Contents

Introduction to Rubiscape

Today, the world stands at the threshold of the Fourth Industrial Revolution. Data science and data analytics are identified as the pre-eminent accelerating factors to boost industrial, technological, scientific, and eventually human capacity.

There is a huge flux of data science platforms, which includes software that is used to affiliate resources, data analysis products, analytical tools, and knowledge base that are deployed throughout the data science lifecycle. These platforms are being used widely nowadays, not just as technical skillsets, but as business intelligence equipment to improve organizational efficiency.

rubiscape is one such innovative data science platform. It integrates the art and science of data to help you discover the world of data intelligence and fuel your imagination from Insight to Foresight!

What is Rubiscape

rubiscape is a new age data science platform. It takes care of all your data needs while maintaining harmony amongst heterogeneous systems. It aids open-source, algorithms, computation, and decision-makers to work seamlessly. rubiscape makes data science accessible to everyone —students, small businesses, and big organizations.

rubiscape is a simplified data science platform that does not require any coding knowledge. If you have built models in any of the programming languages like Java, Python, or R; you can build the same on the rubiscape platform.

As compared to other data science tools available, rubiscape as a platform is more dynamic and customizable to suit your requirements.

Need of Rubiscape

Data exists everywhere, both in structured as well as unstructured forms. However, it is counterproductive if it is not captured, cultivated, analyzed, and leveraged.

Open Innovation is at the core of new-age business models. Thus, the real challenge is to have instant access to diverse data and simplified analytical processing in order to gain deeper insights and make a better impact.

Enterprises, Academia, and Governments are not able to leverage their diverse data due to lack of skills, expensive and complex tools, huge time and efforts, and investment required.

The Solution – ***rubiscape*** – a New Age Data Science Platform!

rubiscape unleashes new values from data for enterprises, institutions, and individuals, through co-creation and continuous innovation.

rubiscape provides an end-to-end Data Science Platform for developing, deploying, and managing real-time decision Application Programming Interfaces (APIs). The rubiscape architecture incorporates a powerful integration of Big Data as well as open-source ecosystem.

The mission of rubiscape is to help people connect their curiosity and experience with ‘any data’. It aims to simplify Data Science through innovative tools and techniques.

With rubiscape, one can

- Manage data complexity
- Maintain data integrity
- Master data diversity
- Nurture data culture

Features of Rubiscape

rubiscape is another word for a holistic yet evolving world of data innovation. With the rubiscape platform, we combine our passion and expertise in data science and analytics, providing cloud scalability, managed services, accelerators, and frameworks to make your data innovation successful.

Some of the key features of rubiscape are given below.

Faster Machine Learning

- Rapidly build the best models for statistical analysis using a rich library of more than hundred pre-built machine learning algorithms and functions
- Conduct machine learning (supervised as well as unsupervised)
  Use Natural Language Processing

Powered by Artificial Intelligence

- Consume API-based AI/ML models with image processing, video processing, and text processing aligned with business processes or applications

Agile Design

- Seamlessly integrate plug and play customizable components according to the needs and evolving expectations of the industry

Affordably Effective

- Developed with high open-source technologies
  Offered on Cloud as SaaS model
- Simple to access and easy on the pocket (compared to the existing proprietary and on-the-premise products)

For Everyone

- Engage in and enjoy model creation and collaboration
- Use rubiscape even with the basic knowledge of statistics and without prior knowledge of programming

Scalability & Performance

- Auto-scaling for dynamic workloads or sudden load surge
  Guaranteed
- optimum performance during any situation

rubiscape Governor

- Organize all your data tasks into clearly identified projects
- Monitor audit trails for user activities, rights, and compliance with a dedicated dashboard

User Manager

- Easy to use and simple interface for user management
- Create, edit, and delete users from an intuitive process
- Assign roles and access control while creating users
- Create groups of multiple users and assign rights

Collaboration

- Single platform for all user personas
- Creating and share project documentation/knowledge base using Project Wiki
- Share reusable components (datasets, models and so on) across various departments within the organization

Content Manager

- Manage rights of users on workspaces, projects, and datasets at all levels
- Provide edit, delete, and read rights to the users
- Add detailed descriptions on the objects (datasets, code, models, and so on)

Deployment options

- Choose from on-site deployment and cloud deployment options
- Single-machine server to support the needs of small to midsize organizations
- Handle growing data, increasing workloads and scalability requirements using distributed server Enterprise
- hosting
- Private or public cloud (similar to BYOL-Bring Your Own License functionality) infrastructure

rubiWise – an Agile Data Science Methodology

rubiwise is crafted using design thinking principles. It aims at simplifying data science through effective strategies - datasets (diverse sources and infrastructures), skillsets (talents and creativity), toolsets (rubiscape and open source), mindset (principles and ethos) to innovate and deliver value.

rubiscape Platform Architecture

The three phases of data analysis are input, insight, and impact. These are explained below.

1. **Input**: Inputs are nothing but different sources of data. These include various location data, transactional databases, social media data, mobile application data, data obtained from various databases, IoT sensor data, and so on.
   rubiflow and rubithings are used to connect the data with the application (Refer to *rubiflow* or *rubi things*).
2. **Insight**: Insight is that part of the rubiscape platform where the data is stored, cleaned, aggregated, and analyzed to produce graphical output. The three main processes that take place in Insight are - Data Integration, Data Science, and Data Visualization. These three processes are described below.
   a. **Data Integration** - Data integration emerges from complex data center environments where multiple systems are creating large volumes of data. This data must be understood in an aggregate form, rather than in isolation. The aggregated data can then be used for predetermined analytical operations. On the rubiscape platform, once the data is connected to the application, it is essential to store the data. Depending upon the type of data, the data is stored in data repositories like Social Media, Email, Web Pages, IoT Edge, Data Lake, NoSQL, and Events.
   b. **Data Science (Processing)** - Data processing is the extraction of actionable insights from input data using a variety of techniques. In rubiscape platform, there are three modules for data processing, namely, rubiML, rubitext, and rubicast.
   c. **Data Visualization** - Data Visualization is the representation of data in graphical form. On the rubiscape platform, rubisight is a dashboard to see models and other results using a simple drag-and-drop functionality.

3. **Impact**: Impact is the last phase where the processed data is accessed and seen on different applications (including mobile applications), dashboards, chat bots, and so on.

rubiscape Product Suite

rubiscape is a pioneering data innovation platform which unleashes new value from data for enterprises, institutions, and individuals through co-creation and continuous innovation.

The products available on the rubiscape platform are given below.

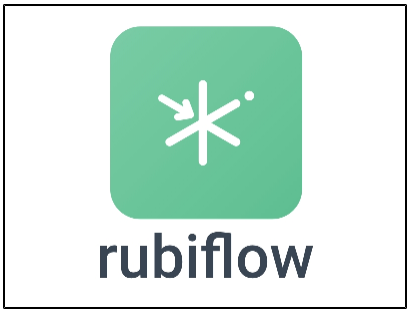
:

rubistudio

rubistudio is a simple no-code or low-code drag-and-drop visual model builder. It is used to build, evaluate, deploy, and publish model and reuse them whenever required.

