**Software Requirement Specification**

**For**

**Data Dictionary Tool**

**Prepared For:**

**Navistar, US**

**DOCUMENT IDENTIFIER:**

**FINAL VERSION**

**DATE: 24-Jan-2019**

**Prepared By:**

**KPIT Pune, India**

**Document Control Information**

**Location:** The official version of this document is stored in the KPIT Configuration Management System and is uniquely identified by:

**Revision History**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Description** | **Prepared/ Modified By** | **Version** | **Date** | **Approved By** |
| 1. | First Draft | Nikhil Yewalekar  Vivek Venkatesan  Shubhangi Mane  Nilkanth Sagvekar | 1.0 | 04-Jan-2019 | Tatyasaheb Vhalagule |
| 2. | Second Draft | Nikhil Yewalekar  Vivek Venkatesan  Shubhangi Mane  Nilkanth Sagvekar | 2.0 | 10-Jan-2019 | Tatyasaheb Vhalagule |
| 3. | Final Version | Nikhil Yewalekar  Vivek Venkatesan  Shubhangi Mane  Nilkanth Sagvekar | 3.0 | 28-Jan-2019 | Tatyasaheb Vhalagule |

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# INTRODUCTION

## PURPOSE

* The purpose of the document is to capture GUI requirements for NAVISTAR Data Dictionary Tool.
* The intended audience for the document is product owner & software developer for this tool.

## SCOPE

* Navistar is in the process of updating Simulink Data Dictionary and adopting it for Controls and Software Model Based Development. As part of migration, Simulink Data Dictionary needs to be adapted for Navistar process and workflow.
* This document is prepared to capture the Data Dictionary Requirements, especially the GUI.
* The captured requirements will serve as the requirements for the second phase – implementation of the data dictionary adaption. ​
* The wireframes is used to support the requirement explanation to the developer and it could be different in the actual tool.

## ABBREVIATIONS

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Abbreviation** | **Description** |
| 1 | Req ID | Identification number for individual Requirement |
| 2 | Req Type | Requirement Type |
| 3 | US ID | Identification number for individual User Story |
| 4 | SLDD | Simulink Data Dictionary |

# SOFTWARE REQUIREMENTS

This section shall list down detailed requirements for Simulink Data Dictionary Tool. Each requirement shall be marked with the following list of attributes:

* **Requirement ID**

This will be a unique ID assigned to each requirement of SLDD Tool. The format of the Requirement ID shall be (Req\_n). If there are any sub-requirements that need to be created to detail out a specific requirement, the sub-requirement shall be marked with ID of the format (Req\_n.m).

* **Requirement Type**

Every requirement shall be marked with a requirement type with the following classification

* + UI
* **Description**

Each requirement shall be described in detail.

* **Priority**

All requirements shall be marked with a priority, as decided by Navistar. The priority classification shall be as follows

* + P1 – High
  + P2 – Medium
  + P3 – Low
* **Status**

Status of each requirement shall be kept updated by KPIT/Navistar as per the stage of the workflow with the following classification

* + **Draft**
  + **Approved**
  + **Rejected**
  + **~~Deferred~~**

* **Dependencies**

If any requirement has a dependency on other requirement then dependency shall be provided. If there is no dependency on any requirement then dash mark shall be provided.

* **User Story ID**

Each requirement or sub- requirement is mapped with user story. The number of that user story is mentioned in this section. The format of the User story ID shall be (US-n).

## USER STORIES & REQUIREMENT

### Project Setup

1. As a functional developer or integrator, I want to browse the file system, so I can find and open my data dictionary project.
2. As a functional developer or integrator, I want to import a data dictionary project
3. As a functional developer or integrator, I want to close the currently open project.
4. As a functional developer or integrator, I want to open a project that has been previously imported into the sldd tool.

