# Class Diagram

# Use Case Diagram



Draw chart

Filter dataset

Randomly split a dataset

Import .csv file

Export a dataset as .csv file

User

Load environment

Save environment
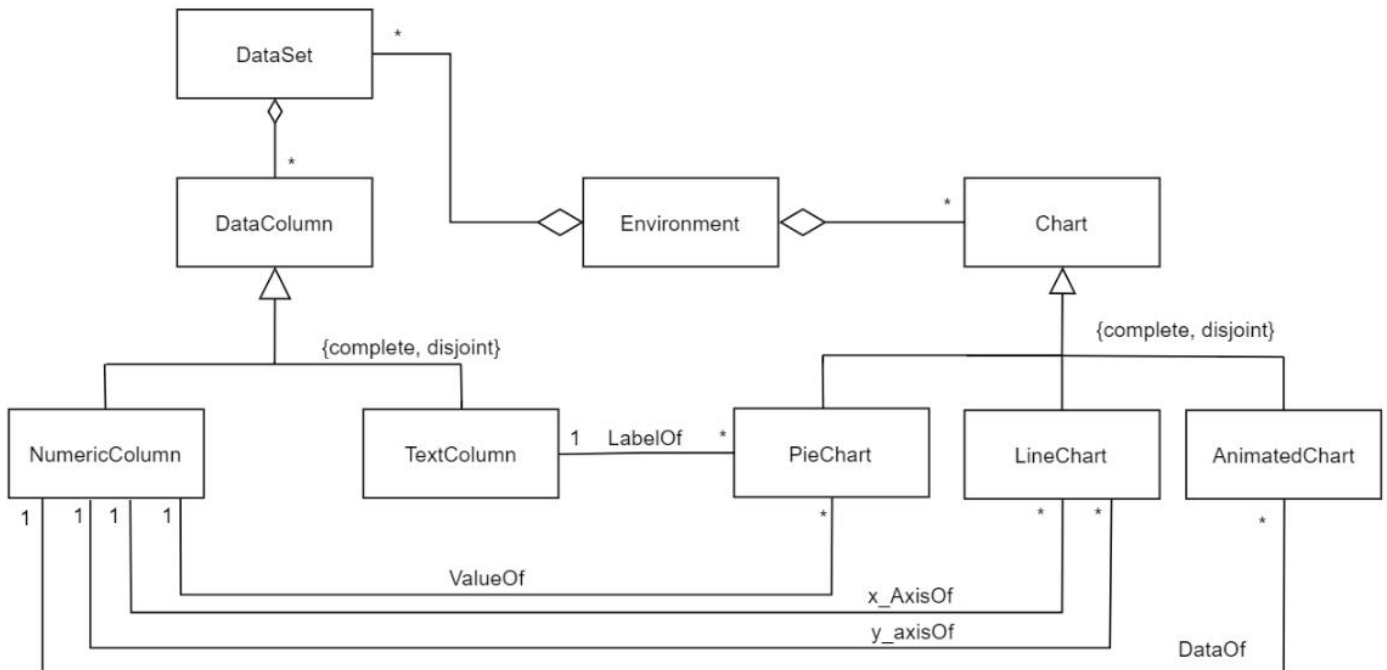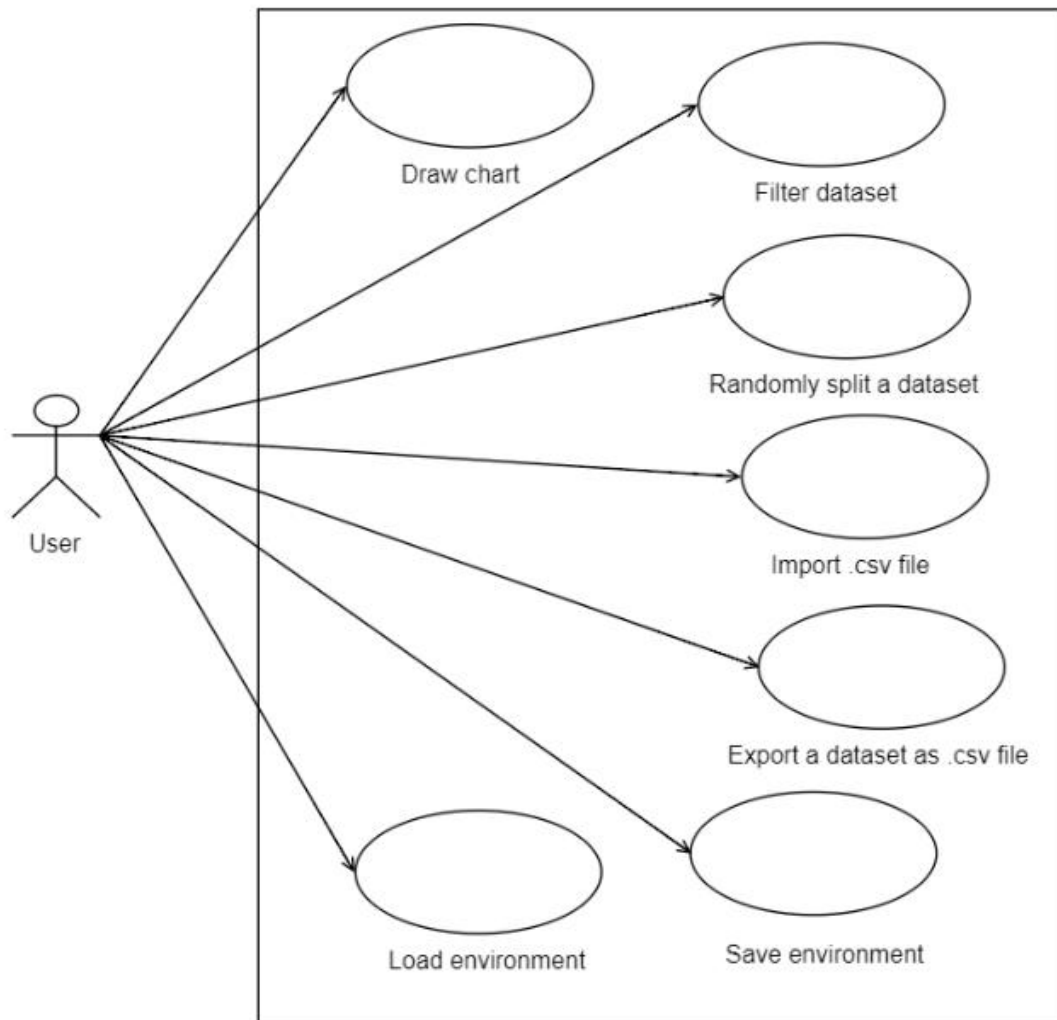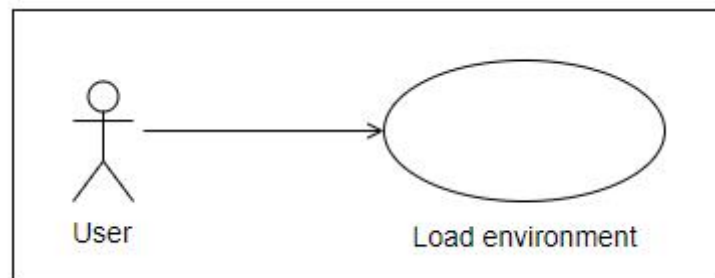
## Use Case: Load Environment

