EDUCATION

Submitted By:-

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Contents

Brief project overview statement

Education Dashboard is the web page that provides user, the information about different schools located in United States. The dashboard provides the options to visualize different datasets in the form of charts (Bar/Line/Stack/Pie/Doughnut). User will be selecting different datasets that he/she is interested on. User can also select the type of chart he/she wants, and accordingly apply filters on the datasets by choosing the related filters provided with that chart options. The system then in turn plots the chart in the canvas.

Project Feature List

1. The user can view the different dataset and select any one of them. The user can view the data that is present in the dataset.
2. Based on the data user can select filter that are provided and select the type of chart that he/she may want to view.
3. According to the filter and type of chart selected by the user, the chart will be plotted on the canvas.

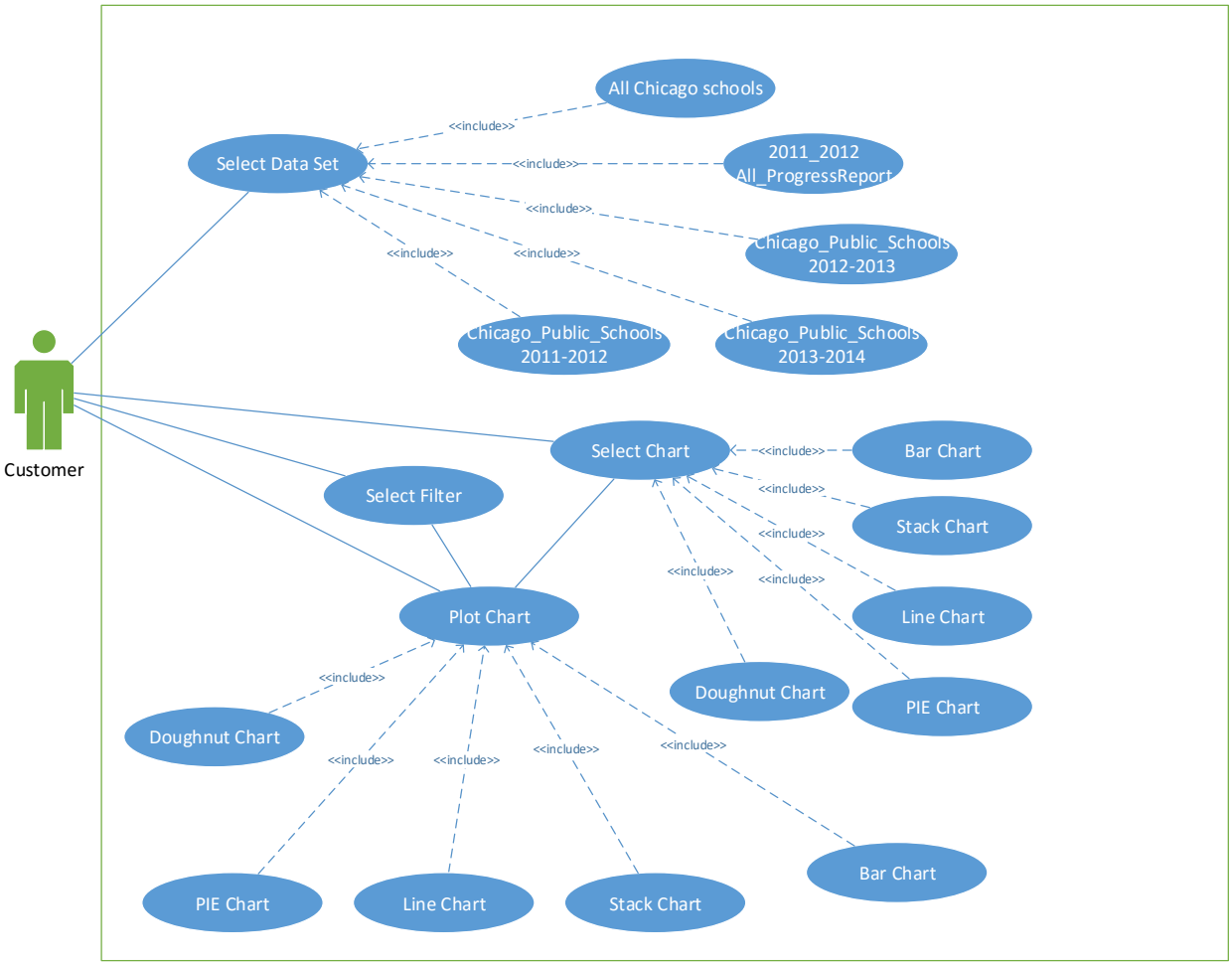
Requirements

1. Selecting the Dataset from the list of Datasets.
2. Ability to read Datasets from a data file in CSV or JSON format.
3. Load data into data frame object using Dataframe.js
4. The selected dataset data will be displayed as table in the browser (Firefox)
5. The user will select the filter from the user defined filters.
6. The user will be able to select different types of chart's (Line, Bar, Pie, Doughnut and Stack).
7. The user will be able to Plot complex analytical queries based on the selected filter and charts
8. Dashboard must work in the most recent version of Firefox and must use ECMAScript 6

List of Actors

User

Use-Case Diagram



Fully Dressed Format for Use Case

1. Use Case Considered: Selecting All Chicago Schools' dataset

Use Case Name:	Selecting all Chicago School's dataset	
Scenario:	User will select a dataset	
Triggering Event:	No triggering event	
Brief Description:	User will select a dataset, filters the data and plots the chart	
Actors:	User	
Stakeholders:	User	
Preconditions:	Dataset should be present in the dashboard	
Post conditions:	User will plot a chart	
Flow of Events:	Actor	System
	User will select All Chicago Schools' dataset	System will display the dataset
Exception Conditions:	Data in the dataset not present	

2. Use Case Considered: Selecting Chicago Public Schools 2011-2012 dataset

Use Case Name:	Selecting Chicago Public Schools 2011-2012 dataset	
Scenario:	User will select a dataset	
Triggering Event:	No triggering event	
Brief Description:	User will select a dataset, filters the data and plots the chart	
Actors:	User	
Stakeholders:	User	
Preconditions:	Dataset should be present in the dashboard	
Post conditions:	User will plot a chart	
Flow of Events:	Actor	System
	User will select Chicago Public Schools 2011-2012 dataset	System will display the dataset
Exception Conditions:	Data in the dataset not present	

3. Use Case Considered: Selecting Chicago Public Schools 2012-2013 dataset

Use Case Name:	Selecting Chicago Public Schools 2011-2012 dataset	
Scenario:	User will select a dataset	
Triggering Event:	No triggering event	
Brief Description:	User will select a dataset, filters the data and plots the chart	
Actors:	User	
Stakeholders:	User	
Preconditions:	Dataset should be present in the dashboard	
Post conditions:	User will plot a chart	
Flow of Events:	Actor	System
	User will select Chicago Public Schools 2012-2013 dataset	System will display the dataset
Exception Conditions:	Data in the dataset not present	

4. Use Case Considered: Selecting Chicago Public Schools 2013-2014 dataset

Use Case Name:	Selecting Chicago Public Schools 2013-2014 dataset	
Scenario:	User will select a dataset	
Triggering Event:	No triggering event	
Brief Description:	User will select a dataset, filters the data and plots the chart	
Actors:	User	
Stakeholders:	User	
Preconditions:	Dataset should be present in the dashboard	
Post conditions:	User will plot a chart	
Flow of Events:	Actor	System
	User will select Chicago Public Schools 2013-2014 dataset	System will display the dataset bill
Exception Conditions:	Data in the dataset not present	

5. Use Case Considered: Selecting 2011-2012 All Progress Report

Use Case Name:	Selecting 2011-2012 All Progress Report	
Scenario:	User will select a dataset	
Triggering Event:	No triggering event	
Brief Description:	User will select a dataset, filters the data and plots the chart	
Actors:	User	
Stakeholders:	User	
Preconditions:	Dataset should be present in the dashboard	
Post conditions:	User will plot a chart	
Flow of Events:	Actor	System
	User will select 2011-2012 All progress report dataset	System will display the dataset
Exception Conditions:	Data in the dataset not present	

6. Use Case Considered: Plotting Bar Chart

Use Case Name:	Plotting Bar Chart	
Scenario:	Data and filter selected	
Triggering Event:	Filter selected on the data and type of chart selected	
Brief Description:	User will plot a bar chart according to data and filter selected	
Actors:	User	
Stakeholders:	User	
Preconditions:	Data should be present in the dataset	
Post conditions:	To plot bar chart on the canvas	
Flow of Events:	Actor	System
	User will select type of chart as a bar chart	System will generate bar chart
Exception Conditions:	Improper data in the dataset	

7. Use Case Considered: Plotting Line Chart

Use Case Name:	Plotting Line Chart	
Scenario:	Data and filter selected	
Triggering Event:	Filter selected on the data and type of chart selected	
Brief Description:	User will plot a line chart according to data and filter selected	
Actors:	User	
Stakeholders:	User	
Preconditions:	Data should be present in the dataset	
Post conditions:	To plot line chart on the canvas	
Flow of Events:	Actor	System
	User will select type of chart as a Line Chart	System will generate Line Chart
Exception Conditions:	Improper data in the dataset	

8. Use Case considered: Plotting Pie Chart

Use Case Name:	Plotting Pie Chart	
Scenario:	Data and filter selected	
Triggering Event:	Filter selected on the data and type of chart selected	
Brief Description:	User will plot a Pie chart according to data and filter selected	
Actors:	User	
Stakeholders:	User	
Preconditions:	Data should be present in the dataset	
Post conditions:	To plot pie chart on the canvas	
Flow of Events:	System	Actor
	User will select type of chart as a Pie Chart	System will generate Pie Chart
Exception Conditions:	Improper data in the dataset	

9. Use Case considered: Plotting Stacked Chart

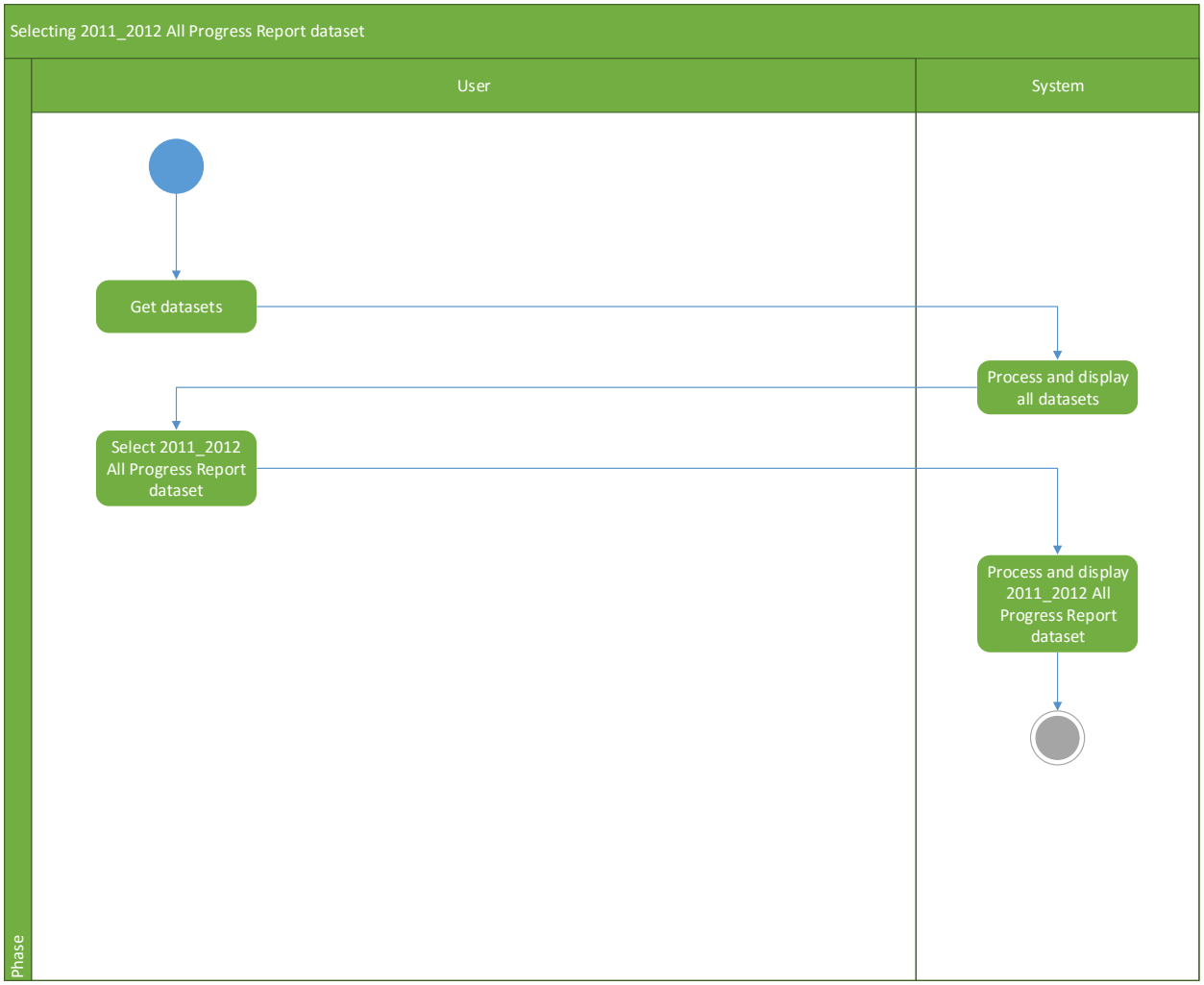
Use Case Name:	Plotting stacked chart	
Scenario:	Data and filter selected	
Triggering Event:	Filter selected on the data and type of chart selected	
Brief Description:	User will plot a stacked chart according to data and filter selected	
Actors:	User	
Stakeholders:	User	
Preconditions:	Data should be present in the dataset	
Post conditions:	To plot stacked chart on the canvas	
Flow of Events:	System	Actor
	User will select type of chart as a Stacked Chart	System will generate Stacked Chart
Exception Conditions:	Improper data in the dataset	

