COMP 3610   **Winter 2023**

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Activity#4
Use the same schema defined for the assignment#1   **[20 marks]**

Part 1   Use the following schema for maintaining the books issued to the patrons.

books (book_id int, title varchar(20), author_last_name varchar(20), author_first_name varchar(20), rating char(1))

patrons (patron_id int, last_name varchar(20), first_name varchar(20), street_address varchar(30), city varchar(10), zip char(7), DOB date, Last_modified date, Modified_By varchar2(15))

transactions (transaction_id int, patron_id int, book_id int, transaction_date date, transaction_type char(1))

Book_Id, Patron_id and Transaction_id are primary keys. Patron_id and book_id in transactions table are foreign keys.
Possible values for the transaction_type are 1 = checking out , 2 = returning, 3 = placing a hold.
Possible values for the rating are 1 = text book, 2 = reference book, 3 = others

Add a fine column in the transaction table and add some values in it.

1. Write the SQL queries and execute to verify the outputs. (8x2)
    1. List the patron_id of all patrons who did a transaction of a specific date (you may define any date)

        select patron_id from transactions where transaction_date = TO_DATE('21-11-2020', 'DD-MM-YYYY');

        select patron_id
        from transactions
        where transaction_id in (select transaction_id
                      from transactions
                      where transaction_date = TO_DATE('21-11-2020', 'DD-MM-YYYY'));

	PATRON_ID
1	12

    2. List the patron_id for all who have placed a hold today
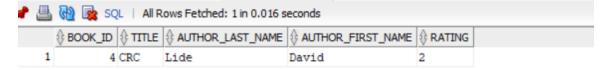
         insert into transactions
values(transactions_seq.nextval,11,3,TO_DATE(current_date, 'DD-MM-YYYY'),'3');

SELECT patron_id from transactions where transaction_type = '3' and transaction_date = to_date(current_date, 'DD-MM-YYYY');

select patron_id

```
from transactions
where transaction_id in (select transaction_id
            from transactions
            where transaction_type  = '3' and transaction_date = to_date(current_date, 'DD-
MM-YYYY'));
```

	PATRON_ID
1	11

3. List the details of the books that are issued

```
select *
from books
where book_id in (select book_id
            from transactions
            where transaction_type  = '1');
```

SQL | All Rows Fetched: 1 in 0.016 seconds

	BOOK_ID	TITLE	AUTHOR_LAST_NAME	AUTHOR_FIRST_NAME	RATING
1	4	CRC	Lide	David	2

4. List all the books issued in the month of September 2014

```
select *
from books
where book_id in (select book_id
            from transactions
            where TO_CHAR(transaction_date, 'MM/YYYY') = '09/2014' and
transaction_type = '1' );
```

	BOOK_ID	TITLE	AUTHOR_LAST_NAME	AUTHOR_FIRST_NAME	RATING
1	1	Intro to probability	Bertsekas	Dimitri	1
2	2	Chemistry	DeCoste	Donald	1

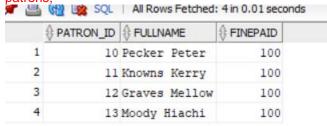5. Provide a detailed list of all the patrons with proper headings

```
select patron_id as "Patron ID", last_name || ' ' || first_name AS Fullname,
street_address as "Place of residence", city as "City", zip AS "PostalCode", DOB as
"Birthday"
from patrons;
```

SQL | All Rows Fetched: 4 in 0.019 seconds

	Patron ID	FULLNAME	Place of residence	City	PostalCode	Birthday
1	10	Pecker Peter	141-victoria st	Kamloops	V2J9O3	19-NOV-00
2	11	Knowns Kerry	1055 dalhousie	kamloops	V3R0Y0	01-OCT-92
3	12	Graves Mellow	190 skie dr	Vancouver	B3R5T7	21-JAN-03
4	13	Moody Hiachi	15 kelio st	Waterloo	M2E5R6	13-AUG-88

6. You may have issued and returned many books in this month. Generate the report of total fine paid by every patron.
   alter table patrons
   add fine number;
   update patrons set fine = 100 where sysdate > last_modified + 1;
   select patron_id, last_name || ' ' || first_name AS Fullname, fine as finePaid from patrons;

SQL | All Rows Fetched: 4 in 0.01 seconds

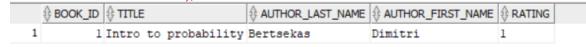|	PATRON_ID	FULLNAME	FINEPAID
1	10	Pecker Peter	100
2	11	Knowns Kerry	100
3	12	Graves Mellow	100
4	13	Moody Hiachi	100

7. List the fine paid by the eldest patron
   select patron_id || last_name || ' ' || first_name AS Fullname, (extract (year from sysdate) - extract (year from DOB)) as age , fine from patrons order by age desc;

SQL | All Rows Fetched: 4 in 0.013 se

	FULLNAME	AGE	FINE
1	13Moody Hiachi	35	100

8. List the books details of the book having the highest rating (max number of transactions)

   select b.*
   from books b
   join (select book_id, count(book_id) AS transaction_count
        from transactions
        group by book_id) t on b.book_id = t.book_id
   where t.transaction_count = (select max(transaction_count)
                    from (select count(book_id) AS transaction_count
                       from transactions
                       group by book_id)
                 );

	BOOK_ID	TITLE	AUTHOR_LAST_NAME	AUTHOR_FIRST_NAME	RATING
1	1	Intro to probability	Bertsekas	Dimitri	1

2. Create a view to print the number of books issued, returned or on hold in a one full year. Write a query to show results (4)

3. Write the following regular expressions[8 marks]
   a. List all the employees in the department that starts with A and ends with s and anything in between
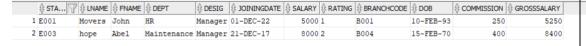   SELECT *
      FROM staff020
      WHERE dept LIKE 'A%s';

   b. List all the employees having the desig that starts with 'M' and finishes either at r or s ('Manager or Managers')
      SELECT *
      FROM staff020
      WHERE desig LIKE 'M%r' OR desig LIKE 'M%s';

	STA...	LNAME	FNAME	DEPT	DESIG	JOININGDATE	SALARY	RATING	BRANCHCODE	DOB	COMMISSION	GROSSSALARY
1	E001	Movers	John	HR	Manager	01-DEC-22	5000	1	B001	10-FEB-93	250	5250
2	E003	hope	Abel	Maintenance	Manager	21-DEC-17	8000	2	B004	15-FEB-70	400	8400

   c. List the names of the patrons in the state (province) BC (may use Zip) (V2)
      SELECT last_name || ' ' || first_name AS Fullname
      FROM patrons
      WHERE state = 'BC' OR zip LIKE 'V2%';
   d. List all the employees that may have any character coming twice consequently in their first names
      SELECT *
      FROM staff020
      WHERE REGEXP_LIKE(fname, '(.)\\1');