## Brief Description

This use-case describes how a User can load all the datasets and charts from a saved environment .comp3111 file to replace the current environment.

## Use-case Diagram



## Basic Flow

1. The use case begins when the User actor chooses to load a previously saved environment from a .comp3111 file.

2. The system displays the interface for loading the file.

**{Choose File}**

3. The User chooses the .comp3111 file to be loaded.

4. The User confirms the load operation.

**{Confirm Load}**

5. The system clears the current database.

6. The system reads from the selected .comp3111 file and adds all the input objects into the database.

7. The system notifies the User that the previous environment has been successfully loaded.

8. The use case ends.

## Alternative Flow

### A1: Invalid Content

At {Confirm Load} if the file selected contains data in unrecognizable format,

1. The system informs the User that the selected file is invalid.
2. The flow of events is resumed at {Choose File}.

## Use Case: Draw Chart

## Brief Description

This use case describes how a User gets a specific chart from columns of a desired dataset. Line charts and pie charts are the two charts that can be created. A line chart requires two numeric columns; a pie chart requires one text column and one numeric column

## Use-case Diagram
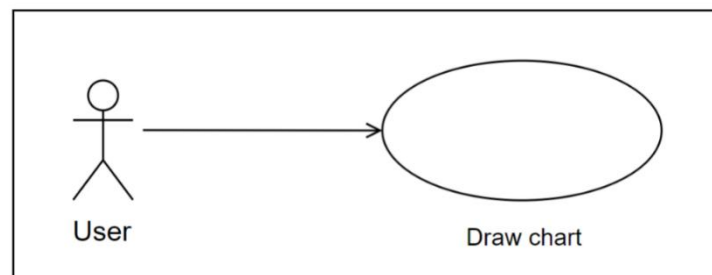


## Basic Flow

1. The use case begins when the User actor chooses to create a chart with the desired data column.

2. The system displays the interface for selecting a dataset and a type of chart.

**{Select Dataset and Chart}**

3. The User indicates the dataset and the type of chart he would like to used for data visualization.

4. The User confirms the selection.

**{Select Columns}**

5. While the User has a dataset and a type of chart to create

    5.1 If the CREATE PIE CHART activity is selected

        5.1.1 The system identifies all the text and numeric column(s)

        5.1.2 The system displays the interface with two combo boxes with either text columns(s) or numeric columns(s) for selection.

        5.1.3 The User selects one text column and one numeric column.

        5.1.4 The User confirms the selection.

        5.1.5 The system creates the pie chart with the selected inputs in the database.

        5.1.6 The system displays the pie chart.

5.2   If the CREATE LINE CHART activity is selected

5.2.1   The system identifies all the numeric columns.

5.2.2   The system displays the interface with two combo boxes for selecting two numeric columns (i.e. Only numeric columns will be displayed in combo boxes).

