

String Operations & Aggregation Functions

```
Sports =  
["Cricket", "Badminton", "Football", "VolleyBall", "BasketBall", "Golf"]
```

```
Substring_index(String, Delimeter, Count)
```

```
Delimeter = ", "
```

```
["Badminton", "Football"]
```

```
substring_index(Sports, ", ", 3) = ["Cricket", "Badminton", "Football"]
```

-2

```
substring_index(substring_index(Sports, ", ", 3), -2)  
= ["Badminton", "Football"]
```

```
["Volleyball"] = sub_idx(sports, ", ", -3) =  
["Volleyball", "BasketBall", "Golf"]
```

```
["Volleyball"] = sub_idx(sub_idx(sports, ", ", -3), 1) = ["Volleyball"]
```

UPPER()

```
mysql> SELECT EmailAddress From Customers LIMIT 10;  
+-----+  
| EmailAddress |  
+-----+  
| jon24@learnsector.com |  
| eugene10@learnsector.com |  
| ruben35@learnsector.com |  
| christy12@learnsector.com |  
| elizabeth5@learnsector.com |  
| julio1@learnsector.com |  
| marco14@learnsector.com |  
| rob4@learnsector.com |  
| shannon38@learnsector.com |  
| jacquelyn20@learnsector.com |  
+-----+  
10 rows in set (0.00 sec)
```

```
mysql> SELECT DATABASE();  
+-----+  
| DATABASE() |  
+-----+  
| sales_db |  
+-----+  
1 row in set (0.00 sec)
```

```
-- UPPER() -- Capitalise the word  
SELECT  
    UPPER(EmailAddress) AS Email  
FROM Customers  
LIMIT 10;
```

```

mysql> SELECT
    ->   UPPER(EmailAddress) AS Email
    ->   FROM Customers
    ->   LIMIT 10;
+-----+
| Email |
+-----+
| JON24@LEARNSECTOR.COM
| EUGENE10@LEARNSECTOR.COM
| RUBEN35@LEARNSECTOR.COM
| CHRISTY12@LEARNSECTOR.COM
| ELIZABETH5@LEARNSECTOR.COM
| JULIO1@LEARNSECTOR.COM
| MARCO14@LEARNSECTOR.COM
| ROB4@LEARNSECTOR.COM
| SHANNON38@LEARNSECTOR.COM
| JACQUELYN20@LEARNSECTOR.COM
+-----+
10 rows in set (0.00 sec)

```

Lower()

```

mysql> SELECT
    ->   LOWER(EmailAddress) AS Email
    ->   FROM Customers
    ->   LIMIT 10;
+-----+
| Email |
+-----+
| jon24@learnsector.com
| eugene10@learnsector.com
| ruben35@learnsector.com
| christy12@learnsector.com
| elizabeth5@learnsector.com
| julio1@learnsector.com
| marco14@learnsector.com
| rob4@learnsector.com
| shannon38@learnsector.com
| jacquelyn20@learnsector.com
+-----+
10 rows in set (0.00 sec)

```

```

-- LOWER() -- Lowercase each character of a word
SELECT
    LOWER(EmailAddress) AS Email
FROM Customers
LIMIT 10;

```

Proper()

coding ninja --> Coding Ninja

LEFT()

```

mysql> SELECT
    ->   LEFT(EmailAddress , 5) As shortmail
    ->   FROM Customers
    ->   LIMIT 10;
+-----+
| shortmail |
+-----+
| jon24     |
| eugen    |
| ruben    |
| chris    |
| eliza    |
| julio    |
| marco    |
| rob4@   |
| shann    |
| jacqu   |
+-----+
10 rows in set (0.00 sec)

```

```

-- LEFT() -- Extract From Start.
-- LEFT(String, number of characters)
SELECT
    LEFT(EmailAddress , 5) As shortmail
FROM Customers
LIMIT 10;

```

```

mysql> SELECT
    ->   EmailAddress,
    ->   LEFT(EmailAddress , 5) As shortmail
    -> FROM Customers
    -> LIMIT 10;
+-----+-----+
| EmailAddress | shortmail |
+-----+-----+
| jon24@learnsector.com | jon24 |
| eugene10@learnsector.com | eugen |
| ruben35@learnsector.com | ruben |
| christy12@learnsector.com | chris |
| elizabeth5@learnsector.com | eliza |
| julio1@learnsector.com | julio |
| marco14@learnsector.com | marco |
| rob4@learnsector.com | rob4@ |
| shannon38@learnsector.com | shann |
| jacquelyn20@learnsector.com | jacqu |
+-----+-----+
10 rows in set (0.00 sec)

-- LEFT() -- Extract From Start.
-- LEFT(String, number of characters)
SELECT
    EmailAddress,
    LEFT(EmailAddress , 5) As shortmail
FROM Customers
LIMIT 10;

