# Explanation of key element and terminology

# To help in the editing and maintaining process, I thought it wise to explain a bit of the terminology that is used in the code. Figure 1 shows what the main landing page looks like and points how a few key features that are to be explained at length below

Figure 1 – Main page

# Figure 1 item 1: Title Bar

The title bar contains two main features the title and logo of the project (which are not added yet) and the side menu, the functionality of which will be explained below.

# Figure 1 item 2: Side Bar

The side bar is a critical part of the project, it provides the user the ability to add new plots, edit existing plots and maintains a record of what is currently plotted. All records that exist in the side bar are dynamically generated each time a new plot is added, each with a unique id.

Figure 1 item 3: Graph

The graph is the main part of the project all plots are rendered here.

Figure 1 item 4: “Plot”

The plot lives inside of the side bar described in item 2 of figure 1, and is generated each time a plot is added to the graph. The plots ID matches the name of the data that is plotted which makes keeping track of everything simple. Plot will be removed if the data it represents is removed.

Figure 1 item 5: X Axis Slider

The slider allows the user to select which subset of the x-axis they wish to view. This will not be shown if the data being viewed is 3D.

Figure 1 item 6: Title Menu

The title menu contains controls to edit the graph, the menus contains are displayed when the user hovers over it. Figure 2 displays the contents of the title menu



Figure 2 – Side Menu contains

Figure 1 item 7: Gear

The gear provides the user access to plot specific controls. Hovering over the gear reveals its contents which can be seen below.

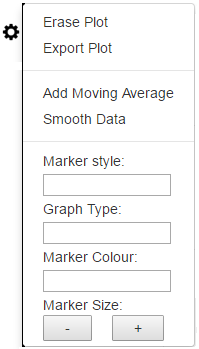


Figure 3- Gear contents

# Testing

Test case are needed to ensure that all project functionality preforms predictably amidst changes, below are the recommend list of tests that one should preform every time a change is made. It is important to note that the order of testing is important as later tests depend on the success of previous one. If a test fails and it is not marked as ‘[Non-Blocking]’ then further testing cannot continue until the issue is resolved.

Test #0 – Load test

* Steps:
  + Open <http://analytics.ndigital.com/> and confirm that the UI loads properly by comparing it to the UI above
  + Inspecting the console logs should return no errors
* Expected result : The UI loads properly

Section 1 - Basic functionality testing

Test #1 – UI controls

* Steps:
  + Click on ‘Add Plot’ button and insure that the correct dialog appears
  + Hover over the ‘Edit Plot’ menu and ensure that its contents are shown and match the description provided above
  + Inspect the graphing area and ensure that all controls have been loaded properly
* Expected result : all UI controls are loaded and work as intended

Test #1.1 – Add plot dialog

* Steps:
  + After opening the dialog by clicking the “Add Plot” button ensure that the dialog renders properly and match the above description
  + Confirm that all fields are populated
  + Cycle through all devices and confirm that all fields are repopulated with the correct information
  + Cycle through all tests and confirm that all fields are repopulated with the correct information
  + Double click on any plot and confirm that it moves to the ‘Selected Plots’ menu, double click on it again and confirm that it goes back to its original spot
  + Toggle the “Custom Date Range” checkbox and confirm that the date dialog appears and the at its controls work
* Expected result :
  + All UI controls for the “Add Plot” dialog work as intended

Test #1.2 – Adding Plot

* Steps:
  + Changing none of the default options double click on a plot to move it to the “Selected Plots” menu
  + Plot the data by clicking on the “Add plot” button
  + Confirm that the data plotted matches the data in HUGO
* Expected result :
  + The Plotted data should match the data in the DB

Test #1.3 – Exporting Data

* Steps:
  + After preforming Test #1.2 hover over the “Edit Plot” menu and export the plot
  + Confirm that all the data in both HUGO and the Graph is included in the downloaded file
* Expected result :
  + The export function should download all data plotted

Section 2 – Plotting options

Test#2.1 – Mutli-1D Plots

* Steps:
  + Select multiple plots from the add plot dialog and confirm that all of them are plotted
* Expected result :
  + The site should allow for multiple plot adding

Test#2.2 – Including repeated and failed characterizations

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “Include failed and repeated characterizations” and then plot
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : Including all characterizations should return all data from HUGO

Test#2.3 – Limit data to current year

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “limit to current year ” and then plot
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : Limiting data to the current year should return only last year’s data from HUGO

Test#2.4 – Limit data to current year

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “limit to current year ” checkbox and then plot
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : Limiting data to the current year should return only last year’s data from HUGO

