

FULL STACK

AGGREGATE FUNCTIONS:

```
mysql> SELECT COUNT(*) FROM STUDENT;
+-----+
| COUNT(*) |
+-----+
|         10 |
+-----+
1 row in set (0.01 sec)

mysql> SELECT SUM(COURSE_ID) FROM COURSES;
+-----+
| SUM(COURSE_ID) |
+-----+
|          1055 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT AVG(YEAR_OF_STUDYING) FROM STUDENT;
+-----+
| AVG(YEAR_OF_STUDYING) |
+-----+
|             2.7000 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT*FROM STUDENT WHERE YEAR_OF_STUDYING>1;
+-----+-----+-----+-----+-----+-----+-----+-----+
| STD_ID | NAME   | EMAIL                | PASSWORD | ROLE   | PHONE   | STATUS | YEAR_OF_STUDYING |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 24501 | ARUN   | arun123@gmail.com    | pass123 | student | 9809836432 | active | 3 |
| 24502 | PRIYA  | priya123@gmail.com   | pass456 | student | 9089836432 | active | 3 |
| 24503 | RAHUL  | rahul123@gmail.com   | pass789 | student | 6809836432 | inactive | 2 |
| 24504 | SNEHA  | sneha123@gmail.com   | pass987 | student | 7089836432 | active | 4 |
| 24505 | VIKRAM | vikram123@gmail.com  | pass654 | student | 8089835432 | active | 2 |
| 24506 | NISHANTH | nish123@gmail.com | pass719 | student | 9989836432 | active | 4 |
| 24507 | ANJALI | anju123@gmail.com    | pass739 | student | 9989636432 | active | 3 |
| 24508 | KARAN  | karan123@gmail.com   | pass839 | student | 9989633232 | inactive | 2 |
| 24509 | DIVYA  | divya123@gmail.com   | pass321 | student | 9989633112 | active | 3 |
+-----+-----+-----+-----+-----+-----+-----+-----+
9 rows in set (0.00 sec)

mysql> SELECT MIN(YEAR_OF_STUDYING) FROM STUDENT;
+-----+
| MIN(YEAR_OF_STUDYING) |
+-----+
|             1 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT MAX(YEAR_OF_STUDYING) FROM STUDENT;
+-----+
| MAX(YEAR_OF_STUDYING) |
+-----+
|             4 |
+-----+
1 row in set (0.00 sec)
```

VIEWS:

```
mysql> CREATE VIEW STUDENT_CLG_DETAILS AS SELECT STD_ID,NAME,ROLE,YEAR_OF_STUDYING FROM STUDENT;
Query OK, 0 rows affected (0.02 sec)

mysql> SELECT*FROM STUDENT_CLG_DETAILS;
+-----+-----+-----+-----+
| STD_ID | NAME   | ROLE   | YEAR_OF_STUDYING |
+-----+-----+-----+-----+
| 24501 | ARUN   | student | 3 |
| 24502 | PRIYA  | student | 3 |
| 24503 | RAHUL  | student | 2 |
| 24504 | SNEHA  | student | 4 |
| 24505 | VIKRAM | student | 2 |
| 24506 | NISHANTH | student | 4 |
| 24507 | ANJALI | student | 3 |
| 24508 | KARAN  | student | 2 |
| 24509 | DIVYA  | student | 3 |
| 24510 | MEERA  | student | 1 |
+-----+-----+-----+-----+
10 rows in set (0.01 sec)
```

JOINS:

```
mysql> SELECT s.STD_ID , c.COURSE_NAME, s.NAME FROM STUDENT s JOIN COURSES c ON s.STD_ID = c.INSTRUCTOR_ID;
```

STD_ID	COURSE_NAME	NAME
24501	WEB DEVELOPMENT BASICS	ARUN
24502	PYTHON PROGRAMMING	PRIYA
24503	DATA ANALYSIS WITH EXCEL	RAHUL
24504	SEO	SNEHA
24505	GRAPHIC DESIGN ESSENTIALS	VIKRAM
24506	DATABASE MANAGEMENT	NISHANTH
24507	CYBERSECURITY FUNDAMENTALS	ANJALI
24508	MACHNE LEARNING BASICS	KARAN
24509	MOBILE APP DEVELOPMENT	DIVYA
24510	CLOUD COMPUTING WITH AWS	MEERA

