kernel

Technical Manual

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1.0. System Background

This section provides information regarding the system and the basic requirements needed for it to function as expected. The section includes a brief discussion of the system, hardware and software specifications, and simple installation instructions.

1.1. Brief Discussion of the System

Kernel is a web-based project management system especially made for Taters Enterprises, Inc. (TEI) whose main objective is to serve as a main tool for monitoring and updating projects in the project management process of the company. It will be accessible by all seven (7) of TEI's departments, Human Resource, Facilities and Administration, Finance, Management Information Systems, Procurement, Marketing, and Store Operations, as well as the company's Executives. The system has four (4) modules namely, Project Initiation and Planning, Project Monitoring, Project Control, and Project Closing. The structure and formation of the modules are modeled to reflect the project management life cycle. The functions for each module are segregated as follows:

Project Initiation and Planning	Project Monitoring	Project Control	Project Closing
• Project Profile • Project Templates • Scheduling • RACI Chart • Gantt Chart • Workload Assessment	• Task Prioritization • Project Progress • Document Tracking • Team Gantt Chart	• Request for Change • Performance Assessment	• Report Generation • Project Archives

Kernel Modules and Functions Table

The system was developed using the core web programming languages, PHP 5, HTML, CSS, and JavaScript. Other various tools used were CodeIgniter for the MVC framework, Bootstrap for the user interface, MySQL for the database, Atom as the main editor, and GitHub for versioning and collaboration.

1.2. Hardware Specifications

The minimum requirements in order for the system to run smoothly are as follows:

User

- Desktop Computer with Keyboard and Mouse / Laptop
- Processor: Dual Core 1 Ghz
- RAM: 1GB
- Disk Space: 1 GB

Server

- Processor: Quad core 2 Gz
- RAM: 5 GB
- Storage: 10GB

1.3. Software Specifications

The system can be accessed through the Internet ensuring that the device accessing it from has the following requirements in order for the system to run smoothly:

User

- Operating System
  - Windows 7 and above
  - MacOS El Capitan and above
  - Ubuntu 14.04 and above
- ISP Web Browser
  - Internet Explorer 8+
  - Safari 9+

        - Firefox 38+
        - Chrome 45+
        - Opera 30+
    - MySQL Community Server (8.0.13)
        - https://dev.mysql.com/downloads/mysql/
    - MySQL Workbench (8.0.13)
        - https://dev.mysql.com/downloads/workbench/
    - XAMPP (5.6.38)
        - https://www.apachefriends.org/download.html

1.4. Installation Instruction

Kindly refer to the Installation Manual.

2.0. System Conceptual Design

This section describes the overall design of the system in terms of user interface, database, and process. It is divided into subsections where the significance of the various elements and the rationale on designing it in the manner presented will be discussed.

2.1. Screen Design

Layout Guidelines

The general layout of the system consists of a top navigation bar, a left collapsible sidebar, the overall working area, as described by the developers, at the right side of the screen, and a footer at the end of each working area which is not affixed.

The navigation bar is placed at the top as it is where the basic elements are placed, such as the name of the company, which also redirects to the dashboard upon clicking, the list of tasks assigned to the user, the list of notifications tagged to the user, and the user pane where he/she can either change their password or log out of the system.

The sidebar is located at the left to have balance towards the user pane's functionality as to avoid overlapping. Some, two (2) to be exact, sidebar elements can be expanded to view more categories that fall under the specific element. Each sidebar element, loads a different working area.

The, so-called, working area is where the different elements of a web page can be viewed, accessed, and manipulated. It is mainly where all the user interaction occurs. Each page has the current date affixed at the top right of the container to aid the users in making date and schedule estimations; this is also present in every page once the user logs in. The pages have a page header indicating the current web page the user is in. Alongside the page header is the tooltip which is placed next to the header, in a smaller and more unnoticeable style as to not draw too much attention from it, to simply act as added information on what the user can do in the current page. After the header, the necessary elements for the sidebar element selected is displayed. Majority of the data is portrayed in a table which is placed in a box element for added separation to easily be distinguished. For the table data, data with constant lengths, such as dates, statuses, and numbers are center-aligned while data with varying lengths are left-aligned; the table headers are also affected by the alignment. Each table row that contains task details have a color at the leftmost side to indicate the status of the task (Each color will be discussed in the latter section, Color Scheme Guidelines).

All buttons trigger a pop-up window, or a modal as described by the framework. Each pop-up has a close button, which is identified with an "X" mark, located at the right if there is no other button present, and to the left if there is another button in the pop-up. The pop-up title or header can either be the function of the button or the task's title and duration.