The uniqueness of rubistudio is that it makes the process seamless. Data scientists can maintain multiple versions of models, integrate Python and R based models, and customize coding.

rubiflow



rubiflow is an integrated process designer to help users build and manage data flows with a visual, end-to-end event-based orchestrator. The data access engines of rubiflow provide a powerful and easy-to-use user interface that facilitates seamless collaboration, reuse of processes, and common metadata.

In rubiflow we handle data and perform data orchestration (check the accuracy of existing models) for which multiple models are available.

rubiML

rubiML is used to build, train, test, tune and publish AI-ML Models easily and instantly. rubiML offers interactive data exploration. This makes it easy to design and optimize AI-ML models which boosts analytical productivity without any knowledge of coding.

In rubiML, predictive modelling is performed using ML (supervised or non-supervised). Operations like regression, classification, and clustering are done in rubiML.

rubiML can be used to build a Machine Learning model in a workbook. Here you can build, train, and test your models. Refer to Working with rubistudio.

rubiML can be used to run a prebuilt model in a workflow. You can publish your trained models in rubiflow and reuse these published models in real-life scenarios. Refer to *Working with rubiflow*.

rubiText

rubitext combines the power of AI, ML, and Natural Language Processing to identify, mine, parse, categorize, cluster, and model textual data.

rubitext has a built-in powerful engine that simplifies word frequency analysis, pattern recognition, tagging/annotation, information extraction, link and association analysis and predictions to extract deeper insights.

rubithings

rubithings provides connected intelligence and enriches the data experience for smart maximization of value by inter-networking of physical devices, vehicles, buildings, machines, electronics, software, and sensors with IoT and Machine-to-Machine applications.

rubicast

rubicast is an integrated tool to streamline and automate the forecasting process. With rubicast, one can efficiently explore and analyze large volumes of time-series data without manually coding models.

rubisight

rubisight is a visual data storytelling dashboard with a simple drag-and-drop functionality. Once the model is ready, it can be displayed on the dashboard in rubisight. It is a cloud-powered visual data exploration experience. rubisight enables business users achieve faster dashboard turnaround and provides flexibility in tapping data for any subject area. It does not require you to have the knowledge of coding or any specific technical skills.

Applications of Rubiscape

The mission of rubiscape is to make data science accessible to everyone, right from a data enthusiast to a data expert. The rubiscape marketplace provides turn-key ready, end-to-end solutions. The rubiscape platform empowers every developer and data scientist, working in any sector, to build, train, and deploy ML models rapidly.

rubiscape is focused on providing a ready-to-use application for all market verticals. Enterprises can avail the opportunity of co-creation along with their customers and partners. rubiscape helps them build a new scalable business model for the partner ecosystem to utilize platform capability to build vertical-specific offerings.

Rubiscape can be used in multiple domains of various industry sectors. Some of the universal domains where rubiscape can be used are,

- Sales
- Marketing
- Human Resource Management
- Automation
- Fraud Detection
- Consumer Analysis
- Risk Assessment and Compliance

Additionally, the following table enlists some of the crucial industry sectors and the corresponding domains/segments where the rubiscape platform is employed.

Sectors	Domains/Segments	Sectors	Domains/Segments
Banking, Financial Services and Insurance (BFSI)	• Revenue Management • Wealth Management • Risk Modeling • Customer Portfolio Management • Customer Data Management • Life Insurance • Investment Banking • Loans • Mutual funds • Algorithmic Trading • Cards • Core Banking • Audit • Tax Management	**Automotive**	• Production • Quality Assurance • Supply Chain Management • Logistics • Price Optimization
		Media	• Sales • Marketing • Consumer Psychology • Customer Sentiment Analysis • Advertising/Publicity Campaigns (Personalization) • Social Media Analysis
Energy	• Energy Audit • Transmission Optimization • Renewable Energy • Survival Analysis • Energy Consumption Assessment • Environmental Impact • Pollution Assessment	**Manufacturing**	• Production • Supply Chain Management • Logistics • Price Optimization • Material Management • Labor Cost Optimization
Retail	• Price Optimization • Social Media Trends • Marketing Trends Forecasting • Inventory Management • Personalized Retail Marketing	**Telecom**	• Marketing • Consumer Data Analytics • Customer Sentiment Analysis • Network Management and Optimization • Price Optimization

Thus, with its pre-built solutions/applications, rubiscape helps various industry sectors to accelerate their decision making and strategy formation with a focus on optimizing their Return on Investment (RoI).

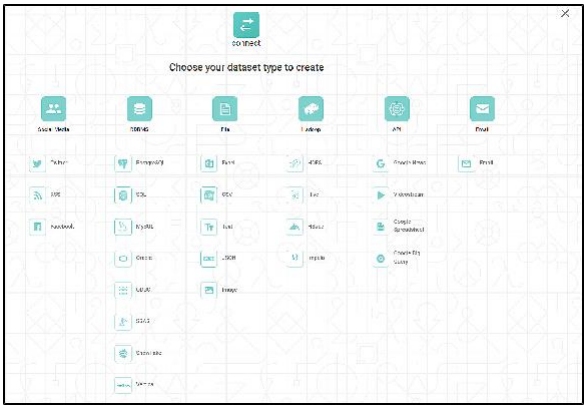
Datasets in Rubiscape

Overview	
What	Understanding the diverse types of datasets in Rubiscape and their creation process.
When	When you want to use data from various sources in your algorithm flows.
Why	To extract data from various sources and create datasets as per your requirements.
Where	Inside a workspace that is assigned to you.
Who	A user with dataset creation rights.
How	The dataset creation process is described in the following sections.

A dataset is a compilation or collection of data, usually in the tabular form. However, non-tabular datasets can also be compiled, as in the case of an XML file, where data appears in the form of marked-up strings of characters.
In machine learning, data is mostly categorized into four types.

Numerical data	Categorical data	Time-series data	Textual data	Geographical Data

The data types and corresponding datasets supported in Rubiscape are given below.
As shown in the above figure, Rubiscape supports various data sources under each of the dataset types.



As shown in the above figure, Rubiscape supports various data sources under each of the dataset types
The dataset creation process for these types is explained in the sections that follow.

