

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

INTRODUCTION TO SOFTWARE ENGINEERING

COMP 380

CLASS SECTION 16496 — 16497

Project 3: Final Sprint

Quantum Engineering Development

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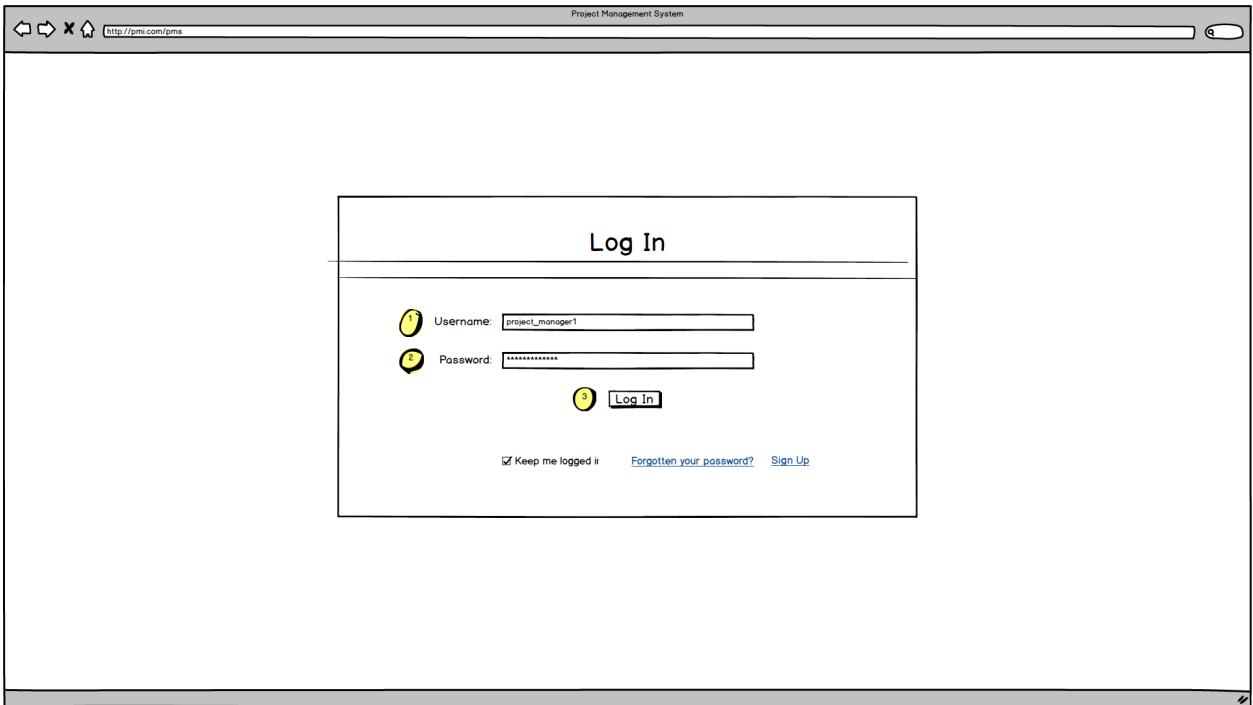
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1 Story Boards/Requirements

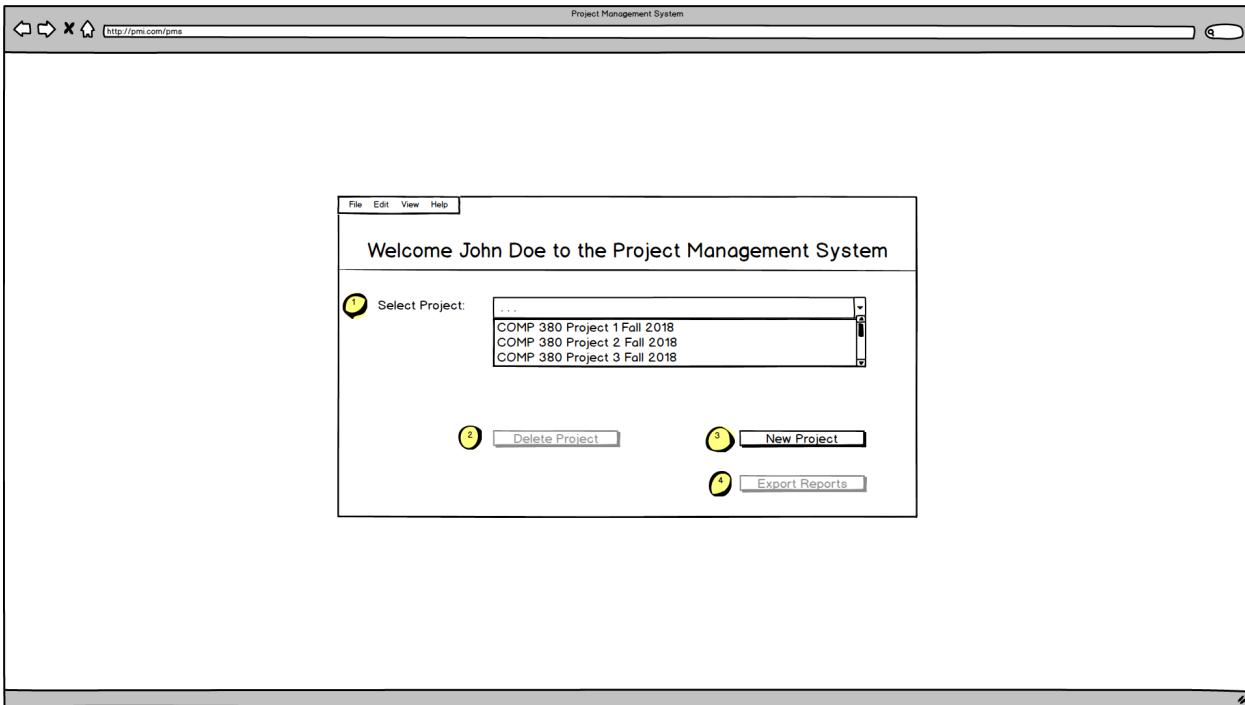
These low-fidelity story boards serve as a basis to the detailed and redefined prototype in Section 3: GUI Prototype.

1.1 Log In.png



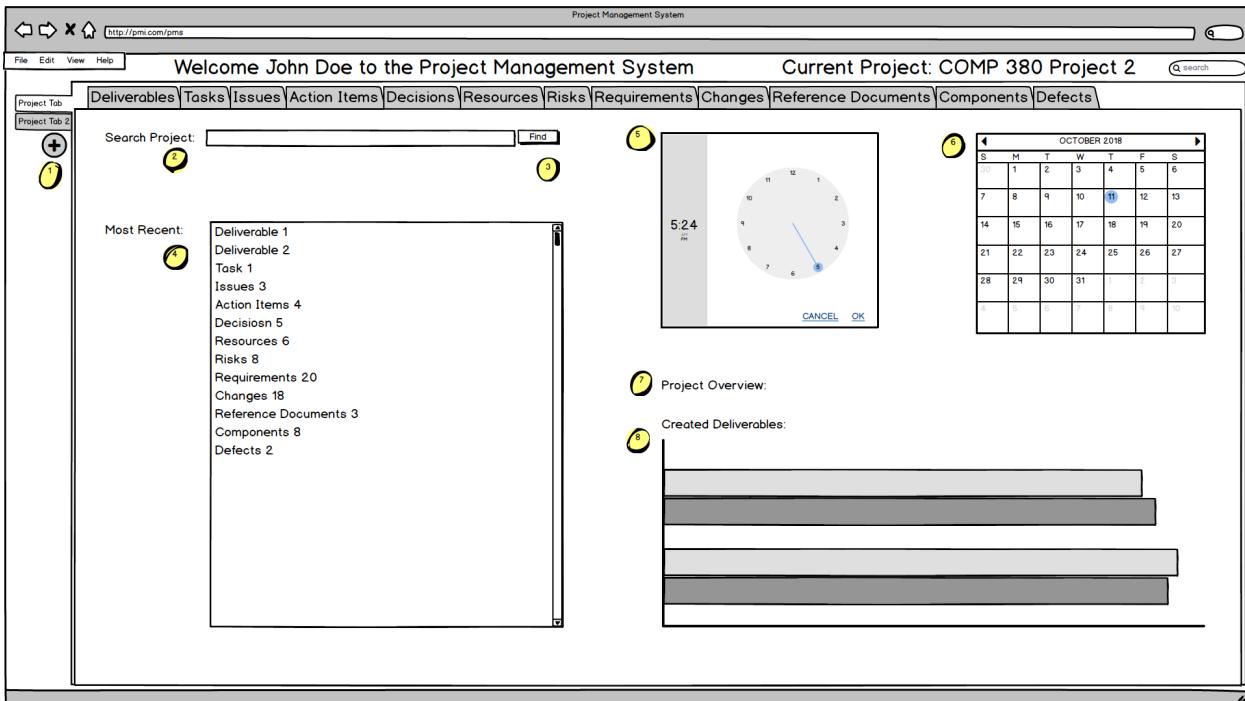
The project manager will be able to securely sign in to their own accounts retaining their saved data and work on which they have done on projects within the PMS.

1.2 Project Selection.png



The project manager will be able to create new projects, load previous projects, and or delete projects within the PMS.

1.3 Loading Screen.png



Once the project has been selected, the project manager will have the ability to create mul-

multiple tabs to work on multiple aspects of the project. The waiting screen will provide the project manager to find any created entity within the project management system that they have made where it will bring them to the appropriate tab along with the data they previously entered. A section for the most recent items that the project manager has been working on will be provided as well as a project overview. It will display the number of deliverables, tasks, issues, action items, decisions, resources, risks, requirements, changes, reference documents, components, and defects created within the PMS.

1.4 Deliverables.png

The screenshot displays the 'Deliverables' tab of the Project Management System. The interface includes:

- Name:** Input field (1) and 'Find' button (2).
- Description:** Text area (3).
- Start Date:** Calendar picker (4).
- Due Date:** Calendar picker (5).
- Associate Requirement(s):** Table showing Requirements 1, 2, and 3 with their respective Unique IDs, Requirement Texts, Source Documents, and Client References.
- Associate Task(s):** Table showing Tasks 1, 2, and 3 with their descriptions, Resource Assigned (John Doe), Predecessor Tasks (Task A, Task C), and Successor Tasks (Task B, Task D).
- List of Deliverable(s):** Table showing two entries: Effort Estimate (Unique ID: 380P1_1) and Cost Estimate (Unique ID: 380P2_1). Both entries have 'None Currently' for Associated Requirements and Associated Tasks.
- Action Buttons:** 'New' (6), 'Delete' (7), and 'Save' (8).

The project manager will have the ability to create, delete, and load deliverables. They may use the find button to search for existing deliverables within the system, when selected the data for the deliverable will be autofilled in all of the tables above. The project manager must fill out a name and description of the deliverable. Association can occur later if they are created yet within the system.

1.5 Tasks.png

The screenshot shows a web-based project management system with the following interface elements:

- Header:** Project Management System, File, Edit, View, Help, search bar.
- Menu Bar:** Deliverables, Tasks, Issues, Action Items, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects.
- Task Creation Form:**
 - Name*: [Input field] (circled 1)
 - Type*: Task, Subtask, Summary Task, Milestone (dropdown menu) (circled 2)
 - Description: Enter a short description here... (text area) (circled 3)
 - Expected Start Date: 02/21/2008 (calendar icon) (circled 5)
 - Expected End Date: / / (calendar icon) (circled 6)
 - Expected Duration: [Input field] (circled 7)
 - Expected Effort: [Input field] (circled 8)
 - Effort Completed: [Input field] (circled 9)
 - Actual Start Date: / / (calendar icon) (circled 11)
 - Actual End Date: / / (calendar icon) (circled 12)
 - Actual Duration: [Input field] (circled 13)
 - Actual Effort: [Input field] (circled 14)
- Resource Assigned:** Available Resources table (circled 15)

Name	Title	List of Skills	Availability Calendar	Pay Rate
John Doe	Junior Software Developer	C#, VB	Not Set	\$50.00/ hr
Jane Doe	Senior Software Developer	C#, ASP.NET	09/2018 - 5/2019	\$70.00/ hr
- Add New Resource:** Add New Resource button (circled 16)
- Associate Predecessor Task:** Available Tasks table (circled 17)

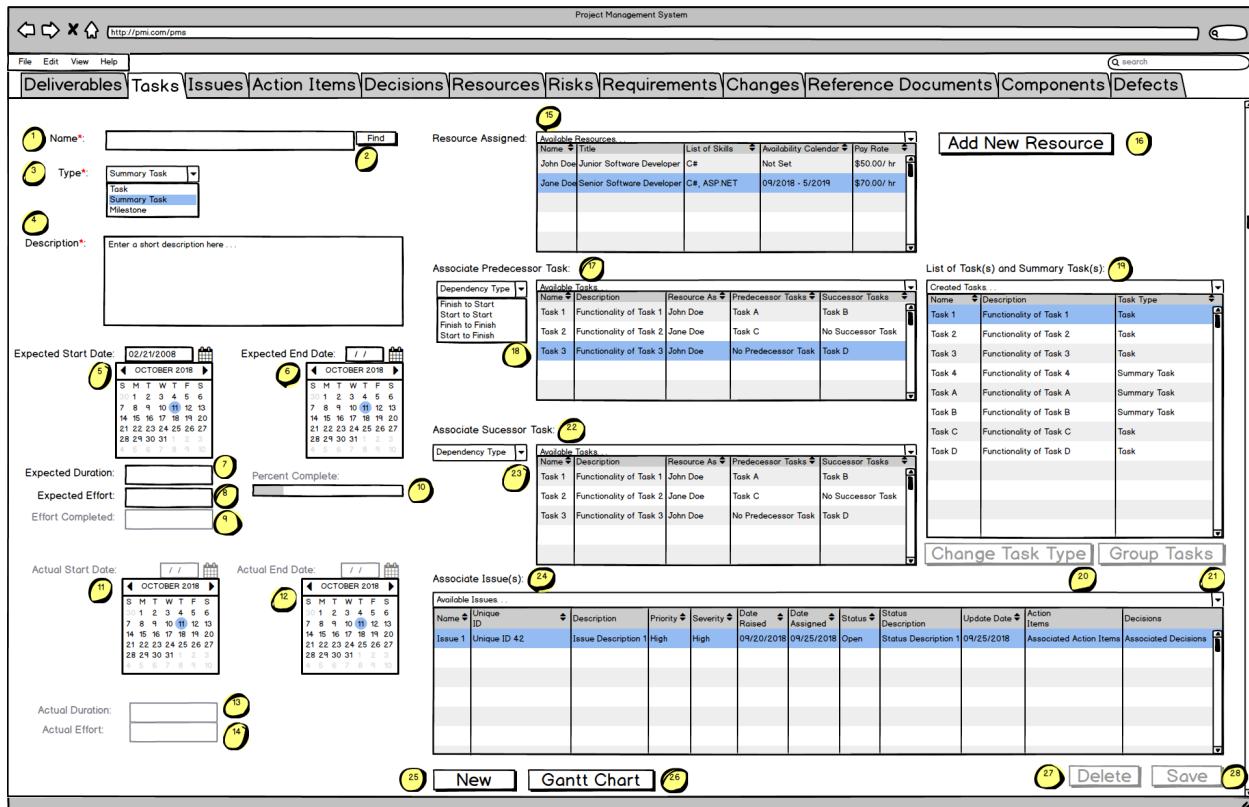
Name	Description	Resource As	Predecessor Tasks	Successor Tasks
Task 1	Functionality of Task 1	John Doe	Task A	Task B
Task 2	Functionality of Task 2	Jane Doe	Task C	No Successor Task
Task 3	Functionality of Task 3	John Doe	No Predecessor Task	Task D
- Associate Successor Task:** Available Tasks table (circled 18)

Name	Description	Resource As	Predecessor Tasks	Successor Tasks
Task 1	Functionality of Task 1	John Doe	Task A	Task B
Task 2	Functionality of Task 2	Jane Doe	Task C	No Successor Task
Task 3	Functionality of Task 3	John Doe	No Predecessor Task	Task D
- List of Task(s) and Summary Task(s):** Created Tasks table (circled 19)

Name	Description	Task Type
Task 1	Functionality of Task 1	Task
Task 2	Functionality of Task 2	Task
Task 3	Functionality of Task 3	Task
Task 4	Functionality of Task 4	Summary Task
Task A	Functionality of Task A	Summary Task
Task B	Functionality of Task B	Summary Task
Task C	Functionality of Task C	Task
Task D	Functionality of Task D	Task
- Buttons:** Change Task Type (circled 20), Group Tasks (circled 21), New (circled 25), Gantt Chart (circled 26), Delete (circled 27), Save (circled 28).

The project manager will have the ability to create, delete, and load tasks. They may use the find button to search for existing tasks within the system, when selected the data for the task will be autofilled in the sections/tables above. The project manager must specify a name, type of task, and description for the task. Association can occur later if they have yet to be created within the system. They will have the capability to set dependency types, group tasks, and add new resources.

1.5.1 Summary Tasks.png



The project manager has selected the task type for summary tasks where they will have the ability to create, delete, and load summary tasks. Like tasks, the summary tasks are decomposed tasks where the project manager will have the same capabilities that are mentioned within the tasks.

