EXTRACTING DATA FROM THE DATAIMMO DATABASE

1. Total number of apartments sold in 1st half 2020

SQL query

```
/* Total number of apartments sold in the 1st semester of 2020 */

SELECT COUNT(type_local) AS "Nombre total d'appartments vendus"
FROM bien
JOIN operation ON bien.id_bien = operation.id_operation
WHERE date_mut BETWEEN '2020-01-01' AND '2020-06-30'
AND type_local = 'Appartement';
```

Result

```
+-------------------------------------+
| Nombre total d'appartements vendus  |
+-------------------------------------+
|                               31378 |
+-------------------------------------+
```

2. Proportion of apartment sales by number of rooms

SQL query

```
/* Proportion of apartments sales by number of rooms */

SELECT DISTINCT nb_pieces AS 'Nombres de pièces'
(COUNT(id_bien) OVER (PARTITION BY nb_pieces)/COUNT(id_bien)OVER()) * 100 AS 'Proportion des ventes en %'
FROM bien
WHERE type_local = 'Appartement';
```

Result

Nombres de pièces	Proportion des ventes en %
0	0.0956
1	21.4768
2	31.1779
3	28.5742
4	14.2138
5	3.5503
6	0.6501
7	0.1721
8	0.0542
9	0.0255
10	0.0064
11	0.0032

3. List of the 10 departments with the highest price per square meter

SQL query

```sql
/* List of 10 departments where the square meter price is the highest */

SELECT code_dept AS 'Département', ROUND(AVG(val_fonc /surf_carrez),2) AS 'Prix moyen du m2'
FROM bien
JOIN commune ON bien.id_commune = commune.id_commune
JOIN operation ON operation.id_operation = bien.id_bien
GROUP BY code_dept
ORDER BY 2 DESC
LIMIT 10;
```

Result

Département	Prix moyen du m2
75	12052.89
92	7219.39
94	5343.28
06	4700.33
74	4667.13
93	4344.78
78	4225.25
69	4059.31
2A	4026.97
33	3764.14

4. Average price per square meter for a house in the Paris region

SQL query

```sql
/* Average square meter price of a house in the Ile de France region */

SELECT ROUND(AVG((operation.val_fonc)/(bien.surf_carrez)),2) AS 'Prix moyen du m2 maison en IDF'
FROM bien
JOIN operation ON operation.id_operation = bien.id_bien
JOIN commune ON bien.id_commune = commune.id_commune
WHERE type_local = 'Maison'
AND code_dept IN (75,92,93,94,77,91,78,95);
```

Result

```
+-----------------------------------+
| Prix moyen du m2 maison en IDF |
+-----------------------------------+
|                         3745.01 |
+-----------------------------------+
```

5. List of the 10 most expensive apartments by department and number of square meters

SQL query syntax

```sql
/* List of the 10 most expensive apartments with their region and area */

SELECT bien.id_bien, val_fonc AS 'Prix de vente', code_dept AS 'Département', surf_carrez AS 'Nombre de m2'
FROM bien
JOIN operation ON operation.id_operation = bien.id_bien
JOIN commune ON bien.id_commune = commune.id_commune
WHERE type_local = 'Appartement'
ORDER BY val_fonc DESC
LIMIT 10;
```

Result

id_bien	Prix de vente	Département	Nombre de m2
32275	9000000.00	75	9.10
21835	8600000.00	91	64.00
29799	8577713.00	75	20.55
32433	7620000.00	75	42.77
29850	7600000.00	75	253.30
29522	7535000.00	75	139.90
31973	7420000.00	75	360.95
32135	7200000.00	75	595.00
29353	7050000.00	75	122.56
29513	6600000.00	75	79.38

6. Rate of change in the number of sales between the first and second quarters of 2020

SQL query

```
/* Rate of change in the number of sales between the first and second quarters of 2020 */

WITH
Ventes1T AS (
  SELECT COUNT(*) AS 'ventes1T'
  FROM operation
  WHERE date_mut BETWEEN '2020-01-01' AND '2020-03-31'),
Ventes2T AS (
  SELECT COUNT(*) AS 'ventes2T'
  FROM operation
  WHERE date_mut BETWEEN '2020-04-01' AND '2020-06-30')

SELECT ROUND(((ventes2T - ventes1T)/ventes1T * 100),2) AS 'Taux d''evolution des ventes en 2020 (en%)'
FROM Ventes1T, Ventes2T;
```

Result

```
+--------------------------------------------+
| Taux d'évolution des ventes en 2020 (en %) |
+--------------------------------------------+
|                                       3.68 |
+--------------------------------------------+
```

