Documentation Index.

1. Project Over-View
2. Feature List
3. Use Case
    - 3.1 Use Case Diagram
    - 3.2 List of Use case
    - 3.3 Fully Dressed Use-cases.
4. Class Diagram
    - 4.1 Conceptual model
    - 4.2 Design model
5. Design Patterns
    - 5.1 Factory Pattern
    - 5.2 Observer Pattern
    - 5.3 Strategy Pattern
    - 5.4 Singleton Pattern
    - 5.5 Facade Pattern
6. Sequence Diagram
    - 6.1 Load DataSet
    - 6.2 Selection of Columns
    - 6.3 SQL query & apply chart
    - 6.4 Row Filter & apply chart

6.5 Row and Stat& apply chart

6.6 Column and Stat & apply chart

6.7 SQl query and Stat & apply chart

6.8 column filter & SQL Filter and stat & apply chart

6.9 Row & Sql query and stat

7. Activity Diagram

7.1 Load Dataset

7.2 Column selection and plot chart

7.3 Row Filter and plot chart

7.4 SQLQuery and plot chart

7.5 Column &Stat and Plot chart

7.6 Row, stat and plot chart

7.7 Column, Row and apply chart

7.8 Row, Sql and plot chart

Project Completion Status	
Design	**Completed**
USECASE	Yes
Class Diagram	Yes
Sequence Diagram	Yes
Activity Diagram	Yes
Design Patterns	5 Design Patterns

Implementation	**Completed**

View Logic	Yes
Load Dataset	Yes
Column Implementation	Yes
Row Implementation	Yes
SQL Implementation	Yes
Stat	Yes
Chart	Yes

1) Project Over-View:

A dashboard representing the dataset of football players of 5 Nations (Italy, England, Brazil, Argentina, Germany). Using this dashboard, we can select a Nation team according to the constrains we set. We can see the statistics of these Nation to have a comparison between them. We can compare which team is having talented players. We can also analyse the players skill in all the nation and compare them.

Dashboard consist of data of every player skills, preference, Club team, Contract details and physical appearance. So, we can select, Eliminate, Query, generate statistic, generate chart for the dataset. The skills description in the data set is about the Football skill. So, you can select players with better skillsets and see the statistics like in how many club players are there. In upcoming years, what would be the scope of the team.

2) Libraries Used:

1. Chart.js:
   Chart.js is a javascript Library for plotting various charts like BAR, PIE, STACKED, …etc. This Library provides a user-friendly feature to create char according to user needs. It supports various features like labelling, Hover, Axis Legends, ..etc. It accepts the data in Array or Json Format, according to user need they will pass the values to plot the chart.

2. Dataframe.js:
   It is javascript Library for handing Datasets in various format like CSV, JSON, Text. Also, It provides features to read, filter, Group, Restructure, Stat, SQL Query, Creating Fake modules.
   It provides function to work on both Row and Column values of the dataset. We can modify the dataset according to the need and we can import it into file also.

   We used Chart.js to Plot the graph for the data in the dataset to see the statistic of the data. And Dataframe.js for loading and preforming operations like Filter, SQL Commands, Statistic calculation.

3) Features:

I. Load 5 different Dataset.

II. Selection of columns in the dataset selected.

III. According to the column selected Row option will be auto-Generated.

IV. According to the Row values selected we can eliminate the unselected values from dataset. V. We can perform SQL query over the dataset.

VI. All the Filter and Selection will be reflected in dataset and will be displayed.

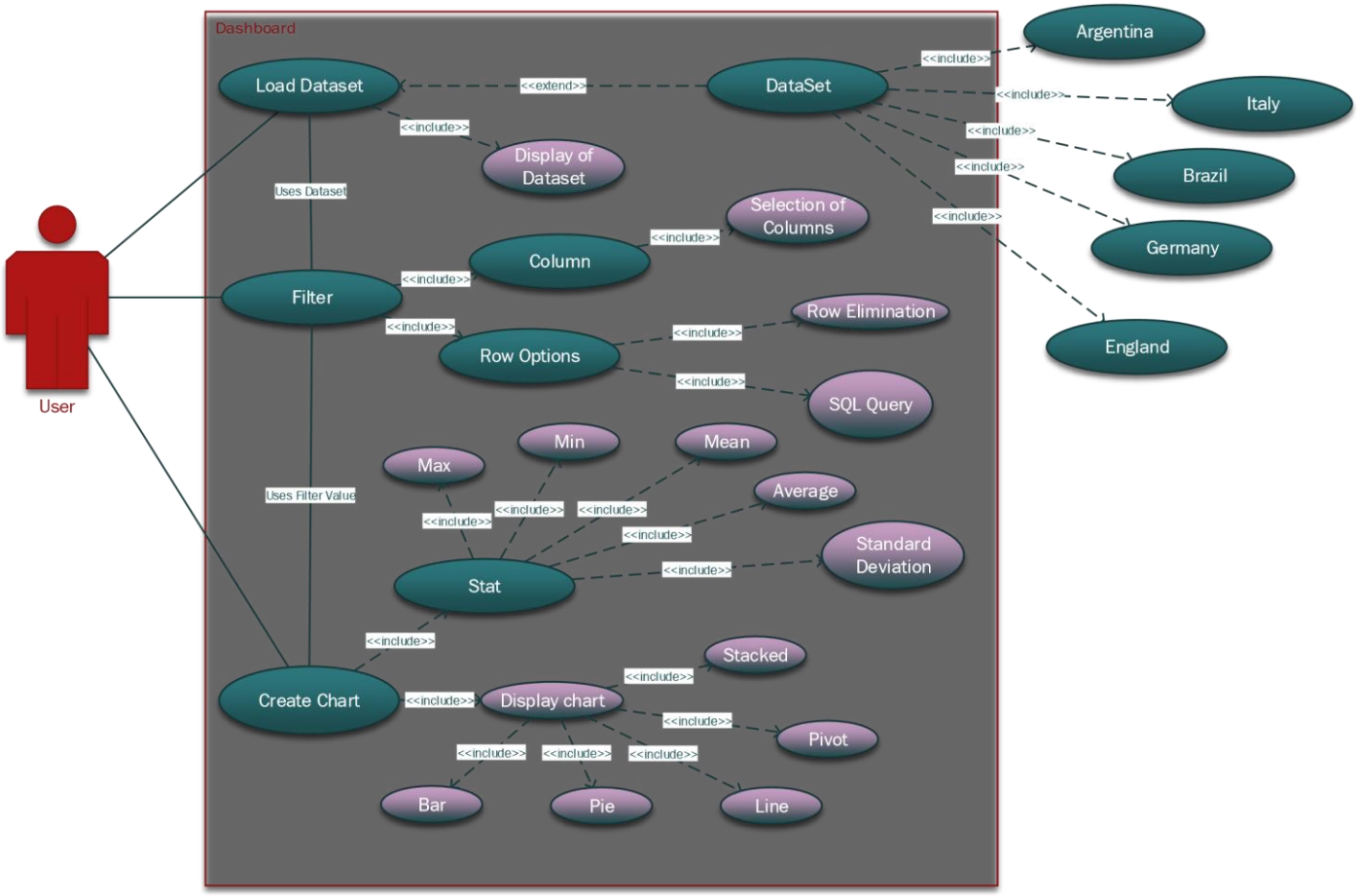
VII. User can select the statistic they want to see in the graph. It supports 5 Statistical metrics Min, Max, Average, Standard Deviation and mean.

VIII. User can Plot 5 different Types of chart. Bar, Line, Pie, Stacked, Pivot. Also, can generate more than one chart for same dataset.

IX. User will be able to select x-axis and y-axis.

1. Use Case

1.1 Use Case Diagram



1.2 **List of Use case**

- Load Dataset.
- Apply column selection and create chart.
- Apply row filters and create chart.
- Apply Sql query and create chart.
- Use a filter combination Row & SQL and apply chart.
- Apply statistics for the filter and create chart.

1.3 **Fully Dressed Usecases**

Load Dataset.

Use Case headings	**Explanation**
Use case name	Selection of Dataset.
Scope	Selection of dataset, Display of dataset.
Level	user goal.
Primary actor	User
Stakeholders and Interests	User: • Successful of display of dataset.
Pre-conditions	User should have loaded the Page.
Success Guarantee	Dataset should be displayed
Main Success scenario	User view the dataset in table
Extensions	User may apply column selection. User may apply Row Filters. User may User SQL Function. User may Generate chart.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

Apply column selection and Create chart.

Use Case headings	**Explanation**
Use case name	Column selection and Apply chart
Scope	Apply column selection, Generate Chart
Level	user goal.
Primary actor	User
Stakeholders and Interests	User : • Successful selection of Column. • Generate chart for it.
Pre-conditions	User should have selected a data List

Success Guarantee	Chart Should be generated in the Canvas
Main Success scenario	User view the final chart
Extensions	User may apply Row Filters. User may User SQL Function. User may calculate Stat. User may Generate chart.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

Apply row filters and create chart.

Use Case headings	**Explanation**
Use case name	**Apply row filters and apply chart**
Scope	Apply Row Filter& Generate Chart
Level	user goal.
Primary actor	User
Stakeholders and Interests	User : • Successful apply Row filter. • Generate chart for it.
Pre-conditions	User should have selected a data List and applied Column selection.
Success Guarantee	Chart Should be generated in the Canvas
Main Success scenario	User view the final chart
Extensions	User may apply Row Filters. User may User SQL Function. User may calculate Stat.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

Apply Sql query and create chat.

Use Case headings	**Explanation**
Use case name	Apply Sql query and create chat.
Scope	Apply SQL filter & Generate Chart .
Level	user goal.
Primary actor	User
Stakeholders and Interests	User : • Successful applied SQL Query on dataset. • Generate chart for it.
Pre-conditions	User should have selected a data List, Selected Columns.
Success Guarantee	Chart Should be generated in the Canvas
Main Success scenario	User view the final chart
Extensions	May apply Row Filters. User may calculate Stat.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

Use a filter combination Row & SQL and apply chart.

Use Case headings	**Explanation**
Use case name	Use a filter combination Row & SQL and apply chart.
Scope	Selection of column, Row filter, Column Filter.

