

## **Homework #1**

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COMP 353/453

### **Division of Workload**

- Anthony: Questions 1-3, reviewed Kristin's work for accuracy, typed up report
- Kristin: Questions 4-6, reviewed Anthony's work for accuracy, compiled questions into a text file

Q1.

```
SELECT S.songCode, C.trackNumber, S.songTitle
FROM song AS S, composedof AS C
WHERE C.songcode = S.songcode AND C.cdCode = (
    SELECT cdcode
    FROM topcds
    WHERE year = 2003 AND rating = 1)
ORDER BY C.trackNumber ASC;
```

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Library' pane shows the database structure: Servers (1) > PostgreSQL 14 > Databases (2) > postgres > practice. The 'Query' pane on the right contains the following SQL query:

```
1 SELECT S.songCode, C.trackNumber, S.songTitle
2 FROM song AS S, composedof AS C
3 WHERE C.songcode = S.songcode AND C.cdCode = (
4     SELECT cdcode
5     FROM topcds
6     WHERE year = 2003 AND rating = 1)
7 ORDER BY C.trackNumber ASC;
8
```

Below the query, the 'Data output' tab shows the results of the query in a table format:

	songcode character varying	tracknumber numeric (3)	songtitle character varying (50)
1	S17	1	Days Go By
2	S18	2	Another Day in Paradi...
3	S1	3	Sweet Dreams
4	S2	4	Goodnight
5	S7	5	Breathless
6	S19	6	Smile
7	S8	7	My Oh My
8	S9	8	Ooh La La
9	S11	9	Hot As Hell
10	S12	10	Goldilocks

At the bottom of the interface, the status bar indicates: Total rows: 10 of 10, Query complete 00:00:00.048, Ln 8, Col 1.

Q2.

```
SELECT MG.groupCode, MG.groupName, COUNT(C.cdCode) AS numberOfTop10CDs
FROM musicalGroup AS MG, cd AS C
WHERE MG.groupCode = C.groupcode AND C.cdcode IN(
    SELECT cdcode
    FROM topcds)
GROUP BY MG.groupCode, MG.groupName
ORDER BY numberOfTop10CDs DESC;
```

The screenshot shows the pgAdmin 4 web interface. On the left is the 'Browser' pane with a tree view of the database structure. The 'Servers (1)' section is expanded, showing 'PostgreSQL 14'. Under 'Databases (2)', the 'practice' database is selected. The 'Schemas (1)' section is expanded, showing the 'public' schema. The main pane displays the 'Query' editor with the following SQL query:

```
1 SELECT MG.groupCode, MG.groupName, COUNT(C.cdCode) AS numberOfTop10CDs
2 FROM musicalGroup AS MG, cd AS C
3 WHERE MG.groupCode = C.groupcode AND C.cdcode IN(
4     SELECT cdcode
5     FROM topcds)
6 GROUP BY MG.groupCode, MG.groupName
7 ORDER BY numberOfTop10CDs DESC;
8
```

Below the query editor is the 'Data output' pane, which shows the results of the query in a table format:

	groupcode [PK] character varying	groupname character varying (50)	numberoftop10cds bigint
1	G4	Great Snakes	4
2	G5	Keith Urban	3
3	G2	Sweet Symphony	3
4	G3	Thundering Typhoons	2
5	G1	Deutsch Moss	1

At the bottom of the interface, a status bar indicates: 'Total rows: 5 of 5', 'Query complete 00:00:00.171', and a green message box stating 'Successfully run. Total query runtime: 171 msec. 5 rows affected.' The bottom right corner shows 'Ln 8, Col 1'.

Q3.

```
SELECT agg.year, MAX(agg.tracknum) AS maxNumber, MIN(agg.tracknum) AS
minNumber, ROUND(AVG(agg.tracknum), 2) AS avgNumber
FROM(
    SELECT cd.year, C.cdcode, COUNT(*) AS tracknum
    FROM composedOf C, cd
    WHERE cd.cdcode = C.cdcode AND cd.year >= 2000
    GROUP BY C.cdcode, cd.year) AS agg
GROUP BY agg.year
ORDER BY agg.year ASC;
```

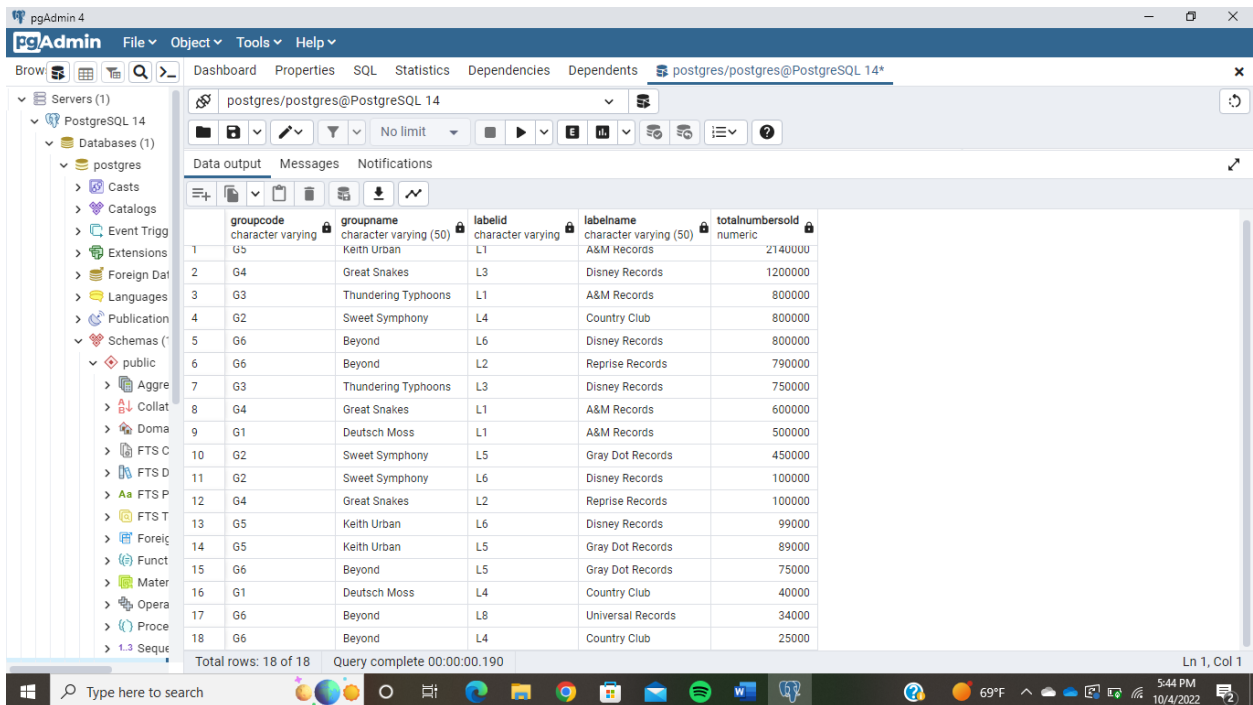
The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to show the 'practice' database. The main pane displays a SQL query in the 'Query' tab. Below the query, the 'Data output' tab shows the results of the query in a table format. The table has five columns: 'year', 'maxnumber', 'minnumber', and 'avgnumber'. The data is as follows:

	year	maxnumber	minnumber	avgnumber
1	2000	7	5	6.00
2	2001	8	1	5.00
3	2002	9	9	9.00
4	2003	10	2	3.63

At the bottom of the interface, a status bar indicates: 'Total rows: 4 of 4 Query complete 00:00:00.081' and a green message box says 'Successfully run. Total query runtime: 81 msec. 4 rows affected.'

