Basic Database Operations-III

- Recognise common SQL data types
- Work with wildcards for pattern matching
- Remove duplicates with DISTINCT
- Sort data using ORDER BY
- Limit results using LIMIT & OFFSET
- Add comments for better documentation
- Use column aliases for readability

OR LOGIC - Any Statement has to be True

Multiple OR Logic Can be replace with IN Operator

IN - Operator

Challenge 1 → Filter out all customer having Occupation - Professional, Management, clerical.

```
mysql> SELECT DISTINCT EducationLevel FROM Customers;
+---------------------+
| EducationLevel      |
+---------------------+
| Bachelors           |
| Partial College     |
| High School         |
| Partial High School |
| Graduate Degree     |
+---------------------+
5 rows in set (0.03 sec)
```

Remove Duplicates

```
mysql> SELECT DISTINCT Occupation FROM Customers;
+-----------------+
| Occupation      |
+-----------------+
| Professional    |
| Management      |
| Skilled Manual  |
| Clerical        |
| Manual          |
+-----------------+
5 rows in set (0.01 sec)
```

```sql
SELECT
    FirstName,
    Gender,
    AnnualIncome,
    Occupation
FROM Customers
WHERE Occupation = "Professional" OR
Occupation = "Management" OR
Occupation = "Clerical"
LIMIT 20;
```

FirstName	Gender	AnnualIncome	Occupation
JON	M	$90,000	Professional
EUGENE	M	$60,000	Professional
RUBEN	M	$60,000	Professional
CHRISTY	F		Professional
ELIZABETH	F	$80,000	Professional
JULIO	M	$70,000	Professional
MARCO	M	$60,000	Professional
ROBIN	F	$60,000	Professional
SHANNON	M	$70,000	Professional
JACQUELYN	F	$70,000	Professional
CURTIS	M	$60,000	Professional
LAUREN	F	$100,000	Management
IAN	M	$100,000	Management
SYDNEY	F	$100,000	Management
CLARENCE	M	$30,000	Clerical
ALEJANDRO	NA	$10,000	Clerical
HAROLD	M	$30,000	Clerical
JESSIE	M	$30,000	Clerical
JILL	F	$30,000	Clerical
JIMMY	M	$30,000	Clerical

```sql
SELECT
    FirstName,
    Gender,
    AnnualIncome,
    Occupation
FROM Customers
WHERE Occupation IN ("Professional", "Management", "Clerical")
LIMIT 20;
```

Challenge 2

Filter out all customer having Occupation
- Professional, Management, clerical
Or having Education Level = Bachelors, Graduate Degree

```sql
SELECT
    FirstName,
    Gender,
    AnnualIncome,
    Occupation,
    EducationLevel
FROM Customers
WHERE (Occupation = "Professional"
OR Occupation = "Management"
OR Occupation = "Clerical")
AND
(EducationLevel = "Bachelors"
OR EducationLevel = "Graduate Degree");
```

```sql
SELECT
    FirstName,
    Gender,
    AnnualIncome,
    Occupation,
    EducationLevel
FROM Customers
WHERE Occupation IN ("Professional", "Management", "Clerical")
AND
EducationLevel IN ("Bachelors", "Graduate Degree");
```