Data Types	Social Media	RDBMS	File	Hadoop	API	Email
Datasets	Twitter RSS Facebook	PostgreSQL SQL MySQL Oracle ODBC SSAS Snowflake Vertica	Excel CSV Text JSON Image	HDFS Hive HBase Impala	Google News Video Stream Google Spreadsheet Google Big Query	Email

Working with Model Studio

What is Model Studio

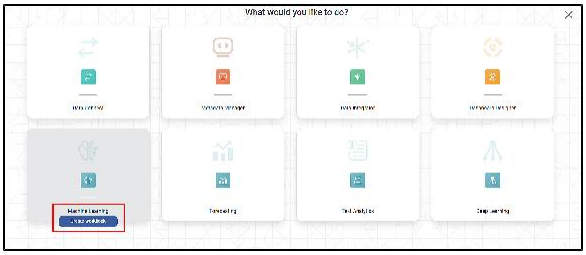
Model Studio is a visual model designer for data scientists. It helps to build, train, test, deploy, and publish data models. These published data models can be reused whenever required.

This enables you to maintain multiple versions of models; as well as integrate Python and R-based models.

Creating a Workbook

To create a workbook, follow the steps given below.

1. On the home page, click the **Create** icon ( ).
2. Hover over the **Machine Learning** tile and click the **Create Workbook** button.

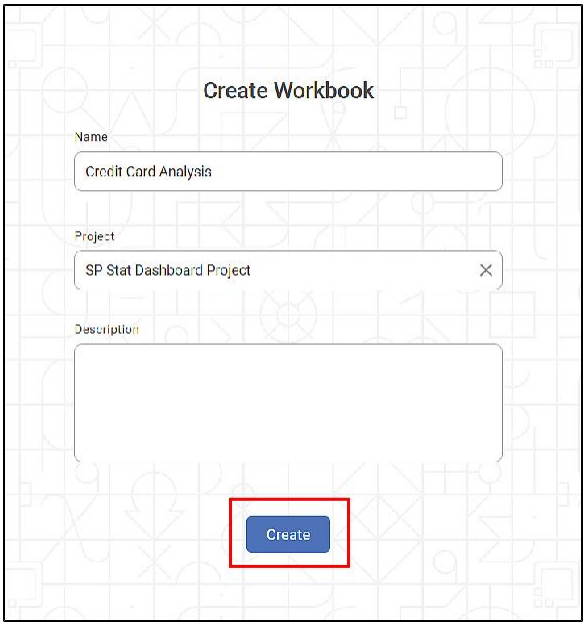


Create Workbook page is displayed.

3. Enter the **Name** for your workbook.
4. Enter the name in the **Project** field to create a new project.

	• The workbook is created under the entered project name. • You can also type the name of the existing project in the *Project* field to select the project. • Project name is mandatory.

5. Enter **Description** for your workbook.
6. Review all fields and click **Create**.



The workbook is created, and workbook canvas is displayed.

Understanding the Workbook Canvas

The workbook canvas is the area where you can build algorithm flows. When you open a new workbook, the following icons and fields are displayed.

The workbook screen has four panes, as given below.

1. **Task Pane**: This pane displays the datasets and algorithms that can be used in the workbook.
2. **Function Pane**: This pane displays the various functions that can be performed on the workbook.
3. **Workbook Canvas**: This is the work area where you can drag-and-drop algorithms and datasets to create algorithm flows.
4. **VIEW LOG**: This tab tracks the activities performed in the workbook and keeps a log (track) of it

The table give below describes the fields and icons present on the workbook

Icon/Field		Description
Task pane		It displays the list of datasets and algorithms that can be used in the workbook.
MortalityRate-C...	Name of the workbook	It displays the title of the workbook.
Validate	Validate	It validates the workbook and notifies if there are any error. A workbook or Workflow is validated before running.
— 100% +	Zoom	It helps to magnify the canvas to view detailing or move further away to take an overview look of thecanvas.
	Minimap	It displays a scaled down version of the workbook.
	Save	It saves your workbook.

	Save As	• It saves your workbook with a different name.
		• You can save workbooks in the same workspace either in
		  • same project
		  different project
		  a newly created project
		• While saving workbooks you can save them
		  • In the same project with a different name
		  In a different project with the same/different name
		• In a new project (you can create a new project while using the save as option) while saving
		• them
		All properties/characteristics/data in the workbooks are also saved in the new entity.
		If your workbook contains any variable created using the Manage Variable option, they are NOT carried forward in the newly saved location.

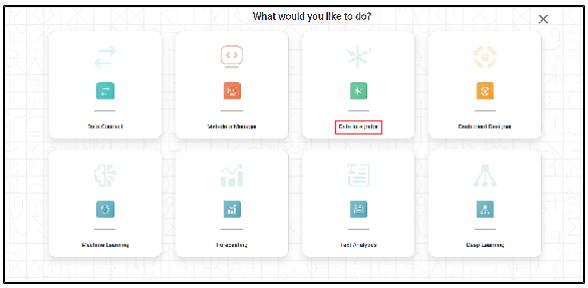
	Run	It runs the created algorithm flow.
	Hyperparameters	It is set of values of the algorithm properties at which the algorithm gives best results.
	(*x*) Variable	It is used anywhere in the workbook or workflow.
	Snapshot	It takes the snapshot of the created algorithm flow. The snapshot can be restored later for versioncontrol. For more information, refer to *Using Snapshot for Version Control*.

Workbook Canvas		It is the area to experiment with your datasets and algorithms. You can use the drag-and-drop methodto insert datasets and algorithms in the workbook canvas.
VIEW LOG		It displays the logs of the algorithm flow that are run, along with the trace of algorithm properties.

Creating a Workflow

To create a workflow, follow the steps given below.

1. On the home page, click the **Create** icon ( ).
2. Hover over the **Data Integrator** tile and click the **Create Workflow** button.

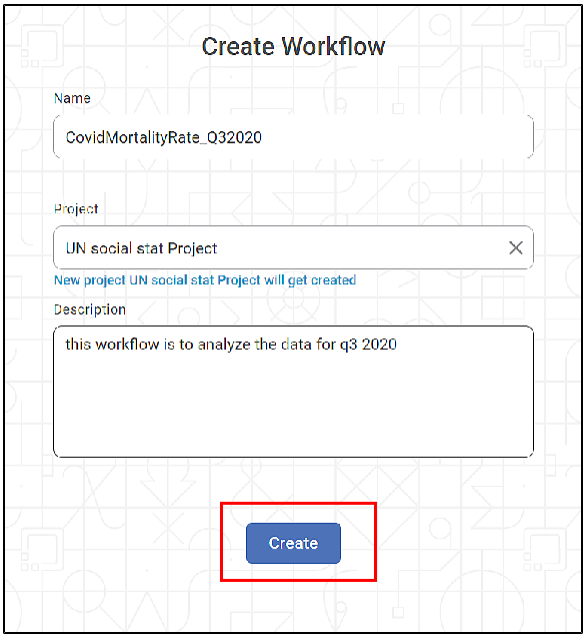


Create Workflow screen is displayed.

