# AMAZON QUICKSIGHT

I will be demonstrating the usage of Amazon Web Services' Amazon QuickSight to create interactive business intelligence dashboards for each andevery level of organization.

**What is Amazon QuickSight?**

Amazon QuickSight is a cloud-scale business intelligence (BI) service that you can use to deliver easy-to-understand insights to the people who you work with, wherever they are. Amazon QuickSight connects to your data in the cloud and combines data from many different sources. In a single data dashboard, QuickSight can include AWS data, third-party data, big data, spreadsheet data, SaaS data, B2B data, and more. As a fully managed cloud-based service, Amazon QuickSight provides enterprise-grade security, global availability, and built-in redundancy. It also provides the user-management tools that you need to scale from 10 users to 10,000, all with no infrastructure to deploy or manage.

QuickSight gives decision-makers the opportunity to explore and interpret information in an interactive visual environment. They have secure access to dashboards from any device on your network and from mobile devices.

**Why use it?**

We have many dashboard creating tools like Microsoft's PowerBI or Tableau but the advantages of using Amazon Quicksight are:

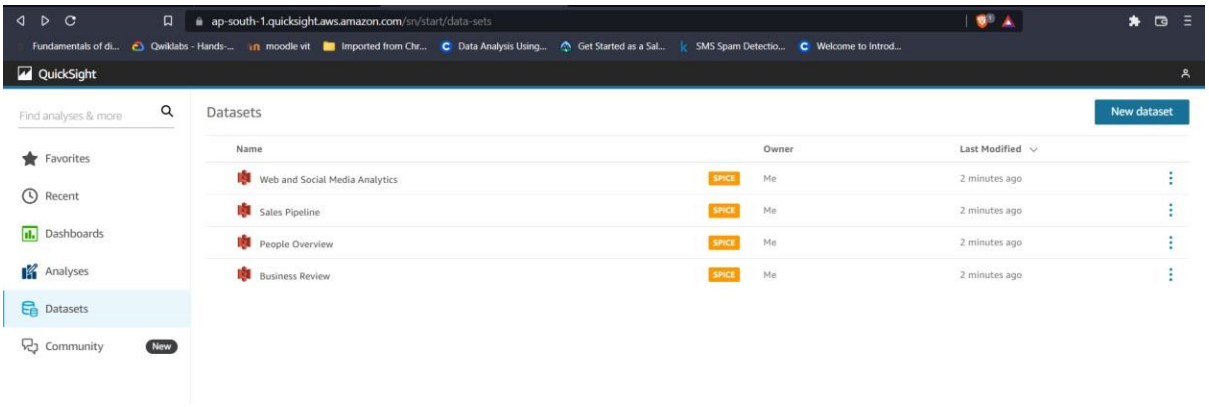
- The in-memory engine, called SPICE, responds with blazing speed.
- No upfront costs for licenses and a low total cost of ownership (TCO).
- Collaborative analytics with no need to install an application.
- Combine a variety of data into one analysis.

- Publish and share your analysis as a dashboard.
- Control features available in a dashboard.
- No need to manage granular database permissions—dashboard viewers can see only what you share.

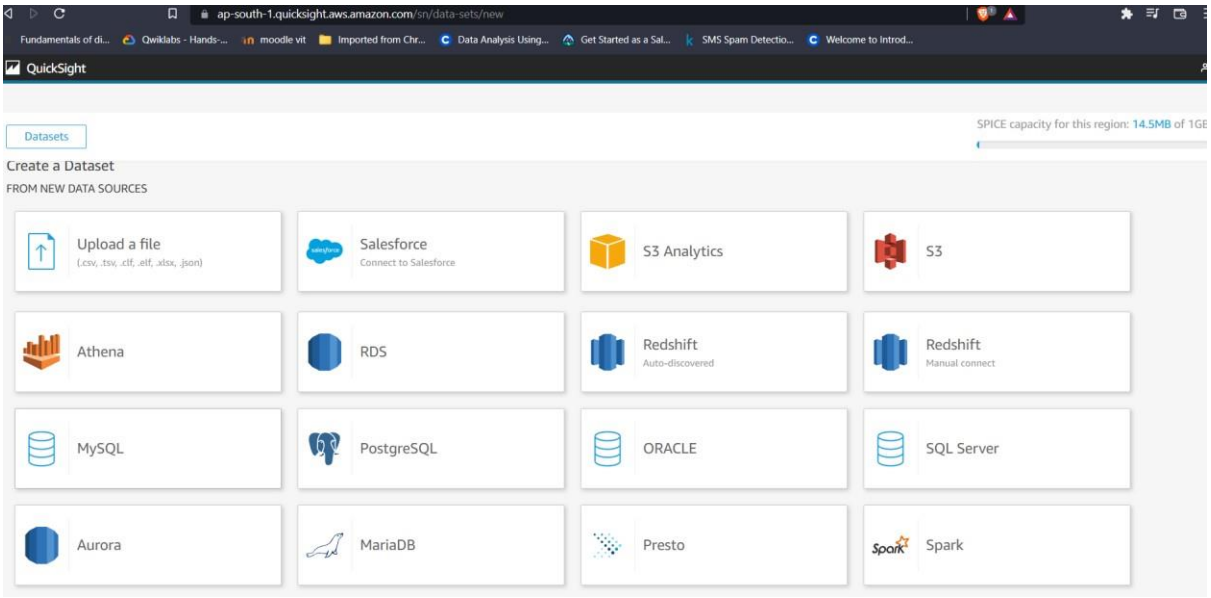
Apart from these advantages, there are some more benefits for advanced users who use the Amazon QuickSight Enterprise edition. These are:

