

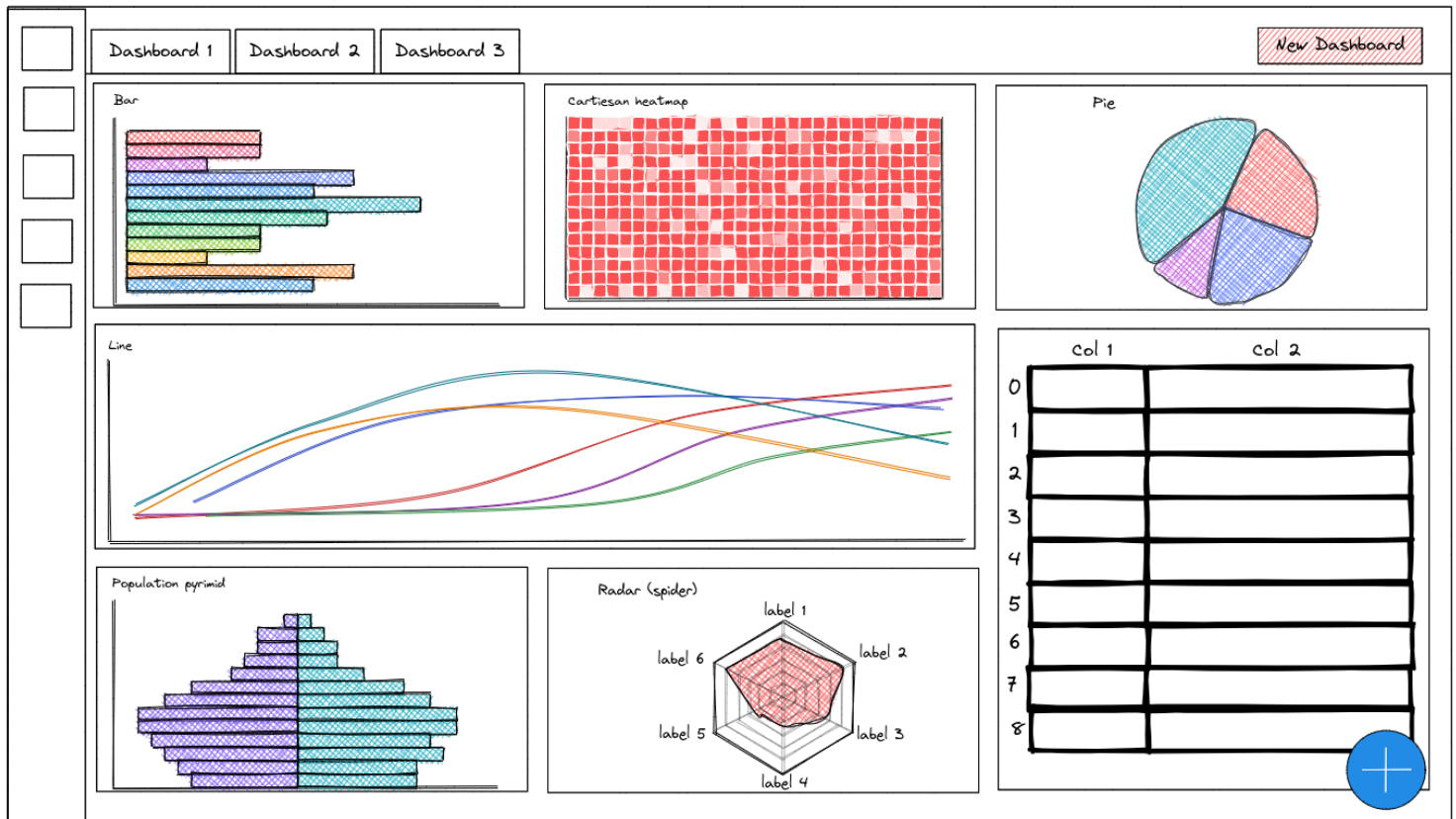
## Problem Description

Dynamic Dashboard is a feature that allows users to create interactive and customizable dashboards with real-time data. With this feature, users can select and configure various widgets such as charts, tables, and graphs, and customise the layout and design of the dashboard to suit their needs. The data on the dashboard can be refreshed automatically, providing users with up-to-date information.

Task: Develop a RESTful backend API that will be used by a frontend application to manage dashboards and widgets. The backend should allow users to create, read, update, and delete dashboards, as well as add, update, and delete widgets on the dashboards. The backend should also allow users to share dashboards with other users.

The layout and content of each widget on the dashboard should be driven from the backend. User will be able to change the position of each widget (using JSON schema)

Below is an example of a dashboard that the user can configure.



### Requirements:

1. Create an Architecture diagram based on above requirement
2. Come up with a structure for how you would store the layout of the widgets, what type of widget etc.
3. Which backend programming language and framework would you use and explain the choice.
4. Which database will you be using SQL or No-SQL explain the choice.
5. Give an appropriate database schema design to efficiently store and retrieve this data.
6. Implement CRUD (Create, Read, Update, Delete) operations for dashboards and widgets explain the routes/ graphql queries that you will create to achieve this..
7. How would you implement a mechanism for sharing dashboards with other users?

8. How would you handle user authentication and authorization? Explain how you would implement a feature such as Role based access management.

**The source code for the backend API to be made available on Github**

Note: Feel free to add additional features or functionality to the requirement if you feel it would demonstrate your skills better.

Please submit the assignment in 2-3 days and email it to [Prajwal H D](#)