

NATIONAL INSTITUTE OF TECHNOLOGY SILCHAR

Cachar, Assam

B.Tech. Vth Sem

Subject Code: CS-312

Subject Name: Database Management System

Submitted By:

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Sch. Id. : 1912160

Branch : CSE – B

CONNECTION: 1912160_CS312

CREATE SCHEMA `assignment9`;

TABLES

authors

Author_ID	Author_Name	Country
1828091	Leo Tolstoy	Russia
1854101	Oscar Wilde	Ireland
1892011	J. R. R. Tolkien	UK
1947091	Stephen King	US
1948091	George R. R. Martin	US
1964061	Rick Riordan	US
1964062	Dan Brown	US
1965071	J. K. Rowling	UK
1974101	Amish Tripathi	India
1983111	Christopher Paolini	US
NULL	NULL	NULL

```
CREATE TABLE `assignment9`.`authors` (
```

```
    `Author_ID` INT NOT NULL,
```

```
    `Author_Name` VARCHAR(45) NOT NULL,
```

```
    `Country` VARCHAR(45) NOT NULL,
```

```
    PRIMARY KEY (`Author_ID`)
```

```
);
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1964061', 'Rick Riordan', 'US');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1983111', 'Christopher Paolini', 'US');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1964062', 'Dan Brown', 'US');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1892011', 'J. R. R. Tolkien', 'UK');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1965071', 'J. K. Rowling', 'UK');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1947091', 'Stephen King', 'US');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1974101', 'Amish Tripathi', 'India');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1854101', 'Oscar Wilde', 'Ireland');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1948091', 'George R. R. Martin', 'US');
```

```
INSERT INTO `assignment9`.`authors` (`Author_ID`, `Author_Name`, `Country`) VALUES ('1828091', 'Leo Tolstoy', 'Russia');
```

books

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia
1999071	Harry Potter and the Prisoner of Azkaban	1965071	Bloomsbury	1999-07-08	Fantasy
2013051	Inferno	1964062	Doubleday	2013-05-14	Mystery
* NULL	NULL	NULL	NULL	NULL	NULL

```
CREATE TABLE `assignment9`.`books` (
  `Book_ID` INT NOT NULL,
  `Book_Name` VARCHAR(45) NOT NULL,
  `Author_ID` INT NOT NULL,
  `Publication` VARCHAR(45) NULL,
  `Release_Date` DATE NULL,
  `Genre` VARCHAR(45) NULL,
  PRIMARY KEY (`Book_ID`)
);
```

```
INSERT INTO `assignment9`.`books` (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('1954071', 'The Lord of the Rings', '1892011', 'Allen & Unwin', '1954-07-29', 'Fantasy');
```

```
INSERT INTO `assignment9`.`books` (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('1937091', 'The Hobbit', '1892011', 'George Allen & Unwin Ltd. of London', '1937-09-21', 'Fantasy');
```

```
INSERT INTO `assignment9`.`books` (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('1977091', 'The Silmarillion', '1892011', 'Houghton Mifflin Company', '1977-09-15', 'Mythopoeia');
```

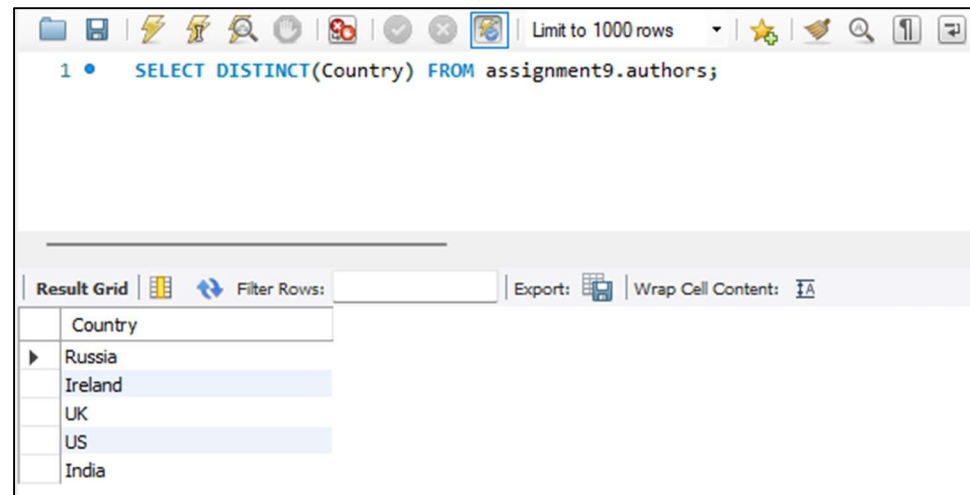
```
INSERT INTO `assignment9`.`books` (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('1999071', 'Harry Potter and the Prisoner of Azkaban', '1965071', 'Bloomsbury', '1999-07-08', 'Fantasy');
```

```
INSERT INTO `assignment9`.`books` (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('2013051', 'Inferno', '1964062', 'Doubleday', '2013-05-14', 'Mystery');
```