Level	user goal.
Primary actor	User
Stakeholders and Interests	User : • Successful apply of filter applied. • Generate chart for it.
Pre-conditions	User should have selected a data List, Selected Columns.
Success Guarantee	Chart Should be generated in the Canvas
Main Success scenario	User view the final chart
Extensions	User may calculate Stat.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

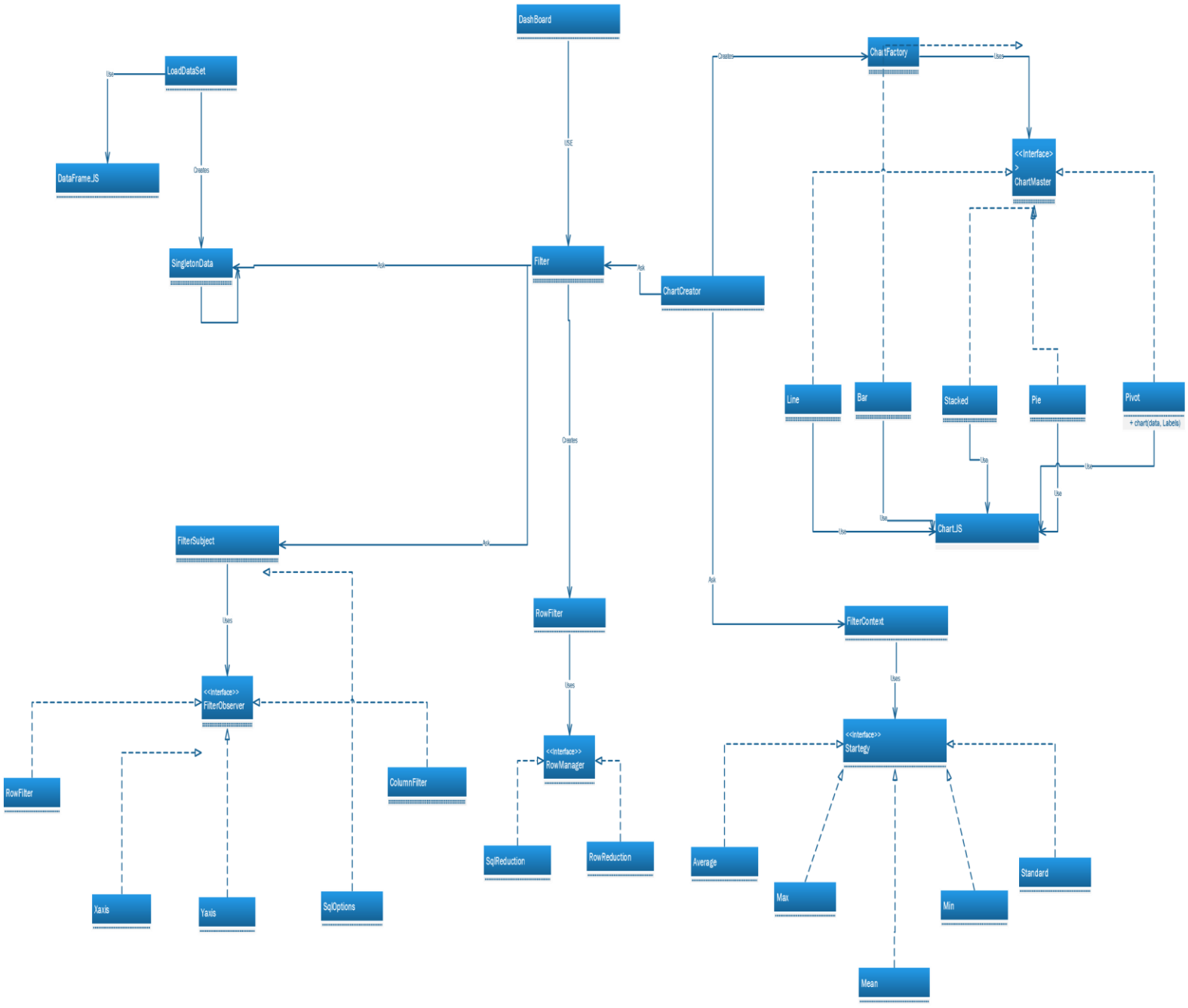
Apply stat for the filter and create chart.

Use Case headings	**Explanation**
Use case name	Apply stat for the filter and create chart.
Scope	Selection of column, Row filter, Column Filter, Stat.
Level	user goal.
Primary actor	User
Stakeholders and Interests	User : • Successful select stats • Generate chart for it.

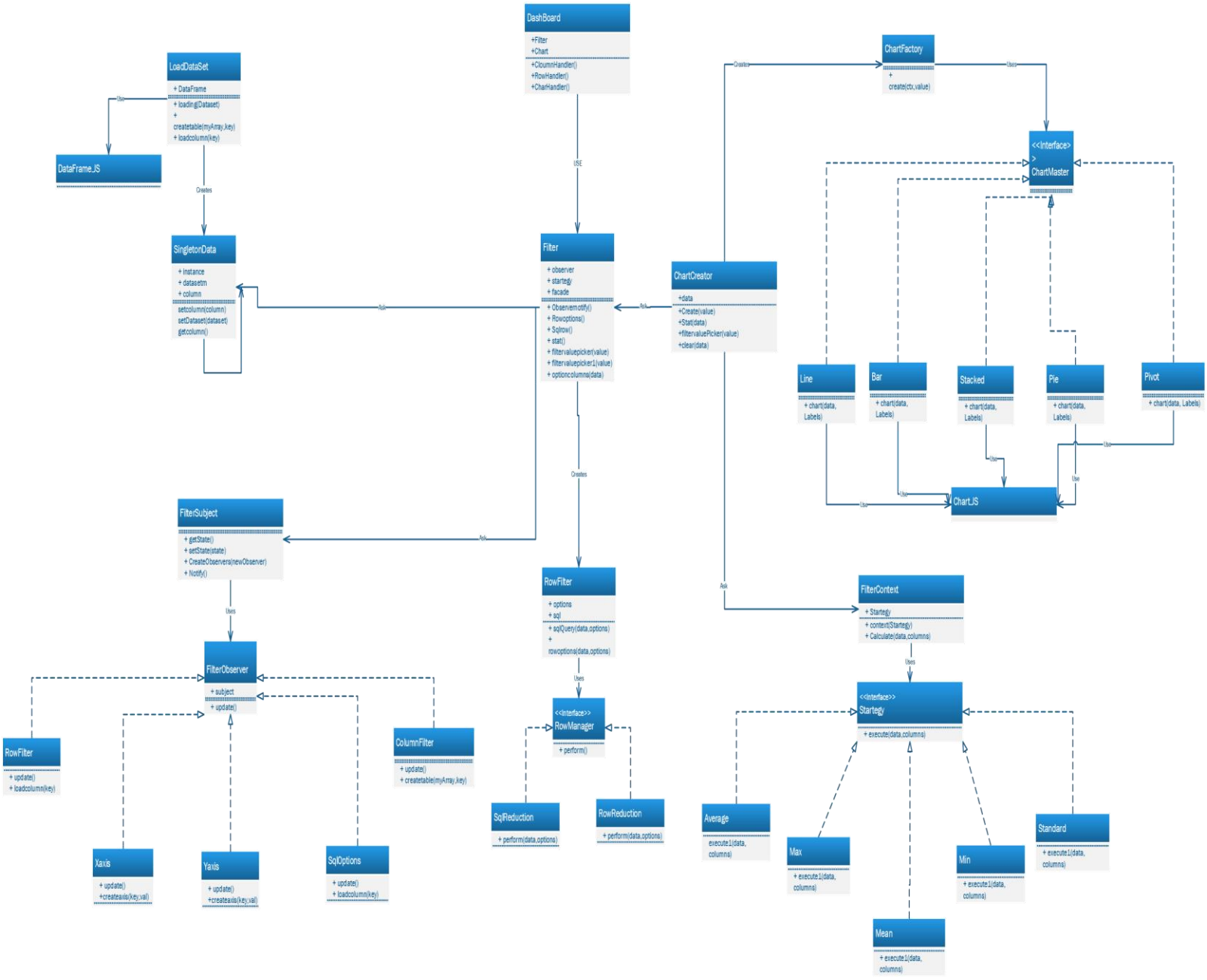
Pre-conditions	User should have selected a data List, Selected Columns. Applied Row filters.
Success Guarantee	Chart Should be generated in the Canvas with Stat
Main Success scenario	User view the final chart
Extensions	User select another Dataset.
Special Requirements	N/A
Technology and data variation List	Type of chart ,Web Page
Frequent of occurrence	Quite often occurring use case(Priority very high)
Miscellaneous	No issues

2. **Class Diagram**

2.1 **Conceptual model**


DashBoard
LoadDataSet
Use
DataFrameJS
Creates
SingletonData
USE
Filter
Ask
ChartCreator
Creates
ChatFactory
Uses
<<Interface>>
ChartMaster
Line
Bar
Stacked
Pie
Pivot
+ chart(data, Labels)
Use
ChartJS
Creates
FilterSubject
Ask
Uses
<<Interface>>
FilterObserver
RowFilter
Xaxis
Yaxis
SqlOptions
ColumnFilter
RowFilter
Uses
<<Interface>>
RowManager
SqlReduction
RowReduction
Ask
FilterContext
Uses
<<Interface>>
Startegy
Average
Max
Mean
Min
Standard

2.2 **Design model**

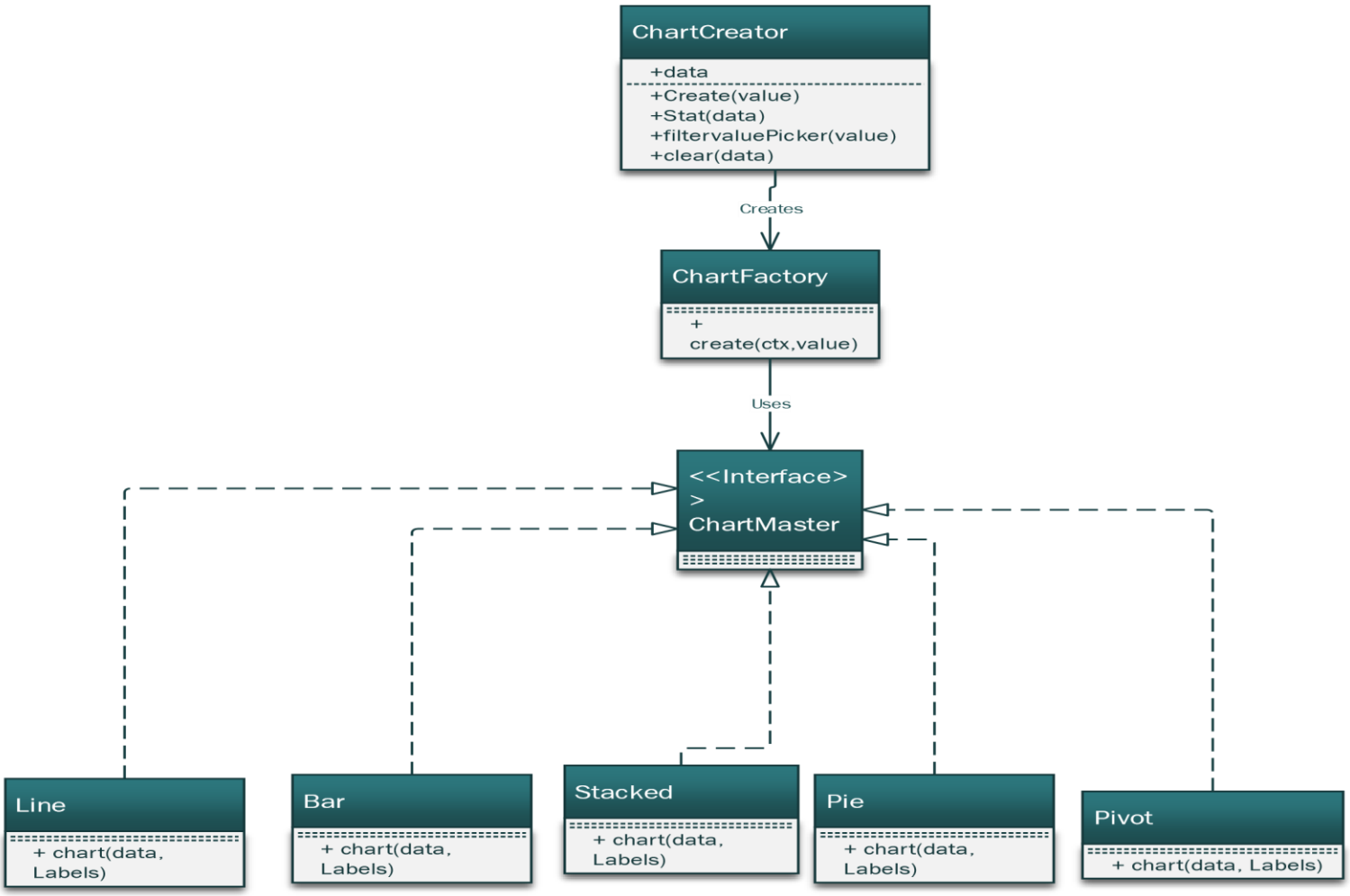


Note: It is Observed that ES6doesn't support Interface, So we can implement the Design Patterns with class

