Applied Databases
Inserting, Updating, Deleting

HIGHER DIPLOMA IN DATA ANALYTICS

INSERT

▶ CRUD (Create/Insert, Read, Update Delete)

https://dev.mysql.com/doc/refman/8.0/en/insert.html

▶ INSERT INTO *<table>* VALUES *(value1, value2, valueN);*

▶ INSERT INTO *<table>* *(column1, column2, column)*
                    VALUES *(value1, value2, valueN);*

INSERT

```
mysql> DESCRIBE person;
+-----------+------------+------+-----+---------+----------------+
| Field     | Type       | Null | Key | Default | Extra          |
+-----------+------------+------+-----+---------+----------------+
| personID  | int(11)    | NO   | PRI | NULL    | auto_increment |
| name      | varchar(20)| NO   |     | NULL    |                |
| age       | int(11)    | YES  |     | NULL    |                |
| sex       | enum('M','F')| YES|     | M       |                |
| isStudent | tinyint(1) | YES  |     | 0       |                |
+-----------+------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO person VALUES(1, "John", 23, "M", 1);
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * FROM person;
+----------+------+-----+-----+-----------+
| personID | name | age | sex | isStudent |
+----------+------+-----+-----+-----------+
|        1 | John |  23 | M   |         1 |
+----------+------+-----+-----+-----------+
1 row in set (0.00 sec)
```

INSERT

```
mysql> DESCRIBE person;
+-----------+--------------+------+-----+---------+----------------+
| Field     | Type         | Null | Key | Default | Extra          |
+-----------+--------------+------+-----+---------+----------------+
| personID  | int(11)      | NO   | PRI | NULL    | auto_increment |
| name      | varchar(20)  | NO   |     | NULL    |                |
| age       | int(11)      | YES  |     | NULL    |                |
| sex       | enum('M','F')| YES  |     | M       |                |
| isStudent | tinyint(1)   | YES  |     | 0       |                |
+-----------+--------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)

mysql> INSERT INTO person (name, sex, age)
    -> VALUES ("Mary", "F", 30);
Query OK, 1 row affected (0.00 sec)
mysql> SELECT * FROM person;
+----------+------+-----+-----+-----------+
| personID | name | age | sex | isStudent |
+----------+------+-----+-----+-----------+
|        1 | John |  23 | M   |         1 |
|        2 | Mary |  30 | F   |         0 |
+----------+------+-----+-----+-----------+
2 rows in set (0.00 sec)
```

INSERT

```
mysql> DESCRIBE person;
+-----------+--------------+------+-----+---------+----------------+
| Field     | Type         | Null | Key | Default | Extra          |
+-----------+--------------+------+-----+---------+----------------+
| personID  | int(11)      | NO   | PRI | NULL    | auto_increment |
| name      | varchar(20)  | NO   |     | NULL    |                |
| age       | int(11)      | YES  |     | NULL    |                |
| sex       | enum('M','F')| YES  |     | M       |                |
| isStudent | tinyint(1)   | YES  |     | 0       |                |
+-----------+--------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO person (name) VALUES ("Tom");
Query OK, 1 row affected (0.00 sec)
```

```
mysql> SELECT * from person WHERE name = "Tom";
+----------+------+------+------+-----------+
| personID | name | age  | sex  | isStudent |
+----------+------+------+------+-----------+
|        3 | Tom  | NULL | M    |         0 |
+----------+------+------+------+-----------+
1 row in set (0.00 sec)
```

INSERT

```
mysql> DESCRIBE person;
+-----------+---------------+------+-----+---------+----------------+
| Field     | Type          | Null | Key | Default | Extra          |
+-----------+---------------+------+-----+---------+----------------+
| personID  | int(11)       | NO   | PRI | NULL    | auto_increment |
| name      | varchar(20)   | NO   |     | NULL    |                |
| age       | int(11)       | YES  |     | NULL    |                |
| sex       | enum('M','F') | YES  |     | M       |                |
| isStudent | tinyint(1)    | YES  |     | 0       |                |
+-----------+---------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO person (age,sex,isStudent) VALUES (20,"F",0);
```

```
ERROR 1364 (HY000): Field 'name' doesn't have a default value
```

```
mysql> INSERT INTO person (name) VALUES ("");
Query OK, 1 row affected (0.00 sec)
```