1.5.2 Milestone.png

The screenshot shows a project management application interface. On the left, there is a form for creating a new task. The fields include:

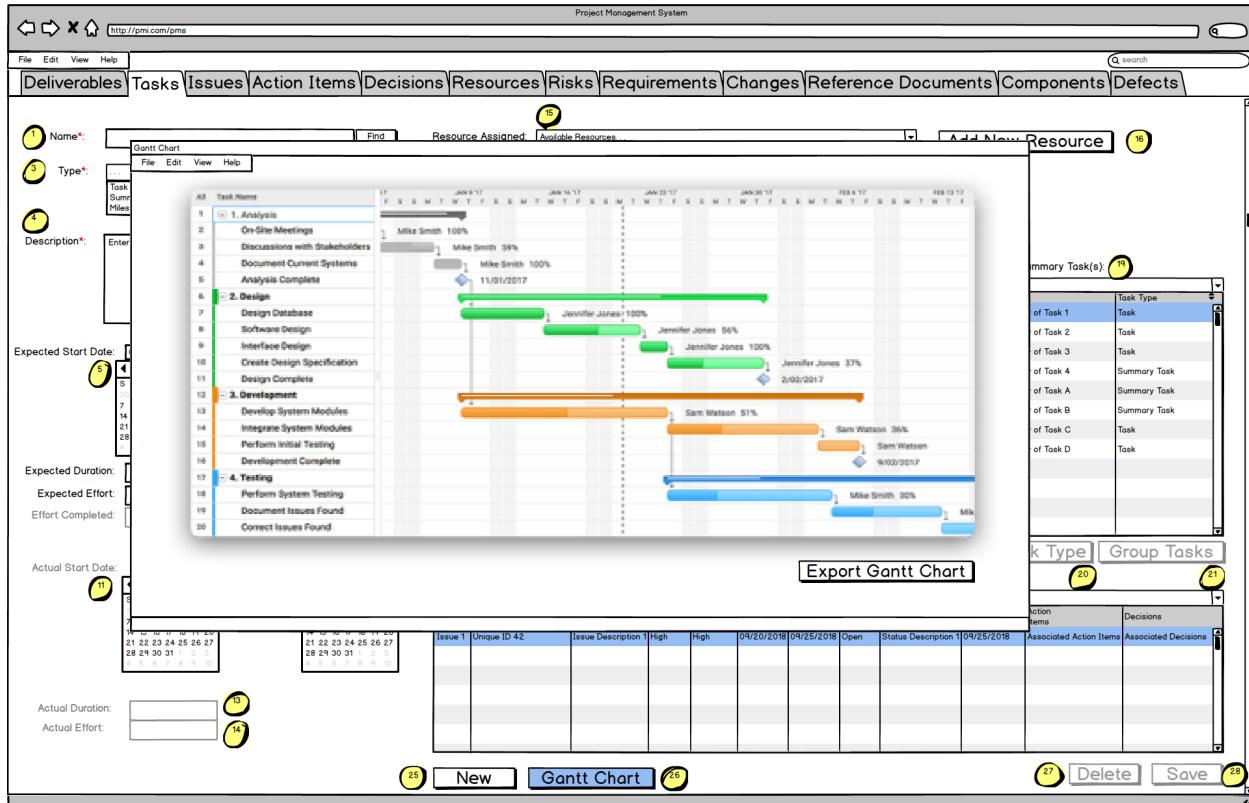
- Name***: [Input field] (1)
- Type***: Milestone (2) (dropdown menu showing Task, Summary Task, Milestone)
- Description***: Enter a short description here... (3)
- Expected Start Date**: 02/21/2008 (4) (calendar icon)
- Expected End Date**: / / (5) (calendar icon)
- Percent Complete**: [Progress bar] (6)
- Expected Effort**: [Input field] (7)
- Effort Completed**: [Input field] (8)
- Actual Start Date**: / / (9) (calendar icon)
- Actual End Date**: / / (10) (calendar icon)
- Actual Effort**: [Input field] (11)

On the right side of the interface, there are several lists and buttons:

- Associate Predecessor Task**: A table showing dependencies between tasks. It includes columns for Name, Description, Resource As, Predecessor Tasks, and Successor Tasks. The table contains three rows of data.
- Associate Successor Task**: Another table showing dependencies between tasks, similar to the predecessor table.
- List of Task(s) and Summary Task(s)**: A table titled "Created Tasks..." showing a list of tasks with their descriptions and types. The table contains five rows of data.
- Associate Issue(s)**: A table titled "Available Issues" showing a list of issues with their details. The table contains one row of data.
- Buttons**: At the bottom right are buttons for "New" (12), "Gantt Chart" (13), "Delete" (14), "Save" (15), and "Cancel" (16).

The project manager has selected the task type as milestone where they will have the ability to create, delete, and load milestones. Milestones will have the same features as the task type of "Task" without having the capability of assigning a resource and duration for the task.

1.5.3 Gantt Chart.png



The project manager has clicked the button to display the gantt chart which will display the information relevant to the progress of the current project. They will have the ability to export the gantt chart if they choose to do so.

1.6 Issues.png

The screenshot shows the 'Issues' tab selected in the navigation bar. The main form for creating an issue includes fields for Name, Description, Status, Status Description, Severity, Priority, and Update Date. It also includes date pickers for Expected Completion Date, Date Raised, and Actual Completion Date. Two dropdown menus for Associate Action Item(s) and Associate Decision(s) show lists of available items. Buttons for New, Delete, Save, and Cancel are at the bottom.

The project manager will have the ability to create, delete, and load issues. They may use the find button to search for existing issues within the system, when selected the data for the task will be autofilled in the sections/tables above. They will need to fill out a name, description, set a status, status description, set a severity, and set a priority for the issue. The project manager will have the ability to add and delete any new or existing status, severity, and priority options where they will be able to drag and change the location of newly created items.

1.7 Action Items.png

The screenshot shows the 'Action Items' tab in a Project Management System. The interface includes:

- Name:** Input field (1) with a 'Find' button (2).
- Description:** Text area (3) with a placeholder 'Enter a short description here ...'.
- Date Created:** Calendar input (4) showing '02/21/2008'.
- Date Assigned:** Calendar input (5) showing '1 / /'.
- Status:** Dropdown menu (6) with options: Open, Closed, In Progress, Hold, and Complete.
- Status Description:** Text area (7) with a placeholder 'Enter a short description here ...'.
- Actual Completion Date:** Calendar input (8) showing '1 / /'.
- Resource Assigned:** A table (9) titled 'Available Resources' showing two entries:

Name	Title	List of Skills	Availability Calendar	Pay Rate
John Doe	Junior Software Developer	C#, ASP.NET	Not Set	\$50.00/hr
Jane Doe	Senior Software Developer	C#, ASP.NET	04/2018 - 5/2019	\$70.00/hr
- Add New Resource:** Button (10).
- Available Action Items:** A table (11) listing columns: Name, Unique ID, Description, Date Created, Date Assigned, Expected Completion Date, Resource Assigned, Status, Status Description, and Update Date.
- Action Buttons:** 'New' (12), 'Delete' (13), and 'Save' (14).

The project manager will have the ability to create, delete, and load action items. They may use the find button to search for existing action items within the system, when selected the data for the task will be autofilled in the sections/tables above. They will need to fill out a name, description, and set a status, status description, The project manager will have the ability to add new or delete any existing status. They will also have the ability to add a new resource if desired.

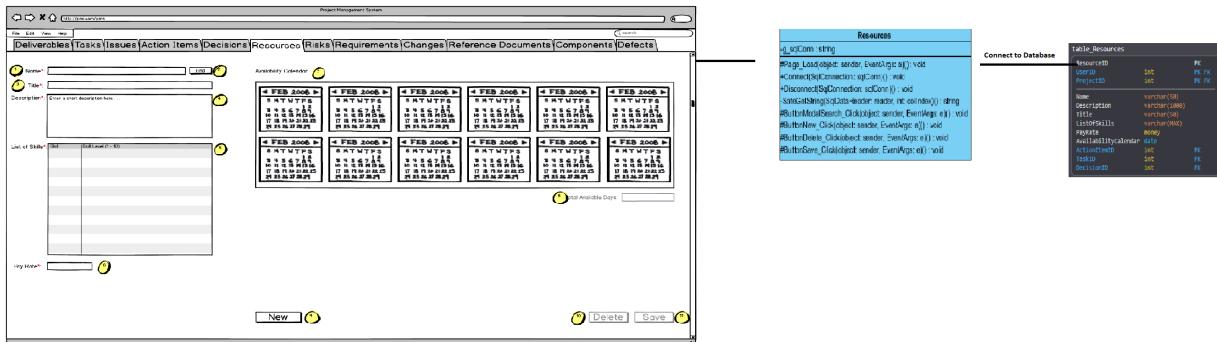
1.8 Decisions.png

The screenshot shows the 'Decisions' tab of the Project Management System. The interface includes the following components:

- Name:** Text input field (7) with a 'Find' button (8).
- Description:** Text area (3) with placeholder text 'Enter a short description here ...'.
- Status:** Drop-down menu (10) with options: Open, Closed, In Progress, Hold, Complete. Buttons for Add Status (11) and Remove Status (12) are also present.
- Impact:** Drop-down menu (16) with options: Critical, High, Medium, Low, Minor. Buttons for Add Impact (17) and Remove Impact (18) are also present.
- Priority:** Drop-down menu (21) with options: High, Medium, Low. Buttons for Add Priority (22) and Remove Priority (23) are also present.
- Date Fields:**
 - Date Created:** Calendar input (4) showing '02/21/2008'.
 - Date Needed:** Calendar input (5) showing '02/21/2008'.
 - Associate Meeting Note(s):** A section containing a table for 'Available Meeting Notes' and a 'Meeting Date' dropdown.
 - Associate Reference Document(s):** A section containing a table for 'Available Reference Documents' and a 'Unique ID' dropdown.
 - Expected Completion Date:** Calendar input (6) showing '02/21/2008'.
 - Actual Completion Date:** Calendar input (7) showing '02/21/2008'.
 - Date Made:** Calendar input (8) showing '02/21/2008'.
- Decision Maker:** Text input field (9).
- Available Decisions Table:** A grid (17) listing decisions with columns: Name, Unique ID, Date Mode, Date Needed, Decision Maker, Priority, Impact, Status, Status Description, and Update Date.
- Action Buttons:** 'New' (15), 'Delete' (20), and 'Save' (21).

The project manager will have the ability to create, delete, and load decisions. They may use the find button to search for existing decisions within the system, when selected the data for the task will be autofilled in the sections / tables above. They will need to fill out a name, description, set a status, status description, set a impact, and set a priority for the decisions. The project manager will have the ability to add and delete any new or existing status, impact, and priority options where they will be able to drag and change the location of newly created items.

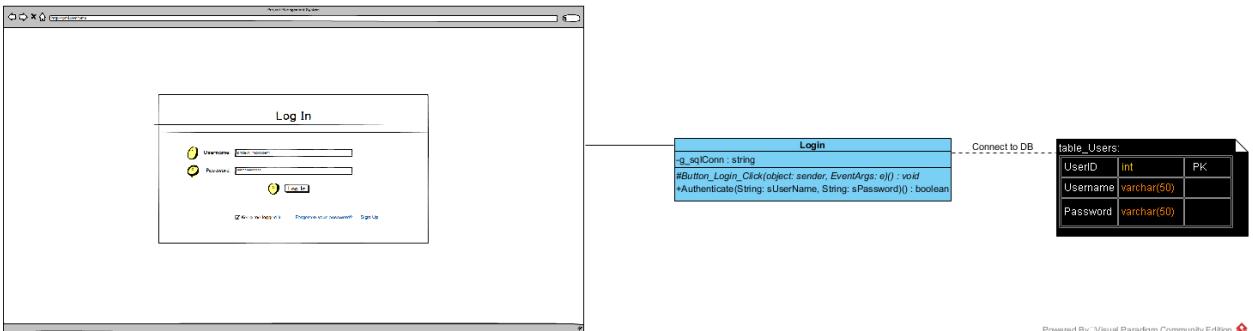
1.9 Resources.png



The project manager will have the ability to create, delete, and load resources. They may use the find button to search for existing resources within the system, when selected the data for the resources will be autofilled in the sections/tables above. The project manager must enter a name, description, skill description, pay rate, and fill out the availability calendar for the given resource. The total of days that the resource is able to work will be presented in the field above.

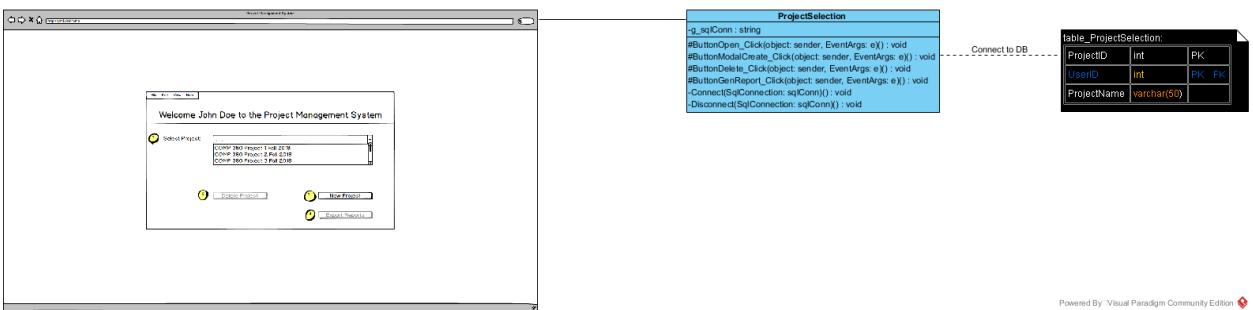
2 High-Level Designs

2.1 High-Level Login



Please reference Section 4.1: Login Class Diagram

2.2 High-Level Project Selection

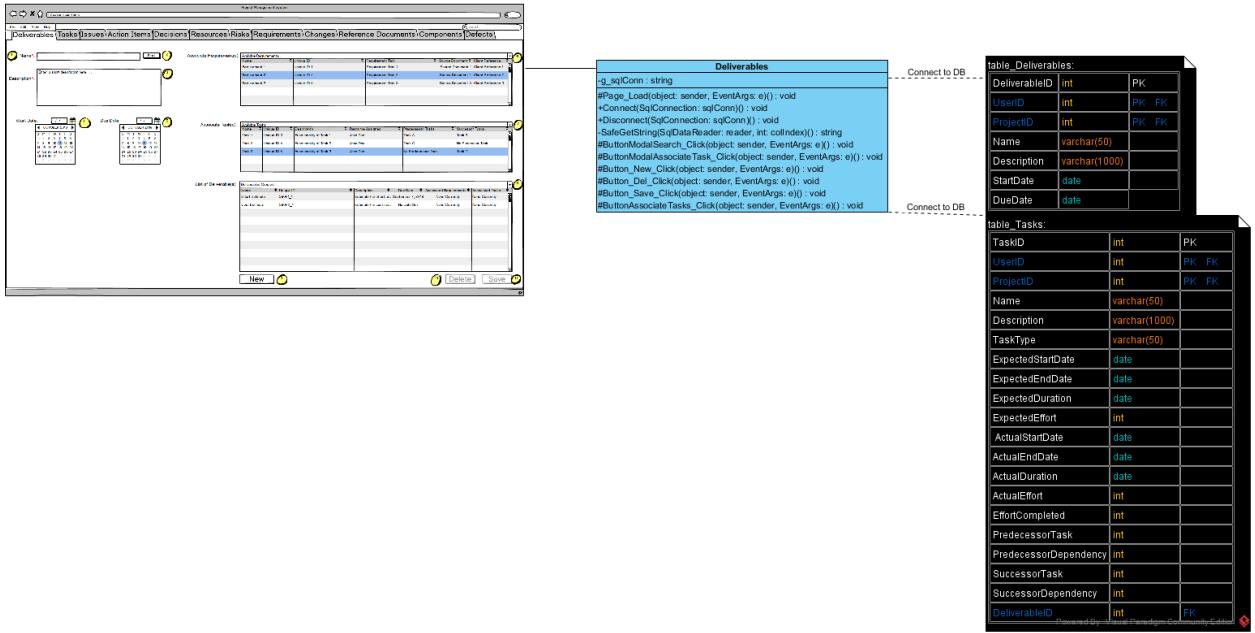


Please reference Section 4.2: Project Selection Class Diagram

2.3 High-Level Landing Page

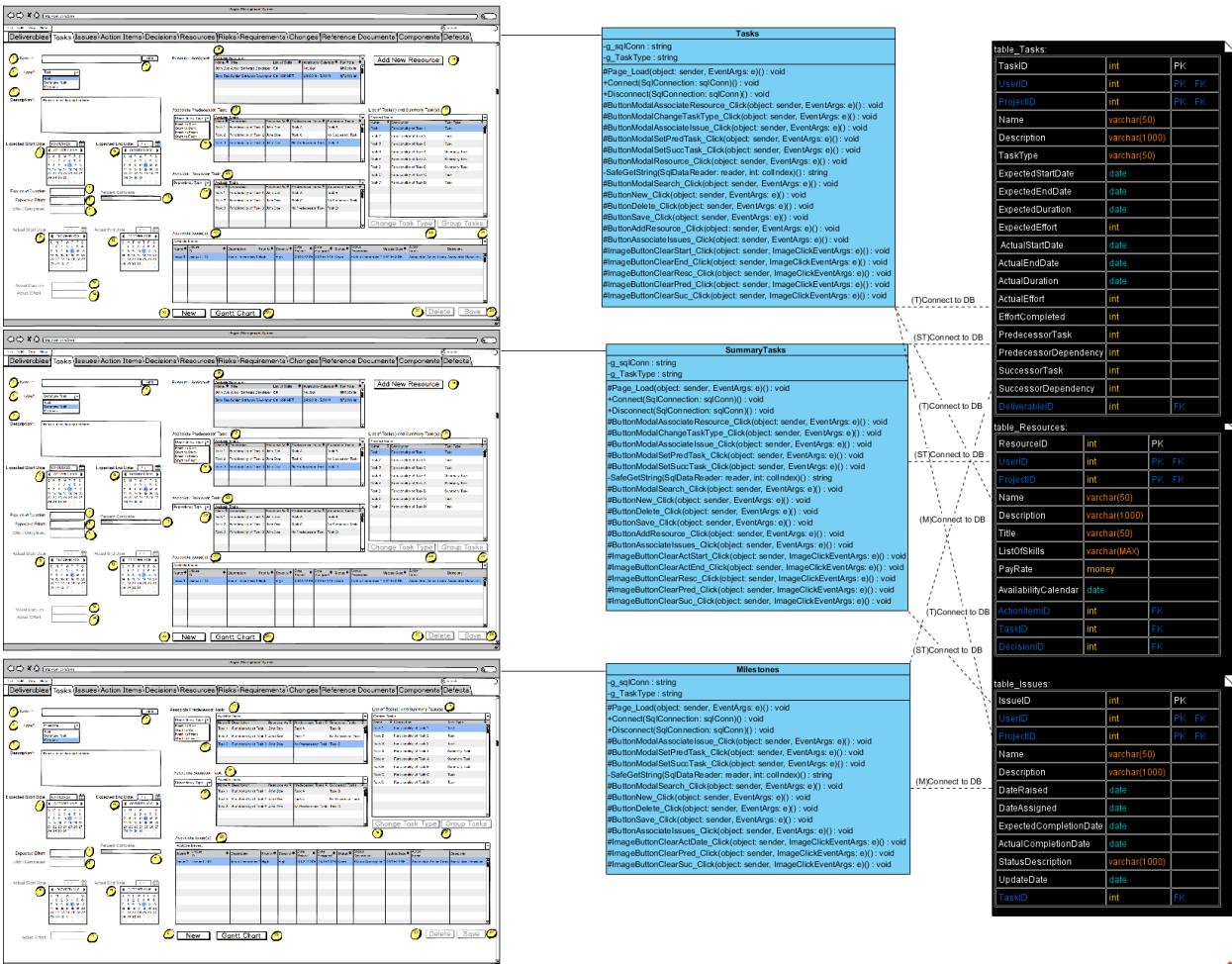
Please reference Section 4.3: Landing Page Class Diagram