FirstName	Gender	AnnualIncome	Occupation	EducationLevel
JON	M	$90,000	Professional	Bachelors
EUGENE	M	$60,000	Professional	Bachelors
RUBEN	M	$60,000	Professional	Bachelors
CHRISTY	F		Professional	Bachelors
ELIZABETH	F	$80,000	Professional	Bachelors
JULIO	M	$70,000	Professional	Bachelors
MARCO	M	$60,000	Professional	Bachelors
ROBIN	F	$60,000	Professional	Bachelors
SHANNON	M	$70,000	Professional	Bachelors
JACQUELYN	F	$70,000	Professional	Bachelors
CURTIS	M	$60,000	Professional	Bachelors
LAUREN	F	$100,000	Management	Bachelors
IAN	M	$100,000	Management	Bachelors
SYDNEY	F	$100,000	Management	Bachelors
CARL	M	$70,000	Management	Graduate Degree
DONALD	M	$160,000	Management	Graduate Degree
DAMIEN	M	$170,000	Management	Graduate Degree
SAVANNAH	F		Management	Bachelors
ANGELA	NA	$130,000	Management	Graduate Degree
CARA	F	$30,000	Clerical	Graduate Degree
ANNE	F	$20,000	Clerical	Bachelors
CARRIE	F	$30,000	Clerical	Bachelors
ROBERTO	M	$40,000	Clerical	Graduate Degree
VIRGINIA	F	$20,000	Clerical	Bachelors
CALVIN	M	$20,000	Clerical	Bachelors

NOT IN

```sql
-- NOT IN
SELECT
    FirstName,
    Gender,
    AnnualIncome,
    Occupation
FROM Customers
WHERE Occupation NOT IN ("Professional", "Management", "Clerical")
LIMIT 20;
```

FirstName	Gender	AnnualIncome	Occupation
CHLOE	F		Skilled Manual
WYATT	M	$30,000	Skilled Manual
SHANNON	F	$20,000	Skilled Manual
LUKE	M	$40,000	Skilled Manual
JORDAN	M	$40,000	Skilled Manual
DESTINY	F	$40,000	Skilled Manual
ETHAN	M	$40,000	Skilled Manual
SETH	M	$40,000	Skilled Manual
RUSSELL	M	$60,000	Skilled Manual
THERESA	F	$20,000	Skilled Manual
DENISE	F	$20,000	Skilled Manual
JAIME	M	$20,000	Skilled Manual
EBONY	F	$20,000	Skilled Manual
JENNIFER	F	$60,000	Skilled Manual
JESSE	M	$30,000	Skilled Manual
AMANDA	F	$60,000	Skilled Manual
MEGAN	F	$70,000	Skilled Manual
NATHAN	M	$60,000	Skilled Manual
LEONARD	M	$30,000	Skilled Manual
CHRISTINE	F	$30,000	Skilled Manual

20 rows in set (0.07 sec)

BETWEEN

```
mysql> SELECT DISTINCT TotalChildren FROM Customers;
+---------------+
| TotalChildren |
+---------------+
|             2 |
|             3 |
|             0 |
|             5 |
|             4 |
|             1 |
+---------------+
6 rows in set (0.01 sec)
```

Challenge 3 → Provide all the customer who have total children `>=1 AND <=4` [1,2,3,4] [Inclusive]

`>1 AND <4` [2,3] - Exclusive

```
mysql> SELECT
    ->  FirstName,
    ->     Gender,
    ->     AnnualIncome,
    ->     Occupation,
    ->     TotalChildren
    -> FROM Customers
    -> WHERE TotalChildren >=1 AND TotalChildren <=4
    -> LIMIT 10;
+-----------+--------+--------------+----------------+---------------+
| FirstName | Gender | AnnualIncome | Occupation     | TotalChildren |
+-----------+--------+--------------+----------------+---------------+
| JON       | M      | $90,000      | Professional   |             2 |
| EUGENE    | M      | $60,000      | Professional   |             3 |
| RUBEN     | M      | $60,000      | Professional   |             3 |
| MARCO     | M      | $60,000      | Professional   |             3 |
| ROBIN     | F      | $60,000      | Professional   |             4 |
| CURTIS    | M      | $60,000      | Professional   |             4 |
| LAUREN    | F      | $100,000     | Management     |             2 |
| IAN       | M      | $100,000     | Management     |             2 |
| SYDNEY    | F      | $100,000     | Management     |             3 |
| SHANNON   | F      | $20,000      | Skilled Manual |             4 |
+-----------+--------+--------------+----------------+---------------+
10 rows in set (0.01 sec)
```

```
mysql> SELECT
    ->  FirstName,
    ->     Gender,
    ->     AnnualIncome,
    ->     Occupation,
    ->     TotalChildren
    -> FROM Customers
    -> WHERE TotalChildren BETWEEN 1 AND 4
    -> LIMIT 10;
+-----------+--------+--------------+----------------+---------------+
| FirstName | Gender | AnnualIncome | Occupation     | TotalChildren |
+-----------+--------+--------------+----------------+---------------+
| JON       | M      | $90,000      | Professional   |             2 |
| EUGENE    | M      | $60,000      | Professional   |             3 |
| RUBEN     | M      | $60,000      | Professional   |             3 |
| MARCO     | M      | $60,000      | Professional   |             3 |
| ROBIN     | F      | $60,000      | Professional   |             4 |
| CURTIS    | M      | $60,000      | Professional   |             4 |
| LAUREN    | F      | $100,000     | Management     |             2 |
| IAN       | M      | $100,000     | Management     |             2 |
| SYDNEY    | F      | $100,000     | Management     |             3 |
| SHANNON   | F      | $20,000      | Skilled Manual |             4 |
+-----------+--------+--------------+----------------+---------------+
10 rows in set (0.01 sec)
```