10 rows in set (0.02 sec)

INNER JOINS:

```
mysql> SELECT c.COURSE_ID, c.COURSE_NAME, s.NAME AS Instructor_Name  
-> FROM COURSES c  
-> INNER JOIN STUDENT s  
-> ON c.INSTRUCTOR_ID = s.STD_ID;
```

COURSE_ID	COURSE_NAME	Instructor_Name
101	WEB DEVELOPMENT BASICS	ARUN
102	PYTHON PROGRAMMING	PRIYA
103	DATA ANALYSIS WITH EXCEL	RAHUL
104	SEO	SNEHA
105	GRAPHIC DESIGN ESSENTIALS	VIKRAM
106	DATABASE MANAGEMENT	NISHANTH
107	CYBERSECURITY FUNDAMENTALS	ANJALI
108	MACHNE LEARNING BASICS	KARAN
109	MOBILE APP DEVELOPMENT	DIVYA
110	CLOUD COMPUTING WITH AWS	MEERA

10 rows in set (0.00 sec)

LEFT JOINS:

```
mysql> SELECT s.STD_ID, s.NAME, s.EMAIL, s.STATUS, sc.YEAR_OF_STUDYING
-> FROM STUDENT s
-> LEFT JOIN STUDENT_CLG_DETAILS sc
-> ON s.STD_ID = sc.STD_ID
-> WHERE sc.YEAR_OF_STUDYING > 2;
```

STD_ID	NAME	EMAIL	STATUS	YEAR_OF_STUDYING
24501	ARUN	arun123@gmail.com	active	3
24502	PRIYA	priya123@gmail.com	active	3
24504	SNEHA	sneha123@gmail.com	active	4
24506	NISHANTH	nish123@gmail.com	active	4
24507	ANJALI	anju123@gmail.com	active	3
24509	DIVYA	divya123@gmail.com	active	3

6 rows in set (0.00 sec)

RIGHT JOIN:

```
mysql> SELECT c.COURSE_ID , c.COURSE_NAME ,s.STD_ID as STUDENT_ID FROM COURSES c RIGHT JOIN STUDENT_CLG_DETAILS s ON s.STD_ID=c.INSTRUCTOR_ID;
```

COURSE_ID	COURSE_NAME	STUDENT_ID
107	CYBERSECURITY FUNDAMENTALS	24507
101	WEB DEVELOPMENT BASICS	24501
109	MOBILE APP DEVELOPMENT	24509
108	MACHINE LEARNING BASICS	24508
110	CLOUD COMPUTING WITH AWS	24510
106	DATABASE MANAGEMENT	24506
102	PYTHON PROGRAMMING	24502
103	DATA ANALYSIS WITH EXCEL	24503
104	SEO	24504
105	GRAPHIC DESIGN ESSENTIALS	24505

10 rows in set (0.00 sec)

DDL (Data Definition Language)

```
mysql> CREATE TABLE ENROLLMENTS (
-> ENROLL_ID INT PRIMARY KEY AUTO_INCREMENT,
-> STD_ID INT,
-> COURSE_ID INT,
-> ENROLL_DATE DATE,
-> FOREIGN KEY (STD_ID) REFERENCES STUDENT(STD_ID),
-> FOREIGN KEY (COURSE_ID) REFERENCES COURSES(COURSE_ID)
-> );
Query OK, 0 rows affected (0.22 sec)
```

```
mysql> ALTER TABLE STUDENT RENAME COLUMN YEAR TO YEAR_OF_STUDYING;
Query OK, 0 rows affected (0.06 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT*FROM STUDENT;
```

STD_ID	NAME	EMAIL	PASSWORD	ROLE	PHONE	STATUS	YEAR_OF_STUDYING	ADDRESS
24501	ARUN	arun123@gmail.com	pass123	student	9809836432	active	NULL	NULL
24502	PRIYA	priya123@gmail.com	pass456	student	9089836432	active	NULL	NULL
24503	RAHUL	rahul123@gmail.com	pass789	student	6809836432	active	NULL	NULL
24504	SNEHA	sneha123@gmail.com	pass987	student	7089836432	active	NULL	NULL
24505	VIKRAM	vikram123@gmail.com	pass654	student	8089835432	active	NULL	NULL
24506	NISHANTH	nish123@gmail.com	pass719	student	9989836432	active	NULL	NULL
24507	ANJALI	anju123@gmail.com	pass739	student	9989636432	active	NULL	NULL
24508	KARAN	karan123@gmail.com	pass839	student	9989633232	inactive	NULL	NULL
24509	DIVYA	divya123@gmail.com	pass321	student	9989633112	active	NULL	NULL
24510	MEERA	meera123@gmail.com	pass639	student	9989622332	active	NULL	NULL

