Laboratory Work #7

Please write SQL queries for the following tasks and save them as lab7.sql file.

Download and run the lab7.sql file using Query Tool (make sure the tables are created correctly).

1. Create a simple B-tree index for queries like:

SELECT * FROM employees WHERE last_name = 'string';

2. Create a composite (multicolumn) index for queries like:

SELECT * FROM employees WHERE department = 'string' AND salary > value;

3. Create a unique index for queries like:

SELECT * FROM employees WHERE email = 'string';

4. Create a functional index for queries like:

SELECT * FROM employees WHERE LOWER(email) = 'string';

5. Create a hash index for queries like:

SELECT * FROM employees WHERE department = 'string';

6. Create a BRIN index for queries like:

SELECT * FROM employees WHERE salary BETWEEN value1 AND value2;

7. Create a partial index for queries like:

SELECT * FROM employees WHERE salary > 1000;

8. Create a GiST index for range queries like:

SELECT * FROM rooms WHERE area && numrange(value1, value2);

9. Create a GIN index for full-text search queries like:

SELECT * FROM products WHERE to_tsvector('english', description) @@ to_tsquery('keyword');

10. Create indexes to optimize a join query like:

```
SELECT o.order_id, p.product_name, oi.quantity
FROM orders o
JOIN order_items oi ON o.order_id = oi.order_id
JOIN products p ON oi.product_id = p.product_id
WHERE o.order_total > value1 AND oi. quantity < value2;
```