Reference: ~~https://github.com/tcorral/Design-Patterns-in-Javascript~~

3. Design Patterns

3.1 Factory Pattern



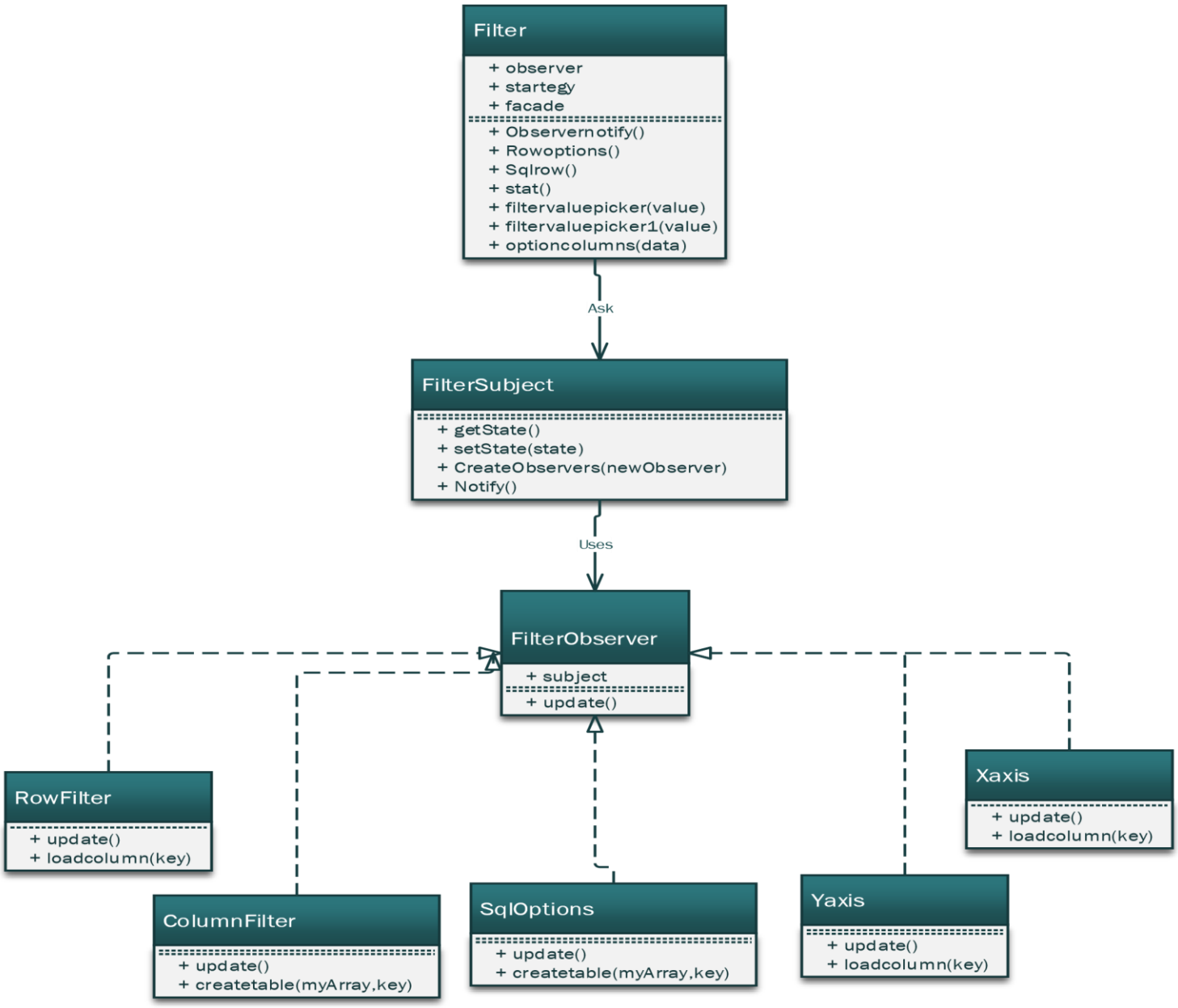
Factory Pattern: It comes under Creational Pattern .It creates the object without exposing the creating logic to client and refer to newly created object referring to a common interface.

Usage: Here ChartMaster is the common interface and base type for all charts. ChartFactory creates new objects according to the Request of Client. Here ChartCreator is the client.

Common interface :ChartMaster,
Sub-classes- Line, Pie, Pivot, Stacked, Bar.
Creator: ChartFactory
Client : CharCreator

3.2

Observer Pattern



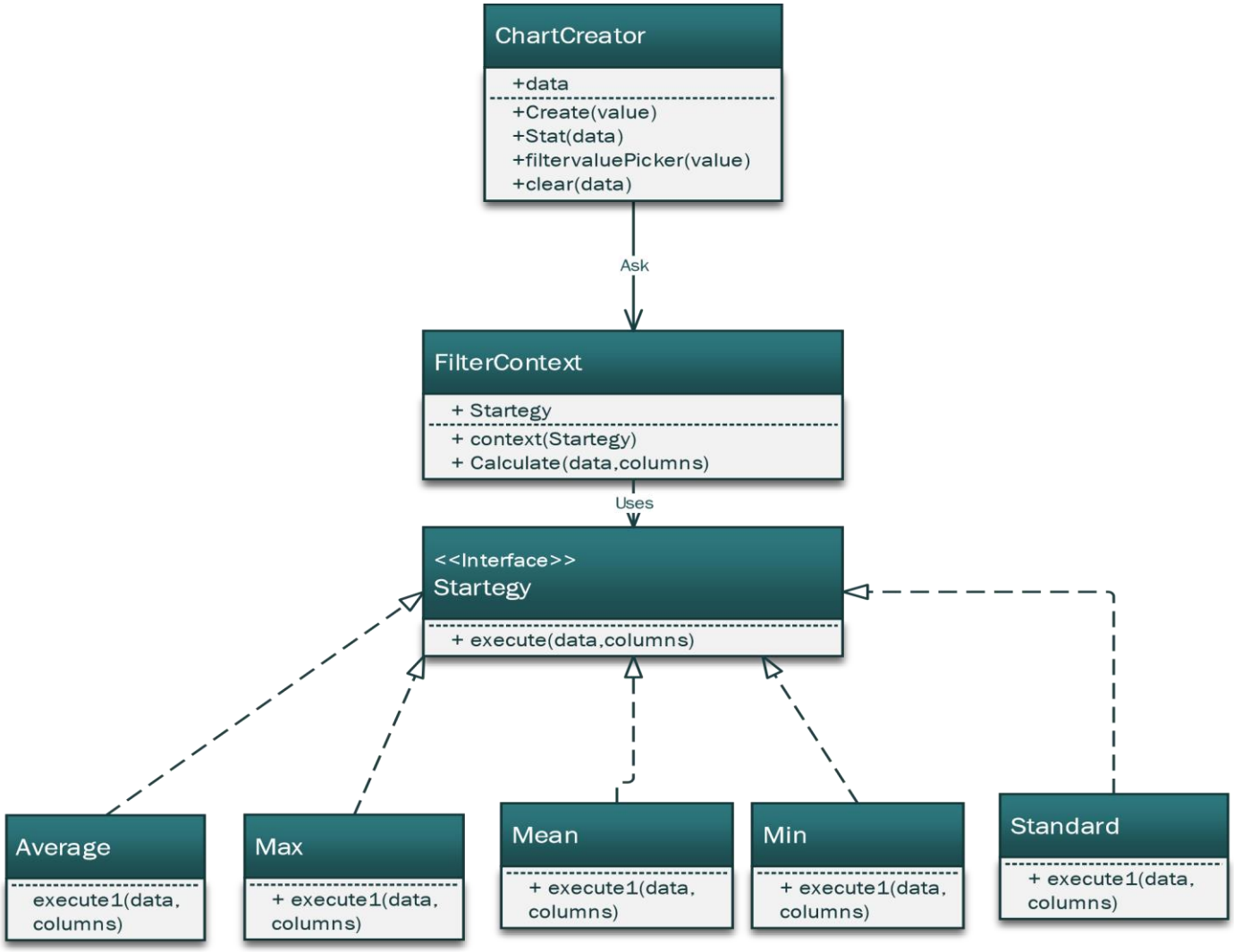
Observer Pattern: This pattern notify all the sub-system through a common a abstract class. So when the client set a state it will be notified to all the sub-system.

Usage: Here FilterObserver is the common abstract and FilterSubject will notify all the observers in the FilterObserver System.

Client: Filter
Obersersnotifier: FilterSubject
Common Abstract: Filter Observer
Observers: RowFilter, ColumnFilter, SqlOptions, Yaxis, Xaxis.

3.3

Strategy Pattern



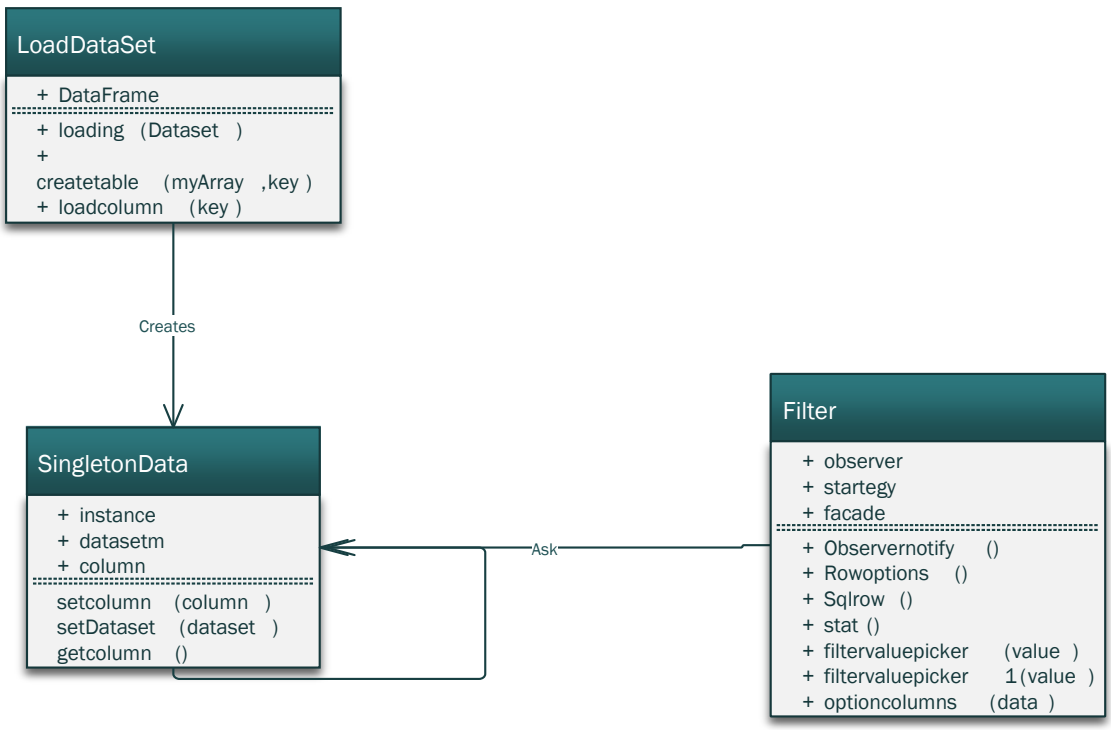
Strategy Pattern: In Strategy pattern, we create objects which represent various strategies and a context object whose behaviour varies as per its strategy object. The strategy object changes the executing algorithm of the context object.

Useage: Here FilterContent create various Strategy objects. And using a common interface we have 5 different strategy class. When client request Strategy Object accordingly the FilterContent will be returned.

Client: ChartCreator.
Startegy class : Max, Min, Average, Mean, Standard Deviation.
Common Interface : Startegy.
Created startegy object : FilterContext.