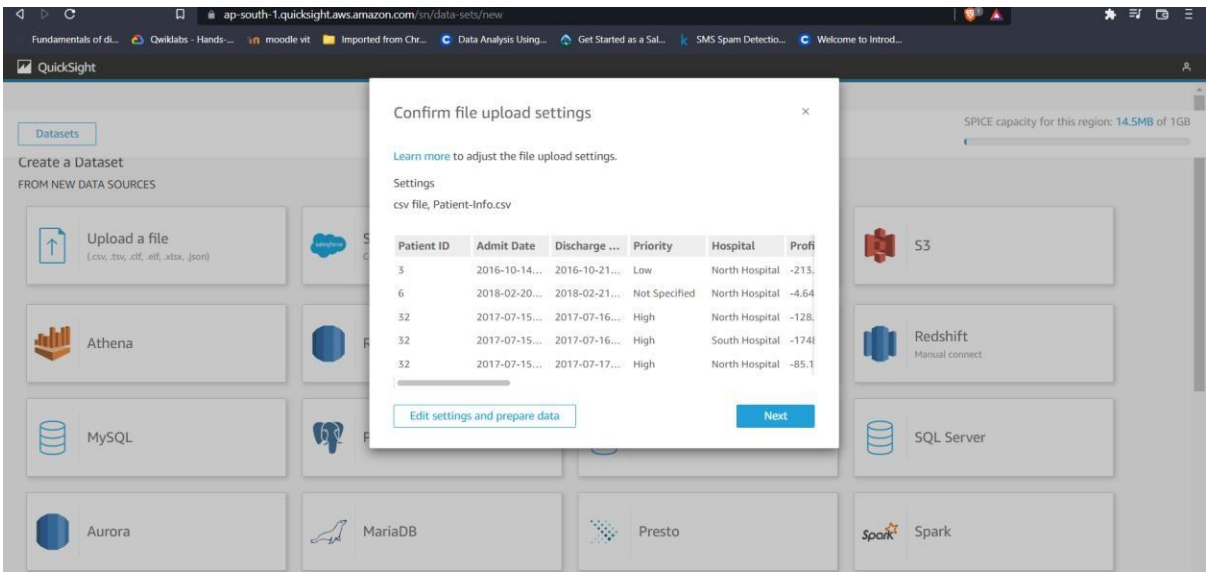
- Saves you time and money with automated and customizable data insights, powered by machine learning (ML). This enables your organization to do the following, without requiring any knowledge of machine learning:
    - Automatically make reliable forecasts.
    - Automatically identify outliers.
    - Find hidden trends.
    - Act on key business drivers.
    - Translate data into easy-to-read narratives, like headline tiles for your dashboard.
- Provides extra Enterprise security features, including the following:
    - Federated users, groups, and single sign-on (SSO) with AWS Identity and Access Management (IAM) Federation, SAML, OpenID Connect, or AWS Directory Service for Microsoft Active Directory.
    - Granular permissions for AWS data access.
    - Row level security.
    - Highly secure data encryption at rest.
    - Access to AWS data and on-premises data in Amazon Virtual Private Cloud

Step1: We create an AWS account and an Amazon QuickSight account. For fully demonstrating the capability of QuickSight, I have created an Enterprise Edition account.

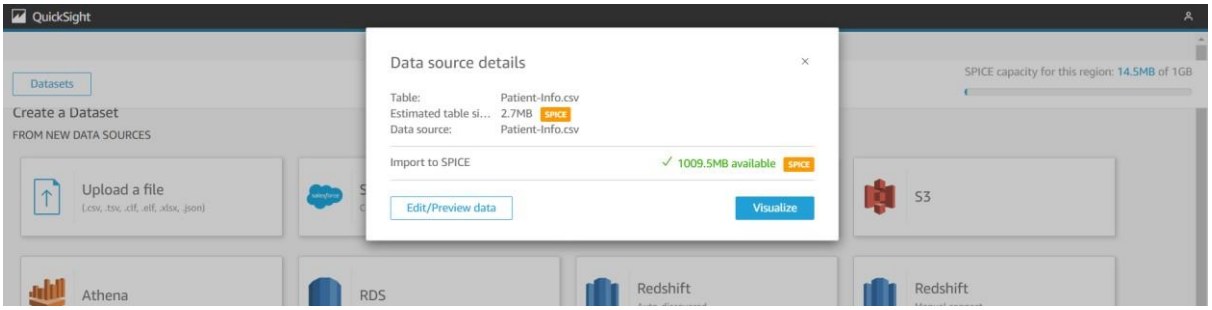



Step2: Now, we need to source our data for analysis and visualisation. Amazon QuickSight offers various Data Sources like S3, Salesforce, Athena, SQL Server, Oracle and much more. For my assignment, I'll be sourcing the data with a CSV file of Patient Dataset.

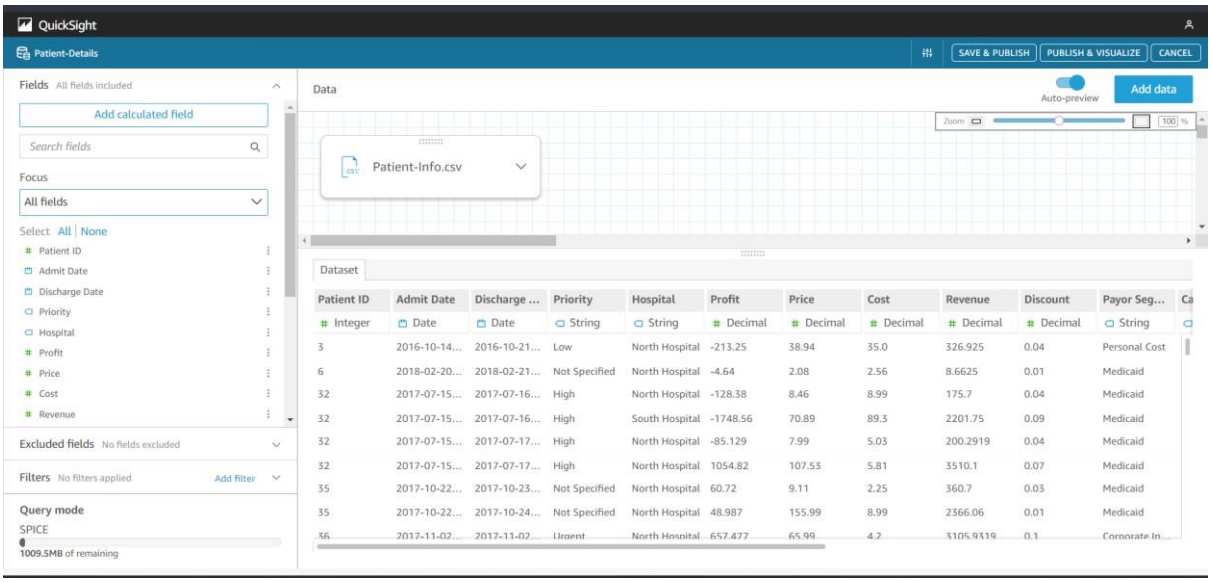


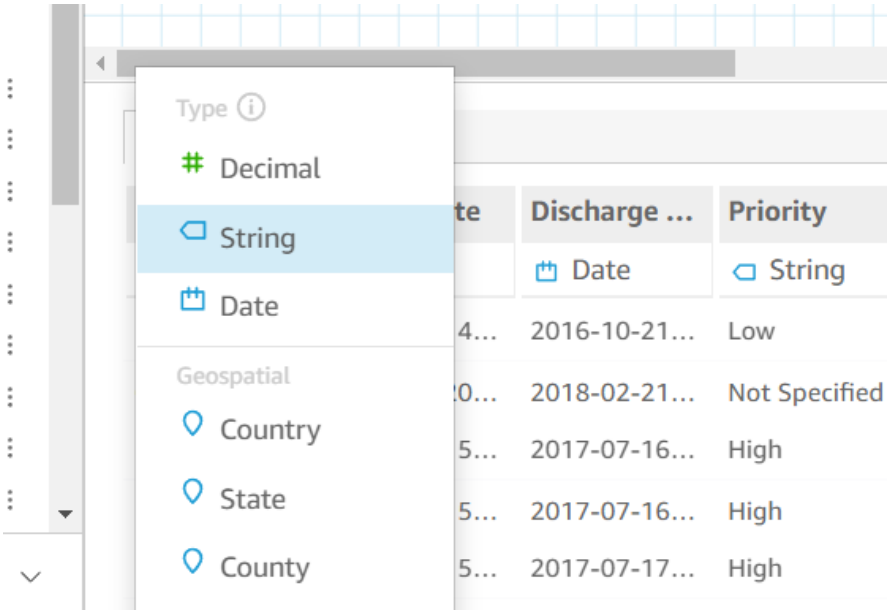
Step3: After clicking next, we first need to edit and preview the data before visualizing it. So, we click on the Edit/Preview data button.



