Part 1: SQL Challenge

1. Who are the first 10 authors ordered by date_of_birth?

```
Unset
select * from authors order by date_of_birth desc limit 10
```

2. What is the sales total for the author named “Lorelai Gilmore”?

```
Unset
select sum(si.item_price * si.quantity) AS total_sales
FROM sale_items si
JOIN books b ON si.book_id = b.id
JOIN authors a ON b.author_id = a.id
WHERE a.name = 'Lorelai Gilmore';
```

3. What are the top 10 performing authors, ranked by sales revenue?

```
Unset
SELECT a.name, SUM(si.item_price * si.quantity) AS total_sales
FROM sale_items si
JOIN books b ON si.book_id = b.id
JOIN authors a ON b.author_id = a.id
GROUP BY a.name
ORDER BY total_sales DESC
LIMIT 10;
```

Part 2B: API Performance

Here are some enhancements I implemented to boost the API performance of the application:

1. Employing connection pooling, which efficiently manages database connections.

2. Utilizing asynchronous execution methods, such as async/await, to fetch data from the database, enhancing responsiveness.
3. Optimizing database queries to improve efficiency and reduce response times.

For future improvements, consider implementing:

1. Load balancing to evenly distribute incoming traffic across multiple server instances, ensuring scalability and resilience.
2. Horizontal scaling by replicating data across additional databases, enhancing performance and fault tolerance as traffic grows.

Part 3: Build & Deploy Webpage

To execute the code on your local machine, follow these steps:

1. Clone the project from https://github.com/nisha-sjsu/Krikey.git
2. To initiate the backend server, navigate to the 'be' directory and execute the following commands:

```
Unset
npm install
nodemon app.js
```

You will be able to send API calls to the backend at http://localhost:8000/
The database is hosted using Render PostgreSQL so you can try the below requests using Postman

Gets top 10 best-selling authors

http://localhost:8000/top-authors

If the query param of author_name is provided to the above URL it fetches the sales records of specified author_name

http://localhost:8000/top-authors?author_name=Jennifer Brown

3. To start the frontend, navigate to the 'fe' directory and execute the following commands:

```
Unset
npm install
npm start
```

You will be able to access the frontend at http://localhost:3000/
The frontend uses a hosted backend service https://krikey-x565.onrender.com

Steps on how I deployed the webpage:

1. I used Render for hosting my webpage. Begin by setting up a Render Account for free.
2. Opt for hosting a static site.
3. Link to your repository containing the code for deployment. Provide the required build command and environment variables.
4. Click on "Create static site" to proceed.

PLEASE NOTE!

The backend service goes to sleep if there is no activity so I recommend hitting the https://krikey-x565.onrender.com/top-authors endpoint to activate it and then checking the webpage.

Link to my deployed page - https://krikey-fe.onrender.com