10. Use Case considered: Plotting Donut Chart

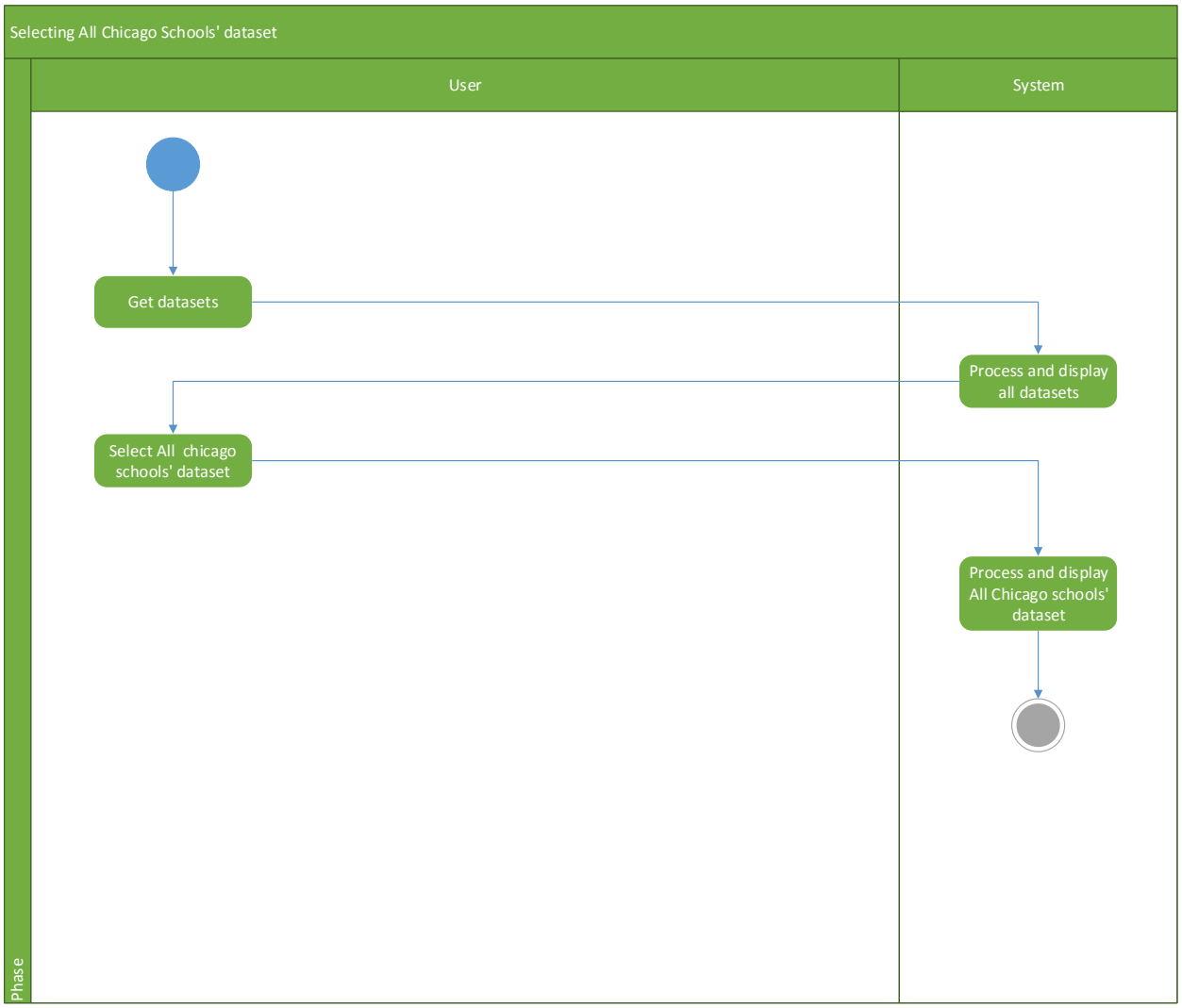
Use Case Name:	Plotting Donut Chart	
Scenario:	Data and filter selected	
Triggering Event:	Filter selected on the data and type of chart selected	
Brief Description:	User will plot a Donut chart according to data and filter selected	
Actors:	User	
Stakeholders:	User	
Preconditions:	Data should be present in the dataset	
Post conditions:	To plot donut chart on the canvas	
Flow of Events:	System	Actor
	User will select type of chart as a Donut Chart	System will generate Donut Chart
Exception Conditions:	Improper data in the dataset	

Activity Diagram

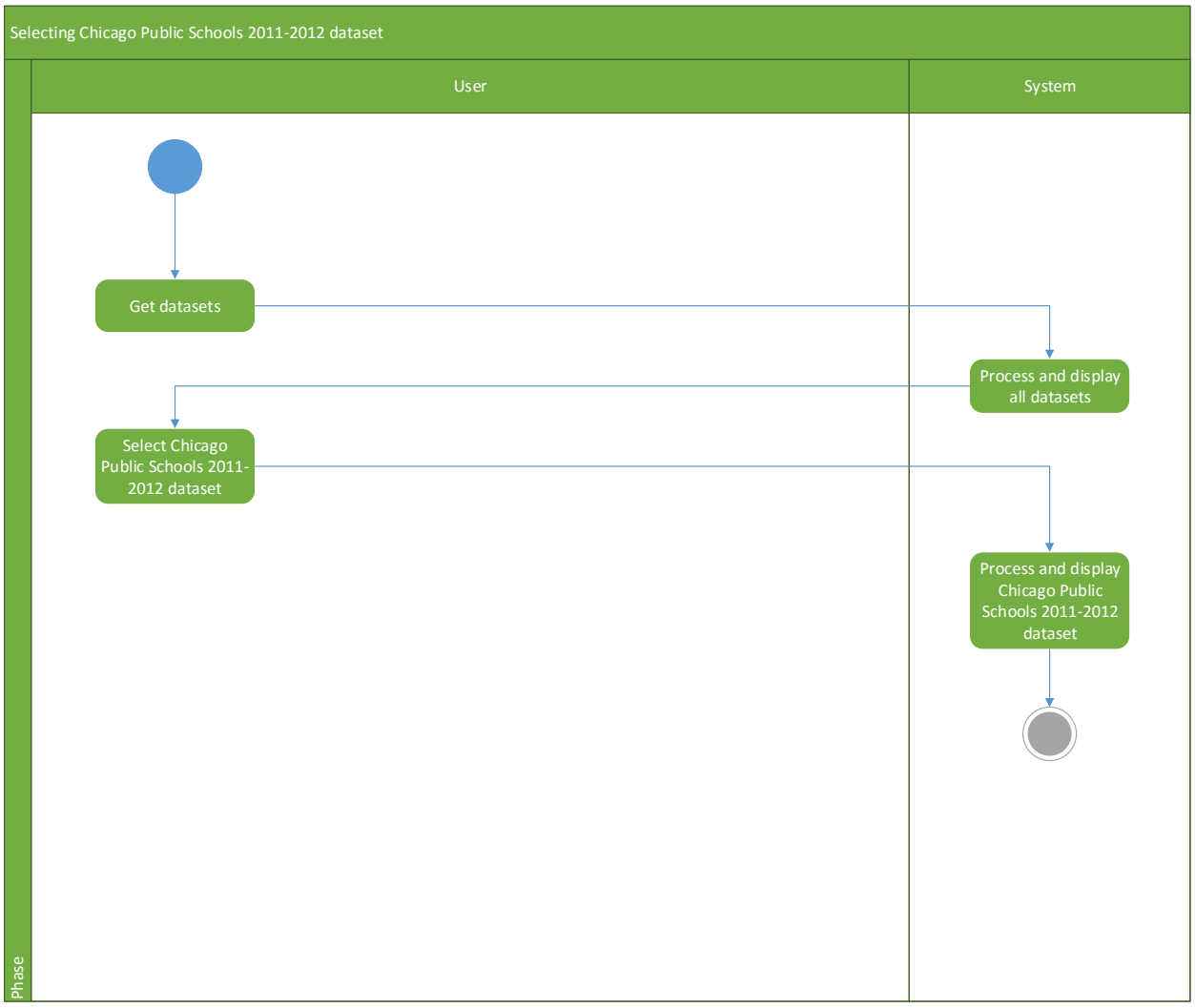
1. Selecting Dataset 2011_2012 All Progress Report



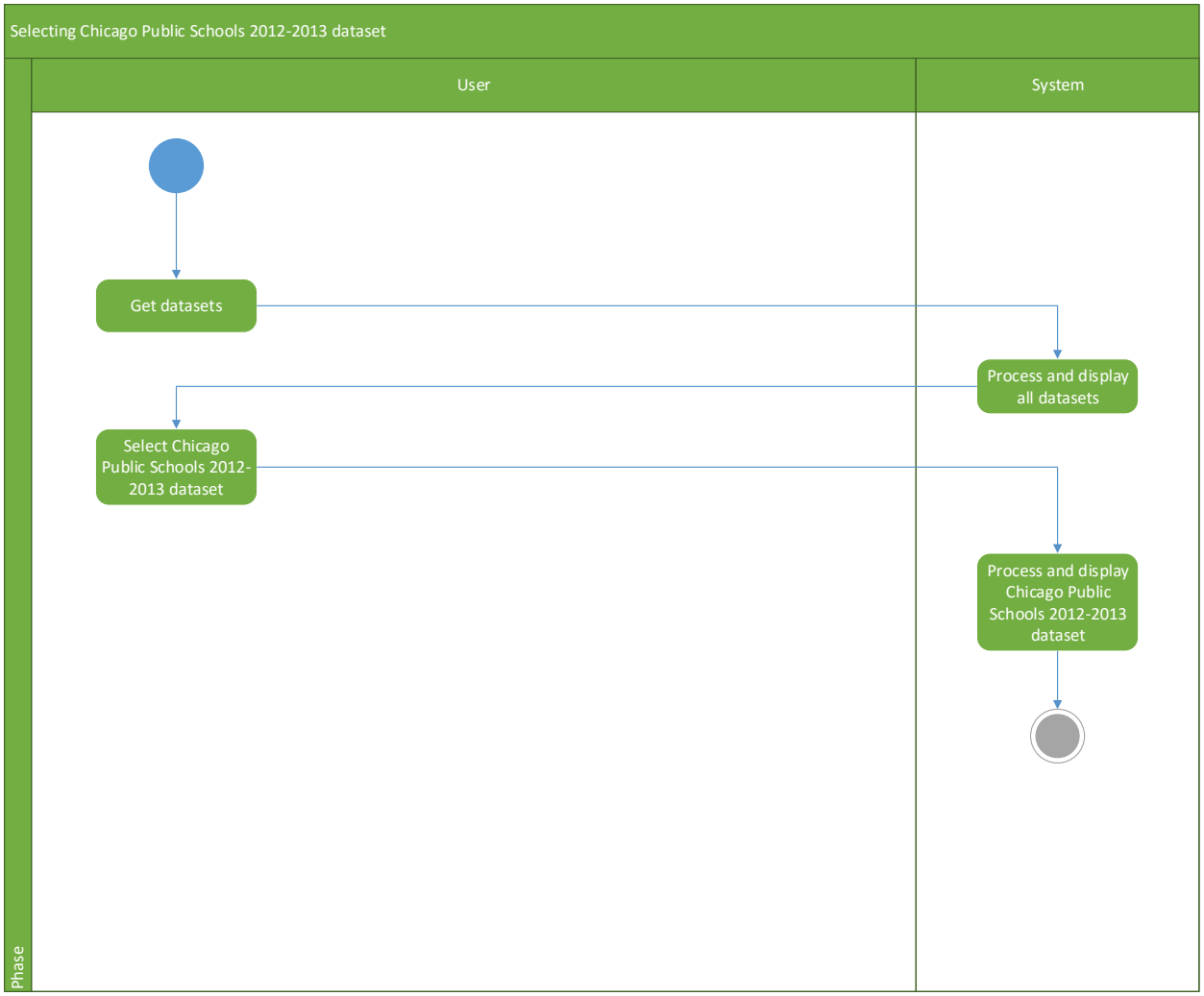
2. Selecting Dataset All Chicago Schools



