CIS 452 Homework 5

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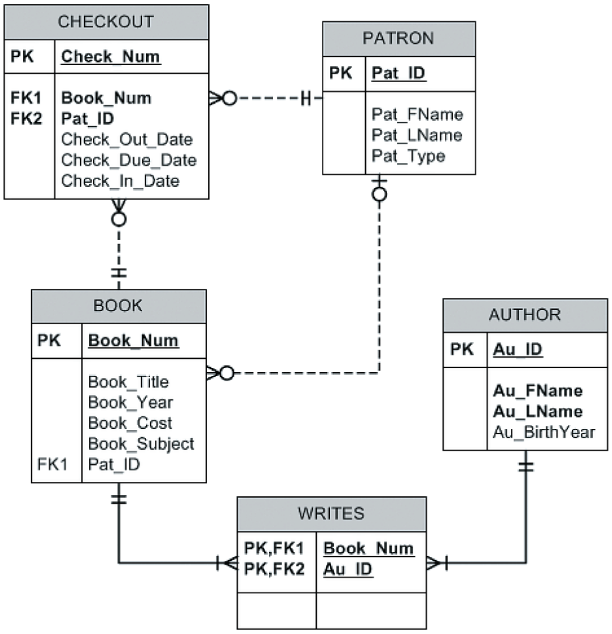
Q1 (5 pts): What is the difference between the following two SQL statements when they are used for query?

- SELECT COUNT(DISTINCT V_CODE) FROM PRODUCT;
- SELECT DISTINCT COUNT(V_CODE) FROM PRODUCT;

The first query returns the number unique V_CODE values from the product table, while the second query returns the count of all V_CODE values within the product table, hence the distinct within the second query doesn't really do much.

Q2: In this part of the assignment, you need to use SQL to query the database below. There are 7 query tasks in this assignment. Before starting the assignment, please complete the following steps:

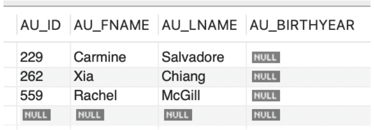
- Download the hw5db.sql posted together with this assignment. Run all SQL scripts in this document to create the database in your DBMS.
- **Note**: if you already have tables with the same names in your database, please delete them before running my SQL scripts.
- Review and run the Case Studies posted in the Module-Unit 7-SQL Queries. Query tasks in this assignment will be similar to those in our case studies. Make sure you understand how we construct the SQL queries in the case study.
- Do not submit the screenshots of your SQL scripts for each task, because we need to copy and run your SQL scripts. You can complete your query in your SQL client and then copy it to the homework assignment document.



Task 1 to Task 8 - What to submit:

- Your SQL statements for each task. Please make sure that we can copy and paste your SQL statements. Do not submit the screenshots of your SQL statements.
- The screenshots of your execution of SQL statements are not required for these tasks, however, you can still add them to help explain your SQL statements better if you prefer.

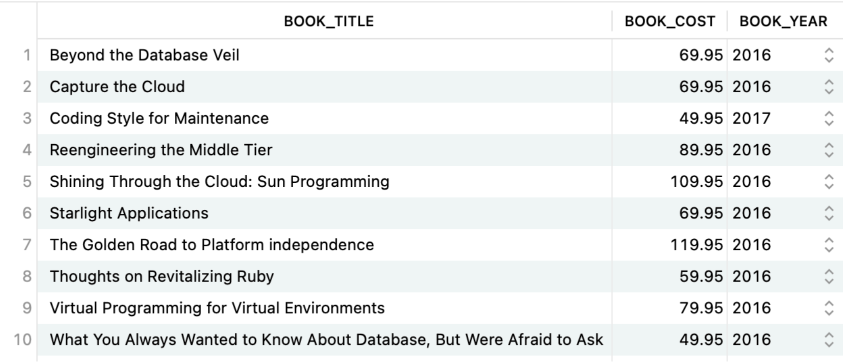
1. (5 pts) Write a query that displays all authors whose AU_BIRTHYEAR is NULL. The expected query results are shown in the Figure below.



AU_ID	AU_FNAME	AU_LNAME	AU_BIRTHYEAR
229	Carmine	Salvadore	NULL
262	Xia	Chiang	NULL
559	Rachel	McGill	NULL
NULL	NULL	NULL	NULL

Select * FROM AUTHOR Where AU_BIRTHYEAR is null

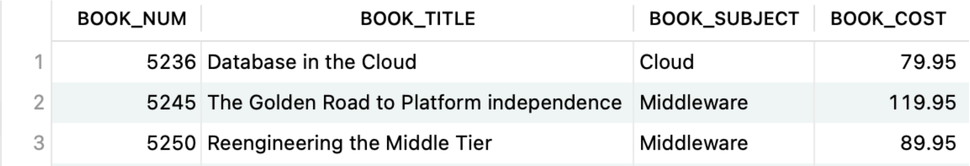
2. (7.5 pts) Write a query that displays the book title, cost, and year of publication for books published after 2015 in the system. Sort the results by book title ascendingly. The expected query results are shown in the Figure below.



