**Use Case 1: Initialize System.**

Participating Actor:

Initiated by Scientist

Entry Condition:

None

Exit Criteria:

MainForm is displayed.

Flow of Events:

Scientist connects to the system.

System displays MainForm to scientist.

**Use Case 2:Load Data Pairs.**

Participating Actor:

Initiated by Scientist

Entry Condition:

None

Exit Criteria:

Dataset is updated and Cartesian graph is displayed.

Flow of Events:

Scientist requests to load data into the system.

System displays LoadDataForm to Scientist.

Scientist submits LoadDataForm into the system.

System displays updated dataset and presents Cartesian graph as default.

**Use Case 3: Insert Data Pair.**

Participating Actor:

Initiated by Scientist

Entry Condition:

None

Exit Criteria:

Dataset and current graph are updated.

Flow of Events:

Scientist requests to insert a new data pair.

System displays updated dataset and presents updated graph (including trend line, equation if needed).

**Use Case 3: Delete Data Pairs.**

Participating Actor:

Initiated by Scientist

Entry Condition:

Dataset is available in MainForm.

Exit Criteria:

Dataset and current graph are updated.

Flow of Events:

Scientist chooses data pairs then requests to delete data pairs.

System responds by displaying DeleteConfirmationForm.

Scientist submits his confirmation with DeleteConfirmationForm.

System displays updated dataset and presents updated graph (including trend line, equation if needed).

**Use Case 4: Edit Data Pair**

Participating Actor:

Initiated by Scientist

Entry Condition:

Dataset is available in MainForm.

Exit Criteria:

Dataset and current graph are updated.

Flow of Events:

Scientist chooses a data pair then requests to update a data pair.

System responds by dispalying UpdateConfirmationForm.

Scientist submits his update data pair with UpdateConfirmationForm.

System displays updated dataset and presents updated graph (including trend line, equation if needed).

**Use Case 5: Display Cartesian Graph.**

Participating Actor:

Initiated by Scientist

Entry Condition:

Current graph is Cartesian plot

Exit Criteria:

Column graph is displayed

Flow of Events:

Scientist requests to switch graph.

System hides the Cartesian plot currently displayed and shows the Column graph.

**Use Case 6: Display Column Graph.**

Participating Actor:

Initiated by Scientist

Entry Condition:

Current graph is Column graph

Exit Criteria:

Cartesian plot is displayed

Flow of Events:

Scientist requests to switch graph.

System hides the Column graph currently displayed and shows a Cartesian plot based on current data set.

**Use Case 7: Show Trend Line**

Participating Actor:

Initiated by Scientist

Entry Condition:

Cartesian plot is displayed.

Trend line and its equation is hidden.

Exit Criteria:

Trend line and its equation are shown on the Cartesian plot.

Flow of Events:

Scientist requests to show trend line and its equation.

System displays linear regression trend line and its equation.

**Use Case 8: Hide Trend Line**

Participating Actor:

Initiated by Scientist

Entry Condition:

Cartesian plot is displayed

Trend line and its equation is displayed

Exit Criteria:

Trend line and its equation are hidden on the Cartesian plot

Flow of Events:

Scientist requests to hide trend line and its equation.

System hides the trend line and its equation on the Cartesian plot.

**Use Case 9: Show XY Axes**

Participating Actor:

Initiated by Scientist

Entry Condition:

x and y axis labels are hidden

Exit Criteria:

x and y axis labels are shown.

Flow of Events:

Scientist requests to show values on X and Y Axes.

System show x and y Axes labels.

**Use Case 10: Hide XY Axes**

Participating Actor:

Initiated by Scientist

Entry Condition:

x and y axis labels are shown

Exit Criteria:

x and y axis labels are hidden

Flow of Events:

Scientist requests to hide values on X and Y Axes.

System hides x and y axis labels.

**Use Case 11: Show Background Horizontal Lines**

Participating Actor:

Initiated by Scientist

Entry Condition:

Background horizontal lines are hidden

Exit Criteria:

Background horizontal lines are shown.

Flow of Events:

Scientist to show background horizontal lines.

System shows background horizontal lines.

**Use Case 12: Hide Background Horizontal Lines**

Participating Actor:

Initiated by Scientist

Entry Condition:

Background horizontal lines are shown

Exit Criteria:

Background horizontal lines are hidden

Flow of Events:

Scientist requests to hide background horizontal lines.

System hides background horizontal lines.

**Use Case 13: Save Data**

Participating Actor:

Initiated by Scientist

Entry Condition:

There is Cartersian or Column graph displayed in the system.

Exit Criteria:

Data is saved.

Flow of Events:

Scientist requests saves data in MainForm.

System display SaveDataForm.

Scientists fills in SaveDataForm and then submits the form.

System returns to MainForm.

**Use Case 14: Exit System ( not sure needed)**

Participating Actor:

Initiated by Scientist

Entry Condition:

Exit Criteria:

System exits.

Flow of Events:

Scientist requests closes the system.

System exits.