https://dev.mysql.com/doc/refman/8.0/en/working-with-null.html

UPDATE

https://dev.mysql.com/doc/refman/8.0/en/update.html

▶ UPDATE *<table>* SET *column1 = value1, columnN, valueN;*

▶ UPDATE *<table>* SET *column1 = value1, columnN, valueN*
  WHERE *condition;*

UPDATE

```
mysql> select * from person;
+----------+-------+------+------+-----------+
| personID | name  | age  | sex  | isStudent |
+----------+-------+------+------+-----------+
|        1 | John  |   23 | M    |         1 |
|        2 | Mary  |   30 | F    |         0 |
|        3 | Tom   | NULL | M    |         0 |
|        5 | Alan  |   18 | M    |         1 |
|        6 | Laura |   17 | F    |         1 |
|        7 | Bob   |   18 | M    |         0 |
+----------+-------+------+------+-----------+
6 rows in set (0.00 sec)
```

```
mysql> UPDATE person
    -> SET age = 23;
```

```
Query OK, 5 rows affected (0.00 sec)
Rows matched: 6   Changed: 5   Warnings: 0
```

```
mysql> select * from person;
+----------+-------+------+------+-----------+
| personID | name  | age  | sex  | isStudent |
+----------+-------+------+------+-----------+
|        1 | John  |   23 | M    |         1 |
|        2 | Mary  |   23 | F    |         0 |
|        3 | Tom   |   23 | M    |         0 |
|        5 | Alan  |   23 | M    |         1 |
|        6 | Laura |   23 | F    |         1 |
|        7 | Bob   |   23 | M    |         0 |
+----------+-------+------+------+-----------+
6 rows in set (0.00 sec)
```

UPDATE

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

```
mysql> UPDATE person
    -> SET age = 23
    -> WHERE personID=3;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   20 | F   |         0 |
|        3 | Tom   |   23 | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

UPDATE

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

```
mysql> UPDATE person
    -> SET age = age + 1;
Query OK, 5 rows affected (0.00 sec)
Rows matched: 6  Changed: 5  Warnings: 0
```

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   24 | M   |         1 |
|        2 | Mary  |   31 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   19 | M   |         1 |
|        6 | Laura |   18 | F   |         1 |
|        7 | Bob   |   19 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

UPDATE

```
mysql> select * from person;
+----------+-------+------+------+-----------+
| personID | name  | age  | sex  | isStudent |
+----------+-------+------+------+-----------+
|        1 | John  |   23 | M    |         1 |
|        2 | Mary  |   30 | F    |         0 |
|        3 | Tom   | NULL | M    |         0 |
|        5 | Alan  |   18 | M    |         1 |
|        6 | Laura |   17 | F    |         1 |
|        7 | Bob   |   18 | M    |         0 |
+----------+-------+------+------+-----------+
6 rows in set (0.00 sec)
```

```
mysql> UPDATE person
    -> set name = CONCAT(IF(sex="M","Mr.","Ms."),name);
Query OK, 6 rows affected (0.00 sec)
Rows matched: 6  Changed: 6  Warnings: 0
```

```
mysql> select * from person;
+----------+----------+------+------+-----------+
| personID | name     | age  | sex  | isStudent |
+----------+----------+------+------+-----------+
|        1 | Mr.John  |   23 | M    |         1 |
|        2 | Ms.Mary  |   30 | F    |         0 |
|        3 | Mr.Tom   | NULL | M    |         0 |
|        5 | Mr.Alan  |   18 | M    |         1 |
|        6 | Ms.Laura |   17 | F    |         1 |
|        7 | Mr.Bob   |   18 | M    |         0 |
+----------+----------+------+------+-----------+
6 rows in set (0.00 sec)
```

DELETE

https://dev.mysql.com/doc/refman/8.0/en/delete.html

▶ `DELETE FROM <table>;`

▶ `DELETE FROM <table>;`
  `WHERE condition;`

DELETE

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

```
mysql> DELETE FROM person;
Query OK, 6 rows affected (0.00 sec)
```

```
mysql> select * from person;
Empty set (0.00 sec)
```

```
mysql> describe person;
+-----------+-------------+------+-----+---------+----------------+
| Field     | Type        | Null | Key | Default | Extra          |
+-----------+-------------+------+-----+---------+----------------+
| personID  | int(11)     | NO   | PRI | NULL    | auto_increment |
| name      | varchar(20) | NO   |     | NULL    |                |
| age       | int(11)     | YES  |     | NULL    |                |
| sex       | enum('M','F') | YES |    | M       |                |
| isStudent | tinyint(1)  | YES  |     | 0       |                |
+-----------+-------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