ORDER BY → Sort the result according to the selected column either in Descending Or Ascending[Default].

ASC - Ascending

DESC - High To Low

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductCost
    -> FROM Products
    -> ORDER BY ProductCost DESC
    -> LIMIT 10;
+-------------------------+--------------+--------------+-------------+
| ProductName             | ModelName    | ProductColor | ProductCost |
+-------------------------+--------------+--------------+-------------+
| Road-150 Red, 56        | Road-150     | Red          |   2171.2942 |
| Road-150 Red, 52        | Road-150     | Red          |   2171.2942 |
| Road-150 Red, 62        | Road-150     | Red          |   2171.2942 |
| Road-150 Red, 44        | Road-150     | Red          |   2171.2942 |
| Road-150 Red, 48        | Road-150     | Red          |   2171.2942 |
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Black, 44  | Mountain-100 | Black        |   1898.0944 |
+-------------------------+--------------+--------------+-------------+
10 rows in set (0.01 sec)
```

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductCost
    -> FROM Products
    -> ORDER BY ProductCost ASC
    -> LIMIT 10;
+-----------------------+--------------------+--------------+-------------+
| ProductName           | ModelName          | ProductColor | ProductCost |
+-----------------------+--------------------+--------------+-------------+
| Patch Kit/8 Patches   | Patch kit          | NA           |      0.8565 |
| Road Tire Tube        | Road Tire Tube     | NA           |      1.4923 |
| Water Bottle - 30 oz. | Water Bottle       | NA           |      1.8663 |
| Touring Tire Tube     | Touring Tire Tube  | NA           |      1.8663 |
| Mountain Tire Tube    | Mountain Tire Tube | NA           |      1.8663 |
| Bike Wash - Dissolver | Bike Wash          | NA           |      2.9733 |
| Road Bottle Cage      | Road Bottle Cage   | NA           |      3.3623 |
| Racing Socks, L       | Racing Socks       | White        |      3.3623 |
| Racing Socks, M       | Racing Socks       | White        |      3.3623 |
| Mountain Bike Socks, M | Mountain Bike Socks | White       |      3.3963 |
+-----------------------+--------------------+--------------+-------------+
10 rows in set (0.01 sec)
```