3. Enter the **Name** for your workflow.
4. Enter the name in the **Project** field to create a new project.

	• The workflow is created under the entered project name. • You can also type the name of the existing project in the *Project* field to select the project. • Project name is mandatory.

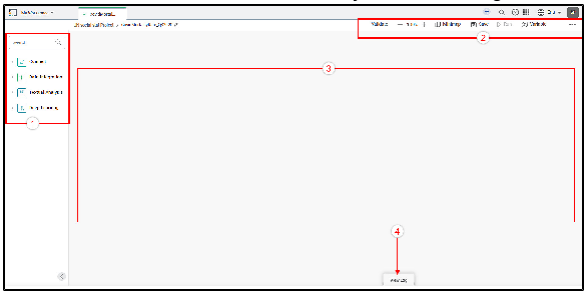
5. Enter the **Description** for your workflow.
6. Review all fields and click **Create**.



The workflow is created, and workflow canvas is displayed.

Understanding the Workflow Canvas

The workflow canvas is the area where you can build algorithm flows. When you open a workflow, the following icons and fields are displayed.



The workflow screen has four panes as given below.

1. **Task Pane**: This pane displays the datasets and algorithms that can be used in the workflow.
2. **Function Pane**: This pane displays the various functions that can be performed on the workflow.
3. **Workflow Canvas**: The work area where you can drag-and-drop algorithms and datasets to create workflows.
4. **VIEW LOG**: This tab displays the logs and activity trace of the workflow execution.

The table given below describes the fields and icons present on the Workflow Canvas.

Icons/Fields		Description
Task pane		It displays the list of datasets and algorithms that can be used in the workflow.
CovidMortal...	Name of the workflow	It displays the title of the workflow.
100%	Zoom	It helps to move your point of view closer to or further away from the canvas. It works as a screenmagnifier which changes the detailing level of the canvas to be seen.
	Minimap	It displays a scaled down version of the workflow.
	Save	It saves your workflow.
	Save As	• It saves your workflow with a different name. You can save workflows in the same workspace either in same project different project a newly created project While saving workflows you can save them In the same project with a different name In a different project with the same/different name In a new project (you can create a new project while using the save as option) while saving them All properties/characteristics/data in the workflows are also saved in the new entity. If your workflow contains any variable created using the Manage Variable option, they are NOT carried forward in the newly saved location.

	Run	It runs the created algorithm flow.
	Variable	It allows you to create Variable.

Introduction to RubiSight

What is RubiSight

On the Rubiscape platform, RubiSight is a visual data storytelling dashboard with simple drag-and-drop functionality.

Once the ML model is ready, it can be displayed on the dashboard in RubiSight. It is a cloud-powered visual data exploration experience.

RubiSight enables business users to achieve faster dashboard turnaround and provides flexibility in tapping data for any subject area. It does not require you to know coding or any specific technical skills.
In RubiSight, you can use various charts, graphs, tables, and maps to represent data effectively. Each graph has its own set of characteristics and, as such, is used for different purposes.

You can add several charts in a single dashboard that give complete visibility of all KPIs/ data trends in one sight, making the decision-making process faster.
These charts are further customizable according to the look and feel of your brand. This takes care of your brand value.

Features of RubiSight

Some of the key features of RubiSight are given below.

Data

- Import data from various sources such as Relational databases, Excel spreadsheets, CSV files, text files, social media, Google News, and so on.
- View the descriptive statistics on measures immediately for gauging your data characteristics.

Discovery

- Start exploring your data instantly from an intuitive and point-and-click interface.
- Explore data seamlessly in the cloud, which leverages your database to increase data comprehension.
- Experience interactive data discovery to easily identify the relationships, trends, outliers, and so on. This feature especially empowers business users and analysts.
- Stack or group your items effectively using precise and responsive capabilities that give you flexible layout and design options.
- Choose from a plethora of widgets or charts like Bar, Pie, Donut, Histogram, Bubble, Sunburst, Treemap, Pareto, and so on to enhance your data visualization experience.
- Select from an array of analytical visualization plots such as Box Plot, Waterfall Chart, and so on.
- Use the Sankey diagram for path analysis to visualize the relationships between distinct sequence of events.
- Use Line Charts to generate forecasts swiftly while also including the forecasting confidence intervals.
- Add web content like YouTube videos or web apps and images like logos to your report.
- Use one-click filtering (one-way or two-way) and the linked selections for data visualization and reports. This helps you to avoid the tedious process of manual linking of content.
- Synchronize the selection and filters across visualization in a dashboard or a report.
- Alter the measures, change the chart types, and format the charts easily so that you can make business decisions instantly.
- Use the power of key-value visualization to display important metrics such as numerical or categorical values in an infographic style for quick reference.

Augmented Analytics

- Use Automated Explanation to detect and highlight patterns and outliers in your data.

Sharing and Collaboration

- Create projects that share data, content, and other resources with fellow project members.
- Share insights as you explore new datasets.

Security and Administration

- Use the power of the Rubiscape Administrator module (an easy-to-use, web-based, and centralized administration) to monitor your BI (Business Intelligence) and analytics environment. This includes users, data, content, servers, services, and security.
- Experience user authentication and content authorization support governance.

Rubiscape Smart Caching

- Line up data collection, ETL (Extraction, Transformation, and Loading of data), and data imports to the freshest data available. Reduce the stress on your database.
- Create data visualizations in one click.
- Drag and drop data to create graphs from over 30 built-in options. Enhance your data exploration and get instant visual insights.
- Use Rubiscape dashboards to publish and share your insights with business stakeholders.

Advantages of RubiSight

Faster dashboard turnaround

RubiSight enables rapid switching between dashboards.

It reduces the time for transposition of data visualization charts and helps faster presentations and understanding.

Thus, a faster turnaround helps in facilitating faster correlation between charts.

Flexibility for any subject area

RubiSight can be used to create graphical visualizations for any kind of data, be it numerical, textual, categorical, or interval (date).

Thus, data from any data source such as business, social sciences, journalism, or space technology can be represented on the RubiSight dashboard.

Consistent user experience

RubiSight gives a visually as well as functionally consistent user experience.

The color scheme, a visually appealing design, the use of the most popular and useful widgets, and easy-to-perform filtering and formatting make RubiSight user-friendly.
This consistency enables users to learn the accurate utilization of the provided widgets faster. It eliminates confusion and saves time in building a dashboard.

Less intensive user training

The widgets and their formatting are pretty simple and do not require any special training in data visualization or mathematics and statistics.

Any user can create visually appealing dashboards easily on RubiSight.

Branding and Design control

Brands and designs are prized assets for any organization or company.

They are not only unique but also function as the flag-bearers for the organization.

Customers identify products and companies from their brands and designs.

Applications of RubiSight

RubiSight is a cloud-powered visual data exploration experience that enables business users to access, prepare, analyze, and present findings in their data. For this, the user need not necessarily have technical skills or a background in coding.