DELETE

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```

```
mysql> DELETE from PERSON
    -> WHERE personID = 6;
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
5 rows in set (0.00 sec)
```

DELETE

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        1 | John  |   23 | M   |         1 |
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
6 rows in set (0.00 sec)
```
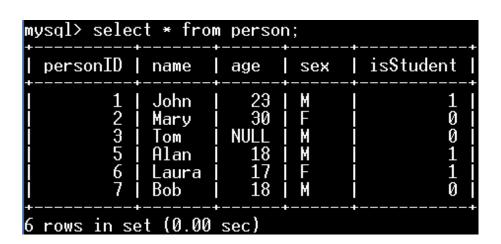
```
mysql> SELECT * FROM person
    -> WHERE sex = "M"
    -> AND isStudent
    -> AND age > 20;
+----------+------+------+-----+-----------+
| personID | name | age  | sex | isStudent |
+----------+------+------+-----+-----------+
|        1 | John |   23 | M   |         1 |
+----------+------+------+-----+-----------+
1 row in set (0.00 sec)
```

```
mysql> select * from person;
+----------+-------+------+-----+-----------+
| personID | name  | age  | sex | isStudent |
+----------+-------+------+-----+-----------+
|        2 | Mary  |   30 | F   |         0 |
|        3 | Tom   | NULL | M   |         0 |
|        5 | Alan  |   18 | M   |         1 |
|        6 | Laura |   17 | F   |         1 |
|        7 | Bob   |   18 | M   |         0 |
+----------+-------+------+-----+-----------+
5 rows in set (0.00 sec)
```

```
mysql> DELETE FROM person
    -> WHERE sex = "M"
    -> AND isStudent
    -> AND age > 20;
Query OK, 1 row affected (0.00 sec)
```

Foreign Keys

```
SHOW CREATE TABLE bus;
```

```
| bus    | CREATE TABLE `bus` (
  `reg` varchar(15) NOT NULL,
  `maxPassengers` int(11) DEFAULT NULL,
  `fuel` enum('Diesel','Petrol','Electric') DEFAULT 'Diesel',
  PRIMARY KEY (`reg`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```
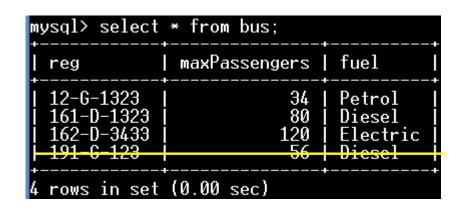
```
mysql> select * from bus;
+-----------+--------------+----------+
| reg       | maxPassengers | fuel     |
+-----------+--------------+----------+
| 12-G-1323 |           34 | Petrol   |
| 161-D-1323 |          80 | Diesel   |
| 162-D-3433 |         120 | Electric |
| 191-G-123 |           56 | Diesel   |
+-----------+--------------+----------+
4 rows in set (0.00 sec)
```

```
mysql> select * from driver;
+-----------+------+-----------+
| licenceNo | name | busReg    |
+-----------+------+-----------+
| F2233     | Alan | 191-G-123 |
| L23423    | John | 12-G-1323 |
| X98983    | Tom  | 161-D-1323 |
+-----------+------+-----------+
3 rows in set (0.00 sec)
```

```
SHOW CREATE TABLE driver;
```

```
| driver | CREATE TABLE `driver` (
  `licenceNo` varchar(20) NOT NULL,
  `name` varchar(30) DEFAULT NULL,
  `busReg` varchar(15) DEFAULT NULL,
  PRIMARY KEY (`licenceNo`),
  KEY `busReg` (`busReg`),
  CONSTRAINT `driver_ibfk_1` FOREIGN KEY (`busReg`) REFERENCES `bus` (`reg`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

Foreign Keys – ON DELETE RESTRICT

