

Data Visualization Generator

User Manual

Doofenshmirtz Evil Inc

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DATA
VISUALIZATION GENERATOR

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1 Introduction

Huge amounts of structured and unstructured data is being stored and processed at a very high rate. This is where the term '**Big data**' comes from. Data is captured to help detect problems and to make better decisions. It is much easier for us as humans to gain insight from data patterns if it is visually represented using charts. These representations take a lot of time to create manually for each data set, especially when we want to create powerful tools like dashboards and drill-downs for end-users.

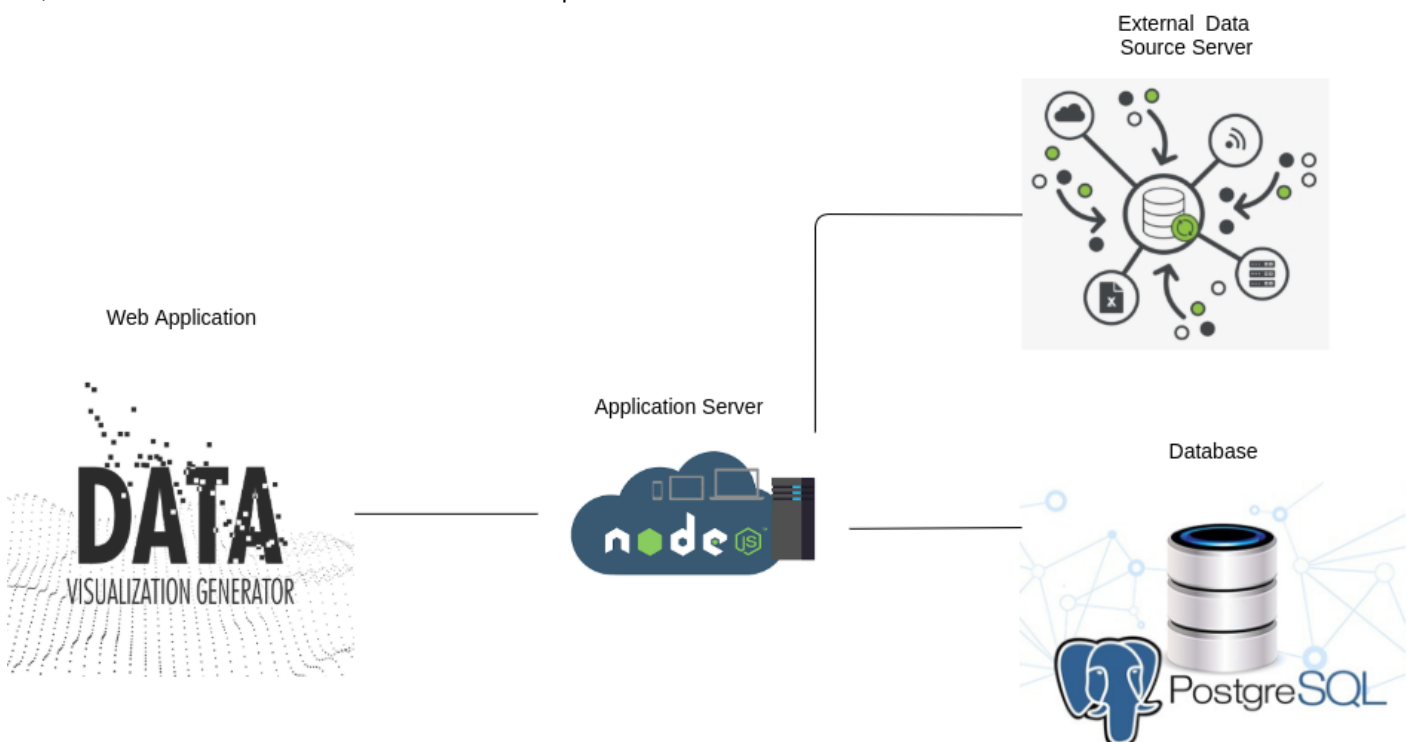
This app seeks to provide the above functionality, enabling users to create representations of graphs quickly and suggest possible graphs so that they don't have to set them up beforehand, all the while adapting to their preferences in order to generate more relevant graphs.

2 System Overview

The vision behind this project is to provide a service that will allow users to create and view dashboards containing graphical visualizations of big data. The big data is obtained from the user as a link to an external source, which is stored on the server. This data is then fed to an Interactive Genetic Algorithm(IGA) that will then generate suggestions for graphs.

The user can select a suggested graph and add it to their dashboard, which will then trigger the IGA to generate graph suggestions that are similar to the selected graph.