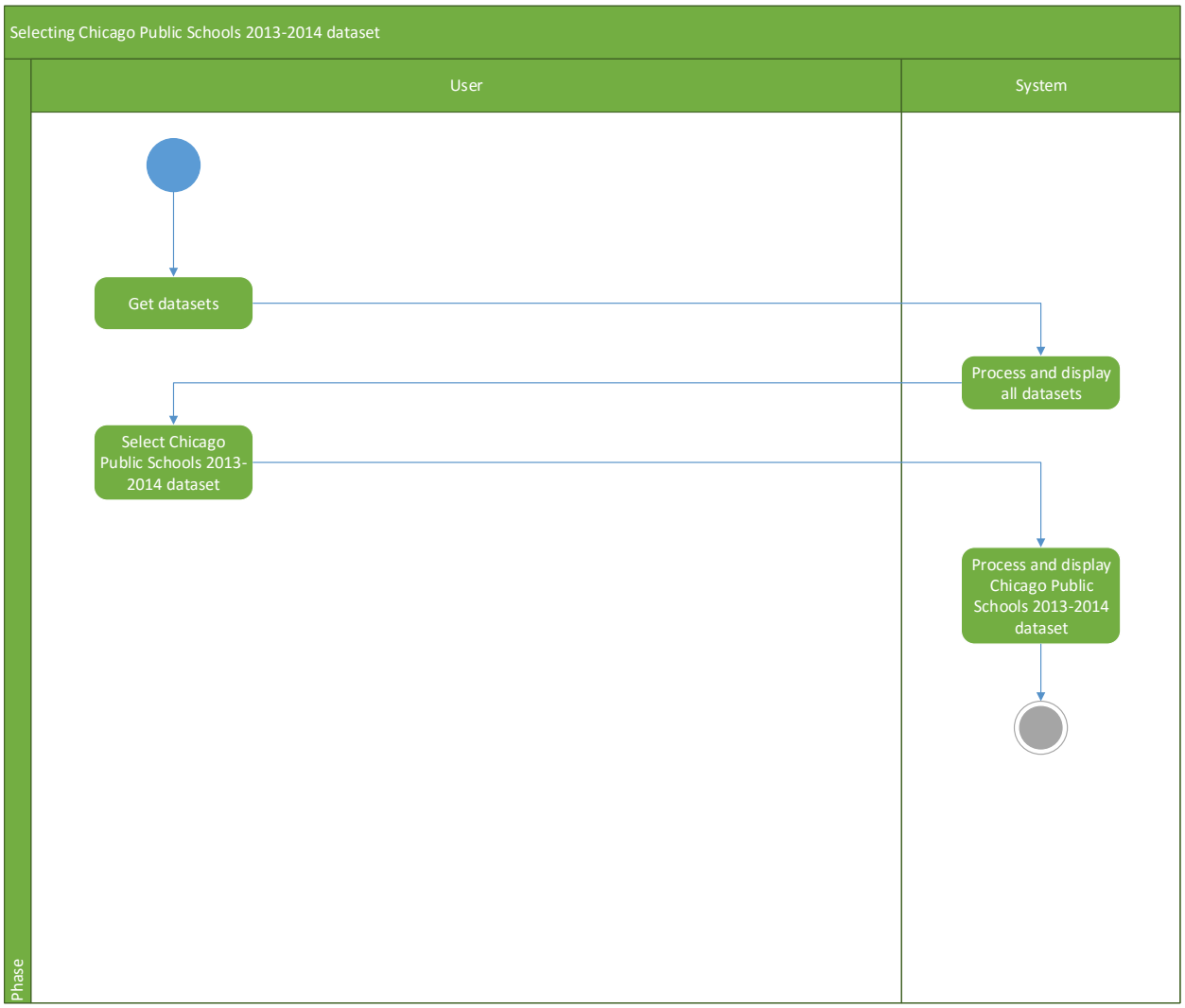
3. Selecting Dataset Chicago Public Schools 2011-2012



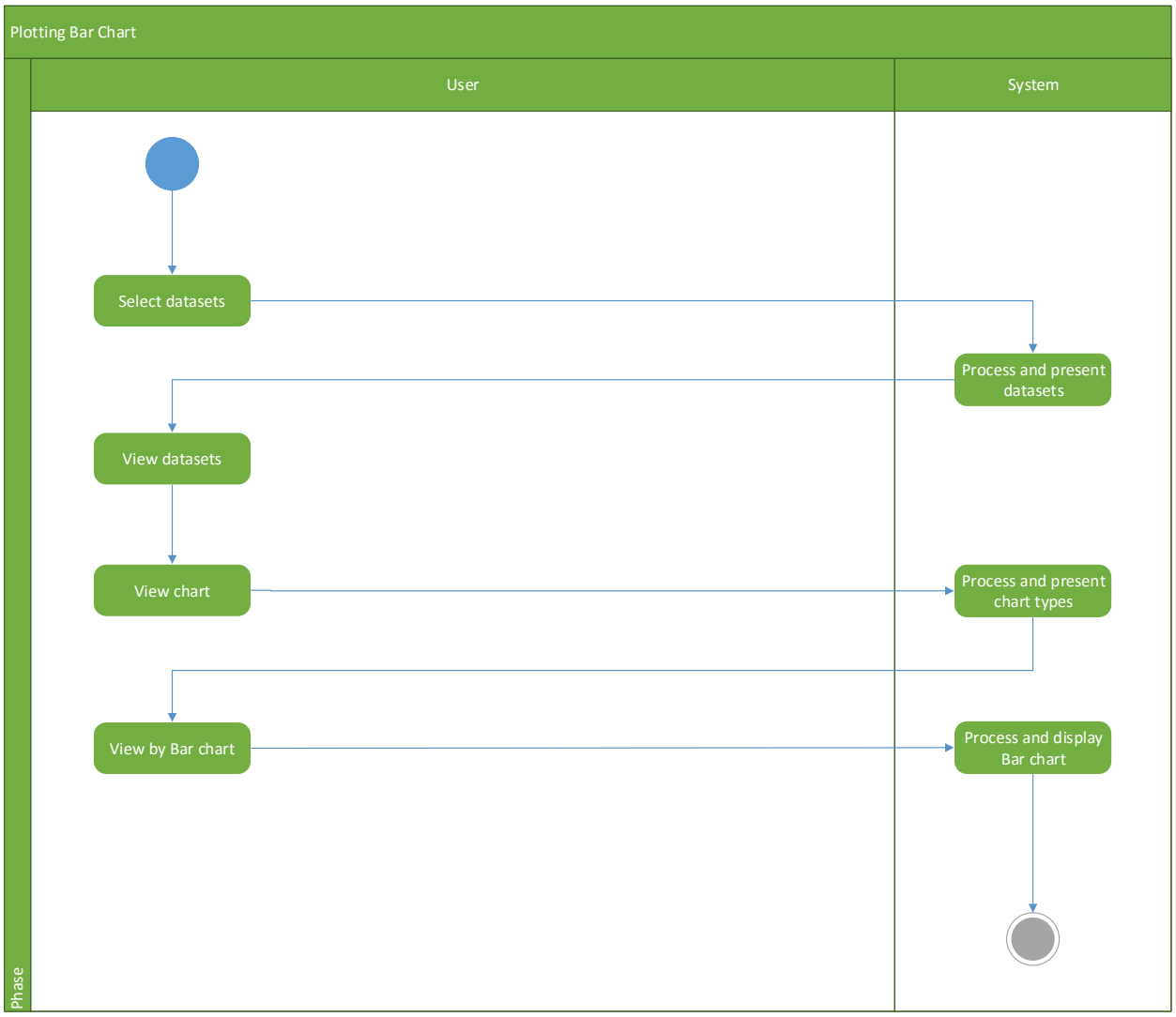
4. Selecting Dataset Chicago Public Schools 2012-2013



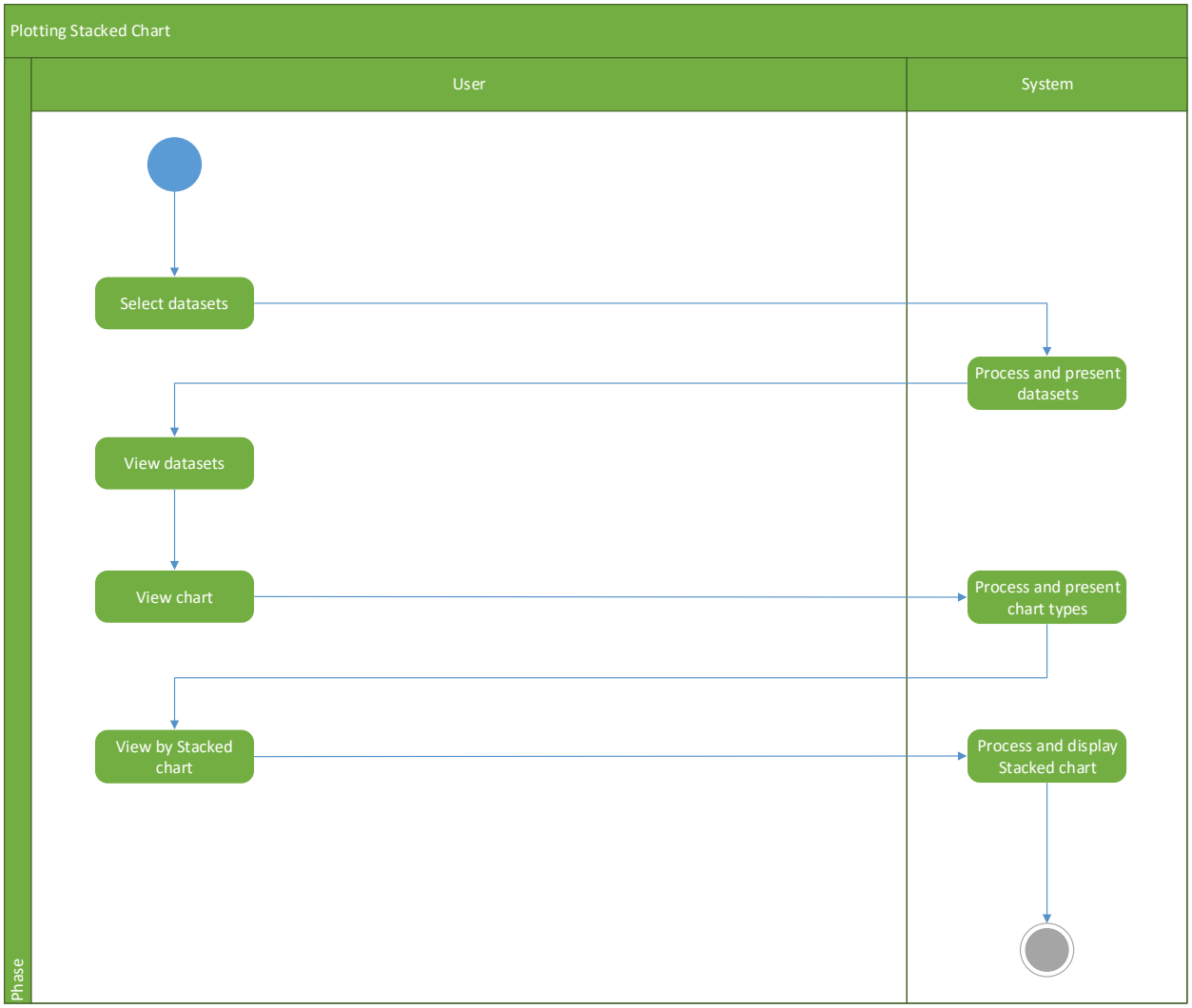
5. Selecting Dataset Chicago Public Schools 2013-2014