1. Create tables on your own and write the queries to execute all the concepts listed below (you can also combine the queries for some concepts listed below and write it in one queries):

- i. **Select Distinct**

→ `SELECT DISTINCT(Country) FROM assignment9.authors;`

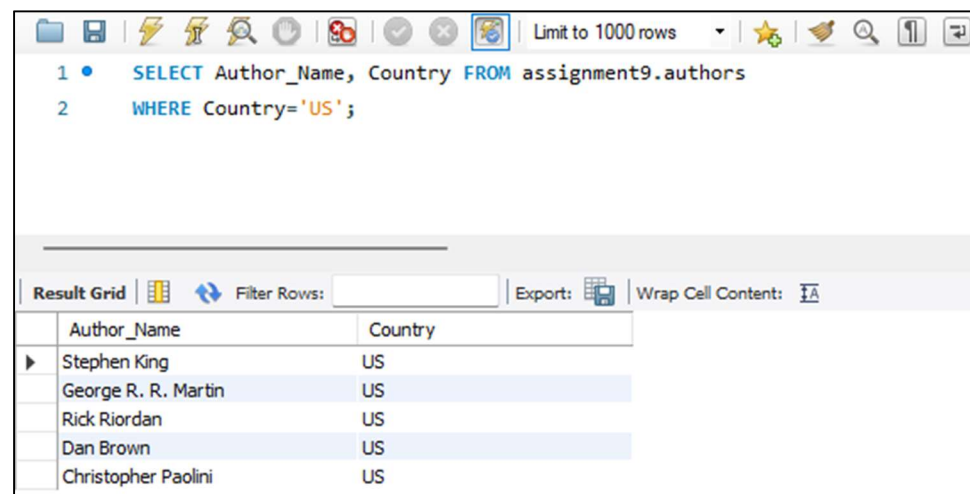


The screenshot shows a SQL query editor with the query `SELECT DISTINCT(Country) FROM assignment9.authors;` entered. Below the query, the results are displayed in a table with the following data:

Country
Russia
Ireland
UK
US
India

- ii. **Where**

→ `SELECT Author_Name, Country FROM assignment9.authors
WHERE Country='US';`

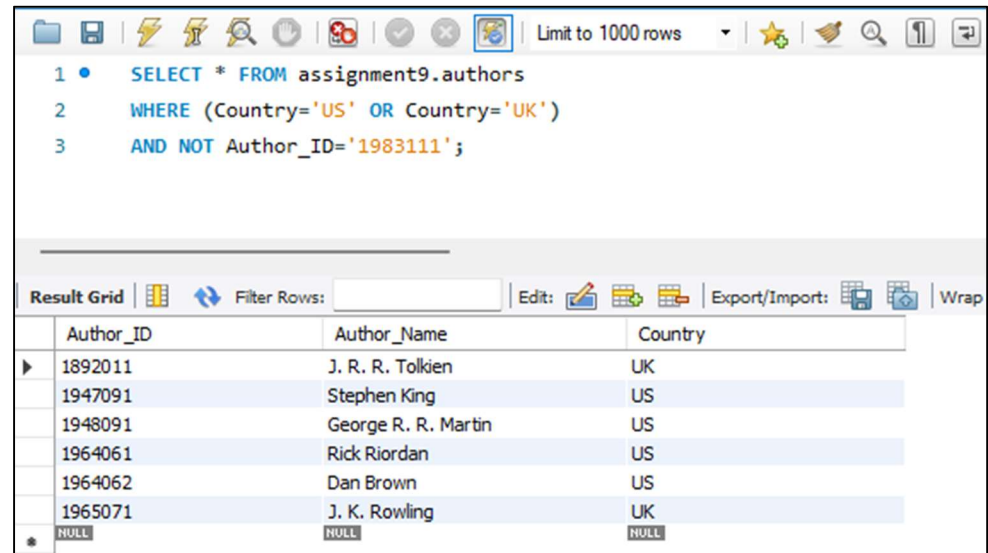


The screenshot shows a SQL query editor with the query `SELECT Author_Name, Country FROM assignment9.authors WHERE Country='US';` entered. Below the query, the results are displayed in a table with the following data:

Author_Name	Country
Stephen King	US
George R. R. Martin	US
Rick Riordan	US
Dan Brown	US
Christopher Paolini	US

iii. AND, OR and NOT

➔ `SELECT * FROM assignment9.authors`
`WHERE (Country='US' OR Country='UK')`
`AND NOT Author_ID='1983111';`