Singleton Pattern:

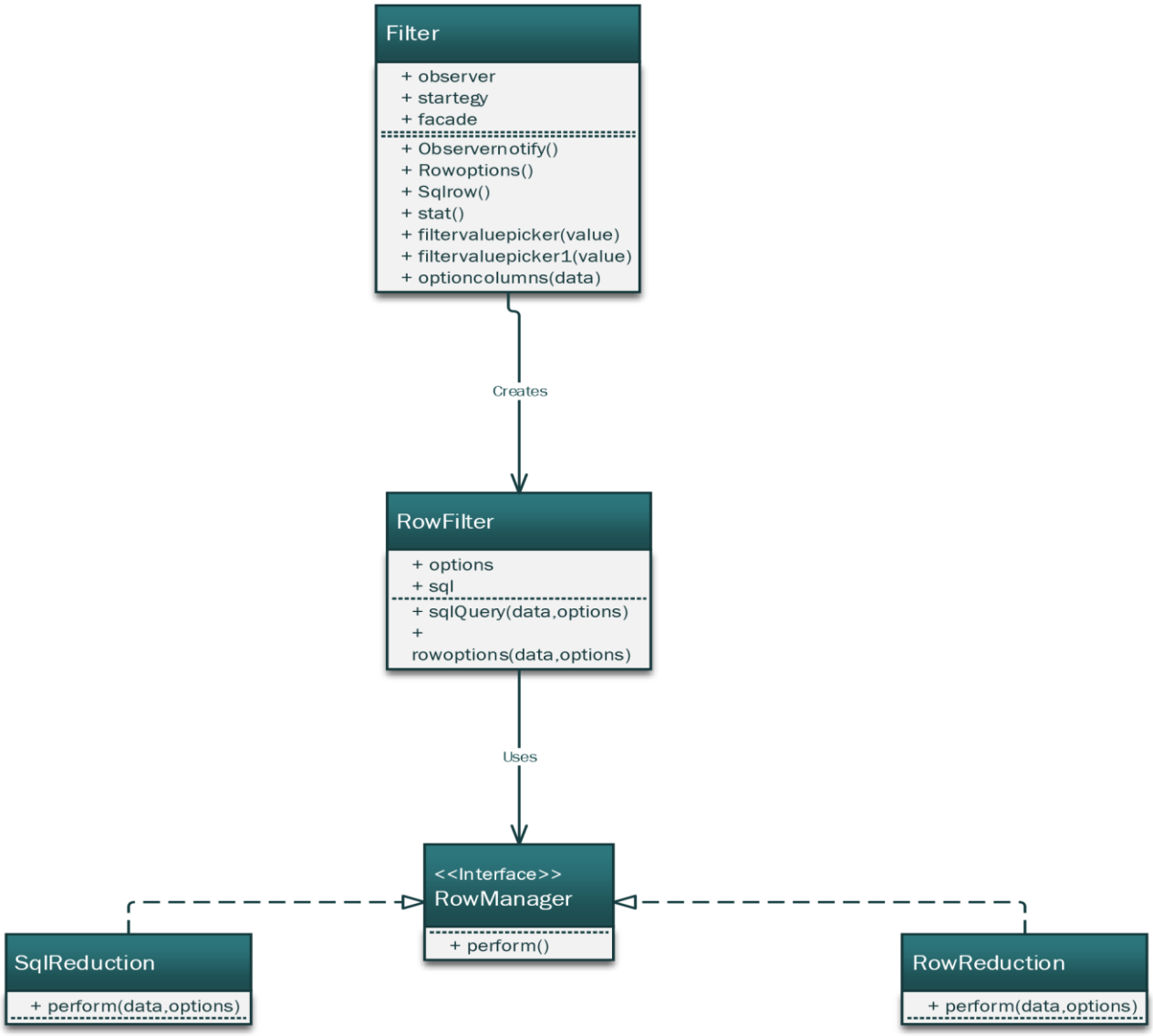
3.4



Singleton Design Pattern: Creates one single object for the class. Same instance is used to interact with the class.

Usage: Dataframe needs to be common for all so there will be only one reference for all. Here the Filter class use the loaded Dataset for filter Options.
Singleton class:SingletonData. Client: Filter.

3.5 Facade Pattern:



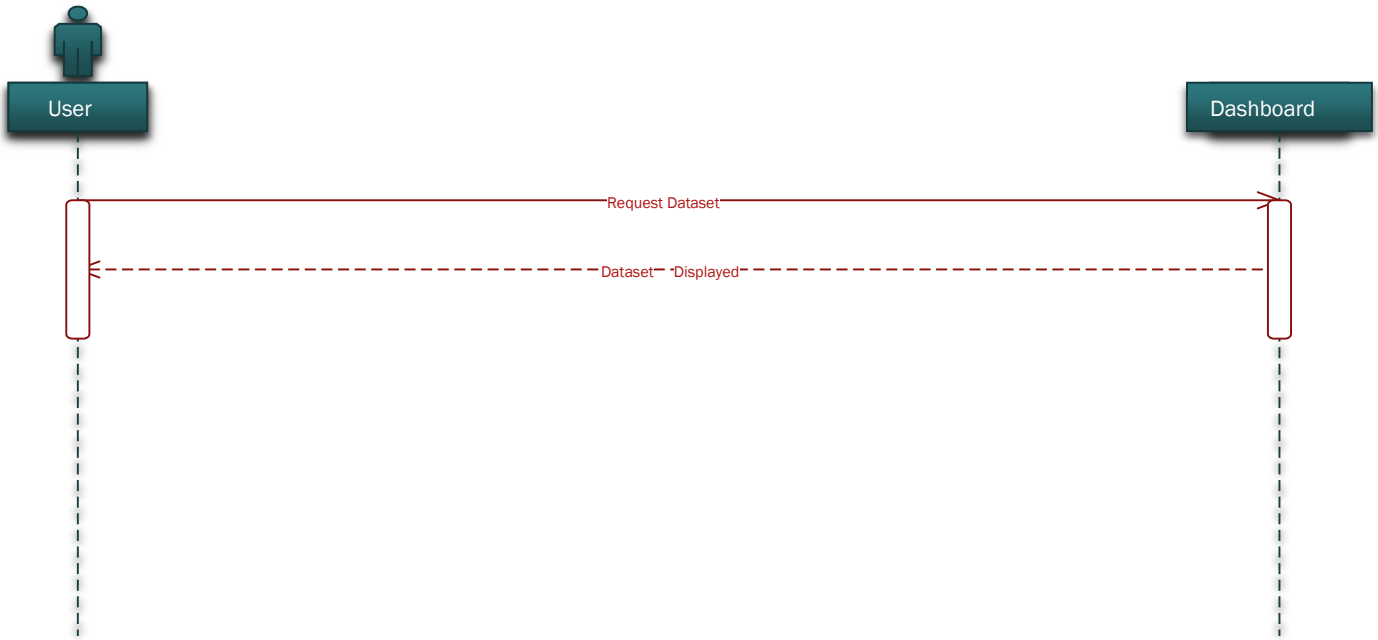
Façade Pattern: This pattern involves a single class which provides simplified methods required by client and delegates calls to methods of existing system classes. It hides the complexity of the subsystems to the client.

Usage: The Sub-System complexity is observed by the RowFilter. When the client request for an object, RowFilter creates the object of the sub-system and returns. By which it hides the logical complexity of the sub-system, SQLReduction and RowReduction using a common Interface RowManager.

Common Interface: RowManager.
Sub-systems: SQLReduction and RowReduction.
Connection between client and sub-system: RowFilter. Client: Filter.

