DROP DATABASE IF EXISTS travel;

CREATE DATABASE travel;

USE travel;

CREATE TABLE manufacturers (

manufacturer\_id INT UNSIGNED NOT NULL,

manufacturer VARCHAR(50) NOT NULL,

create\_date TIMESTAMP NOT NULL DEFAULT CURRENT\_TIMESTAMP,

last\_update TIMESTAMP NOT NULL

DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

PRIMARY KEY (manufacturer\_id)

);

CREATE TABLE airplanes (

plane\_id INT UNSIGNED NOT NULL,

plane VARCHAR(50) NOT NULL,

manufacturer\_id INT UNSIGNED NOT NULL,

engine\_type VARCHAR(50) NOT NULL,

engine\_count TINYINT NOT NULL,

max\_weight MEDIUMINT UNSIGNED NOT NULL,

wingspan DECIMAL(5,2) NOT NULL,

plane\_length DECIMAL(5,2) NOT NULL,

parking\_area INT GENERATED ALWAYS AS ((wingspan \* plane\_length)) STORED,

icao\_code CHAR(4) NOT NULL,

create\_date TIMESTAMP NOT NULL DEFAULT CURRENT\_TIMESTAMP,

last\_update TIMESTAMP NOT NULL

DEFAULT CURRENT\_TIMESTAMP ON UPDATE CURRENT\_TIMESTAMP,

PRIMARY KEY (plane\_id),

CONSTRAINT fk\_manufacturer\_id FOREIGN KEY (manufacturer\_id)

REFERENCES manufacturers (manufacturer\_id)

);

INSERT INTO manufacturers (manufacturer\_id, manufacturer) VALUES

(101,'Airbus'),

(102,'Beagle Aircraft Limited'),

(103,'Beechcraft'),

(104,'Boeing'),

(105,'Bombardier'),

(106,'Cessna'),

(107,'Embraer');

INSERT INTO airplanes

(plane\_id, plane, manufacturer\_id, engine\_type, engine\_count,

wingspan, plane\_length, max\_weight, icao\_code)

VALUES

(1001,'A340-600',101,'Jet',4,208.17,247.24,837756,'A346'),

(1002,'A350-800 XWB',101,'Jet',2,212.42,198.58,546700,'A358'),

(1003,'A350-900',101,'Jet',2,212.42,219.16,617295,'A359'),

(1004,'A380-800',101,'Jet',4,261.65,238.62,1267658,'A388'),

(1005,'A380-843F',101,'Jet',4,261.65,238.62,1300000,'A38F'),

(1006,'A.109 Airedale',102,'Piston',1,36.33,26.33,2750,'AIRD'),

(1007,'A.61 Terrier',102,'Piston',1,36,23.25,2400,'AUS6'),

(1008,'B.121 Pup',102,'Piston',1,31,23.17,1600,'PUP'),

(1009,'B.206',102,'Piston',2,55,33.67,7500,'BASS'),

(1010,'D.5-108 Husky',102,'Piston',1,36,23.17,2400,'D5'),

(1011,'Baron 56 TC Turbo Baron',103,'Piston',2,37.83,28,5990,'BE56'),

(1012,'Baron 58 (and current G58)',103,'Piston',2,37.83,29.83,5500,'BE58'),

(1013,'Beechjet 400 (same as MU-300-10 Diamond II)',103,'Jet',2,43.5,48.42,15780,'BE40'),

