

IPRs and their data analysis

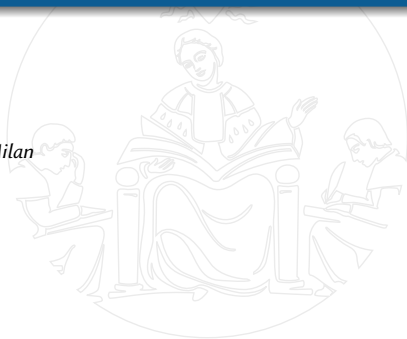
MODULE 7 – PATSTAT EXERCISES

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1 PATSTAT exercises

- Homework solutions
- Additional exercises



Homework solutions 1

- 1 Which patent office saw the largest number of applications filed in 2015?

```
SELECT COUNT(*) AS number, ta.appln_auth
FROM tls201_appln ta
WHERE ta.appln_filing_year = 2015
GROUP BY ta.appln_auth
ORDER BY number DESC
[LIMIT 10];
```

number	appln_auth
1,944,160	CN
541,391	US
348,098	JP
212,756	WO
197,451	KR
158,840	EP
75,477	DE
64,445	TW
50,674	RU
42,041	CA

Square brackets [] denote optional clauses and should be removed before running the query



Homework solutions 2

- 2 What are the 10 most cited applications ever filed in Great Britain?
Retrieve the number of citations, the application id, the whole (concatenated) application number, and the filing date.

```
SELECT ta.nb_citing_docdb_fam, ta.appln_id,  
       CONCAT(ta.appln_auth, ta.appln_nr, ta.appln_kind)  
       AS app_number, ta.appln_filing_date  
FROM tls201_appln ta  
WHERE ta.appln_auth = 'GB'  
ORDER BY ta.nb_citing_docdb_fam DESC  
LIMIT 10;
```



Homework solutions 2 (cont'd)

nb_citing_docdb_fam	appln_id	app_number	appln_filing_date
3,418	23,058,134	GB9125996A	1991-12-06
3,000	23,098,743	GB9306502A	1993-03-29
2,568	23,016,814	GB9015198A	1990-07-10
2,568	23,024,432	GB9022845A	1990-10-19
2,400	22,584,122	GB5054170A	1970-10-23
2,353	22,963,882	GB8825480A	1988-11-01
2,347	22,962,284	GB8823869A	1988-10-12
2,303	22,899,220	GB8624356A	1986-10-10
2,135	375,714,295	GB201213633A	2011-01-11
2,050	22,723,303	GB8034377A	1978-10-02



Homework solutions 3

- 3 Get all A1 publications published by the USPTO within Q1/2009. Retrieve the whole publication number and the publication date. Also, count how many such publications are there.

```
SELECT CONCAT(tpp.publn_auth, tpp.publn_nr, tpp.publn_kind)
AS pub_number, tpp.publn_date
FROM tls211_pat_publn tpp
WHERE tpp.publn_auth = 'US'
AND tpp.publn_kind = 'A1'
AND tpp.publn_date >= '2009-01-01'
AND tpp.publn_date <= '2009-03-31'
[ORDER BY tpp.publn_date, tpp.publn_nr]
[LIMIT 10];
```

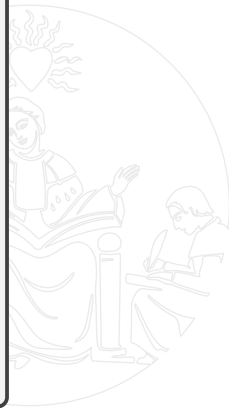
```
SELECT COUNT(*) as number
FROM tls211_pat_publn tpp
WHERE tpp.publn_auth = 'US'
AND tpp.publn_kind = 'A1'
AND tpp.publn_date >= '2009-01-01'
AND tpp.publn_date <= '2009-03-31';
```



Homework solutions 3 (alternative)

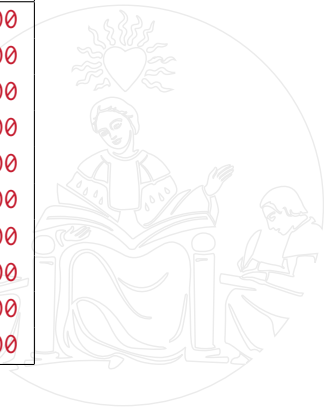
- the two queries can be combined in a single query using nested SELECT statements

```
SELECT CONCAT(tpp.publn_auth, tpp.publn_nr, tpp.publn_kind)
AS pub_number, tpp.publn_date,
(SELECT COUNT(*)
FROM tls211_pat_publn tpp
WHERE tpp.publn_auth = 'US'
AND tpp.publn_kind = 'A1'
AND tpp.publn_date >= '2009-01-01'
AND tpp.publn_date <= '2009-03-31') AS number
FROM tls211_pat_publn tpp
WHERE tpp.publn_auth = 'US'
AND tpp.publn_kind = 'A1'
AND tpp.publn_date >= '2009-01-01'
AND tpp.publn_date <= '2009-03-31'
[ORDER BY ORDER BY tpp.publn_date, tpp.publn_nr]
[LIMIT 10];
```