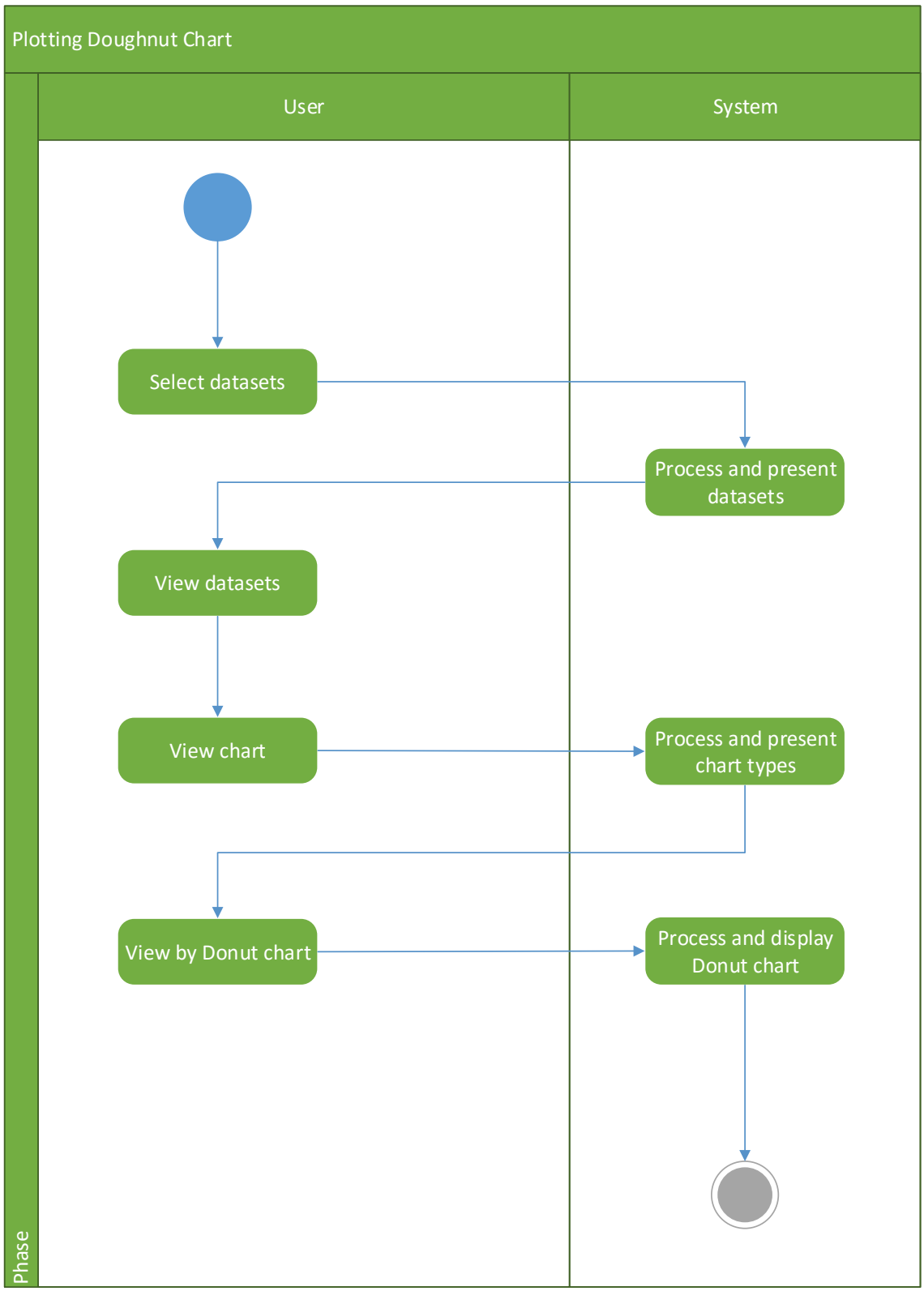
6. Plotting Bar Chart



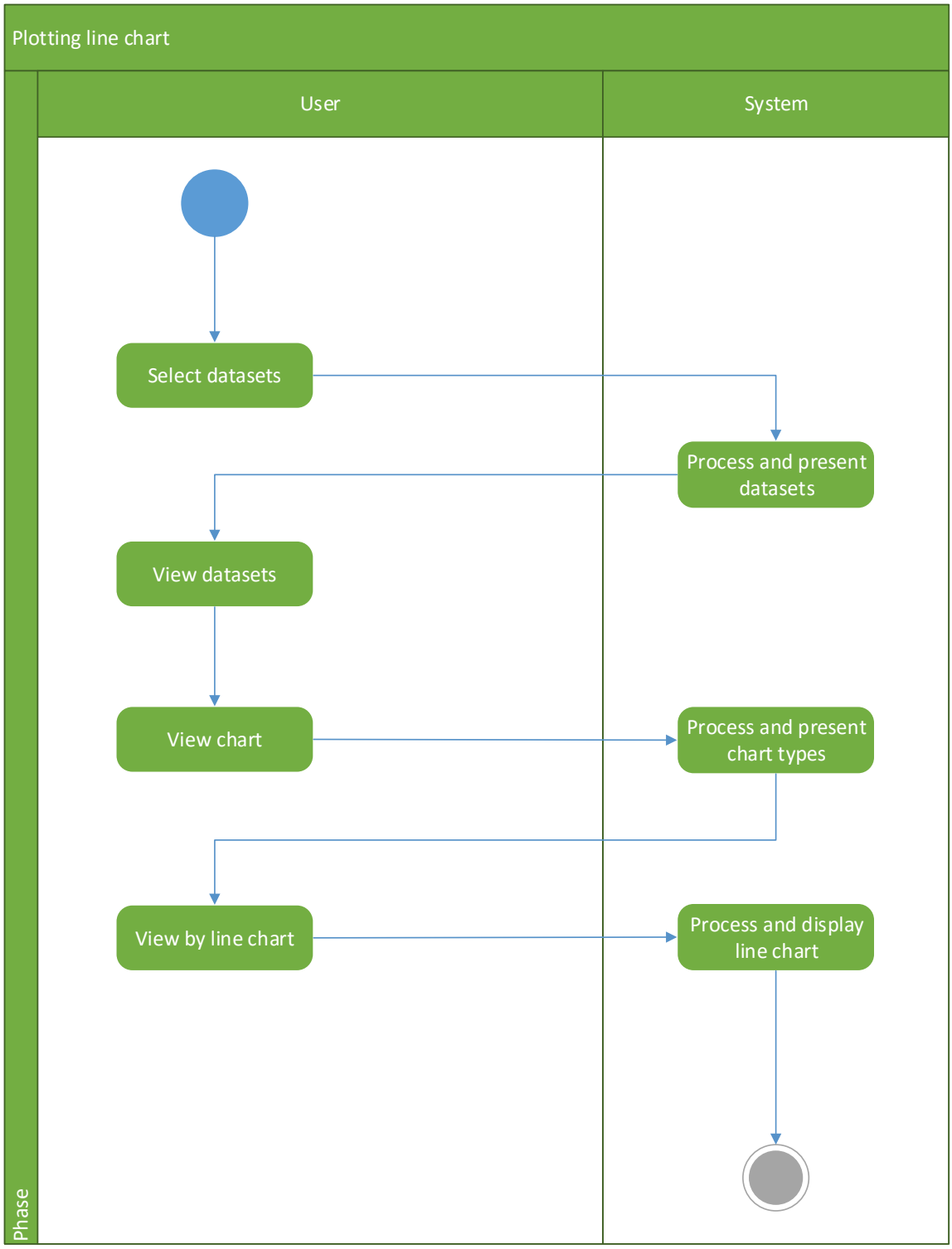
7. Plotting Stack Chart



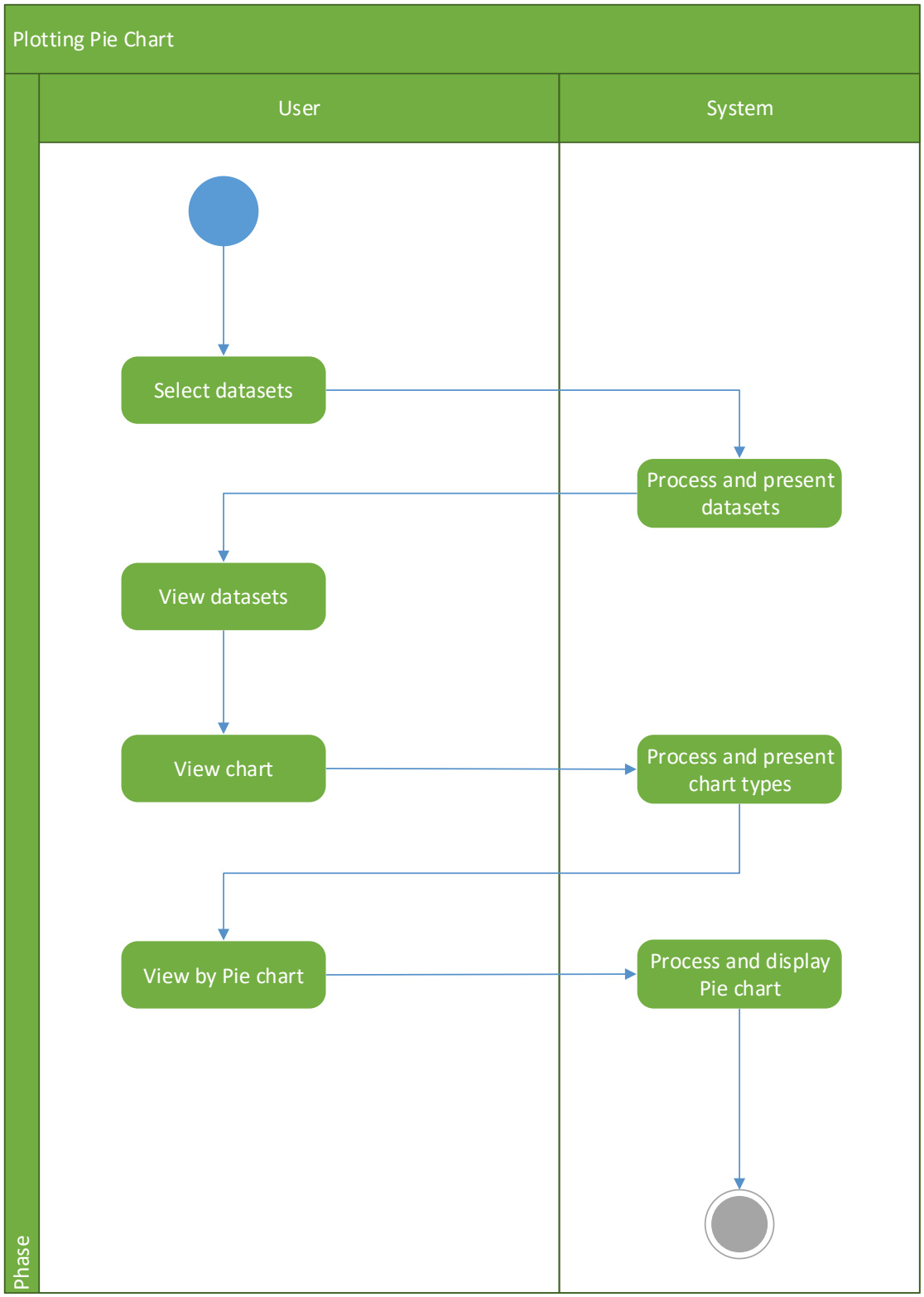
8. Plotting Doughnut Chart



9. Plotting Line Chart

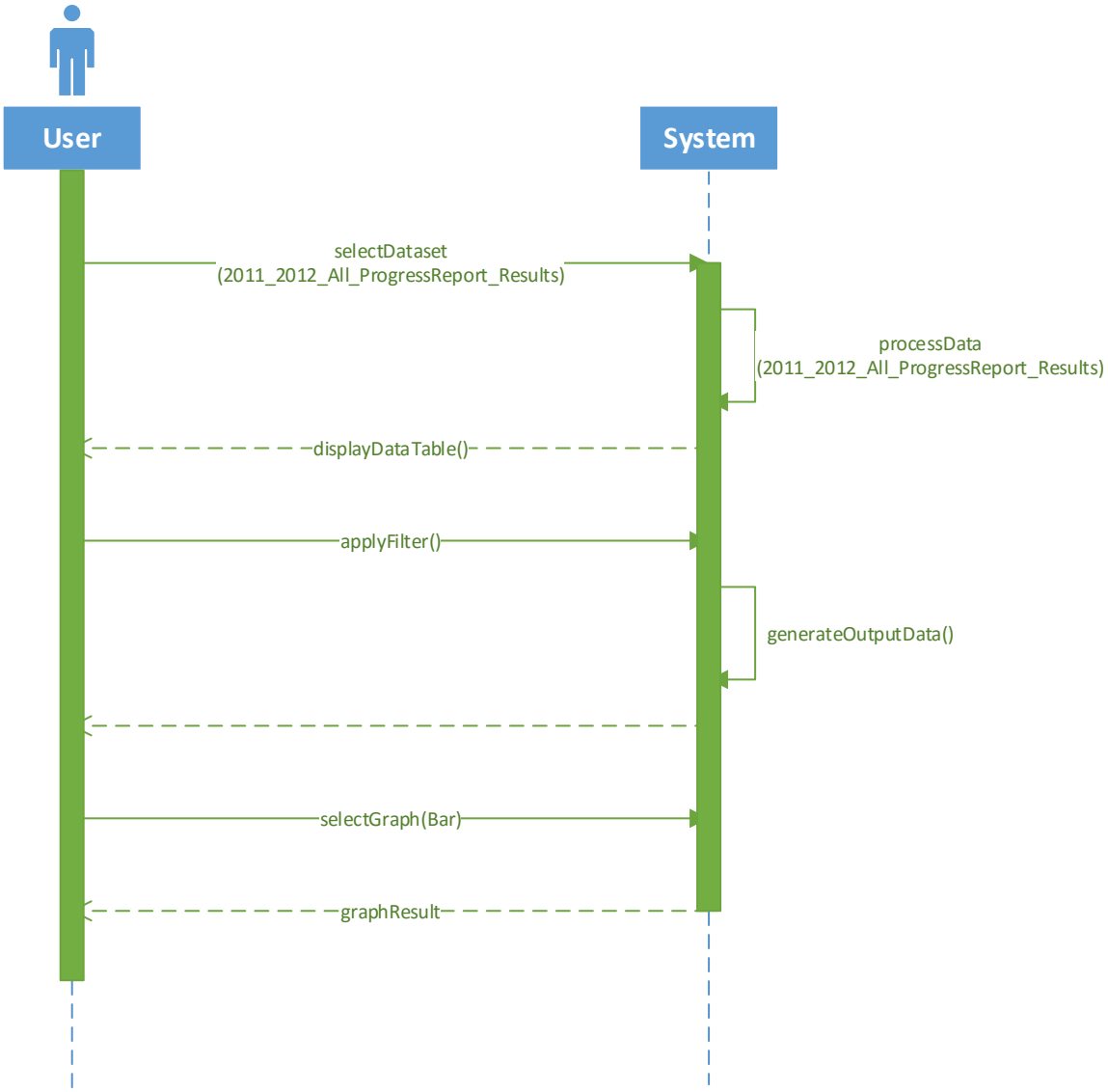


10. Plotting Pie Chart