(1014,'Bonanza 33 (F33A)',103,'Piston',1,33.5,26.67,3500,'BE33'),

(1015,'Bonanza 35 (G35)',103,'Piston',1,32.83,25.17,3125,'BE35'),

(1016,'747-8F',104,'Jet',4,224.42,250.17,987000,'B748'),

(1017,'747-SP',104,'Jet',4,195.67,184.75,696000,'B74S'),

(1018,'757-300',104,'Jet',2,124.83,178.58,270000,'B753'),

(1019,'767-200',104,'Jet',2,156.08,159.17,315000,'B762'),

(1020,'767-200ER',104,'Jet',2,156.08,159.17,395000,'B762'),

(1021,'Learjet 24',105,'Jet',2,35.58,43.25,13000,'LJ24'),

(1022,'Learjet 24A',105,'Jet',2,35.58,43.25,12499,'LJ24'),

(1023,'Challenger (BD-100-1A10) 350',105,'Jet',2,69,68.75,40600,'CL30'),

(1024,'Challenger (CL-600-1A11) 600',105,'Jet',2,64.33,68.42,36000,'CL60'),

(1025,'Challenger (CL-600-2A12) 601',105,'Jet',2,64.33,68.42,42100,'CL60'),

(1026,'414A Chancellor',106,'Piston',2,44.17,36.42,6750,'C414'),

(1027,'421C Golden Eagle',106,'Piston',2,44.17,36.42,7450,'C421'),

(1028,'425 Corsair-Conquest I',106,'Turboprop',2,44.17,35.83,8600,'C425'),

(1029,'441 Conquest II',106,'Turboprop',2,49.33,39,9850,'C441'),

(1030,'Citation CJ1 (Model C525)',106,'Jet',2,46.92,42.58,10600,'C525'),

(1031,'EMB 175 LR',107,'Jet',2,85.33,103.92,85517,'E170'),

(1032,'EMB 175 Standard',107,'Jet',2,85.33,103.92,82673,'E170'),

(1033,'EMB 175-E2',107,'Jet',2,101.67,106,98767,'E170'),

(1034,'EMB 190 AR',107,'Jet',2,94.25,118.92,114199,'E190'),

(1035,'EMB 190 LR',107,'Jet',2,94.25,118.92,110892,'E190');

1. **Retrieve the list of all airplane manufacturers along with the count of airplanes they have produced.**

WITH ManufacturerAircraftCount AS (

SELECT m.manufacturer, COUNT(\*) AS aircraft\_count

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

GROUP BY m.manufacturer

)

SELECT \* FROM ManufacturerAircraftCount;

1. **Find the airplanes with a wingspan greater than 220 and sort them by wingspan in descending order.**

WITH WideAirplanes AS (

SELECT \*

FROM airplanes

WHERE wingspan > 220

)

SELECT \* FROM WideAirplanes

ORDER BY wingspan DESC;

1. **Calculate the average wingspan and plane length for each manufacturer.**

WITH AvgDimensions AS (

SELECT m.manufacturer, AVG(a.wingspan) AS avg\_wingspan, AVG(a.plane\_length) AS avg\_plane\_length

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

GROUP BY m.manufacturer

)

SELECT \* FROM AvgDimensions;

1. **List the manufacturers that produce airplanes with more than two engines.**

WITH MultiEngineManufacturers AS (

SELECT DISTINCT m.manufacturer

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

WHERE a.engine\_count > 2

)

SELECT \* FROM MultiEngineManufacturers;

1. **Find the airplanes with a parking area greater than 500,00 square units and their manufacturers.**

WITH SpaciousAirplanes AS (

SELECT a.\*, m.manufacturer

FROM airplanes a

JOIN manufacturers m ON a.manufacturer\_id = m.manufacturer\_id

WHERE a.parking\_area > 50000

)

SELECT \* FROM SpaciousAirplanes;

1. **Calculate the total maximum weight of airplanes for each manufacturer.**

WITH TotalMaxWeight AS (

SELECT m.manufacturer, SUM(a.max\_weight) AS total\_max\_weight

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

GROUP BY m.manufacturer

)

SELECT \* FROM TotalMaxWeight;

1. **List the manufacturers and their airplanes that have an ICAO code starting with 'A38'.**

WITH A38ICAO AS (

SELECT m.manufacturer, a.\*

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

WHERE a.icao\_code LIKE 'A38%'

)

SELECT \* FROM A38ICAO;

1. **Find the manufacturers and their airplanes with the highest parking area.**

WITH MaxParkingArea AS (

SELECT m.manufacturer, a.\*

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

WHERE a.parking\_area = (SELECT MAX(parking\_area) FROM airplanes)

)

SELECT \* FROM MaxParkingArea;

1. **Retrieve the airplanes with a plane length less than 30 and a wingspan greater than 200.**

WITH CompactWideAirplanes AS (

SELECT \*

FROM airplanes

WHERE plane\_length < 30 AND wingspan > 200

)

SELECT \* FROM CompactWideAirplanes;

1. **Calculate the average parking area for all airplanes produced by each manufacturer.**

WITH AvgParkingArea AS (

SELECT m.manufacturer, AVG(a.parking\_area) AS avg\_parking\_area

FROM manufacturers m

JOIN airplanes a ON m.manufacturer\_id = a.manufacturer\_id

GROUP BY m.manufacturer

)

SELECT \* FROM AvgParkingArea;