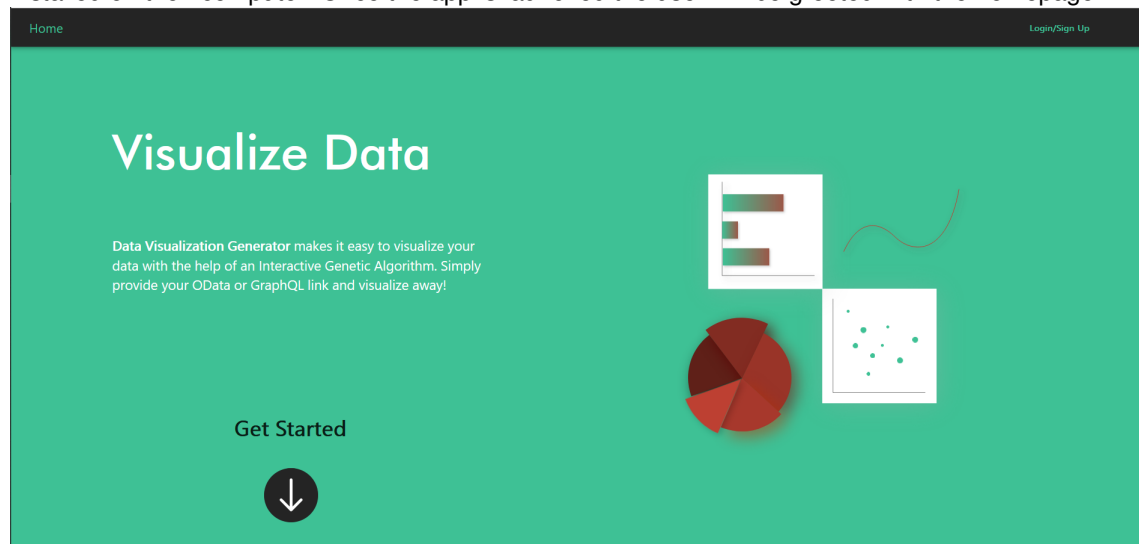
Here is a diagram that gives a overview of our system and how the different components of our system interact, see our SRS document for a more detailed representation.



3 Getting Started

The application can be accessed via the following link: <https://data-visualisation-prod.herokuapp.com/>

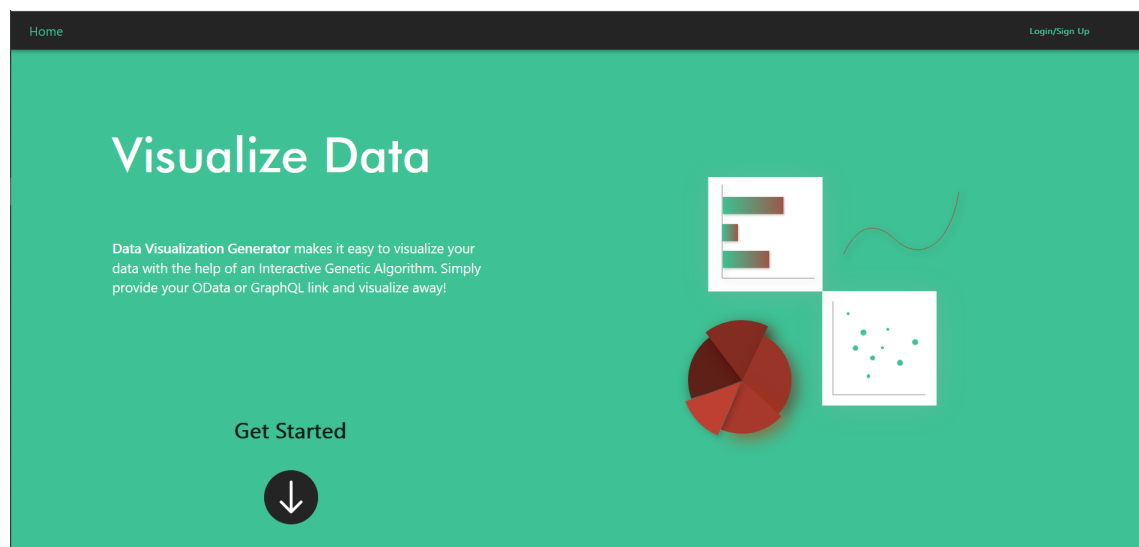
The app is a browser application and therefore requires a browser (Chrome or Firefox is recommended) to be installed on their computer. Once the app is launched the user will be greeted with the homepage:



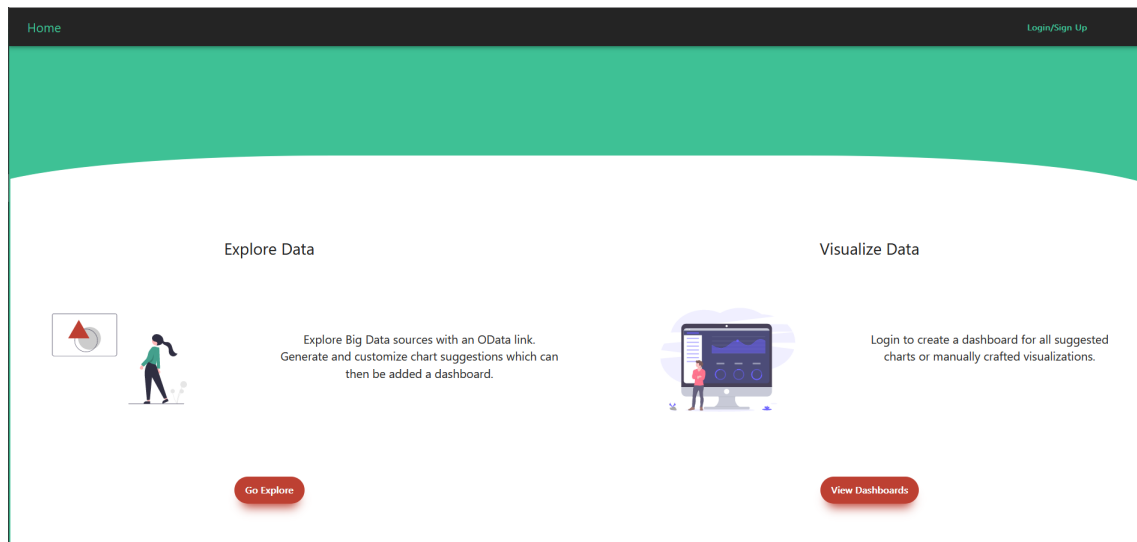
4 Using the system

4.1 Homepage

This is the first page that greets the user once the application is running.



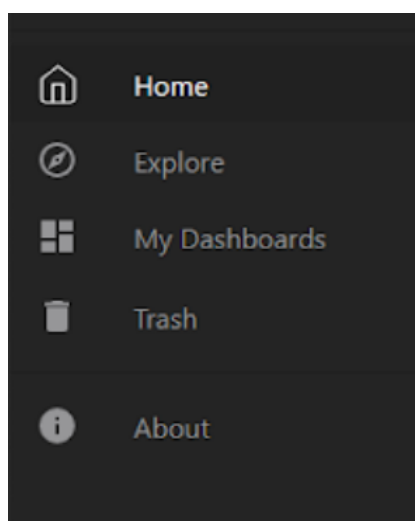
When you select 'Get Started', the page will scroll down to reveal the following:



On the homepage you will see two options: Explore and Dashboards. If logged in, the user will also have a sidebar on the left. There will also be a Login/Sign up button in the top right corner, which is replaced by a profile icon and the username of the user if they are logged in.

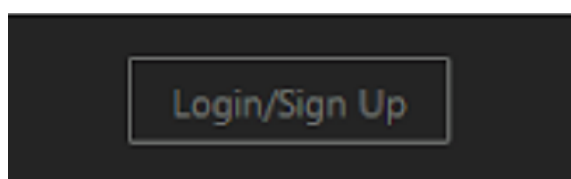
Selecting '**Explore**' will navigate to the Explore window, where the user can view graph suggestions - we will cover this later.

Selecting '**Dashboards**' will navigate to the Dashboards window. If the user is logged in they will be greeted with their saved dashboards, otherwise they will be asked to log in.



If the user is logged in, they will have a sidebar. On the sidebar there are five options:

1. **Home** - This takes you to the homepage
2. **Explore** - This takes you to the Explore page
3. **My Dashboards** - This takes you to the Dashboards page
4. **Trash** - This takes you to the Trash page
5. **About** - This takes you to a page containing information about the application

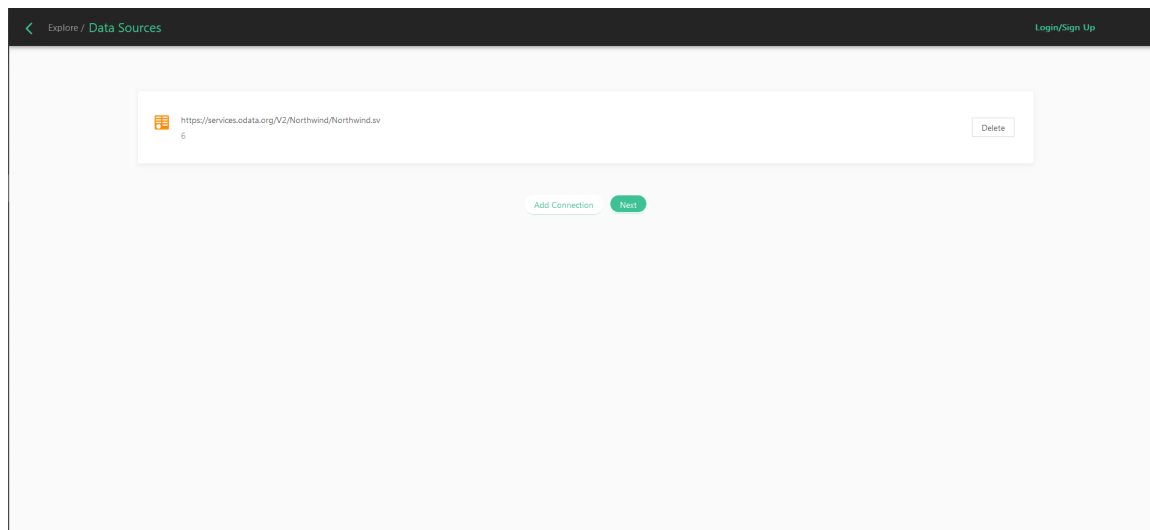


In the top right corner is a Login/Sign Up button. If the user is already logged in, they will instead have an icon,

