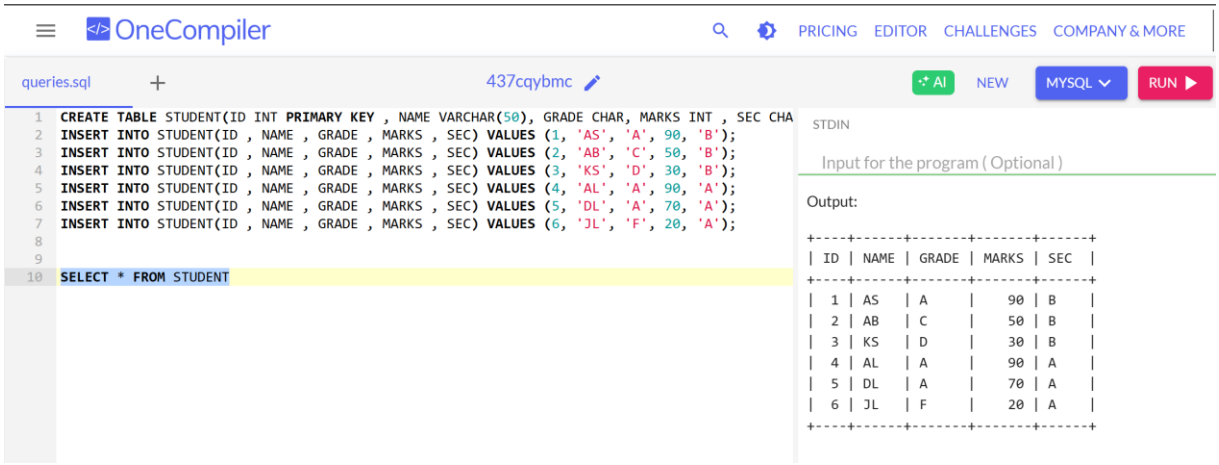
Extracting data using patterns

Note: In sample code, change the table name and attributes according to your code.



SQL LIKE Operator

The LIKE operator is used in a WHERE clause to search for a specified pattern in a column.

There are two wildcards often used in conjunction with the LIKE operator:

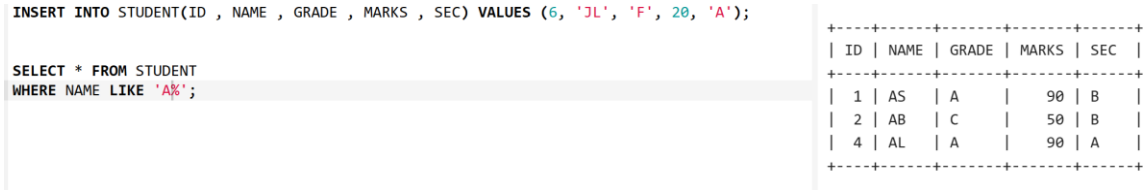
- The percent sign % represents zero, one, or multiple characters • The underscore sign _ represents one, single character

Example

Select all customers that starts with the letter "a":

```
SELECT * FROM Customers
WHERE CustomerName LIKE 'a%';
```

Demo Database



The _ Wildcard

The _ wildcard represents a single character.

It can be any character or number, but each _ represents one, and only one, character.

Example

Return all customers from a city that starts with 'L' followed by one wildcard character, then 'nd' and then two wildcard characters:

SELECT * FROM Customers

WHERE city LIKE 'L_nd__';

```
SELECT * FROM STUDENT
WHERE NAME LIKE 'A_B_';
```

```
Program did not output anything!
```

The % Wildcard

The % wildcard represents any number of characters, even zero characters.

Example

Return all customers from a city that *contains* the letter 'L':

SELECT * FROM Customers

WHERE city LIKE '%L%';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (6, 'JL', 'F', 20, 'A');


SELECT * FROM STUDENT
WHERE GRADE LIKE '%A%';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  1 | AS   | A     |    90 | B    |
|  4 | AL   | A     |    90 | A    |
|  5 | DL   | A     |    70 | A    |
+----+------+-------+-------+------+
```

Starts With

To return records that starts with a specific letter or phrase, add the % at the end of the letter or phrase.

Example

Return all customers that starts with 'La':

SELECT * FROM Customers

WHERE CustomerName LIKE 'La%';

