

Specification:

Using React, Redux, a state-less GraphQL server, and a MySQL database, we need a simple email client which can:

- lists emails
- filter emails by status: READ, UNREAD, or ALL.
- allows you to select emails by checkbox
- and allows you mark all checked emails as READ
- The list has pagination. Each page can only display 5 emails, but there are in the database.
- Click an email which will open the email in a modal. This is not a route transition. The modal opens on top of the list, so the email list is still visible in the background, but it's covered by a semi-transparent black screen.

The mockup shows a web interface for an email client. At the top left, there is a 'Filter:' label followed by a dropdown menu currently set to 'ALL'. The dropdown menu is open, showing three options: 'ALL', 'UNREAD', and 'READ'. To the right of the filter is a green button labeled 'Mark as READ'. Below these elements is a list of five email items, each consisting of a checkbox and a text label: 'Email Subject 6', 'Email Subject 7', 'Email Subject 8', 'Email Subject 9', and 'Email Subject 10'. At the bottom of the interface is a pagination control showing '< Prev - Next >'.

You don't have to implement the whole thing, but please show:

1. Folder structure of your project. We would like to know how you separate code into different files. Only include files and folders which are necessary.
2. Show the GraphQL SDL schema needed.
3. Show the GraphQL queries and mutations you would use.
4. Show the resolver used for returning the client's emails. Also include any code for any functions called by the resolver.

5. Explain how you would authenticate the user and thus prevent one user from seeing emails that belong to a different user or prevent one user from mutating another user's emails. Remember, the server is state-less.
6. What do you like about GraphQL compared to REST? What kinds of unique problems do you run into when you use GraphQL?
7. What do you like about styled-components compared to SASS or inline-styles? What kinds of unique problems do you run into when you use styled-components.

You do not have to implement any code, but please show:

8. Folder structure of your react app. We would like to know how you separate code into different files.
9. The API endpoint needed and what HTTP method it is, i.e. GET or POST. If you are using GraphQL instead of REST, then instead of endpoints, show the graphql queries you would use.
10. Please explain briefly how your REST functions or GraphQL resolvers would return only the caller's emails out of everyone's emails.
11. Please explain how the data changes (if at all), and where it's stored as it flows from the database, to the server, to the frontend, and then when the user wants to mark the email as READ, describe how the data changes (if at all) in the frontend, the server, and the database.
12. Explain how you would authenticate the user and thus prevent one user from seeing emails that belong to a different user. Remember, the server is state-less.
13. Similar to #3, explain how you would authenticate a user when the user requests for some emails to change their status to READ? In other words, how would you prevent a user from setting other user's emails to READ?