The system alerts appear after every action and is located at the top-middle area of the working area. The alerts are generally identified by a successful or failed request, with a green or red background and text respectively. The text within an alert indicates the action done and whether it was performed successfully or not.

Font Guidelines

The chosen typeface that was applied all throughout the system is called "Source Sans Pro". It is an open-source font family with a sans serif typeface. It was chosen mainly for its simplicity, readability, and accessibility. A sample of the typeface is as follows:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

0 1 2 3 4 5 6 7 8 9 0 (! @ # $ % & * . , ? : ; - + /)

Source Sans Pro Sample

The different font variations of the typeface resemble the use and importance of the word/phrase on a certain page. Bold fonts with a regular size is used for table headers. Italicized fonts with a regular size is used as a section divider. In one instance, a regular sized strikethrough is used in portraying initial data that is to be overridden. This is illustrated as follows:

Regular

Page Header **Table Header**

Section Divider ~~Previous Data~~

Font Sample

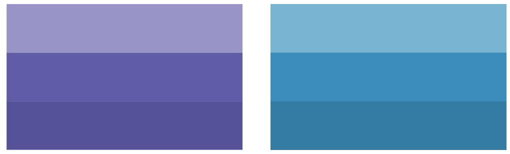
Color Scheme Guidelines

The main color scheme of the system is inspired by the colors from the logo of Taters Enterprises, Inc. (TEI), which are red, black, and white. The background of the working area is in a white to light gray shade in order for the foreground elements to be elevated, instead of a simple white background. The frame of the system is in red to highlight the essence of TEI, while the text is mainly in standard black. The main elements of the system are kept neutral due to the fact that the system utilizes a number of colors which resemble a status which is present in majority of the web pages. There are four (4) status colors spread throughout the system. Aside from the stoplight colors, red, orange, and green, teal is also used.

Main Status Colors

Red denotes a negative action, which is why it is correlated to the delays to catch the user's attention as it is widely known to stand out among other colors. Orange is used for projects that are in the planning stage or tasks that have not yet begun. Green is used for positive action, and for ongoing tasks and projects, as it implies there is no problem occuring and is happening on schedule. Lastly, teal is used to mark completeness in terms of projects and tasks as it is a color that represents wholeness and peace, peace of mind that something has been accomplished.

There are also some accessory colors, such as purple which is used for templates, as it symbolizes creativity and fulfillment in completing a project that performed well enough to meet certain standards with the intent to be modeled after for future projects to come. Different shades of blue are also used to resemble addition of elements and to symbolize depth.



Accessory Colors

Consistency Guidelines

Following the consistency of the general layout of the system, and accompanied by the colors, affect the overall cleanliness and organization of the system. There are different aspects wherein screen design consistency can be identified. To begin, the color scheme is present in all the web pages which gives the user an impression that he is using a certain system and he is not bouncing in and out of systems. The system has diminishes the overall color scheme on pages with restricted access, which would prompt the user to return to the previous page or log in. Once the user logs in the system, he/she is greeted by a beaming red to symbolize TEI. The status colors are also used for projects, tasks, actions, and alerts to be able to leave a lasting mark on the users which in time they will not have to rely on a legend. The meaning of the basic stoplight colors are also consistent with its universal meaning, which makes it easy to understand and remember.

The button sizes, placement, and color generally present consistency, with a slight differentiation depending on its use. Each button are sized according to the length of the element within it. Aside from that, they also have added depth and provide tooltips on mouse hover. Tooltips are only missing for buttons with text included as it is deemed to be an overkill if tooltips were still added. The positioning of the buttons on pop-ups are either right-aligned for single buttons, or balanced on both sides for two (2) buttons. There is a maximum of two (2) footer buttons per pop-up. The colors are also applied wherein green is applied to positive actions, red is applied to negative actions, and orange is applied to risk-causing actions.