```

RIGHT()

```

mysql> SELECT
    ->   EmailAddress,
    ->   RIGHT(EmailAddress , 15) As domainName
    -> FROM Customers
    -> LIMIT 10;
+-----+-----+
| EmailAddress | domainName |
+-----+-----+
| jon24@learnsector.com | learnsector.com |
| eugene10@learnsector.com | learnsector.com |
| ruben35@learnsector.com | learnsector.com |
| christy12@learnsector.com | learnsector.com |
| elizabeth5@learnsector.com | learnsector.com |
| julio1@learnsector.com | learnsector.com |
| marco14@learnsector.com | learnsector.com |
| rob4@learnsector.com | learnsector.com |
| shannon38@learnsector.com | learnsector.com |
| jacquelyn20@learnsector.com | learnsector.com |
+-----+-----+
10 rows in set (0.00 sec)

-- RIGHT() -- Extract From END.
-- RIGHT(String, number of characters)
SELECT
    EmailAddress,
    RIGHT(EmailAddress , 15) As domainName
FROM Customers
LIMIT 10;

```

LPAD()

Phone_number	LPAD(Phone_number,10,0)
6697921661	6697921661
8586376955	8586376955
6528852745	6528852745
3646568427	3646568427
7132265883	7132265883
1902716743	1902716743
4203325209	4203325209
2866694333	2866694333
3417265787	3417265787
3166486176	3166486176
211712173	211712173
435758409	0435758409

0 0 0 9 9 5 4 3 2 6

```
-- LPAD() -- Left Padding
-- It adds characters to the left side to reach a certain length
-- LPAD(str , len , padstr);

SELECT
    LPAD(Phone_number,10,'-')
FROM Customers
LIMIT 100;
```

Phone_number	LPAD(Phone_number,10,0)
6697921661	6697921661
8586376955	8586376955
6528852745	6528852745
3646568427	3646568427
7132265883	7132265883
1902716743	1902716743
4203325209	4203325209
2866694333	2866694333
3417265787	3417265787
3166486176	3166486176
8338877898	8338877898
8043834080	8043834080
211712173	0211712173
435758409	0435758409

" " + 123
" " + "123"
= " 123"

RPAD()

Phone_number	RPAD(Phone_number,10,0)
6697921661	6697921661
8586376955	8586376955
6528852745	6528852745
3646568427	3646568427
7132265883	7132265883
1902716743	1902716743
4203325209	4203325209
2866694333	2866694333
3417265787	3417265787
3166486176	3166486176
8338877898	8338877898
8043834080	8043834080
211712173	2117121730
435758409	4357584090

LPAD(str , len , padstr);

```
ALTER TABLE Customers
ADD COLUMN Formatted_Number VARCHAR(20);
```

```
ALTER TABLE Customers
DROP Column Formatted_Number;
```

```
UPDATE Customers
SET Formatted_Number = LPAD(LEFT(Phone_number,10),10,"0");
```

```
UPDATE customers
SET Formatted_Number= CONCAT('(+91)', ' ', LPAD(RIGHT(phone_number, 10), 10, '0'));
```

Field	Type	Null	Key	Default	Extra
CustomerKey	int	NO	PRI	NULL	
Prefix	text	YES		NULL	
FirstName	text	YES		NULL	
LastName	text	YES		NULL	
FullName	varchar(100)	YES		NULL	
DateOfBirth	text	YES		NULL	
MaritalStatus	text	YES		NULL	
COUNTRY	varchar(50)	YES		NULL	
Gender	text	YES		NULL	
EmailAddress	varchar(100)	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	
Formatted_Number	varchar(20)	YES		NULL	

```
964722569 | 0964722569
623865362 | 0623865362           "0964722569"
```

```
mysql> UPDATE Customers
-> SET Formatted_Number = LPAD(LEFT(Phone_number,10),16,"(+91) 0");
Query OK, 2062 rows affected (0.06 sec)
Rows matched: 2062    Changed: 2062    Warnings: 0
```

```
mysql> SELECT Phone_number , Formatted_Number FROM Customers LIMIT 100;
```

