1)

2)

CREATE TABLE Apartment(  
 ApptId INTEGER PRIMARY KEY NOT NULL,  
 OwnerId INTEGER NOT NULL,  
 Nrooms INTEGER NOT NULL,  
 Nbathrooms INTEGER NOT NULL,  
 Area FLOAT NOT NULL,  
 Floor INTEGER NOT NULL,  
 CostPerDay FLOAT NOT NULL,  
 Country TEXT NOT NULL,  
 City TEXT NOT NULL,  
 Street TEXT NOT NULL,  
 HouseNumber INTEGER NOT NULL,  
 ApptNumber INTEGER NOT NULL  
);  
  
CREATE TABLE Owner(  
 OwnerId INTEGER PRIMARY KEY NOT NULL,  
 LastName TEXT,  
 FirstName TEXT  
);  
  
CREATE TABLE Guest(  
 GuestId INTEGER PRIMARY KEY NOT NULL,  
 LastName TEXT,  
 FirstName TEXT  
);  
  
CREATE TABLE Request(  
 ReqId INTEGER PRIMARY KEY NOT NULL,  
 GuestId INTEGER NOT NULL,  
 ApptId INTEGER NOT NULL,  
 StartDate DATE NOT NULL,  
 Duration INTEGER CHECK (Duration IN (1, 30)),  
 VerdictDate DATE, --nullable  
 Verdict TEXT, --nullable  
 CancelDate DATE --nullable  
);

3)

SELECT A.ApptId FROM Apartment A  
JOIN Request R on A.ApptId = R.ApptId  
WHERE A.City == 'Moscow' AND R.VerdictDate NOT NULL AND Verdict == 'Confirmed' AND  
STRFTIME('%Y', R.StartDate) == STRFTIME('%Y', CURRENT\_DATE)   
GROUP BY A.ApptId HAVING COUNT(\*) > 5;

4)

SELECT A.ApptId  
FROM Apartment A  
 JOIN Request R on A.ApptId = R.ApptId  
 JOIN Guest G on R.GuestId = G.GuestId  
WHERE A.City == 'Moscow'  
 AND R.VerdictDate NOT NULL  
 AND Verdict == 'Confirmed'  
 AND STRFTIME('%Y', R.StartDate) == STRFTIME('%Y', CURRENT\_DATE)  
 AND NOT EXISTS(SELECT \*  
 FROM Request R2  
 WHERE R2.GuestId == G.GuestId  
 AND R.VerdictDate IS NOT NULL  
 AND R2.Verdict == 'Confirmed'  
 AND R.CancelDate IS NOT NULL)  
GROUP BY A.ApptId  
HAVING COUNT(\*) > 5;

5)

SELECT A.Country, A.Nrooms, COUNT(Verdict == 'Refused') OVER (PARTITION BY A.Country, A.Nrooms)  
FROM Request R  
 JOIN Apartment A on R.ApptId = A.ApptId;

6)

SELECT A.Country,  
 A.Nrooms,  
 COUNT(Verdict == 'Refused') OVER (PARTITION BY A.Country, A.Nrooms),  
 SUM(A.CostPerDay \* R.Duration)  
FROM Request R  
 JOIN Apartment A on R.ApptId = A.ApptId  
WHERE CURRENT\_DATE - R.VerdictDate <= 30  
GROUP BY A.Country;

7)

SELECT OwnerId, LastName, FirstName FROM  
(SELECT O.OwnerId, O.LastName, O.FirstName, DENSE\_RANK() OVER (PARTITION BY O.OwnerId ORDER BY SUM(R.Duration \* A.CostPerDay)) dr  
FROM Owner O JOIN Apartment A on O.OwnerId = A.OwnerId  
JOIN Request R on A.ApptId = R.ApptId  
WHERE VerdictDate IS NOT NULL AND Verdict == 'Confirmed' AND CancelDate IS NOT NULL AND   
 STRFTIME('%Y', R.StartDate) == STRFTIME('%Y', CURRENT\_DATE))  
WHERE dr <= 3;

8)

SELECT DISTINCT G1.GuestId, G1.LastName, G1.FirstName, G2.GuestId, G2.LastName, G2.FirstName  
FROM Request R1  
 JOIN Request R2 ON R2.ApptId = R1.ApptId  
 JOIN Guest G1 on R1.GuestId = G1.GuestId  
 JOIN Guest G2 on R2.GuestId = G2.GuestId  
WHERE G1.GuestId < G2.GuestId  
 AND STRFTIME('%Y', R1.StartDate) == STRFTIME('%Y', R2.StartDate)  
 AND ABS(R1.Duration - R2.Duration) <=3  
 AND R1.VerdictDate IS NOT NULL AND R1.Verdict= 'Confirmed' AND R1.CancelDate IS NULL  
 AND R2.VerdictDate IS NOT NULL AND R2.Verdict= 'Confirmed' AND R2.CancelDate IS NULL;