2.4 High-Level Deliverables



Please reference Section 4.4: Deliverables Class Diagram

2.5 High-Level Tasks



Please reference Section 4.5: Task Class Diagram

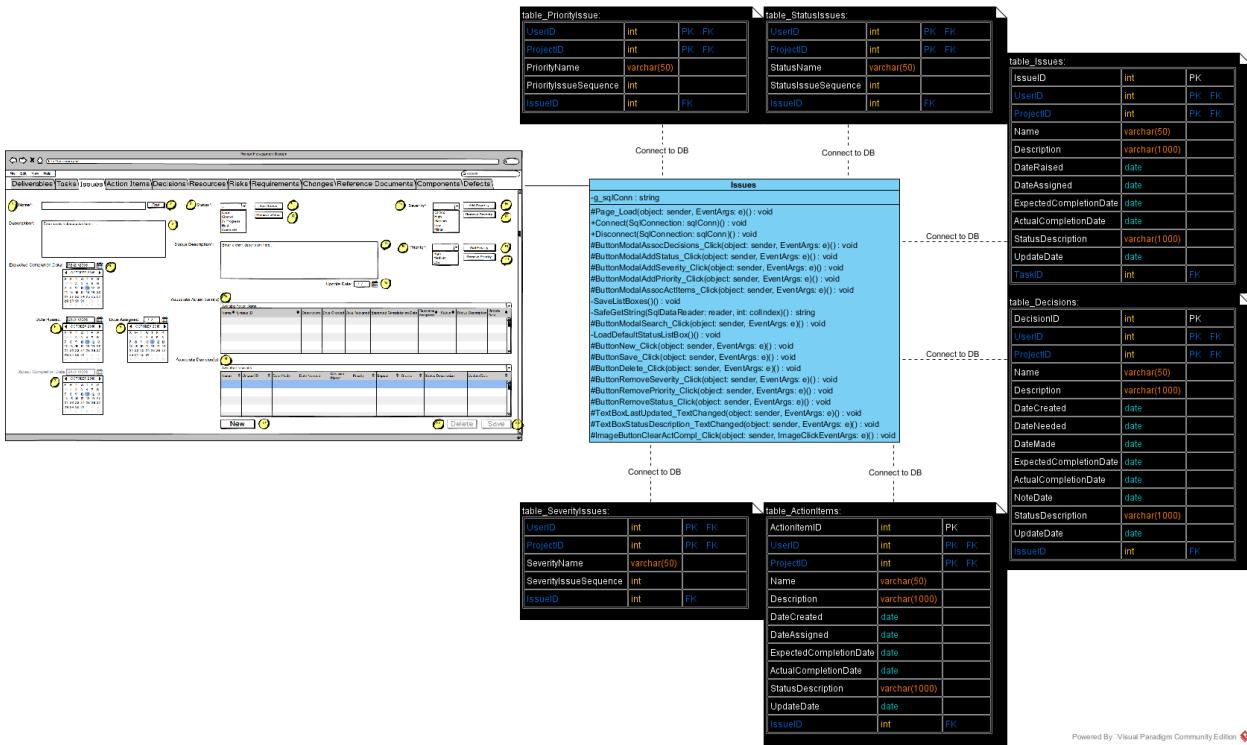
2.5.1 High-Level Summary Tasks

Please reference Section 4.5: Task Class Diagram

2.5.2 High-Level Milestones

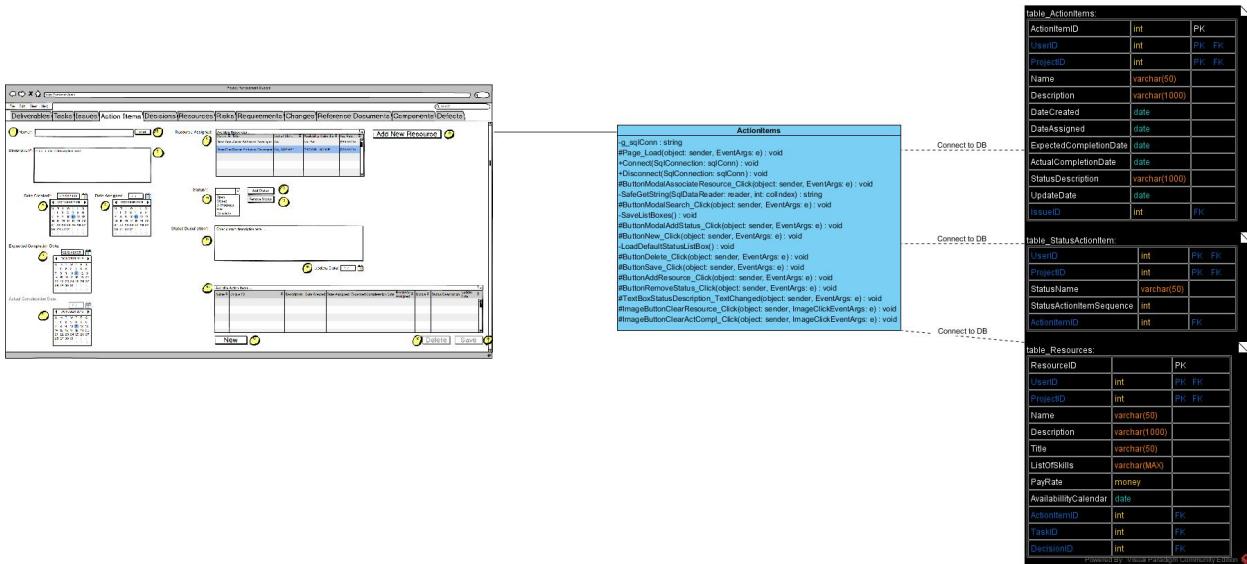
Please reference Section 4.5: Task Class Diagram

2.6 High-Level Issues



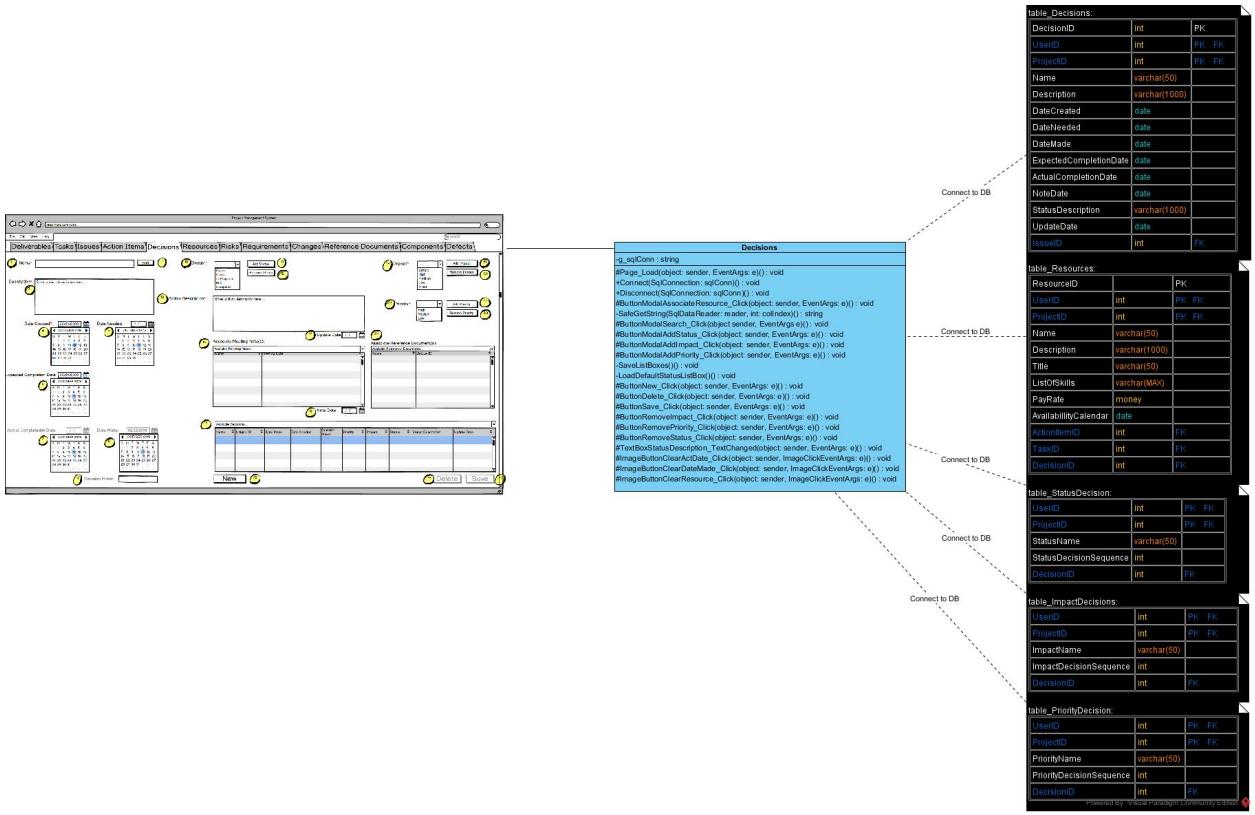
Please reference Section 4.6: Issues Class Diagram

2.7 High-Level Action Items



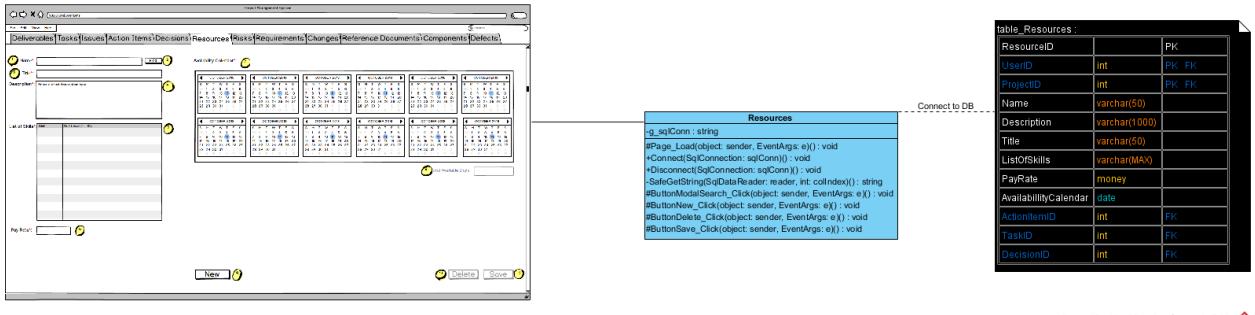
Please reference Section 4.7: Action Items Class Diagram

2.8 High-Level Decisions



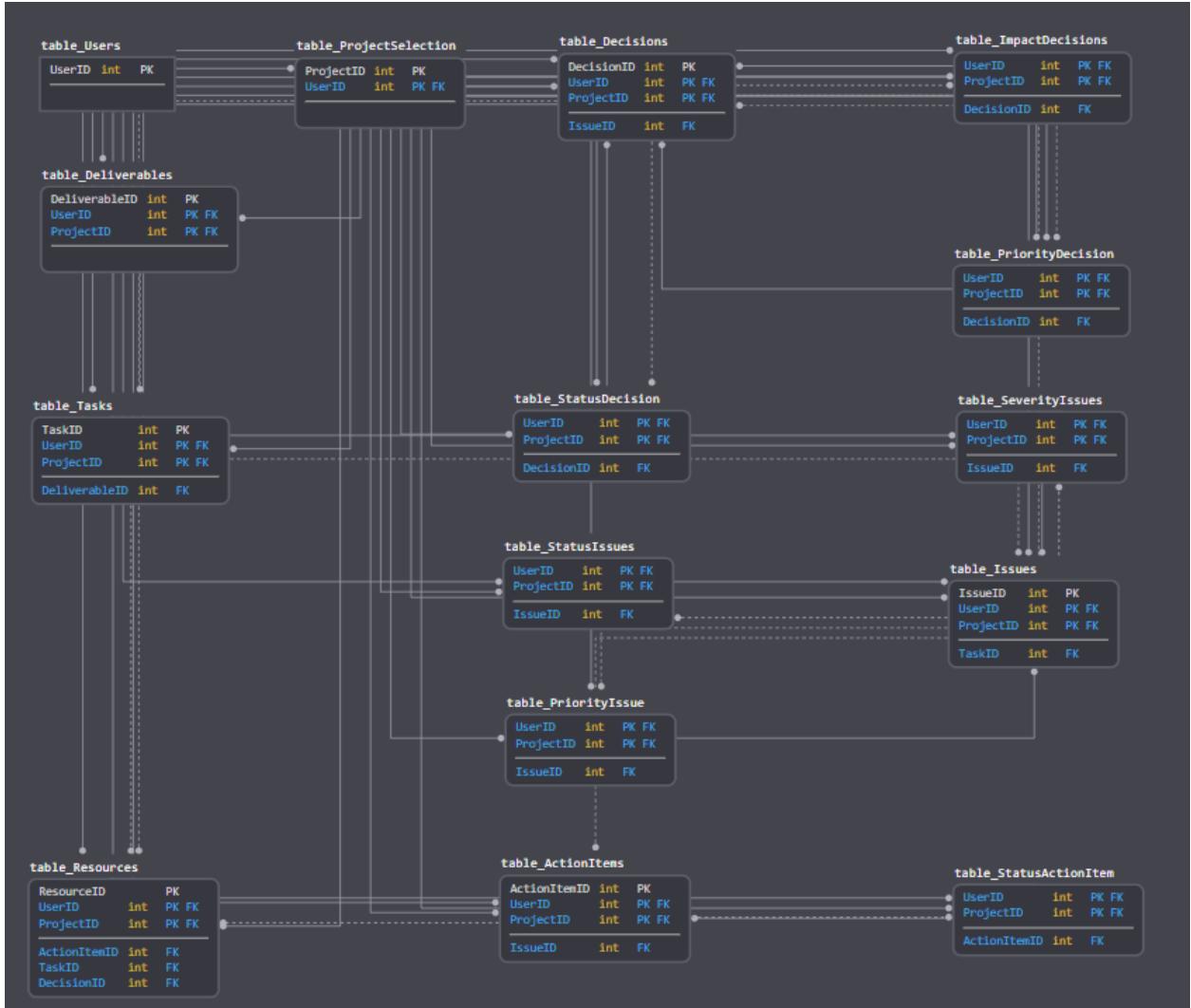
Please reference Section 4.8: Decisions Class Diagram

2.9 High-Level Resources



Please reference Section 4.9: Resource Class Diagram

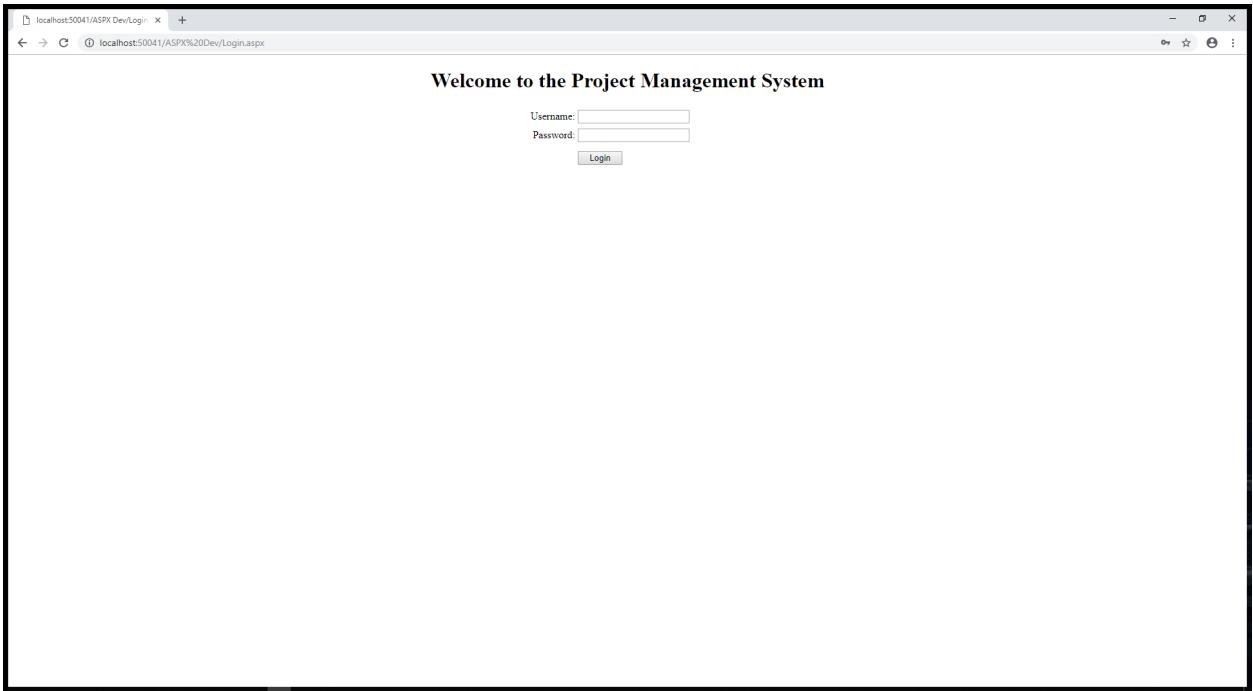
2.10 High-Level Database Design: Logical Database: Key Relationships