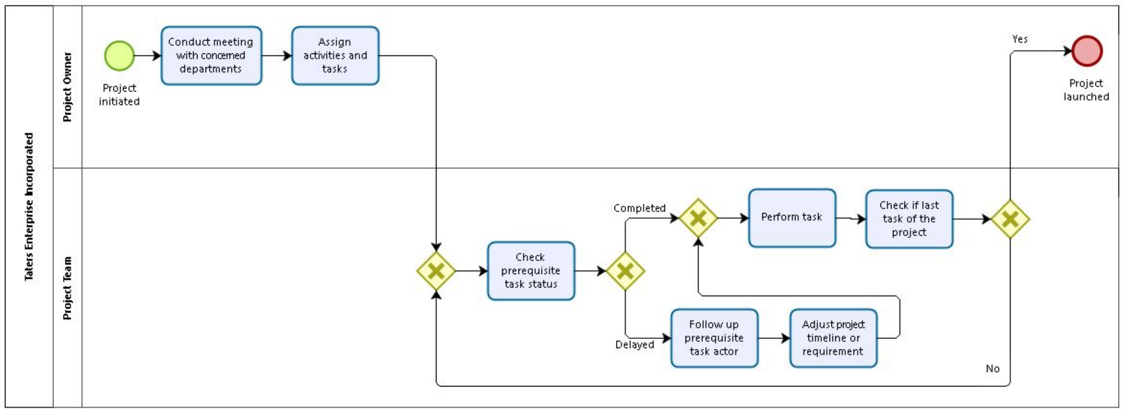
The typography resemblance, as discussed, applies to all pages, and the system uses a singular typeface for added uniformity. The text colors were kept to the standard to give way for the other colors of the system and to allow the overpowering color of red to resonate through the entire system. The spacing of the elements are fixed according to the framework's, AdminLTE, default classes and styling. The only time it is overridden, specifically styled with smaller gaps, is in reports to maximize the printable area.

Navigation Guidelines

The main system navigation is via the sidebar, which is located at the left, as the users generally read from left to right. With this in mind, the users' view flow will always pass by the sidebar as a reminder that there is a variety of pages one can explore to. The length of the sidebar is fixed to the size of the web page, while its visibility is upon user preference. It can be collapsed to allow space for a larger working area, which is can appear/disappear on button click, with the menu icon of three horizontal lines, or on mouse hover.

The developers made it a point to provide the users the ability to move forward or backward, as necessary, through the system and not through browser buttons. There is no forward button denoted by a simple right-facing arrow because it is expected that each button will either forward to another page or fulfill an action in the current page. With that being said, only "Back" buttons, or left-facing arrows can be seen in the system. These navigation buttons are using the default button color of gray. They also have tooltips indicating where it leads. Its placements is always on the top left side of the working area, just above the page header, as one would expect to find it. For modules with a step-by-step process, the buttons leading to the next step is placed at the bottom right of the screen or pop-up to create a proper flow.

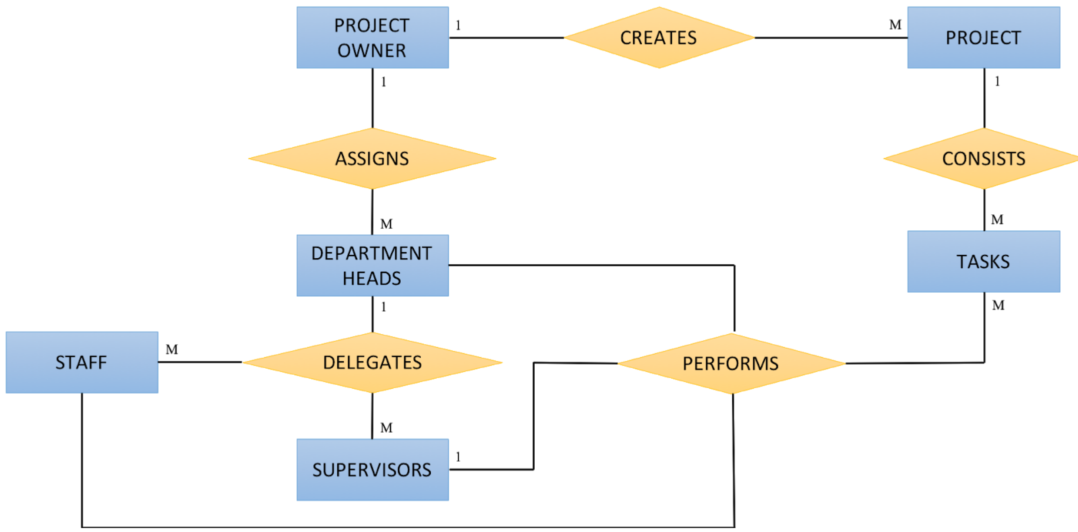
2.2. BPMN



Project Management BPMN

The general project management process is composed of 2 actors, namely the project owner and the project team. It starts when a project is initiated by the project owner, which then calls for a meeting with the project team. During the meeting, they identify which departments should be assigned to an activity and task. It is then delegated to the team performing the task. Before performing the task, they first check the status of the pre-requisite task, if it is delayed, they notify the pre-requisite actor, and adjusts the timeline and requirement. Once the pre-requisite has been completed, they then proceed to performing the task. Lastly, it checks if it is the last task of the project, if it is not, it goes back in a loop until it is. Once the last task is marked complete, it then marks the project complete as well.