RubiSight can connect to various data sources and enable organizations to scale their business analytics capabilities to millions of users. It delivers fast and responsive query performance by using a robust Rubiscape.io engine.
Due to its versatility in the choice of widgets and flexibility in their configuration, RubiSight finds various applications in different sectors. Below is a list of some of the industry verticals where RubiSight is employed.

- Manufacturing
- Government
- Pharma
- Retail
- Energy
- Healthcare
- Education
- Logistics and Transportation
- Telecom
- Information Technology
- Banking, Finance Services, and Insurance (BFSI)
- Scientific Research
- Military
- Life Sciences
- Hospitality
- Media and Communications

Widgets in RubiSight

In RubiSight, charts are referred to as widgets. They are available in the widgets pane. The available types of charts and their uses are explained in the sections given below.

End-to-End Dashboard Creation

Dashboards help visualize your data from an extraordinary perspective. The same data, when explored using different visualization charts, can give diverse insights. These insights accelerate the decision-making process. In RubiSight, dashboards can be created very easily, using the following steps:

1. Start with a blank dashboard
2. Add your dataset to the dashboard
3. Select a chart/widget of your choice
4. Configure the chart/widget

This section demonstrates the basic dashboard creation process. To create a dashboard, and add a widget to it, follow the steps given below.

1. On the home page, click the **Create** icon ( ).
2. Hover over the **Dashboard Designer** tile and click the **Create Dashboard** button.

The *Create Dashboard* page is displayed.

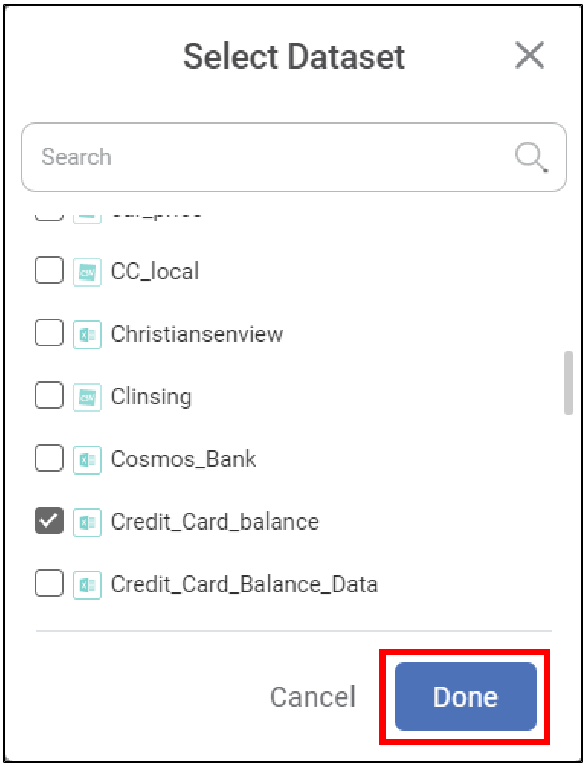
3. Select the **Create new** radio button.
4. Enter the **Name** for your dashboard.
5. Enter the name in the **Project** field to create a new project.

Notes	• The dashboard is created under the entered project name. • You can also type the name of the existing project in the *Project* field to select the project. • The project name is mandatory.

6. Click **Select Dataset** in the **Dataset** field. The *Select Dataset* window is displayed.
7. Locate the dataset you want to add and select its corresponding check box.

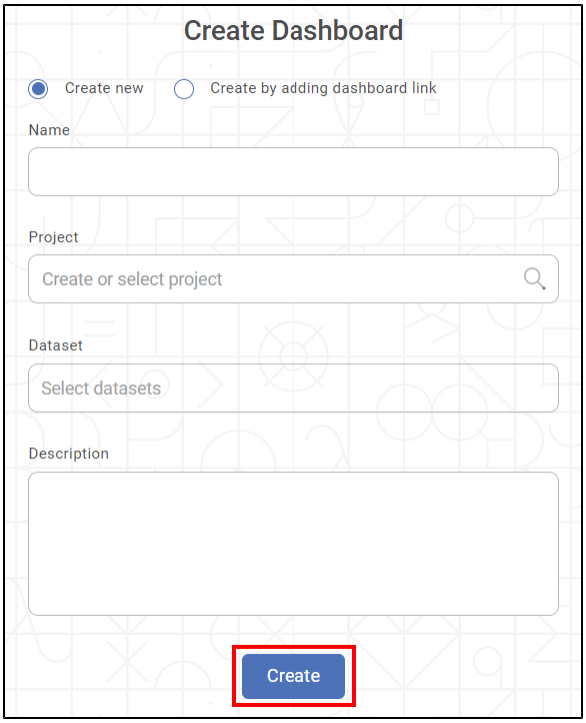
• You can also type the name of the dataset in the **Search** field to locate the dataset. You can select multiple datasets.

8. After selecting all datasets, click **Done**.



9. Enter **Description** for your dashboard.

10. Review all fields and click **Create**.



The dashboard is created, and the dashboard canvas is displayed. Next, we plot a chart using the widgets available.

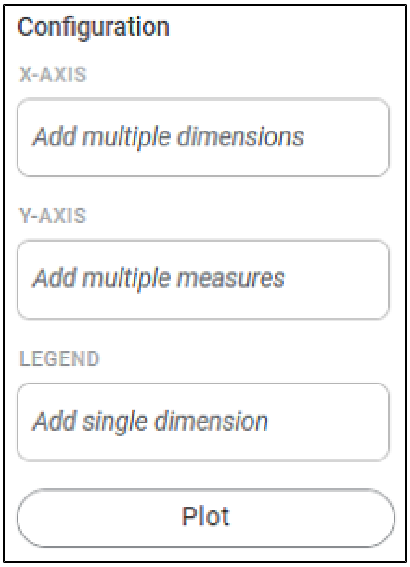
11. In the *WIDGETS* pane, click the widget you want to plot.

ℹ	Hover over any widget to see its name and the number of dimensions and measures in it.

The selected widget is added to the dashboard canvas.