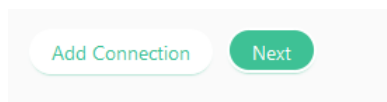
which can be clicked to log out again. Clicking on the Login/Sign Up button will take you to a login screen where you can register an account or login to an existing one. The Logout button will log you out of your account. The Login/Sign Up button will appear on every page.

4.2 Explore

This is the page where the suggestion generation can be accessed and appears as follows:



Here we have the same sidebar and Login/Register button as in the homepage. Additionally we have 'Add Connection' and 'Next' buttons (Bottom Middle), as well as a Delete button (Right of the data source).



The '**Add Connection**' button allows the user to add a link to an external source containing Big Data. Clicking on it will open the following popup:

Add data source

×

Please select a data source type

▼

Please insert data source uri

Add

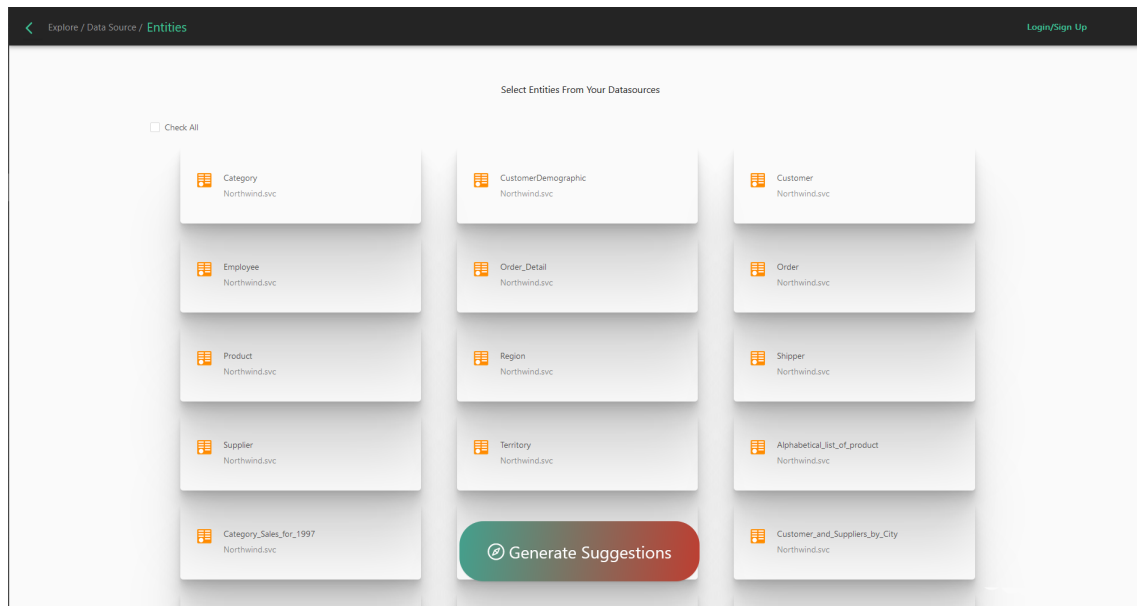
The user should specify which data source type they are adding (e.g. Odata or GraphQL) via the dropdown menu. The user can then enter the link to the external data source and click 'Add' to add it to the list used in graph suggestion generation.

The '**Delete**' button will remove an existing data source from graph suggestion generation. This option might be used due to a user's preference or some other reason.

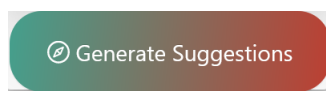
The '**Next**' button will take the user to the next page, where they can edit entities used in graph suggestions based on their selected sources. These entities can be viewed as 'Tables' or 'Categories' of data and are used to control what portions of data will be used in suggestion generation.