Please reference Section 4.10: Detailed Logical Database Design

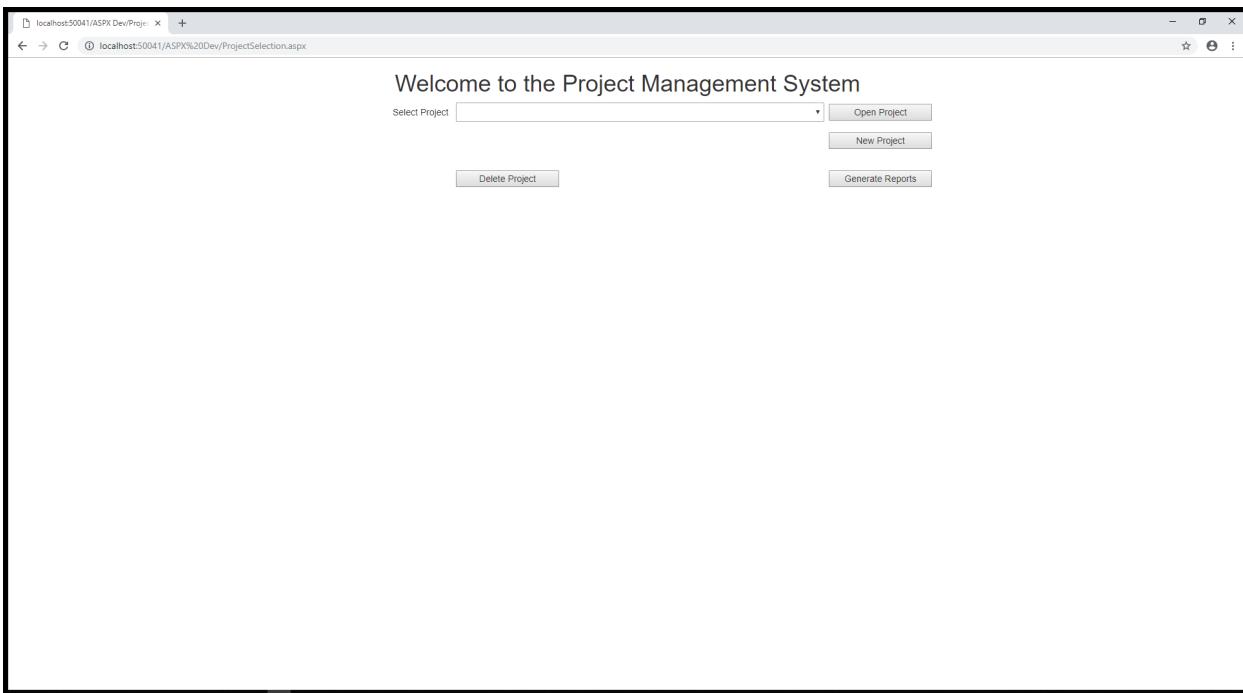
3 GUI Prototype

3.1 Log In



The user will input their username along with a password to log into the project management system.

3.2 Project Selection



The user will have the option to create a new project, open an existing project, or delete a project entirely.

3.3 Deliverables

The screenshot shows a web-based application interface for creating a deliverable. At the top, there's a navigation bar with links like Home, Deliverables, Tasks, Action Items, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. Below the navigation is a form with fields for Name (Deliverable 1), Description (A short description for deliverable 1), Start Date (12/1/2018), and Due Date (12/15/2018). There are also buttons for Search, Associate Requirements, and Associate Tasks. A large grid table is displayed, showing a single row for a task associated with the deliverable. Below the grid is a list of deliverables.

Name	Description	Type	Task	Expected Start Date	Expected End Date	Actual Duration	Actual Start Date	Actual End Date	Actual Effort	Actual Predecessor	Actual Completed	Predecessor Task	Duration	Completed	Effort	Task	Deliverable
Task 1	A short description for deliverable 1	Task	Task 1	12/15/2018	01/03/2019	19	12/01/2018	12/15/2018	24								

Name	Description	Start Date	Due Date
Deliverable 1	A short description for deliverable 1	12/01/2018	12/15/2018

New Delete Save

The user will have the ability to create, retrieve, or delete a deliverable.

3.3.1 Associate Tasks to Deliverables

This screenshot shows the same application interface as the previous one, but with an open modal dialog titled "Associate Tasks". The modal displays a table of tasks and their association status with the current deliverable. The "Associated" column contains checkboxes, all of which are checked. Below the modal is a list of deliverables.

Name	Task Type	Associated
Task 1	Task	☒
Task 2	Task	☒
Summary Task 1	Summary Task	☒
Summary Task 2	Summary Task	☒
Milestone 1	Milestone	☒
Milestone 2	Milestone	☒
Summary Task 3	Summary Task	☒
Task 3	Task	☒
Summary Task 4	Summary Task	☒
Milestone 2	Milestone	☒

Close Associate Tasks

Name	Description	Start Date	Due Date
Deliverable 1	My Description for deliverable 1	11/25/2018	12/08/2018
Deliverable 2	A description for deliverable 2	12/08/2018	12/22/2018
Deliverable 3	desc3	12/07/2018	12/14/2018
Deliverable 4	Another description here	12/15/2018	12/26/2018

New Delete Save

If the user clicks the button to associate tasks they will have the ability to associate tasks

to the current deliverable. The associated tasks will displayed in a grid showing all the associated tasks to the current deliverable

3.4 Tasks

The screenshot shows a web-based application for managing tasks. At the top, there is a navigation bar with links for Home, Deliverables, Tasks, Active Item, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. The main area is titled "Task 1". It includes fields for Name (Task 1), Description (A short description for Task 1), Resource Assigned (with a "Select Resource" button), and a "Add New Resource" button. There are also fields for Expected Start Date (12/15/2018), Expected Due Date (12/20/2018), Expected Duration (19 days), Expected Effort (24), Percent Complete, Actual Start Date, Actual End Date, and Actual Duration (19 days). A "Associate Issues" section contains a table with one row:

Name	Description	Priority	Severity	Date Raised	Date Assigned	Expected Completion Date	Actual Completion Date	Status	Update Description
Issue A	A short description for Task 1	1	Issue 1	12/22/2018	12/29/2018	12/22/2018			

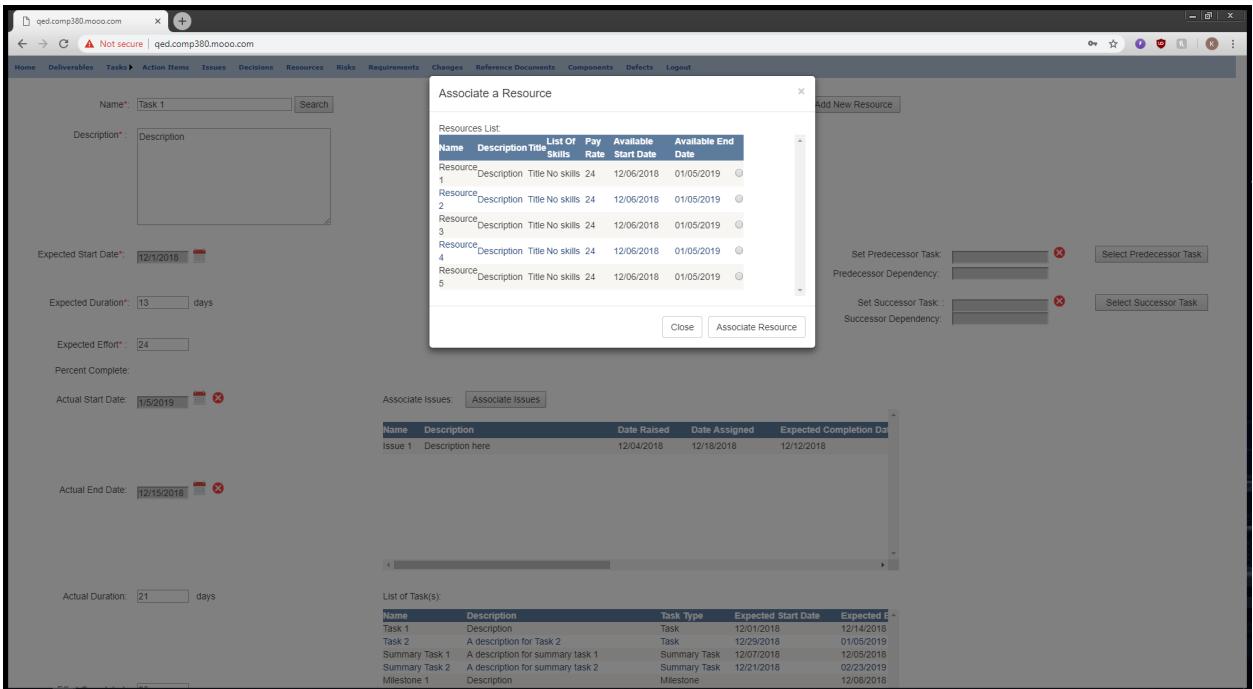
Below this is a "List of Task(s)" table:

Name	Description	Type	Start Date	Duration	Actual Start Date	Actual End Date	Actual Effort	Actual Completed Effort	End Date	Task ID
Task 1	A short description for Task 1	Task	12/15/2018	19	12/15/2018	12/24/2018	24	0	12/24/2018	1

At the bottom, there are buttons for "Change Task Type", "Gantt Chart", "Delete", and "Save".

The user will have the option to create, retrieve, or delete a task.

3.4.1 Associate Resource to Task



If the user selects the button to associate a resource they will have the ability to select available resources in a grid and associate them to the current task. The associated resource will be displayed within the textbox noting which resource is assigned to the current task.

3.4.2 Associate Predecessor and Successor Tasks to Task

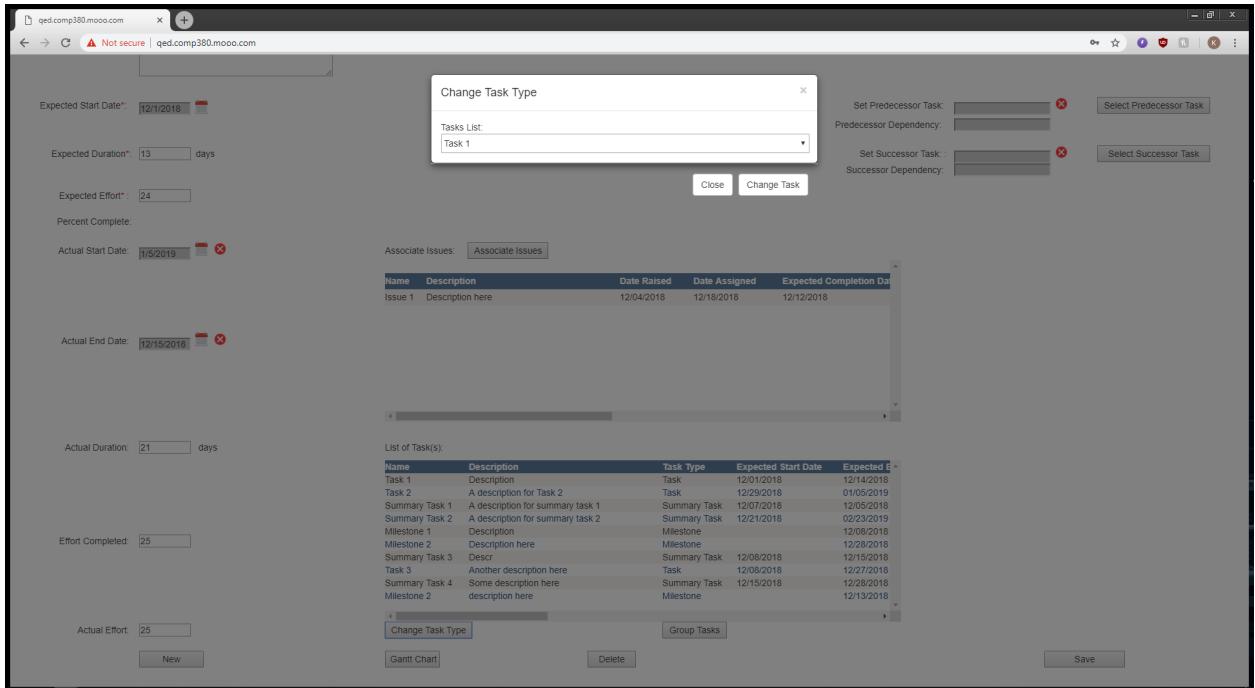
The screenshot shows a web-based project management application interface. A modal dialog box titled "Associate Predecessor Task" is open. Inside the dialog, there is a dropdown menu labeled "Tasks List:" containing "Task 2". Below the dropdown is a dependency dropdown set to "Finish to Start". At the bottom of the dialog are two buttons: "Close" and "Set Predecessor Task". The background of the main application shows task details for "Task 1", including its name, description, start date (12/1/2018), duration (13 days), effort (24), and completion status. There are also sections for issues and dependencies.

If the user selects the button to associate a predecessor task they will have the ability to select available tasks in a drop down list along with a dependency.

This screenshot shows the same application interface as the previous one, but with a different modal dialog box titled "Associate Successor Task". This dialog has a dropdown menu showing "Task 2" and a dependency dropdown set to "Finish to Start". The main application area remains the same, displaying task details for "Task 1" and various lists like issues and dependencies.

If the user selects the button to associate a successor task they will have the ability to select available tasks in a drop down list along with a dependency.

3.4.3 Change Task to Summary Task



If the user selects the button to change the task type they will have the ability to change the current task to a summary task.

3.4.4 Associate Issues to Tasks

The screenshot shows a web-based project management application. A modal dialog box titled "Associate Issues" is open in the center. The main form on the left contains fields for "Name" (Task 1), "Description" (Description), "Expected Start Date" (12/1/2018), "Expected Duration" (13 days), "Expected Effort" (24), and "Percent Complete". Below these are "Actual Start Date" (1/5/2019) and "Actual End Date" (12/15/2018). On the right, there are buttons for "Set Predecessor Task" and "Set Successor Task", each with a dropdown menu and a "Select" button. The "Associate Issues" dialog lists issues with checkboxes: Issue 1 (checked), Issue 2 (unchecked), and Issue 24 (unchecked). At the bottom of the dialog are "Close" and "Associate Issues" buttons. Below the dialog is a table titled "List of Task(s)" with columns: Name, Description, Task Type, Expected Start Date, and Expected End Date. The table contains several entries including Task 1, Task 2, Summary Task 1, Summary Task 2, and Milestone 1.

Name	Description	Task Type	Expected Start Date	Expected End Date
Task 1	Description	Task	12/01/2018	12/14/2018
Task 2	A description for Task 2	Task	12/29/2018	01/05/2019
Summary Task 1	A description for summary task 1	Summary Task	12/07/2018	12/05/2018
Summary Task 2	A description for summary task 2	Summary Task	12/21/2018	02/23/2019
Milestone 1	Description	Milestone		12/08/2018

If the user selects the button to associate issues they will have the ability to select available issues in a grid and associate them to the current task. The associated issues will be displayed within the grid view showing all issues currently associated to the current task.

3.4.5 Summary Tasks

The screenshot shows a web-based application interface for managing tasks. At the top, there's a navigation bar with links like Home, Deliverables, Tasks, Action Items, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. Below the navigation is a search bar with fields for Name, Description, and a Search button. To the right of the search bar are buttons for Resource Assigned, Selected Resource, and Add New Resource.

Below the search bar, there are several input fields and buttons:

- Name:** Summary Task 1
- Description:** Some description for summary task 1
- Expected Start Date:** 12/08/2018
- Expected Due Date:** 12/21/2018
- Expected Duration:** 13 days
- Expected Effort:** 50
- Percent Complete:**
- Actual Start Date:**
- Associate Issues:** Associate Issues
- Actual End Date:**
- Actual Duration:** days
- Effort Completed:**
- Actual Effort:**

On the right side, there are buttons for Set Predecessor Task, Set Successor Task, and buttons for Select Predecessor Task and Select Successor Task.

In the center, there's a table titled "List of Task(s)" showing the following data:

Name	Description	Task Type	Expected Start Date	Expected Duration	Actual Start Date	Actual End Date	Actual Effort	Actual Duration	Completed	Predecessor Task	Successor Task
Task 1	A short description for Task 1	Task	12/15/2018	24			01/03/2019				
Summary Task 1	A description for summary task 1	Summary Task	12/08/2018	50			12/21/2018				

At the bottom of the page are buttons for Change Task Type, Group Tasks, Delete, and Save.

The user will have the option to create, retrieve, or delete a summary task.