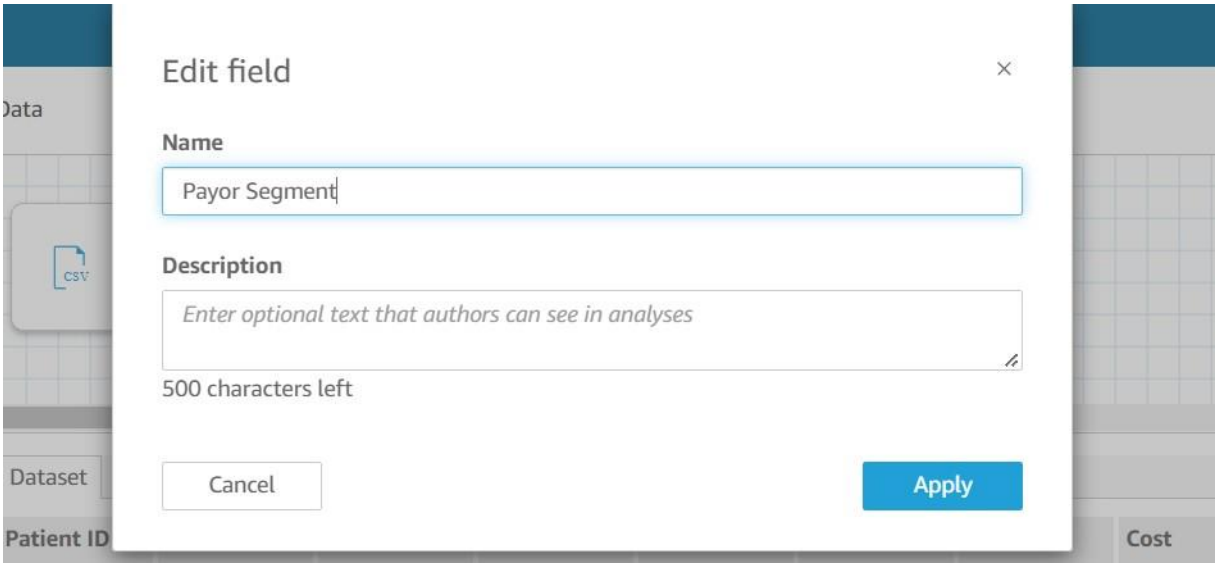

Step4: The query board is opened and now we can run the queries required to clean, transform and load the data.



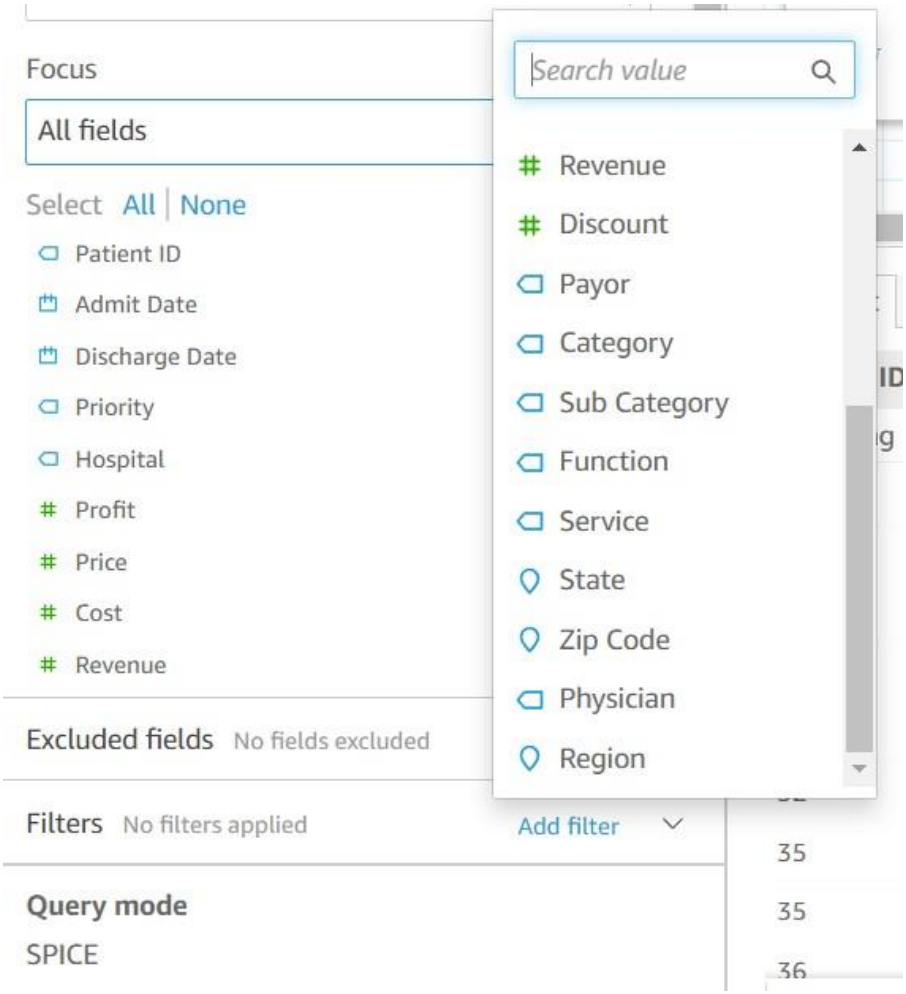

For example, I didn't want to do any calculations on Patient ID so I changed its datatype from Integer/Decimal to String.