4.3 Entities

This page allows users to specify which portions of data should be focused on (if they so desire)



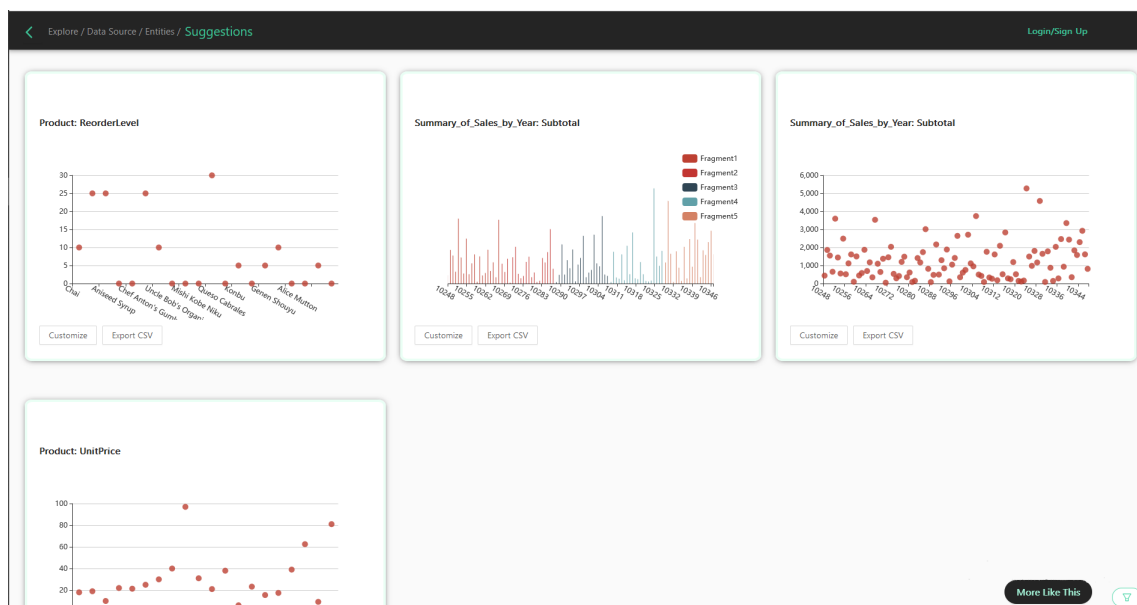
The user can select and deselect entities from the list. Suggestions for only the selected entities will be generated on the next page. Once the entities are selected, the user can click on **'Generate Suggestions'** to advance



The **'Generate Suggestions'** button will take the user to the next page where the generated suggestions can be viewed.

4.4 Generate Suggestions

This page allows the user to view graph suggestions and add them to a dashboard if they desire.

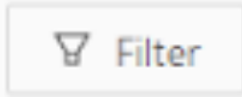


This page contains graph suggestions and a 'Filter' button, as well as a "More like this" button in the lower right corner.

Each suggestion also has two options:

[Customize](#)[Export CSV](#)

The first option allows the user to customize attributes of the chart(see 'Create Chart' under 'Dashboard View') while the second option allows the user to export the data as a .csv file, which can be imported by applications like Excel.



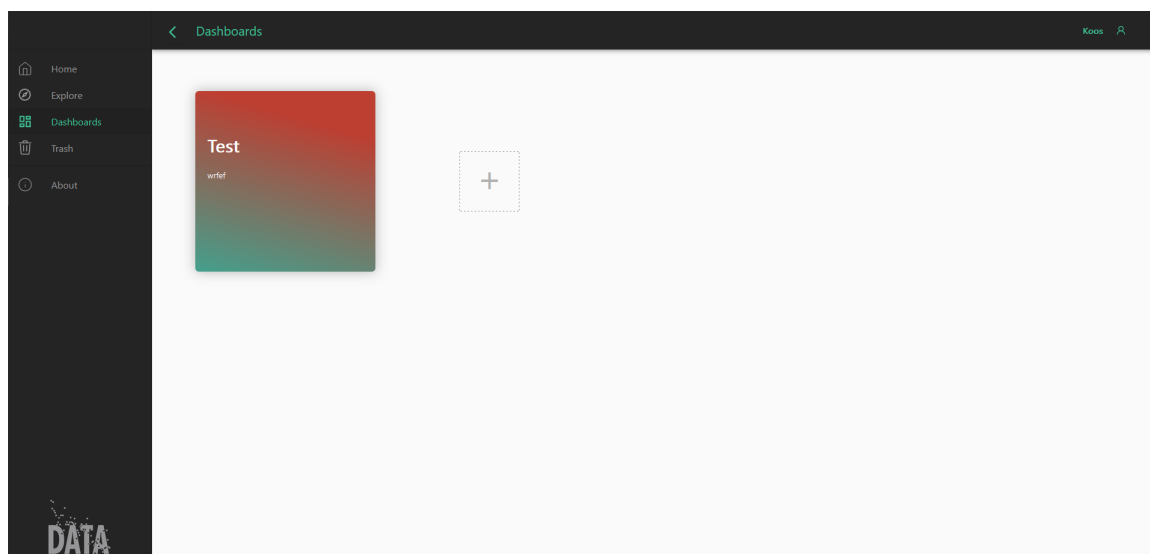
The **'Filter'** button lets the user filter graph suggestions according to certain criteria.