Limit to 1000 rows

```

1 • SELECT * FROM assignment9.authors
2   WHERE (Country='US' OR Country='UK')
3   AND NOT Author_ID='1983111';

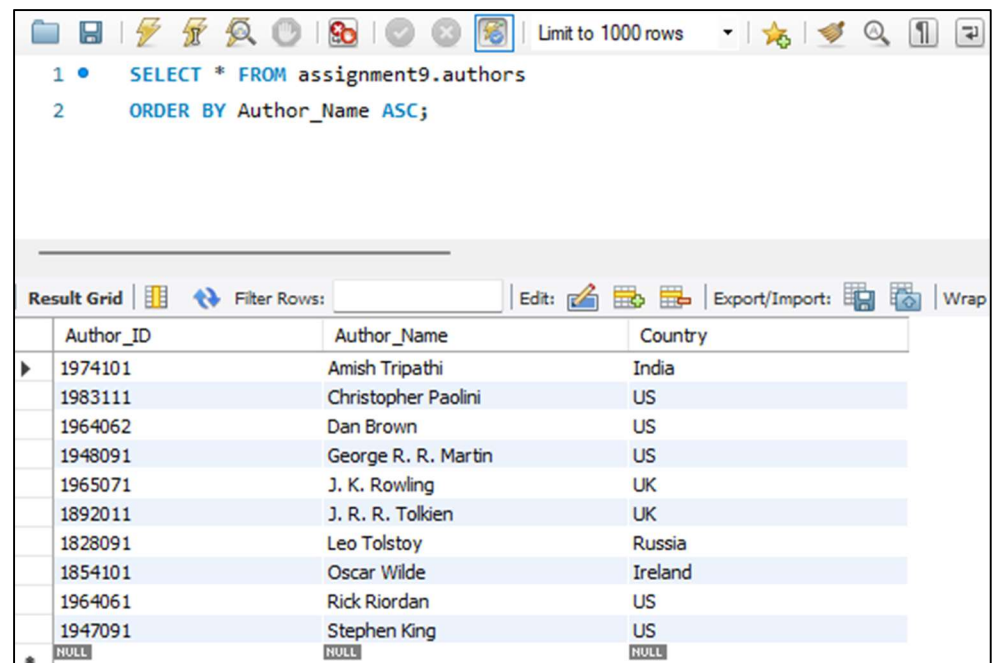
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

Author_ID	Author_Name	Country
1892011	J. R. R. Tolkien	UK
1947091	Stephen King	US
1948091	George R. R. Martin	US
1964061	Rick Riordan	US
1964062	Dan Brown	US
1965071	J. K. Rowling	UK
NULL	NULL	NULL

iv. ORDER by

➔ `SELECT * FROM assignment9.authors`
`ORDER BY Author_Name ASC;`



Limit to 1000 rows

```

1 • SELECT * FROM assignment9.authors
2   ORDER BY Author_Name ASC;

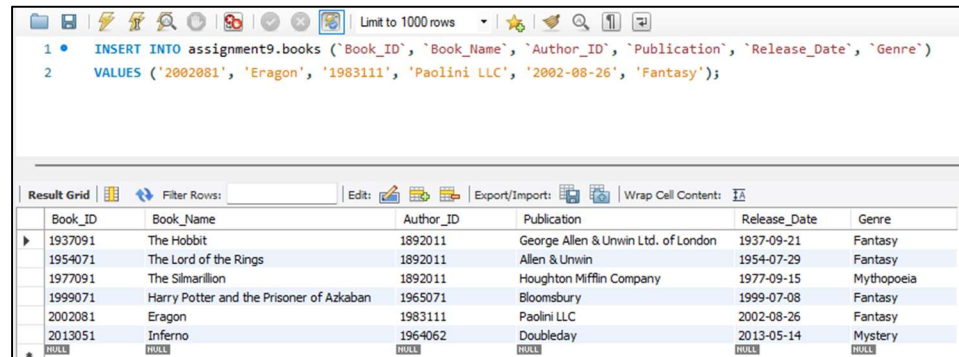
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

Author_ID	Author_Name	Country
1974101	Amish Tripathi	India
1983111	Christopher Paolini	US
1964062	Dan Brown	US
1948091	George R. R. Martin	US
1965071	J. K. Rowling	UK
1892011	J. R. R. Tolkien	UK
1828091	Leo Tolstoy	Russia
1854101	Oscar Wilde	Ireland
1964061	Rick Riordan	US
1947091	Stephen King	US
NULL	NULL	NULL

v. Insert Into

➔ INSERT INTO assignment9.books (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`) VALUES ('2002081', 'Eragon', '1983111', 'Paolini LLC', '2002-08-26', 'Fantasy');



The screenshot shows a database client interface. The SQL editor contains the following statement:

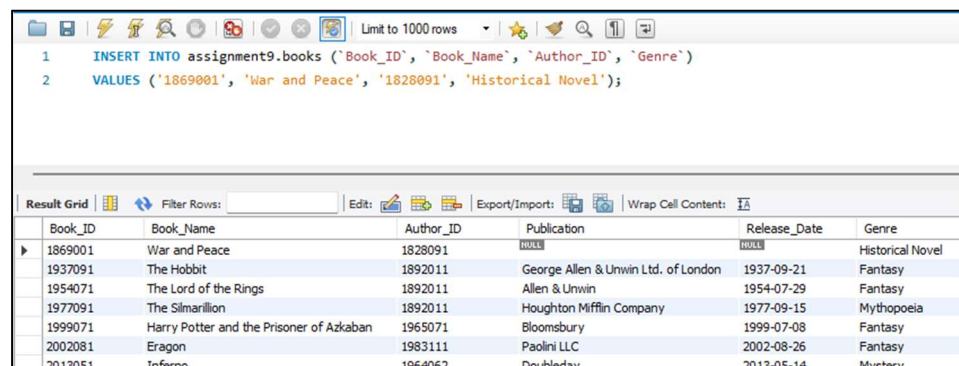
```
1 INSERT INTO assignment9.books (`Book_ID`, `Book_Name`, `Author_ID`, `Publication`, `Release_Date`, `Genre`)
2 VALUES ('2002081', 'Eragon', '1983111', 'Paolini LLC', '2002-08-26', 'Fantasy');
```

The Result Grid below shows the data after the insert operation:

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia
1999071	Harry Potter and the Prisoner of Azkaban	1965071	Bloomsbury	1999-07-08	Fantasy
2002081	Eragon	1983111	Paolini LLC	2002-08-26	Fantasy
2013051	Inferno	1964062	Doubleday	2013-05-14	Mystery
NULL	NULL	NULL	NULL	NULL	NULL

vi. NULL value

➔ INSERT INTO assignment9.books (`Book_ID`, `Book_Name`, `Author_ID`, `Genre`) VALUES ('1869001', 'War and Peace', '1828091', 'Historical Novel');



The screenshot shows a database client interface. The SQL editor contains the following statement:

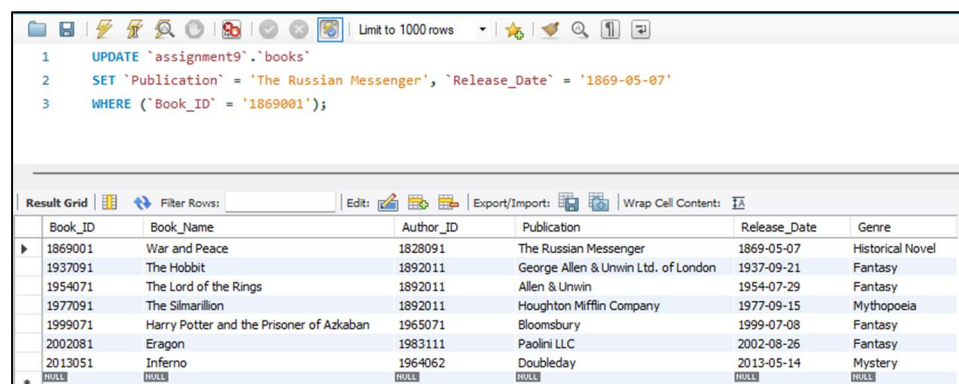
```
1 INSERT INTO assignment9.books (`Book_ID`, `Book_Name`, `Author_ID`, `Genre`)
2 VALUES ('1869001', 'War and Peace', '1828091', 'Historical Novel');
```

The Result Grid below shows the data after the insert operation:

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1869001	War and Peace	1828091	NULL	NULL	Historical Novel
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia
1999071	Harry Potter and the Prisoner of Azkaban	1965071	Bloomsbury	1999-07-08	Fantasy
2002081	Eragon	1983111	Paolini LLC	2002-08-26	Fantasy
2013051	Inferno	1964062	Doubleday	2013-05-14	Mystery

vii. Update

➔ UPDATE `assignment9`.`books`
SET `Publication` = 'The Russian Messenger', `Release_Date` = '1869-05-07'
WHERE (`Book_ID` = '1869001');



The screenshot shows a database client interface. The SQL editor contains the following statement:

```
1 UPDATE `assignment9`.`books`
2 SET `Publication` = 'The Russian Messenger', `Release_Date` = '1869-05-07'
3 WHERE (`Book_ID` = '1869001');
```

The Result Grid below shows the data after the update operation:

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1869001	War and Peace	1828091	The Russian Messenger	1869-05-07	Historical Novel
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia
1999071	Harry Potter and the Prisoner of Azkaban	1965071	Bloomsbury	1999-07-08	Fantasy
2002081	Eragon	1983111	Paolini LLC	2002-08-26	Fantasy
2013051	Inferno	1964062	Doubleday	2013-05-14	Mystery
NULL	NULL	NULL	NULL	NULL	NULL

viii. Delete

➔ DELETE FROM `assignment9`.`books` WHERE (`Book_ID` = '1869001');

The screenshot shows a database query editor with the following SQL statement:

```
1 • DELETE FROM `assignment9`.`books` WHERE (`Book_ID` = '1869001');
```