2.3. Entity-Relationship Diagram (ERD)



Entity-Relationship Diagram (ERD)

The entity-relationship diagram mainly portrays the movement of the main users/actors to kickstart a project. The blue rectangles represent the actors, the yellow diamonds represent the action being done, the black lines connecting each element represents the relationship, and the type of the relationship is determined by the indicator next to the blue rectangle, whether it is “1” for one entity or “M” for many.

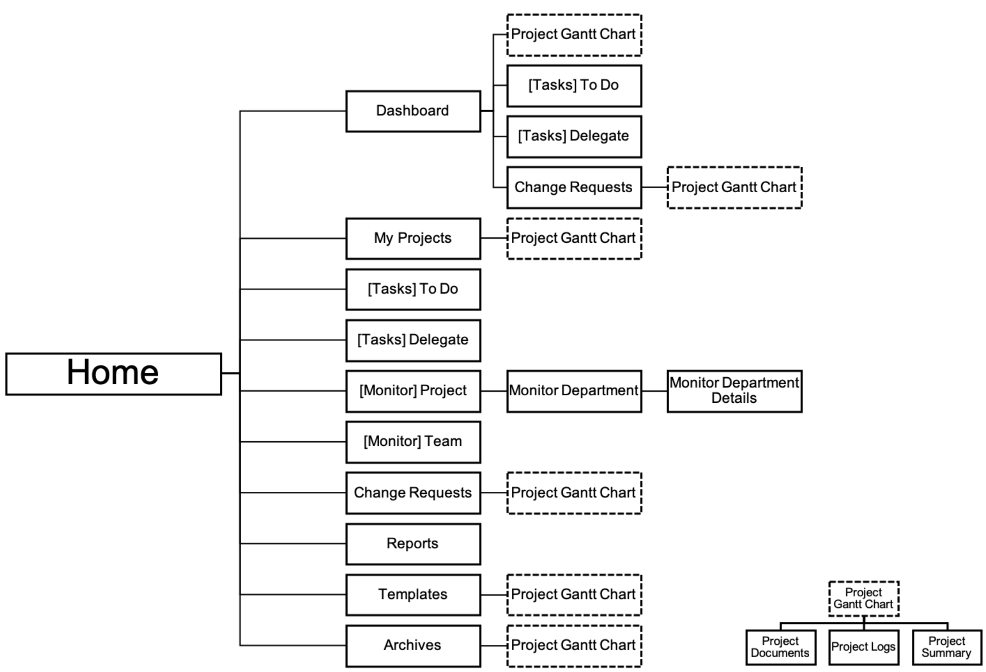
The entities involved are the main users and actors of the system, namely, the project owner, department heads, supervisors, and staff. Each user/actor is also related to each other wherein a department head manages a group of both supervisors and staff, a supervisor manages a group of staff assigned under him, and a project owner may either be a department head or a supervisor. The project owner, although may be either of the two pre-existing actors, is its own element since it has special capabilities and functions that are specific to a project owner, as compared to that of a department head or a supervisor.

The actions are focused on the creation of the project wherein the entirety of the monitoring and controlling would depend. The process begins when a project owner creates a project, a project consisting of tasks, specifically the main activities, sub activities, and tasks. The project owner then assigns a department to each activity or task. By selecting a department, the system forwards it to a department head, which explains the relationship as portrayed. The department head now has the freedom to further delegate the task given to him/her by a department head to a staff that he/she supervises, or to accept the task and perform it himself/herself. The staff member simply has the ability to accept and perform a task, along with the department heads and supervisors.

3.0. System Specifications

This section discusses the overall system in terms of structure, screens, modules, forms, and reports. Through this, one can visualize the system and how it functions by referring to the screens provided.