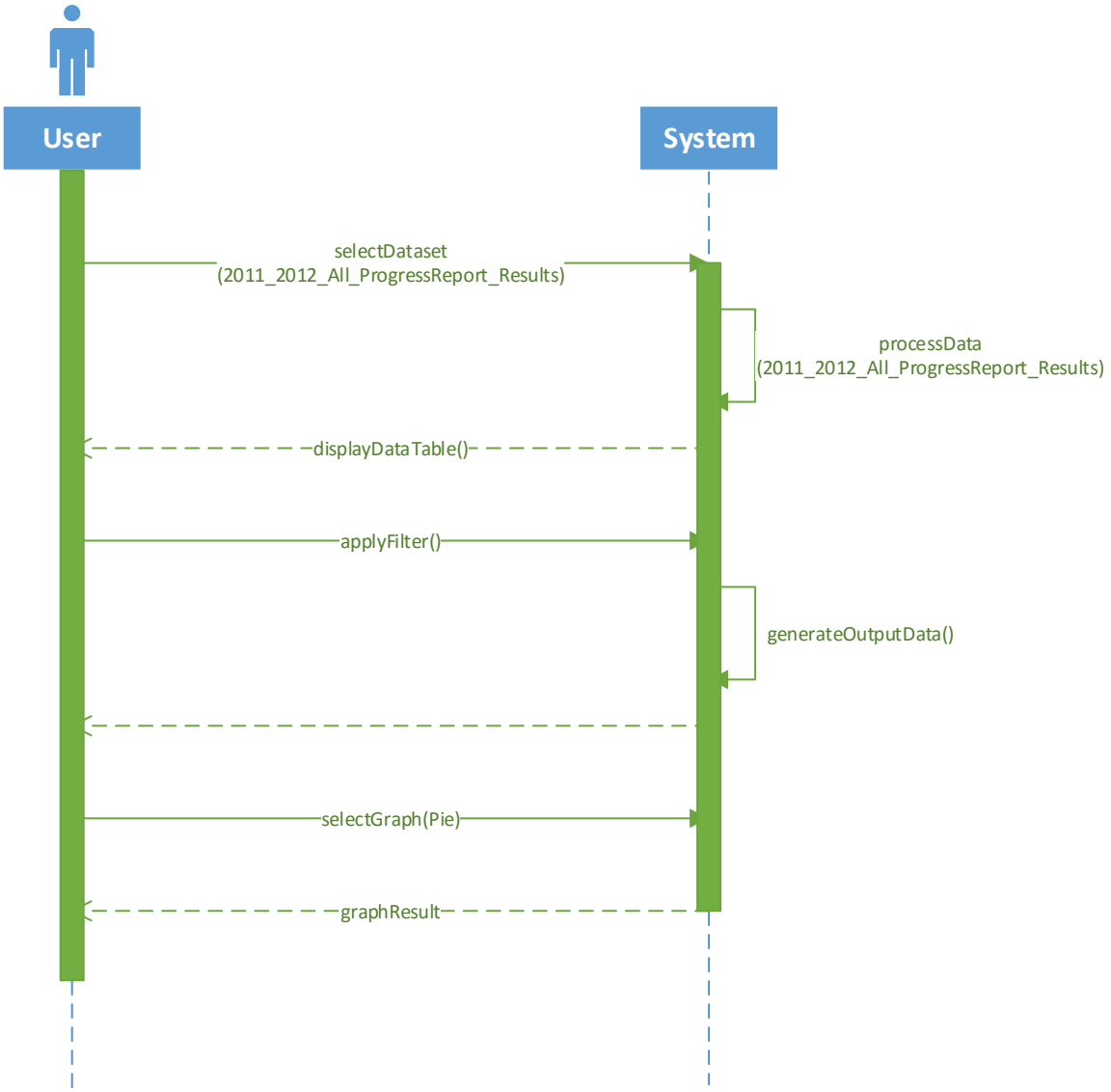


Sequence Diagram

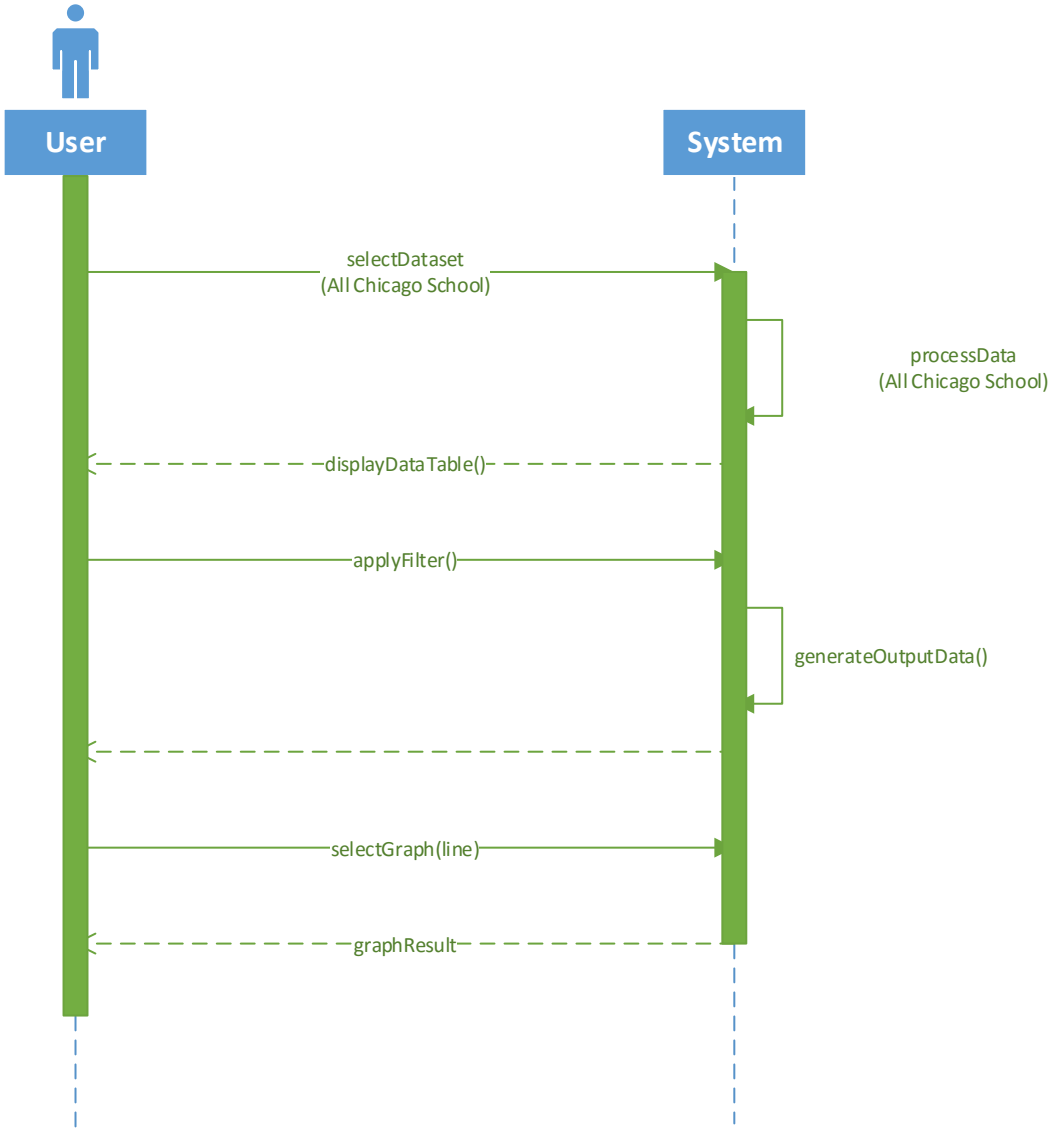
1. Dataset for 2011-2012 All Progress Report and Plotting Bar Char



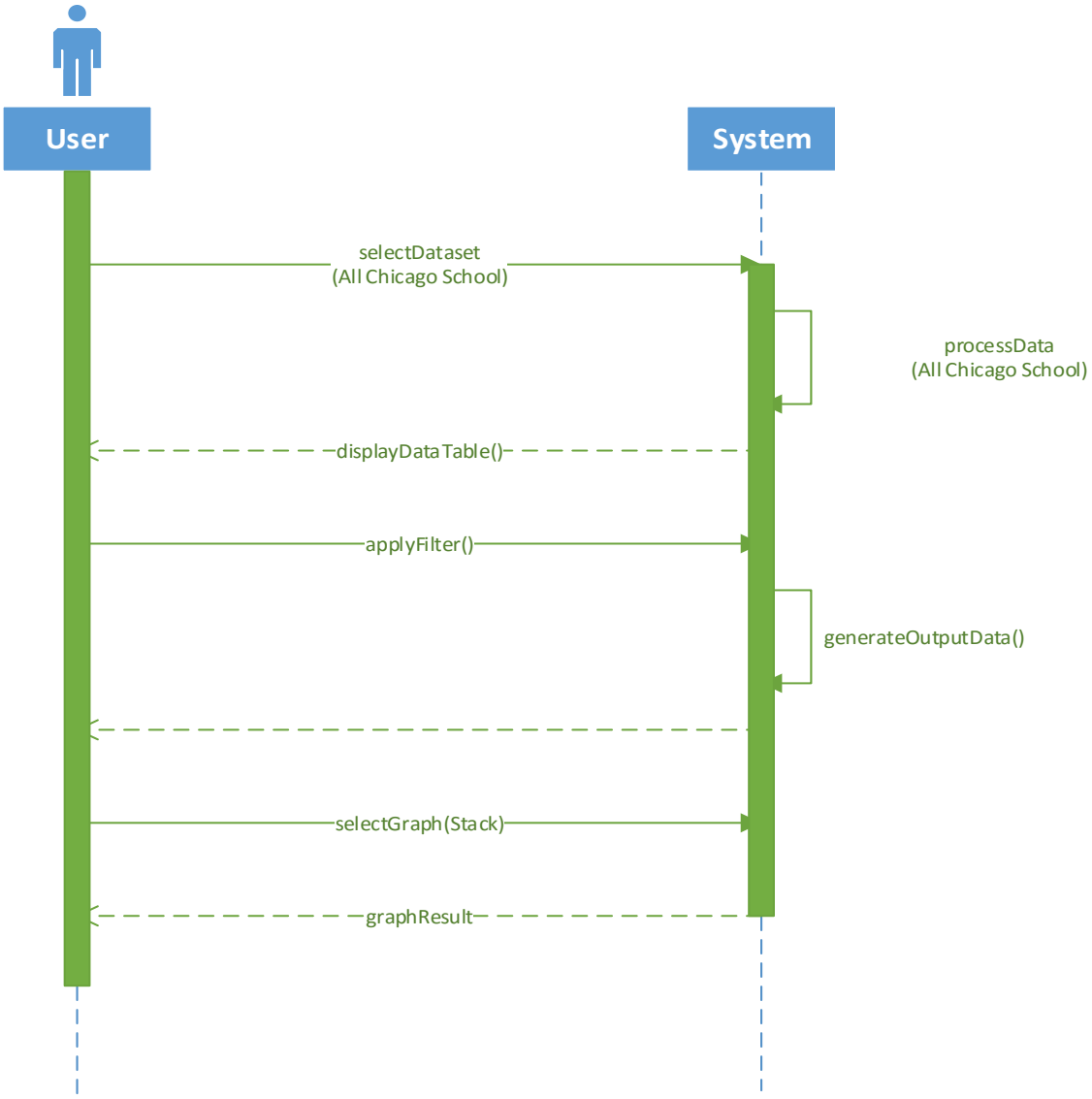
2. Dataset for 2011-2012 All Progress Report and Plotting Pie Char