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductCost
    -> FROM Products
    -> ORDER BY ProductCost
    -> LIMIT 10;
+-----------------------+--------------------+--------------+-------------+
| ProductName           | ModelName          | ProductColor | ProductCost |
+-----------------------+--------------------+--------------+-------------+
| Patch Kit/8 Patches   | Patch kit          | NA           |      0.8565 |
| Road Tire Tube        | Road Tire Tube     | NA           |      1.4923 |
| Water Bottle - 30 oz. | Water Bottle       | NA           |      1.8663 |
| Touring Tire Tube     | Touring Tire Tube  | NA           |      1.8663 |
| Mountain Tire Tube    | Mountain Tire Tube | NA           |      1.8663 |
| Bike Wash - Dissolver | Bike Wash          | NA           |      2.9733 |
| Road Bottle Cage      | Road Bottle Cage   | NA           |      3.3623 |
| Racing Socks, L       | Racing Socks       | White        |      3.3623 |
| Racing Socks, M       | Racing Socks       | White        |      3.3623 |
| Mountain Bike Socks, M | Mountain Bike Socks | White       |      3.3963 |
+-----------------------+--------------------+--------------+-------------+
10 rows in set (0.01 sec)
```

ORDER BY with Indexing

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductCost
    -> FROM Products
    -> ORDER BY 4 DESC
    -> LIMIT 10;
+-------------------------+-------------+--------------+-------------+
| ProductName             | ModelName   | ProductColor | ProductCost |
+-------------------------+-------------+--------------+-------------+
| Road-150 Red, 56        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 52        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 62        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 44        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 48        | Road-150    | Red          |   2171.2942 |
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Black, 44  | Mountain-100 | Black        |   1898.0944 |
+-------------------------+-------------+--------------+-------------+
10 rows in set (0.02 sec)
```

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductCost
    -> FROM Products
    -> ORDER BY 4 DESC, 1
    -> LIMIT 10;
+-------------------------+-------------+--------------+-------------+
| ProductName             | ModelName   | ProductColor | ProductCost |
+-------------------------+-------------+--------------+-------------+
| Road-150 Red, 44        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 48        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 52        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 56        | Road-150    | Red          |   2171.2942 |
| Road-150 Red, 62        | Road-150    | Red          |   2171.2942 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |   1912.1544 |
| Mountain-100 Black, 38  | Mountain-100 | Black        |   1898.0944 |
+-------------------------+-------------+--------------+-------------+
10 rows in set (0.02 sec)
```

LIMIT / OFFSET → Offset help us to skip the records.

Top 10 Products based on Product Price.

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 10;
+-------------------------+-------------+--------------+--------------+
| ProductName             | ModelName   | ProductColor | ProductPrice |
+-------------------------+-------------+--------------+--------------+
| Road-150 Red, 62        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 44        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 48        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 52        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 56        | Road-150    | Red          |      3578.27 |
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
+-------------------------+-------------+--------------+--------------+
10 rows in set (0.03 sec)
```

Provide Top Products having rank 6 - 10

SKIP the 1st 5 values - OFFSET 5

5 values - LIMIT 5

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 5 OFFSET 5;
+-------------------------+-------------+--------------+--------------+
| ProductName             | ModelName   | ProductColor | ProductPrice |
+-------------------------+-------------+--------------+--------------+
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
+-------------------------+-------------+--------------+--------------+
5 rows in set (0.01 sec)
```

You are screen sharing

Provide a rank from 6-15. SKIP - 5 [OFFSET]
LIMIT - 10

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 10 OFFSET 5;
+-------------------------+-------------+--------------+--------------+
| ProductName             | ModelName   | ProductColor | ProductPrice |
+-------------------------+-------------+--------------+--------------+
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 38  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 42  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 44  | Mountain-100 | Black        |      3374.99 |
| Road-250 Red, 48        | Road-250     | Red          |      2443.35 |
| Road-250 Red, 44        | Road-250     | Red          |      2443.35 |
+-------------------------+-------------+--------------+--------------+
```

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 20;
+-------------------------+-------------+--------------+--------------+
| ProductName             | ModelName   | ProductColor | ProductPrice |
+-------------------------+-------------+--------------+--------------+
| Road-150 Red, 62        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 44        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 48        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 52        | Road-150    | Red          |      3578.27 |
| Road-150 Red, 56        | Road-150    | Red          |      3578.27 |
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 38  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 42  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 44  | Mountain-100 | Black        |      3374.99 |
| Road-250 Red, 48        | Road-250     | Red          |      2443.35 |
| Road-250 Red, 44        | Road-250     | Red          |      2443.35 |
| Road-250 Red, 52        | Road-250     | Red          |      2443.35 |
| Touring-1000 Yellow, 60 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 50 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 46 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 54 | Touring-1000 | Yellow       |      2384.07 |
+-------------------------+-------------+--------------+--------------+
```