```
SELECT * FROM STUDENT
WHERE NAME LIKE 'AB%';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  2 | AB   | C     |    50 | B    |
+----+------+-------+-------+------+
```

Tip: You can also combine any number of conditions using AND or OR operators.

Example

Return all customers that starts with 'a' or starts with 'b':

SELECT * FROM Customers

WHERE CustomerName LIKE 'a%' OR CustomerName LIKE 'b%';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (5, 'DL', 'A', 70, 'A');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (6, 'JL', 'F', 20, 'A');


SELECT * FROM STUDENT
WHERE NAME LIKE 'AB%' OR NAME LIKE 'DL%';
```

Output:

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  2 | AB   | C     |    50 | B    |
|  5 | DL   | A     |    70 | A    |
+----+------+-------+-------+------+
```

Ends With

To return records that ends with a specific letter or phrase, add the % at the beginning of the letter or phrase.

Example

Return all customers that ends with 'a':

SELECT * FROM Customers

WHERE CustomerName LIKE '%a';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (6, 'JL', 'F', 20, 'A');


SELECT * FROM STUDENT
WHERE NAME LIKE '%L';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  4 | AL   | A     |    90 | A    |
|  5 | DL   | A     |    70 | A    |
|  6 | JL   | F     |    20 | A    |
+----+------+-------+-------+------+
```

Tip: You can also combine "starts with" and "ends with":

Example

Return all customers that starts with "b" and ends with "s":

SELECT * FROM Customers

WHERE CustomerName LIKE 'b%s';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (6, 'JL', 'F', 20, 'A');


SELECT * FROM STUDENT
WHERE NAME LIKE 'A%L';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  4 | AL   | A     |    90 | A    |
+----+------+-------+-------+------+
```

Contains

To return records that contains a specific letter or phrase, add the % both before and after the letter or phrase.

Example

Return all customers that contains the phrase 'or'

SELECT * FROM Customers

WHERE CustomerName LIKE '%or%';

```
CREATE TABLE STUDENT(ID INT PRIMARY KEY , NAME VARCHAR(50), GRADE CHAR, MARKS INT , SEC CHA
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (1, 'AS', 'A', 90, 'B');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (2, 'AB', 'C', 50, 'B');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (3, 'KS', 'D', 30, 'B');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (4, 'AL', 'A', 90, 'A');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (5, 'DL', 'A', 70, 'A');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (6, 'JL', 'F', 20, 'A');
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (7, 'JLAA', 'F', 20, 'A');
SELECT * FROM STUDENT
WHERE NAME LIKE 'A%orB%';
```

```
STDIN
Input for the program ( Optional )
Output:
Program did not output anything!
```

Combine Wildcards

Any wildcard, like % and _ , can be used in combination with other wildcards.

Example

Return all customers that starts with "a" and are at least 3 characters in length:

SELECT * FROM Customers

WHERE CustomerName LIKE 'a__%';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (7, 'JLAA', 'F', 20, 'A');
SELECT * FROM STUDENT
WHERE NAME LIKE 'J__%';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  7 | JLAA | F     |    20 | A    |
+----+------+-------+-------+------+
```

Example

Return all customers that have "r" in the second position:

SELECT * FROM Customers

WHERE CustomerName LIKE '_r%';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (7, 'JLAA', 'F', 20, 'A');
SELECT * FROM STUDENT
WHERE NAME LIKE '_S%';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  1 | AS   | A     |    90 | B    |
|  3 | KS   | D     |    30 | B    |
+----+------+-------+-------+------+
```

Without Wildcard

If no wildcard is specified, the phrase has to have an exact match to return a result.

Example

Return all customers from Spain:

SELECT * FROM Customers

WHERE Country LIKE 'Spain';

```
INSERT INTO STUDENT(ID , NAME , GRADE , MARKS , SEC) VALUES (7, 'JLAA', 'F', 20, 'A');
SELECT * FROM STUDENT
WHERE GRADE LIKE 'F';
```

```
+----+------+-------+-------+------+
| ID | NAME | GRADE | MARKS | SEC  |
+----+------+-------+-------+------+
|  6 | JL   | F     |    20 | A    |
|  7 | JLAA | F     |    20 | A    |
+----+------+-------+-------+------+
```