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

DML is used to insert, update, delete, and query data.

```
mysql> UPDATE STUDENT SET YEAR_OF_STUDYING=3 WHERE STD_ID=24501;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

```
mysql> SELECT*FROM STUDENT;
```

STD_ID	NAME	EMAIL	PASSWORD	ROLE	PHONE	STATUS	YEAR_OF_STUDYING
24501	ARUN	arun123@gmail.com	pass123	student	9809836432	active	3
24502	PRIYA	priya123@gmail.com	pass456	student	9089836432	active	NULL
24503	RAHUL	rahul123@gmail.com	pass789	student	6809836432	active	NULL
24504	SNEHA	sneha123@gmail.com	pass987	student	7089836432	active	NULL
24505	VIKRAM	vikram123@gmail.com	pass654	student	8089835432	active	NULL
24506	NISHANTH	nish123@gmail.com	pass719	student	9989836432	active	NULL
24507	ANJALI	anju123@gmail.com	pass739	student	9989636432	active	NULL
24508	KARAN	karan123@gmail.com	pass839	student	9989633232	inactive	NULL
24509	DIVYA	divya123@gmail.com	pass321	student	9989633112	active	NULL
24510	MEERA	meera123@gmail.com	pass639	student	9989622332	active	NULL

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

ORDER BY:

```
mysql> SELECT COURSE_ID , COURSE_NAME ,DURATION FROM COURSES ORDER BY DURATION DESC;
```

COURSE_ID	COURSE_NAME	DURATION
109	MOBILE APP DEVELOPMENT	9 WEEKS
102	PYTHON PROGRAMMING	8 WEEKS
108	MACHINE LEARNING BASICS	8 WEEKS
106	DATABASE MANAGEMENT	7 WEEKS
101	WEB DEVELOPMENT BASICS	6 WEEKS
104	SEO	6 WEEKS
107	CYBERSECURITY FUNDAMENTALS	6 WEEKS
105	GRAPHIC DESIGN ESSENTIALS	5 WEEKS
103	DATA ANALYSIS WITH EXCEL	4 WEEKS
110	CLOUD COMPUTING WITH AWS	10 WEEKS

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

```
mysql> SELECT COURSE_ID , COURSE_NAME ,DURATION FROM COURSES ORDER BY COURSE_ID ASC;
```

COURSE_ID	COURSE_NAME	DURATION
101	WEB DEVELOPMENT BASICS	6 WEEKS
102	PYTHON PROGRAMMING	8 WEEKS
103	DATA ANALYSIS WITH EXCEL	4 WEEKS
104	SEO	6 WEEKS
105	GRAPHIC DESIGN ESSENTIALS	5 WEEKS
106	DATABASE MANAGEMENT	7 WEEKS
107	CYBERSECURITY FUNDAMENTALS	6 WEEKS
108	MACHINE LEARNING BASICS	8 WEEKS
109	MOBILE APP DEVELOPMENT	9 WEEKS
110	CLOUD COMPUTING WITH AWS	10 WEEKS

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

BUILT - IN FUNCTIONS :

```
mysql> SELECT COURSE_NAME, UPPER(COURSE_NAME) AS UPPER_NAME FROM COURSES;
```

COURSE_NAME	UPPER_NAME
WEB DEVELOPMENT BASICS	WEB DEVELOPMENT BASICS
PYTHON PROGRAMMING	PYTHON PROGRAMMING
DATA ANALYSIS WITH EXCEL	DATA ANALYSIS WITH EXCEL
SEO	SEO
GRAPHIC DESIGN ESSENTIALS	GRAPHIC DESIGN ESSENTIALS
DATABASE MANAGEMENT	DATABASE MANAGEMENT
CYBERSECURITY FUNDAMENTALS	CYBERSECURITY FUNDAMENTALS
MACHNE LEARNING BASICS	MACHNE LEARNING BASICS
MOBILE APP DEVELOPMENT	MOBILE APP DEVELOPMENT
CLOUD COMPUTING WITH AWS	CLOUD COMPUTING WITH AWS

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