The result grid below shows the following data:

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia
1999071	Harry Potter and the Prisoner of Azkaban	1965071	Bloomsbury	1999-07-08	Fantasy
2002081	Eragon	1983111	Paolini LLC	2002-08-26	Fantasy
2013051	Inferno	1964062	Doubleday	2013-05-14	Mystery

ix. Select TOP

➔ SELECT * FROM assignment9.books
ORDER BY BOOK_ID ASC LIMIT 3;

The screenshot shows a database query editor with the following SQL statement:

```
1 • SELECT * FROM assignment9.books
2 ORDER BY BOOK_ID ASC LIMIT 3;
```

The result grid below shows the following data:

Book_ID	Book_Name	Author_ID	Publication	Release_Date	Genre
1937091	The Hobbit	1892011	George Allen & Unwin Ltd. of London	1937-09-21	Fantasy
1954071	The Lord of the Rings	1892011	Allen & Unwin	1954-07-29	Fantasy
1977091	The Silmarillion	1892011	Houghton Mifflin Company	1977-09-15	Mythopoeia

x. MIN and MAX

➔ SELECT MIN(Release_Date) AS 'OLDEST RELEASE',
MAX(Release_Date) AS 'LATEST RELEASE'
FROM assignment9.books;

The screenshot shows a database query editor with the following SQL statement:

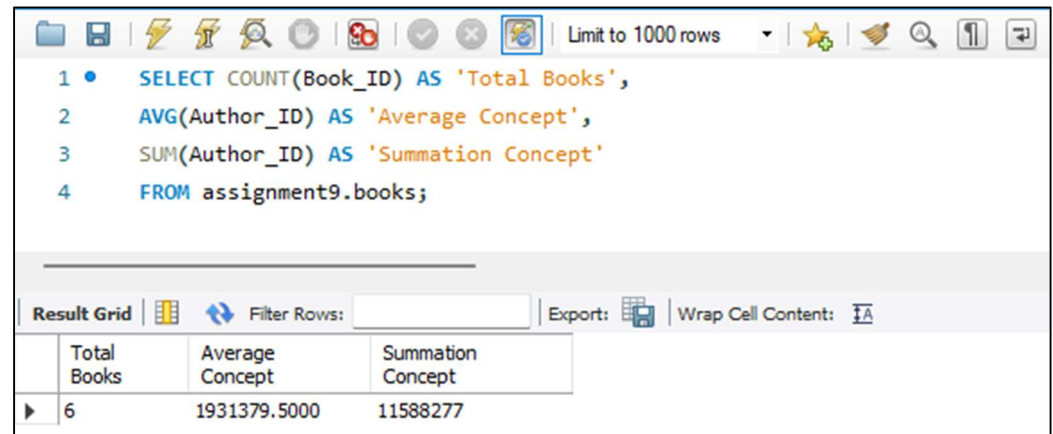
```
1 • SELECT MIN(Release_Date) AS 'OLDEST RELEASE',
2 MAX(Release_Date) AS 'LATEST RELEASE'
3 FROM assignment9.books;
```

The result grid below shows the following data:

OLDEST RELEASE	LATEST RELEASE
1937-09-21	2013-05-14

xi. COUNT, AVG and SUM

→ `SELECT COUNT(Book_ID) AS 'Total Books',
AVG(Author_ID) AS 'Average Concept',
SUM(Author_ID) AS 'Summation Concept'
FROM assignment9.books;`



Limit to 1000 rows

```

1 • SELECT COUNT(Book_ID) AS 'Total Books',
2   AVG(Author_ID) AS 'Average Concept',
3   SUM(Author_ID) AS 'Summation Concept'
4   FROM assignment9.books;


```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: [IA](#)

