**Software Requirements Specification**

**For**

**Digital Barrier Analysis Tool**

**(DBA)**

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# 

# **Introduction**

## **Purpose & Scope**

Digital Barrier Analysis is a tool which is used for report viewing the reports of the safety related incidents. The main purpose of developing a DBA tool is to extend the benefits of barrier analysis studies into work operations in the field. Data from the barrier analysis workshops is uploaded and stored. Each records can be updated and new records can be added. The accessibility to different function of the system depends upon the role provided to the user.

# **Feature Description**

The application will have the following parts:

1. Client Log-in Module
2. Project Selection Module
3. Manage Account Module
4. Home Module
5. Setting Module
6. Workshop Module
7. Create/Update Record Module
8. Results Module
9. Summary Module

## Client Log-in Module

The Client Log-in Module is used by the Lloyd’s Register’s clients to login to the DBA system.

**Login Attributes table**:

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Email address | Must be a valid email address |
| Password | Free text |
| Project | list of projects |
| Project Role | list of project roles |
| Organization role | from list of organization role |

**Business rules:**

* Each user needs to have a unique User ID and Password to access the software.
* New user must register with a valid email address.
* The correctness of the user id and password must be validated. It must display error message if the user id and password do not match

## **Project Selection Module**

The project selection page module is where the user can select the product/tool which they intend to use.

**Project selection Attributes**

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Project name | Free textbox |
| Country | Free textbox |
| Site Name | Free textbox |

**Business rules:**

Depending upon the role of the user there are different access in this module:

1. Normal user:

* The user can see the web links for each project they are given access rights to.
* The user can select the project which they intend to view.

1. Administrator user:

* The user can see the web links for each project they are given access rights to.
* The user can select the project which they intend to view.
* The Data Analysis web link will navigate the user to the summary page showing the statistics of all the analysis across the projects.
* The user can create a new project in the system.

## **Manage Account Module**

The Manage Account Module is used to add and remove users, as well as assign access rights to the user according to projects.

**Manage Account Attribute table:**

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Username | Free text |
| Email | Must be a valid email address |
| Project | Free text |
| Administrator | check box |
| In-house | check box |
| Field | check box |
| Management | check box |
| None | check box |

**Business rules:**

* The Manage Account Module displays the list of all the projects and user in the system depending upon the type of users.
* This module is accessible by the organizational administrator and the project administrator user only.
* The Organizational administrator can see the list of all the projects in the left table and the list of all the users in the right table and assign or update different role of any users to any project.
* The Project administrator can only see the list of projects that he/she is an administrator to. The Project administrator can only see the users that are assigned to his project and add and update them.

## **DBA Home Module**

The DBA Home module is the cover and the introduction for the Digital Barrier Analysis tool after the user has selected a project.

**Business rules:**

* It consists information and instructions about the selected project that are useful to the project.
* This module consists of a menu bar containing important tabs that will allow the user to navigate between pages like Workshop page, Create/Update record page, Results page and Summary page.
* The “Username” link will navigate the user to the user summary page.
* The “Settings” link will navigate the user to the settings page.
* The Start Analysis Button will navigate the user to the workshop page.

## **DBA Setting Module**

IN Setting Module, the Administrator can edit pre-defined lists and risk matrix in the tool

**Business rules:**

* The admin user is able to view the current list of work types and edit/add/remove work types which will be applied to all the projects/users. These changes will affect the work type dropdown list in DBA Create/Update record page.
* The admin user can select a work type and view associated work operations and edit/add/remove work operations which will be applied to all projects/users. This will affect the work operation drop down list in DBA Create/Update record page.
* The admin user can select a work type and work operation and view associated potential incidents and edit/add/remove potential incidents which will be applied to all projects/users. This will affect the potential incidents drop down list in DBA Create/Update record page.
* The admin user is able to change the description of each consequence and barrier level.
* The admin can also edit the risk category of individual boxes in the risk matrix. The changes will be reflected in the DBA workshop page.

## **DBA Workshop Module**

The DBA Workshop Module allows users to export templates for barrier analysis workshop and import and export data generated as outcome of the workshop.

**Business rules:**

* + - * The DBA Workshop Module is accessible to the “In-house personnel” user only.
      * The user will be able to see the list of records present in the system in the table. The user can filter each column according to needs.
      * The “Export Template” button allows the user to export a blank template for use in the Barrier Analysis workshop.
      * The “Export Records” button allows the user to export all the existing records within the system.
      * The “Import Record” button allows the user to import new records to the workshop list through a excel file. The excel file should have all the required fields.
      * There are two risk matrices in the screen showing the number of records in each risk zone. The one on top shows the count before implementation of suggestion and the bottom one shows the count after implementation of suggestion.
      * The user can click on the number in the risk matrix in each category and this will filter the records displayed in the table.

## **Create/Update Record**

The create/Update Record Module allows the user to submit new and update existing records for each potential incident of all work operation and types.

**Create/Update Module Attribute table:**

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Select record | Button that navigates the user to the DBA Select record page. |
| Create new | Checkbox |
| Update | Checkbox |
| Work type | Drop down list |
| Work Operation | Drop down list |
| Potential incident | Drop down list |
| Incident Description | Free textbox |
| Consequence | Drop down list |
| Consequence type | Drop down list |
| Existing Barriers - Barrier Description | Free textbox |
| Existing Barriers - Type | Drop down list |
| Existing Barriers - Dependency | Drop down list |
| Existing Barriers - Dependency Description | Free textbox |
| Suggestions(if any) | Free textbox |

**Business rules:**

* This module is accessible to the “In-house personnel” user.
* The “Select Record” button allows the user to select a record from the list of projects.
* If the user checks the “Create New” checkbox
* If the user checks the “Update” checkbox the record selected through the DBA Select Record page will be updated in the system.
* The “Work Type” field is a dropdown list from which the user can choose their desired work type from a predefined list.
* The “Work Operation” field is a dropdown list from which the user can choose their desired work operation from a predefined list based on the “Work Type” selected.
* The “Potential Incident” field is a dropdown list from which the user select the desired incident.
* “Incident Description” field is a text box used to elaborate on the identified potential incident
* The “Consequence” field is a dropdown list from which the user select the desired consequences.
* The “Consequence Type” field is a dropdown list from which the user select the desired consequences type based on the consequence selected.
* The “Existing Barrier” field consists of Barrier description field, type, Dependency, and Dependency description field which are used to describe a barrier. There can be more than one barrier in a single record.
* The “Suggestion” field is a text box provided to the user to raise any suggestions.
* The “Submit” button allows the user to send the completed form to the server which will be stored in a project specific database.

## **DBA Results Module**

The DBA Result Module allows the user to view the result of the records in the system which the user can then choose to print a checklist in PDF format for use in the field.

**DBA Result Module Attribute Table:**

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Work Type | Drop down list contains predefined categories |
| Work Operation | Drop down list contains predefined categories |

**Business rules:**

* This module is accessible to the “Field Personnel” user.
* The “Work Type” field is a dropdown list from which the user can choose their desired work type from a predefined list. This filters the result.
* The “Work Operation” field is a dropdown list from which the user can choose their desired work operation from a predefined list based on the “Work Type” selected.
* After the user has selected the work type and work operation the result will be displayed. The result will contain the Project name and number, work type and operation category selected, potential incidents, risk level of each incident and barriers that are put in place.
* The Result Module also has a risk matrix on the right side of the page which displays the summary of based on the records above.
* The “Save as PDF” button allows the user to create a PDF file of the document in the result page which can be printed to be used for on-site verification. The format and fields of the PFD will be as defined in the Wireframe.
* The “Upload Photo” button allows the user to upload photos that are relevant for project which will be stored in a general folder created for each project.
* The “Upload Document” button allows the user to upload documents that are relevant for the project which will be stored in a general folder created for each project.
* The “Safe Job Analysis” button brings the user to the Safe Job Analysis page. The user is able to perform Safe Job Analysis within the tool, save and store the information.

## **Summary Module**

The Summary Module allows the user to view the key statistics relating to the project.

**Summary Module Attribute Table:**

|  |  |
| --- | --- |
| **Field** | **Validation** |
| Work Type | Drop down list contains predefined categories |
| Work Operation | Drop down list contains predefined categories |

**Business rules:**

* The Summary Module shows the current status of the project through the Number of records, Number of recommendations, Number of critical issues to be resolved.
* The “Work Type” field is a dropdown containing a predefined list of work type.
* The “Work Operation” field is a dropdown containing a predefined list of work operations based on the work type selected.
* The “Recommendation List” shows all the suggestions in the system from upload of the barrier analysis worksheet or new record of update record will be consolidate and shown here in the system.
* The “Edit Action Plan” button redirects the user to the DBA Action Plan page.
* The “DBA Action Plan” page allows the user to edit the list of suggestions and update their status. The user is able to edit the fields in the table to update the status of any listed suggestions.
* The Summary Module also displays Graphs of the summary. The “Risk level Bar Graph” depicts the risk level for each work incident evaluated by the assigned consequences rating and existing barriers. The “Barrier Statistic Bar Graph” depicts the total number of barrier and the breakdown into the various types (i.e. M, T, O) for each work incident.
* The “Export Charts to PDF” creates a PDF file of the charts selected

# **Technical Specifications**

## **3.1 Technology**

|  |  |
| --- | --- |
| **Specification** | **Backend** |
| **Programming Language** | JavaScript, CSS, HTML |
| **Supported Platform** |  |
| **Framework** | Materialize Framework |
| **UI Framework** | Angular |
| **Database** | Dynamo |

## 3.2 **Environment**

|  |  |  |
| --- | --- | --- |
| **SN** | **Name** | **URL** |
| 1 | Development (DEV) | TBD |
| 2 | Testing (QA) | TBD |
| 3 | User Acceptance Testing (UAT) | To be managed by LR |
| 4 | Production (PROD) | To be managed by LR |

# **Test Plan**

## **4.1 System Testing**

TBD

## **4.2 Automation Testing**

TBD