Test#2.5 – Plot by date

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “Plot by date ” checkbox and then plot
  + Export the data and confirm that it matches that of the HUGO database
  + Confirm that the x-axis is now dates and not serial numbers
* Expected result : checking the “Plot by date ” checkbox should use the date as the x-axis

Test#2.6.0 – Custom Date (range)

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “Custom date range ”
  + Then select the “Select range” radio button and input a valid range
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : HUGO data and plotted data should match

Test#2.6.1 – Custom Date (before)

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “Custom date range ”
  + Then select the “Select range” radio button and input a valid date
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : HUGO data and plotted data should match

Test#2.6.2 – Custom Date (after)

* Steps:
  + Clean the plotting area and select new plots to add
  + Before you add them to the plotting area check the “Custom date range ”
  + Then select the “Select range” radio button and input a valid date
  + Export the data and confirm that it matches that of the HUGO database
* Expected result : HUGO data and plotted data should match

Test#2.7 – custom plot

* Steps:
  + Clean the plotting area and select 2 plots to add
  + Before you add them to the plotting area check the “Custom ” checkbox and then plot
    - The generated plot should use the 2 provided plots as axis
  + Export the data and confirm that it matches that of the HUGO database
  + Clean the plotting area and select 3 plots to add
  + Before you add them to the plotting area check the “Custom ” checkbox and then plot
    - The generated plot should use the 3 provided plots as axis
  + Export the data and confirm that it matches that of the HUGO database
* Expected result: if less than 2 plots are given an error should be given, if 2 or more plots are provided then a custom plot would be generated in 2D or 3D depending on the number of plots given.

Section 3 – Edit plot options

For all tests in this section a non-empty plotting area is required, any 2-3 plots will suffice

Test#3.1 – Erase Plots

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the erase plots button
* Expected result : Once the erase plots button has been pressed the plotting area and sidebar should be removed

Test#3.2 – Edit title

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Edit Title’ button and enter any text
* Expected result : the plots title should become the inputted text

Test#3.3 – Edit x-axis title

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Edit X-Axis Title’ button and enter any text
* Expected result : the plots X-Axis title should become the inputted text

Test#3.4 – Edit y-axis title

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Edit Y-Axis Title’ button and enter any text
* Expected result : the plots Y-Axis title should become the inputted text

Test#3.5 – Export Data

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Export Data’
* Expected result : all plots should be exported to a single csv file

Test#3.6 – Export Plots

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Export Plots’
* Expected result : all plots should be exported to a individual csv file

Test#3.7 – Toggle X Slider

* Steps:
  + Hover over the “Edit Plot Menu”
  + Click the ‘Toggle Slider’ button
* Expected result : an x axis slider should appear and be removed depending on its previous state

Section 4 – Edit plot options

For all tests in this section a non-empty plotting area is required, any 2D custom plot will suffice

Test#4.1 – Erase Plot

* Steps:
  + Once your plot has been rendered hover over the gear symbol and hit “Erase Plot”
* Expected result : The plot and side bar mention of it should be removed

Test#4.2 – Export Plot

* Steps:
  + Once your plot has been rendered hover over the gear symbol and hit “Export Plot”
  + Open HUGO and verify that the data matches the data plotted and the data in the generated csv
* Expected result : The plot data should be contained in the generated csv

Test#4.3 – Add moving average [Non-Blocking]

* Steps:
  + Once your plot has been rendered hover over the gear symbol and hit “Add Moving Average”
  + Input a reasonable step, then once the plot is rendered export the data and confirm that the generated data is correct using excel
* Expected result : The moving average plot should be of correct values

Test#4.4 – Fit Data – Polynomial [Non-Blocking]

* Steps:
  + Once your plot has been rendered hover over the gear symbol and hit “Fit Data – Polynomial”
  + Input a reasonable polynomial degree, then once the plot is rendered export the data and confirm that the generated data is correct using excel
* Expected result : The fit line and R2 should be correct

Test#4.5 – Smooth Data [Non-Blocking]

* Steps:
  + Once your plot has been rendered hover over the gear symbol and hit “Smooth Data”
  + Once the plot is rendered, export the data and apply a Savitzky-Golay filter
* Expected result : The data computed should be the same as the plotted

Test#4.6 – Styling

* Steps:
  + Once your plot has been rendered hover over the gear symbol and make changes to the following parameters
    - Marker Style
    - Graph Type
    - Marker Colour
    - Marker Size
* Expected result : Every change made to a parameter should be reflected in the plotting area