```
mysql> SELECT COURSE_NAME, LOWER(COURSE_NAME) AS LOWER_NAME FROM COURSES;
```

COURSE_NAME	LOWER_NAME
WEB DEVELOPMENT BASICS	web development basics
PYTHON PROGRAMMING	python programming
DATA ANALYSIS WITH EXCEL	data analysis with excel
SEO	seo
GRAPHIC DESIGN ESSENTIALS	graphic design essentials
DATABASE MANAGEMENT	database management
CYBERSECURITY FUNDAMENTALS	cybersecurity fundamentals
MACHNE LEARNING BASICS	machne learning basics
MOBILE APP DEVELOPMENT	mobile app development
CLOUD COMPUTING WITH AWS	cloud computing with aws

```
10 rows in set (0.01 sec)
```

```
mysql> SELECT NAME , LEFT(NAME, 5) AS SHORT_NAME FROM STUDENT;
```

NAME	SHORT_NAME
ARUN	ARUN
PRIYA	PRIYA
RAHUL	RAHUL
SNEHA	SNEHA
VIKRAM	VIKRA
NISHANTH	NISHA
ANJALI	ANJAL
KARAN	KARAN
DIVYA	DIVYA
MEERA	MEERA

```
10 rows in set (0.01 sec)
```

```
mysql> SELECT COURSE_NAME, LENGTH(DESCRIPTION) AS DESC_LENGTH FROM COURSES;
```

COURSE_NAME	DESC_LENGTH
WEB DEVELOPMENT BASICS	42
PYTHON PROGRAMMING	43
DATA ANALYSIS WITH EXCEL	42
SEO	39
GRAPHIC DESIGN ESSENTIALS	45
DATABASE MANAGEMENT	38
CYBERSECURITY FUNDAMENTALS	35
MACHNE LEARNING BASICS	39
MOBILE APP DEVELOPMENT	36
CLOUD COMPUTING WITH AWS	35

```
10 rows in set (0.01 sec)
```

```
mysql> SELECT NOW() AS CURRENT_DATE_TIME ;
+-----+
| CURRENT_DATE_TIME |
+-----+
| 2026-01-07 14:34:12 |
+-----+
1 row in set (0.01 sec)

mysql> SELECT YEAR(NOW()) AS CURRENT_YEAR ;
+-----+
| CURRENT_YEAR |
+-----+
|          2026 |
+-----+
1 row in set (0.01 sec)
```

```
mysql> DELIMITER //
mysql> CREATE FUNCTION duration_in_days(weeks VARCHAR(10))
  -> RETURNS INT
  -> DETERMINISTIC
  -> BEGIN
  ->     DECLARE days INT;
  ->     -- Extract number part from '6 WEEKS'
  ->     SET days = CAST(SUBSTRING_INDEX(weeks, ' ', 1) AS UNSIGNED) * 7;
  ->     RETURN days;
  -> END //
ERROR 1304 (42000): FUNCTION duration_in_days already exists
mysql> DELIMITER ;
mysql>
mysql> -- Usage
mysql> SELECT COURSE_NAME, DURATION, duration_in_days(DURATION) AS DURATION_
DAYS
  -> FROM COURSES;
```

COURSE_NAME	DURATION	DURATION_DAYS
WEB DEVELOPMENT BASICS	6 WEEKS	42
PYTHON PROGRAMMING	8 WEEKS	56
DATA ANALYSIS WITH EXCEL	4 WEEKS	28
SEO	6 WEEKS	42
GRAPHIC DESIGN ESSENTIALS	5 WEEKS	35
DATABASE MANAGEMENT	7 WEEKS	49
CYBERSECURITY FUNDAMENTALS	6 WEEKS	42
MACHINE LEARNING BASICS	8 WEEKS	56
MOBILE APP DEVELOPMENT	9 WEEKS	63
CLOUD COMPUTING WITH AWS	10 WEEKS	70

```
10 rows in set (0.01 sec)
```