |
+-----+
1 row in set (0.00 sec)
```

-----: LOGICAL OPERATOR: -----

mysql> select * from students where AGE=25;

ID	FNAME	+ LNAME +	AGE
1 2	vinod vinod	thapa bahadur	25 25
1		(0.00 sec)	

mysql> select * from students where AGE!=25;

+	FNAME	+	++ AGE
4	thapa	technical	24
5	arjun	kc	26
6	binta	thapa	21
7	ramesh	thapa	23
8	amrit	thapa	23
9	ram	chettri	23
10	kanxi	thapa	55
+ 7 rows	in set	+ (0.00 sec)	++

mysql> select * from students where LNAME='thapa';

ID	FNAME	LNAME	AGE	
1	vinod	thapa	25	
6	binta	thapa	21	
7	ramesh	thapa	23	
8	amrit	thapa	23	
10	kanxi	thapa	55	
++++ 5 rows in set (0.00 sec)				

mysql> select * from students where LNAME!='thapa';

ID	FNAME	LNAME 	AGE
2 4 5 9	vinod thapa arjun ram	bahadur technical kc chettri	25 24 26 23
		+ (0.00 sec)	++

-----: LESS & GREATER THAN: ------

mysql> select*from students where age>25;

ID	FNAME	LNAME	
5 10	arjun kanxi	kc thapa	26 55
		(0.00 se	

mysql> select*from students where age>=25;

ID	FNAME	+ LNAME +	AGE
1 2 5 10	vinod vinod arjun kanxi	thapa bahadur kc	25 25 25 26 55
	•	(0.00 sec	

mysql> select*from students where age<25;

ID	FNAME	+ LNAME +	AGE		
4	thapa	technical	24		
6	binta	thapa	21		
7	ramesh	thapa	23		
8	amrit	thapa	23		
9	ram	chettri	23		
++					
5 rows	5 rows in set (0.00 sec)				

mysql> select*from students where age<=25;

+ ID +	FNAME	+ LNAME +	++ AGE ++	
1	vinod	thapa	25	
2	vinod	bahadur	25	
4	thapa	technical	24	
6	binta	thapa	21	
7	ramesh	thapa	23	
8	amrit	thapa	23	
9	ram	chettri	23	
++				
7 rows	s in set	(0.00 sec)		

mysql> select*from students where age=25;

ID	FNAME	 LNAME 	AGE		
1 2	vinod vinod	thapa bahadur	25 25		
	++				

mysql> select*from students where age not between 22 and 50;

ID	FNAME	LNAME	
6 10	binta kanxi	thapa thapa	21
	in set		

mysql> select*from students where age between 21 and 24;

	FNAME	+ LNAME +	++ AGE
4		technical	24
6	binta	thapa	21
7	ramesh	thapa	23
8	amrit	thapa	23
9	ram	chettri	23
		+ (0.00 sec)	++

mysql> select*from students where FNAME in('vinod','binita');

```
+---+----+----+----+

| ID | FNAME | LNAME | AGE |

+---+-----+

| 1 | vinod | thapa | 25 |

| 2 | vinod | bahadur | 25 |

+---+-----+

2 rows in set (0.00 sec)
```

mysql> select*from students where FNAME='vinod' or 'binita';

```
+---+----+
| ID | FNAME | LNAME | AGE |
+---+---+
| 1 | vinod | thapa | 25 |
| 2 | vinod | bahadur | 25 |
+---+---+
2 rows in set, 1 warning (0.00 sec)
```

-----: STRING FUNCTION: -----

mysql> select concat('vinod','thapa');

mysql> select concat('anant','soni');

mysql> select concat('vinod',",'thapa');

mysql> select concat('anant',' ','soni');

mysql> select concat(FNAME,LNAME,' ',AGE) from students;

```
concat(FNAME,LNAME,'',AGE) |

vinodthapa 25 |

vinodbahadur 25 |

thapatechnical 24 |

arjunkc 26 |

bintathapa 21 |

rameshthapa 23 |

amritthapa 23 |

ramchettri 23 |

kanxithapa 55 |

9 rows in set (0.00 sec)
```

```
-----: REVERSE FUNCTION: ------
```

mysql> select reverse('thapa');