Homework solutions 3 (cont'd)

pub_number	publn_date	number
US2009000001A1	2009-01-01	83,700
US2009000002A1	2009-01-01	83,700
US2009000003A1	2009-01-01	83,700
US2009000004A1	2009-01-01	83,700
US2009000005A1	2009-01-01	83,700
US2009000006A1	2009-01-01	83,700
US2009000007A1	2009-01-01	83,700
US2009000008A1	2009-01-01	83,700
US2009000009A1	2009-01-01	83,700
US2009000010A1	2009-01-01	83,700



1 **PATSTAT exercises**

- Homework solutions
- Additional exercises



Exercise 1

- 1 How many patents, utility models, and designs have been filed in Italy?

```
SELECT ta.ipr_type, COUNT(*) as number  
FROM tls201_appln ta  
WHERE ta.appln_auth = 'IT'  
GROUP BY ta.ipr_type  
ORDER BY number DESC;
```

ipr_type	number
PI	696,553
UM	150,176
DP	1,932

Exercise 2

- 2 Get the (concatenated) publication number of all *granted* applications filed in Italy in 2010.

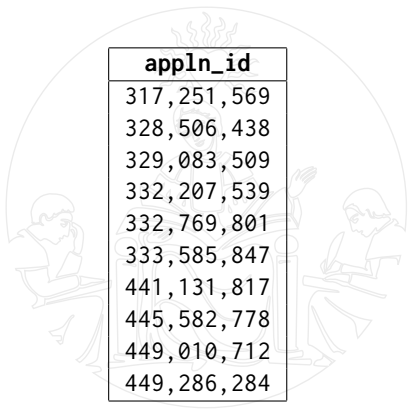
```
SELECT CONCAT(tpp.publn_auth, tpp.publn_nr, tpp.publn_kind)
AS pub_number
FROM tls201_appln ta
JOIN tls211_pat_publn tpp
ON tpp.appln_id = ta.appln_id
WHERE ta.appln_filing_year = 2010
AND ta.appln_auth = 'IT'
AND ta.granted = 'Y'
[ORDER BY pub_number]
[LIMIT 10];
```

pub_number
IT1386324B1
IT1397136B1
IT1397137B1
IT1397154B1
IT1397155B1
IT1397157B1
IT1397233B1
IT1397234B1
IT1397235B1
IT1397241B1

Exercise 3

- 3 Get the application id of all patents filed in Italy between 2010 and 2015 in the field of nuclear physics (i.e. all IPC codes starting with G21).

```
SELECT DISTINCT ta.appln_id
FROM tls209_appln_ipc tai
JOIN tls201_appln ta
ON ta.appln_id = tai.appln_id
WHERE ta.appln_filing_year BETWEEN 2010 AND 2015
AND ta.appln_auth = 'IT'
AND tai.ipc_class_symbol LIKE 'G21%'
[ORDER BY ta.appln_id]
[LIMIT 10];
```

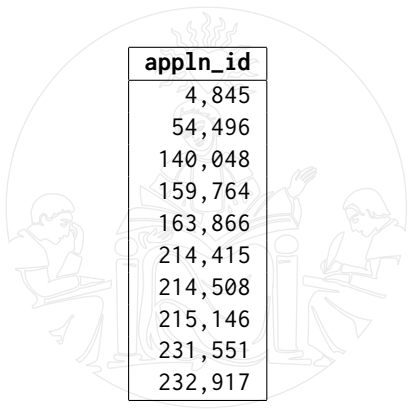


appln_id
317,251,569
328,506,438
329,083,509
332,207,539
332,769,801
333,585,847
441,131,817
445,582,778
449,010,712
449,286,284

Exercise 4

- 4 Get the application id of all patents classified as both “nuclear physics” (G21) and “disposal of solid waste” (B09).

```
SELECT DISTINCT tai.appln_id
FROM tls209_appln_ipc tai
JOIN tls209_appln_ipc tai2
ON tai.appln_id = tai2.appln_id
WHERE tai.ipc_class_symbol LIKE 'G21%'
AND tai2.ipc_class_symbol LIKE 'B09%'
[ORDER BY tai.appln_id]
[LIMIT 10];
```



appln_id
4,845
54,496
140,048
159,764
163,866
214,415
214,508
215,146
231,551
232,917

