Where Clause:
=============
 Where is used to search for a specific data.
The WHERE clause allows you to specify a search condition for the rows returned by a query

  :Syntax:

      select * from table_name where column_name oprator 'value';

   SELECT
       select_list
   FROM
     table_name
  WHERE
   search_condition;

    operator   Use:

     =   equal

     <> or !=   not equal mc

     >   greator

     <   less

     >=   greator than equal to

     <=   less than equal to

    Between   Between inclusive range

    Like   Search for pattern

    in   to specify multiple possible for a column.

  ==

print name, manager Name sal <5000;

NULL= it represents missing or unknown data:

  IS Null
  Is not null

  is null: This is used to select only the records with null valus in the column;

        select columnname from tablename where column name is null.

mysql> select ename, job,comm,sal from emp4 where comm is null;
+--------+-----------+------+---------+
| ename | job | comm | sal |
+--------+-----------+------+---------+
SMITH	CLERK	NULL	800.00
JONES	MANAGER	NULL	2975.00
BLAKE	MANAGER	NULL	2850.00
CLARK	MANAGER	NULL	2450.00
SCOTT	ANALYST	NULL	3000.00
KING	PRESIDENT	NULL	5000.00
ADAMS	CLERK	NULL	1100.00
JAMES	CLERK	NULL	950.00
FORD	ANALYST	NULL	3000.00
MILLER	CLERK	NULL	1300.00
+--------+-----------+------+---------+

is Not null:

mysql> select ename, job,comm,sal from emp3 where comm is not null;
+--------+----------+---------+---------+
| ename | job | comm | sal |
+--------+----------+---------+---------+
ALLEN	SALESMAN	300.00	1600.00
WARD	SALESMAN	500.00	1250.00
MARTIN	SALESMAN	1400.00	1250.00
TURNER	SALESMAN	0.00	1500.00
+--------+----------+---------+---------+

AND, OR , NOT
=================

 Cond AND Cond

   Syntax:

     select * from table_name where column_name ="value" and column= value;

select ename, job, sal from emp4 where job="salesman" and sal<1500;

```
+--------+----------+---------+
| ename  | job      | sal     |
+--------+----------+---------+
| WARD   | SALESMAN | 1250.00 |
| MARTIN | SALESMAN | 1250.00 |
+--------+----------+---------+
```

mysql> select ename, job, sal from emp3 where job="president" and mgr is null;

```
+-------+-----------+---------+
| ename | job       | sal     |
+-------+-----------+---------+
| KING  | PRESIDENT | 5000.00 |
+-------+-----------+---------+
1 row in set (0.00 sec)
```

OR
==

 mysql> select ename, job, sal from emp3 where job="president" or mgr is not null;

```
+--------+-----------+---------+
| ename  | job       | sal     |
+--------+-----------+---------+
| SMITH  | CLERK     |  800.00 |
| ALLEN  | SALESMAN  | 1600.00 |
| WARD   | SALESMAN  | 1250.00 |
| JONES  | MANAGER   | 2975.00 |
| MARTIN | SALESMAN  | 1250.00 |
| BLAKE  | MANAGER   | 2850.00 |
| CLARK  | MANAGER   | 2450.00 |
```

```
| SCOTT  | ANALYST   | 3000.00 |
| KING   | PRESIDENT | 5000.00 |
| TURNER | SALESMAN  | 1500.00 |
| ADAMS  | CLERK     | 1100.00 |
| JAMES  | CLERK     |  950.00 |
| FORD   | ANALYST   | 3000.00 |
| MILLER | CLERK     | 1300.00 |
+--------+-----------+---------+
14 rows in set (0.00 sec)
```

in : to specify multiple possible from a column.
=====================================

Sysntax:
        Select * from table name where column Name in('Value1', Value 2....);

select ename, sal,job from emp4 where job in("salesman","manager");

```
+--------+---------+----------+
| ename  | sal     | job      |
+--------+---------+----------+
| ALLEN  | 1600.00 | SALESMAN |
| WARD   | 1250.00 | SALESMAN |
| JONES  | 2975.00 | MANAGER  |
| MARTIN | 1250.00 | SALESMAN |
| BLAKE  | 2850.00 | MANAGER  |
| CLARK  | 2450.00 | MANAGER  |
| TURNER | 1500.00 | SALESMAN |
+--------+---------+----------+
```