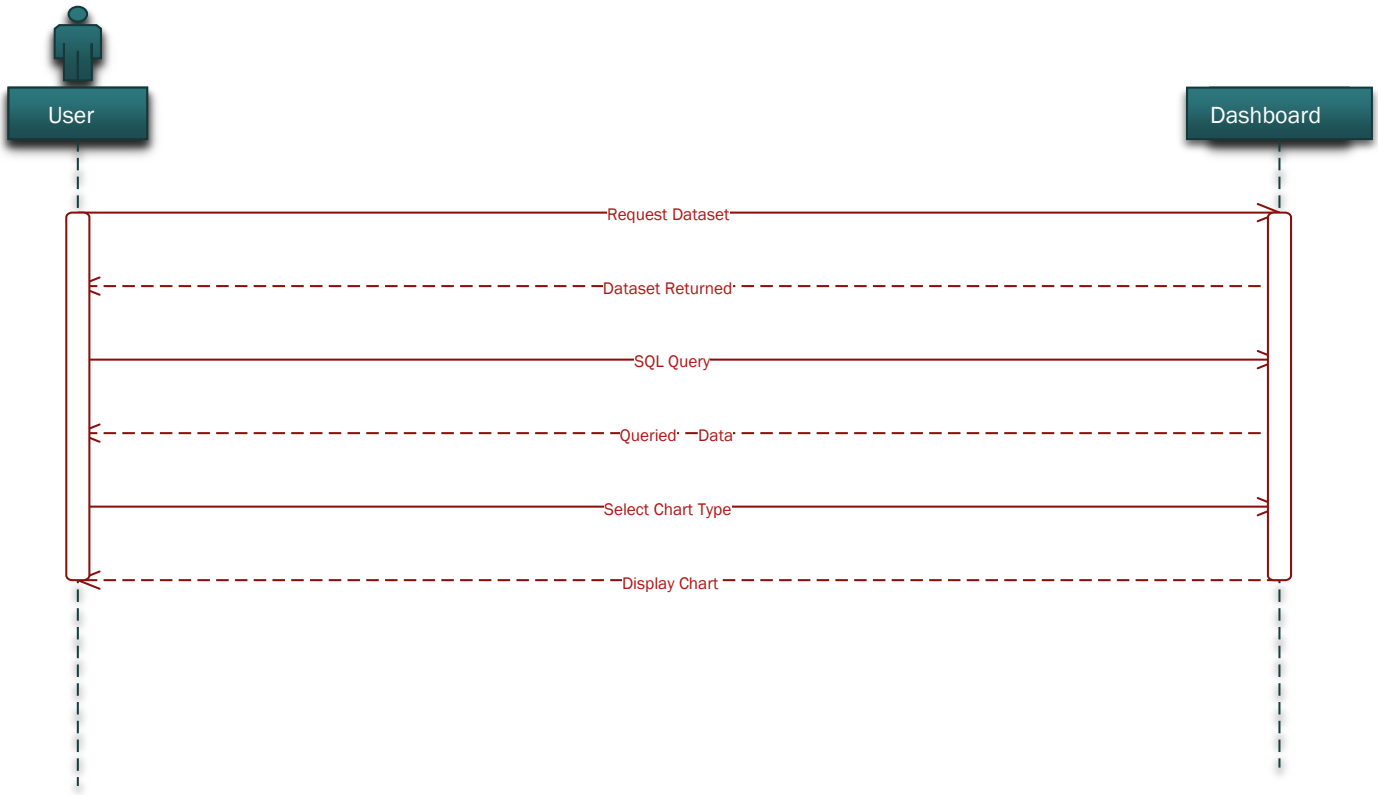
4. Sequence Diagram

4.1 Load DataSet



4.2 Selection of Columns

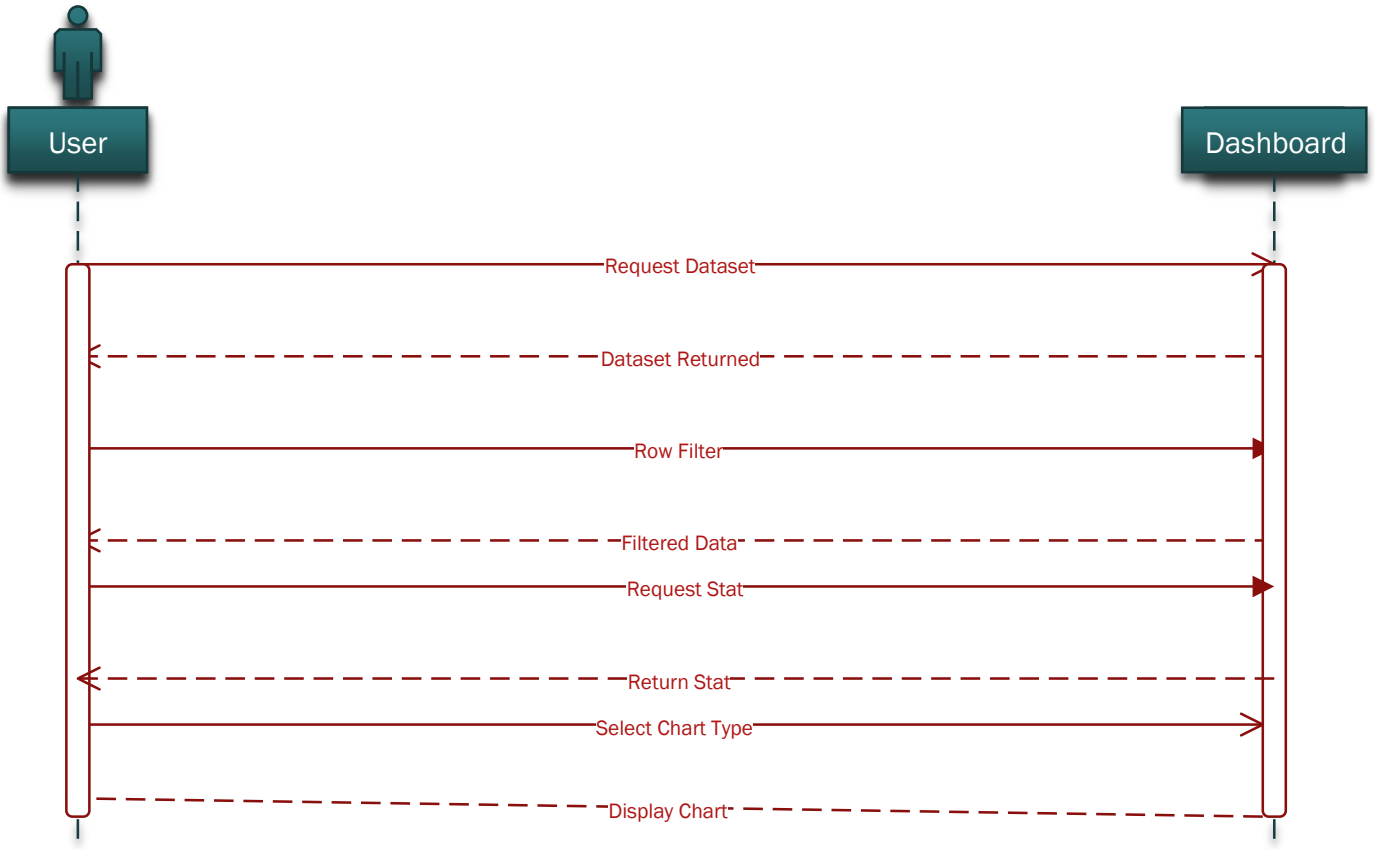
4.3 SQL query & apply chart



4.4 Row Filter & apply chart

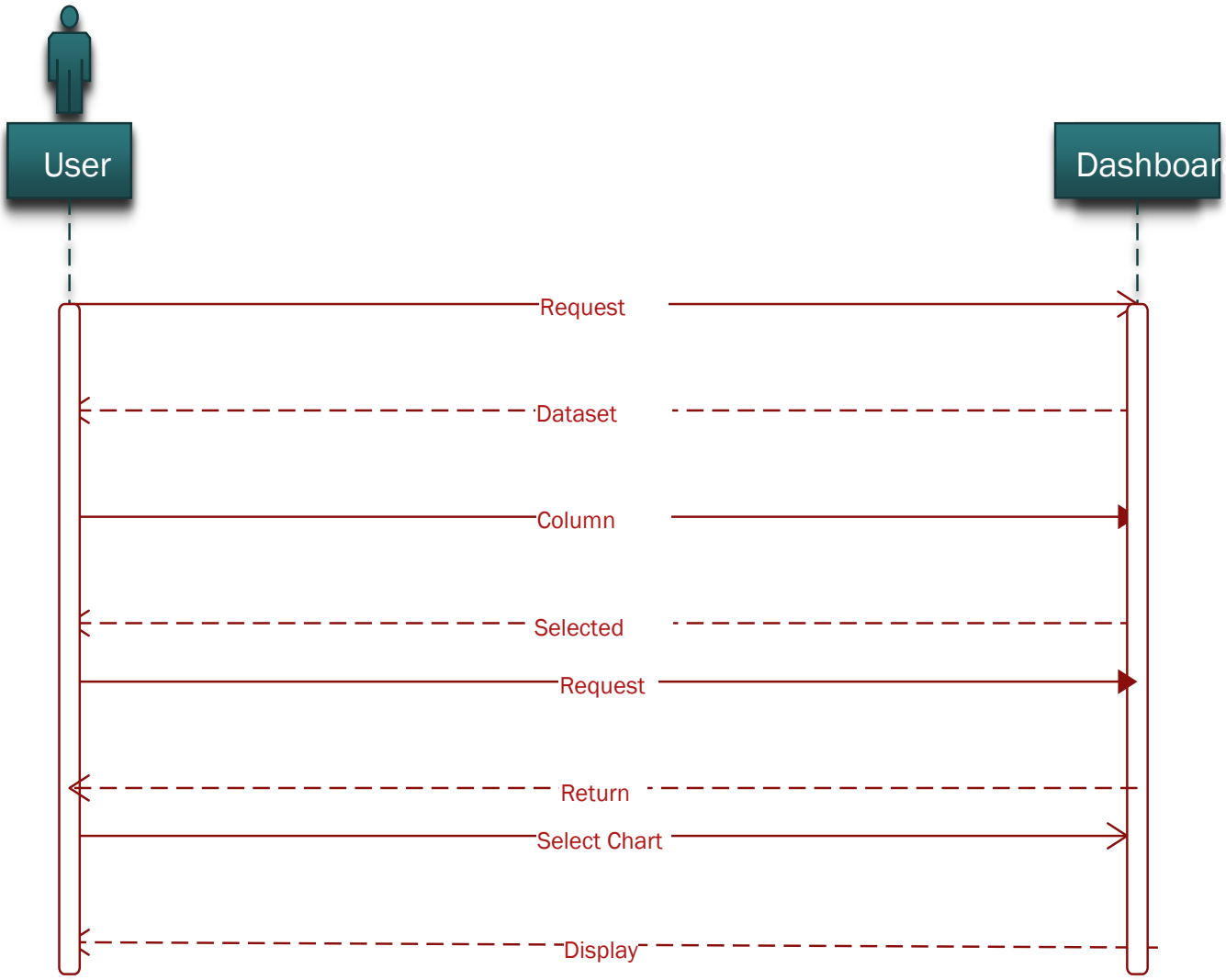
4.5

Row and Stat& apply chart