Phone_number	Formatted_Number
6697921661	(+91) 6697921661
8586376955	(+91) 8586376955
6528852745	(+91) 6528852745
3646568427	(+91) 3646568427
7132265883	(+91) 7132265883
1902716743	(+91) 1902716743
4203325209	(+91) 4203325209
2866694333	(+91) 2866694333
3417265787	(+91) 3417265787
3166486176	(+91) 3166486176
8338877898	(+91) 8338877898
8043834080	(+91) 8043834080
211712173	(+91) 0211712173
435758409	(+91) 0435758409
7907467471	(+91) 7907467471
6493845387	(+91) 6493845387

(+91) 8943797498
(+91) 2987327980

```
UPDATE customers          RPAD
SET Formatted_Number= CONCAT('(+91)', ' ', LPAD(RIGHT(phone_number, 10), 10, '0'));
```

```
UPDATE Customers          RPAD
SET Formatted_Number = LPAD(LEFT(Phone_number,10),16,"(+91) 0");
```

8943797498(+91)
298732798(+91) 0

REVERSE()

```
mysql> SELECT REVERSE("Coding Ninja");
+-----+
| REVERSE("Coding Ninja") |
+-----+
| ajniN gnidoC           |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT
->   CONCAT(
->     FirstName,
->     REVERSE(FirstName)
->   ) AS Palindrome
->   FROM Customers
->   LIMIT 10;
+-----+
| Palindrome |
+-----+
| JONNOJ    |
| EUGENEENEGUE |
| RUBENNEBUR |
| CHRISTYYSIRHC |
| ELIZABETHHTEBAZILE |
| JULIOOILUJ |
| MARCOOCRAM |
| ROBINNIBOR |
| SHANNONNONNAHS |
| JACQUELYNNYLEUQCJ |
+-----+
10 rows in set (0.00 sec)
```

```
mysql> SELECT
    ->  CONCAT(
    ->            "moon",
    ->            REVERSE("moon")
    ->      ) AS Palindrome;
+-----+
| Palindrome |
+-----+
| moonnoom |
+-----+
1 row in set (0.00 sec)
```

REPLACE()

```
mysql> SELECT DISTINCT AnnualIncome From Customers
+-----+
| AnnualIncome |
+-----+
| $90,000    |
| $60,000    |
|           |
| $80,000    |
| $70,000    |
| $100,000   |
| $30,000    |
| $20,000    |
| $40,000    |
| $10,000    |
| $160,000   |
| $170,000   |
| $130,000   |
| $110,000   |
| $120,000   |
| $150,000   |
| $50,000    |
+-----+
17 rows in set (0.01 sec)
```

```
mysql> UPDATE Customers
->     SET AnnualIncome = REPLACE(AnnualIncome,'$', '');
Query OK, 2052 rows affected (0.07 sec)
Rows matched: 2062    Changed: 2052    Warnings: 0

mysql> SELECT DISTINCT AnnualIncome From Customers;
+-----+
| AnnualIncome |
+-----+
| 90,000      |
| 60,000      |
|
| 80,000      |
| 70,000      |
| 100,000     |
| 30,000      |
| 20,000      |
| 40,000      |
| 10,000      |
| 160,000     |
| 170,000     |
| 130,000     |
| 110,000     |
| 120,000     |
| 150,000     |
| 50,000      |
+-----+
```

```

mysql> UPDATE Customers
-> SET AnnualIncome = REPLACE(AnnualIncome,',','');
Query OK, 2052 rows affected (0.09 sec)
Rows matched: 2062 Changed: 2052 Warnings: 0

mysql> SELECT DISTINCT AnnualIncome From Customers;
+-----+
| AnnualIncome |
+-----+
| 90000
| 60000
|
| 80000
| 70000
| 100000
| 30000
| 20000
| 40000
| 10000
| 160000
| 170000
| 130000
| 110000
| 120000
| 150000
| 50000
+-----+
17 rows in set (0.01 sec)

```

```

mysql> UPDATE Customers
-> SET AnnualIncome = NULL
-> WHERE AnnualIncome = "";
Query OK, 10 rows affected (0.01 sec)
Rows matched: 10 Changed: 10 Warnings: 0

mysql> SELECT DISTINCT AnnualIncome From Customers;
+-----+
| AnnualIncome |
+-----+
| 90000
| 60000
| NULL
| 80000
| 70000
| 100000
| 30000
| 20000
| 40000
| 10000
| 160000
| 170000
| 130000
| 110000
| 120000
| 150000
| 50000
+-----+
17 rows in set (0.00 sec)

```

```

mysql> ALTER TABLE Customers
-> MODIFY AnnualIncome INT;
Query OK, 2062 rows affected (0.10 sec)
Records: 2062 Duplicates: 0 Warnings: 0

mysql> DESC Customers;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| CustomerKey | int | NO | PRI | NULL |
| Prefix | text | YES | NULL |
| FirstName | text | YES | NULL |
| LastName | text | YES | NULL |
| FullName | varchar(100) | YES | NULL |
| DateOfBirth | text | YES | NULL |
| MaritalStatus | text | YES | NULL |
| COUNTRY | varchar(50) | YES | NULL |
| Gender | text | YES | NULL |
| EmailAddress | varchar(100) | YES | NULL |
| AnnualIncome | int | YES | NULL |
| TotalChildren | int | YES | NULL |
| EducationLevel | text | YES | NULL |
| Occupation | text | YES | NULL |
| HomeOwner | text | YES | NULL |
| Phone_number | bigint | YES | NULL |
| Formatted_Number | varchar(25) | YES | NULL |
+-----+-----+-----+-----+-----+-----+
17 rows in set (0.01 sec)

```

SUBSTRING() / SUBSTR()

```
mysql> SELECT SUBSTR("Krishna Madan" , 1 , 7);
+-----+
| SUBSTR("Krishna Madan" , 1 , 7) |
+-----+
| Krishna |
+-----+
1 row in set (0.00 sec)
```

-- SUBSTRING() / SUBSTR() - Extract the part of a string.
-- SUBSTR(str, startingPosition, length)

```
mysql> SELECT DISTINCT ModelName FROM Products LIMIT 10;
+-----+
| ModelName |
+-----+
| Sport-100
| Mountain Bike Socks
| Cycling Cap
| Long-Sleeve Logo Jersey
| HL Road Frame
| LL Road Frame
| ML Road Frame
| HL Mountain Frame
| Road-150
| Road-450
+-----+
10 rows in set (0.00 sec)
```

```
SELECT
    SUBSTR(ModelName , 1 , 6) as ExtractModelName
FROM Products
LIMIT 20;

SELECT
    SUBSTRING(ModelName , 1 , 6) as ExtractModelName
FROM Products |
LIMIT 20;
```

```
mysql> SELECT
    --> SUBSTR(ModelName , 1 , 6) as ExtractModelName
    --> FROM Products
    --> LIMIT 20;
+-----+
| ExtractModelName |
+-----+
| Sport-
| Sport-
| Mounta
| Mounta
| Sport-
| Cyclin
| Long-S
| Long-S
| Long-S
| Long-S
| HL Roa
| LL Roa
```

krishna

substring("krishna",2) - rishna

```

mysql> SELECT
->   CONCAT(
->     Left.FirstName,1),
->     SUBSTRING(Lower(FirstName),2)
-> ) AS ProperName
-> FROM Customers
-> LIMIT 10;
+-----+
| ProperName |
+-----+
| Jon          |
| Eugene       |
| Ruben        |
| Christy      |
| Elizabeth    |
| Julio        |
| Marco        |
| Robin        |
| Shannon      |
| Jacquelyn   |
+-----+
10 rows in set (0.00 sec)

```

Substring : Default - 1 [Starting position]

```

mysql> SELECT
->   EmailAddress,
->   INSTR(EmailAddress, "@") as idx_pos
-> FROM Customers
-> LIMIT 10;
+-----+-----+
| EmailAddress           | idx_pos |
+-----+-----+
| jon24@learnsector.com  |      6  |
| eugene10@learnsector.com|      9  |
| ruben35@learnsector.com|      8  |
| christy12@learnsector.com|  10  |
| elizabeth5@learnsector.com| 11  |
| julio1@learnsector.com |      7  |
| marco14@learnsector.com|      8  |
| rob4@learnsector.com  |      5  |
| shannon38@learnsector.com| 10  |
| jacquelyn20@learnsector.com| 12  |
+-----+-----+
10 rows in set (0.00 sec)

```

```

-- INSTR() -- return the position of a character in a string
SELECT
  EmailAddress,
  INSTR(EmailAddress, "@") as idx_pos
FROM Customers
LIMIT 10;

```

HomeWork - Fetch the username from emailAddress from the above code.