[More Like This](#)

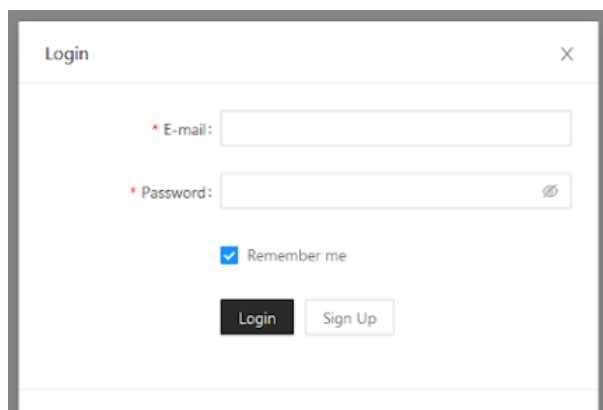
The **'More like this'** button generates more suggestions. If the user selects charts before clicking this, the app will try to suggest similar suggestions to those charts.

4.5 My Dashboards

This page displays the user's saved dashboards if they are logged in, or asks them to log in otherwise.

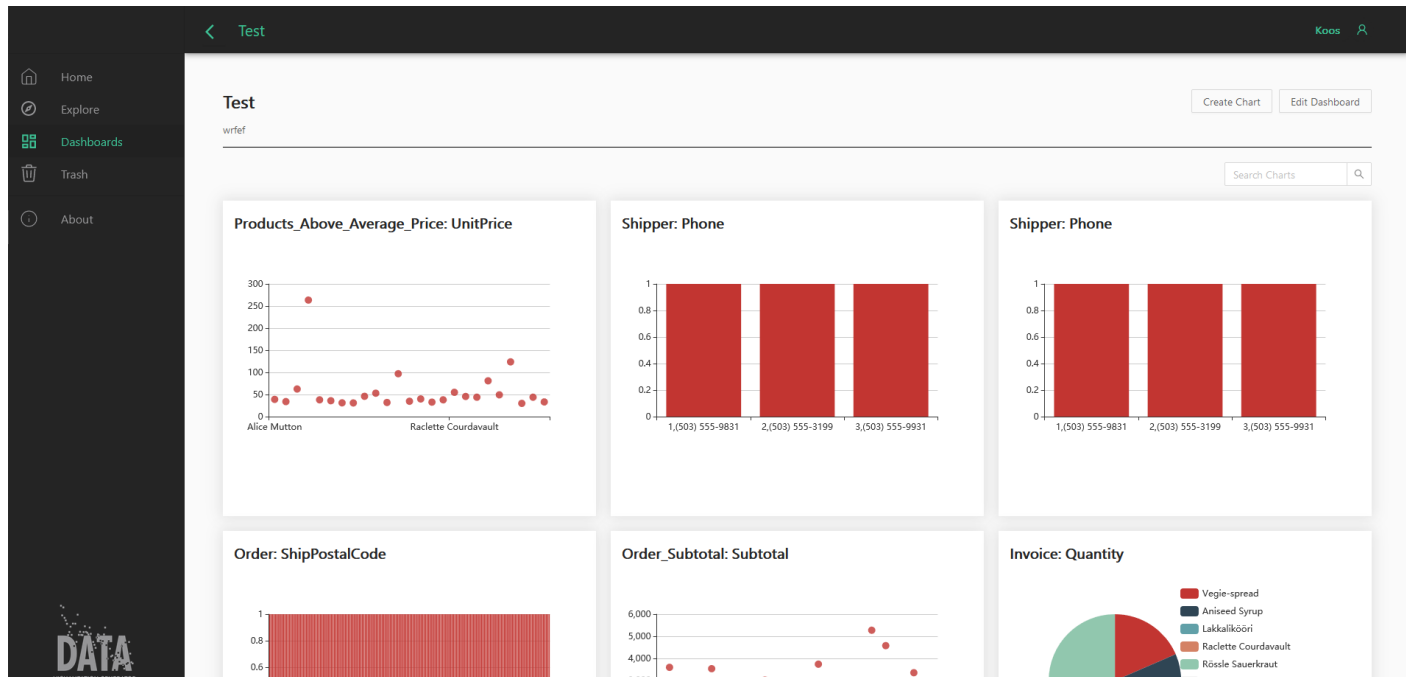


When logged in, the user is greeted with all their dashboards. They can select any one of these to view them. If not logged in, the user will instead be prompted to login or sign up with an email and password.