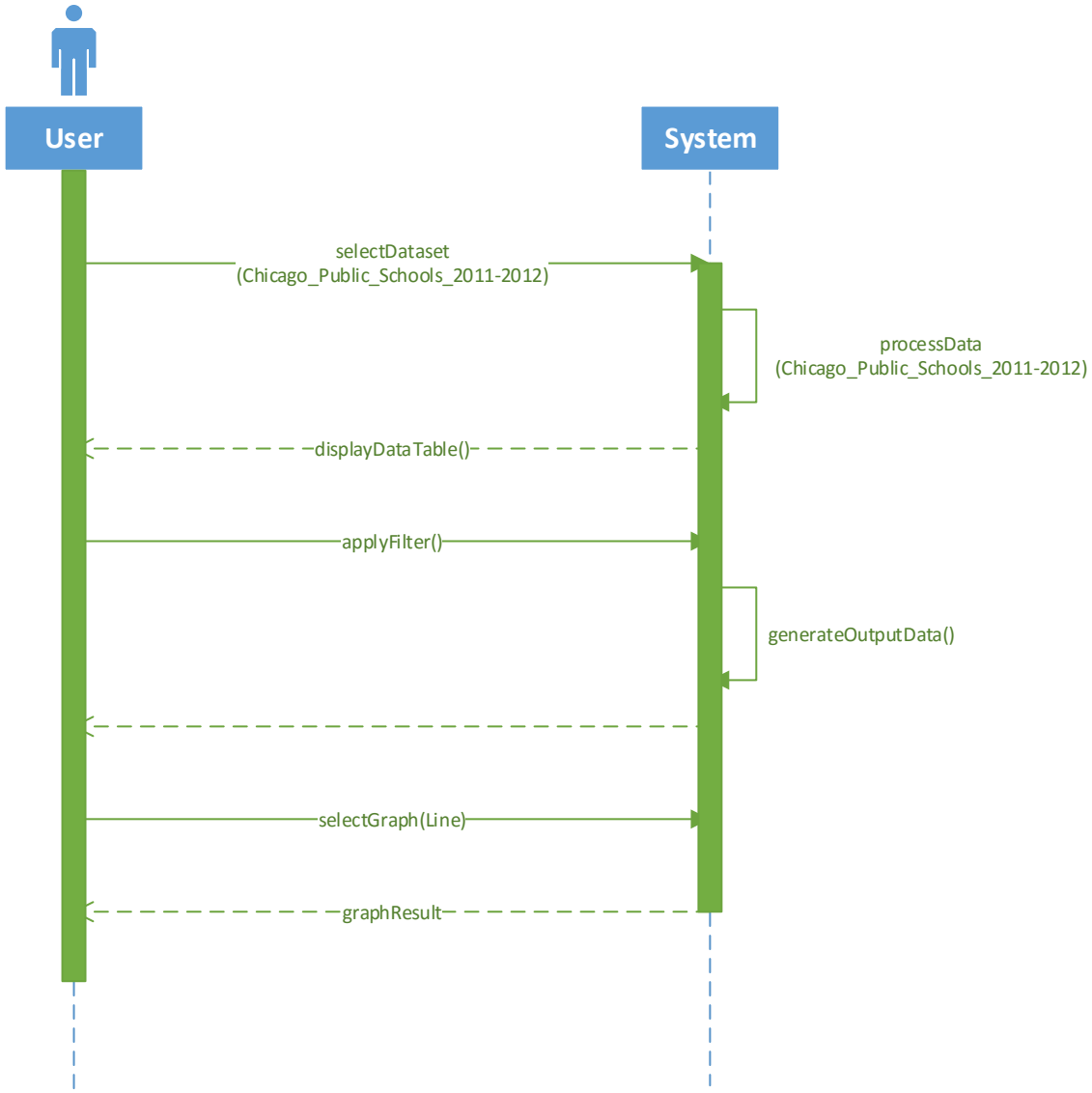
3. All Chicago School Dataset and Plotting Line Chart



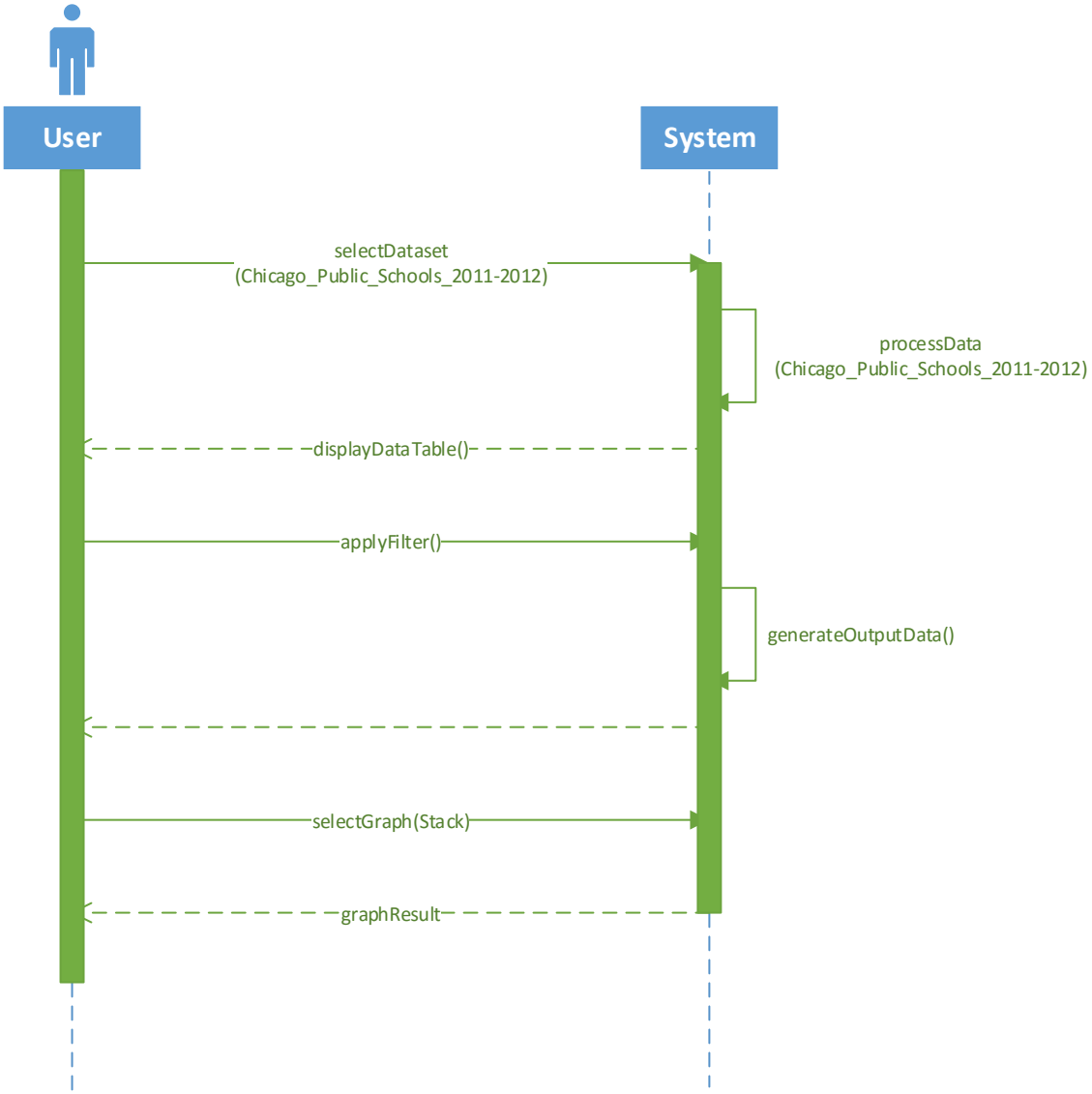
4. All Chicago School Dataset and Plotting Stack Chart



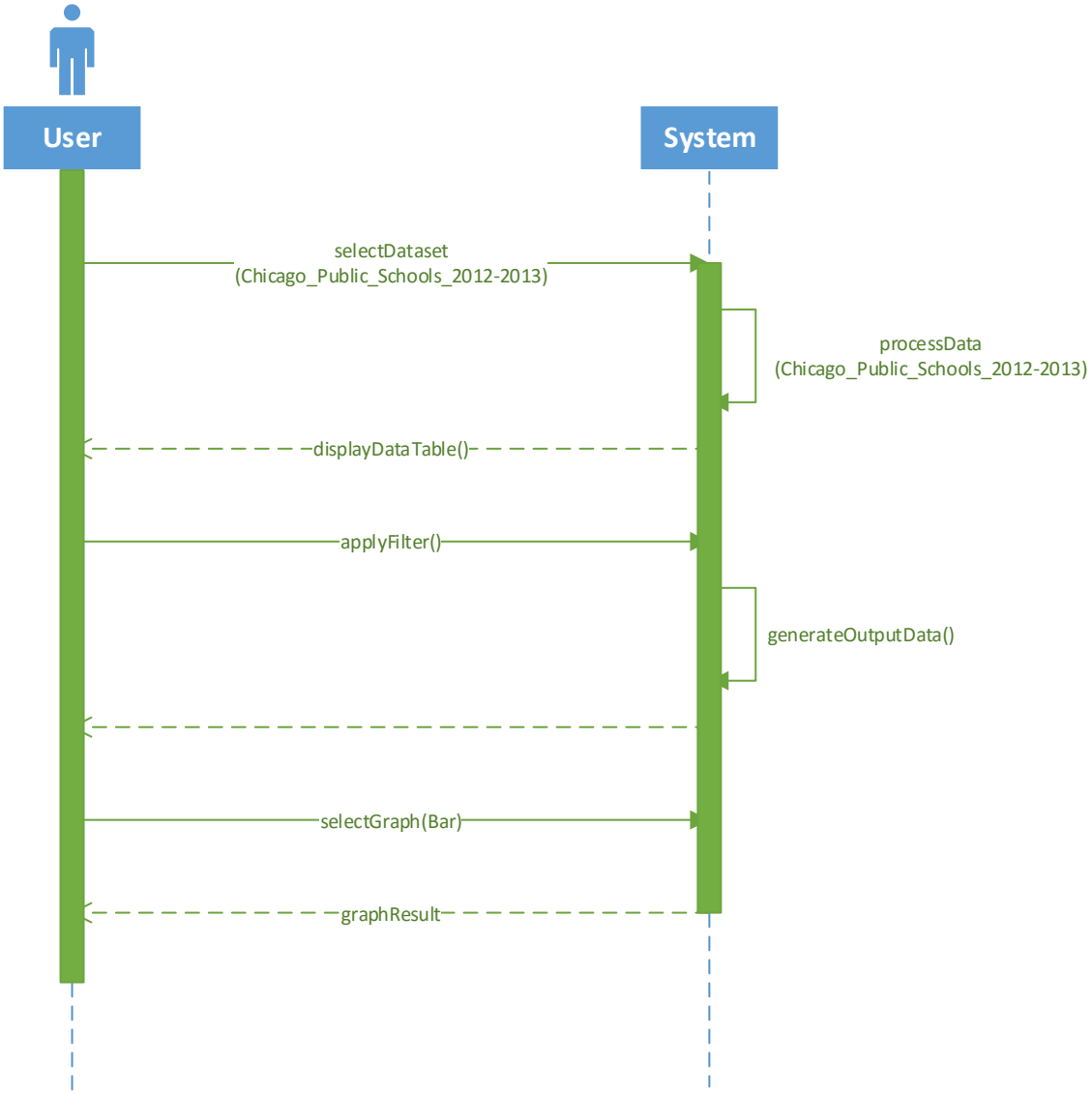
5. Chicago Public Schools 2011-2012 Dataset and Plotting Line Chart