```
SHOW CREATE TABLE bus;
```

```
| bus    | CREATE TABLE `bus` (
  `reg` varchar(15) NOT NULL,
  `maxPassengers` int(11) DEFAULT NULL,
  `fuel` enum('Diesel','Petrol','Electric') DEFAULT 'Diesel',
  PRIMARY KEY (`reg`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

```
mysql> select * from bus;
+------------+--------------+----------+
| reg        | maxPassengers | fuel     |
+------------+--------------+----------+
| 12-G-1323  |           34 | Petrol   |
| 161-D-1323 |           80 | Diesel   |
| 162-D-3433 |          120 | Electric |
| 191-G-123  |           56 | Diesel   |
+------------+--------------+----------+
4 rows in set (0.00 sec)
```

```
SHOW CREATE TABLE driver;
```

```
mysql> select * from driver;
+------------+-------+------------+
| licenceNo  | name  | busReg     |
+------------+-------+------------+
| F2233      | Alan  | 191-G-123  |
| L23423     | John  | 12-G-1323  |
| X98983     | Tom   | 161-D-1323 |
+------------+-------+------------+
3 rows in set (0.00 sec)
```

```
| driver | CREATE TABLE `driver` (
  `licenceNo` varchar(20) NOT NULL,
  `name` varchar(30) DEFAULT NULL,
  `busReg` varchar(15) DEFAULT NULL,
  PRIMARY KEY (`licenceNo`),
  KEY `busReg` (`busReg`),
  CONSTRAINT `driver_ibfk_1` FOREIGN KEY (`busReg`) REFERENCES `bus` (`reg`) ON DELETE RESTRICT
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

Foreign Keys – ON DELETE CASCADE

```
SHOW CREATE TABLE bus;

| bus    | CREATE TABLE `bus` (
  `reg` varchar(15) NOT NULL,
  `maxPassengers` int(11) DEFAULT NULL,
  `fuel` enum('Diesel','Petrol','Electric') DEFAULT 'Diesel',
  PRIMARY KEY (`reg`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

```
mysql> select * from bus;
+-----------+--------------+----------+
| reg       | maxPassengers | fuel    |
+-----------+--------------+----------+
| 12-G-1323 |           34 | Petrol   |
| 161-D-1323|           80 | Diesel   |
| 162-D-3433|          120 | Electric |
+-----------+--------------+----------+
3 rows in set (0.00 sec)
4 rows in set (0.00 sec)
```

```
mysql> select * from driver;
+-----------+------+-----------+
| licenceNo | name | busReg    |
+-----------+------+-----------+
| L23423    | John | 12-G-1323 |
| X98983    | Tom  | 161-D-1323|
+-----------+------+-----------+
2 rows in set (0.00 sec)
3 rows in set (0.00 sec)
```

```
SHOW CREATE TABLE driver;

| driver | CREATE TABLE `driver` (
  `licenceNo` varchar(20) NOT NULL,
  `name` varchar(30) DEFAULT NULL,
  `busReg` varchar(15) DEFAULT NULL,
  PRIMARY KEY (`licenceNo`),
  KEY `busReg` (`busReg`),
  CONSTRAINT `driver_ibfk_1` FOREIGN KEY (`busReg`) REFERENCES `bus` (`reg`) ON DELETE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

Foreign Keys - ON DELETE SET NULL

```
SHOW CREATE TABLE bus;
```

```
| bus    | CREATE TABLE `bus` (
  `reg` varchar(15) NOT NULL,
  `maxPassengers` int(11) DEFAULT NULL,
  `fuel` enum('Diesel','Petrol','Electric') DEFAULT 'Diesel',
  PRIMARY KEY (`reg`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

```
mysql> select * from bus;
+-----------+---------------+----------+
| reg       | maxPassengers | fuel     |
+-----------+---------------+----------+
| 12-G-1323 |            34 | Petrol   |
| 161-D-1323 |           80 | Diesel   |
| 162-D-3433 |          120 | Electric |
+-----------+---------------+----------+
3 rows in set (0.00 sec)
4 rows in set (0.00 sec)
```

```
mysql> select * from driver;
+-----------+------+-----------+
| licenceNo | name | busReg    |
+-----------+------+-----------+
| F2233     | Alan | NULL      |
| L23423    | John | 12-G-1323 |
| X98983    | Tom  | 161-D-1323 |
+-----------+------+-----------+
3 rows in set (0.00 sec)
```

```
SHOW CREATE TABLE driver;
```

```
| driver | CREATE TABLE `driver` (
  `licenceNo` varchar(20) NOT NULL,
  `name` varchar(30) DEFAULT NULL,
  `busReg` varchar(15) DEFAULT NULL,
  PRIMARY KEY (`licenceNo`),
  KEY `busReg` (`busReg`),
  CONSTRAINT `driver_ibfk_1` FOREIGN KEY (`busReg`) REFERENCES `bus` (`reg`) ON DELETE SET NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1 |
```

READ – SubQueries

```
show create table employees;

| employees | CREATE TABLE `employees` (
  `emp_no` int(11) NOT NULL,
  `birth_date` date NOT NULL,
  `first_name` varchar(14) NOT NULL,
  `last_name` varchar(16) NOT NULL,
  `gender` enum('M','F') NOT NULL,
  `hire_date` date NOT NULL,
  PRIMARY KEY (`emp_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8 |
```

```
show create table salaries;

| salaries | CREATE TABLE `salaries` (
  `emp_no` int(11) NOT NULL,
  `salary` int(11) NOT NULL,
  `from_date` date NOT NULL,
  `to_date` date NOT NULL,
  PRIMARY KEY (`emp_no`,`from_date`),
  KEY `emp_no` (`emp_no`),
  CONSTRAINT `salaries_ibfk_1` FOREIGN KEY (`emp_no`) REFERENCES `employees` (`emp_no`) ON DELETE
CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8 |
```

READ – SubQueries

```
mysql> SELECT e.emp_no, first_name, last_name
    -> FROM employees e
    -> INNER JOIN salaries s
    ->    ON e.emp_no = s.emp_no
    -> WHERE s.salary BETWEEN 99000 AND 99999;
+--------+------------+------------+
| emp_no | first_name | last_name  |
+--------+------------+------------+
|  10017 | Cristinel  | Bouloucos  |
|  10066 | Kwee       | Schusler   |
|  10100 | Hironobu   | Haraldson  |
+--------+------------+------------+
3 rows in set (0.00 sec)
```

```
mysql>    SELECT s.emp_no
    ->    FROM salaries s
    ->    WHERE s.salary BETWEEN 99000 AND 99999;
+--------+
| emp_no |
+--------+
|  10017 |
|  10066 |
|  10100 |
+--------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT e.emp_no, first_name, last_name
    -> FROM employees e
    -> WHERE e.emp_no IN (
    ->    SELECT s.emp_no
    ->    FROM salaries s
    ->    WHERE s.salary BETWEEN 99000 AND 99999
    -> );
+--------+------------+------------+
| emp_no | first_name | last_name  |
+--------+------------+------------+
|  10017 | Cristinel  | Bouloucos  |
|  10066 | Kwee       | Schusler   |
|  10100 | Hironobu   | Haraldson  |
+--------+------------+------------+
3 rows in set (0.00 sec)
```

```
mysql> SELECT e.emp_no, first_name, last_name
    -> FROM employees e
    -> WHERE e.emp_no IN (
    ->    10017, 10066, 10100
    -> );
+--------+------------+------------+
| emp_no | first_name | last_name  |
+--------+------------+------------+
|  10017 | Cristinel  | Bouloucos  |
|  10066 | Kwee       | Schusler   |
|  10100 | Hironobu   | Haraldson  |
+--------+------------+------------+
3 rows in set (0.00 sec)
```

READ – SubQueries

```
show create table employees;

| employees | CREATE TABLE `employees` (
  `emp_no` int(11) NOT NULL,
  `birth_date` date NOT NULL,
  `first_name` varchar(14) NOT NULL,
  `last_name` varchar(16) NOT NULL,
  `gender` enum('M','F') NOT NULL,
  `hire_date` date NOT NULL,
  PRIMARY KEY (`emp_no`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8 |
```

```
show create table salaries;

| salaries | CREATE TABLE `salaries` (
  `emp_no` int(11) NOT NULL,
  `salary` int(11) NOT NULL,
  `from_date` date NOT NULL,
  `to_date` date NOT NULL,
  PRIMARY KEY (`emp_no`,`from_date`),
  KEY `emp_no` (`emp_no`),
  CONSTRAINT `salaries_ibfk_1` FOREIGN KEY (`emp_no`) REFERENCES `employees` (`emp_no`) ON DELETE
ASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8 |
```

READ – SubQueries

```
mysql> SELECT emp_no, first_name, last_name
    -> FROM employees
    -> WHERE emp no IN (
    ->
    ->
    ->     10068
    ->
    ->
    ->
    -> );
+--------+------------+-----------+
| emp_no | first_name | last_name |
+--------+------------+-----------+
|  10068 | Charlene   | Brattka   |
+--------+------------+-----------+
1 row in set (0.00 sec)
```

```
mysql>      SELECT MAX(salary)
    ->      FROM salaries;
+-------------+
| MAX(salary) |
+-------------+
|      113229 |
+-------------+
1 row in set (0.00 sec)
mysql>      SELECT emp_no
    ->      FROM salaries
    ->      WHERE salary = (
    ->          113229
    ->      );
+--------+
| emp_no |
+--------+
|  10068 |
+--------+
1 row in set (0.00 sec)
```