3.1. Site map / Screen Flow



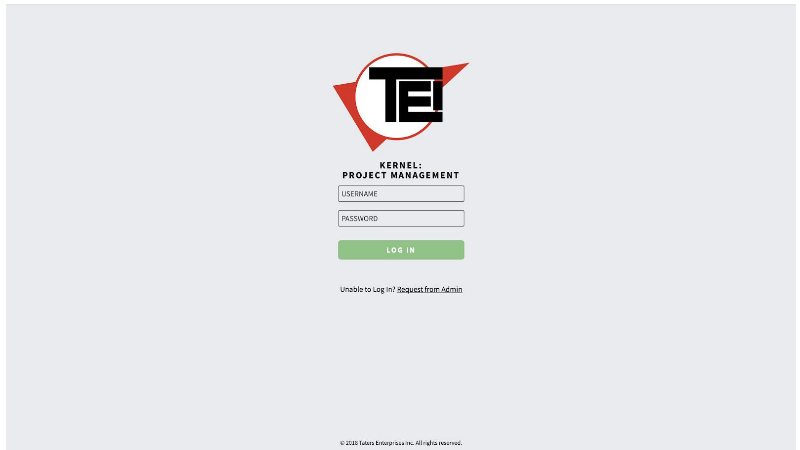
Site Map

The system begins at the login page or the "Home" as indicated in the site map illustrated above. It then leads to the dashboard as default which has a sidebar that has access to My Projects, Tasks which can contain To Do and Delegate or simply just To Do, Monitor which can contain Project and Team, Change Requests, Reports, Templates, Archives, and, again, Dashboard. Half of the sidebar elements may have access to the Project Gantt Chart which then opens access to the Project's Documents, Logs, and Summary Report, as indicated at the bottom right of the site map. Each page also consists of a back button to return to the page they came from.

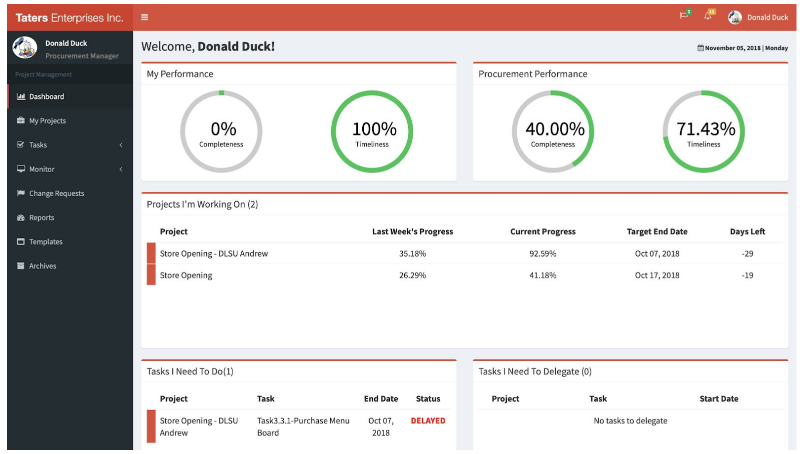
3.2. Screen Specifications

This section identifies the screen details alongside the corresponding description and use of the web page. The established design strategies can be seen in each screen.

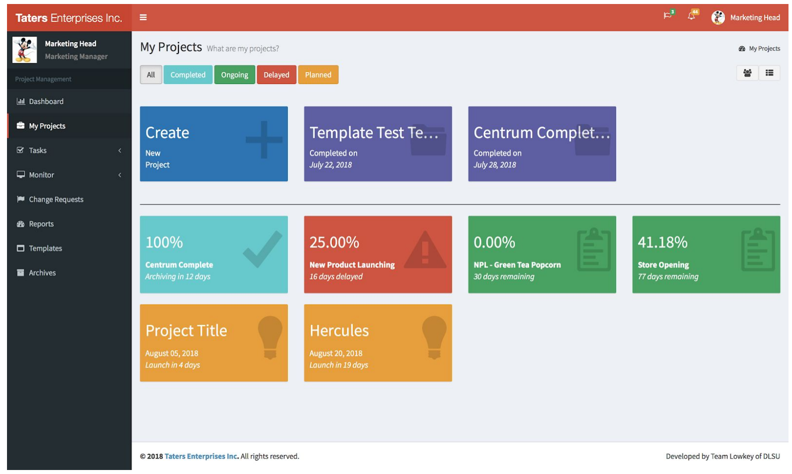
Reference No.	S-00
Name	Login Screen
Description	This screen is for login and it validates the user logging in, as it checks if the user is providing the correct username and password for their account. It also checks the usertype of the person logging in. It redirects to the user's home screen once the login was validated.
File Name	login.php
Users	All Users
Elements	Email Textfield, Password Textfield, Login Button, Request Login Link
Actions	Login