7. List of towns where the number of sales rose by at least 20% between the first and second quarters of 2020

SQL query

```
/* List of towns where the number of sales rose by at least 20% between the first and second quarters of 2020 */

WITH
Ventes1T AS (
  SELECT commune AS 'Commune1T', COUNT(id_operation) AS 'Ventes_1T'
  FROM commune
  JOIN bien ON bien.id_commune = commune.id_commune
  JOIN operation ON operation.id_operation = bien.id_bien
  WHERE date_mut BETWEEN '2020-01-01' AND '2020-03-31'
  GROUP BY commune),
Ventes2T AS (
  SELECT commune AS 'Commune2T', COUNT(id_operation) AS 'Ventes_2T'
  FROM commune
  JOIN bien ON bien.id_commune = commune.id_commune
  JOIN operation ON operation.id_operation = bien.id_bien
  WHERE date_mut BETWEEN '2020-04-01' AND '2020-06-30'
  GROUP BY commune)

SELECT Commune1T AS 'Communes', Ventes_1T AS 'ventes 1er trimestre', Ventes2T AS 'ventes 2ème trimestre',
ROUND(((Ventes_2T - Ventes_1T)/Ventes_1T * 100),2) AS 'Taux évolutions ventes'
FROM Ventes1T
JOIN Ventes2T ON Ventes1T.Commune1T = Ventes2T.Commune2T
WHERE ROUND(((Ventes_2T - Ventes_1T)/Ventes_1T * 100),2) > 20;
```

Result

Communes	ventes 1er trimestre	ventes 2ème trimestre	Taux évolutions ventes
LAON	11	14	27.27
VILLERS-COTTERETS	3	5	66.67
CHATEAU-ARNOUX-SAINT-AUBAN	1	2	100.00
BARCELONNETTE	2	5	150.00
SAINT-MARTIN-DE-BROMES	1	2	100.00
EMBRUN	1	2	100.00
ORCIERES	1	5	400.00
GAP	2	6	200.00
LE DEVOLUY	1	11	1000.00
LA SALLE	1	3	200.00
RISOUL	1	2	100.00
NICE	173	220	27.17
MENTON	40	51	27.50
SAINT-MARTIN-VESUBIE	2	6	200.00
GILETTE	1	2	100.00
LEVENS	1	4	300.00
BEUIL	1	2	100.00
VALBONNE	1	2	100.00
VALS-LES-BAINS	3	4	33.33
LA-VOULTE-SUR-RHONE	1	3	200.00
CHARLEVILLE-MEZIERES	7	14	100.00
GIVET	1	3	200.00
RETHEL	1	7	600.00

8. Percentage difference in price per square meter between a 2-room apartment and a 3-room apartment

SQL query

```sql
/* Percentage difference in price per square meter between a 2-room apartment and a 3-room apartment */

WITH
apt2P AS (
  SELECT ROUND(AVG(val_fonc/surf_carrez),2) AS 'PM2P'
  FROM bien
  JOIN operation ON operation.id_operation = bien.id_bien
  WHERE nb_pieces = '2' AND type_local = 'Appartement'),
apt3P AS (
  SELECT ROUND(AVG(val_fonc/surf_carrez),2) AS 'PM3P'
  FROM bien
  JOIN operation ON operation.id_operation = bien.id_bien
  WHERE nb_pieces = '3' AND type_local = 'Appartement'),

SELECT ROUND(((PM3P - PM2P)/PM2P * 100),2) AS 'Différence prix du m2 entre apt 2P et 3P (en %)'
FROM apt2P, apt3P;
```

Result

```
+-------------------------------------------------+
| Différence prix du m2 entre apt 2P et 3P (en %) |
+-------------------------------------------------+
|                                          -12.40 |
+-------------------------------------------------+
```

9. Average property values for the top 3 municipalities in the departments 6, 13, 33, 59 and 69

SQL query

```
/* Average property values for the top 3 municipalities in the departments 6, 13, 33, 59 and 69 */

WITH
valeur_par_ville AS (
  SELECT code_dept, commune.commune AS 'Commune', AVG(operation.val_fonc) AS 'moyavg'
  FROM commune
  JOIN bien ON bien.id_commune = commune.id_commune
  JOIN operation ON operation.id_operation = bien.id_bien
  GROUP BY code_dept, commune)

SELECT code_dept AS 'Département', Commune, ROUND(moyavg,2) AS 'Moyenne valeur foncière'
FROM (
  SELECT code_dept, Commune, moyavg,
  RANK() OVER (PARTITION BY code_dept ORDER BY moyavg DESC) AS rang
  FROM valeur_par_ville) AS result)
WHERE rang <=3 AND code_dept IN (06,13,33,59,69)
```

Result

Département	Commune	Moyenne valeur foncière
06	SAINT-JEAN-CAP-FERRAT	968750.00
06	EZE	655000.00
06	MOUANS-SARTOUX	476898.10
13	GIGNAC-LA-NERTHE	330000.00
13	SAINT SAVOURNIN	314425.00
13	CASSIS	313416.88
33	LEGE-CAP-FERRET	549500.64
33	VAYRES	335000.00
33	ARCACHON	307435.93
59	BERSEE	433202.00
59	CYSOING	408550.00
59	HALLUIN	322250.00
69	VILLE SUR JARNIOUX	485300.00
69	LYON 2EME	455217.27
69	LYON 6EME	426968.25