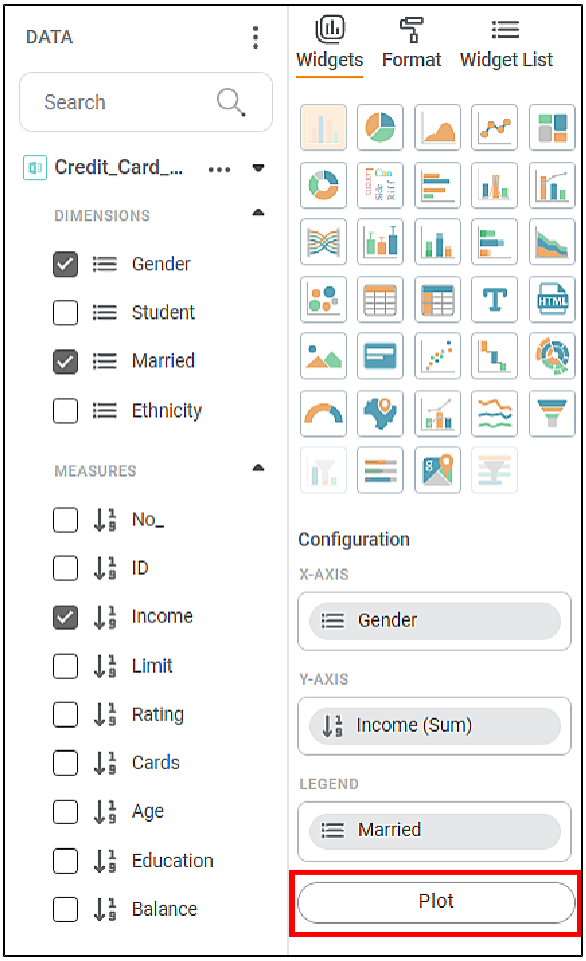
12. Select the added widget. For example, here we consider a Column Chart. *Configuration* settings are displayed in the WIDGETS pane.

ℹ	• You can add multiple widgets on one canvas. • The *Configuration* setting varies depending on the selected chart.

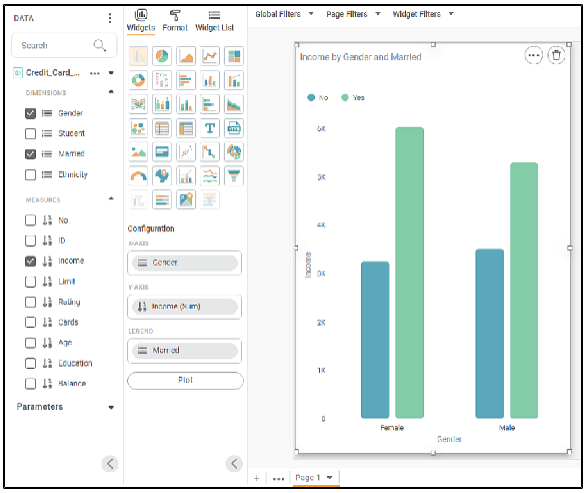


13. From the **DATA** pane, drag-and-drop the **DIMENSIONS** and **MEASURES** in the appropriate **Configuration** fields, and then click **Plot**.

For example, here, we did drag-on-drop for *Married* in **X-Axis**, *Income* in **Y-Axis**, and *Gender* in **Legend.**



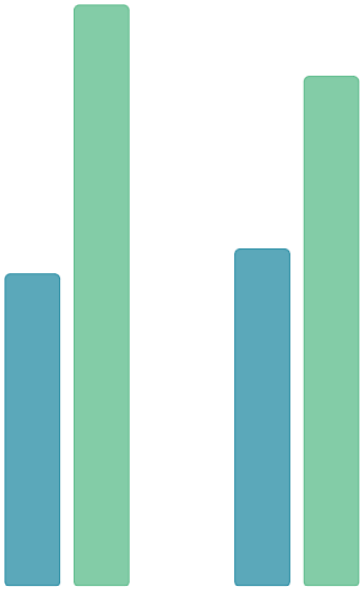
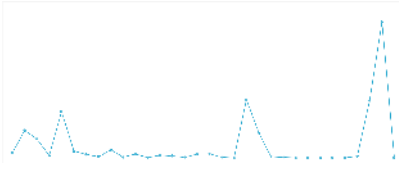
The chart is plotted depending upon the dimensions and measures added in the configuration. The dashboard looks as shown in the diagram below.

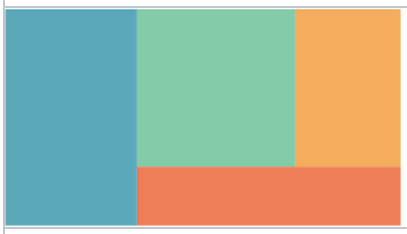
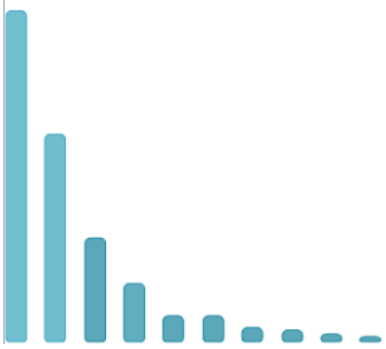


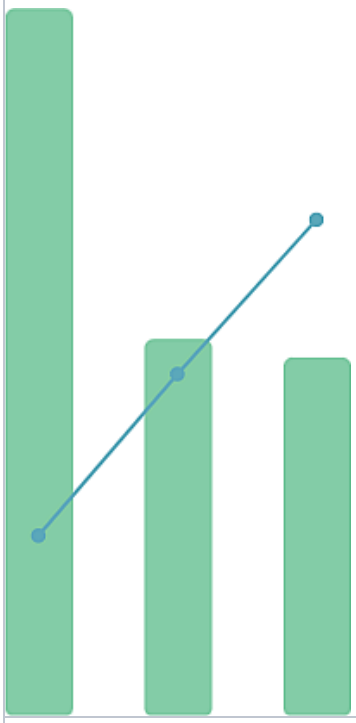
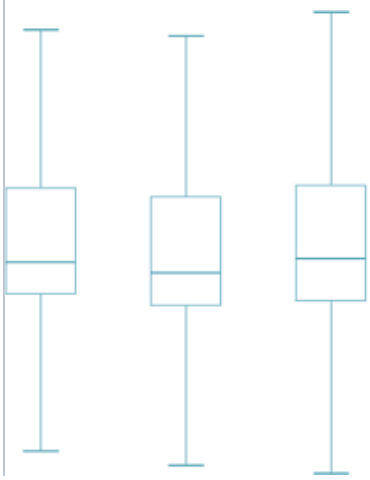
Here we included only one chart – the Column Chart. RubiSight supports multiple types of widgets to create charts. The next section briefly explains each of these widgets.