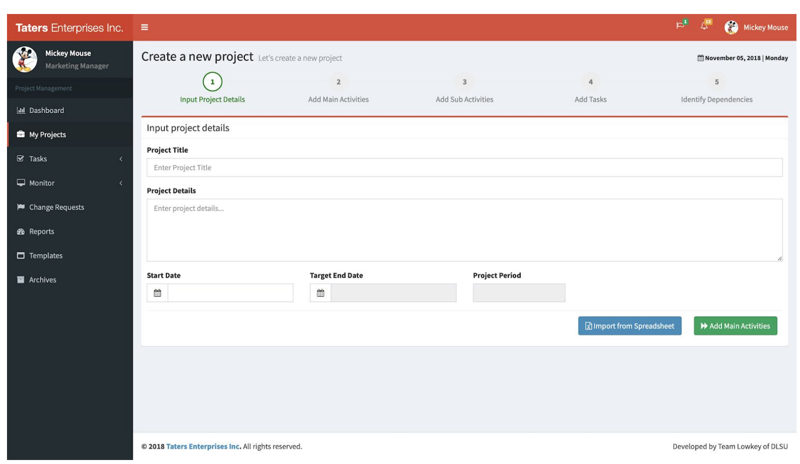
Layouts	

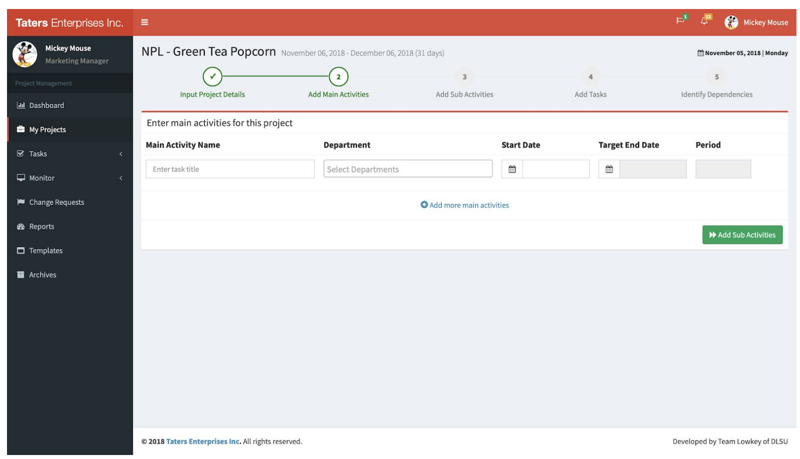
Reference No.	S-01
Name	Dashboard Screen
Description	This page will show the user's performance, as well as, the performance of the team they belong to. It will also show all projects that the user is currently working on and tasks assigned to them that are already delayed and will end in 2 days. Activities that also needs the user's action such as delegating tasks, approving requests, and acknowledging documents can also be seen in this screen.
File Name	dashboard.php
Users	All Users
Elements	Personal Performance Div, Department Performance Div, Ongoing Projects Div, Tasks To Do Div, Tasks to Delegate Div, RFC Div, Document Acknowledgement Div
Actions	Navigate to different web pages in the system

Layouts	

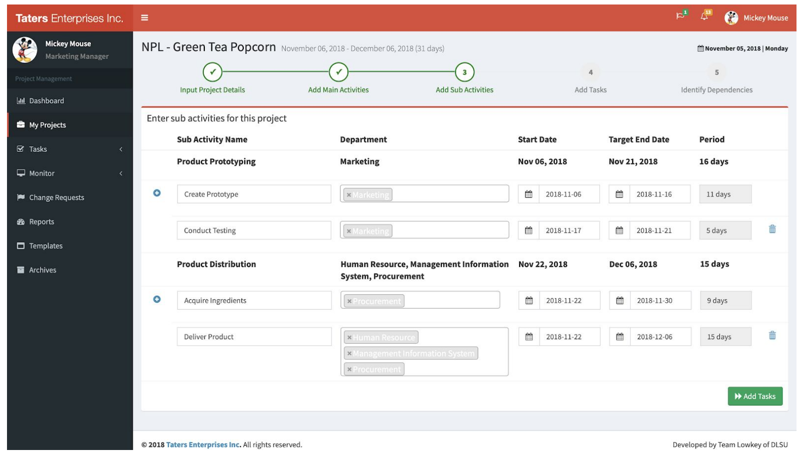
Reference No.	S-02
Name	My Projects Screen
Description	Only projects wherein the user is involved in can be seen in this screen. Through the different colors, the user can exactly tell the status of a project. From this screen, the user can either click on a project, or a project template to be redirected to the project gantt chart, or to click on create new project to be redirected to the project creation form. A list view and grid view are also provided for the user's ease of viewing.
File Name	myProjects.php
Users	All Users
Elements	Project Buttons, Project Filter Buttons, List View Button, Grid View Button, Team View Button, Project View Button
Actions	Navigate to Gantt Chart, Filter Projects, List View, Team View