	Total Books	Average Concept	Summation Concept
▶	6	1931379.5000	11588277

xii. LIKE

→ `SELECT * FROM assignment9.authors
WHERE Author_Name LIKE '%n';`



Limit to 1000 rows

```

1 • SELECT * FROM assignment9.authors
2   WHERE Author_Name LIKE '%n';

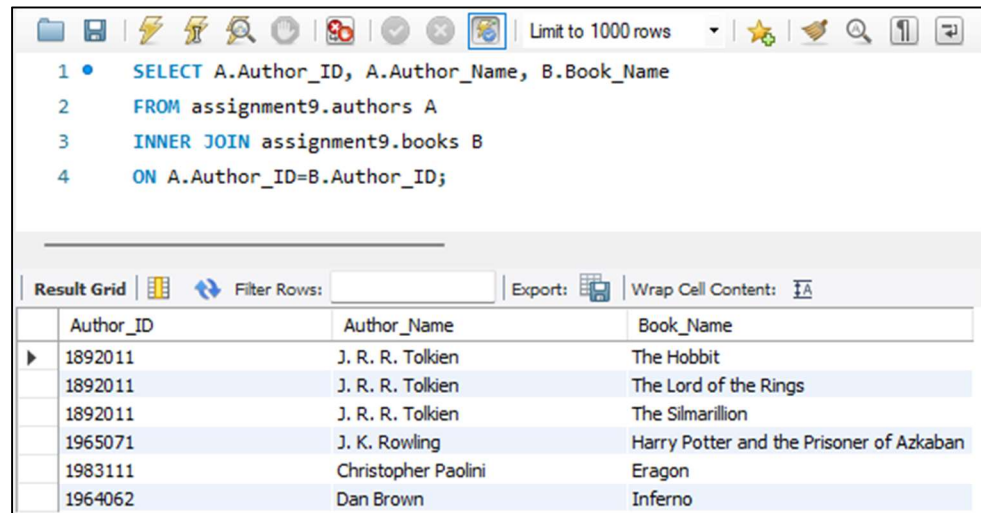
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

	Author_ID	Author_Name	Country
▶	1892011	J. R. R. Tolkien	UK
	1948091	George R. R. Martin	US
	1964061	Rick Riordan	US
	1964062	Dan Brown	US
*	NULL	NULL	NULL

xiii. INNER JOIN

→ SELECT A.Author_ID, A.Author_Name, B.Book_Name
 FROM assignment9.authors A
 INNER JOIN assignment9.books B
 ON A.Author_ID=B.Author_ID;



The screenshot shows a database query editor with the following SQL query:

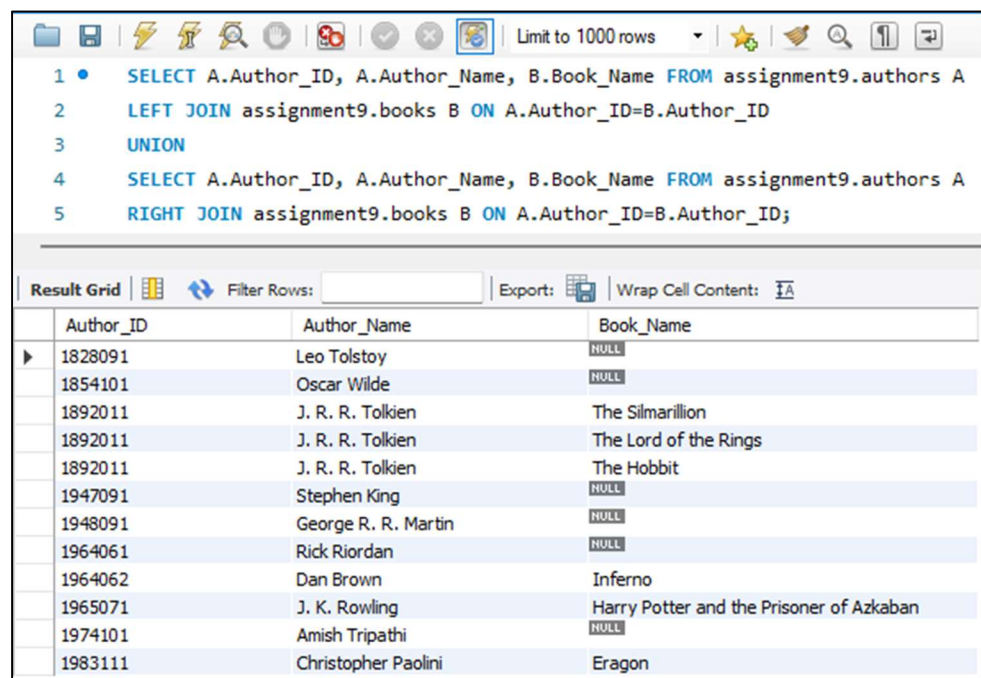
```
1 • SELECT A.Author_ID, A.Author_Name, B.Book_Name
2 FROM assignment9.authors A
3 INNER JOIN assignment9.books B
4 ON A.Author_ID=B.Author_ID;
```

Below the query, the 'Result Grid' shows the following data:

Author_ID	Author_Name	Book_Name
1892011	J. R. R. Tolkien	The Hobbit
1892011	J. R. R. Tolkien	The Lord of the Rings
1892011	J. R. R. Tolkien	The Silmarillion
1965071	J. K. Rowling	Harry Potter and the Prisoner of Azkaban
1983111	Christopher Paolini	Eragon
1964062	Dan Brown	Inferno

xiv. UNION

→ SELECT A.Author_ID, A.Author_Name, B.Book_Name
 FROM assignment9.authors A
 LEFT JOIN assignment9.books B ON A.Author_ID=B.Author_ID
 UNION
 SELECT A.Author_ID, A.Author_Name, B.Book_Name
 FROM assignment9.authors A
 RIGHT JOIN assignment9.books B ON A.Author_ID=B.Author_ID;



The screenshot shows a database query editor with the following SQL query:

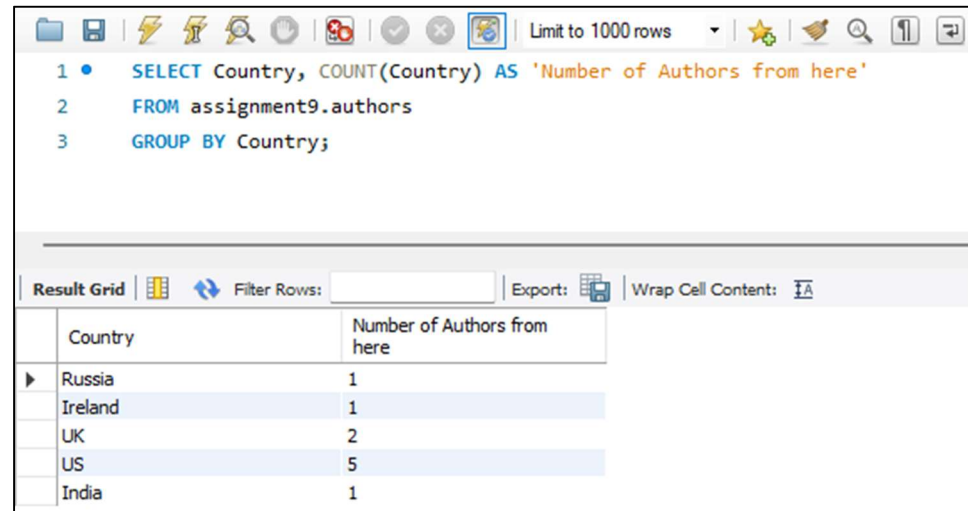
```
1 • SELECT A.Author_ID, A.Author_Name, B.Book_Name FROM assignment9.authors A
2 LEFT JOIN assignment9.books B ON A.Author_ID=B.Author_ID
3 UNION
4 SELECT A.Author_ID, A.Author_Name, B.Book_Name FROM assignment9.authors A
5 RIGHT JOIN assignment9.books B ON A.Author_ID=B.Author_ID;
```

Below the query, the 'Result Grid' shows the following data:

Author_ID	Author_Name	Book_Name
1828091	Leo Tolstoy	NULL
1854101	Oscar Wilde	NULL
1892011	J. R. R. Tolkien	The Silmarillion
1892011	J. R. R. Tolkien	The Lord of the Rings
1892011	J. R. R. Tolkien	The Hobbit
1947091	Stephen King	NULL
1948091	George R. R. Martin	NULL
1964061	Rick Riordan	NULL
1964062	Dan Brown	Inferno
1965071	J. K. Rowling	Harry Potter and the Prisoner of Azkaban
1974101	Amish Tripathi	NULL
1983111	Christopher Paolini	Eragon

xv. GROUP BY

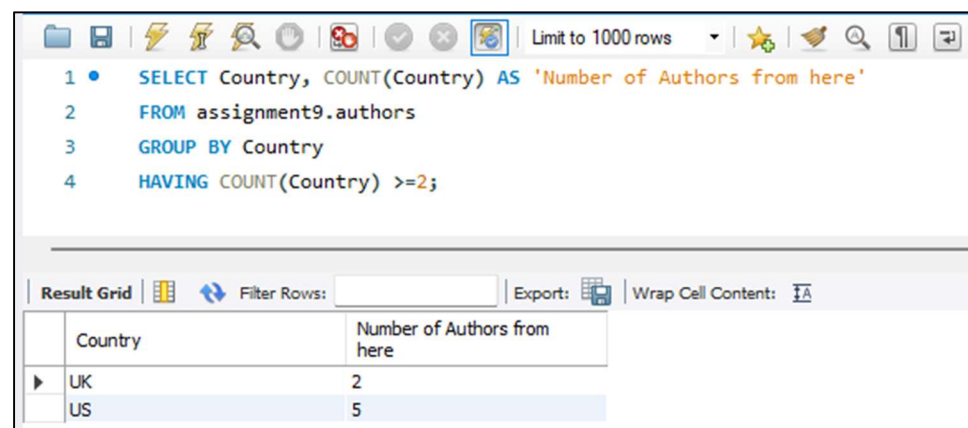
➔ SELECT Country, COUNT(Country) AS 'Number of Authors from here'
 FROM assignment9.authors
 GROUP BY Country;



Country	Number of Authors from here
Russia	1
Ireland	1
UK	2
US	5
India	1

xvi. HAVING

➔ SELECT Country, COUNT(Country) AS 'Number of Authors from here'
 FROM assignment9.authors
 GROUP BY Country
 HAVING COUNT(Country) >=2;



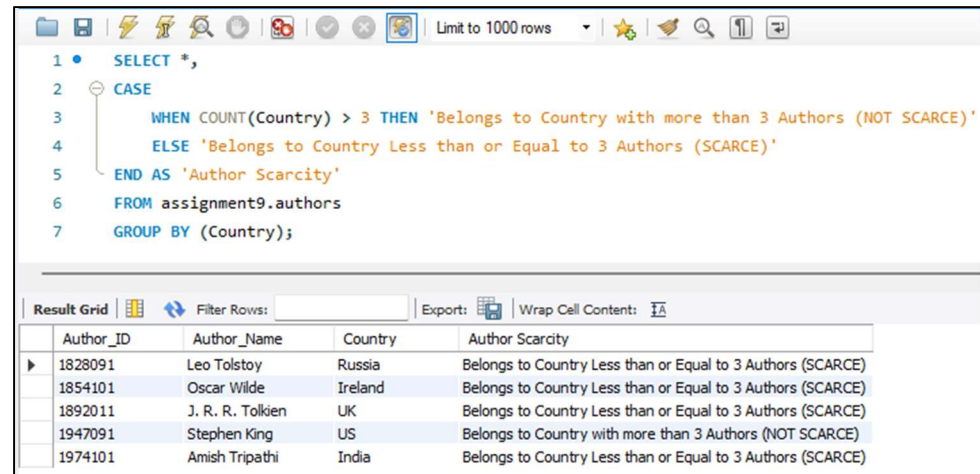
Country	Number of Authors from here
UK	2
US	5

xvii. CASE