```
+-----+
| reverse('thapa') |
+-----+
| apaht |
+-----+
1 row in set (0.00 sec)
```

mysql> select reverse('thapa') as reverse;

```
+----+
| reverse |
+-----+
| apaht |
+-----+
1 row in set (0.00 sec)
```

mysql> select concat ('thapa',reverse('thapa')) as palindrome;

```
+-----+
| palindrome |
+-----+
| thapaapaht |
+-----+
1 row in set (0.00 sec)
```

mysql> select concat ('thapa',' ',reverse('thapa')) as palindrome;

```
-----: CHAR_LENGTH: -----
```

mysql> select char_length('sonianantrajeshkumar');

mysql> select char_length('soni anant rajeshkumar');

-----: DATE TIME DATA TYPES: ------

mysql> create table datestudents(NAME varchar(55),DOB date,DOT time,BD datetime);

Query OK, 0 rows affected (0.03 sec)

mysql> insert into datestudents values('vinod','1994-01-05','05:25:45','1994-01-05 05:25:45');

Query OK, 1 row affected (0.01 sec)

mysql> insert into datestudents values('anant','2004-07-10','01:07:17','2004-07-10 01:07:17');

Query OK, 1 row affected (0.01 sec)

mysql> select*from datestudents;

mysql> insert into datestudents values('vinod',curdate(),curtime(),now());

Query OK, 1 row affected (0.01 sec)

mysql> select*from datestudents;

```
NAME
        DOB
                     DOT
                                BD
vinod
       1994-01-05 | 05:25:45
                               1994-01-05 05:25:45
anant
        2004-07-10
                     01:07:17
                                2004-07-10 01:07:17
vinod
        2023-04-27
                    10:21:03
                                2023-04-27 10:21:03
rows in set (0.00 sec)
```

mysql> insert into datestudents values('dhruv',curdate(),curtime(),now());

Query OK, 1 row affected (0.01 sec)

mysql> select*from datestudents;

```
BD
NAME
       DOB
                    DOT
       1994-01-05 | 05:25:45 |
vinod
                               1994-01-05 05:25:45
       2004-07-10
                     01:07:17
                                2004-07-10 01:07:17
anant
vinod
       2023-04-27
                     10:21:03
                                2023-04-27 10:21:03
                    10:21:15
dhruv
       2023-04-27
                                2023-04-27 10:21:15
rows in set (0.00 sec)
```

-----: FOREIGN KEY: ------

mysql> create table customers(CID int not null auto_increment primary key,CNAME varchar(55),EMAIL varchar(100));

Query OK, 0 rows affected (0.03 sec)

mysql> create table orders(OID int not null auto_increment primary key,ODATE date,CID int,foreign key(CID) references customers(CID));

Query OK, 0 rows affected (0.04 sec)

mysql> desc customers;

```
Field | Type
                       Null
                             | Key | Default |
                                               Extra
                                               auto_increment
CID
        int
                       NO
                              PRI
                                     NULL
CNAME
                       YES
        varchar(55)
                                     NULL
EMAIL
       varchar(100)
                       YES
                                     NULL
rows in set (0.00 sec)
```

mysql> desc orders;

```
Field
        Type
              Null
                      Key
                            Default
                                       Extra
OID
        int
               NO
                       PRI
                             NULL
                                       auto_increment
ODATE
        date
               YES
                             NULL
CID
        int
               YES
                      MUL
                             NULL
rows in set (0.00 sec)
```

```
mysql> insert into customers values(1,'anant','anant204@gmail.com');
```

Query OK, 1 row affected (0.01 sec)