5.2.3   The User selects two numeric columns from the dataset for x-axis and y-axis of the line chart.

5.2.4   The User confirms the selection.

5.2.5   The system creates the line chart with the selected inputs in the database.

5.2.6   The system displays the line chart.

5.3   If the CREATE ANIMATED CHART activity is selected

5.3.1   The system identifies all the numeric columns.

5.3.2   The system displays the interface with combo boxes for selecting two numeric columns (i.e. Only numeric columns will be displayed in combo boxes).

5.3.3   The User selects one numeric column to be displayed on the chart.

5.3.4   The User confirms the selection.

5.3.5   The system creates the animated chart with the selected inputs in the database.

5.3.6   The system displays the animated chart.

6.   The use case ends.

## Alternative Flow

### *A1: Invalid Dataset*

At **{Select Columns}** if the selected dataset does not match the data requirement of the selected type of chart (i.e. for a line chart, dataset must have at least two numeric columns; for a pie chart, dataset must have at least one text column and one numeric column with no negative values; for an animated line chart, dataset must have at least one numeric column),
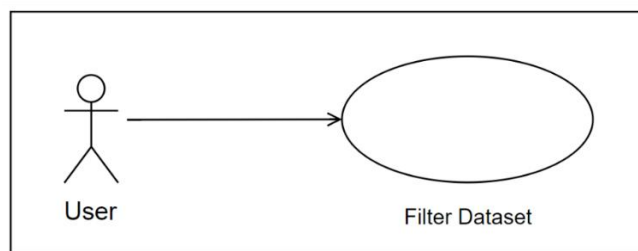
1.  The system informs the User that the selected dataset doesn't match the data requirement of the selected type of chart.
2.  The flow of events is resumed at **{Select Dataset and Chart}**.

## Use Case: Filter Dataset

## Brief Description

This use case describes how a User performs filtering on dataset with the selected data column.

## Use-case Diagram



## Basic Flow

1. The use case begins when the User actor chooses to filter a dataset.

2. The system displays the interface for selecting a dataset.

{Select Dataset}

3. The User indicates the dataset he would like to perform filtering on.

{Confirm Selection}

4. The User confirms the selection.

5. The system retrieves and displays all the existing numeric column(s) in the dataset and all the available comparison operators.

6. The User selects the column and comparison operator he would like to use for filtering the dataset.

7. The User confirms the options.

8. The system displays the interface for choosing how the new dataset will be handled.

9. The User chooses either to replace the original dataset with the new dataset or to save it as a new dataset.

10. The User confirms the option.

11. The system filters the selected dataset with the chosen comparison operator and saves the dataset into the database with the selected method.

12. The use case ends.

## Alternative Flow

### *A1: Invalid Dataset*

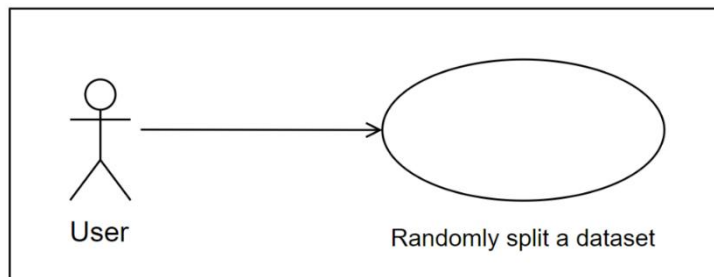At **{Confirm Selection}** if the selected dataset has no numeric column,

1. The system informs the User that the selected dataset is invalid.
2. The flow of events is resumed at **{Select Dataset}.**

## Use Case: Randomly split a dataset

## Brief Description

This use case describes how a User can randomly split a dataset into two with desired proportion.

## Use-case Diagram



## Basic Flow

1. The use case begins when the User actor chooses to randomly split a dataset.

2. The system displays the interface for selecting a dataset to be randomly split.

3. The User selects a dataset.

4. The User confirms the selection.

5. The system displays the interface for declaring a replacement or a create action.

6. The User chooses to replace the current dataset with the new datasets or to create two new datasets.

7. The User confirms the option.

**{Enter Percentage to Split}**

8. The system displays the interface for entering an integer.

9. The User enters an integer in the range from 0 to 100 to control the percentage of split.

10. The User confirms the entered integer.

**{Randomly Split}**

11. If the REPLACE activity is selected, during randomly splitting by the entered percentage, the system firstly copies the randomly selected row(s) to the new dataset and then deletes the selected row(s) in the original dataset.

12. If the CREATE activity is selected, during randomly splitting by the entered percentage, the system will copy the randomly selected row(s) to the new datasets respectively.

13. The use case end.

## Alternative Flow

### A1: Invalid Integer

At **{Randomly Split}** if the entered integer is invalid,

1. The system informs the User that the input is invalid.

2. The flow of events is resumed at **{Enter Percentage to Split}.**