|  |  |
| --- | --- |
| Req ID | Req\_1 |
| Req Type | UI |
| Description | The tool shall allow the user to import a project from the **“File Menu”** as well as by using the Import project icon. Selection of the import project option shall open the project explorer which shall allow the user to browse the computer file system and import the project.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\importfilemenu.png  Icon to import project  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\importicon.png  If Project Explorer is empty then user shall be able to import a project by right clicking inside Project Explorer and clicking on Import Project option.  D:\ShareFolder\shubhangim1\Screenshot (444).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-1 |

|  |  |
| --- | --- |
| Req ID | Req\_2 |
| Req Type | UI |
| Description | The tool shall display the list of all imported projects alphabetically in the project explorer. The Imported project names shall be displayed in gray color when they are imported but not yet opened.  D:\ShareFolder\raees\screenshotsreq\Screenshot (18).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-2 |

|  |  |
| --- | --- |
| Req ID | Req\_2.1 |
| Req Type | UI |
| Description | The user shall be able to open an imported project by right-clicking and selecting the option to open the project.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\openproj.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_1 |
| User Story ID | US-4 |

|  |  |
| --- | --- |
| Req ID | Req\_2.2 |
| Req Type | UI |
| Description | **Import Project** - In the Project Explorer, the active opened project (E39\_example) shall be distinguished from all the other imported projects. The project explorer shall display projects imported by the user. The tool shall allow the user to only have one project open at a time.  D:\ShareFolder\raees\screenshotsreq\Screenshot (20).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-2 |

|  |  |
| --- | --- |
| Req ID | Req\_2.3 |
| Req Type | UI |
| Description | When user tries to open a project (Project C) while another project is currently open, the tool will open a pop-up window allowing the user to save or discard changes in the currently open project or cancel the operation.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\openanother.png  Popup window will ask the user for Save changes  D:\ShareFolder\shubhangim1\sprint12ss\Screenshot (273).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID | US-4 |

|  |  |
| --- | --- |
| Req ID | Req\_3 |
| Req Type | UI |
| Description | The imported project(s) can be removed from the imported project list by right-clicking on the selected projects and selecting "Remove projects" or by pressing the Delete key after the project(s) are selected. Multiple projects in the list can be selected by pressing and holding down Ctrl as the projects are selected one by one from the list of imported projects.  D:\ShareFolder\raees\screenshotsreq\Screenshot (23).png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID |  |

|  |  |
| --- | --- |
| Req ID | Req\_3.1 |
| Req Type | UI |
| Description | Tool shall allow user to close the currently open project from the file menu or by right clicking on the open project name listed in the project explorer and selecting close project.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\closeprojmenu.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\closeprojright.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID | US-3 |

|  |  |
| --- | --- |
| Req ID | Req\_3.2 |
| Req Type | UI |
| Description | Once the user closes the project, the project shall be closed and displayed with the other imported projects in the project explorer.  D:\ShareFolder\raees\screenshotsreq\Screenshot (18).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-3 |

|  |  |
| --- | --- |
| Req ID | Req\_3.3 |
| Req Type | UI |
| Description | The tool shall allow the user to open a project from the list of recently imported projects. The menu shall display up to six most recently imported projects.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\recentlyimp.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID | - |

|  |  |
| --- | --- |
| Req ID | Req\_4 |
| Req Type | UI |
| Description | The user shall be able to clear the list of most recently open projects by clicking on “**Clear List**” option.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\recentlyclearlist.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_3.3 |
| User Story ID | US-4 |

### Project Navigation

As a functional developer, I want to see an organized view of all the components in the currently opened project so that I can easily find and open the individual component I want to work on.

1. User can choose an alphabetical list of the components in the currently opened project
2. User can choose a hierarchical view of the components in the currently opened project
3. User can select and open an individual component for editing from either project view

|  |  |
| --- | --- |
| Req ID | Req\_5 |
| Req Type | UI |
| Description | All components from the currently opened project shall be displayed under the name of the open project in the Project Explorer. The default view shall list all the components alphabetically. This wireframe shows alphabetical view. D:\ShareFolder\raees\screenshotsreq\Screenshot (20).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID | US-5 |

|  |  |
| --- | --- |
| Req ID | Req\_6 |
| Req Type | UI |
| Description | The user shall be able to toggle between the alphabetical view and hierarchical view by clicking on the dropdown in Project Explorer and clicking on the displayed options. First snapshot shows alphabetical view and second shows hierarchical view.  **Alphabetical View**  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\hierarch1.png  **Hierarchical View**  D:\ShareFolder\shubhangim1\sprint12ss\Screenshot (377).png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-5, US-6 |

|  |  |
| --- | --- |
| Req ID | Req\_7 |
| Req Type | UI |
| Description | The tool shall allow the user to open a component’s data dictionary from hierarchical view or alphabetical view. The component’s data dictionary can be opened by double clicking on the component name or right clicking on the component name and selecting **Open Component**. The tool shall allow the user to only have one component open at a time.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\opencomp.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_6 |
| User Story ID | US-7 |

|  |  |
| --- | --- |
| Req ID | Req\_7.1 |
| Req Type | UI |
| Description | When user tries to open a component while another component is currently opened, the tool shall open a pop-up window allowing the user to save or discard changes in the currently opened component or cancel the operation.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\opencomp.png  Popup window will ask the user for Save changes  D:\ShareFolder\shubhangim1\sprint12ss\Screenshot (284).png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_2.1 |
| User Story ID | - |

### Component Navigation

**(A)** As a functional developer, I want to see a categorized view of all the data objects in the currently opened component so that I can easily find and edit the data object I want to work on.

1. User can see the data object categories contained in the component
2. User can view all the data objects in the currently opened component that belong to a single category

|  |  |
| --- | --- |
| Req ID | Req\_8 |
| Req Type | UI |
| Description | The tool shall display the categories of the **data objects** for the opened component in a tab view.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\dispcomp.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_7 |
| User Story ID | US-A1 |

|  |  |
| --- | --- |
| Req ID | Req\_9 |
| Req Type | UI |
| Description | The currently selected tab pane shall display all the component’s data objects of the selected category type in a table.  C:\Users\nikitak1\Pictures\sprint13edited\opencomp1.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | Req\_6 |
| User Story ID | US-A2 |

|  |  |
| --- | --- |
| Req ID | Req\_9.1 |
| Req Type | UI |
| Description | The tab pane data object table view shall have columns for the name and attributes of the data objects listed.  C:\Users\nikitak1\Pictures\sprint13edited\opencomp1.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-A2 |

|  |  |
| --- | --- |
| Req ID | Req\_9.2 |
| Req Type | UI |
| Description | In each tab pane, the table view shall have a column header for the data object name and one for each attribute. C:\Users\nikitak1\Pictures\sprint13edited\opencomp1.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-A2 |

**(B)** As a functional developer, I want to sort and/or filter the currently displayed data objects so that I can easily identify and edit a specific data object.

1. User can sort the currently displayed data objects by name or attribute
2. User can filter the data object view, displaying only those currently data objects that match the attribute filter

|  |  |
| --- | --- |
| Req ID | Req\_10 |
| Req Type | UI |
| Description | The data objects in the table view shall be sorted alphabetically by name or numerically by attribute value when the column header is clicked. The column header that is clicked shall display an arrow to indicate sorted directions  **A to Z sorting**  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\sort1.png  **Z to A sorting**  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\sort2.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-B1 |

|  |  |
| --- | --- |
| Req ID | Req\_11 |
| Req Type | UI |
| Description | User can apply a filter on any of the column of the category table by clicking on filter icon available on the toolbar.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\filtericon.png  Filter row shall be displayed below every column header in the category table.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\filterrow.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-B2 |

|  |  |
| --- | --- |
| Req ID | Req\_11.1 |
| Req Type | UI |
| Description | After filter row is visible, user shall click on the dropdown below attribute. The attribute values are displayed as checkboxes. User can select attribute values for applying filter.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\dropdownfilter.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_11 |
| User Story ID | US-B2 |

|  |  |
| --- | --- |
| Req ID | Req\_11.2 |
| Req Type | UI |
| Description | Tool shall indicate the filtered attribute on screen by displaying the filter icon below the attribute header.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\filterapplied.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_11.1 |
| User Story ID | US-B2 |

|  |  |
| --- | --- |
| Req ID | Req\_11.3 |
| Req Type | UI |
| Description | User shall clear the applied filter by right clicking on the applied filter column and clicking on the **Clear Filter** option.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\clearcustomfilter.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_11 |
| User Story ID | US-B2 |

|  |  |
| --- | --- |
| Req ID | Req\_11.4 |
| Req Type | UI |
| Description | User shall apply a custom filter by right clicking on the column header and clicking on **Custom Filter** option. When the user clicks on custom filter option, a pop-up window shall allow the user to apply filter on attribute.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\customfilterselect.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\customfilterfirstcondition.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-B2 |

### Project Level Function

**(C)** As a functional developer, I want to search all components for a data object, so that I can identify where it is used.

1. Display a list of all components that include the specified data object.
2. Allow selection of a specific data object usage and open the corresponding component.

|  |  |
| --- | --- |
| Req ID | Req\_12 |
| Req Type | UI |
| Description | The tool shall allow the user to search for a data object by clicking on the search icon. The user can partially or completely type the name of the data object or using “\*” as part of a wild card search. The user can select case criteria in the search window and initiate the search by clicking on the **Search** option.  D:\ShareFolder\raees\screenshotsreq\Screenshot (21).png  pop up window of Search  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\seach2.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-C1 |

|  |  |
| --- | --- |
| Req ID | Req\_12.1 |
| Req Type | UI |
| Description | The user can apply the search to be done throughout the open project or in a specific selected component in the project. The default search shall be set to the currently open component.    D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\search1.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_12 |
| User Story ID | US-C1 |

|  |  |
| --- | --- |
| Req ID | Req\_12.2 |
| Req Type | UI |
| Description | For a search that is done throughout the project, the tool shall list down all the components which include the searched data object. For a search that is done in a specific component, only that component shall be displayed. The components in the list can be expanded to view the instances of the searched data object within each component. The instances of the searched data object shall be listed as per the data object categories.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\search3.png  ­ |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_12 |
| User Story ID | US-C1 |
| Req ID | Req\_13 |
| Req Type | UI |
| Description | The user shall be able to expand the data object category list to view the instances of the searched data object in each component.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\search3.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_11 |
| User Story ID | US-C2 |

|  |  |
| --- | --- |
| Req ID | Req\_13.1 |
| Req Type | UI |
| Description | When the user double clicks on an instance of the searched data object, the tool shall highlight the row in which the data object appears in the data dictionary of the component under the corresponding data object category tab.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\seachhighlight.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_12 |
| User Story ID | US-C2 |

**(D)** As an integrator, I want to check that all inputs and outputs are compatible, so that I can verify that the software integration will be correct.

1. Display a list of all input and output data objects that have the same name but different attribute values.
2. Display a list of all input data objects that do not have a corresponding output data object.
3. Display a list of duplicate output data objects.
4. Display a list of output data objects that do not have any corresponding input data objects in the project.

|  |  |
| --- | --- |
| Req ID | Req\_14 |
| Req Type | UI |
| Description | The user shall be able to “**Check I/O compatibility”** by clicking on option “**Project”** which is available on menu bar or by clicking on icon available on the toolbar.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\iocompmenu.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\ioicon.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | - |

|  |  |
| --- | --- |
| Req ID | Req\_14.1 |
| Req Type | UI |
| Description | The tool shall display four lists in I/O compatibility window by clicking on the I/O compatibility option in the toolbar as well as Project option on menu bar.  1. List of all input and output data objects that have the same name but different attribute values  2. List of all output data objects which carrying identical name  3. List of all input data objects that do not have a corresponding output data object  4. List of all output data objects that do not have a corresponding input data object  D:\ShareFolder\jayshri\Screenshot (342).png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_14 |
| User Story ID | US-D1, US-D2, US-D3, US-D4 |
| Req ID | Req\_14.2 |
| Req Type | UI |
| Description | User can double click and navigate to specific data object which are listed as in the I\O Compatibility pane. A new table is opened having warning name as its tab name the clicked data object gets highlighted in that table.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\ioview2.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_14.1 |
| User Story ID | - |

|  |  |
| --- | --- |
| Req ID | Req\_14.3 |
| Req Type | UI |
| Description | User can right click on the identical data object name which is listed in I/O compatibility window and delete the data object by clicking “**Delete Data Object**”. It will delete the identical data object from list. The same procedure will apply to handle warning: Inconsistent I/Os. User can also perform “**Use this DataObject**” for “Inconsistent I/Os” in I/O Compatibility window.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\ioviewdelete.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_14.1 |
| User Story ID | - |

**(E)** As a functional developer, I want to validate my component inputs

1. Display a list of all the selected component’s inputs that have different attribute values from their corresponding output.
2. Display a list of all the selected component’s inputs that do not have a corresponding output data object.

|  |  |
| --- | --- |
| Req ID | Req\_14.4 |
| Req Type | UI |
| Description | The user shall be able to **“Check Component’s Inputs”** by right clicking on component, which is currently opened.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\checkcompipoption.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | - |

|  |  |
| --- | --- |
| Req ID | Req\_14.5 |
| Req Type | UI |
| Description | The tool shall display two lists in Component Inputs window by right clicking on the currently opened component and choosing **”Check Component’s Inputs”** option.  1. Display a list of all the selected component’s inputs that have different attribute values from their corresponding output. 2. Display a list of all the selected component’s inputs that do not have a corresponding output data object.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\compipview1.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_14.4 |
| User Story ID | US-E1, US-E2 |

|  |  |
| --- | --- |
| Req ID | Req\_14.6 |
| Req Type | UI |
| Description | The tool shall display a list of all the selected component’s inputs that have different attribute values from their corresponding output. Each data object contains a list of components in which it is included. If user right clicks on one of them, they can select **“Use this Data Object”** option to resolve the mismatch.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\usethiscompip.png  Respective data object gets highlighted in table after double clicking on component name under data object name. |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_14.5 |
| User Story ID | - |
| Req ID | Req\_15 |
| Req Type | UI |
| Description | User can get tool related information by clicking on **Help Search** in Help menu.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\helpsearch.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | - |

### Component Level Function

**(F)** As a functional developer, I want to identify and correct the extra and missing data objects associated with the component’s model so that I can resolve the inconsistencies between the Simulink model design and the data objects in the data dictionary.

1. Display a categorized view of the Simulink model blocks that are missing corresponding data objects in the data dictionary; and extra data objects in the data dictionary that do not have corresponding blocks in the Simulink model.
2. Allow selection of missing and extra data objects to be automatically corrected.

|  |  |
| --- | --- |
| Req ID | Req\_16 |
| Req Type | UI |
| Description | The tool shall allow the user to compare and resolve the differences in the data objects between the data dictionary and model for a given component. The user can right click on the open component name in the project explorer and click on **Resolve Inconsistency** or the user can select the icon available on toolbarto view and resolve the differences.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\resolveinconmenu.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\resolveicon.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-F1 |
| Req ID | Req\_16.1 |
| Req Type | UI |
| Description | The tool shall display the data objects that are in a component's model but not in the component's data dictionary, and the data objects that are in a component's data dictionary but not in the component's model.   1. If the user checks the data objects in the list that are in the data dictionary but not in the model, and clicks OK, the tool will remove them from the data dictionary. 2. If the user checks the data objects in the list that are in the model but not in the data dictionary, and clicks OK, the tool will add the data objects to the data dictionary. 3. The added data objects will be highlighted in the table and have dirty mark (\*) on that category and deleted data objects category will have a dirty mark (\*). User has to perform Save All operation to resolve the inconsistencies.   D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\inconsistencywindow.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | Req\_16 |
| User Story ID | US-F1, US-F2 |

**(G)** As a functional developer, I want to find where a data object is used in the component’s Simulink model, so that I can understand how it is used and edit the attributes appropriately.

1. Highlight the block or signal in the Simulink model where the data object is used.

|  |  |
| --- | --- |
| Req ID | Req\_17 |
| Req Type | UI |
| Description | The tool shall highlight a block or signal in the Simulink model for the selected data object when the user chooses the “**Find in Model”** option. After selecting the required data object, the user can choose the Find in Model by right-clicking on the selection and clicking "Find in Model", or the user can choose the option after selecting the data object and clicking on the "Find in Model" button in the GUI.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\findinmodelcell.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\findinmodelbutton.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-G1 |

**(H)** As a functional developer, I want to rename a data object and its corresponding use in the Simulink model, so that I can easily and reliably make functional changes.

1. When renaming a data object, provide an option to simultaneously search for and change that name in the Simulink model.
2. Rename in model should allow multi-select, and add all selected data objects into dialog for editing

|  |  |
| --- | --- |
| Req ID | Req\_18 |
| Req Type | UI |
| Description | Tool shall be able to rename a data object in Simulink model by right clicking on data object name and choosing “**Rename in Model”** option.  C:\Users\nikitak1\Pictures\sprint13edited\rename1.png  C:\Users\nikitak1\Pictures\sprint13edited\rename2.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | Req\_9 |
| User Story ID | US-H1 |
| Req ID | Req\_18.1 |
| Req Type | UI |
| Description­ | **“Rename in model”** shall allow the user to multi-selection of data object, and add all selected data objects into dialog for editing.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\rename1.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\rename3.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-H2 |

### Individual Data Object Editing/Manipulation

**(I)** As a functional developer, I want to edit the attributes of a data object, so that I can complete my functional design.

1. Individual attribute values are editable.
2. Individual attribute fields provide appropriate editing capability; e.g. raw text, numbers or fixed value choices.
3. Editing attributes should be possible using customary cut, copy, and paste operations on single or multiple selections.

|  |  |
| --- | --- |
| Req ID | Req\_19 |
| Req Type | UI |
| Description­ | Tool shall be able to edit individual attributes that are either text or numerical when the user double clicks on the attribute field. Text attributes shall be alphanumerical and numerical attributes shall take numerical values constrained by the data type selected for the data object. The tool shall also include pre-defined attributes which can be selected from a drop-down menu.  C:\Users\nikitak1\Pictures\sprint13edited\update1.png  C:\Users\nikitak1\Pictures\sprint13edited\update2.png  C:\Users\nikitak1\Pictures\sprint13edited\update3.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-I1, US-I2 |

|  |  |
| --- | --- |
| Req ID | Req\_20 |
| Req Type | UI |
| Description | Tool shall be able to edit attributes for text and numeric fields by using cut, copy and paste operation on single as well as multiple selection. For **Cut**, **Copy** and **Paste** operations, the tool shall include allow the user to select from the Menu options under **Edit**, have icons in the tool bar, have keyboard shortcuts, as well as provide the options when a user right clicks on a selection of data object(s). Multiple data objects can be selected in the tab pane table by pressing the Ctrl key and selecting the data objects one by one.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\copyrightclick.png  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\copymenu.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-I3 |

**(J)** As a functional developer, I want to edit map or curve data values using a table view which includes axis values. I want my curve or map sizes to coordinate with the associated axis, so my design data stays coherent.

1. A separate table editor with axis and map data is available when a map or curve is selected.

|  |  |
| --- | --- |
| Req ID | Req\_21 |
| Req Type | UI |
| Description | Tool shall be able to display axis and map data in table format on selection of map or curve and that table shall be editable in “**Table Editor**” pane. The number of rows and columns shall be edited by the user.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\update1.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-J1 |

**(K)** As a functional developer, I want to add a data object.

|  |  |
| --- | --- |
| Req ID | Req\_22 |
| Req Type | UI |
| Description | Tool shall be able to add a data object in the tab pane data object table view for a given data object category in following way:  If user clicks on **Add Data Object** button, a new row gets added at the end of the table.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\adddataobj.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-K |

**(L)** As a functional developer, I want to see a list of all the outputs in the system, when I need to add an Input data object.

1. When “Add data object” is executed on the inputs tab a dialog will be displayed allowing user to choose how to add data object. If he chooses “**Manually”,** then a blank row will be inserted and he can type new data object name. If he chooses “**From Output signals present in project**” then it will fetch all Output data objects in that project and display in the window.

|  |  |
| --- | --- |
| Req ID | Req\_23 |
| Req Type | UI |
| Description | The tool shall be able to display the list of all project’s outputs in the Output Data Objects window at the time of adding data objects of Input category. The list shall be displayed a tree with components and outputs one level under each component.  C:\Users\nikitak1\Pictures\sprint13edited\adddataobj2.png  C:\Users\nikitak1\Pictures\sprint13edited\fromoutput5.png  User has to double click on that data object name which he wants to add in the  Input category. It will added that data object name in the new row of the category table.  C:\Users\nikitak1\Pictures\sprint13edited\window6.png |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-L1 |

**(M)** As a functional developer, I want to delete a data object.

|  |  |
| --- | --- |
| Req ID | Req\_24 |
| Req Type | UI |
| Description | The user shall be able to delete the selected data object(s) by right-clicking and selecting **“Delete Data Object”**, or by pressing the Delete key. The user shall be able to select multiple data objects by pressing down Ctrl and selecting the data objects one by one.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\deletemultiple.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-M |

### User Experience

**(N)** As a functional developer, I want to see a dirty indicator, so that I know I need to save my changes.

1. As a functional developer, I want to save edits.
2. As a functional developer, I want to undo or redo my actions.

|  |  |
| --- | --- |
| Req ID | Req\_25 |
| Req Type | UI |
| Description | Tool shall have facility to save edits – Save and Save All. **Save** will be applied to just one data object category of the component they are working on. But **Save All** shall save the current changes throughout the open component. The tool shall display the dirty indicator in the data object category tab where changes have not been saved.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\update1.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-N1 |

|  |  |
| --- | --- |
| Req ID | Req\_26 |
| Req Type | UI |
| Description | Tool shall have undo and redo facility which can be done by the icons in the tool bar, by using keyboard shortcuts or from the **Edit Menu.**  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\copyrightclick.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-N2 |

**(O)** As a functional developer, I want to resize windows or entire application and have scroll bars when needed.

1. As a functional developer, I want all windows together.
2. As a functional developer, I want to hide or minimize selected windows.
3. As a functional developer, I want to maximize selected windows.
4. As a functional developer, I want to rearrange window

|  |  |
| --- | --- |
| Req ID | Req\_27 |
| Req Type | UI |
| Description | The tool shall allow the user to select which windows and panes they want to display in the tool GUI from the **Windows** Menu.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\ui_dispwindow.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O1 |

|  |  |
| --- | --- |
| Req ID | Req\_28 |
| Req Type | UI |
| Description | Tool shall allow the user to reset all the windows using “**Reset Perspective”** option in Windows menu. Selection of “**Reset Perspective”** will display the default position of category tabs and other windows of the tool.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\uireset.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O1 |

|  |  |
| --- | --- |
| Req ID | Req\_29 |
| Req Type | UI |
| Description | The tool shall allow the user to hide and minimize the Project Explorer pane by clicking on **Minimize** button on the respective tab.  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\uiminimize1.png  User can restore the window by clicking on the **Restore** button  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\uirestore.png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O2 |

|  |  |
| --- | --- |
| Req ID | Req\_30 |
| Req Type | UI |
| Description | Tool shall have facility to maximize the window.  D:\ShareFolder\raees\screenshotsreq\Screenshot (25).png  D:\ShareFolder\raees\screenshotsreq\Screenshot (26).png |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O3 |

|  |  |
| --- | --- |
| Req ID | Req\_31 |
| Req Type | UI |
| Description | If users click on search button, result will be displayed in **Search Result** **pane.**  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\ui_dispwin2.png |
| Priority | P2 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O4 |

|  |  |
| --- | --- |
| Req ID | Req\_32 |
| Req Type | UI |
| Description | Tool shall allow user to move or drag each window/ rearrange window to set the view of window |
| Priority | P1 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-O4 |

### Performance

(**P**) As a functional developer, I want the tool to work quickly, so I don’t have to wait for project loading, component opening, or other command processing.

As a functional developer or integrator, I want to see some type of progress indication when processing takes longer than a few moments, so that I know the tool is still operating.

|  |  |
| --- | --- |
| Req ID | Req\_33 |
| Req Type | UI |
| Description | Tool shall have loading animated icon when the processing takes more time than usual to load any current event.  D:\ShareFolder\shubhangim1\sprint12ss\Screenshot (286).png  When user tries to open component and suppose tool will take time to open component then loading indicator will display till component get opened successfully  D:\ShareFolder\shubhangim1\sprint12ss\edited12ss\opencomp.png  D:\ShareFolder\shubhangim1\sprint12ss\Screenshot (286).png  Component will be opened successfully |
| Priority | P3 |
| Status | **Approved** |
| Dependencies | - |
| User Story ID | US-P |

# CONCLUSION

* To develop data dictionary tool all GUI requirements are captured.
* Each requirement is explained by wireframe. It is skeletal image which display the functional elements of application window.
* The wireframes is used to support the requirement explanation to the developer and it could be different in the actual tool.
* Developer may require more information other than documented in this document to develop actual tool.