3.4.6 Associate Resource to Summary Task

This screenshot shows the same application interface as the previous one, but with a modal dialog box open over it. The dialog is titled "Associate a Resource" and contains a table titled "Resources List".

The "Resources List" table has columns: Name, Description, Title, List Of Skills, Pay Rate, Available Start Date, and Available End Date. It lists five resources, each with a "Select" button next to the available end date.

Below the table are buttons for Close and Associate Resource.

On the left side of the main page, there are fields for Name, Description, Expected Start Date, Expected Duration, Expected Effort, and Percent Complete. There are also buttons for Actual Start Date, Associate Issues, and Actual End Date.

On the right side, there are buttons for Set Predecessor Task, Set Successor Task, and buttons for Select Predecessor Task and Select Successor Task.

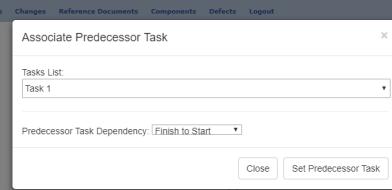
In the center, there's a table titled "List of Task(s)" showing the following data:

Name	Description	Task Type	Expected Start Date	Expected End Date
Task 1	A description for Task 1	Task	12/01/2018	12/14/2018
Task 2	A description for Task 2	Task	12/29/2018	01/05/2019
Summary Task 1	A description for summary task 1	Summary Task	12/07/2018	12/03/2018

If the user selects the button to associate a resource they will have the ability to select

available resources in a grid and associate them to the current summary task. The associated resource will be displayed within the textbox noting which resource is assigned to the current summary task.

3.4.7 Associate Predecessor and Successor summary tasks to task



The screenshot shows a web-based project management application. A modal dialog box titled "Associate Predecessor Task" is open. Inside the dialog, there is a dropdown menu labeled "Tasks List" containing "Task 1". Below the dropdown is a dependency selector set to "Finish to Start". At the bottom of the dialog are two buttons: "Close" and "Set Predecessor Task". The background of the application shows various task details like "Name: Summary Task 1", "Description: A description for summary task 1", and "Expected Start Date: 12/7/2018". There are also buttons for "Associate Issues" and "Associate Issues".

If the user selects the button to associate a predecessor task they will have the ability to select available tasks in a drop down list along with a dependency.

Name*: Summary Task 1

Description*: A description for summary task 1

Expected Start Date*: 12/7/2018

Expected Duration*: 2 days

Expected Effort*: 70

Percent Complete:

Actual Start Date: [Progress bar]

Associate Issues [button]

Actual End Date: [Progress bar]

Actual Duration: [Progress bar] days

Associate Successor Task

Tasks List: Task 1

Successor Task Dependency: Finish to Start

Expected Due Date*: 12/5/2018

Close Set Successor Task Select Successor Task

Set Predecessor Task: [Progress bar] Select Predecessor Task

Predecessor Dependency: [Progress bar]

Set Successor Task: [Progress bar] Select Successor Task

Successor Dependency: [Progress bar]

List of Task(s):

Name	Description	Task Type	Expected Start Date	Expected End Date
Task 1	Description	Task	12/1/2018	12/14/2018
Task 2	A description for Task 2	Task	12/29/2018	01/05/2019
Summary Task 1	A description for summary task 1	Summary Task	12/07/2018	12/05/2018

If the user selects the button to associate a successor task they will have the ability to select available tasks in a drop down list along with a dependency.

3.4.8 Change Summary Task to Task

Expected Start Date*: 12/7/2018

Expected Duration*: 2 days

Expected Effort*: 70

Percent Complete:

Actual Start Date: [Progress bar]

Associate Issues [button]

Actual End Date: [Progress bar]

Actual Duration: [Progress bar] days

Change Task Type

Tasks List: Summary Task 1

Close Change Task Select Predecessor Task

Set Predecessor Task: [Progress bar] Select Predecessor Task

Predecessor Dependency: [Progress bar]

Set Successor Task: [Progress bar] Select Successor Task

Successor Dependency: [Progress bar]

List of Task(s):

Name	Description	Task Type	Expected Start Date	Expected End Date
Task 1	Description	Task	12/1/2018	12/14/2018
Task 2	A description for Task 2	Task	12/29/2018	01/05/2019
Summary Task 1	A description for summary task 1	Summary Task	12/07/2018	12/05/2018
Summary Task 2	A description for summary task 2	Summary Task	12/21/2018	02/23/2019
Milestone 1	Description	Milestone	12/08/2018	12/08/2018
Milestone 2	Description here	Milestone	12/09/2018	12/09/2018
Summary Task 3	Description	Summary Task	12/08/2018	12/13/2018
Task 3	Another description here	Task	12/08/2018	12/07/2018
Summary Task 4	Some description here	Summary Task	12/15/2018	12/25/2018
Milestone 2	description here	Milestone	12/08/2018	12/13/2018

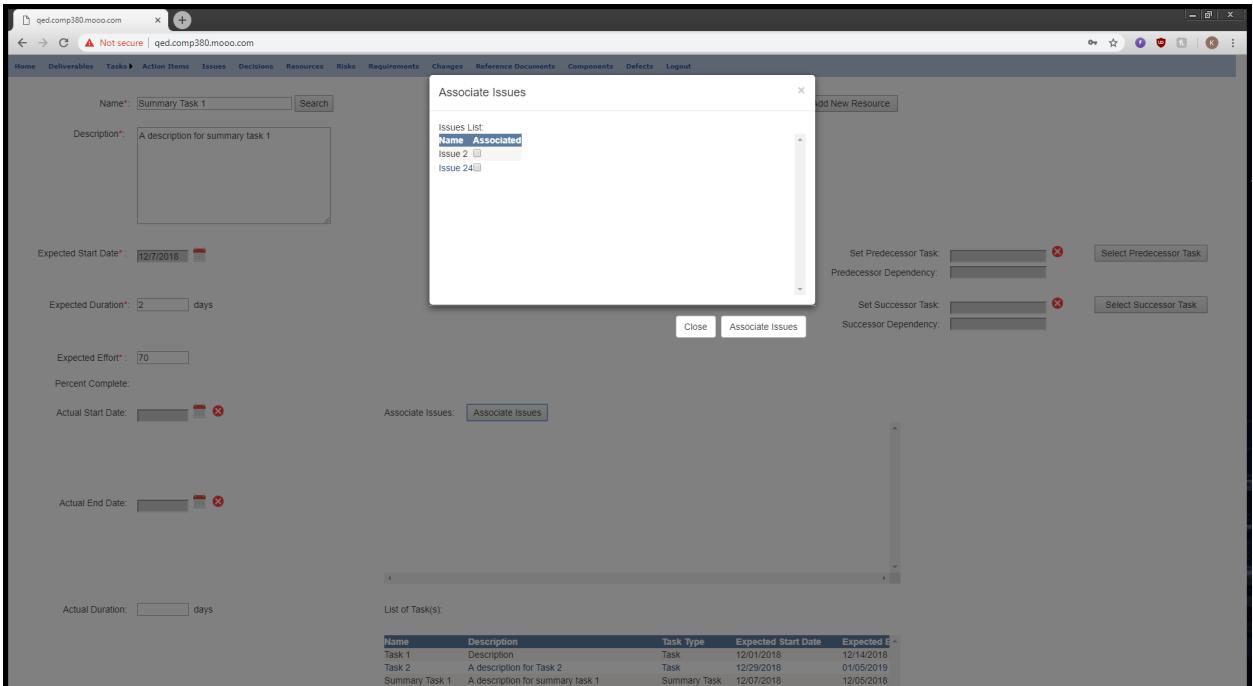
Effort Completed: [Progress bar]

Actual Effort: [Progress bar]

Change Task Type Gantt Chart Group Tasks Delete Save New

If the user selects the button to change the task type they will have the ability to change the current summary task to a task.

3.4.9 Associate Issues to Summary Task



If the user selects the button to associate issues they will have the ability to select available issues in a grid and associate them to the current summary task. The associated issues will be displayed within the grid view showing all issues currently associated to the current summary task.

3.4.10 Milestone

The screenshot shows a web-based application interface for managing milestones. At the top, there's a navigation bar with links like Home, Deliverables, Tasks, Action Items, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. Below the navigation is a search bar with 'Name' set to 'Milestone 1' and a 'Search' button. A text area labeled 'Description' contains the placeholder 'A milestone description'. On the right side, there are four dependency selection fields: 'Predecessor Task' (with a progress bar and 'Select Predecessor Task' button), 'Predecessor Dependency' (with a progress bar and 'Select Predecessor Task' button), 'Successor Task' (with a progress bar and 'Select Successor Task' button), and 'Successor Dependency' (with a progress bar and 'Select Successor Task' button). Below these are fields for 'Expected Due Date' (set to '12/15/2018') and 'Expected Effort' (set to '24'). A 'Associated Issue(s)' button is also present. In the center, there's a 'List of Task(s)' table with columns: Name, Description, Task Type, Expected Start Date, Duration, Actual Start Date, Actual End Date, Duration, Effort, Actual Completed Effort, Expected End Date, and Task. The table contains three rows: 'Task 1' (a short description task), 'Summary Task 1' (a summary task), and 'Milestone 1' (a milestone). Buttons at the bottom include 'New', 'Gantt Chart', 'Delete', and 'Save'.

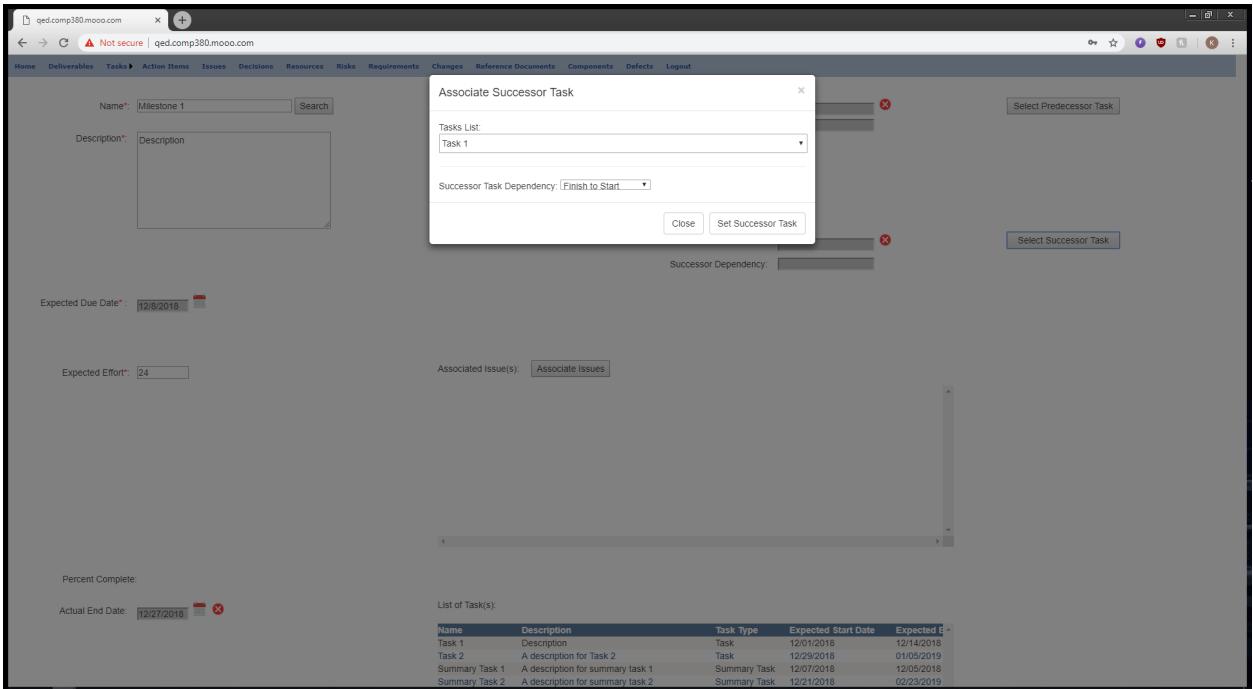
The user will have the option to create, retrieve, or delete a milestone.

3.4.11 Associate Predecessor and Successor Tasks to Milestone

This screenshot shows the same application interface as the previous one, but with a modal dialog box open over the main content. The dialog is titled 'Associate Predecessor Task' and contains a 'Tasks List:' dropdown menu with 'Task 1' selected. It also has a 'Predecessor Task Dependency' dropdown set to 'Finish to Start'. At the bottom of the dialog are 'Close' and 'Set Predecessor Task' buttons. The background of the main window is dimmed. The rest of the interface is identical to the first screenshot, including the 'List of Task(s)' table at the bottom.

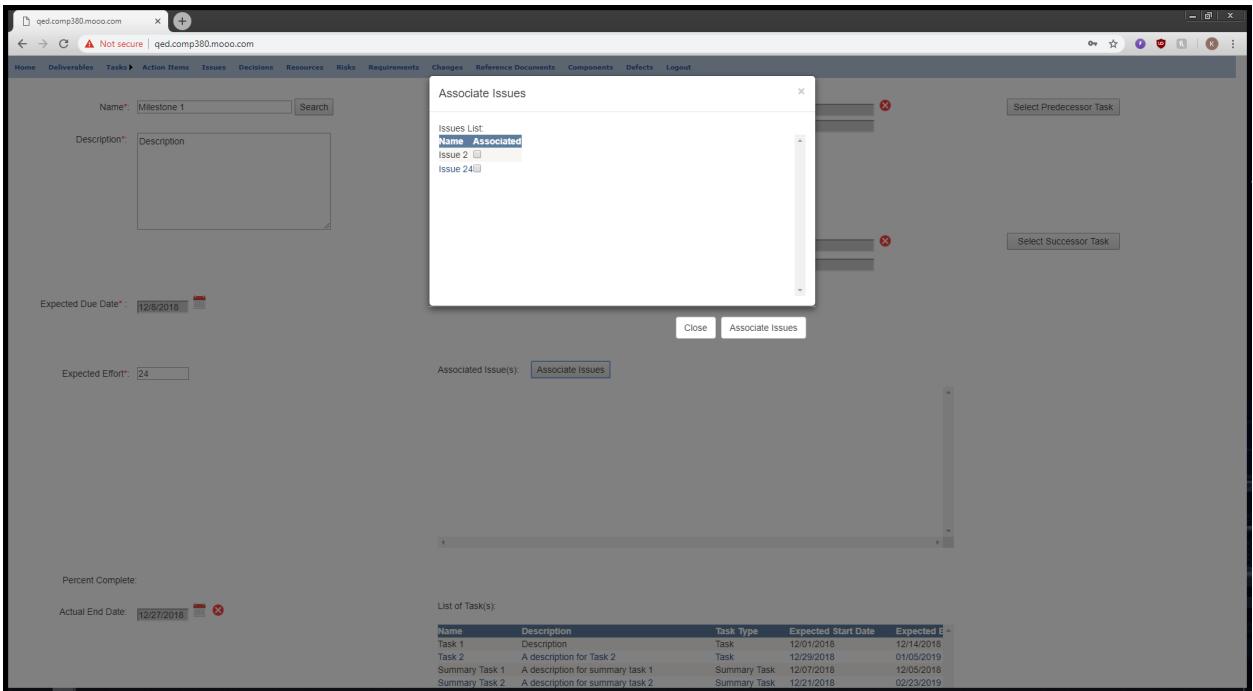
If the user selects the button to associate a successor task they will have the ability to se-

lect available tasks in a drop down list along with a dependency.



If the user selects the button to associate a successor task they will have the ability to select available tasks in a drop down list along with a dependency.

3.4.12 Associate Issues to Milestone



If the user selects the button to associate issues they will have the ability to select available issues in a grid and associate them to the current milestone. The associated issues will be displayed within the grid view showing all issues currently associated to the current milestone.

3.5 Issues

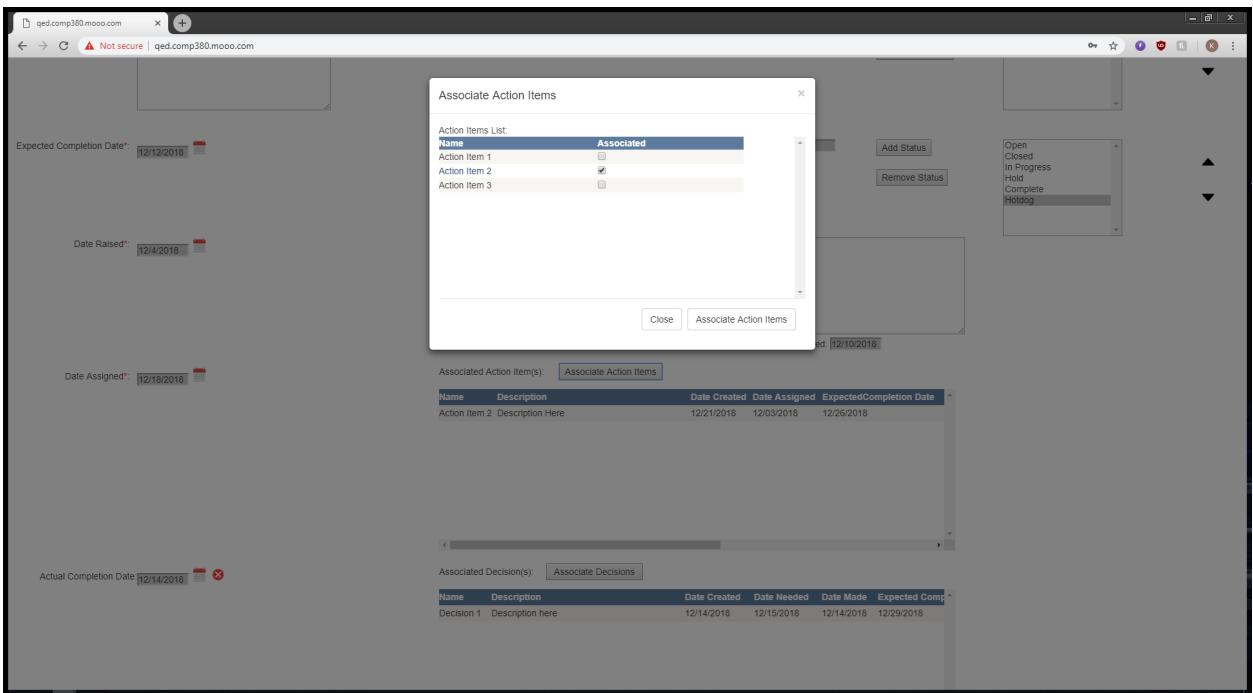
The image displays two screenshots of a web application interface titled "localhost:50041/ASPx DevIssues.aspx".