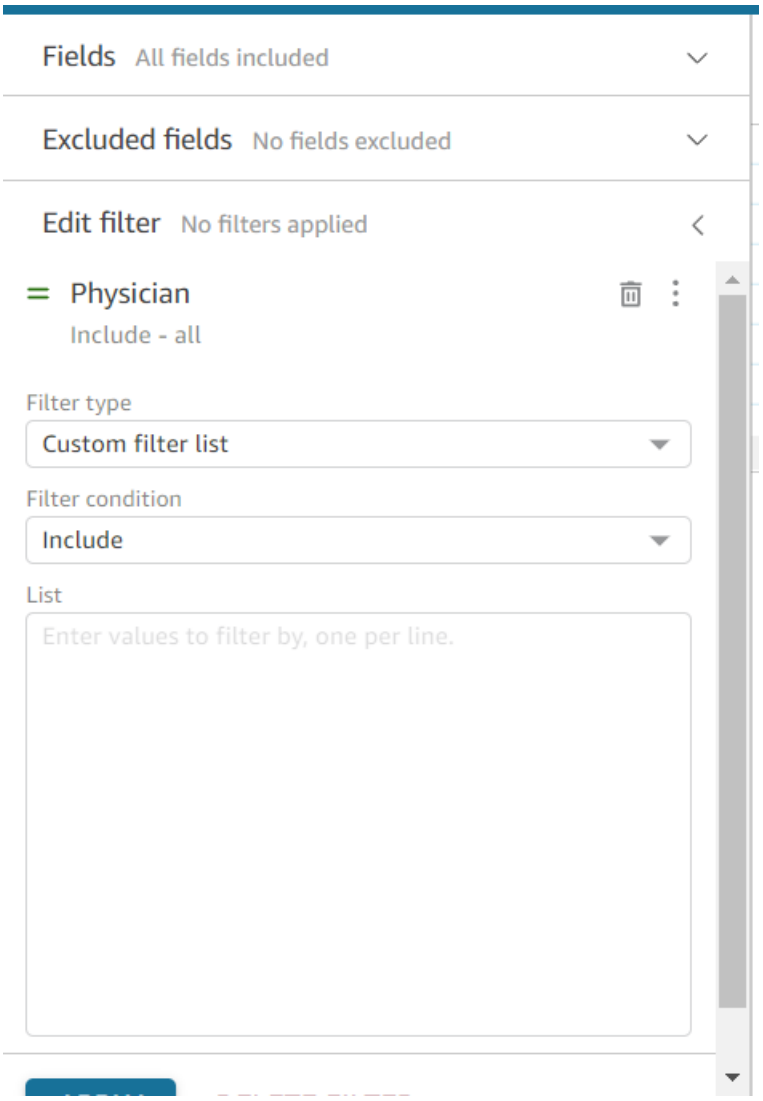


I also wanted to change the column name of one my columns.

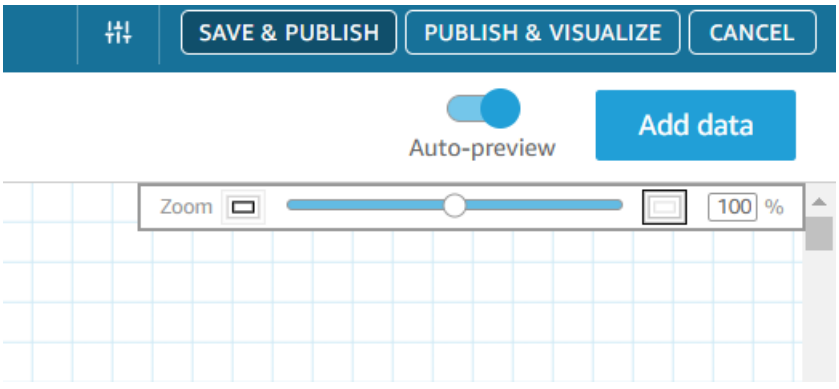



Next, I wanted to filter data based on Physicians and exclude some columns that were not required for my BI dashboard.



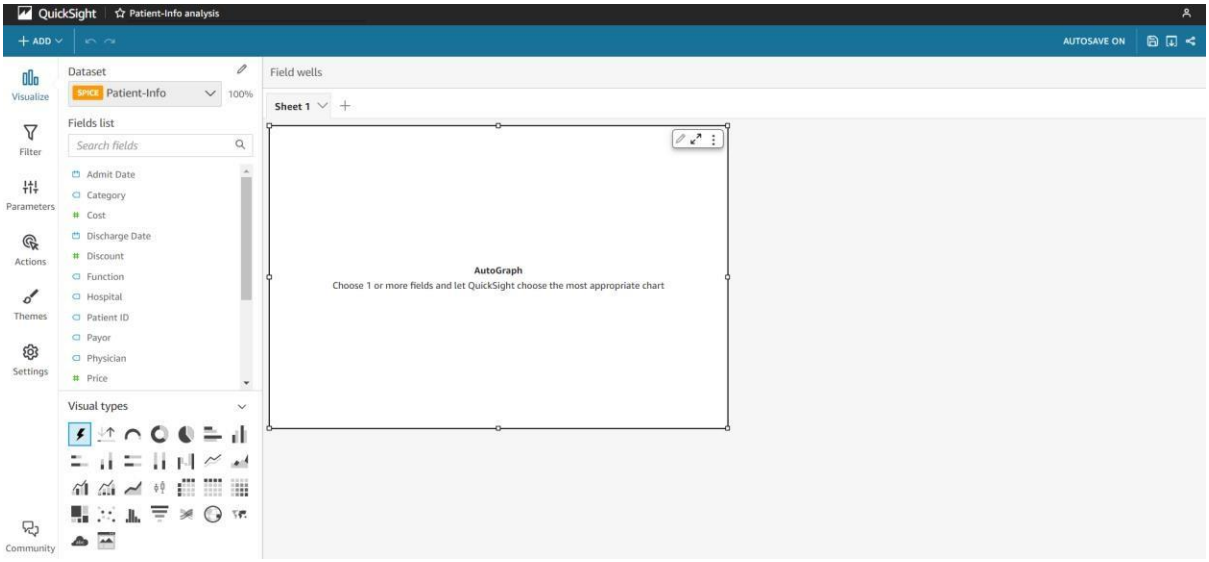



Step5: After doing all the cleaning and transformation operations on the data , we save and publish the data.