Exercise 5

- 5 Get the (concatenated) application number of all patents filed by Pirelli.

```
SELECT DISTINCT CONCAT(ta.appln_auth, ta.appln_nr, ta.appln_kind)
AS appln_num
FROM tls201_appln ta
JOIN tls207_pers_appln tpa
ON tpa.appln_id = ta.appln_id
JOIN tls206_person tp
ON tp.person_id = tpa.person_id
WHERE tp.han_name LIKE 'Pirelli%'
[AND tp.person_ctype = 'IT']
[ORDER BY appln_num]
[LIMIT 10];
```

appln_num
AP9901665A
AR10149696A
AR10321996A
AR10356596A
AR10356696A
AR10381996A
AR10382096A
AR23839371A
AR25975275A
AR26563976A



Exercise 6

6 Who are the most active applicants in Italy?

```
SELECT COUNT(DISTINCT tpa.appln_id)
AS number, tp.doc_std_name
FROM tls206_person tp
JOIN tls207_pers_appln tpa
ON tp.person_id = tpa.person_id
WHERE tp.person_etry_code = 'IT'
AND tpa.applt_seq_nr > 0
GROUP BY tp.doc_std_name
ORDER BY number DESC
[LIMIT 10];
```

number	doc_std_name
11,336	ST MICROELECTRONICS SRL
8,433	PIRELLI
7,524	GD SPA
7,250	MONTEDISON SPA
5,354	SNAM PROGETTI
4,248	SIGMA TAU IND FARMACEUTI
3,913	FIAT AUTO SPA
3,902	CHIESI FARMA SPA
3,792	DANIELI OFF MECC
3,459	FIAT RICERCHE

Exercise 7

7 Which Italian applicants cooperate with applicants of another country?

```
SELECT DISTINCT tp.doc_std_name
FROM tls206_person tp
JOIN tls207_pers_appln tpa
ON tp.person_id = tpa.person_id
JOIN tls207_pers_appln tpa2
ON tpa.appln_id = tpa2.appln_id
JOIN tls206_person tp2
ON tpa2.person_id = tp2.person_id
WHERE tp.person_etry_code = 'IT'
AND tpa.applt_seq_nr > 0
AND tpa2.applt_seq_nr > 0
AND tp.person_etry_code <> tp2.person_etry_code
[ORDER by tp.doc_std_name]
[LIMIT 10];
```

doc_std_name

, CHIESI FARMACEUTICI S.p.A.
, NOVARTIS VACCINES AND DIAGNOSTICS SRL
15 & 15 INVESTIMENTI S R L
3 S SISTEMI S R L
3C RESEARCH S R L
3C RESEARCH SRL
3SUN S R L
3V GREEN EAGLE S P A
3V SIGMA SPA
40SOUTH ENERGY LTD



Exercise 8

- 8 Get the application id of all patents filed in Italy for which the inventor is also the applicant.

```
SELECT DISTINCT ta.appln_id
FROM tls201_appln ta
JOIN tls207_pers_appln tpa
ON ta.appln_id = tpa.appln_id
WHERE ta.appln_auth = 'IT'
AND tpa.applt_seq_nr > 0
AND tpa.invt_seq_nr > 0
[ORDER BY ta.appln_id]
[LIMIT 10];
```

appln_id
24,376,090
24,376,102
24,376,112
24,376,193
24,376,205
24,376,244
24,376,251
24,376,258
24,376,311
24,376,325

Exercise 9

- 9 Get the application id of all patents in the largest simple family.

```
SELECT docdb_family_size AS fam_size,  
docdb_family_id AS fam_id, appln_id  
FROM tls201_appln  
WHERE docdb_family_size =  
(SELECT MAX(docdb_family_size)  
FROM tls201_appln)  
[ORDER BY appln_id]  
[LIMIT 10];
```

fam_size	fam_id	appln_id
472	21,841,414	14,105,732
472	21,841,414	45,909,413
472	21,841,414	46,189,150
472	21,841,414	46,257,093
472	21,841,414	46,532,231
472	21,841,414	46,540,138
472	21,841,414	46,552,089
472	21,841,414	46,590,986
472	21,841,414	46,597,933
472	21,841,414	47,651,978

Exercise 10

10 Get the application id of all Italian patents which mention 'pizza' in their English title.

```
SELECT ta.appln_id, tat.appln_title
FROM tls201_appln ta
JOIN tls202_appln_title tat
ON ta.appln_id = tat.appln_id
WHERE ta.appln_auth = 'IT'
AND tat.appln_title_lg = 'en'
AND tat.appln_title LIKE '%pizza%'
[ORDER BY ta.appln_id]
[LIMIT 10];
```

appln_id	appln_title
24,445,683	Press for the production of pizza bases ...
24,449,110	Portable cooker esp. for pizzas - consis...
24,455,029	Procedure and apparatus for the producti...
24,624,870	A cutter with a retractable blade for fo...
24,627,718	Flour for pizza baking
24,633,500	Pizza dough shaping machine
24,633,718	Pizza dough base forming appts.
24,662,457	Making crust partic. for pizza
24,772,458	Pizza cutting apparatus
24,789,823	Machine for arranging semifinished pasta...