Kathmandu University

Department of Computer Science and Engineering

Dhulikhel, Kavrepalanchowk



A report on

"Lab Work 02"

Sub Code: COMP 232

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Submitted to:

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Submission Date: 2022/02/23

Lab2 Tasks

- 1. Install MySQL (Links to an external site.) or MariaDB (Links to an external site.) on your computer.
- 2. Install MySQL Workbench (Links to an external site.) or HeIDiSQL (Links to an external site.) (on Windows only) or DBeaver (Links to an external site.).
- 3. Create a schema.
- 4. Write a DDL script for creating the tables corresponding to your ER model of Lab 1
- 5. Populate the tables with some data.
- 6. Write queries in relational algebra and SQL for the following:
 - 1. Find the Name of all publishedBooks.
 - 2. Find the Name of allBooks published before 2000.
 - 3. Get the details of the Books written by a particular Author.
 - 4. Find the Name of all weekly publications.
 - 5. Find the Name of pre-orderedBooks.
 - 6. Get the details of all publications with the Name starting with an 'A'.
 - 7. Find all the Orders for a particular book. The result must be sorted based on the order Date.

Solution:

After creating Schema, writing DDL script for creating tables and populating tables with some data, written queries in relational algebra and SQL for the following:

1. Find the Name of all publishedBooks.

Relational Algebra:

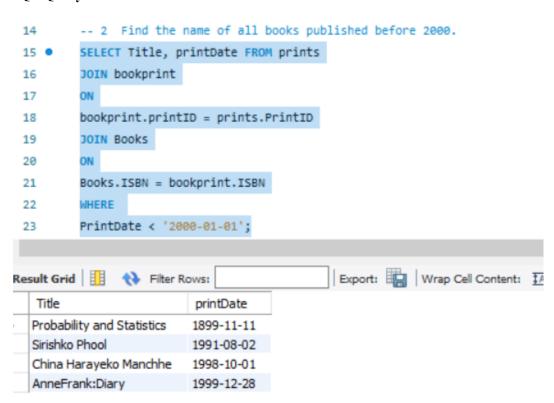
```
\boldsymbol{\pi}^{Title, printDate} \circ_{printDate} \circ_{printDate} \circ_{curDate()}
(prints \bowtie_{bookPrint, printID} =_{prints, printID} bookPrint \bowtie_{Books, ISBN = bookPrint, ISBN} Books)
```



2. Find the Name of allBooks published before 2000.

Relational Algebra:

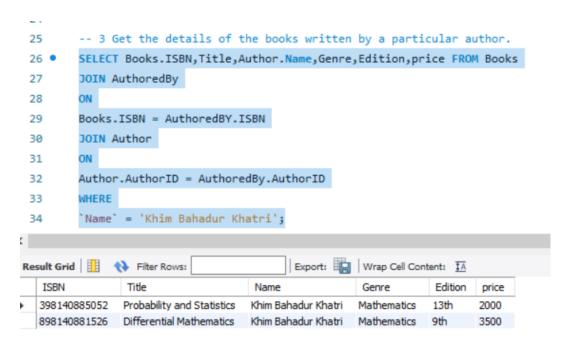
```
\boldsymbol{\pi}^{Title, printDate} \circ_{printDate} \circ_{printDate} \circ_{printDate} \circ_{printDate} \circ_{printSprintID} \circ_
```



3. Get the details of the Books written by a particular Author.

Relational Algebra:

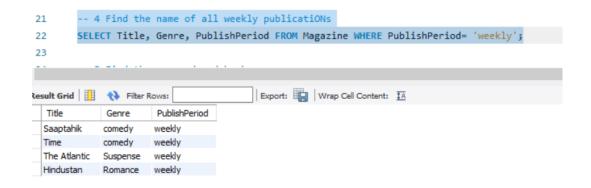
```
\pi_{Books.ISBN,\ Title,\ Author.name,\ Genre,\ Edition,\ Price}\ \sigma_{name\ =\ "Khim\ Bahadur\ Khatri"}\ (Books) \bowtie_{Books.ISBN\ =AuthoredBy.ISBN}\ AuthoredBy\bowtie_{Author.AuthorID\ =\ AuthoredBy.AuthorID}\ Author)
```



4. Find the Name of all weekly publications.

Relational Algebra:

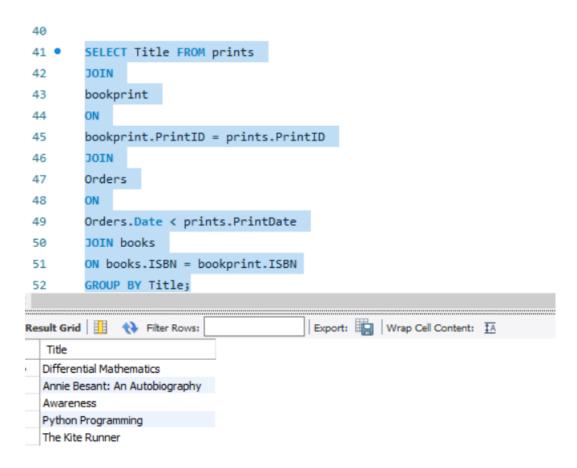
 $\pi_{\textit{Title, genre, publishPeriod}} \sigma_{\textit{publishPeriod}} = "weekly" \textit{magazine}$



5. Find the pre-orderedBooks.

Relational Algebra:

 γ_{Title} , (prints $\bowtie_{bookPrint.printID} = prints.printID$ bookPrint $\bowtie_{Orders.Date} < prints.printDate}$ Or ders $\bowtie_{Books.ISBN} = bookPrint.ISBN}$ Books)

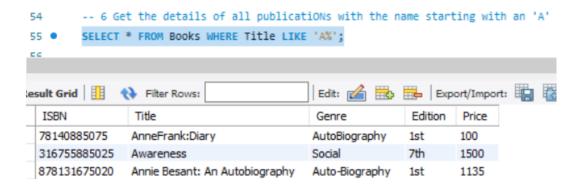


6. Get the details of all publications with the Name starting with an 'A'.

Relational Algebra:

 $\sigma_{\textit{Title LIKE "A\%"}}\textit{Books}$

SQL QUERY:



7. Find all the Orders for a particular book. The result must be based on the order Date.

Relational Algebra:

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\tau_{\textit{Orders.Date}} \tau_{\textit{Date, Title, Booksquantity}}(Orders \\ \bowtie_{\textit{Orders.orderNumber} = bookOrder.orderNumber} bookOrder} \bowtie_{\textit{Books.ISBN} = bookOrder.ISBN \ \textit{AND Books.T}} \\ \textit{itle} = "The \textit{Kite Runner}" \textit{Books})
```