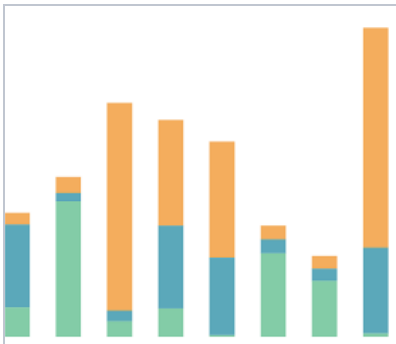
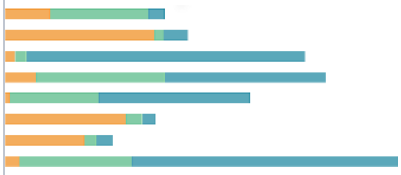
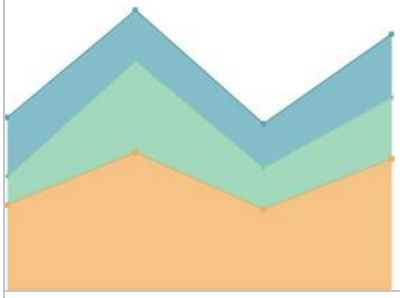
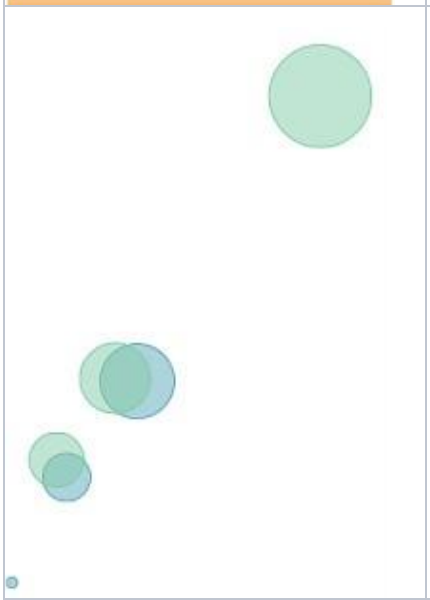
Uses of Widgets/Charts

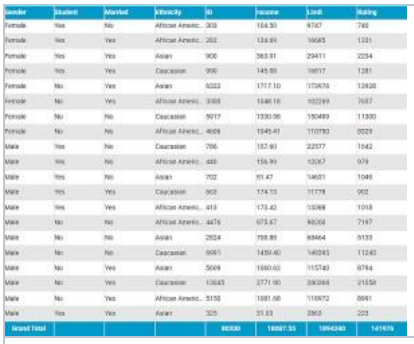
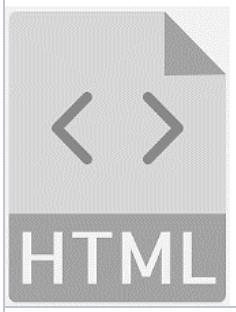
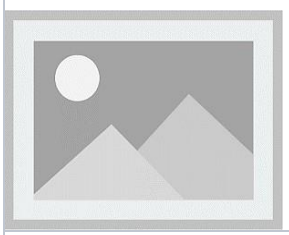
Charts are used to represent data graphically and effectively leverage the information hidden in it. Charts help comprehend huge amounts of data and the correlation between the different elements present in the data.
The table given below shows the uses of different types of widgets/charts available in RubiSight.

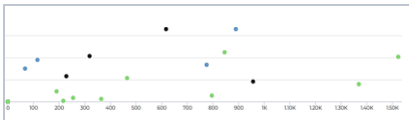
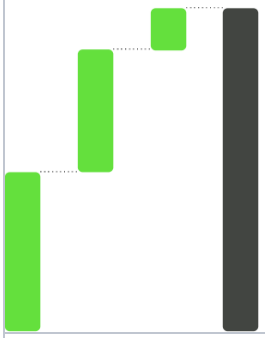
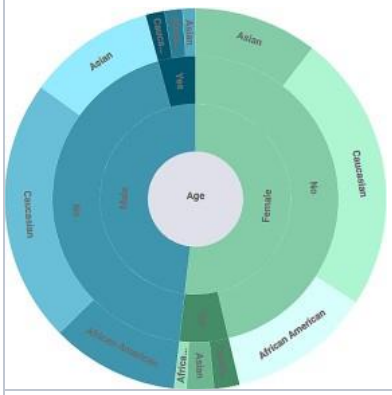
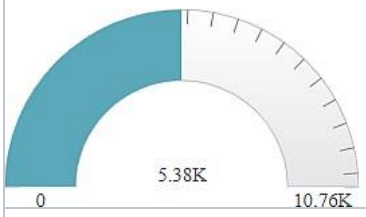
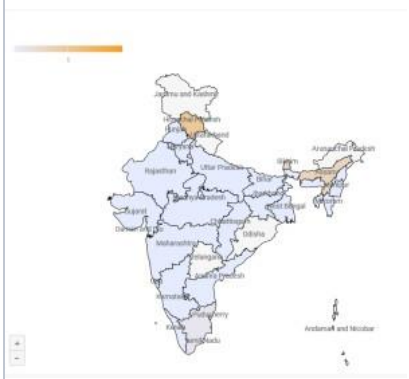
Chart/Widget/Table/Map	Name	Description
	**Column Chart**	• To compare a single category of data with respect to a certain variable. • *Example:* Change in GDP with time. • Can be used to represent both numerical as well as categorical data. • • • •
	**Pie Chart**	• To determine the composition of a variable in categorical data. *Example:* To determine the constitution of air in the atmosphere. To compare various categories within a single set of data *Example:* To compare various areas of growth within a business. Recommended to use when you have only one set of data with different features. • • •
	**Area Chart**	• • Similar to and roughly based on Line Charts To display quantitative data. To compare two or more quantities in numerical data. To depict a time-series relationship. • *Example:* Variation in revenue from sales during each quarter in a financial year • •
	**Line Chart**	Represent continuous variable. To display the variation in a particular variable over a given time duration. *Example:* Variation in the stock market index during one trading day. • •

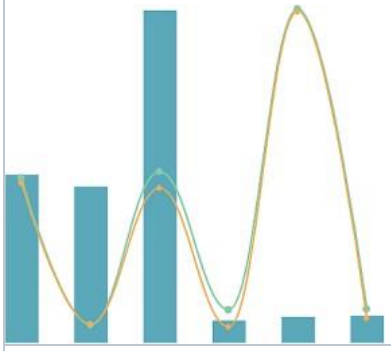
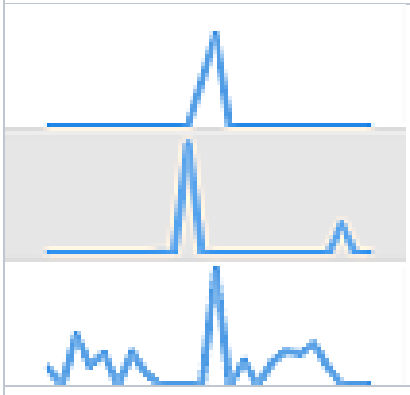
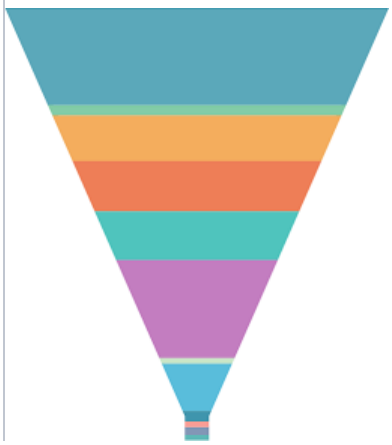
	Treemap Chart	To represent hierarchical data in a tree-like structure in the form of nested rectangles. The varying size and color of rectangles are proportional to the data values represented by them.
		Example: The representation of the population of countries in the European Union.
	**Donut Chart**	Variation of the Pie Chart To represent a part-to-whole relationship between various components of a variable. Example: The representation of expenditure by government on various liabilities.
	**Word Cloud Chart**	Also called the Tag Cloud or Weighted Data Chart. To represent textual data visually. The size of each word represents its frequency or the magnitude of the variable associated with it. Example: The representation of various US cities based on the average sales of cars in the financial year.
	**Bar Chart**	Similar to Column Chart but plotted horizontally. To represent categorical data. Rectangular bars of heights and lengths proportional to the values they represent. Example: Gold medal tally of various nations in Olympic games.
	**Histogram**	To show the distribution of measure values. To identify data issues, including outliers. To determine the center, spread, skewness, and multiple models in a dataset. To determine the relative frequency of occurrence of an event. Quantitative data is plotted with data range grouped into bins or intervals. Each column indicates a bin. The characteristic of a bin is its area and not its height. Example: The representation of time spent by customers in various departments in a departmental store.

