```
mysql> CREATE TABLE flights (
    ->   id INT PRIMARY KEY,
    ->   airline VARCHAR(100),
    ->   flight VARCHAR(10),
    ->   airport_from VARCHAR(100),
    ->   airport_to VARCHAR(100),
    ->   day_of_week VARCHAR(20),
    ->   time INT,
    ->   length INT,
    ->   delay INT
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\Airlines.csv"
    -> INTO TABLE flights
    -> FIELDS TERMINATED BY ','
    -> ENCLOSED BY '"'
    -> LINES TERMINATED BY '\n'
    -> IGNORE 1 ROWS;
Query OK, 518556 rows affected (9.10 sec)
```

```
mysql> select count(*) from flights;
+----------+
| count(*) |
+----------+
|   518556 |
+----------+
1 row in set (0.08 sec)
```

```
mysql> CREATE TABLE airports (
    ->   id INT,
    ->   ident VARCHAR(10),
    ->   type VARCHAR(20),
    ->   name VARCHAR(255),
    ->   latitude_deg FLOAT(10,6),
    ->   longitude_deg FLOAT(10,6),
    ->   elevation_ft INT(11),
    ->   continent VARCHAR(2),
    ->   iso_country VARCHAR(2),
    ->   iso_region VARCHAR(10),
    ->   municipality VARCHAR(255),
    ->   scheduled_service VARCHAR(5),
    ->   gps_code VARCHAR(10),
    ->   iata_code VARCHAR(3),
    ->   local_code VARCHAR(10),
    ->   home_link VARCHAR(255),
    ->   wikipedia_link VARCHAR(255),
    ->   keywords VARCHAR(255),
    ->   PRIMARY KEY (id)
    -> );
Query OK, 0 rows affected, 3 warnings (0.03 sec)
```

```
mysql> LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\airports_new.csv" INTO TABLE airports FIELDS
 TERMINATED BY ',' ENCLOSED BY '"' LINES TERMINATED BY '\n' IGNORE 1 ROWS;
Query OK, 59683 rows affected (1.95 sec)
Records: 59683  Deleted: 0  Skipped: 0  Warnings: 0
```

```
mysql> select count(*) from airports;
+----------+
| count(*) |
+----------+
|    59683 |
+----------+
1 row in set (0.02 sec)
```

```
mysql> CREATE TABLE runways (
    ->   id INTEGER PRIMARY KEY,
    ->   airport_ref INTEGER,
    ->   airport_ident VARCHAR(10),
    ->   length_ft INTEGER,
    ->   width_ft INTEGER,
    ->   surface VARCHAR(50),
    ->   lighted BOOLEAN,
    ->   closed BOOLEAN
    -> );
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> ALTER TABLE runways DROP COLUMN surface;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> LOAD DATA INFILE "C:\\ProgramData\\MySQL\\MySQL Server 8.0\\Uploads\\runways_new.csv"
    -> INTO TABLE runways
    -> FIELDS TERMINATED BY ','
    -> ENCLOSED BY '"'
    -> LINES TERMINATED BY '\n'
    -> IGNORE 1 ROWS;
Query OK, 41085 rows affected (0.88 sec)
Records: 41085  Deleted: 0  Skipped: 0  Warnings: 0
```

```
mysql> select count(*) from runways;
+----------+
| count(*) |
+----------+
|    41085 |
+----------+
1 row in set (0.01 sec)
```

/* Question No1: - Determine the number of flights that are delayed on various days of the week */

```
mysql> select day_of_week, count(flight), Delay from flights where Delay=1 group by day_of_week;
+-------------+---------------+-------+
| day_of_week | count(flight) | Delay |
+-------------+---------------+-------+
| 3           |         41144 |     1 |
| 4           |         40280 |     1 |
| 5           |         34813 |     1 |
| 6           |         22860 |     1 |
| 7           |         30761 |     1 |
| 1           |         33059 |     1 |
| 2           |         31072 |     1 |
+-------------+---------------+-------+
7 rows in set (0.63 sec)
```

/* Question No2: - Determine the number of delayed flights for various airlines */

```
mysql> select airline, count(flight) from flights where Delay=1 group by airline;
+---------+---------------+
| airline | count(flight) |
+---------+---------------+
| CO      |         11957 |
| US      |         11591 |
| AA      |         17736 |
| DL      |         27452 |
| HA      |          1786 |
| OH      |          3502 |
| 9E      |          8226 |
| OO      |         22760 |
| EV      |         11255 |
| XE      |         11795 |
| MQ      |         12742 |
| B6      |          8459 |
| F9      |          2899 |
| UA      |          8946 |
| WN      |         65657 |
| YV      |          3334 |
| AS      |          3892 |
+---------+---------------+
17 rows in set (0.66 sec)
```

/* Question No3: - Determine how many delayed flights land at airports with at least 10 runways */

```
mysql> SELECT COUNT(*) AS num_delayed_flights
    -> FROM flights f
    -> INNER JOIN runways r ON f.id = r.id
    -> WHERE f.delay = 1 AND (SELECT COUNT(*) FROM runways WHERE closed = 1) >= 10;
+---------------------+
| num_delayed_flights |
+---------------------+
|               18697 |
+---------------------+
1 row in set (0.24 sec)
```

/* Compare the number of delayed flights at airports higher than average elevation and those that are lower than average elevation for both source and destination airports*/

/* Lets first compare for the source airport */

```
mysql> SELECT l.airport_from, COUNT(l.flight), AVG(p.elevation_ft) AS avg_elevation
    -> FROM flights AS l
    -> INNER JOIN airports AS p
    -> ON p.iata_code = l.airport_from
    -> WHERE p.elevation_ft > 1037.25 AND l.delay = 1
    -> GROUP BY l.airport_from;
+--------------+-----------------+---------------+
| airport_from | COUNT(l.flight) | avg_elevation |
+--------------+-----------------+---------------+
| PHX          |            6816 |     1135.0000 |
| LAS          |            6642 |     2181.0000 |
| DLH          |              84 |     1428.0000 |
| LWS          |              33 |     1442.0000 |
| PIT          |            1387 |     1203.0000 |
| ITH          |              36 |     1099.0000 |
| CAK          |             175 |     1228.0000 |
| COS          |             370 |     6187.0000 |
| MFR          |             140 |     1335.0000 |
| BOI          |             621 |     2871.0000 |
| GEG          |             479 |     2376.0000 |
| SGU          |              76 |     2941.0000 |
| ICT          |             267 |     1333.0000 |
| XNA          |             317 |     1287.0000 |
| DEN          |            9399 |     5431.0000 |
| TUS          |             617 |     2643.0000 |
| RAP          |             157 |     3204.0000 |
| ROA          |             107 |     1175.0000 |
| FSD          |             192 |     1429.0000 |
| OKC          |             738 |     1295.0000 |
| HDN          |              50 |     6606.0000 |
| RNO          |             967 |     4415.0000 |
| RDM          |             122 |     3080.0000 |
| BTM          |              21 |     5550.0000 |
| SGF          |             169 |     1268.0000 |
| BIS          |             144 |     1661.0000 |
| SLC          |            5532 |     4227.0000 |
| IDA          |              67 |     4744.0000 |
| JAC          |              97 |     6451.0000 |
| ELP          |             794 |     3959.0000 |
| COD          |              35 |     5102.0000 |
| FCA          |              44 |     2977.0000 |
| ROW          |              32 |     3671.0000 |
| MAF          |             209 |     2871.0000 |
| DRO          |              88 |     6685.0000 |
| EKO          |              56 |     5140.0000 |
| ABQ          |            1375 |     5355.0000 |
| AMA          |             233 |     3607.0000 |
| SJT          |               4 |     1919.0000 |
| PIH          |              51 |     4452.0000 |
| TWF          |              61 |     4154.0000 |
| LBB          |             248 |     3282.0000 |
| CWA          |              58 |     1277.0000 |
| TRI          |             101 |     1519.0000 |
| MOT          |              88 |     1716.0000 |
| ASE          |             178 |     7820.0000 |
| BZN          |              97 |     4473.0000 |
| MSO          |             100 |     3206.0000 |
| GJT          |             118 |     4858.0000 |
```

BGM	33	1636.0000
EGE	83	6548.0000
MQT	26	1221.0000
LNK	69	1219.0000
HLN	52	3877.0000
GTF	43	3680.0000
GCC	47	4365.0000
SAF	29	6348.0000
CMX	19	1095.0000
RKS	69	6764.0000
MHK	43	1057.0000
SCE	35	1239.0000
DBQ	9	1077.0000
ABI	32	1791.0000
LMT	41	4095.0000
CDC	27	5622.0000
SUN	57	5318.0000
FLG	26	7014.0000
CPR	53	5350.0000
RST	49	1317.0000
BIL	81	3652.0000
LWB	16	2302.0000
IYK	19	2457.0000
MTJ	72	5759.0000
ABR	1	1302.0000
GUC	32	7680.0000
TEX	4	9070.0000
MMH	4	7135.0000

78 rows in set (0.77 sec)

```
mysql> SELECT l.airport_from, COUNT(l.flight), AVG(p.elevation_ft) AS avg_elevation FROM flights AS l INNER JOIN airport
s AS p ON p.iata_code = l.airport_from WHERE p.elevation_ft < 1037.25 AND l.delay = 1 GROUP BY l.airport_from;
```

airport_from	COUNT(l.flight)	avg_elevation
SFO	6217	13.0000
LAX	8214	125.0000
ANC	415	152.0000
HNL	1423	13.0000
GSO	302	925.0000
SEA	3349	433.0000
FAR	188	902.0000
ALB	400	285.0000
DSM	381	958.0000
CAE	243	236.0000
ATL	12649	1026.0000
BTR	199	70.0000
ORD	11906	672.0000
DFW	8744	607.0000
LRD	56	508.0000
CRP	175	44.0000
SAT	1355	809.0000
PVD	609	55.0000
DCA	2159	15.0000
SHV	84	258.0000