Screenshot 1 (Top): This screenshot shows the creation of a new issue. The "Name*" field contains "Issue 1" and the "Search" button is visible. To the right, there are buttons for "Add Severity" and "Remove Severity", and a dropdown menu listing "Minor", "Low", "Medium", "High", and "Critical". Below this, the "Description*" field contains "A description for Issue 1". To its right are buttons for "Add Priority" and "Remove Priority", and a dropdown menu listing "Open", "Closed", "In Progress", and "Hold". Further down, the "Expected Completion Date*" field shows "12/22/2018" with a calendar icon. To its right are buttons for "Add Status" and "Remove Status", and a dropdown menu listing "Open", "Closed", "In Progress", "Hold", and "Complete". The "Date Raised*" field shows "12/22/2018" with a calendar icon. To its right is a "Status Description" text area and a "Last Updated" field. At the bottom left is the "Associated Action Item(s):" field with a "Associate Action Items" button.

Screenshot 2 (Bottom): This screenshot shows the editing of an existing issue. The "Date Raised*" field shows "12/22/2018" with a calendar icon. To its right is a "Status Description" text area and a "Last Updated" field. The "Associated Action Item(s):" field with a "Associate Action Items" button is also present. At the bottom left is the "Actual Completion Date" field with a calendar icon. To its right is the "Associated Decision(s):" field with a "Associate Decisions" button. At the very bottom are three buttons: "New", "Delete", and "Save".

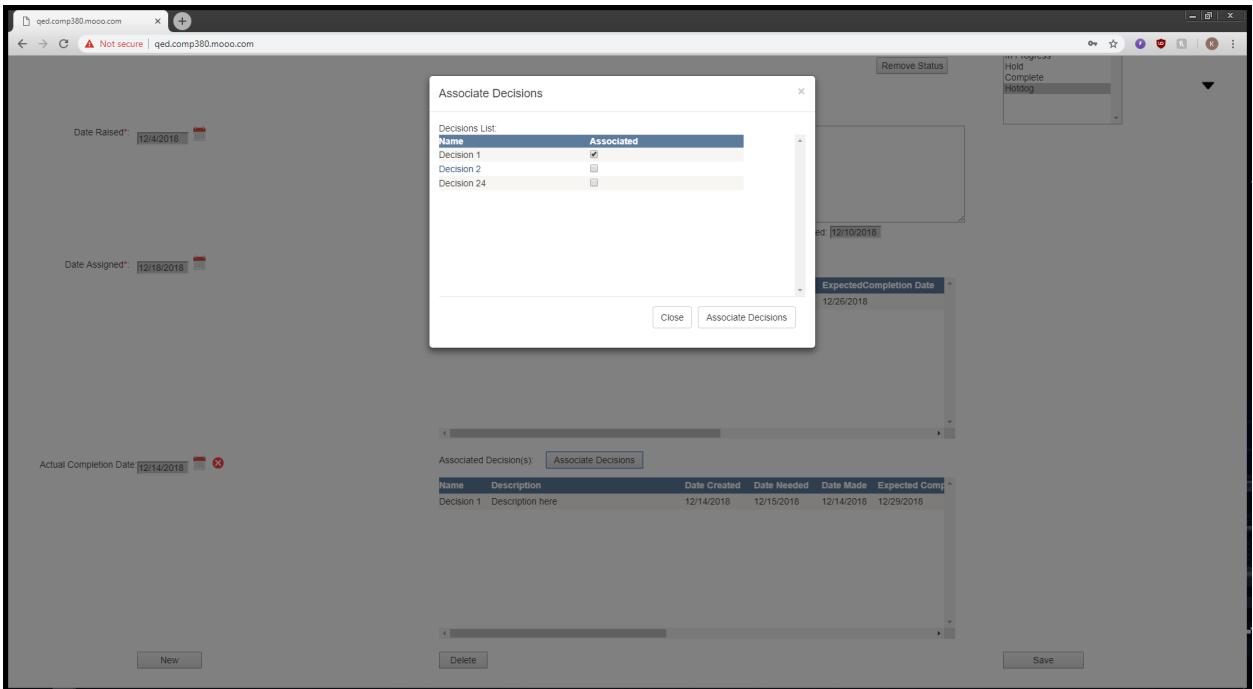
The user will have the option to create, retrieve, or delete an issue.

3.5.1 Associate Action Items to Issues



If the user selects the button to associate action items they will have the ability to select available action items in a grid and associate them to the current issue. The associated action items will be displayed within the grid view showing all action items currently associated.

3.5.2 Associate Decisions to Issues



If the user selects the button to associate decisions they will have the ability to select available decisions in a grid and associate them to the current issue. The associated decisions will be displayed within the grid view showing all decisions currently associated.

3.6 Action Items

The screenshot shows a web-based application interface for managing action items. At the top, there is a navigation bar with links for Home, Deliverables, Tasks, Action Items, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. The main content area has fields for Name (Action Item 1), Description (A description for Action Item 1), Date Created (12/15/2018), Date Assigned (12/15/2018), Status (Open/Closed/In Progress/Hold/Complete), Status Description, Last Updated, and a list of created action items. A modal window titled "List of Created Action Items" displays a table with columns: Name, Description, Date Created, Date Assigned, Expected Completion Date, Actual Completion Date, Status, Status Description, and Update Date. The table contains one row for "Action Item 1". Below the list are buttons for New, Delete, and Save.

The user will have the option to create, retrieve, or delete an action item.

3.6.1 Associate Resource to Action Item

The screenshot shows the same web-based application interface for managing action items. It includes a modal window titled "Associate a Resource" which lists resources with their names, descriptions, titles, skills, pay rates, available start dates, and available end dates. The modal also includes a status dropdown with options like Open, Closed, Pending, In Progress, Hold, and Complete. Below the modal is a table titled "List of Created Action Items" with columns: Name, Description, Date Created, Date Assigned, and Expected Completion Date. The table lists three action items: Action Item 1, Action Item 2, and Action Item 3. At the bottom of the page are buttons for New, Delete, and Save.

If the user selects the button to associate a resource they will have the ability to select an

available resource to assign to the current action item. The associated resource will be displayed within the textbox showing the name of the resource.

3.7 Decisions

The user will have the option to create, retrieve, or delete a decision.

Name	Description	Priority	Impact	Date Created	Date Needed	Date Made	Expected Completion Date	Actual Completion Date	Note Date	Status	Status Description	Update Date
Decision 1	A description for decision 1			1/5/2019	1/5/2019		1/26/2019	1/26/2019				

3.7.1 Associate Resource to Decision

The screenshot shows a web-based application interface for managing resources and decisions. A modal window titled "Associate a Resource" is open in the center. Inside the modal, there is a table titled "Resources List" showing five entries. Below the table are buttons for "Close" and "Associate Resource". Outside the modal, there are several input fields and status indicators:

- Date Created*: 12/14/2018
- Date Needed*: 12/15/2018
- Expected Completion Date*: 12/29/2018
- Actual Completion Date: 12/21/2018
- Date Made: 12/14/2018
- Decision Maker: Resource 3

Associated buttons include "Add Status", "Remove Status", "Associate Meeting Notes", "Associate Reference Documents", and "Save". A sidebar on the right shows a list of statuses: Bread, Open, Closed, In Progress, Hold, and Complete.

Name	Description	Title	List Of Skills	Pay Rate	Available Start Date	Available End Date
Resource 1	Description	Title No skills	24	12/06/2018	01/05/2019	<input type="radio"/>
Resource 2	Description	Title No skills	24	12/06/2018	01/05/2019	<input type="radio"/>
Resource 3	Description	Title No skills	24	12/06/2018	01/05/2019	<input checked="" type="radio"/>
Resource 4	Description	Title No skills	24	12/06/2018	01/05/2019	<input type="radio"/>
Resource 5	Description	Title No skills	24	12/06/2018	01/05/2019	<input type="radio"/>

Associated Meeting Note(s):

Last Updated Status: 12/10/2018

Associated Reference Document(s):

Last Updated Note:

List of Created Decisions:

Name	Description	Date Created	Date Needed	Date Made	Expected Com
Decision 1	Description here	12/14/2018	12/15/2018	12/14/2018	12/29/2018
Decision 2	Description here	01/02/2019	12/12/2018	12/21/2018	
Decision 24	Descr	12/28/2018	01/04/2019		12/19/2018

New Delete Save

If the user selects the button to associate a resource they will have the ability to select an available resource to assign to the current decision. The associated resource will be displayed within the textbox showing the name of the current associated resource.

3.8 Resources

The screenshot shows a web-based application interface for managing resources. The top navigation bar includes links for Home, Deliverables, Tasks, Action Items, Issues, Decisions, Resources, Risks, Requirements, Changes, Reference Documents, Components, Defects, and Logout. The main content area displays a form for creating or editing a resource. The form fields include:

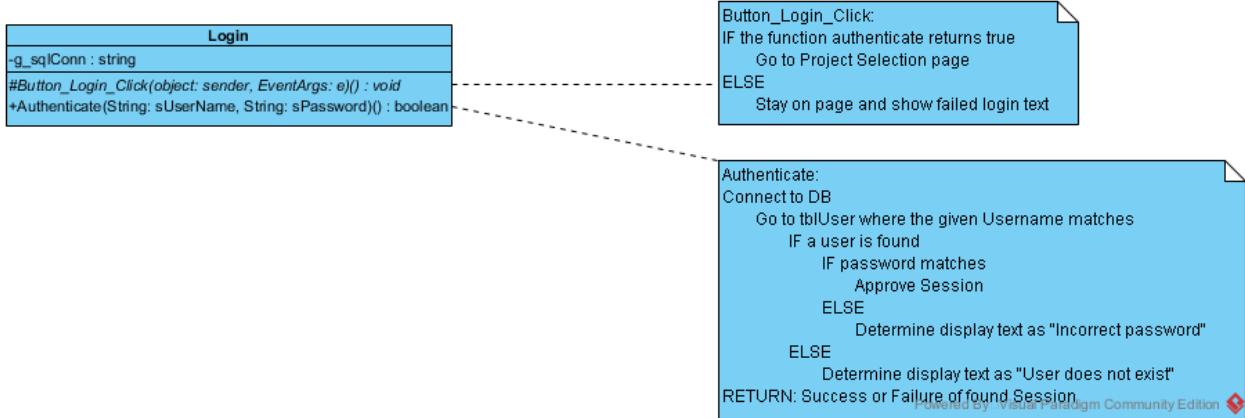
- Name*: Resource 1
- Availability Calendar: 12/7/2018 to 12/29/2018
- Title*: Resource Title
- Available Start Date: 12/7/2018
- Available End Date: 12/29/2018
- Description*: A description of Resource 1
- List of Skills*: List of skills corresponding to Resource 1
- Pay Rate*: 500

At the bottom of the form are buttons for New, Delete, and Save.

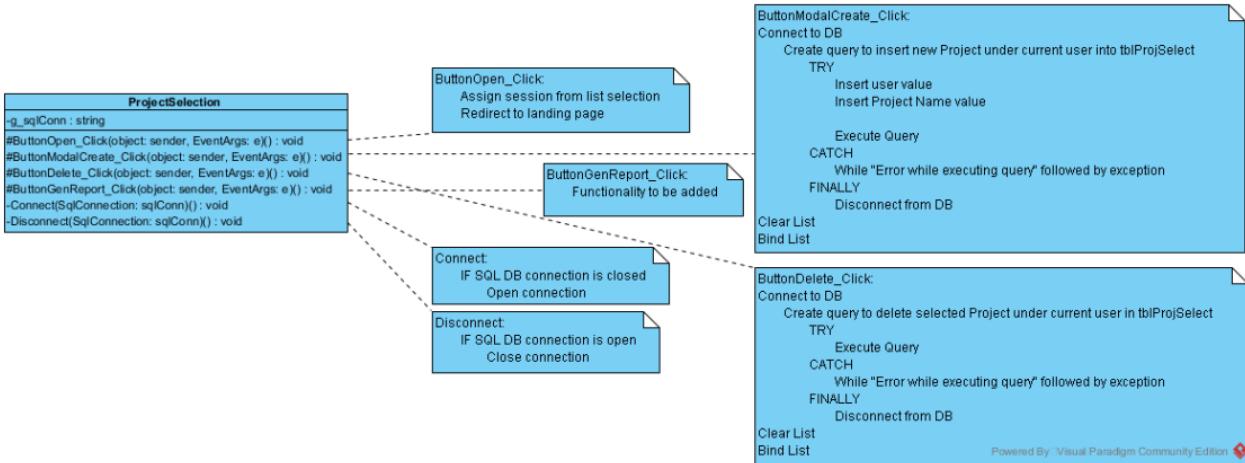
The user will have the option to create, retrieve, or delete a resource.