4.6 Dashboard View

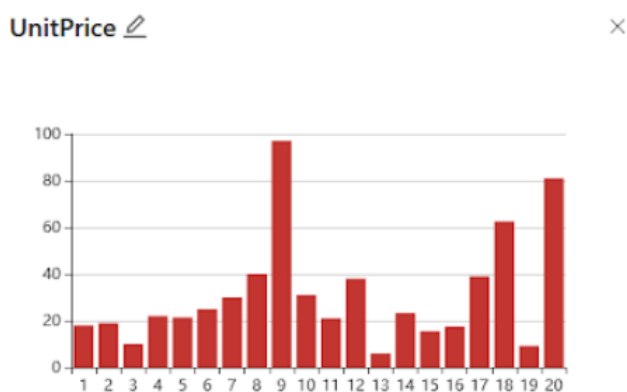
When selecting a dashboard the user will be directed to this page, displaying all the graphs saved to the dashboard.



The dashboard title and description is displayed at the top, with an 'Edit Dashboard' button on the right. This is followed by the saved dashboards and a search bar.

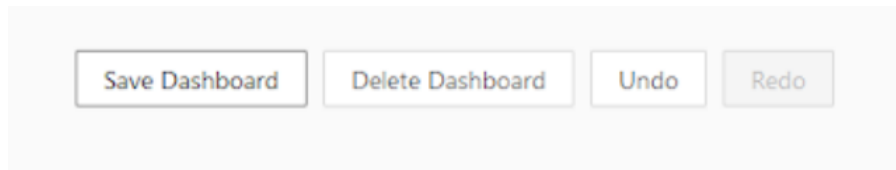
The **search bar** can be used to find a specific graph by name.

The **'Edit Dashboard'** button will allow the user to edit graphs and the dashboard. After selecting it the graphs will look as follows:



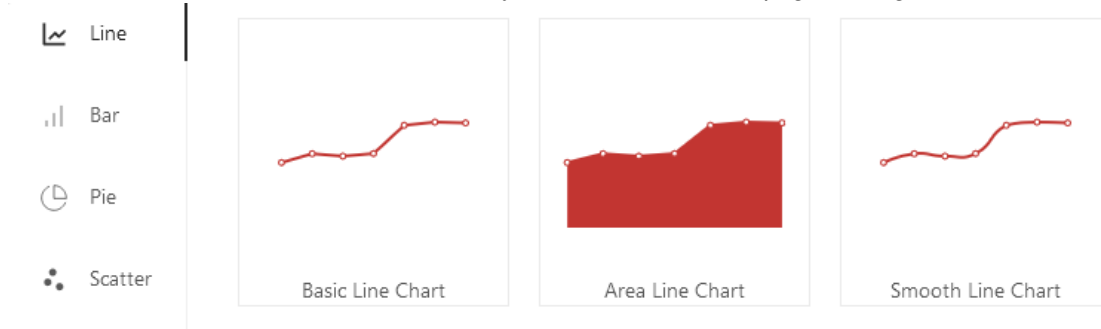
Clicking on the name will allow the user to change the graph name, while clicking the X will delete the graph from the dashboard.

The dashboard will have new buttons, with an editable name and description similar to the editable chart names. These new buttons are as follows:

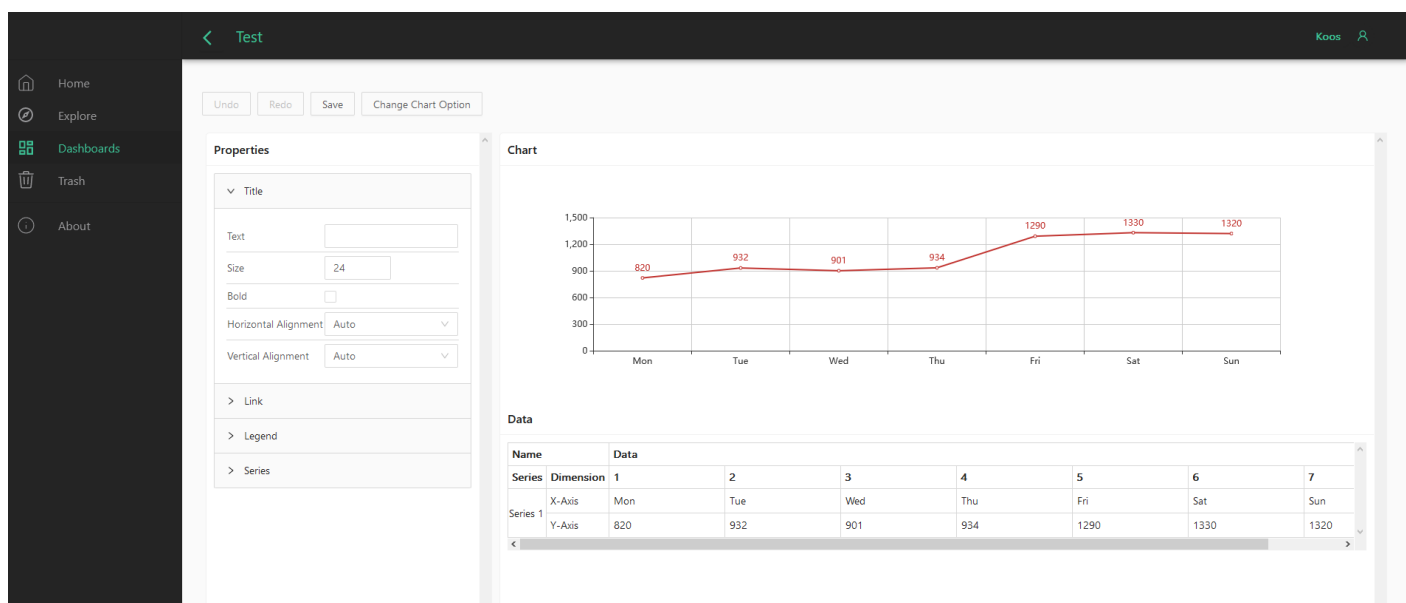


'**Save Dashboard**' will save any changes made to the dashboard and exit this view. '**Delete Dashboard**' will delete the dashboard from the user's account. '**Undo**' will undo the last change(s), while '**Redo**' will redo the changes that were undone.

'**Create Chart**' will allow the user to manually create a chart, with a page looking like this:



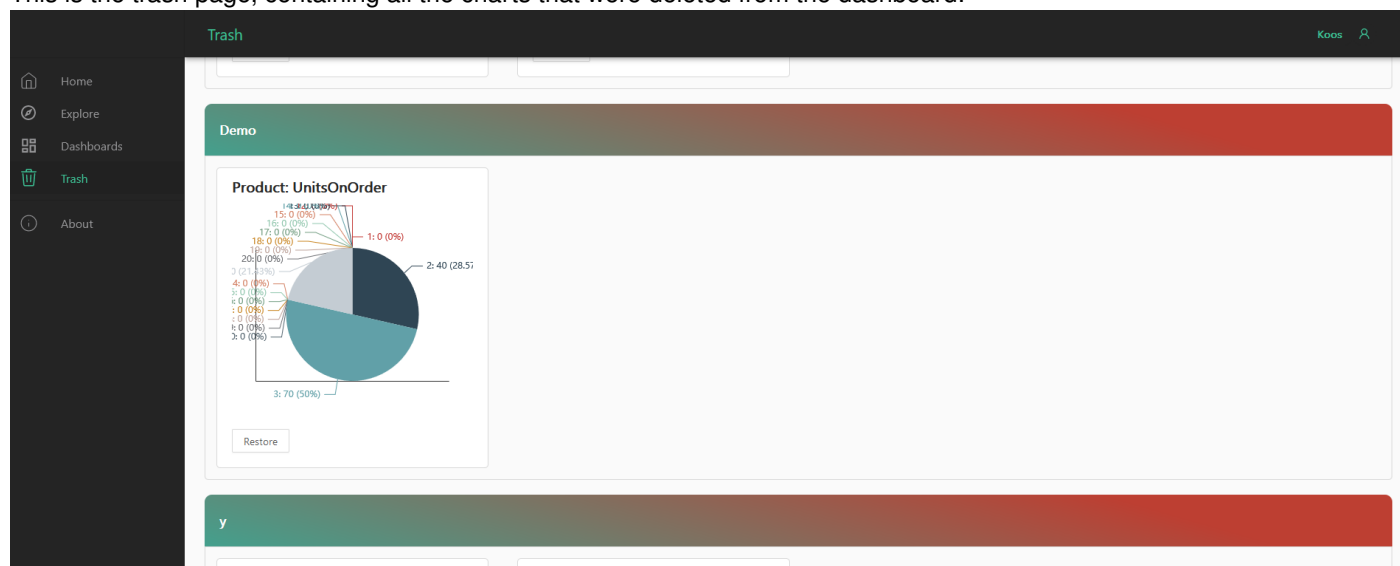
After selecting the type of chart, the user will see the following screen:



The user will then have options to customise the chart with. **Title** will change the chart title, **Link** will change the subtitle, **Legend** will customise the chart legend and **Series** will edit the data series(multiple series create multiple graphs on the same axis) Editing the data below the chart will change the data that the graph represents.

4.7 Trash

This is the trash page, containing all the charts that were deleted from the dashboard:



Here the user can restore deleted charts to their dashboard by clicking the **Restore** button.

5 Troubleshooting

1. Pages aren't loading

Pages might not load for a variety of reasons: Slow connection, overwhelmed server, etc. Try refreshing your page or wait for the servers to be less overloaded. If the problem persists then contact the team at doofenshmirtz.evil.inc.cos@gmail.com

2. The app crashes

No team is perfect, but we try to provide the best experience possible. If the app crashes, try hard-refreshing your browser(Ctrl+F5), if problems persist, try relaunching the app and contacting the team at doofenshmirtz.evil.inc.cos@gmail.com

Most of the troubleshooting is done on our side, so if any other issues occur please contact us at doofenshmirtz.evil.inc.cos@gmail.com.