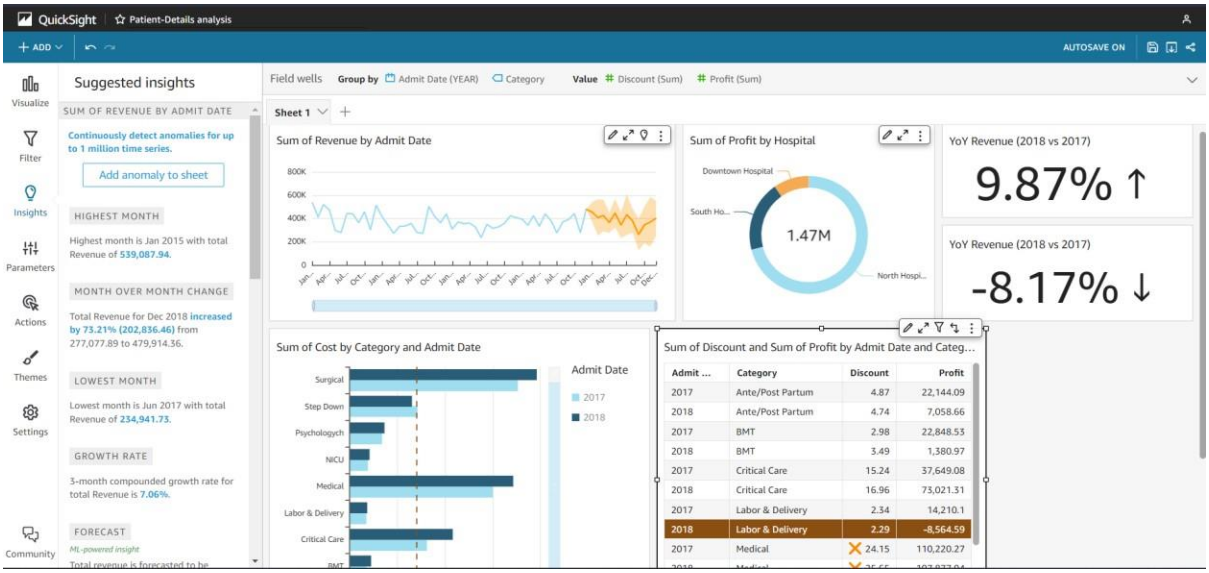



Step6: After the data is published, we can start visualizing the it and create our dashboard.

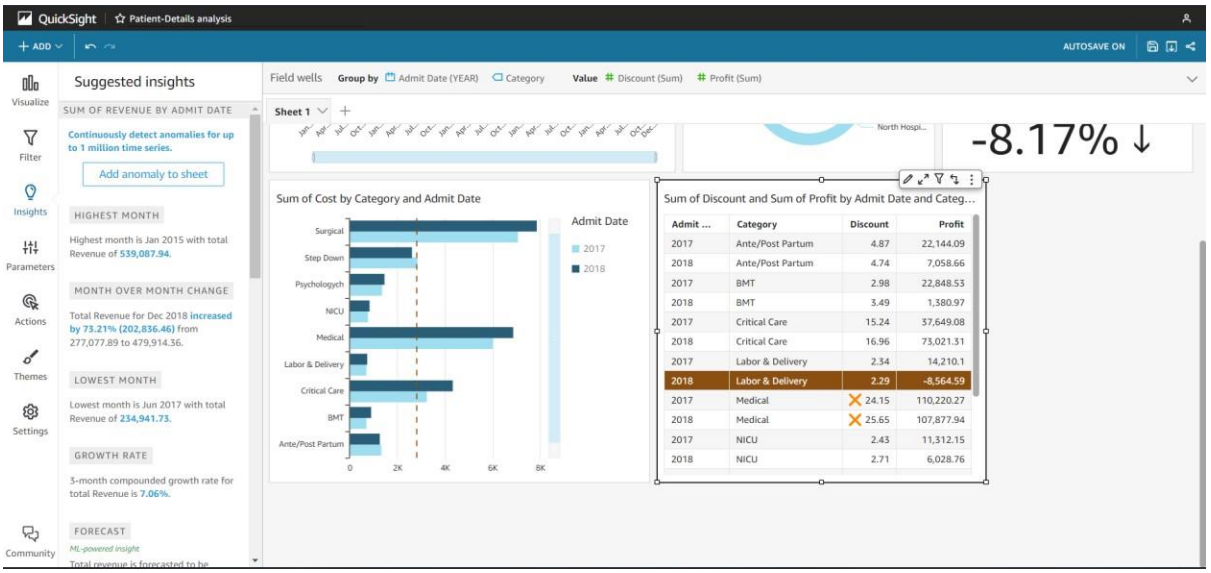
Step7: There are many types of visuals or graphs available to showcase the data as we like. Using different attributes, we visualise the data to get information out of it.

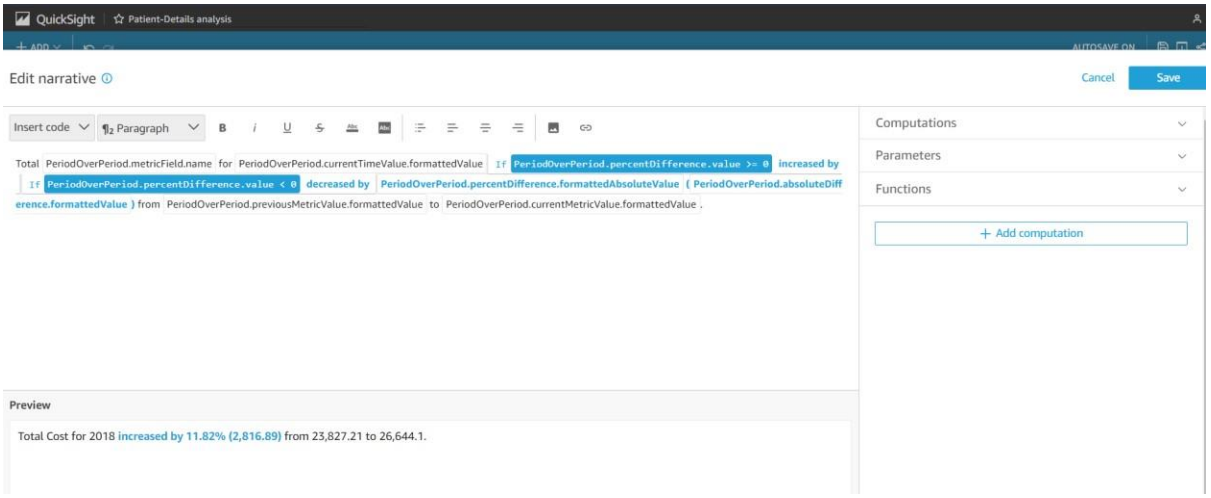



Step8: Amazon QuickSight enterprise edition provides a real useful feature of ML Insights. Using these ML Insights, I forecasted Revenue by Admit Date and got some more cool narratives indicating factors.