```

➔ SELECT *,
CASE
    WHEN COUNT(Country) > 3 THEN 'Belongs to Country with more than 3 Authors (NOT SCARCE)'
    ELSE 'Belongs to Country Less than or Equal to 3 Authors (SCARCE)'
END AS 'Author Scarcity'
FROM assignment9.authors
GROUP BY (Country);

```



Author_ID	Author_Name	Country	Author Scarcity
1828091	Leo Tolstoy	Russia	Belongs to Country Less than or Equal to 3 Authors (SCARCE)
1854101	Oscar Wilde	Ireland	Belongs to Country Less than or Equal to 3 Authors (SCARCE)
1892011	J. R. R. Tolkien	UK	Belongs to Country Less than or Equal to 3 Authors (SCARCE)
1947091	Stephen King	US	Belongs to Country with more than 3 Authors (NOT SCARCE)
1974101	Amish Tripathi	India	Belongs to Country Less than or Equal to 3 Authors (SCARCE)

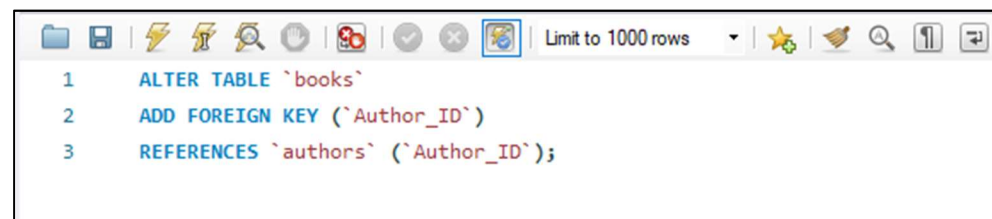
xviii. PRIMARY KEY AND FOREIGN KEY (Combined with ALTER on xix)**xix. ALTER table (combined with FOREIGN KEY on xviii)**

```

➔ ALTER TABLE `books` ADD FOREIGN KEY (`Author_ID`) REFERENCES `authors`
(`Author_ID`);

```

ACTION: 6 row(s) affected Records: 6 Duplicates: 0 Warnings: 0



```

1 ALTER TABLE `books`
2 ADD FOREIGN KEY (`Author_ID`)
3 REFERENCES `authors` (`Author_ID`);

```

xx. DROP Table

```

➔ DROP Table `books`;

```

xxi. BETWEEN

➔ `SELECT * FROM assignment9.authors`
`WHERE Author_ID BETWEEN 1900000 AND 1950000;`

Limit to 1000 rows

```

1 • SELECT * FROM assignment9.authors
2   WHERE Author_ID BETWEEN 1900000 AND 1950000;

```

Result Grid

Author_ID	Author_Name	Country
1947091	Stephen King	US
1948091	George R. R. Martin	US
NULL	NULL	NULL

xxii. ALIASES

➔ `SELECT Author_ID AS 'Identity Number',`
`Author_Name AS 'Name of the Author',`
`Country AS 'Author was Born In'`
`FROM authors;`

Limit to 1000 rows

```

1 • SELECT Author_ID AS 'Identity Number',
2   Author_Name AS 'Name of the Author',
3   Country AS 'Author was Born In'
4   FROM authors;

```

Result Grid

Identity Number	Name of the Author	Author was Born In
1828091	Leo Tolstoy	Russia
1854101	Oscar Wilde	Ireland
1892011	J. R. R. Tolkien	UK
1947091	Stephen King	US
1948091	George R. R. Martin	US
1964061	Rick Riordan	US
1964062	Dan Brown	US
1965071	J. K. Rowling	UK
1974101	Amish Tripathi	India
1983111	Christopher Paolini	US