Q4.

```
SELECT cd.groupcode, M.groupName, cd.labelID, R.labelName, sum(cd.numbersold) AS  
totalNumberSold  
FROM cd, musicalGroup M, recordingLabel R  
WHERE M.groupcode = cd.groupCode AND R.labelID = cd.labelID  
GROUP BY cd.groupcode, M.groupName, cd.LabelID, R.labelName  
ORDER BY totalNumberSold desc
```



groupcode	groupName	labelid	labelname	totalnumbersold
1	G5	L1	A&M Records	2140000
2	G4	L3	Disney Records	1200000
3	G3	L1	A&M Records	800000
4	G2	L4	Country Club	800000
5	G6	L6	Disney Records	800000
6	G6	L2	Reprise Records	790000
7	G3	L3	Disney Records	750000
8	G4	L1	A&M Records	600000
9	G1	L1	A&M Records	500000
10	G2	L5	Gray Dot Records	450000
11	G2	L6	Disney Records	100000
12	G4	L2	Reprise Records	100000
13	G5	L6	Disney Records	99000
14	G5	L5	Gray Dot Records	89000
15	G6	L5	Gray Dot Records	75000
16	G1	L4	Country Club	40000
17	G6	L8	Universal Records	34000
18	G6	L4	Country Club	25000

Q5.

```
SELECT artistID, firstName, lastName, yearBorn
FROM artist
WHERE artistID IN(
    SELECT artist.artistID
    FROM artist, writtenby, topsongs
    WHERE writtenBy.songCode = topSongs.songCode AND
        writtenBy.artistID = artist.ArtistID AND
        topSongs.rating <= 5
) AND artistID NOT IN (
    SELECT artistID from member
)
ORDER BY lastname, firstname desc
```

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Browser' pane displays a tree view of database objects, with 'Tables (14)' expanded. The main pane shows a SQL query editor with the following query:

```
1 select artistID, firstName, lastName, yearBorn
2 from artist
3 where artistID in (
4     select artist.artistID
5     from artist, writtenby, topsongs
6     where writtenBy.songCode = topSongs.songCode and
7         writtenBy.artistID = artist.ArtistID and
8         topSongs.rating <= 5
9 ) and artistID not in (
10    select artistID from member
11 )
12 order by artistID desc
```

Below the query editor, the 'Data output' pane shows the results of the query. The results are displayed in a table with the following columns: artistid, firstName, lastName, and yearborn. The table contains one row of data:

artistid	firstName	lastName	yearborn
A13	Jim	Kate	1970

The status bar at the bottom indicates 'Total rows: 1 of 1' and 'Query complete 00:00:00.246'.

Q6.

```
SELECT DISTINCT M.groupCode, M.groupName
FROM musicalgroup M, cd
WHERE M.groupcode = cd.groupcode AND M.groupcode IN(
    SELECT cd.groupcode
    FROM cd, recordingLabel R
    WHERE cd.labelid = R.labelid AND R.location = 'Detroit') AND M.groupcode NOT IN(
    SELECT cd.groupcode
    FROM cd, recordingLabel R
    WHERE cd.labelid = R.labelid AND R.location != 'Detroit')
ORDER BY M.groupname ASC;
```

The screenshot shows the pgAdmin 4 interface. On the left, the 'Browser' pane shows the database structure: Library > Servers (1) > PostgreSQL 14 > Databases (2) > postgres > practice. The 'Query' pane on the right contains the following SQL query:

```
1 select DISTINCT M.groupCode, M.groupName
2 FROM musicalgroup M, cd
3 WHERE M.groupcode = cd.groupcode AND M.groupcode IN(
4     SELECT cd.groupcode
5     FROM cd, recordingLabel R
6     WHERE cd.labelid = R.labelid AND R.location = 'Detroit') AND M.groupcode NOT IN(
7     SELECT cd.groupcode
8     FROM cd, recordingLabel R
9     WHERE cd.labelid = R.labelid AND R.location != 'Detroit')
10 ORDER BY M.groupname ASC;
11
12
```

Below the query, the 'Data output' pane shows the results of the query. The results are displayed in a table with two columns: 'groupcode' and 'groupname'.

	groupcode [PK] character varying	groupname character varying (50)
1	G2	Sweet Symphony

The status bar at the bottom indicates 'Total rows: 1 of 1' and 'Query complete: 2020-08-04 14:10:01'.