4 Detailed Design

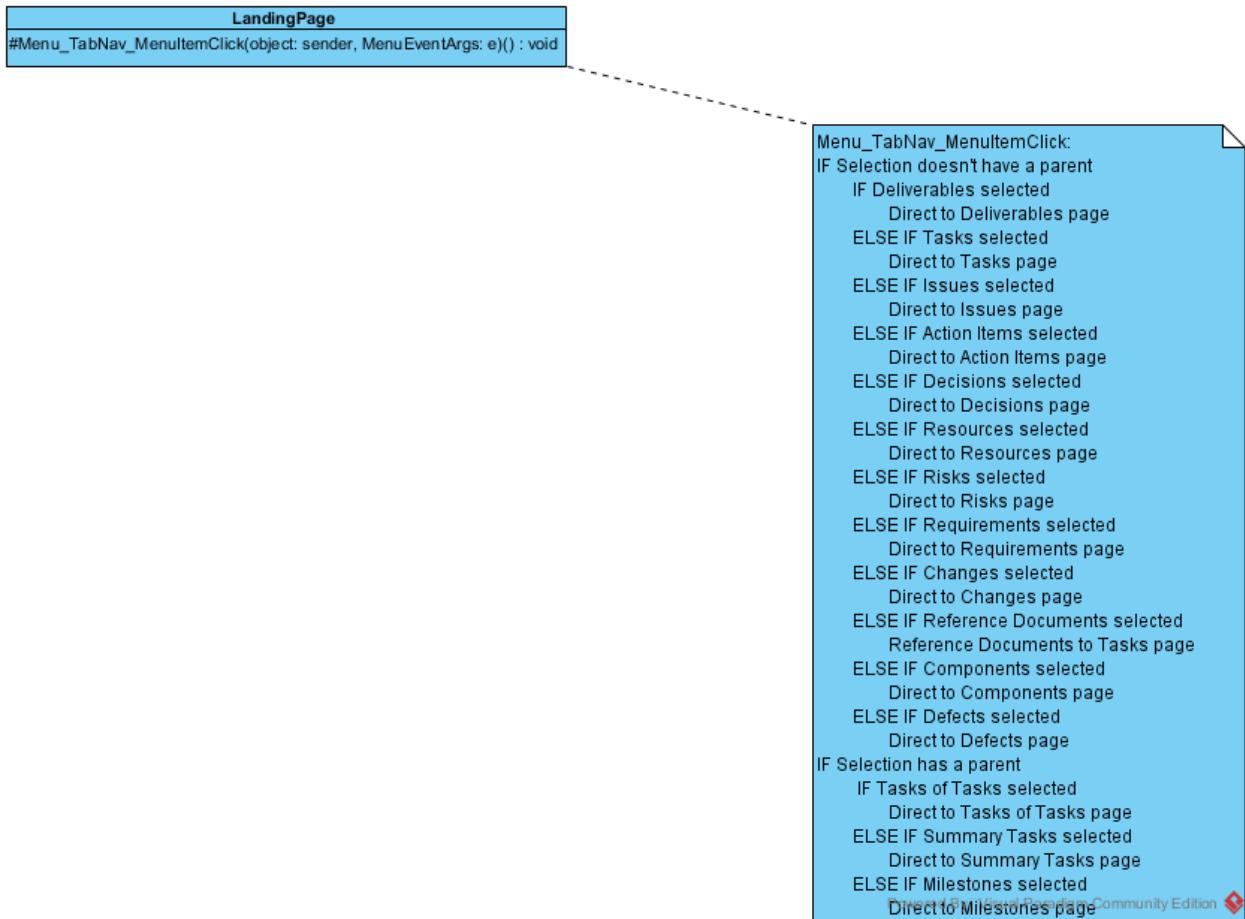
4.1 Login Class Diagram



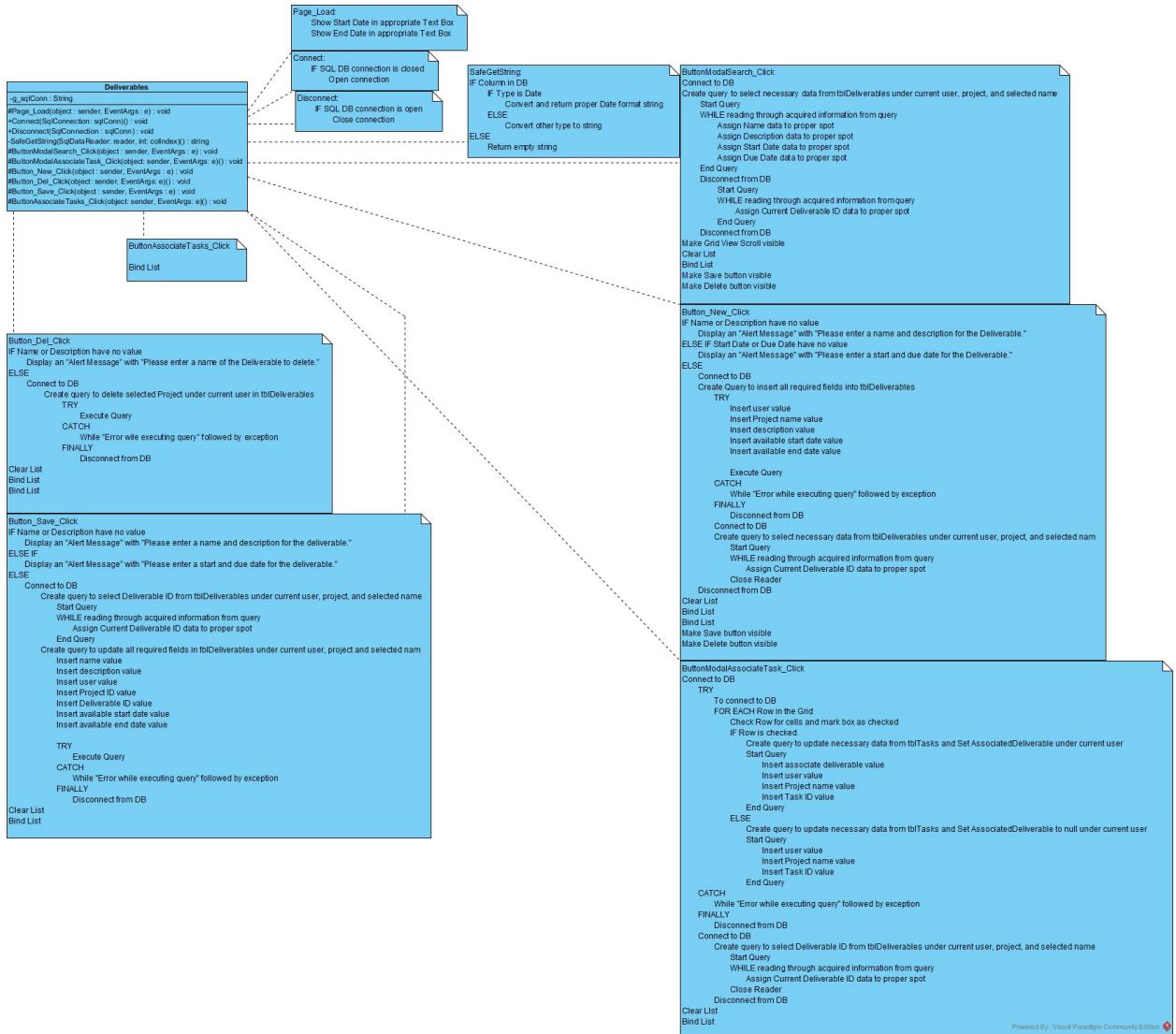
4.2 Project Selection Class Diagram



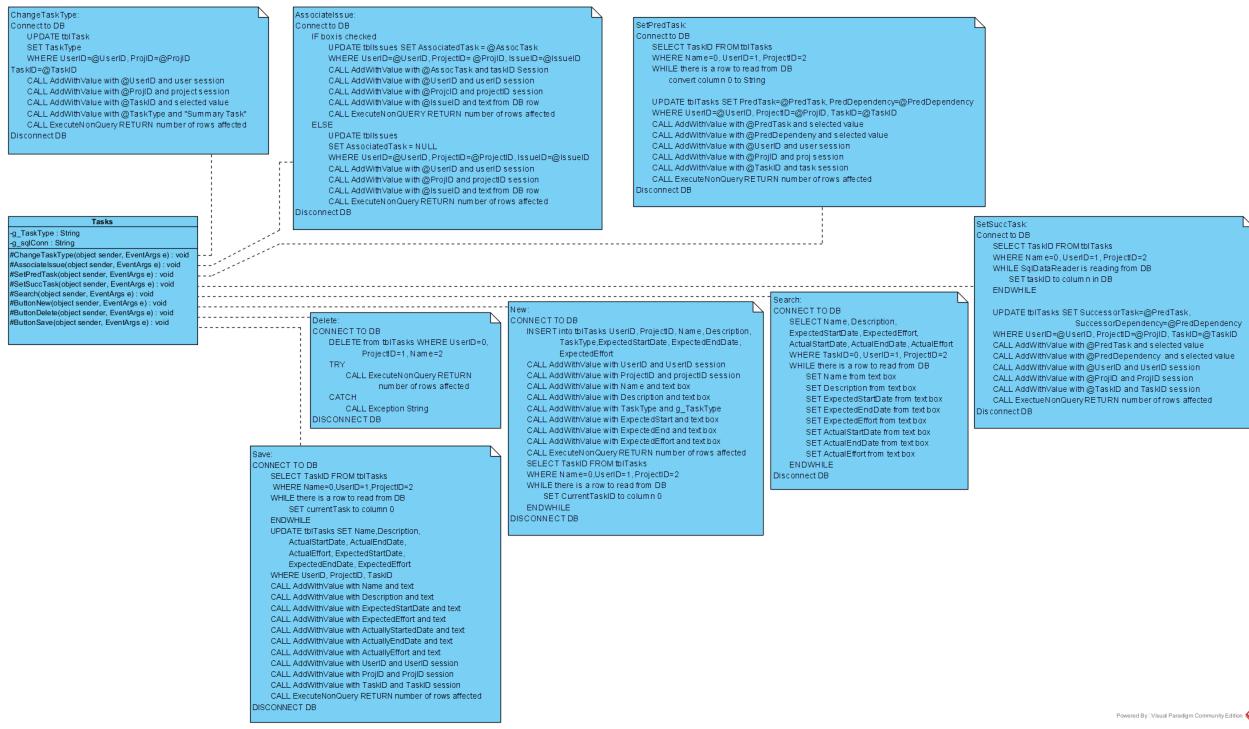
4.3 Landing Page Class Diagram



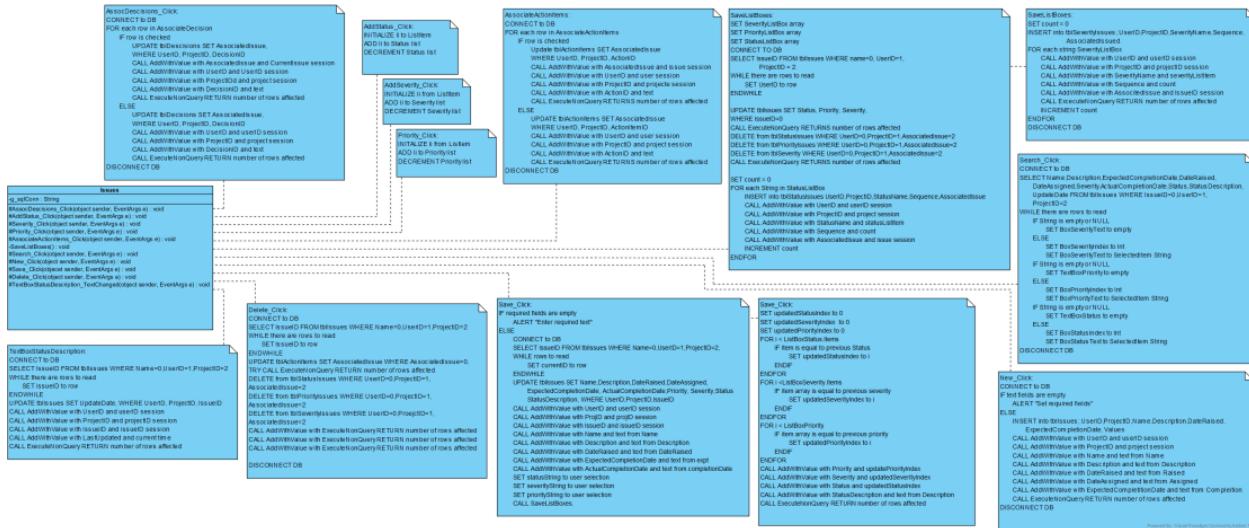
4.4 Deliverables Class Diagram



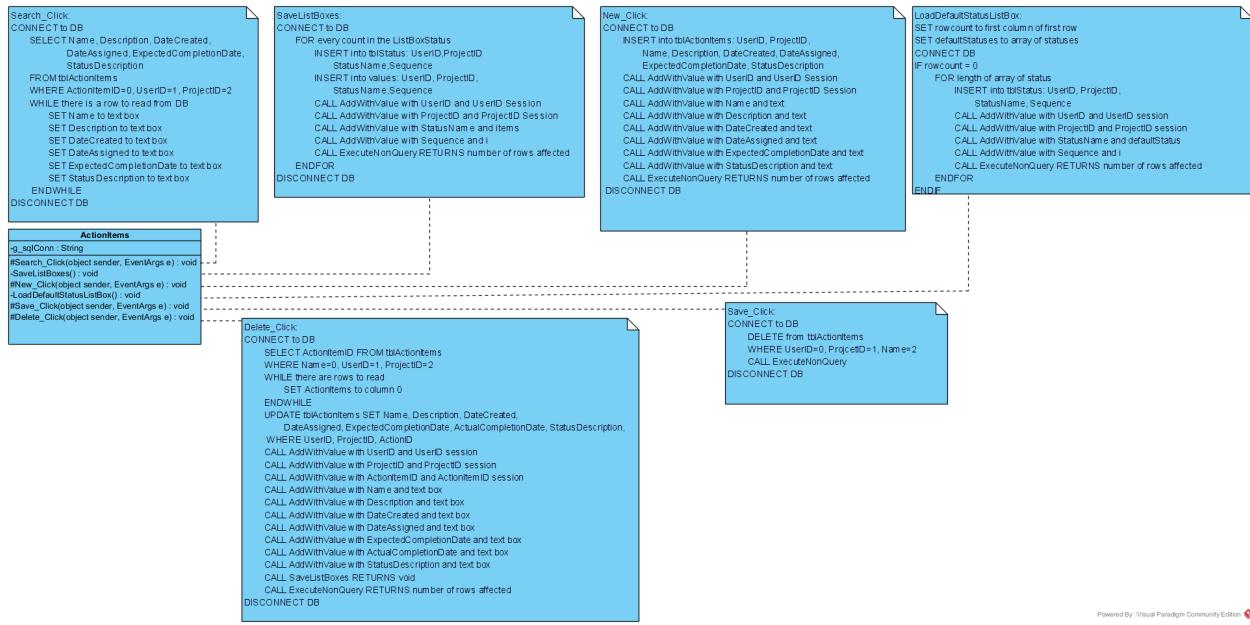
4.5 Task Class Diagram



4.6 Issues Class Diagram

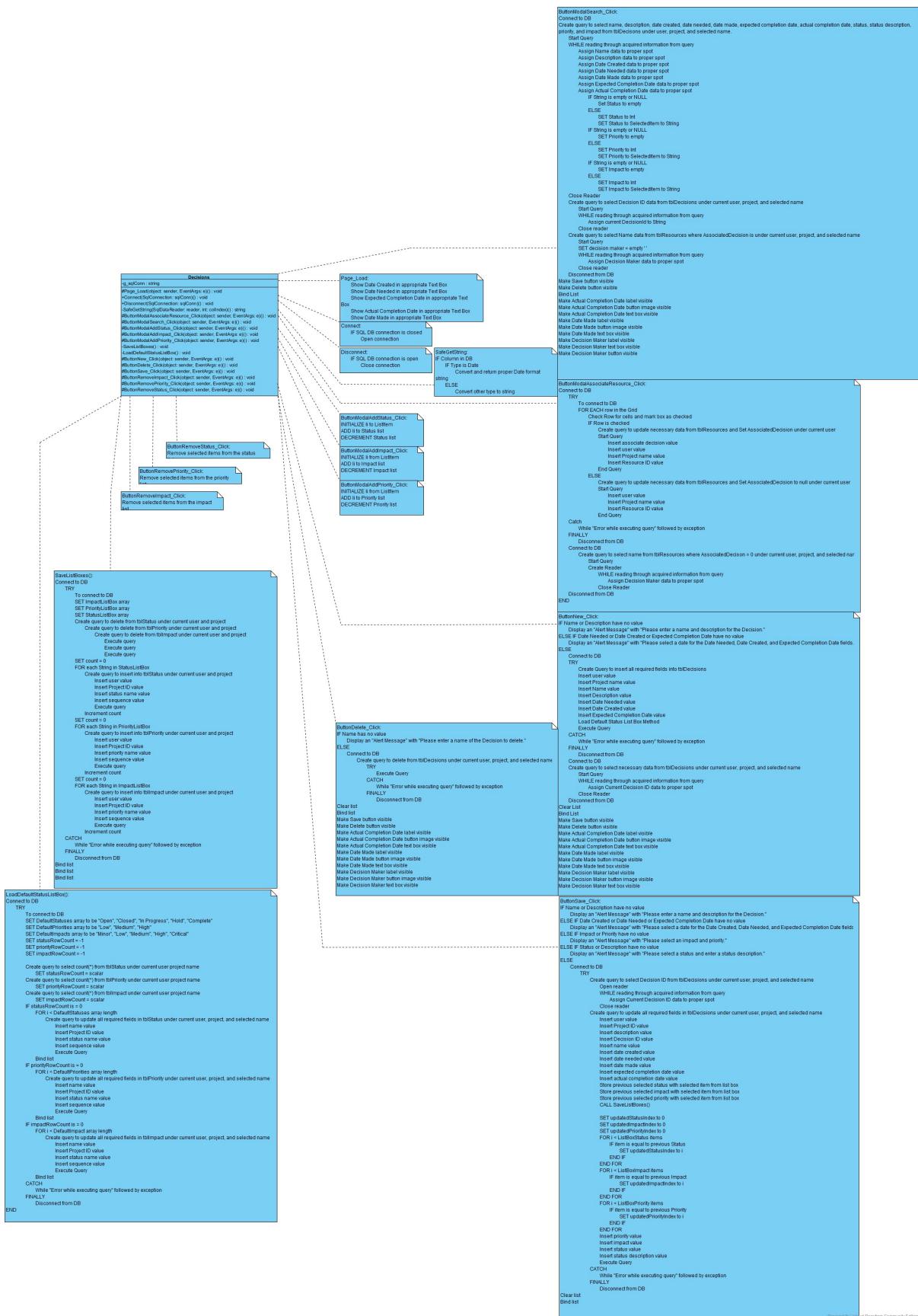


4.7 Action Items Class Diagram

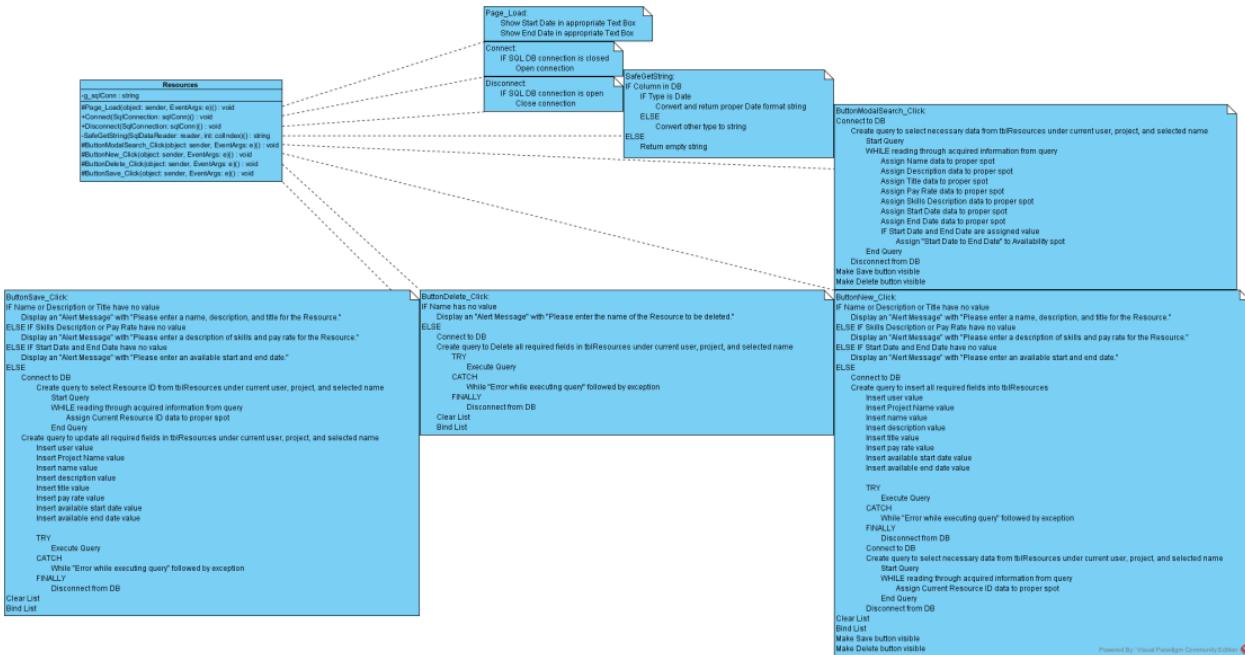


Powered By: Visual Paradigm Community Edition

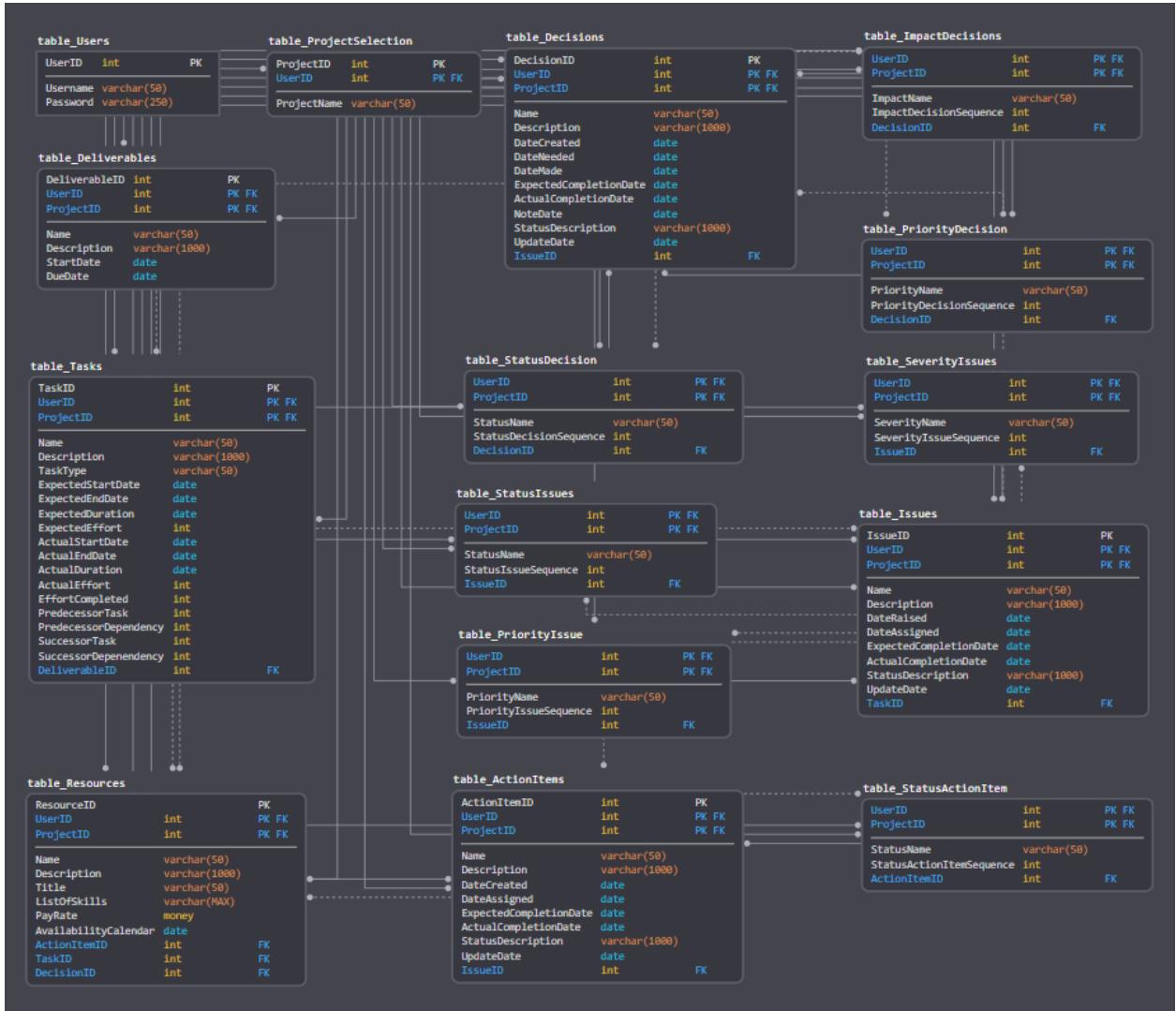
4.8 Decisions Class Diagram



4.9 Resources Class Diagram



4.10 Detailed Logical Database Design



The table relationships shown above are shown by solid or dashed lines. Connected tables are indicated from either a solid/dashed line to another table ending with a solid circle at the end. The solid relationships are strong relationships where the tables would not exist without the existence of the parent table. Weak relationships are represented by dashed lines which represent a one-to-many type of relationship. Above the horizontal bar of each table, the fields in blue are the strong relationships to the corresponding table's primary key. The fields in blue at the bottom of the horizontal bar of each table represent weak relationships meaning the table can exist without the creation of that table. Column names and their corresponding data type are represented next to each other as well as their foreign and primary keys which are denoted FK and PK respectively.

For example, the table decisions must have a UserID and ProjectID associated with it prior to creation which represents a strong relationship while the IssueID does not necessarily need to be created in order for a decision to exist. The column represents a foreign key to the table IssueID which is used for associating decisions to issues.

5 Test Cases

Test Cases				
Test Case ID	Requirements	Requirement Tested	Test Description	Expected Results
Deliverables-9 Deliverables-8	Deliverable	Creation	User interface test. Create a deliverable. Update a deliverable. Retrieve a deliverable.	A Deliverable is created. A Deliverable is Updated correctly, a Deliverable is Retrieved
Deliverables-6		Modification	User interface test. Test that a deliverable can be updated by updating certain attributes. Test that the Deliverable can be deleted. Test that a deliverable can be created.	Deliverables are able to be updated successfully, removed cleanly, and created without flaws.
Deliverables-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored.	Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Deliverables-3		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Deliverables-4 & 5		Due Date	User Interface Test. Tests that calendar defaults to the date of the most recent Deliverable. Test if the data makes logical sense.	Default date should match the previously used date. If the date is in the past, user will be warned.
Deliverables-6		List of Requirements	Test changes in Requirements and Deliverables.	Changes in the Requirements and Deliverables are updated and displayed on a table.
Deliverables-7		List of Tasks	Test changes in Tasks and Deliverables	Changes in the Tasks and Deliverables are updated and displayed on a table.
Tasks-11 Tasks-12 Tasks-14	Tasks	List	Test arbitrary attributes of a task.	Changes in attributes should update and be displayed in their respective data slot.
Tasks-19		Summary Tasks	Test various types of tasks. Test dependent task. Test independent tasks.	Summary task should decompose into other tasks
Tasks-22 Tasks-24		Dependent Tasks	Test if tasks associate between summary and dependent tasks	Tasks may only be 'completed' if the dependencies have been cleared. Attempting to clear a dependent task will result in an error that lets the user know which task has priority
Tasks-23		Milestone Task	Test that milestone task can be created and removed.	Milestone task can be created and removed
Tasks-25 Tasks-2 Tasks-22		Task Dependency	Test that Task can be created with attributes, non,Summary, and Dependencies.	Tasks can be associated to dependencies or summary. Tasks can be created. Dependencies can be removed with a warning.
Tasks-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored.	Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Tasks-4		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Tasks-15		Resource Assigned	Test that Resource can be associated and disassociated.	Resource is associated and disassociated successfully.
Tasks-5		Expected Start Date	Test a past date, a current date, and a future date.	Past and current dates should result in warnings. Future dates correctly assigned.
Tasks-6		Expected End Date	Test when Expected Duration is set and empty. Test when date is in the past.	When the date is in the past issue a warning. If the duration is set, date should be calculated correctly. If no duration just store it.
Tasks-7		Expected Duration	Test when expected Start and End date are provided and blank.	When Expected and End date are given, Duration is calculated correctly. If not provided, only save is required.
Tasks-8		Expected Effort	Test integers as a measurement of effort.	Integers should save when inserted
Tasks-11		Actual Start Date	Test the date is before completion	Date should be saved if no errors
Tasks-12		Actually End Date	Test the date is after beginning.	Data should be saved if no errors. If date is before start, warning displayed
Tasks-13		Actual Duration	Test when Start and Completion are included.	If Start and Completion are filled, Duration is calculated, otherwise just stored manually.

Tasks-10		Effort Completed	Test integers as measurement.	Integers should be saved
Tasks-14		Actual Effort	Test integers as a measurement of effort.	Integers should be saved
Tasks-24		Percent Complete	Test integer and when expected effort and effort completed are given.	Integer should be saved, When required data are filled it, automatically calculated.
Tasks-17		Predecessor Tasks	Test dependent task functions	Dependent Task is associated correctly
Tasks-22		Successor Tasks	Test independent task function	Independent Task is associated properly
Tasks-19		List of Issues	Test that changes in Issues display on Task page.	Changes on issues should be saved and displayed on Task page.
Tasks-18		Task Attributes	Test that task can be edited into other types of tasks.	Type of task is able to be manipulated
Tasks-19		Task Group	Test changes in Task Attribute	Changes in Task Attribute result in the display changing the arrangement of those tasks correctly.
Tasks-26		Gant Chart	Test the dates and effort, then open gant chart.	Gant chart should update when the allotted values are edited and saved.
Tasks-19		Task Display	Test various changes made to certain tasks.	All relevant information on tasks should be displayed and updated as soon as any change is made.
Issues-21 Issues-8 Issues-9 Issues-10	Issues	Creation	Create issues, Delete Issues, Update Issues	Creation of issues should result in a created issue, deletion in deleted, and updates should save
Issues-8		Attributes	Edit Attributes of Issues	Modification of Issues should update and save.
Issues-1 Issues-2		Modify	Test that Attributes of issues can be modified	Attributes of Issues can be modified and saved
Issues-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored.	Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Issues-3		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Issues-3		Priority	Test and modify various priority's of issues and the deletion of that priority.	Issue priority is modified and saved properly. Deletion of priority deletes priority of issue.
Issues-15 Issues-16 Issues-17		Severity	Test and modify various impacts associated to issues and the deletion of that impact.	Impact is modified and saved properly. Impact is also deleted accurately.
Issues-5		Date Raised	Test dates	Dates should be saved
Issues-6		Date Assigned	Test dates	Dates should be saved
Issues-4		Expected Completion Date	Test dates	Dates should be saved
Issues-7		Actual Completion Date	Test dates	Dates should be saved
Issues-8 Issues-9 Issues-10		Status	Test various types of status.	Various Statuses are saved to the Issue, can be modified by user or deleted effectively.
Issues-11		Status Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Issues-12		Update Date	Edit the Issue Status Description and various times.	When the Issue Status Description is edited, the Date is updated to the last time it was changed.
Issues-13		List of Action Items	Associate and edit action items	List updates when associated action items are associated or edited
Issues-14		List of Decisions	Associate and edit decisions	List updates when associated decisions are associated or modified
Action Items-6 Action Items-9	Action Items	Display	Edit action item attributes and names.	The calendar should update appropriately based on the changes made in action item attributes and names.
Action Items-17 Actions Items-18 Actions Items-19		Creation	Create, Update, and Delete Action Items	Action Items should be saved, updated and deleted properly.
Action Items-11 Actions Items-12 Action Items-13		Modification	Define certain attributes of Action Items	Attributes of Action Items are edited and saved