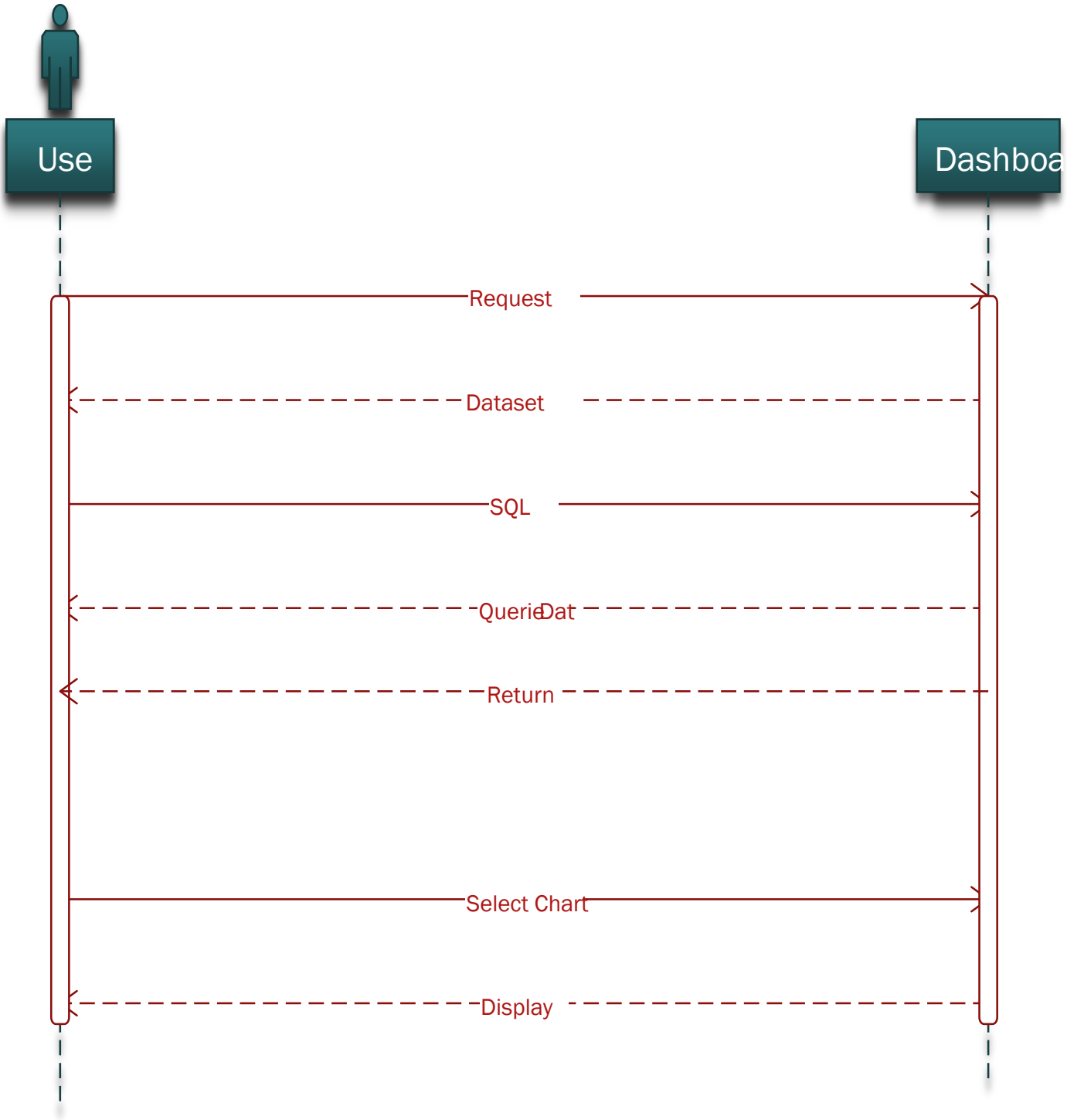
4.6

Column and Stat & apply chart



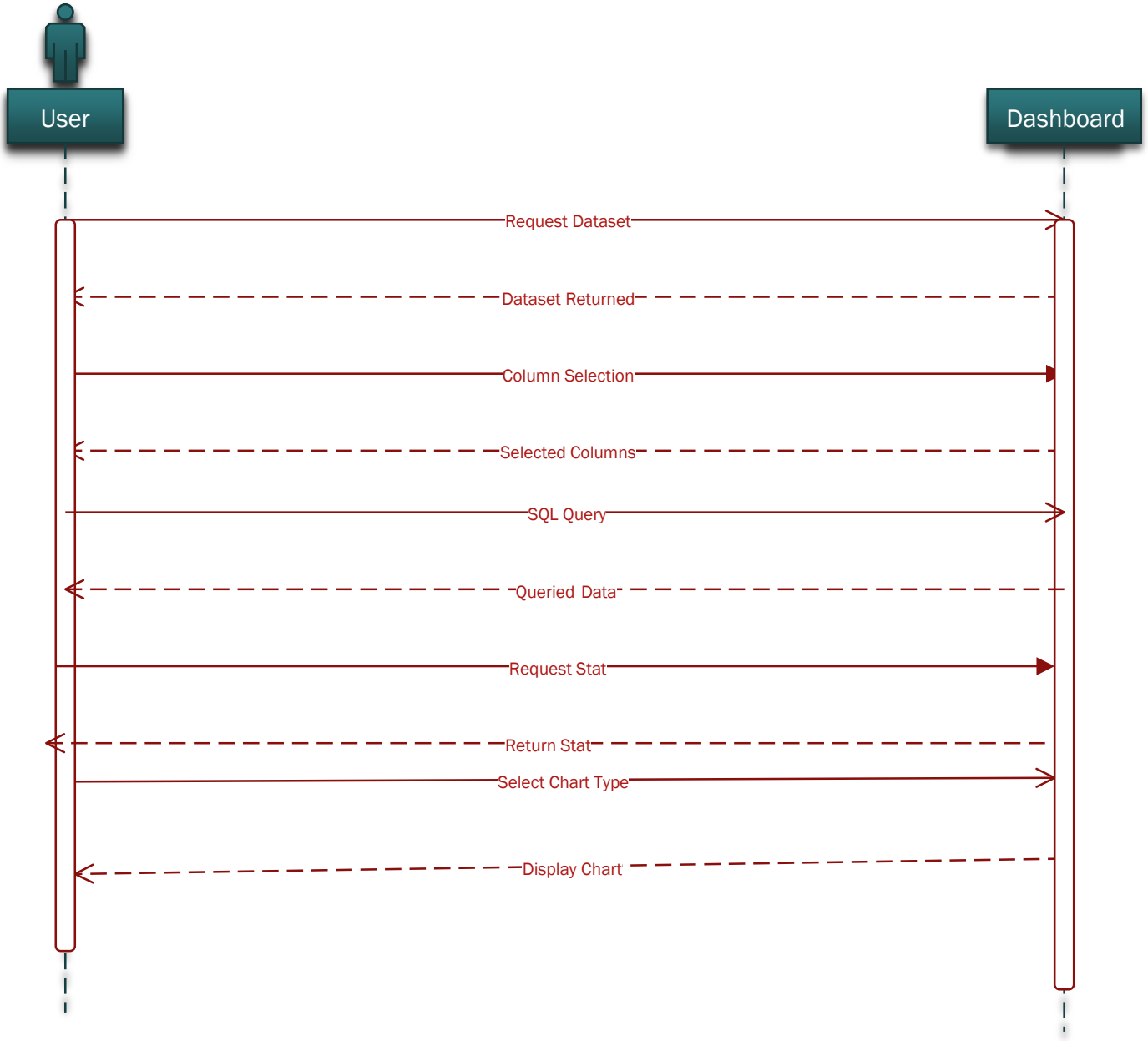
4.7

SQl query and Stat & apply chart



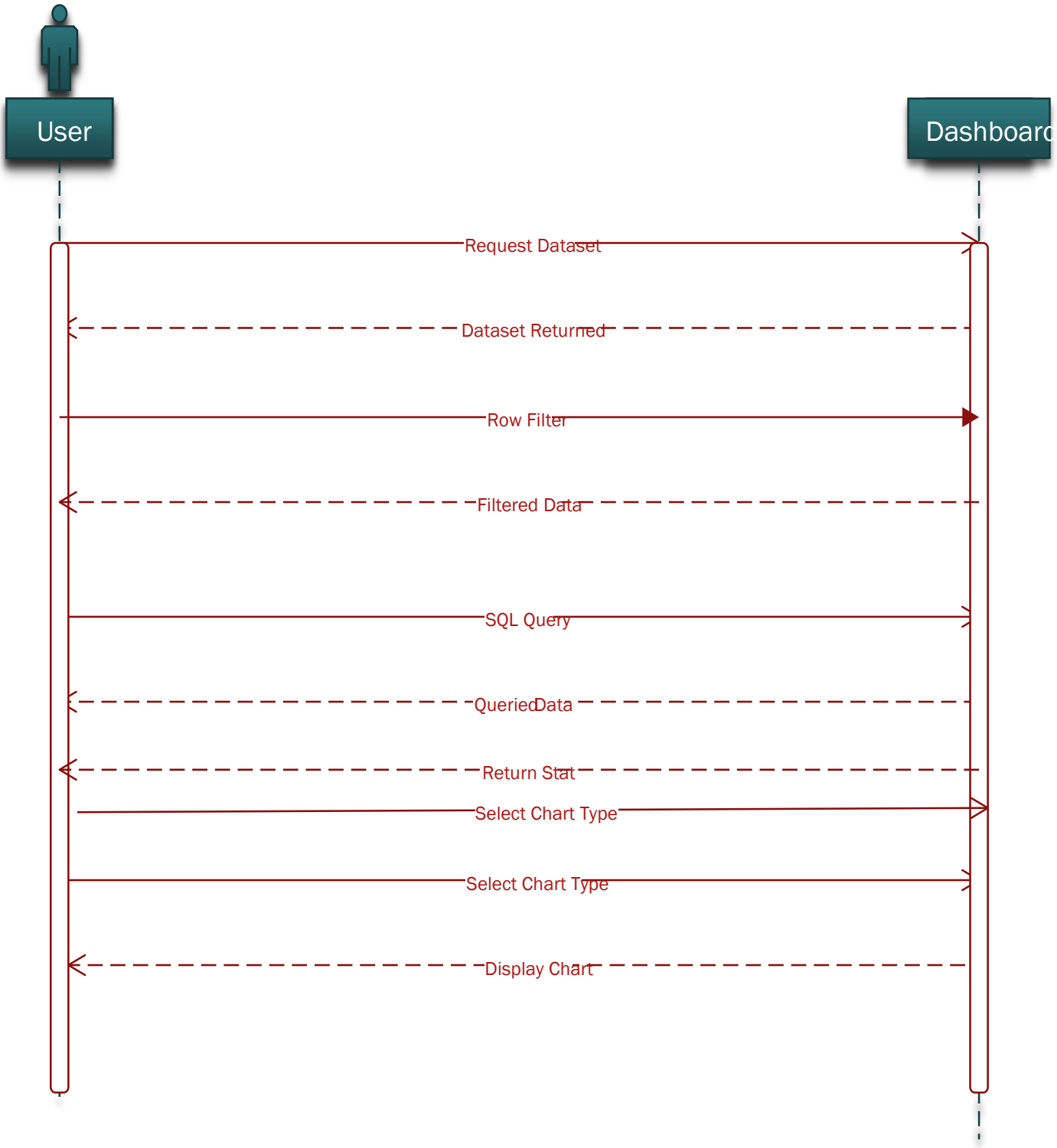
4.8

column filter & SQL Filter and stat & apply chart



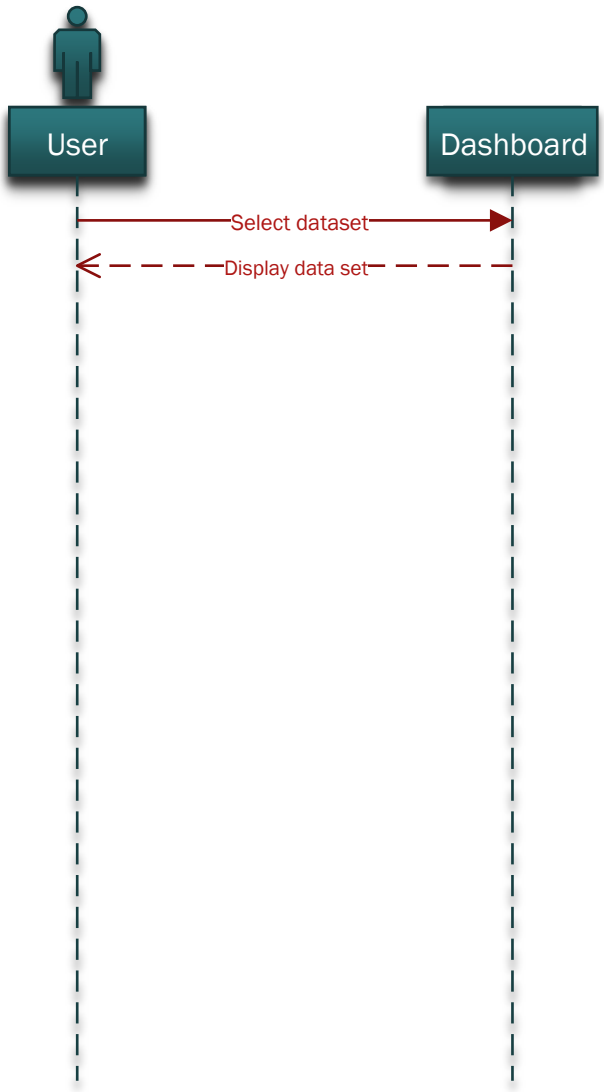
4.9