PLN	10	721.0000
ACT	17	516.0000
DHN	28	401.0000
KTN	54	89.0000
ADQ	18	78.0000
COU	28	889.0000
CHO	21	639.0000
LCH	15	15.0000
HTS	7	828.0000
BLI	9	170.0000
PSG	24	111.0000
EWN	17	18.0000
WRG	18	49.0000
VLD	20	203.0000
CDV	13	54.0000
PIE	7	11.0000
CLL	10	320.0000
GUM	6	298.0000
GTR	9	264.0000
OAJ	60	94.0000
YAK	9	33.0000
IPL	13	-54.0000
PSC	138	410.0000
CLD	66	331.0000
CIC	49	240.0000
ECP	177	69.0000

211 rows in set (1.03 sec)

/* Lets now compare for the destination airport */

```
mysql> SELECT l.airport_to, COUNT(l.flight), AVG(p.elevation_ft) AS avg_elevation FROM flights AS l INNER JOIN airports
AS p ON p.iata_code = l.airport_from WHERE p.elevation_ft > 1037.25 AND l.delay = 1 GROUP BY l.airport_to;
```

airport_to	COUNT(l.flight)	avg_elevation
CLT	259	2073.3552
ORD	1569	2820.3741
ATL	1313	2691.7411
HNL	99	2668.1111
MSP	1209	2901.8495
SLC	2166	3680.1002
DTW	670	2485.2716
DEN	2590	3576.2255
SFO	1385	3192.9690
IAH	1023	3266.5533
LAS	1643	3521.5764
IAD	226	4331.1858
HOU	490	3312.7551
MCO	342	3354.1579
MDW	793	2970.2484
MCI	463	3387.4104
MEM	320	2669.9969
MIA	100	3272.2800
MKE	284	2631.6866
PHX	1618	3963.6051
BWI	439	3121.6469
BIS	55	5212.0909
BKG	1	5431.0000
YUM	27	1135.0000
TYS	10	5431.0000
RSW	7	5431.0000
CRW	1	1203.0000
GRB	6	1221.0000
GRR	3	5431.0000
ATW	13	5431.0000
DAY	33	5431.0000
OGG	26	1997.0769
GUC	19	5431.0000
LWS	14	4227.0000
TVC	7	1221.0000
TEX	5	1135.0000
ORF	1	2181.0000

148 rows in set (0.77 sec)

```
mysql> SELECT l.airport_to, COUNT(l.flight), AVG(p.elevation_ft) AS avg_elevation FROM flights AS l INNER JOIN airports
AS p ON p.iata_code = l.airport_from WHERE p.elevation_ft < 1037.25 AND l.delay = 1 GROUP BY l.airport_to;
+------------+-----------------+---------------+
| airport_to | COUNT(l.flight) | avg_elevation |
+------------+-----------------+---------------+
| IAH        |            5351 |      370.1153 |
| DFW        |            5775 |      406.5176 |
| MSP        |            3367 |      498.7357 |
| SEA        |            2854 |      288.2221 |
| PHX        |            5455 |      370.2508 |
| OGG        |             520 |       82.4962 |
| ATL        |           10273 |      365.5085 |
| DTW        |            4667 |      485.5042 |
| CLT        |            3252 |      307.3930 |
| MIA        |            2829 |      361.4684 |
| MEM        |            1868 |      525.2794 |
| MKE        |            1040 |      561.3173 |
| ORD        |            7726 |      457.2190 |
| CVG        |            1515 |      443.8568 |
| JFK        |            3262 |      246.9157 |
| BOS        |            3290 |      296.2839 |
| LGA        |            3004 |      500.2873 |
| SLC        |            2980 |      365.5141 |
| IAD        |            2101 |      393.0328 |
| DEN        |            6015 |      404.2200 |
| BGR        |              14 |      600.4286 |
| ADQ        |              16 |      152.0000 |
| DHN        |              36 |     1026.0000 |
| TXK        |              26 |      607.0000 |
| COU        |              21 |      341.0000 |
| CMX        |              30 |      672.0000 |
| PIE        |               6 |      723.0000 |
| TYR        |              15 |      607.0000 |
| LCH        |              29 |      466.3103 |
| ABR        |               1 |      841.0000 |
| ABY        |              27 |     1026.0000 |
| GTR        |              12 |      740.5833 |
| CYS        |               9 |      607.0000 |
| WRG        |              21 |      101.5714 |
| BIL        |              10 |      841.0000 |
| GGG        |               5 |      607.0000 |
| CLL        |              14 |      607.0000 |
| JAC        |              48 |      587.4375 |
| ASE        |             108 |      345.0370 |
| GUC        |              29 |      378.3793 |
| HDN        |              44 |      500.8636 |
| MTJ        |              36 |      507.6111 |
| MMH        |               5 |       13.0000 |
| GUM        |               5 |       13.0000 |
+------------+-----------------+---------------+
269 rows in set (1.03 sec)
```