Action Items-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored.	Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Action Items-3		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Action Items-4		Date Created	Test dates.	Dates should be saved

Action Items-5	Date Assigned	Test dates.	Dates should be saved
Action Items-9	Resource Assigned	Associate resources to Action Items and modify Recourses.	Resource is updated and associated to action items
Action Items-6	Expected Completion Date	Test dates	Dates should be saved
Action Items-7	Actual Completion Date	Test dates.	Dates should be saved
Action Items-11 Actions Items-12 Action Items-13	Status	Associate each of the possible status types to a action item with no status and each other status.	Action Items should be properly labeled by each of the statuses or deleted if desired.
Action Items-15	Status Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Action Items-15	Update Date	Create a Status Description and Edit the Status Description	When the Status Description is created the Date should be that date. Whenever the Description is edited, the date will update to that date
Action Items-17 Actions Items-18 Actions Items-19	Modification	Define certain attributes of Action Items	Attributes of Action Items are edited and saved
Action Items-16	Display	Edit some of the attributed.	Attributes of Action Items are edited and saved and displayed in table.
Decisions-17	Decisions	Display	Edit action item attributes and names. The calendar should updated appropriately based on the changes made in Decisions and names.
Decisions-25 Decisions-26 Decisions-27		Creation	User interface test. Test the creation, updateability, and retrieval of Deliverable. A Deliverable is created. A Deliverable is Updated correctly, a Deliverable is Retrieved
Decisions-25		Attributes	User interface test. Test that a deliverable can be updated by updating certain attributes. Test that the Deliverable can be deleted. Test that a deliverable can be created. Deliverables are able to be updated successfully, removed cleanly, and created without flaws.
Decisions-27		Modification	Define certain attributes of Decisions Attributes of Decisions are edited and saved
Decisions-17		Table	Edit attributes of Decisions Attributes of Decisions should be updated saved and displayed.
Decisions-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored. Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Decisions-3		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501. When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Decisions-21 Decisions-22 Decisions-23		Priority	Test and modify varoious priority's of Decisions and the deletion of that priority. Decisions priority is modified and saved properly. Deletion of priority deletes priority of Decisions.
Decisions-18 Decisions-19 Decisions-20		Impact	Test and modify various impacts associated to Decisions and the deletion of that impact. Impact is modified an saved properly. Impact is also deleted accurately.
Decisions-4	Date Created	Test Dates	Dates are saved
Decisions-5	Date Needed	Test Dates	Dates are saved
Decisions-8	Date Made	Test Dates	Dates are saved
Decisions-15	Decision Maker	Associate a decision to a resource.	Resource becomes associated to decision and displayed
Decisions-6	Expected Completion Date	Test dates	Dates saved
Decisions-7	Actual Completion Date	Test dates, one instance where Action Item marked as complete.	Test date is saved or auto filled using known data accurately
Decisions-15	List of Meeting Notes	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Decisions-15	Note Date	Test dates	Dates are saved
Decisions-16	Note Modified	Modify meeting note and create meeting note.	When Meeting note created, the date becomes that of creation, otherwise updates to current date whenever modified.
Decisions-17	Reference Documents	Associate Reference Documents and edit documents.	Associated Reference Documents and changes are updated and displayed in a list
Decisions-10 Decisions-11 Decisions-12 Decisions-17	Status	Modify the Action Item Status to each of the possible Statuses. Delete the status.	Action Item Status updated to each possible status. The status gets deleted completely
Decisions-17	Status Description	Test dates	Dates are saved

Decisions-14		Update Date	Modify the Status Description and create a status description	When the description is created, updates to the date it was created. If the status is updated, date changes to date of modification
Resources-8	Resources	Display	Modify the resources associated, skills and tasks.	Resources should modify to the desired skill, task, and availability correctly then displayed
Resources-9 Resources-10 Recourses-11		Creation	User interface test. Test the creation, updateability, and retrieval of Resources.	A Resource is created. A Resource is Updated correctly, a Resource is Retrieved
Resources-11		Attributes	Define certain attributes of Resources	Attributes of Resources are edited and saved
Resources-13		Modification	User interface test. Test that a Resource can be updated by updating certain attributes. Test that the Resource can be deleted. Test that a Resource can be created.	Resource are able to be updated successfully, removed cleanly, and created without flaws.
Resources-1		Name	System Test. Will take some strings that are duplicated, valid and invalid characters and check if they are stored.	Strings that violate the alphanumeric rule will result in error message as well as duplicated strings.
Recources-3		Description	Equivalence test. Insert random data into the textbox of size 0, 500, and 501.	When 500 or less characters are inserted, the data is stored, otherwise any user is warned and no data is saved.
Resources-5		List of Skills	Test values or skills	Skill value saved
Resources-7		Availability Calendar	Test series of dates.	Dates should be saved if no interference occurs. Interference is blocked by the calendar by blacked out dates
Resources-6		Pay Rate	Test double values.	Double values saved
Availability-1	Non-Functional	Availability	Test hours of operation. Change working hours.	Software should be operational on desired times configured in the data.
Auto-save management - 1		Auto-save management	System shall save users data at a frequency set at the backend. Test different frequency settings.	System should be saving to a backup file while the user is using the software.
Capacity -1		Capacity	Test capacities of at least 30,000 in data storage.	All data should be stored and easily accessible as larger data is saved.
Communication -1		Communication	Servers should be able to communicate all users within seconds of new information updates	Any update from one user should appear to another user within seconds
System failures -1		System failures	System will be overloaded until crashed causing a system reboot	After reboot is done, system and all of its information will be loaded without any data loss
Security -1		Security	Test basic malware software towards the system	System shall not have any accesible memory to outside software.
Log In - 1	Login	Usernames	Test for duplicate usernames in the database	Duplicate usernames shall not be permitted to create
Log In - 2		Passwords	Password creation will have minimum creation requirements	Passwords must meet the creation requirements
Log In - 3		Logging in	A valid username and password must be present to log into the system	A valid username and password will give access the the system and its documents

6 Requirements Cross Reference Matrix

Please reference the RCRM.xlsx attached.

7 Code

The ASP.NET and C# code is within the repository ***Project-Management-System*** under the folder ***380 Project 3 / ASPX Dev***. There you will find the ***.aspx*** pages as well as the ***.cs*** files. The database schema is in the root folder under the name ***Project DB Release*** followed by a version number, the latest number is the most updated database schema.

GitHub Repository: <https://github.com/ktno43/Project-Management-System>

7.1 Project Testing

For the most optimized use please use Google Chrome as your web browser when viewing the Project Management System. For the most part the website will be online and functional until a grade is given for the project or if you need it for further testing. If for any reason the website is down you can email me at kyle.nguyen.442@my.csun.edu

Project Website: <http://qed.comp380.mooo.com/>

Backup Project Website: <http://104.173.20.49:81/PMS/>

7.1.1 Login Credentials

The following accounts have been provided to you for testing. *The password is case sensitive.*

Username: Larry

Password: Comp380

Username: Stein

Password: Fall2018

7.1.2 Non-Functional Areas

1. Generate Reports (Not required for project 3)
2. Landing Page (Not required for project 3)
3. Associated Requirements on Deliverable's page (Not required for project 3)
4. Gantt Chart on Task's/Summary Task's/Milestone's page (Unable to develop)
5. Group Tasks on Task's/Summary Task's page (Not enough time to finish development)
6. Associated Meeting Notes on Decision's page (Not required for project 3)
7. Associated Reference Documents on Decision's page (Not required for project 3)