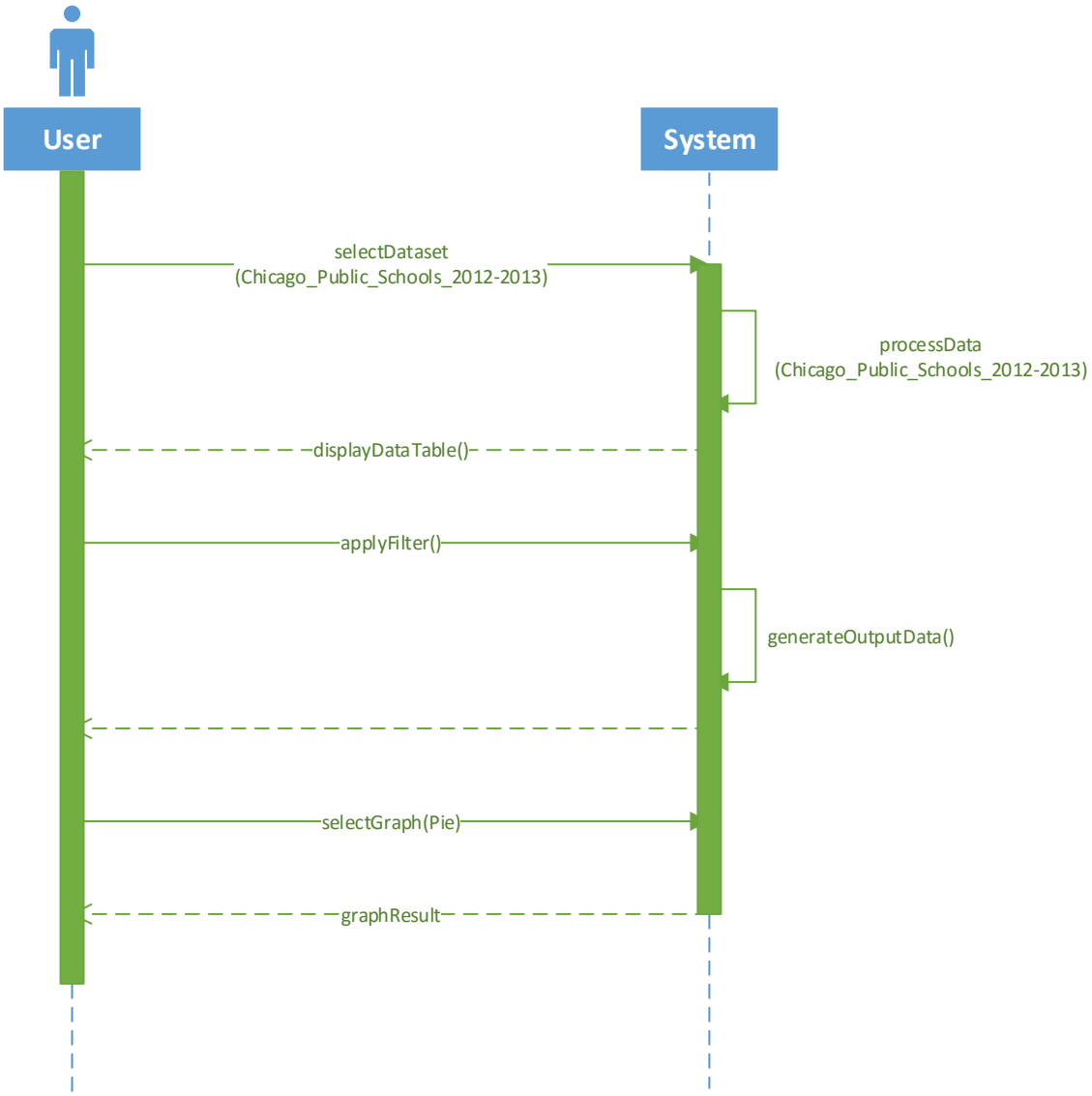
6. Chicago Public Schools 2011-2012 Dataset and Plotting Stack Chart



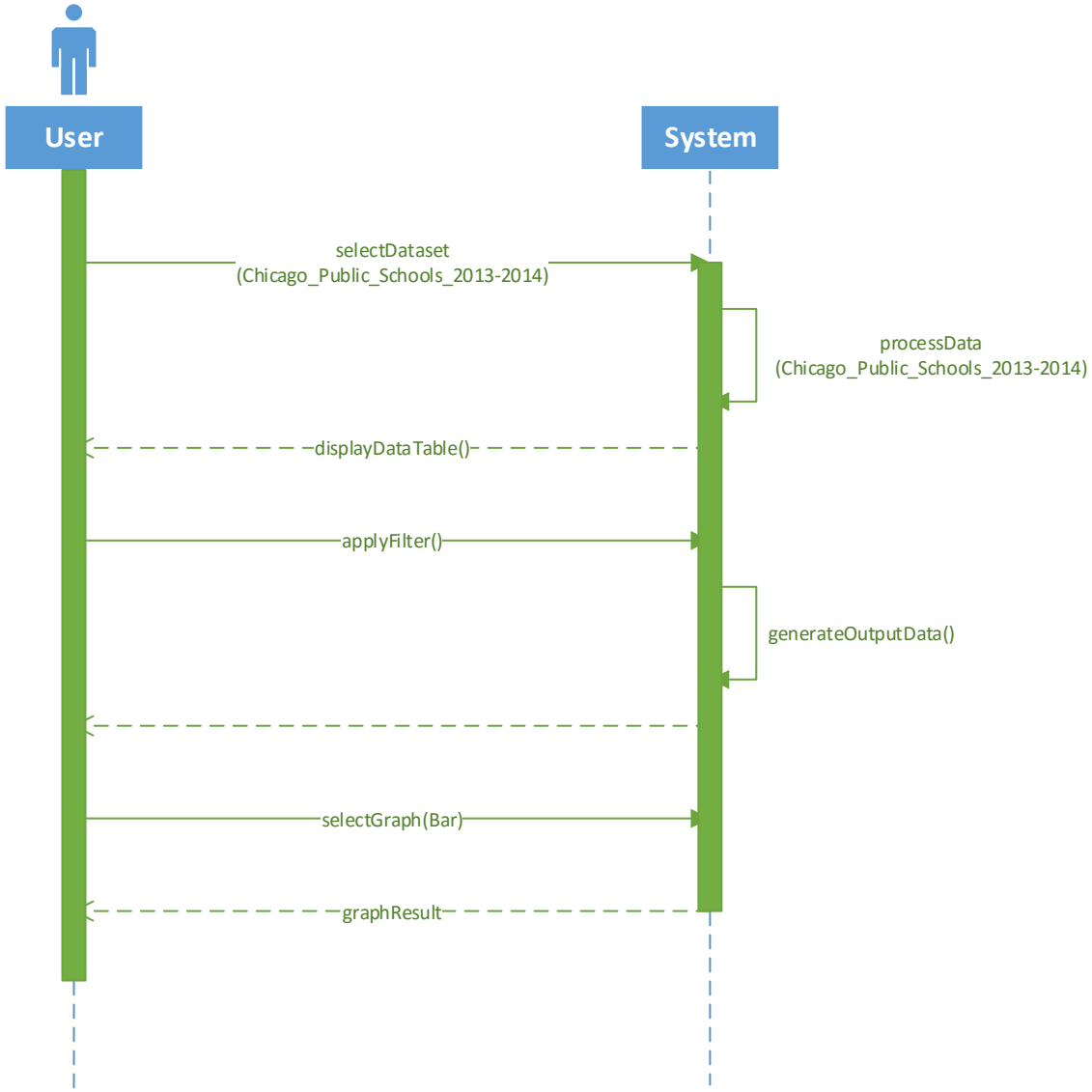
7. Chicago Public Schools 2012-2013 Dataset and Plotting Bar Chart



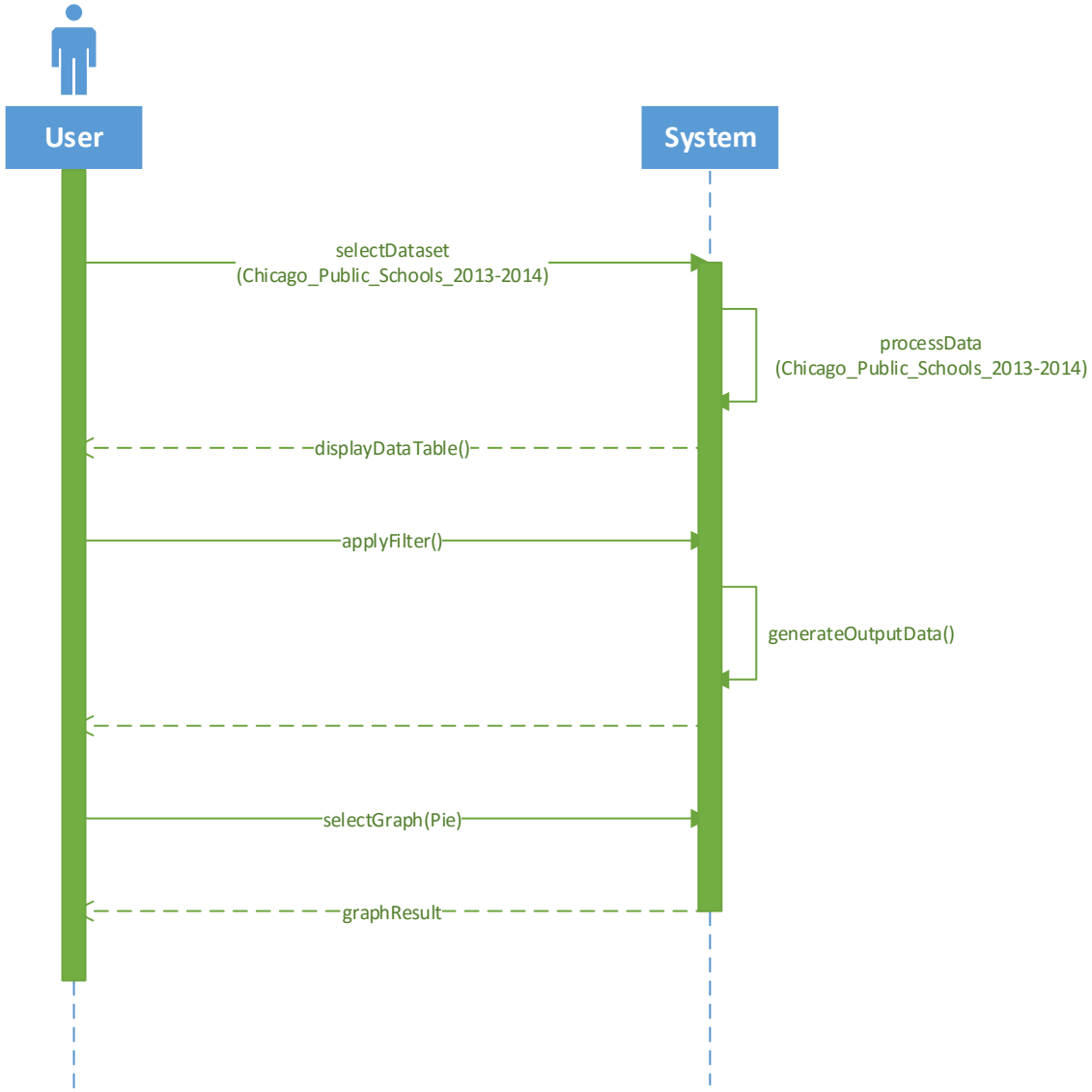
8. Chicago Public Schools 2012-2013 Dataset and Plotting Pie Chart



9. Chicago Public Schools 2013-2014 Dataset and Plotting Bar Chart



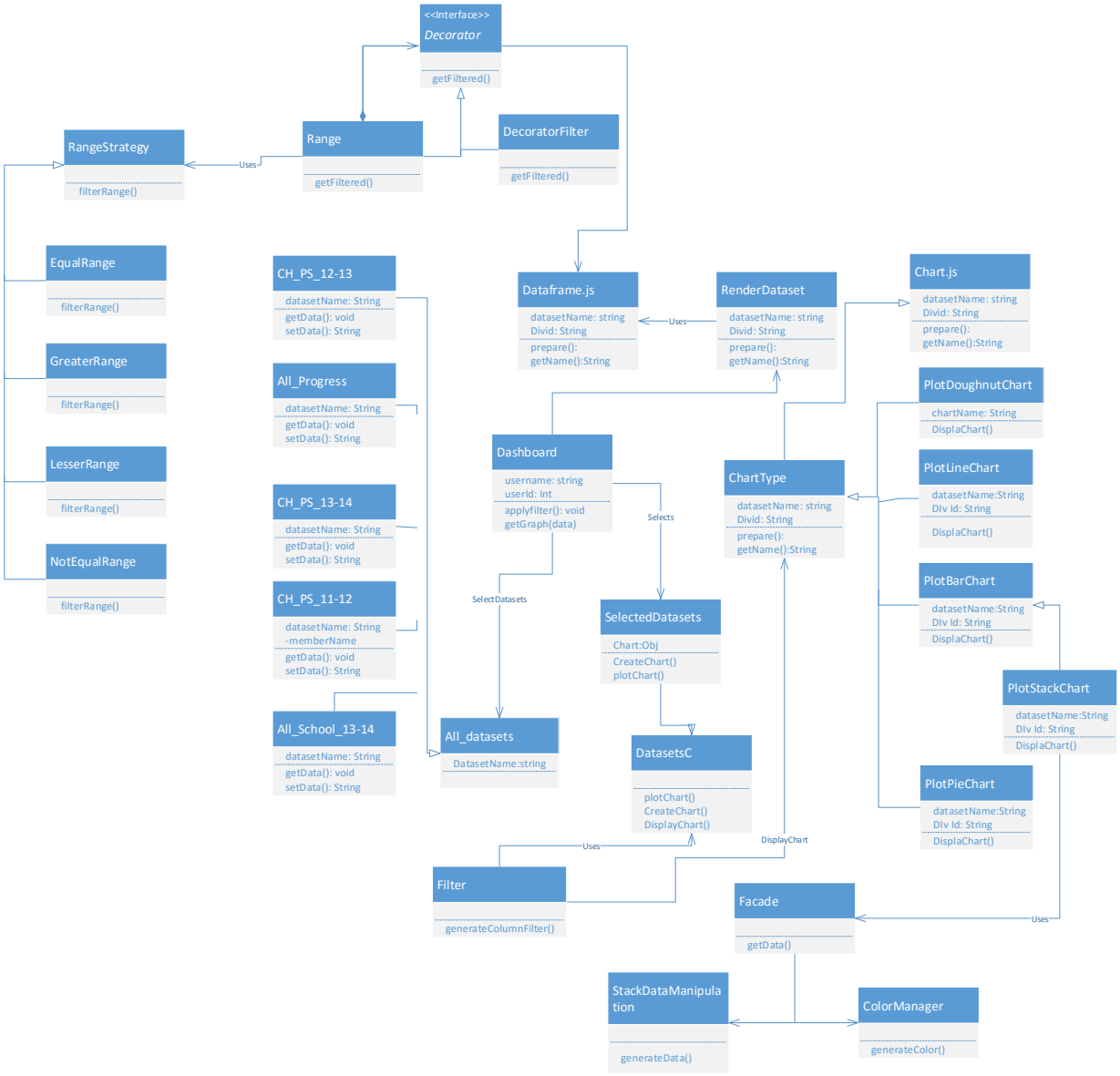
10. Chicago Public Schools 2013-2014 Dataset and Plotting Pie Chart