Not in

mysql> select ename, sal,job from emp3 where job not in("salesman","manager","clerk");

```
+--------+---------+-----------+
| ename  | sal     | job       |
+--------+---------+-----------+
| SMITH  |  800.00 | CLERK     |
| SCOTT  | 3000.00 | ANALYST   |
| KING   | 5000.00 | PRESIDENT |
```

```
| ADAMS  | 1100.00 | CLERK     |
| JAMES  |  950.00 | CLERK     |
| FORD   | 3000.00 | ANALYST   |
| MILLER | 1300.00 | CLERK     |
+--------+---------+-----------+
```
7 rows in set (0.00 sec)

 Between :
========

  The between operator selects values within a range ;
 AND operator

Syntax:

     select * from tablename where column name between value1 and value2 ;

 select empno ,ename, sal,job from emp4 where empno between 7369 and 7566;
```
+-------+--------+---------+-----------+
| empno | ename  | sal     | job       |
+-------+--------+---------+-----------+
|  7369 | SMITH  |  800.00 | CLERK     |
|  7499 | ALLEN  | 1600.00 | SALESMAN  |
|  7521 | WARD   | 1250.00 | SALESMAN  |
|  7566 | JONES  | 2975.00 | MANAGER   |
|  7654 | MARTIN | 1250.00 | SALESMAN  |
|  7698 | BLAKE  | 2850.00 | MANAGER   |
|  7782 | CLARK  | 2450.00 | MANAGER   |
|  7788 | SCOTT  | 3000.00 | ANALYST   |
|  7839 | KING   | 5000.00 | PRESIDENT |
|  7844 | TURNER | 1500.00 | SALESMAN  |
+-------+--------+---------+-----------+
```
10 rows in set (0.00 sec)

mysql> select empno ,ename, sal,job from emp3 where sal between 950 and 1500;
```
+-------+--------+---------+----------+
| empno | ename  | sal     | job      |
+-------+--------+---------+----------+
|  7521 | WARD   | 1250.00 | SALESMAN |
|  7654 | MARTIN | 1250.00 | SALESMAN |
```

```
|  7844 | TURNER | 1500.00 | SALESMAN |
|  7876 | ADAMS  | 1100.00 | CLERK    |
|  7900 | JAMES  |  950.00 | CLERK    |
|  7934 | MILLER | 1300.00 | CLERK    |
+-------+--------+---------+----------+
6 rows in set (0.00 sec)
```

mysql> select empno ,ename, sal,job from emp3 where empno between 7369 and 7844;

```
+-------+--------+---------+-----------+
| empno | ename  | sal     | job       |
+-------+--------+---------+-----------+
|  7369 | SMITH  |  800.00 | CLERK     |
|  7499 | ALLEN  | 1600.00 | SALESMAN  |
|  7521 | WARD   | 1250.00 | SALESMAN  |
|  7566 | JONES  | 2975.00 | MANAGER   |
|  7654 | MARTIN | 1250.00 | SALESMAN  |
|  7698 | BLAKE  | 2850.00 | MANAGER   |
|  7782 | CLARK  | 2450.00 | MANAGER   |
|  7788 | SCOTT  | 3000.00 | ANALYST   |
|  7839 | KING   | 5000.00 | PRESIDENT |
|  7844 | TURNER | 1500.00 | SALESMAN  |
+-------+--------+---------+-----------+
10 rows in set (0.00 sec)
```

mysql> select empno ,ename, sal,job from emp3 where sal between 950 and 1500;

```
+-------+--------+---------+----------+
| empno | ename  | sal     | job      |
+-------+--------+---------+----------+
|  7521 | WARD   | 1250.00 | SALESMAN |
|  7654 | MARTIN | 1250.00 | SALESMAN |
|  7844 | TURNER | 1500.00 | SALESMAN |
|  7876 | ADAMS  | 1100.00 | CLERK    |
|  7900 | JAMES  |  950.00 | CLERK    |
|  7934 | MILLER | 1300.00 | CLERK    |
+-------+--------+---------+----------+
6 rows in set (0.00 sec)
```