```
mysql> insert into customers values(2,'dhruv','dhruv565@gmail.com');
```

Query OK, 1 row affected (0.01 sec)

mysql> insert into customers values(3,'kenil','kenil585@gmail.com');

Query OK, 1 row affected (0.01 sec)

mysql> select*from customers;

mysql> insert into orders values(1,'2019/05/05',1);

Query OK, 1 row affected (0.01 sec)

mysql> insert into orders values(2,'2020/08/04',2);

Query OK, 1 row affected (0.00 sec)

mysql> insert into orders values(3,'2021/04/08',3);

Query OK, 1 row affected (0.00 sec)

mysql> alter table orders add amount int;

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

mysql> select*from orders;

mysql> update orders set amount=250 where OID=1;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> update orders set amount=350 where OID=2;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> update orders set amount=450 where OID=3;

Query OK, 1 row affected (0.01 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select*from orders;

OID	+ ODATE 	CID	amount
1 2	2019-05-05 2020-08-04 2021-04-08	1	250 350 450
	in set (0.00	•	·+

-----: SQL JOIN : -----

-----: INNER JOIN: -----

mysql> select*from customers,orders where customers.CID=orders.CID order by ODATE;

+	+ CNAME	+	OID	H ODATE	+ CID	amount
2	dhruv	anant204@gmail.com dhruv565@gmail.com kenil585@gmail.com	2	2019-05-05 2020-08-04 2021-04-08	2	350
+ 3 rows	in set	+ (0.00 sec)	+	+	+	++

mysql> select CNAME,EMAIL,ODATE from customers inner join orders on customers.CID=orders.OID;

```
+----+
| CNAME | EMAIL | ODATE |
+----+
| anant | anant204@gmail.com | 2019-05-05 |
| dhruv | dhruv565@gmail.com | 2020-08-04 |
| kenil | kenil585@gmail.com | 2021-04-08 |
+----+
3 rows in set (0.00 sec)
```

mysql> select CNAME,EMAIL,ODATE,amount from customers inner join orders on customers.CID=orders.OID;

+ CNAME	EMAIL	+ ODATE	++ amount +
	anant204@gmail.com dhruv565@gmail.com kenil585@gmail.com	2019-05-05 2020-08-04 2021-04-08	250 350 450
3 rows in	n set (0.00 sec)	F	

```
-----: Column 'CID' in fields list is ambigues: ------
```

mysql> select CNAME,ODATE,amount,CID from customers join orders on customers.CID=orders.CID;

ERROR 1052 (23000): Column 'CID' in field list is ambiguous

ERROR: - { BEACUSE 2 FIELDS LIST 'CID' IN TABLE }

mysql> select CNAME,ODATE,amount,CID from customers join orders on customers.CID=orders.CID; ERROR 1052 (23000): Column 'CID' in field list is ambiguous

mysql> select CNAME,ODATE,amount,customers.CID from customers join orders on customers.CID=orders.CID;

+ CNAME +	ODATE	amount	
anant	2019-05-05 2020-08-04 2021-04-08	250 350 450	1 2 3
+3 3 rows in	 n set (0.00 se	•	++

-----: LEFT JOIN: -----

mysql> insert into customers values(5,'het','het209@gmail.com');

Query OK, 1 row affected (0.01 sec)

mysql> select*from customers;

```
+---+
| CID | CNAME | EMAIL |
+---+
| 1 | anant | anant204@gmail.com |
| 2 | dhruv | dhruv565@gmail.com |
| 3 | kenil | kenil585@gmail.com |
| 5 | het | het209@gmail.com |
+---+
```

mysql> select*from customers left join orders on customers.CID=orders.CID;

CID	CNAME	EMAIL	OID	ODATE	CID	amount
1	anant	anant204@gmail.com	1	2019-05-05	1	250
2	dhruv	dhruv565@gmail.com	2	2020-08-04	2	350
3	kenil	kenil585@gmail.com	3	2021-04-08	3	450
5	het	het209@gmail.com	NULL	NULL	NULL	NULL

-----: RIGHT JOIN : -----

mysql> select*from customers right join orders on customers.CID=orders.CID;

	CNAME	EMAIL		ODATE	CID	amount
1	anant	anant204@gmail.com dhruv565@gmail.com	1	2019-05-05		
		kenil585@gmail.com		2021-04-08		