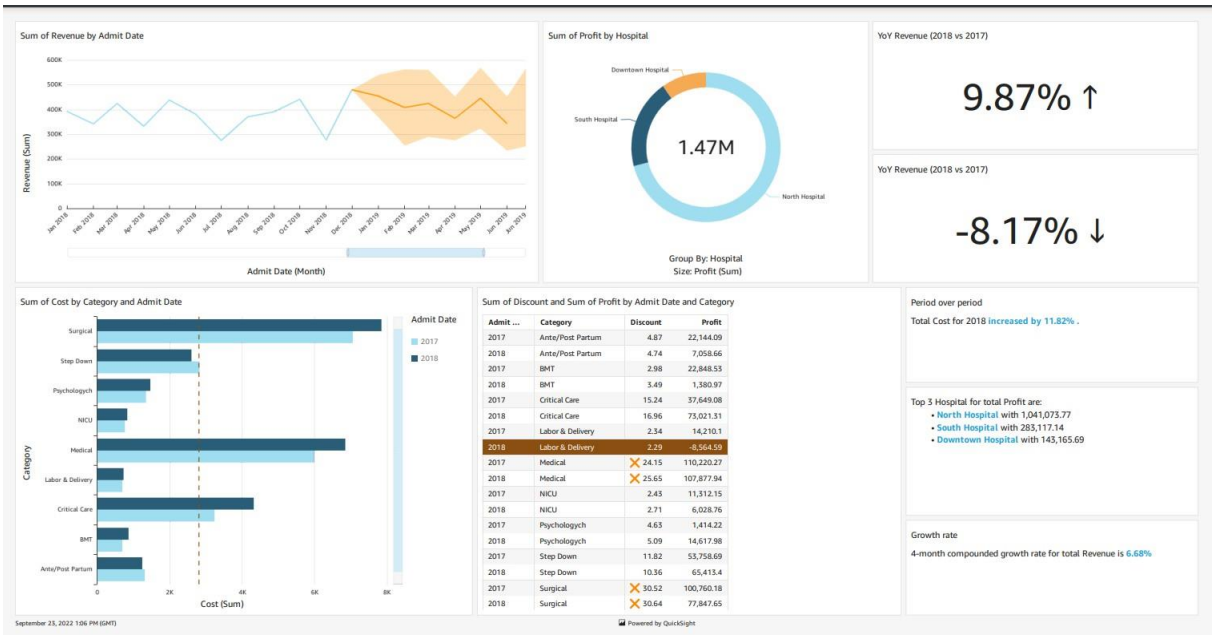



Step9: Visuals are also needed to be edited in order to make them easy to decipher. For example, Here I put an average reference line in the bar graph, highlighted the loss-making categories and displayed an X for the discounts above 20%. Narratives also need to be edited in order to make them short and crisp.

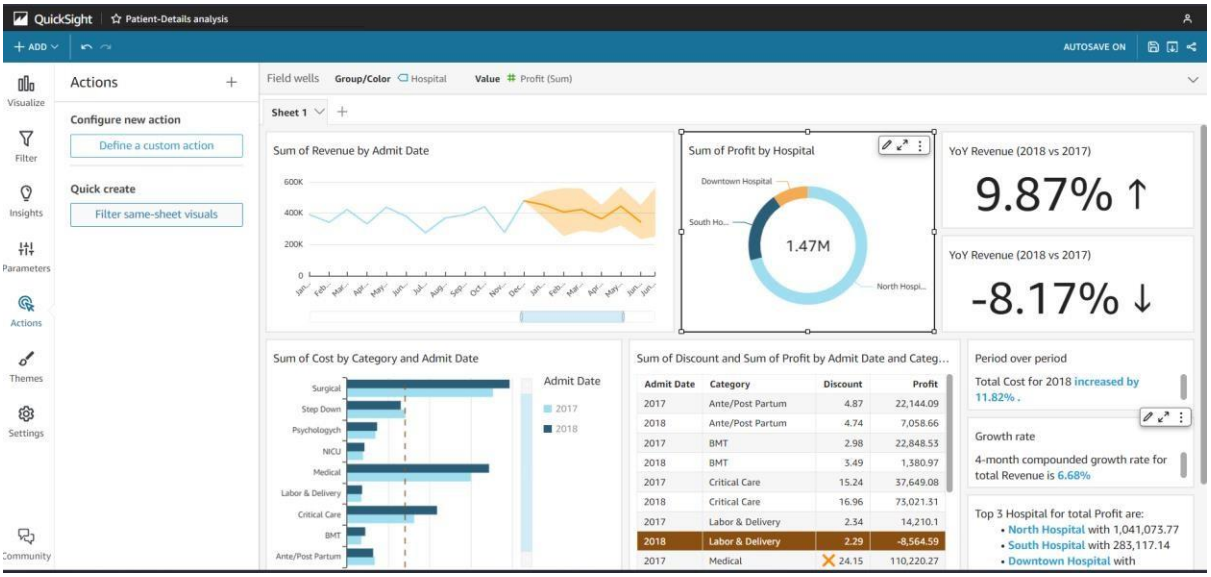


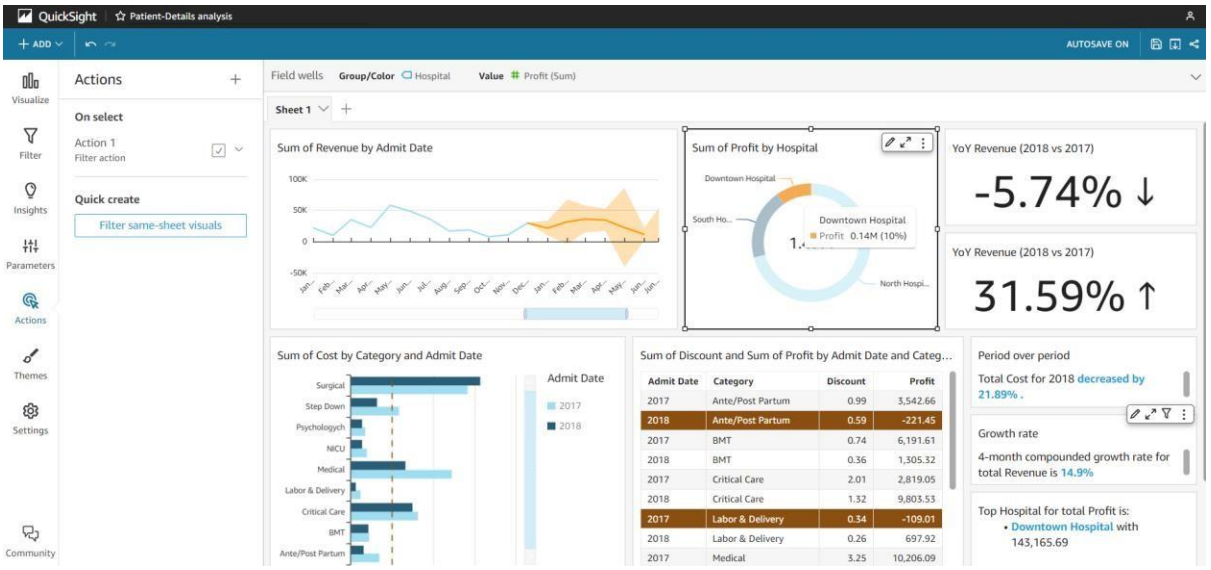

Step10: The final static business intelligence dashboard is generated and looks as follows:



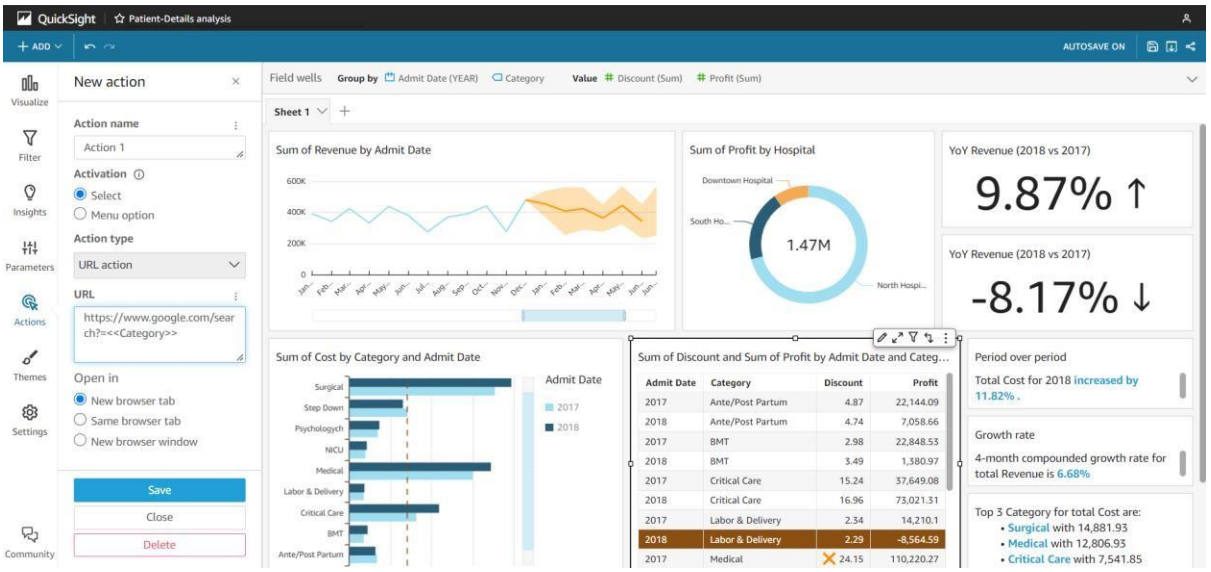

Step11: Static Dashboards are no fun because they don't let the user or the stakeholder get more detailed insights if needed. To make the dashboards dynamic, we use the Actions feature available in Amazon Quicksight.



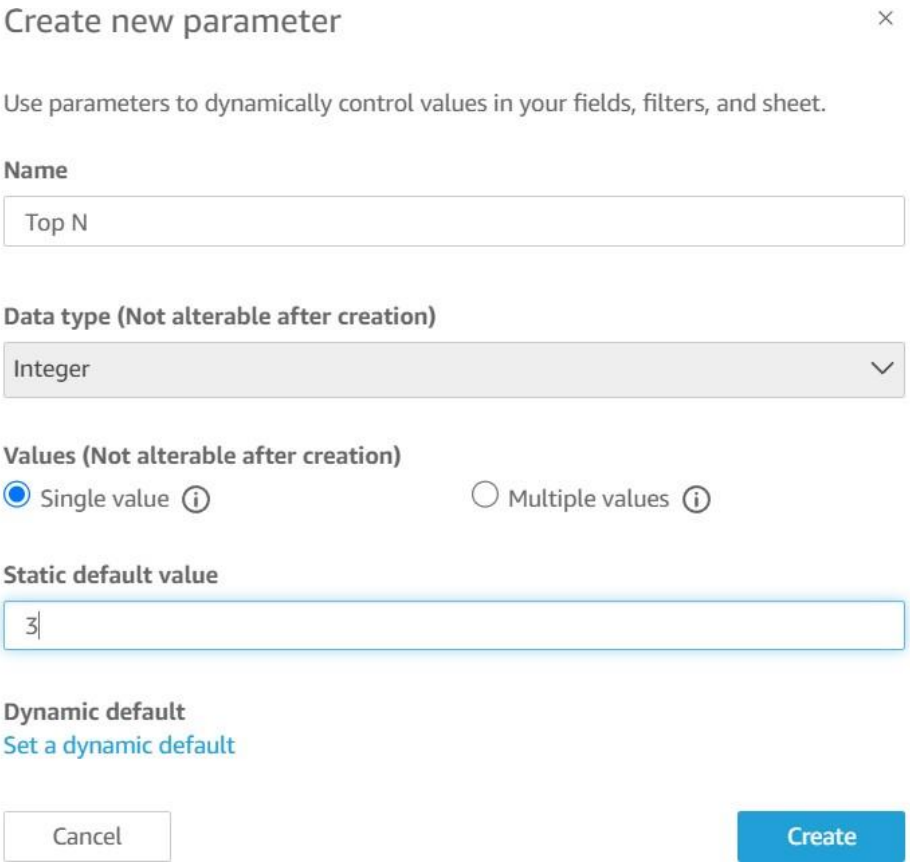

After creating a filtering action, now if we click on the Downtown Hospital part of the pie chart, all the other visuals are also filtered and computed to display the insights for Downtown Hospital particularly.



