Task 1 (Mark 15):

Build a blog system with two user types: normal users and authors. Authors can CRUD blogs, while users can view a list of blogs, search for them, and bookmark them. Each blog contains a category, title, banner, details, and total views. Users have a unique username, password, and user type (author, admin, normal user). Several criteria must be met:

1. Utilize database indexing efficiently.
2. Implement full-text search in the search functionality, handling wrong search keywords and ordering/ranking results properly (e.g., 'toor' should display results for 'tour').
3. Implement caching to handle modifications and additions to blogs in real-time, with a RAM limit of 1GB.
4. Add Silk for profiling queries and API response time.
5. Use any frontend framework (e.g., Vue3, React).
6. Compress banner images to reduce file size due to limited storage.
7. Create an admin panel using Django templates with two pages: a dashboard showing a pie chart of the percentage of blogs in each category, and a blog list page with pagination, category filters, and author search.
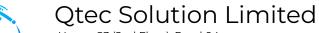8. Consider handling 2000 concurrent users.

Note: Focus on functionality rather than design.

Make application Dockerized: 5 marks
Deploy application without Docker: 5 marks
Deploy with Docker: 15 marks

Total: 30 marks

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Task 2 (Mark 10):

Write a Raw SQL query to find the blog ID and the length of the longest consecutive sequence of comments on any blog.

Table: blogs
```
+--------+-------+
| blog_id | views |
+--------+-------+
|  101  |  10  |
|  102  |  5   |
|  103  |  20  |
|  104  |  30  |
|  105  |  15  |
|  106  |  8   |
+--------+-------+
```

Table: comments
```
+-----------+--------+-------------------+
| comment_id | blog_id |    timestamp     |
+-----------+--------+-------------------+
|   1   |  101  | 2024-02-01 10:00:00 |
|   2   |  101  | 2024-02-01 10:05:00 |
|   3   |  102  | 2024-02-02 09:00:00 |
|   4   |  102  | 2024-02-02 09:10:00 |
|   5   |  102  | 2024-02-02 09:20:00 |
|   6   |  104  | 2024-02-02 12:00:00 |
|   7   |  104  | 2024-02-02 12:05:00 |
|   8   |  104  | 2024-02-02 12:10:00 |
+-----------+--------+-------------------+
```

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Output:

```
+---------+------------------+
| blog_id | longest_sequence |
+---------+------------------+
|  104    |      3           |
+---------+------------------+
```