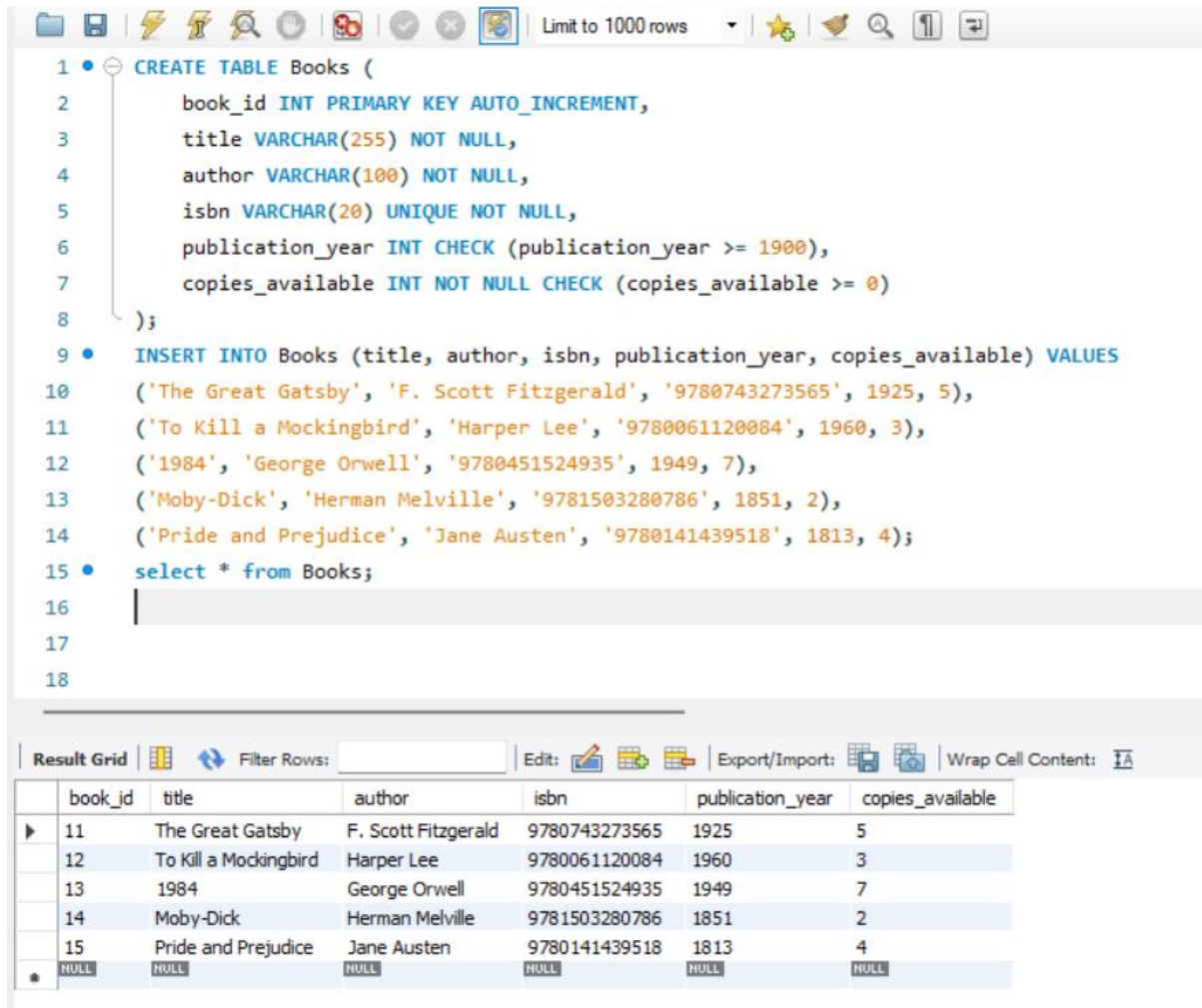


Assignment 5: Demonstrate the creation of an index on a table and discuss how it improves query performance. Use a DROP INDEX statement to remove the index and analyze the impact on query execution.

Step 1: Create a Sample Table (Books) & Insert Sample Data.



The screenshot displays a database management interface. The top section shows SQL code for creating a table and inserting data. The bottom section shows a result grid with 6 columns: book_id, title, author, isbn, publication_year, and copies_available. The data is as follows:

	book_id	title	author	isbn	publication_year	copies_available
11	11	The Great Gatsby	F. Scott Fitzgerald	9780743273565	1925	5
12	12	To Kill a Mockingbird	Harper Lee	9780061120084	1960	3
13	13	1984	George Orwell	9780451524935	1949	7
14	14	Moby-Dick	Herman Melville	9781503280786	1851	2
15	15	Pride and Prejudice	Jane Austen	9780141439518	1813	4
*	NULL	NULL	NULL	NULL	NULL	NULL

Step 2 : Create an Index on isbn & Compare Query Performance with and Without Index.

Limit to 1000 rows

```

15 • select * from Books;
16 • CREATE INDEX idx_isbn ON Books (isbn);
17 • EXPLAIN SELECT * FROM Books WHERE isbn = '9780061120084';
18
19
20
21
22
23
24
25
26
27
28
29
30

```

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

	id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
▶	1	SIMPLE	Books	NULL	const	isbn,idx_isbn	isbn	82	const	1	100.00	NULL

Limit to 1000 rows

```

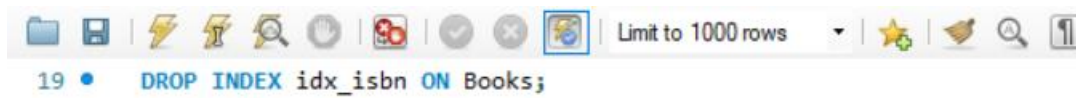
16 • CREATE INDEX idx_isbn ON Books (isbn);
17 • EXPLAIN SELECT * FROM Books WHERE isbn = '9780061120084';
18 • EXPLAIN SELECT * FROM Books WHERE isbn = '9780061120084';
19
20
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22
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```

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

	id	select_type	table	partitions	type	possible_keys	key	key_len	ref	rows	filtered	Extra
▶	1	SIMPLE	Books	NULL	const	isbn,idx_isbn	isbn	82	const	1	100.00	NULL

Step 3 : Drop the Index and Analyze the Impact.



Impact of Dropping the Index:

- Query performance slows down as the database reverts to full table scans.
- Index removal frees up storage space but at the cost of efficiency.