Row & Sql query and stat



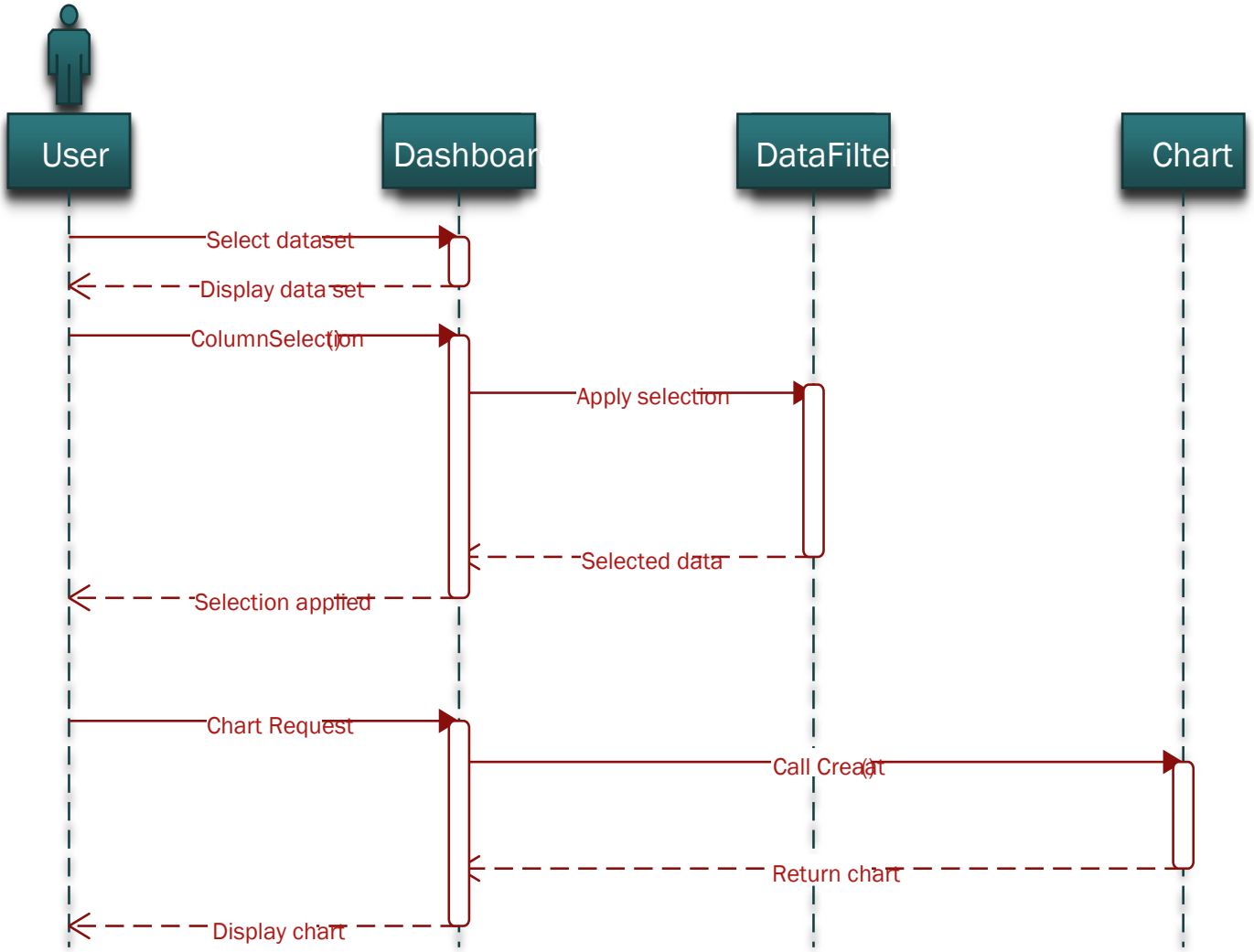
5. Activity Diagram

5.1 Load Dataset



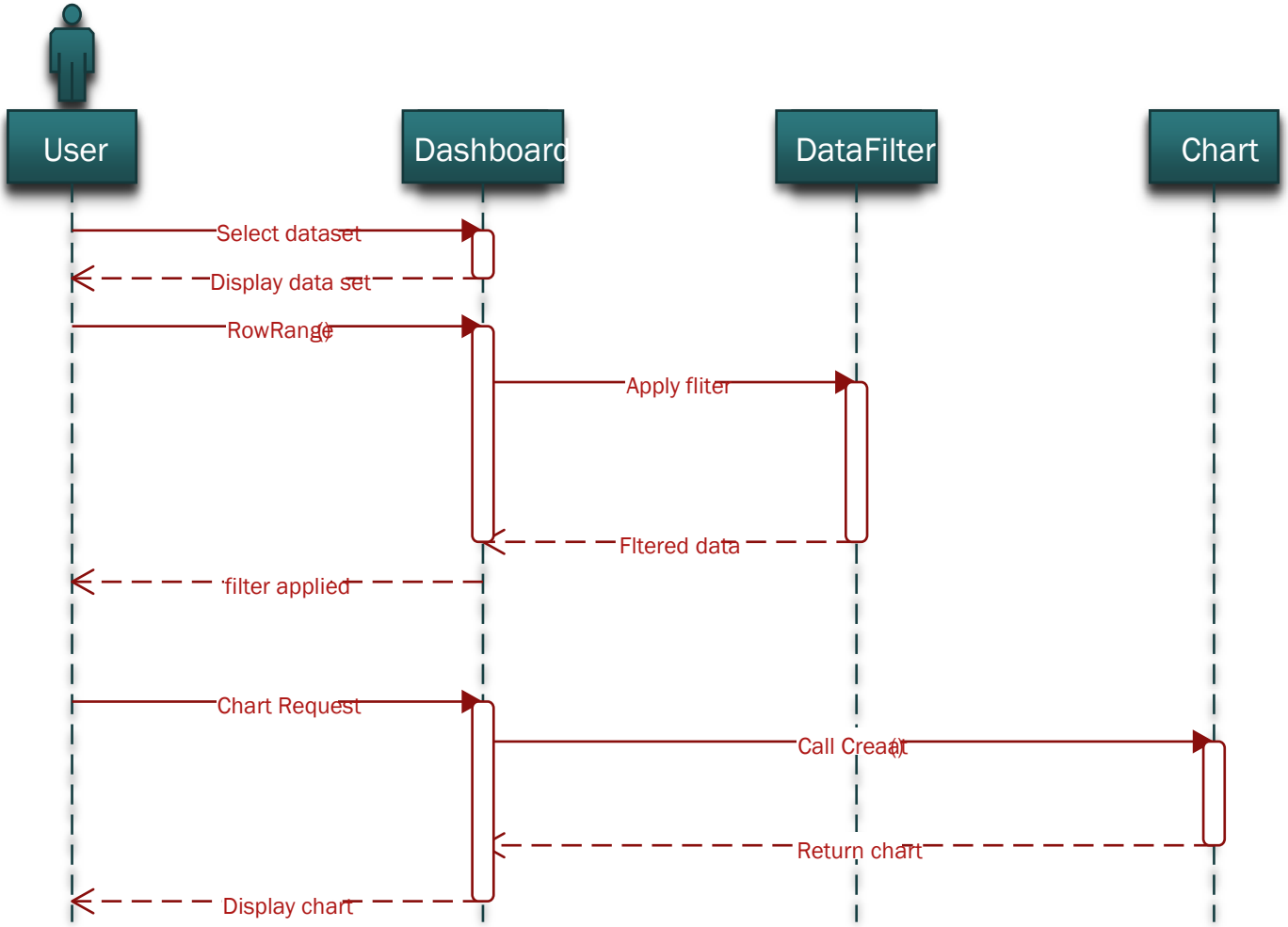
5.2

Column selection and plot chart



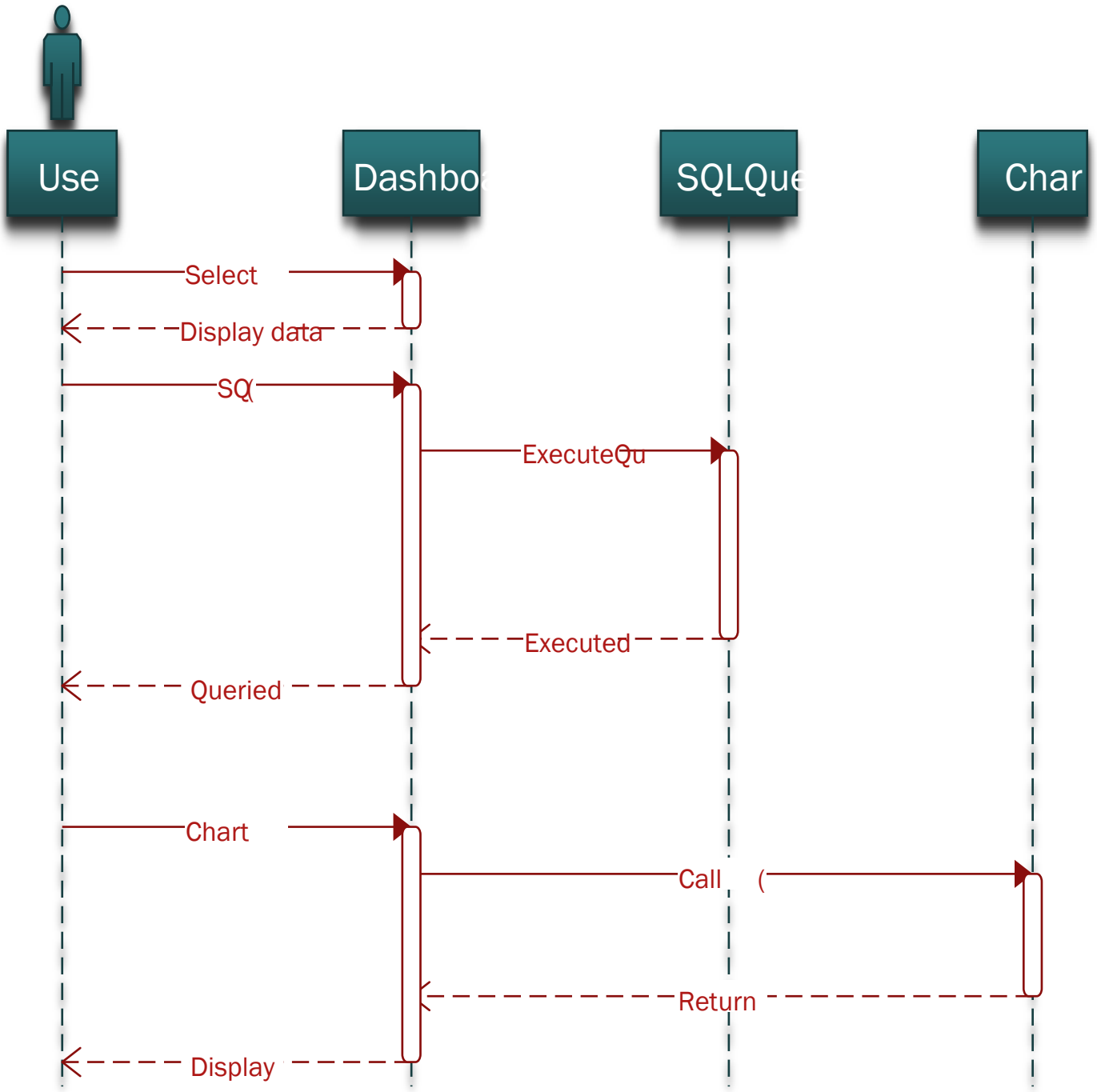
5.3

Row Filter and plot chart



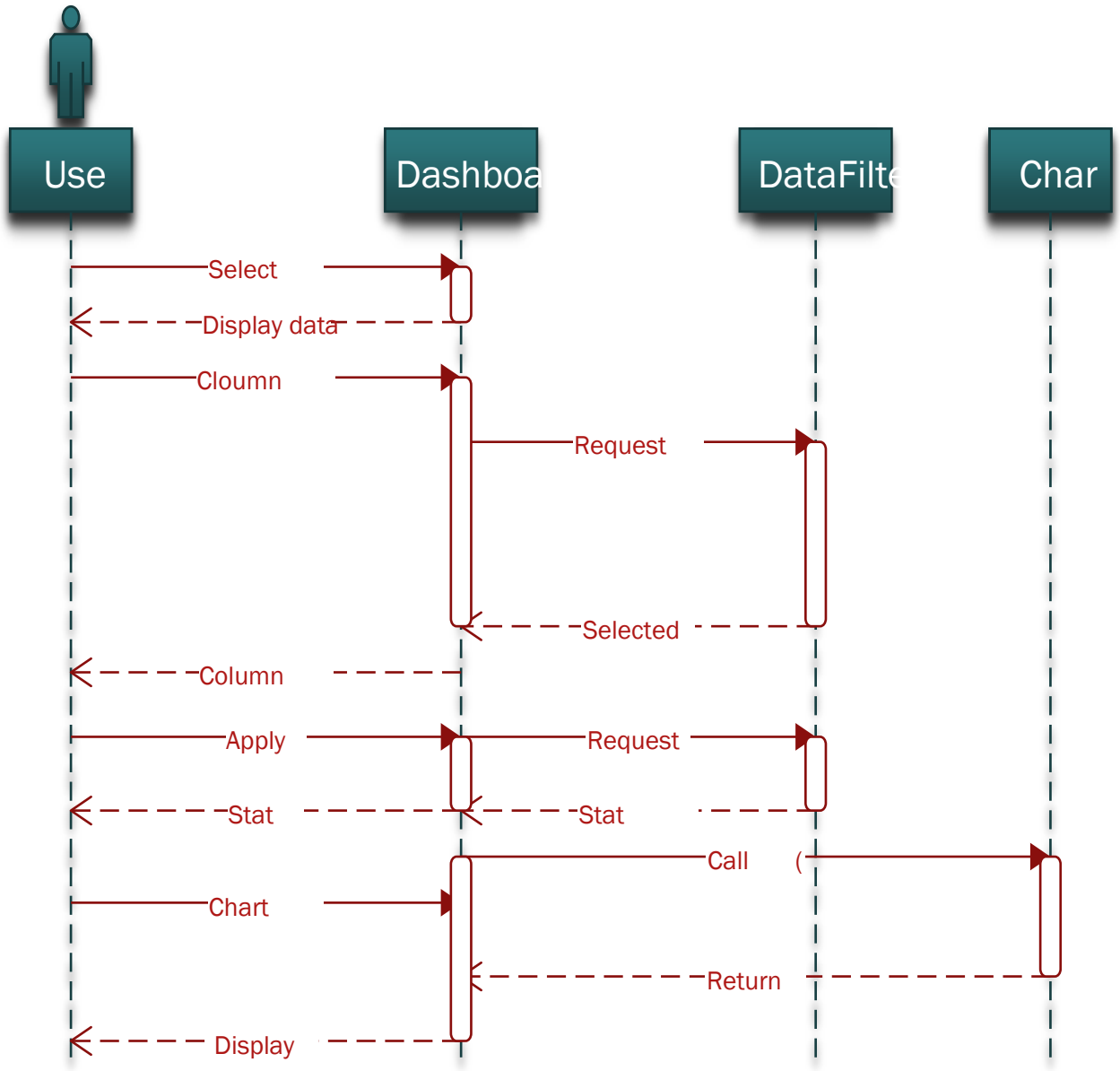