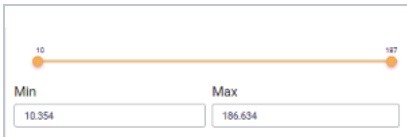
	Pareto Chart	To highlight the most important factor among the given set of factors One of the basic tools in quality control Bars in descending order represent individual values of the variable, while the exponential curve indicates the cumulative total. Example: The representation of most common sources of consumer complaints related to a product or service given by a company
		
	**Sankey Chart**	To represent the flow of variables from one set of values to another. To draw many-to-many mapping between two domains. Example: The representation of the student flow from Asian countries to US universities for various majors.
	**Box Plot Chart**	To depict the groups of numerical data through their quartiles. To represent how values in a dataset are spread out. Provides a graphical summary of the distribution of a sample. Whiskers on the two sides of the box represent the variability outside the quartile range and the presence of outliers. Example: The representation of the stocks/shares held by different organizations.

	**Stacked Column Chart**	Variation of the column chart To represent part-to-whole comparisons of various sub-segments over time or across various categories. To determine which sub-total contributes the most to the overall score. The column heights are compared to determine the relative frequency of occurrence or relative value of the variable. Example: The representation of the types of web-series (thrillers, sci-fi, detective, and so on) watched by people, out of the total viewership, during the lockdown period.
	**Stacked Bar Chart**	Similar to a Stacked Column Chart and a variation of Bar Chart. The variables are represented as horizontal bars instead of vertical columns. Example: The representation of the revenue generated by various departments like fashion, accessories, electronics, and so on in various supermarkets in a city.
	**Stacked Area Chart**	Similar to the Area Chart. To represent the evolution of the values of various groups. To determine the significance of each group and the evolution of the values of the numerical variable. Example: The representation of the revenue generated due to sales of various sub-categories of products in a superstore during a financial year.
	**Bubble Chart**	Variation of the Scatter Plot Chart. To represent data with three dimensions – x, y, and value (amplitude) of data. The size of the bubble (that is, its radius) is proportional to the amplitude of data. Example: The representation of the amount of rainfall in various regions of the country during a given period.
	Table	To create a new table out of a given dataset with the selected variables. To highlight that part of the dataset that is used for analysis.

		
	**Cross Table**	To create a new table out of a given dataset with the selection of rows and columns and the value to be displayed. To highlight the correlation between variables that are not represented in the original dataset. When there is more than one header row/column then the header row and column are frozen. In case of Single header row/column, header column/row is not frozen.
	Text Chart	To create a chart using simple text.
		
	**HTML Chart**	To render custom charts according to HTML code provided by the user.
	**Image**	To add an image to an existing dashboard. Can be browsed directly from the dashboard or using the provided URL.
	**Card**	To create a card with a single value related to a single variable. To display any important figure related to the given dataset.

	**Scatter Plot Chart**	To observe the relationship between two numerical variables. The location of each dot represents the corresponding value of that data point with respect to the horizontal and vertical axes. Example: The representation of the sale of raincoats in a city according to the amount of rainfall during a year.
	**Waterfall Chart**	To observe the gradual transition in the value of a variable subjected to an increment or decrement. Either the first or the last column indicates the total value of that variable. Example: The representation of segregation of the total revenue generated from various home appliances in a shop among the sub-categories of appliances.
	Sunburst Chart	An extension of the Pie Chart. To visualize hierarchical data structures. Each concentric ring in the outer direction represents a deeper hierarchy in the distribution of data.
		The angle of each segment is proportional to the value of the variable or is divided equally among its parent node. Example: The representation of exports of various machine parts, from a company to various countries.
	**Solid Gauge Chart**	To represent a variable with a filled arc, where it's color and length change with the value of that variable. Example: The representation of the customer satisfaction score relating to a product/service.
	**Map Chart**	To represent data values on the map of the world, a country, or a region. The variation in the color of each portion of the map indicates the values corresponding to the variable selected. In case the auto-detect mechanism does not work, you can select the required value in the Region option of the formatter section. Rubiscape supports data for map charts only from specific regions /countries. Visit http://code.highcharts.com/mapdata/ to know the N regions supported by Rubiscape.

		ote :
	**Combination Chart**	Combination of the features of a Line Chart and a Bar Chart. To represent categories of data in the form of lines and bars. To validate the relationship between two related variables that have different magnitudes and different scales of measurement. Example: The representation of revenue and profit by sale of a commodity in various states in India.
	Sparkline Chart	To represent the variation in one variable with respect to another variable or a category. Generally used when there are three variables to be represented on the chart. If used with just two variables (column and value), a simple table like the chart is plotted without a sparkline. To show data trends. Example: The representation of the variation in average temperature in a city during months of the year.
		
	**Funnel Chart**	In general, to represent how a starting 'whole' progressively breaks into individual 'parts.' In business or sales context, to track how consumers drop out of the flow or process. Example: The representation of the performance of a political party in an election with respect to total seats, prospects, wins, and losses.

	**Filter Widget**	To filter out data for one dimension or one measure. To show the minimum and maximum values and the range of values corresponding to a variable. It helps represent filtering for interval (date) types of data as well. You can save the existing filter conditions when applied through this widget. Example: The representation of profit in the sales of a commodity.
	**Bullet Chart**	Variation of the Bar Chart and resembles a thermometer. To show a primary variable, compare it with a target variable, and indicate its performance. It shows the minimum and maximum values for each dimension that describe the scale. Example: The representation of the annual revenue of a company, compare it to the target revenue, and to indicate whether it is good, satisfactory, or bad.
	**Google Map Chart**	Data values are displayed as markers on Google Map. Uses Google Maps API. Uses Latitude-Longitude values to display markers. Example: The representation of storm data based on location.