	BOOK_TITLE	BOOK_COST	BOOK_YEAR
1	Beyond the Database Veil	69.95	2016
2	Capture the Cloud	69.95	2016
3	Coding Style for Maintenance	49.95	2017
4	Reengineering the Middle Tier	89.95	2016
5	Shining Through the Cloud: Sun Programming	109.95	2016
6	Starlight Applications	69.95	2016
7	The Golden Road to Platform independence	119.95	2016
8	Thoughts on Revitalizing Ruby	59.95	2016
9	Virtual Programming for Virtual Environments	79.95	2016
10	What You Always Wanted to Know About Database, But Were Afraid to Ask	49.95	2016

Select BOOK_TITLE, BOOK_COST, BOOK_YEAR from BOOK WHERE BOOK_YEAR > 2015

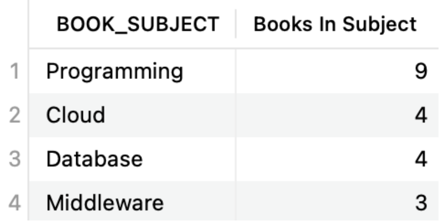
3. (10 pts) Write a query to display the book number, title, subject, and cost for all books that are on the subjects of “Middleware” or “Cloud,” and that cost more than $70 sorted by book number ascendingly. The expected query results are shown in the Figure below.



	BOOK_NUM	BOOK_TITLE	BOOK_SUBJECT	BOOK_COST
1	5236	Database in the Cloud	Cloud	79.95
2	5245	The Golden Road to Platform independence	Middleware	119.95
3	5250	Reengineering the Middle Tier	Middleware	89.95

SELECT BOOK_NUM, BOOK_TITLE, BOOK_SUBJECT, BOOK_COST from BOOK where (BOOK_SUBJECT = "Middleware" OR BOOK_SUBJECT = "Cloud")
and BOOK_COST > 70 Order by BOOK_NUM ASC;

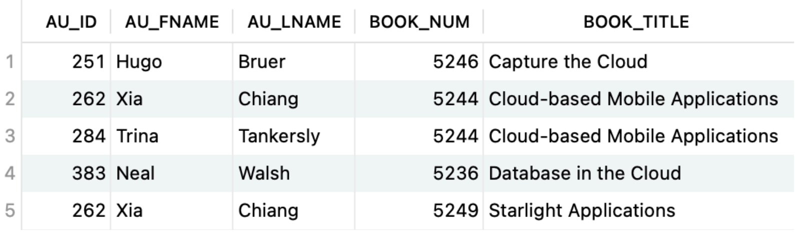
4. (12.5 pts) Write a query to display the subject and the number of books in each subject. Sort the results by the number of books in descending order and then by subject name in ascending order. The expected query results are shown in the Figure below.



	BOOK_SUBJECT	Books In Subject
1	Programming	9
2	Cloud	4
3	Database	4
4	Middleware	3

```
SELECT BOOK_SUBJECT, COUNT(*) AS "Books in Subject" from BOOK
group by BOOK_SUBJECT order by "Books in Subject" ASC, BOOK_SUBJECT DESC
```

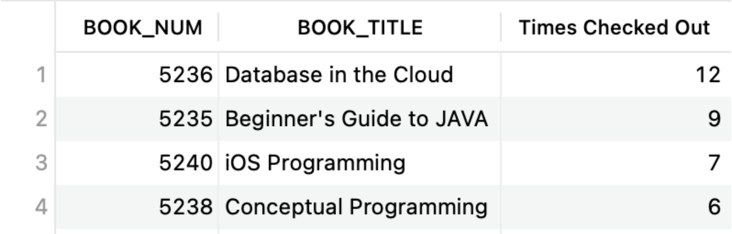
5. (15 pts) Write a query to display the author ID, first and last name, book number, and book title of all books in the subject “Cloud.” Sort the results by book title in ascending order and then by author’s last name in ascending order. The expected query results are shown in the Figure below.