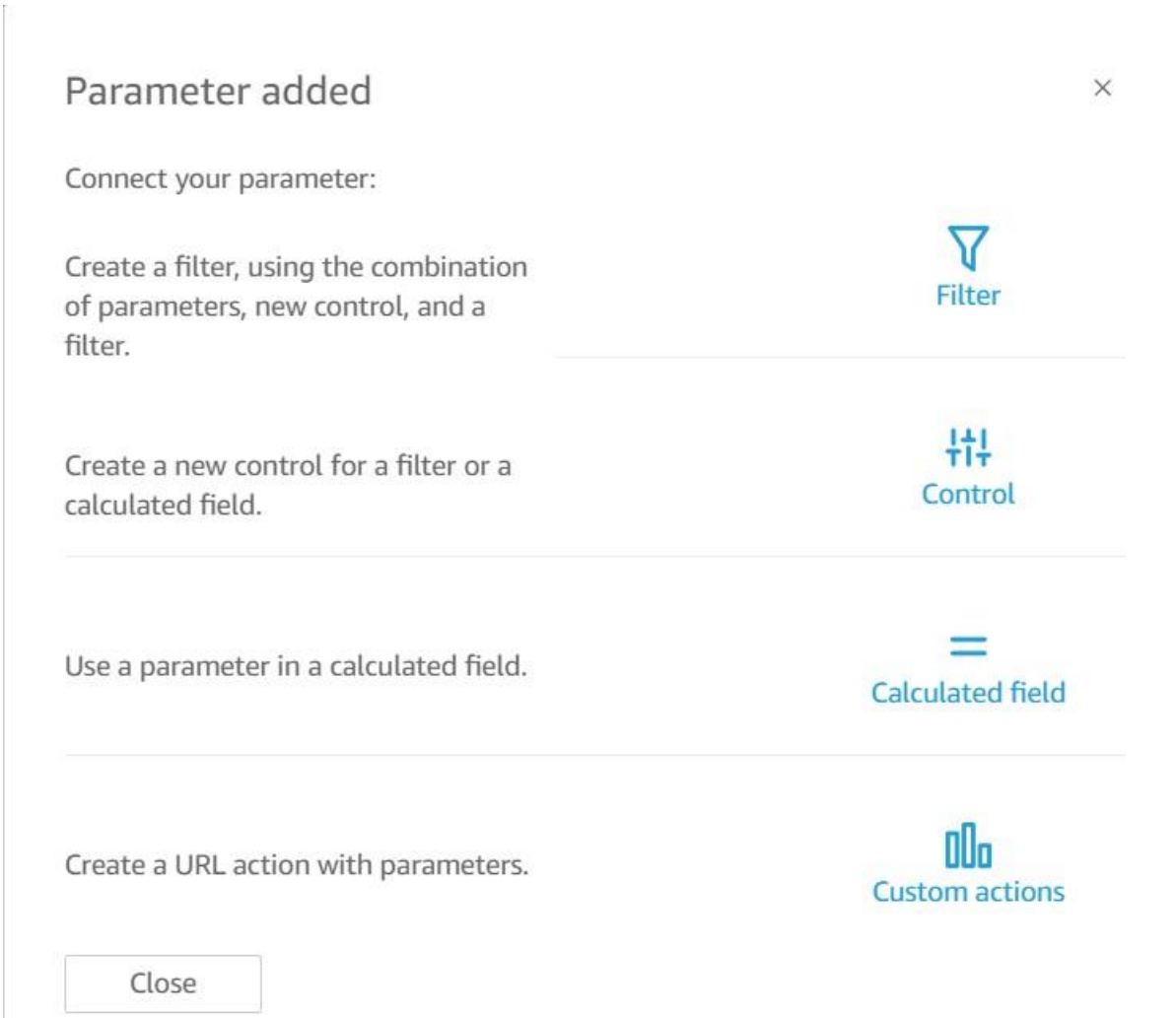

Step12: Now, we see the usage of URL action type. For my dashboard purpose, I'll create an URL action to get the google search for the Category whenever I click on them. This will help me know, what that category means. The following screenshot will show, how an URL Action is made.

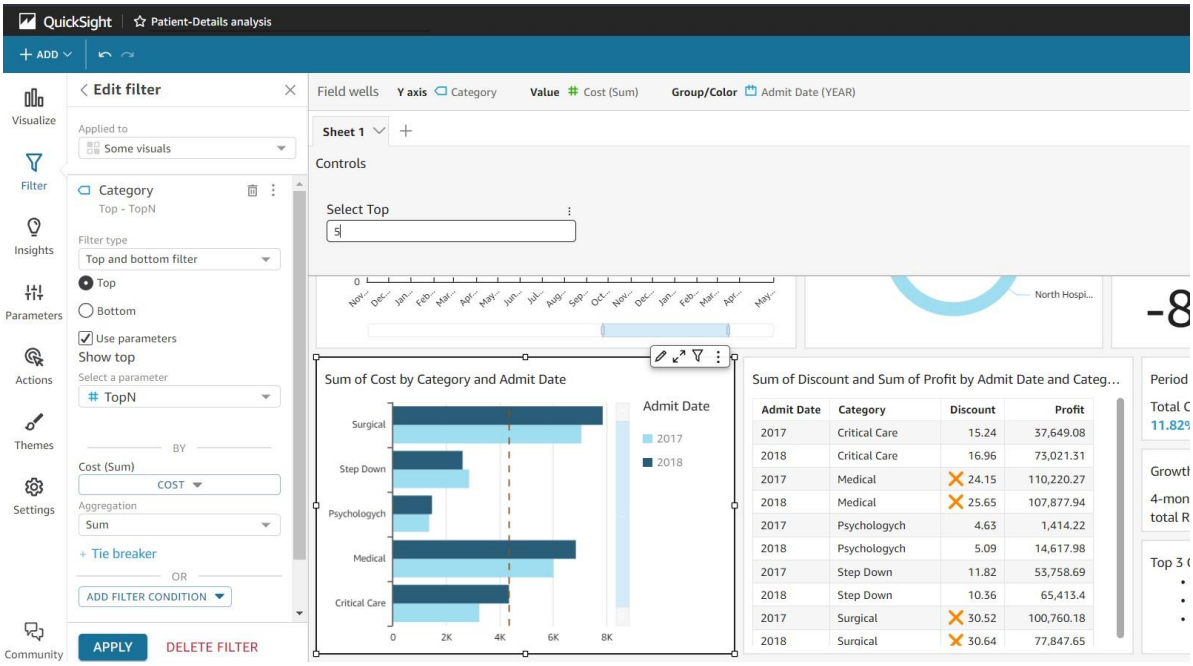



Step13: Now, by adding actions we have made the dashboard dynamic. To cater all needs of the users, we need to make the dashboard more interactive. For example, a user wants to see Top N categories instead of only Top 3 categories. So, for allowing this I will create a parameter.




Step14: I will create a Control parameter because I want to give the user the choice to see his/her TopN items interactively.


Parameter added
Connect your parameter:
Create a filter, using the combination of parameters, new control, and a filter.
Filter
Create a new control for a filter or a calculated field.
Control
Use a parameter in a calculated field.
Calculated field
Create a URL action with parameters.
Custom actions
Close


QuickSight
Patient-Details analysis
ADD
Edit filter
Visualize
Filter
Insights
Parameters
Actions
Themes
Settings
Community
Applied to
Some visuals
Category
Top - TopN
Filter type
Top and bottom filter
Top
Bottom
Use parameters
Show top
Select a parameter
TopN
BY
Cost (Sum)
COST
Aggregation
Sum
Tie breaker
OR
ADD FILTER CONDITION
APPLY
DELETE FILTER
Field wells
Y axis
Category
Value
Cost (Sum)
Group/Color
Admit Date (YEAR)
Sheet 1
Controls
Select Top
5
Sum of Cost by Category and Admit Date
Admit Date
2017
2018
Surgical
Step Down
Psychologych
Medical
Critical Care
0
2K
4K
6K
8K
Sum of Discount and Sum of Profit by Admit Date and Categ...
Admit Date
Category
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2017 Critical Care 15.24 37,649.08
2018 Critical Care 16.96 73,021.31
2017 Medical 24.15 110,220.27
2018 Medical 25.65 107,877.94
2017 Psychologych 4.63 1,414.22
2018 Psychologych 5.09 14,617.98
2017 Step Down 11.82 53,758.69
2018 Step Down 10.36 65,413.4
2017 Surgical 30.52 100,760.18
2018 Surgical 30.64 77,847.65
North Hospi...

Step15: After adding these interactive controls and actions, I modified the theme of the dashboard to make it appealing. Then the final analysis is published as a dashboard and can be shared with multiple people with all having different access controls.

The final dashboard looks like this: