Requirements Document

Team Seven Source

Product Overview

The current Jama system does not support a graphical interface for traceability, relying solely on file hierarchies. The Jama Software Capstone project will be used to implement the graphical representation of data to highlight traceability within a Jama project. This project is set for completion by September 11th.

Purpose and Scope

The purpose is to display Jama's project data in a meaningful and insightful way that is accessible to users in identifying traceability throughout a modeled system. The system should be modular, thus open to modification by future users. The scope is limited to the display and interaction with a set of project items defined by the user.

Proposed Plan

In order to facilitate a graphical interface, we will be using the RESTful paradigm within a web app. Users will sign into our app using a username and password, which will then communicate with the Jama servers. The app will allow users to select a root item, which will then be represented as a graphic showing item relationships.

Terms and Definitions

❖ **App**: The application being created by the Capstone team
❖ **Traceability**: The emphasis of traceable information about project items concerning upstream and downstream relationships.
❖ **IR**: Intermediate Representation, in the context of a representation of a Jama project's item's traceable relationships
❖ **Item**: A structure belonging to a Jama project that represents specific data
❖ **Relationship**: A directed association between two items
❖ **Item Hierarchy**: A representation of items as a tree
❖ **Item Relationship Graph**: A representation of items as a graph with edges that are relationships

Authentication

Requirement: Input a Username
      [App] shall provide a form field for users to input their username.
      Error: Incorrect username: request new username from user
      Error: Invalid characters: request new username from user

Requirement: Input a Password
      [App] shall provide a form field for users to input their password.
      Error: Incorrect username: request new password from user
      Error: Invalid characters: request new password from user

Requirement: Store Valid Credentials
      [App] shall store the username and password provided by a user to be used to request data from Jama.
      Error: Invalid credentials: request new credentials from user

Collecting a Graph

Requirement: Item Hierarchy JSON Specification
      [App] shall provide a common JSON format to model item trees.

Requirement: Item Relationship Graph JSON Specification
      [App] shall provide a common JSON format to model item relationship graphs.

Requirement: Gather List of Projects
      [App] shall collect all projects accessible to a user and present them to the user to select from.
      Error: Invalid project: request new project from user

Requirement: Gather List of Items
      [App] shall collect all items of a selected project and present them to the user to select from.
      Error: Invalid item: request new item from user
      Error: Invalid Type(s): request new item from user

Requirement: Request an Item

[App] shall allow the user the select a root item from which to display a relationship graph.

Error: Invalid item: Re-Request item from Jama -> Request new item from user

Error: Invalid Type(s): Re-Request item from Jama -> Request new item from user

Requirement: Request Item Hierarchy

[App] shall request from Jama the item hierarchy given a root item. The resulting data shall adhere to the Item Hierarchy JSON Specification.

Error: Invalid item(s): Re-Request item from Jama

Render Graph

Requirement: Configure D3

[App] shall prepare D3 to render relationship graphs from Jama

Requirement: Prepare Data for D3

[App] shall prepare the item hierarchy and relationship data from Jama into a relationship graph that adheres to the Item Relationship Graph JSON Specification to be consumed by D3

Error: Malformed Data: Re-Request Data from Jama

Error: Missing Data: Re-Request Data from Jama

Requirement: Send Relationship Graph Data to D3

[App] shall send relationship graph data that adheres to the Item Relationship Graph JSON Specification to D3 for rendering

Error: Malformed Data : Reform Data and resend to D3