Class Diagram:

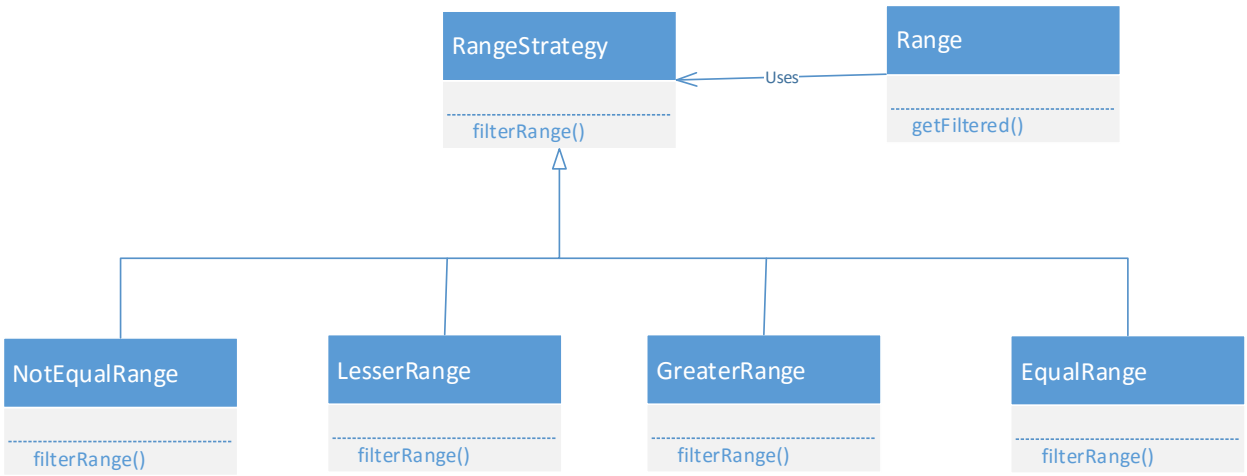
Design Model Class Diagram:

Domain Model Class Diagram:



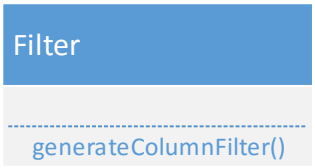
Design Patterns:

1. Strategy Design Pattern:



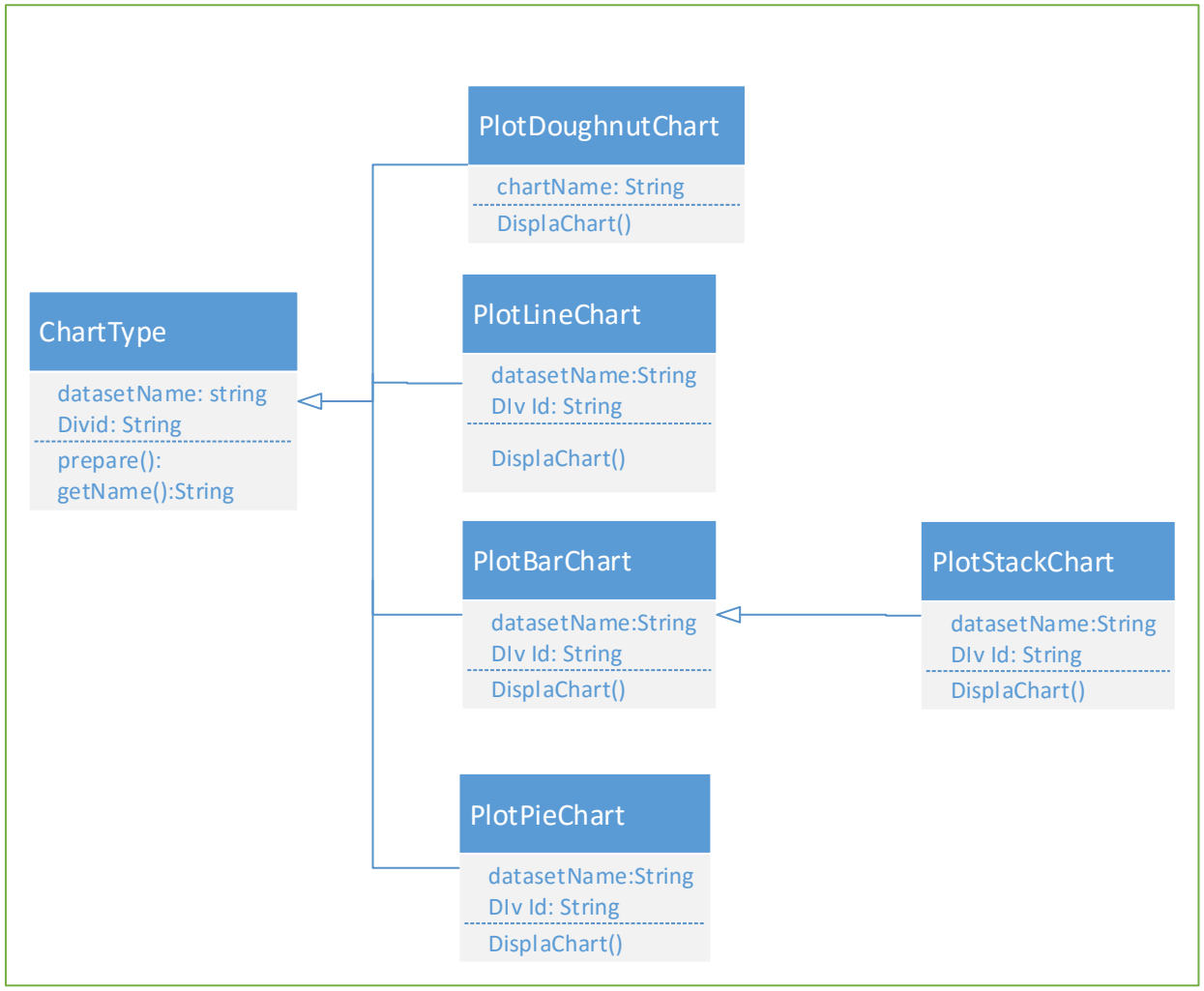
Strategy Pattern is the one in which allows a configuration of a single class with one of the many behaviors. In this case, RangeStrategy class has the main filterRange() method. This method can be implemented in many ways by set of related classes' i.e., different types of filter range classes like EqualRange, GreaterRange, LesserRange and NotEqualRange. Since these two classes implement the common functionality to range the filtered data they extend the RangeStrategy class.

2. Singleton design Pattern:



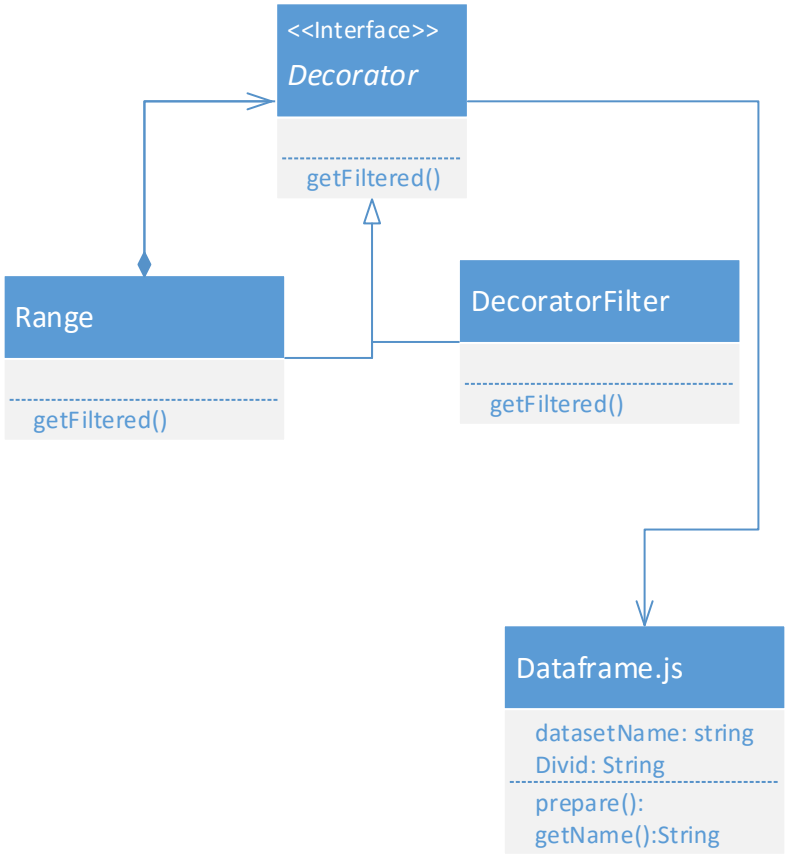
This pattern ensures that the class has only one instance and global point of access to it. Here Dataset class is the singleton class in our design model. This class is accessed by DatasetsC class and ChartType class. We have a single static variable Called InstanceVar, and which cannot be overridden but can be used a lot many times as needed. And this variable holds the instance of Filter class. generateColumnFilter() method

3. Factory Method:



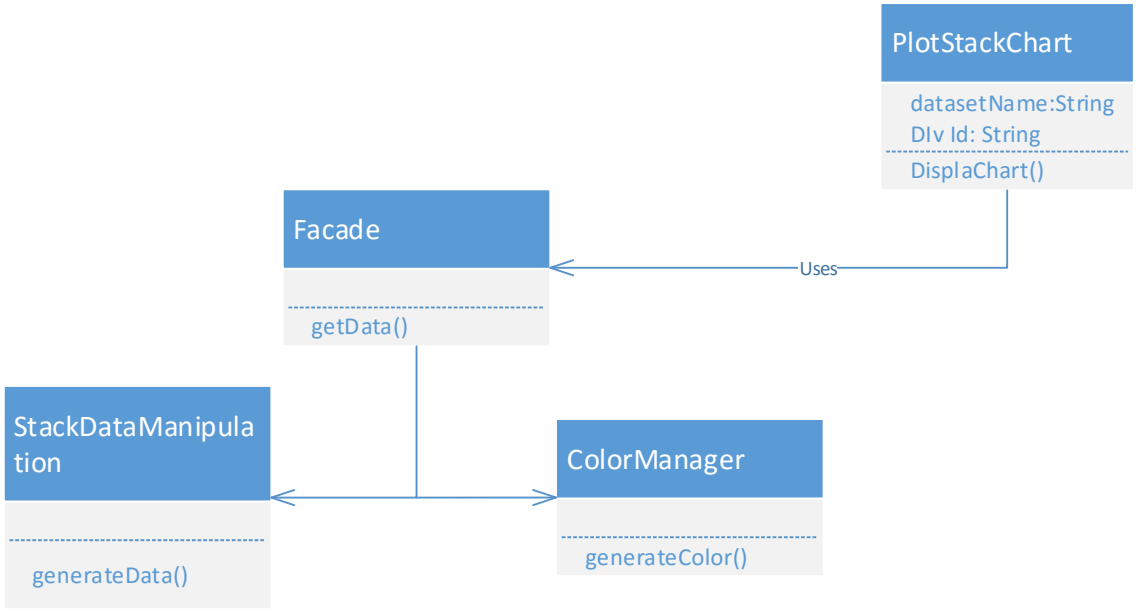
ChartType is the factory method which recognizes as the type of chart the user wants to plot. The chart can be PlotDoughnutChart, PlotLineChart, PlotBarChart and PlotPieChart and these inherited classes are the concrete classes. PlotStackChart is a child class of PlotBarChart.

4. Decorator Pattern:



The Decorator pattern is used with different type of data to be filtered upon like the Range and DecoratorFilter. The Decorator Class is the interface from which Range and Decorator filter will be implementing getFiltered().Then using Decorator class we can add various filters on these sub classes.

5. Facade Design Pattern:



Facade pattern adds an interface to hide the complexities of the system and gives an interface to the user. Here the PlotStackChart as the client and the Facade class will manage all the subclass i.e, StackDataManipulation and ColorManager of it. The getData() method is called up on the subsystem in order to select the different types of color managing and StackManipulation type.