	AU_ID	AU_FNAME	AU_LNAME	BOOK_NUM	BOOK_TITLE
1	251	Hugo	Bruer	5246	Capture the Cloud
2	262	Xia	Chiang	5244	Cloud-based Mobile Applications
3	284	Trina	Tankersly	5244	Cloud-based Mobile Applications
4	383	Neal	Walsh	5236	Database in the Cloud
5	262	Xia	Chiang	5249	Starlight Applications

```
SELECT A.AU_ID, A.AU_FNAME, A.AU_LNAME, B.BOOK_NUM, B.BOOK_TITLE
FROM AUTHOR A
JOIN WRITES W ON A.AU_ID = W.AU_ID
JOIN BOOK B ON W.BOOK_NUM = B.BOOK_NUM
WHERE B.BOOK_SUBJECT = 'Cloud'
ORDER BY B.BOOK_TITLE ASC, A.AU_LNAME ASC;
```

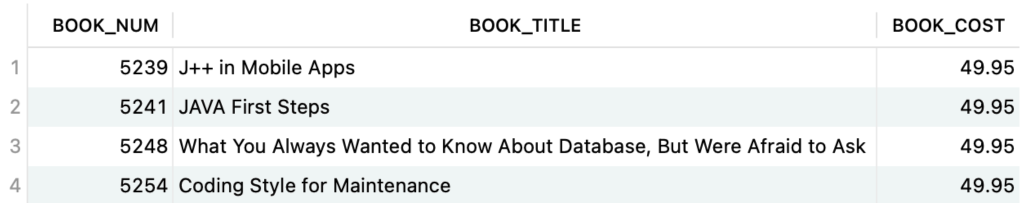
6. (15 pts) Write a query to display the book number, title, and number of times each book has been checked out. Limit the results to books that have been checked out more than five times. Sort the results in descending order by the number of times checked out and then by title in ascending order. The expected query results are shown in the Figure below.



	BOOK_NUM	BOOK_TITLE	Times Checked Out
1	5236	Database in the Cloud	12
2	5235	Beginner's Guide to JAVA	9
3	5240	iOS Programming	7
4	5238	Conceptual Programming	6

```
SELECT B.BOOK_NUM, B.BOOK_TITLE, COUNT(C.BOOK_NUM) AS TIMES_CHECKED_OUT
From BOOK B
JOIN CHECKOUT C ON B.BOOK_NUM = C.BOOK_NUM
GROUP BY B.BOOK_NUM, B.BOOK_TITLE
HAVING COUNT(C.BOOK_NUM) > 5
ORDER BY TIMES_CHECKED_OUT DESC, B.BOOK_TITLE ASC;
```

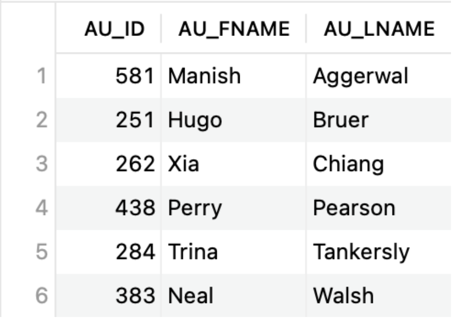
7. (15 pts) Write a query to display the book number, title, and cost of books that have the lowest cost of any books in the system. Sort the results by book number in ascending order. The expected query results are shown in the Figure below.



	BOOK_NUM	BOOK_TITLE	BOOK_COST
1	5239	J++ in Mobile Apps	49.95
2	5241	JAVA First Steps	49.95
3	5248	What You Always Wanted to Know About Database, But Were Afraid to Ask	49.95
4	5254	Coding Style for Maintenance	49.95

```
SELECT BOOK_NUM, BOOK_TITLE, BOOK_COST FROM BOOK
WHERE BOOK_COST = (SELECT min(BOOK_COST) FROM BOOK)
ORDER BY BOOK_NUM ASC;
```

8. (15 pts) Write a query to display the author ID, first and last name for all authors who have never written a book with the subject Programming. Sort the results by the author’s last name in ascending order. The expected query results are shown in the Figure below.



	AU_ID	AU_FNAME	AU_LNAME
1	581	Manish	Aggerwal
2	251	Hugo	Bruer
3	262	Xia	Chiang
4	438	Perry	Pearson
5	284	Trina	Tankersly
6	383	Neal	Walsh

```
SELECT AU_ID, AU_FNAME, AU_LNAME

FROM AUTHOR

WHERE AU_ID NOT IN (

   SELECT AU_ID

   FROM WRITES

   JOIN BOOK ON WRITES.BOOK_NUM = BOOK.BOOK_NUM

   WHERE BOOK.BOOK_SUBJECT = 'Programming'

)

ORDER BY AU_LNAME;
```