mysql> ^C
mysql> select empno ,ename, sal,job from emp3 where ename between "A" and "w";

```
+-------+--------+---------+-----------+
| empno | ename  | sal     | job       |
+-------+--------+---------+-----------+
|  7369 | SMITH  |  800.00 | CLERK     |
|  7499 | ALLEN  | 1600.00 | SALESMAN  |
```

```
| 7566 | JONES  | 2975.00 | MANAGER   |
| 7654 | MARTIN | 1250.00 | SALESMAN  |
| 7698 | BLAKE  | 2850.00 | MANAGER   |
| 7782 | CLARK  | 2450.00 | MANAGER   |
| 7788 | SCOTT  | 3000.00 | ANALYST   |
| 7839 | KING   | 5000.00 | PRESIDENT |
| 7844 | TURNER | 1500.00 | SALESMAN  |
| 7876 | ADAMS  | 1100.00 | CLERK     |
| 7900 | JAMES  |  950.00 | CLERK     |
| 7902 | FORD   | 3000.00 | ANALYST   |
| 7934 | MILLER | 1300.00 | CLERK     |
+-------+--------+---------+-----------+
13 rows in set (0.00 sec)

mysql> select empno ,ename, sal,job from emp3 where ename between "A" and "t";
+-------+--------+---------+-----------+
| empno | ename  | sal     | job       |
+-------+--------+---------+-----------+
| 7369 | SMITH  |  800.00 | CLERK     |
| 7499 | ALLEN  | 1600.00 | SALESMAN  |
| 7566 | JONES  | 2975.00 | MANAGER   |
| 7654 | MARTIN | 1250.00 | SALESMAN  |
| 7698 | BLAKE  | 2850.00 | MANAGER   |
| 7782 | CLARK  | 2450.00 | MANAGER   |
| 7788 | SCOTT  | 3000.00 | ANALYST   |
| 7839 | KING   | 5000.00 | PRESIDENT |
| 7876 | ADAMS  | 1100.00 | CLERK     |
| 7900 | JAMES  |  950.00 | CLERK     |
| 7902 | FORD   | 3000.00 | ANALYST   |
| 7934 | MILLER | 1300.00 | CLERK     |
+-------+--------+---------+--

---------+
12 rows in set (0.00 sec)
```

Using for Date:

```
mysql> select empno ,ename, hiredate, job from emp3 where hiredate between 1981-2-20 and
1983-01-12 ;
Empty set, 2 warnings (0.01 sec)

mysql> select empno ,ename, hiredate, job from emp3 where hiredate between 1981/2/20 and
```

1983/01/12 ;
Empty set, 2 warnings (0.01 sec)

: Like :
===========

The like operator is used to search for a specific pattern in a column.

   Syntax:

       select * from table name where columnname like pattern;
       WildCArd:

          % = zero or more character
          _ = one single character
         [charList]= set and ranges of characters to match;

          [^charlist]or [!charlist]= matches pnly a character not specified within the bracket.

    "codenera"

    ex: "code%"=All starts with code
       %era"= All ending with era
       %en%=All containinig with en

    "codener_" Start with cedenera and display any character
    "_ene_"
    "co_d_era"

mysql> x
+-------+
| ename |
+-------+
| JONES |
| JAMES |
+-------+
2 rows in set (0.03 sec)

ysql> select ename, job, sal from emp4 where ename like "j%";
```
+-------+---------+---------+
| ename | job     | sal     |
+-------+---------+---------+
| JONES | MANAGER | 2975.00 |
| JAMES | CLERK   |  950.00 |
+-------+---------+---------+
2 rows in set (0.02 sec)
```

mysql> select ename, job, sal from emp3 where ename like "%en";
```
+-------+----------+---------+
| ename | job      | sal     |
+-------+----------+---------+
| ALLEN | SALESMAN | 1600.00 |
+-------+----------+---------+
1 row in set (0.00 sec)
```

mysql> select ename, job, sal from emp3 where ename like "%n";
```
+--------+----------+---------+
| ename  | job      | sal     |
+--------+----------+---------+
| ALLEN  | SALESMAN | 1600.00 |
| MARTIN | SALESMAN | 1250.00 |
+--------+----------+---------+
2 rows in set (0.00 sec)
```

mysql> select ename, job, sal from emp3 where ename like "%n%";
```
+--------+-----------+---------+
| ename  | job       | sal     |
+--------+-----------+---------+
| ALLEN  | SALESMAN  | 1600.00 |
| JONES  | MANAGER   | 2975.00 |
| MARTIN | SALESMAN  | 1250.00 |
| KING   | PRESIDENT | 5000.00 |
| TURNER | SALESMAN  | 1500.00 |
+--------+-----------+---------+
5 rows in set (0.00 sec)
```

mysql> select ename, job, sal from emp3 where ename like "%rn%";
```
+--------+----------+---------+
| ename  | job      | sal     |
+--------+----------+---------+
| TURNER | SALESMAN | 1500.00 |
```

```
+--------+----------+---------+
```
1 row in set (0.00 sec)

Functions in Mysql:
=======================

    MIN(columnName): Smallest value of the selected column
    max(columnName): Largest value of the selected column
    sum(columnName): The total sum of numberic column
    AVG(columnName): The Average value of numeric column
    SQRT(olumn Nme): The square rrot of numeric column
    Round(ColumnNAme);This function is used to round a numeric field to the number of
decimal specified.


```
+---------------+
| UpdatedSalary |
+---------------+
|        800.00 |
+---------------+
```
1 row in set (0.00 sec)

mysql> select ename , min(sal) as UpdatedSalary from emp3;
ERROR 1054 (42S22): Unknown column 'name' in 'field list'
mysql> select ename , min(sal) as UpdatedSalary from emp3;
```
+-------+---------------+
| ename | UpdatedSalary |
+-------+---------------+
| SMITH |        800.00 |
+-------+---------------+
```
1 row in set (0.00 sec)

mysql> select ename , max(sal) as UpdatedSalary from emp3;
```
+-------+---------------+
| ename | UpdatedSalary |
+-------+---------------+
| SMITH |       5000.00 |
+-------+---------------+
```
1 row in set (0.00 sec)

mysql> c
```
+-----------+
```

```
| total_sal |
+-----------+
|  29025.00 |
+-----------+
1 row in set (0.01 sec)

mysql> select avg(sal) as total_sal from emp3;
+-------------+
| total_sal   |
+-------------+
| 2073.214286 |
+-------------+
1 row in set (0.00 sec)

mysql> select round(avg(sal),1) as total_sal from emp3;
+-----------+
| total_sal |
+-----------+
|    2073.2 |
+-----------+
1 row in set (0.01 sec)

mysql> select round(avg(sal)) as total_sal from emp3;
+-----------+
| total_sal |
+-----------+
|      2073 |
+-----------+
1 row in set (0.01 sec)
```

count:
-=====

  count(ColNme):This retuns the number of values in specified columns;

  count(*): The number of records:

  count(distinct columnname) : gives distinct values

```
mysql> select count(ename) from emp3;
+--------------+
| count(ename) |
+--------------+
```

```
|          14 |
+--------------+
1 row in set (0.01 sec)

mysql> select count(*) from emp3;
+----------+
| count(*) |
+----------+
|       14 |
+----------+
1 row in set (0.06 sec)

mysql> select count(distinct sal) from emp3;
+---------------------+
| count(distinct sal) |
+---------------------+
|                  12 |
+---------------------+
1 row in set (0.01 sec)

mysql>
```

Upper and Lower Function
 =======================

upper(colname)
lower(columnname)
length(columnname)
mid(columnname)


```
mysql> select count(distinct sal) from emp3;
+---------------------+
| count(distinct sal) |
+---------------------+
|                  12 |
+---------------------+
1 row in set (0.01 sec)

mysql> select upper(ename) from emp3;
+--------------+
```

```
| upper(ename) |
+--------------+
| SMITH        |
| ALLEN        |
| WARD         |
| JONES        |
| MARTIN       |
| BLAKE        |
| CLARK        |
| SCOTT        |
| KING         |
| TURNER       |
| ADAMS        |
| JAMES        |
| FORD         |
| MILLER       |
+--------------+
14 rows in set (0.01 sec)

mysql> select ucase(ename) from emp3;
+--------------+
| ucase(ename) |
+--------------+
| SMITH        |
| ALLEN        |
| WARD         |
| JONES        |
| MARTIN       |
| BLAKE        |
| CLARK        |
| SCOTT        |
| KING         |
| TURNER       |
| ADAMS        |
| JAMES        |
| FORD         |
| MILLER       |
+--------------+
14 rows in set (0.00 sec)

mysql> select lower(ename) from emp3;
+--------------+
| lower(ename) |
```

```
+--------------+
| smith        |
| allen        |
| ward         |
| jones        |
| martin       |
| blake        |
| clark        |
| scott        |
| king         |
| turner       |
| adams        |
| james        |
| ford         |
| miller       |
+--------------+
14 rows in set (0.01 sec)

mysql> select lcase(ename) from emp3;
+--------------+
| lcase(ename) |
+--------------+
| smith        |
| allen        |
| ward         |
| jones        |
| martin       |
| blake        |
| clark        |
| scott        |
| king         |
| turner       |
| adams        |
| james        |
| ford         |
| miller       |
+--------------+
14 rows in set (0.01 sec)

mysql> select mid(ename,1,3) from emp3;
+----------------+
| mid(ename,1,3) |
+----------------+
```

```
| SMI          |
| ALL          |
| WAR          |
| JON          |
| MAR          |
| BLA          |
| CLA          |
| SCO          |
| KIN          |
| TUR          |
| ADA          |
| JAM          |
| FOR          |
| MIL          |
+---------------+
14 rows in set (0.01 sec)

mysql> selec ltrim(ename) from emp3;
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 'selec ltrim(ename)
from emp3' at line 1
mysql> select ltrim(ename) from emp3;
+--------------+
| ltrim(ename) |
+--------------+
| SMITH        |
| ALLEN        |
| WARD         |
| JONES        |
| MARTIN       |
| BLAKE        |
| CLARK        |
| SCOTT        |
| KING         |
| TURNER       |
| ADAMS        |
| JAMES        |
| FORD         |
| MILLER       |
+--------------+
14 rows in set (0.01 sec)

mysql>
```

```
mysql> select ename from emp3 where ename like "j%";
+-------+
| ename |
+-------+
| JONES |
| JAMES |
+-------+
2 rows in set (0.08 sec)

mysql> select ename from emp3 where ename like "%A";
Empty set (0.00 sec)

mysql> select ename from emp3 where ename like "%S";
+-------+
| ename |
+-------+
| JONES |
| ADAMS |
| JAMES |
+-------+
3 rows in set (0.01 sec)

mysql> select ename from emp3 where ename like "%en";
+-------+
| ename |
+-------+
| ALLEN |
+-------+
1 row in set (0.03 sec)

mysql> select ename from emp3 where ename like "blak_";
+-------+
| ename |
+-------+
| BLAKE |
+-------+
1 row in set (0.00 sec)

mysql> select ename from emp3 where ename like "_lak_";
+-------+
| ename |
```

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

mysql> select ename from emp3 where ename like "bl_ke";
+-------+
| ename |
+-------+
| BLAKE |
+-------+
1 row in set (0.00 sec)

mysql> select count(ename) from emp3 where job="salesman";
+--------------+
| count(ename) |
+--------------+
|            4 |
+--------------+
1 row in set (0.04 sec)

mysql> select count(ename) as Total_Count_SalesMan from emp3 where job="salesman";
+----------------------+
| Total_Count_SalesMan |
+----------------------+
|                    4 |
+----------------------+
1 row in set (0.00 sec)

mysql> select count(ename) as Total_Count_SalesMan from emp3 where job="clerk";
+----------------------+
| Total_Count_SalesMan |
+----------------------+
|                    4 |
+----------------------+
1 row in set (0.00 sec)

mysql> select count(ename) as Total_Count_Clerk from emp3 where job="clerk";
+-------------------+
| Total_Count_Clerk |
+-------------------+
|                 4 |
+-------------------+
```

1 row in set (0.00 sec)

mysql> select sum(sal) as Total_sum_salesman from emp3 where job="salesman" and sal=>800;
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 '=>800' at line 1
mysql> select sum(sal) as Total_sum_salesman from emp3 where job="salesman" and sal>=800;
+--------------------+
| Total_sum_salesman |
+--------------------+
| 5600.00 |
+--------------------+
1 row in set (0.06 sec)

mysql> select sum(sal) as Total_sum_salesman, count(ename) as Total_Count_SalesMan from emp3 where job="salesman" and sal>=800;
+--------------------+----------------------+
| Total_sum_salesman | Total_Count_SalesMan |
+--------------------+----------------------+
| 5600.00 | 4 |
+--------------------+----------------------+
1 row in set (0.06 sec)

```
UPDATE employees
    SET
    email = 'mary.patterson@classicmodelcars.com'
WHERE
    employeeNumber = 1056;
```