5.4

SQLQuery and plot chart



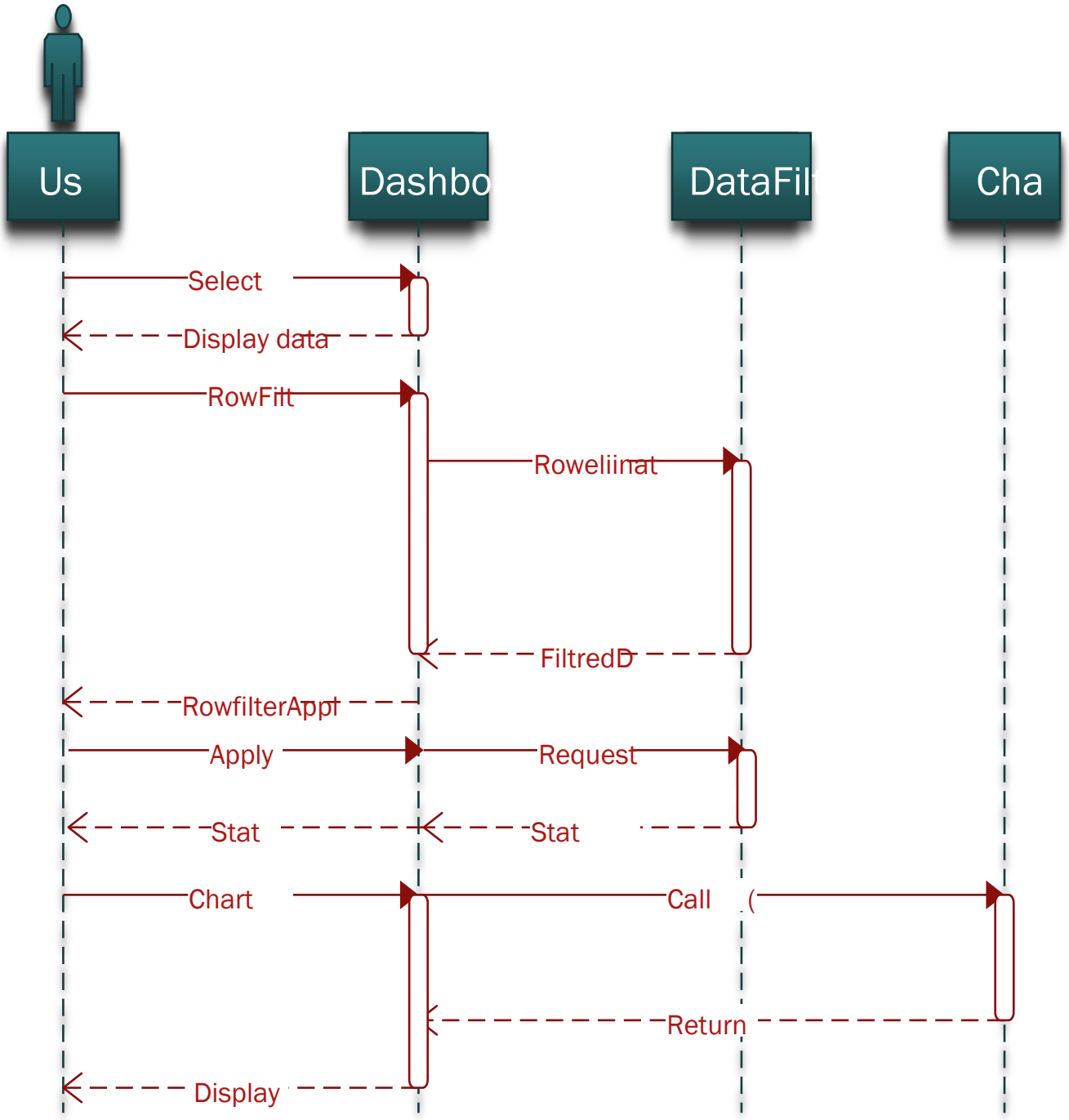
5.5

Column & stat and plot chart



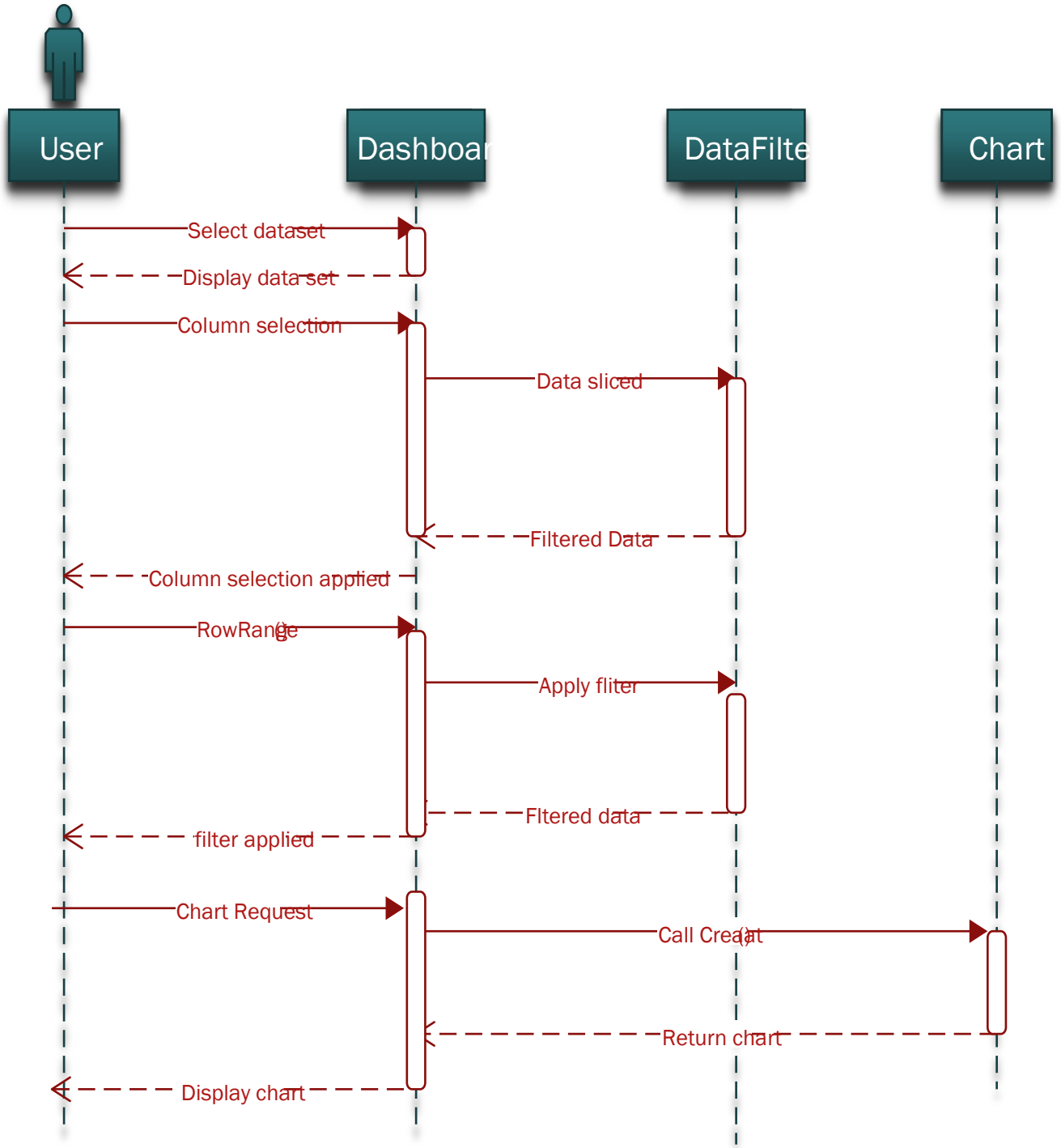
5.6

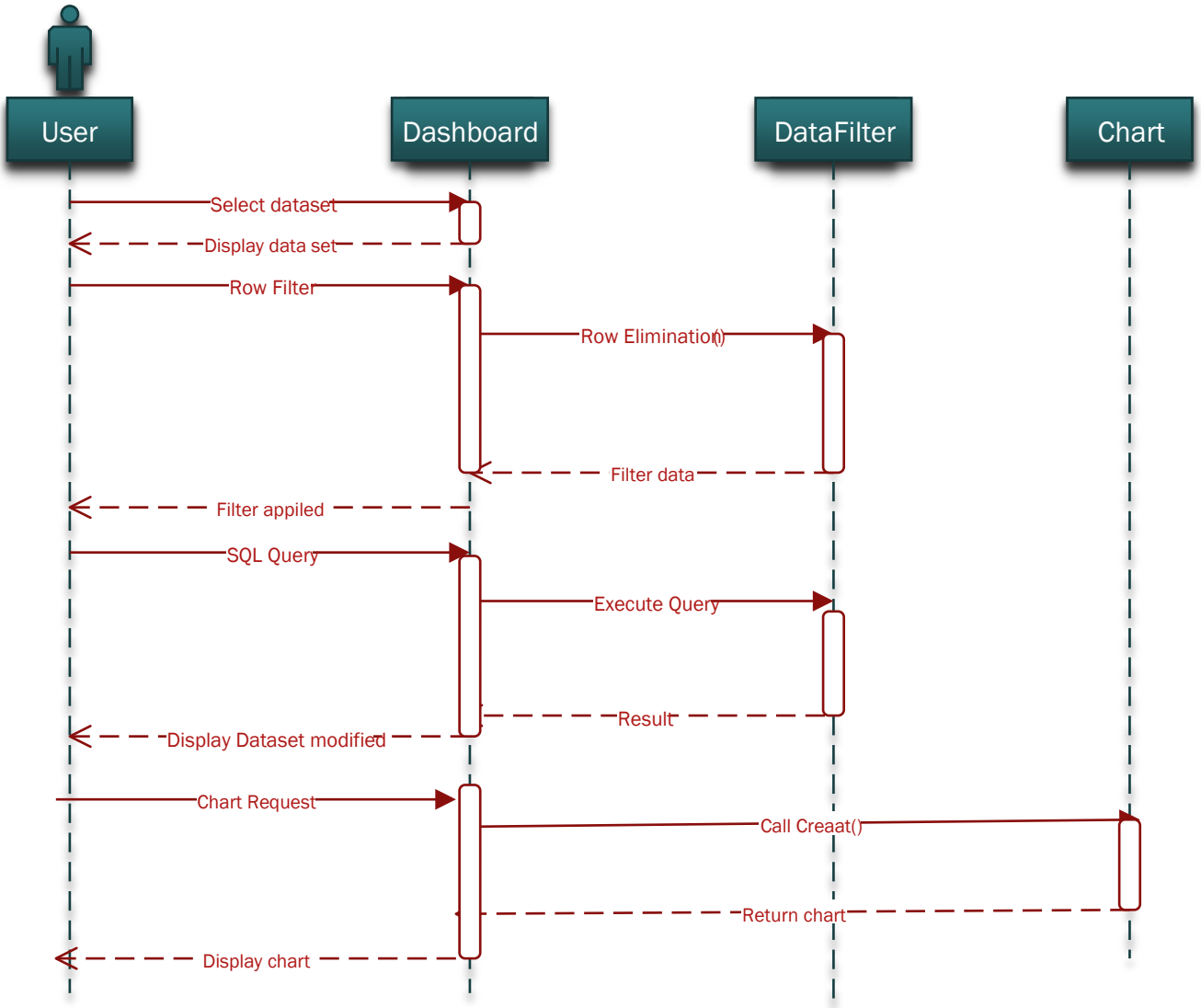
Row, stat and plot chart



5.7

Column, Row and apply chart



5.8

Row, SQL and plot chart