```
mysql> SELECT
    ->  ProductName,
    ->     ModelName,
    ->     ProductColor,
    ->     ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 20 OFFSET 5;
+-------------------------+-------------+--------------+--------------+
| ProductName             | ModelName   | ProductColor | ProductPrice |
+-------------------------+-------------+--------------+--------------+
| Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
| Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 38  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 42  | Mountain-100 | Black        |      3374.99 |
| Mountain-100 Black, 44  | Mountain-100 | Black        |      3374.99 |
| Road-250 Red, 48        | Road-250     | Red          |      2443.35 |
| Road-250 Red, 44        | Road-250     | Red          |      2443.35 |
| Road-250 Red, 52        | Road-250     | Red          |      2443.35 |
| Touring-1000 Yellow, 60 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 50 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 46 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Yellow, 54 | Touring-1000 | Yellow       |      2384.07 |
| Touring-1000 Blue, 46   | Touring-1000 | Blue         |      2384.07 |
| Touring-1000 Blue, 50   | Touring-1000 | Blue         |      2384.07 |
| Touring-1000 Blue, 54   | Touring-1000 | Blue         |      2384.07 |
| Touring-1000 Blue, 60   | Touring-1000 | Blue         |      2384.07 |
| Road-250 Black, 58      | Road-250     | Black        |    2181.5625 |
+-------------------------+-------------+--------------+--------------+
20 rows in set (0.00 sec)
```

can we skip in the middle (need 1 to 20 , skip 12 to 16)

```
1-11 - temporary Table - Fixed
UNION ALL
12 - 20 - Temp Table - OFFSET 5 LIMIT 4;
```

Comments
- Single Line Comments [--]
- Multi Line Comments [/* --------- */]

ALIASES "AS" → Rename Column or Table Name.

```
mysql> SELECT
    ->  ProductKey AS Id,
    ->  ProductName,
    ->      ModelName,
    ->      ProductColor,
    ->      ProductPrice
    -> FROM Products
    -> ORDER BY ProductPrice DESC
    -> LIMIT 10;
+------+-------------------------+-------------+--------------+--------------+
| Id   | ProductName             | ModelName   | ProductColor | ProductPrice |
+------+-------------------------+-------------+--------------+--------------+
|  310 | Road-150 Red, 62        | Road-150    | Red          |      3578.27 |
|  311 | Road-150 Red, 44        | Road-150    | Red          |      3578.27 |
|  312 | Road-150 Red, 48        | Road-150    | Red          |      3578.27 |
|  313 | Road-150 Red, 52        | Road-150    | Red          |      3578.27 |
|  314 | Road-150 Red, 56        | Road-150    | Red          |      3578.27 |
|  347 | Mountain-100 Silver, 48 | Mountain-100 | Silver       |      3399.99 |
|  346 | Mountain-100 Silver, 44 | Mountain-100 | Silver       |      3399.99 |
|  345 | Mountain-100 Silver, 42 | Mountain-100 | Silver       |      3399.99 |
|  344 | Mountain-100 Silver, 38 | Mountain-100 | Silver       |      3399.99 |
|  351 | Mountain-100 Black, 48  | Mountain-100 | Black        |      3374.99 |
+------+-------------------------+-------------+--------------+--------------+
10 rows in set (0.13 sec)
```

```
mysql> DESC Customers;
+-----------------+---------+------+-----+---------+-------+
| Field           | Type    | Null | Key | Default | Extra |
+-----------------+---------+------+-----+---------+-------+
| CustomerKey     | int     | YES  |     | NULL    |       |
| Prefix          | text    | YES  |     | NULL    |       |
| FirstName       | text    | YES  |     | NULL    |       |
| LastName        | text    | YES  |     | NULL    |       |
| BirthDate       | text    | YES  |     | NULL    |       |
| MyUnknownColumn | text    | YES  |     | NULL    |       |
| MaritalStatus   | text    | YES  |     | NULL    |       |
| Gender          | text    | YES  |     | NULL    |       |
| EmailAddress    | text    | YES  |     | NULL    |       |
| AnnualIncome    | text    | YES  |     | NULL    |       |
| TotalChildren   | int     | YES  |     | NULL    |       |
| EducationLevel  | text    | YES  |     | NULL    |       |
| Occupation      | text    | YES  |     | NULL    |       |
| HomeOwner       | text    | YES  |     | NULL    |       |
| Phone_number    | bigint  | YES  |     | NULL    |       |
+-----------------+---------+------+-----+---------+-------+
15 rows in set (0.05 sec)
```

→ Concat()

```
mysql> SELECT
    ->  CustomerKey AS CustomerID,
    ->      CONCAT(Prefix , " " , FirstName, " ", LastName)
    -> FROM Customers LIMIT 10;
+------------+-----------------------------------------------+
| CustomerID | CONCAT(Prefix , " " , FirstName, " ", LastName) |
+------------+-----------------------------------------------+
|      11000 | MR. JON YANG                                  |
|      11001 | MR. EUGENE HUANG                              |
|      11002 | MR. RUBEN TORRES                              |
|      11003 | MS. CHRISTY ZHU                               |
|      11004 | MRS. ELIZABETH JOHNSON                        |
|      11005 | MR. JULIO RUIZ                                |
|      11007 | MR. MARCO MEHTA                               |
|      11008 | MRS. ROBIN VERHOFF                            |
|      11009 | MR. SHANNON CARLSON                           |
|      11010 | MS. JACQUELYN SUAREZ                          |
+------------+-----------------------------------------------+
10 rows in set (0.01 sec)
```

→ AS "CustomerName"

```
mysql> SELECT
    ->  CustomerKey AS CustomerID,
    ->     CONCAT(Prefix , " " , FirstName, " ", LastName) AS CustomerName
    -> FROM Customers
    -> LIMIT 10;
+------------+-------------------------+
| CustomerID | CustomerName            |
+------------+-------------------------+
|      11000 | MR. JON YANG            |
|      11001 | MR. EUGENE HUANG        |
|      11002 | MR. RUBEN TORRES        |
|      11003 | MS. CHRISTY ZHU         |
|      11004 | MRS. ELIZABETH JOHNSON  |
|      11005 | MR. JULIO RUIZ          |
|      11007 | MR. MARCO MEHTA         |
|      11008 | MRS. ROBIN VERHOFF      |
|      11009 | MR. SHANNON CARLSON     |
|      11010 | MS. JACQUELYN SUAREZ    |
+------------+-------------------------+
10 rows in set (0.00 sec)
```

Data Types

DOUBLE [High Precision taking high Space] > FLOAT [Less Space and less precise]

16 digit[precision]
~ 8 byte

8 digit[precision]
~ 4 byte

When to choose Char() Vs Varchar()

Char is better if you have fixed length as an input. [Char() is faster than Varchar()]

NAME → varchar(255) : The reason is you don't the length of the input.

"Krishna" - 7

Why Char() is not recommended when you don't the length.

1 char ~ 1 byte

'K' 'r' 'i' 's' 'h' 'n' 'a' _ _ _ Varchar(10) - 7 byte of space

'K' 'r' 'i' 's' 'h' 'n' 'a' _ _ _ Char(10) - 10 byte of space

CHAR() Then When to use Char()?

GENDER - CHAR(1) - 'M' / 'F' [Faster]
State Abbreviation - "HR"/"DL","MH","KL","KA" - 2 fixed length [char(2)]