Layouts	

Reference No.	S-03
Name	Create A New Project Screen
Description	Creating a new project can be done through this page. All fields are required to have an input to be able to proceed to the next step, which is adding main activities.
File Name	addProjectDetails.php
Users	President, Department Heads, and Supervisors
Elements	Project Title Textfield, Project Details Textfield, Start Date DatePicker, End Date DatePicker, Add Main Activity Button
Actions	Import from Spreadsheet, Add Main Activity
Layouts	

Reference No.	S-03.1
Name	Adding Main Activities Screen
Description	In this screen, main activities of the project will be inputted here by the user. Details such as, main activity name, start date, end date, and the department that will perform the activity should be provided by the user. The user can then proceed to adding sub activities.
File Name	addMainActivities.php
Users	President, Department Heads, and Supervisors
Elements	Add Button, Task Title TextField, Departments Select, Start Date DatePicker, End Date DatePicker, Add Sub Activity Button
Actions	Add Sub Activity
Layouts	

Reference No.	S-03.2
Name	Adding Sub Activities Screen
Description	This page is similar with the previous screen in terms of user interface, the only difference is that it redirects the user to the adding tasks screen after filling out the required fields.
File Name	addSubActivities.php
Users	President, Department Heads, and Supervisors

Elements	Add Button, Task Title TextField, Departments Select, Start Date DatePicker, End Date DatePicker, Add Task Button
Actions	Add Task
Layouts	

Reference No.	S-03.3
Name	Adding Tasks Screen
Description	The user can add all the tasks under the sub activities they previously created. Layout wise, it looks the same with the 2 previous forms. This page navigates to adding dependencies on the tasks.
File Name	addTasks.php
Users	President, Department Heads, and Supervisors
Elements	Add Button, Task Title TextField, Departments Select, Start Date DatePicker, End Date DatePicker, Add Dependency Button
Actions	Add Dependency

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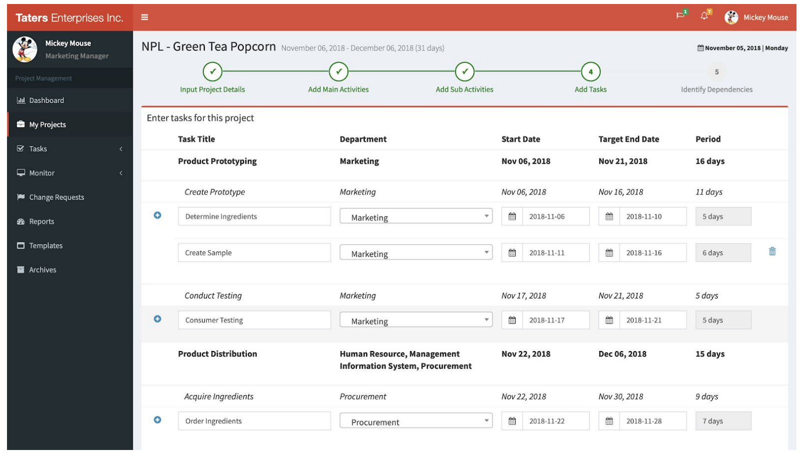
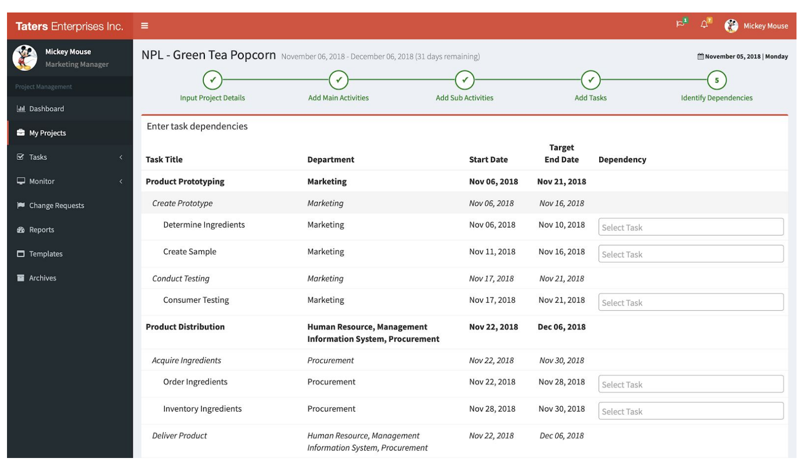
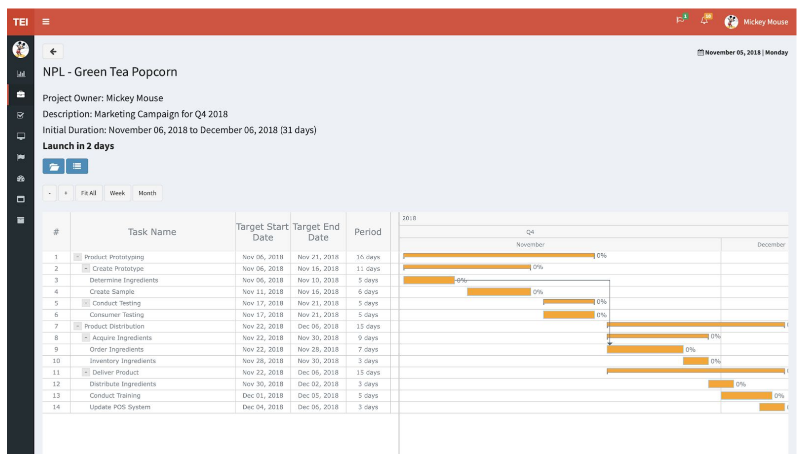
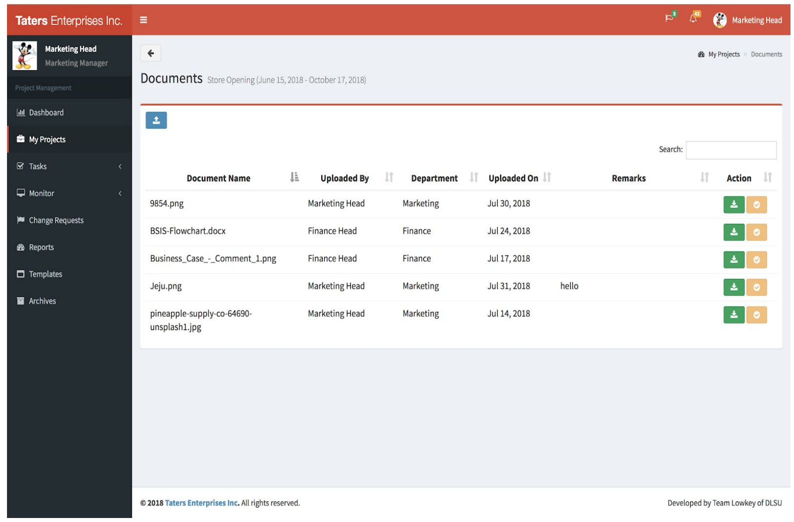
<tr><td>Layouts</td><td>
</td></tr>
</table>

<table>
<tr><td>Reference No.</td><td>S-03.4</td></tr>
<tr><td>Name</td><td>Adding Dependencies Screen</td></tr>
<tr><td>Description</td><td>This screen lets the user define the pre-requisites of the tasks that were made prior. After defining the pre-requisites, the last step is to generate the gantt chart.</td></tr>
<tr><td>File Name</td><td>addDependencies.php</td></tr>
<tr><td>Users</td><td>President, Department Heads, and Supervisors</td></tr>
<tr><td>Elements</td><td>Dependency Select</td></tr>
<tr><td>Actions</td><td>Generate Gantt Chart</td></tr>
<tr><td>Layouts</td><td>
</td></tr>
</table>

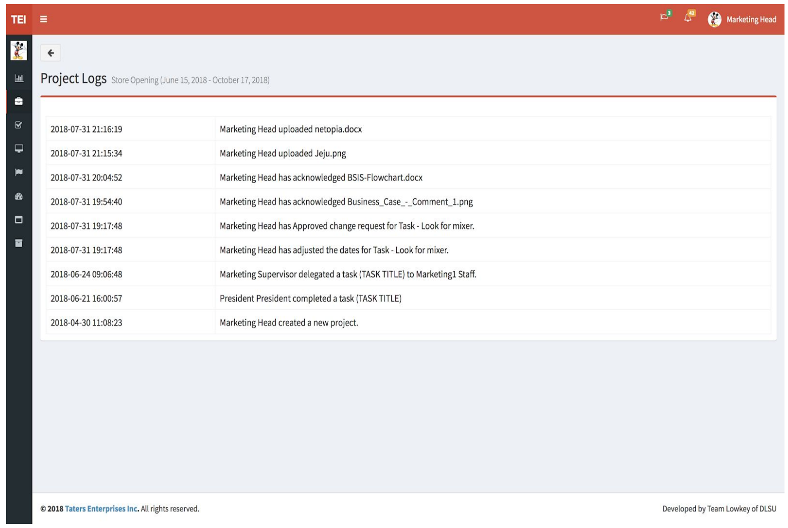
Reference No.	S-04

Name	Project Gantt Screen
Description	This page shows the gantt chart, a visual representation of the schedules of tasks in the project. It also shows the performance of the user in that project and all overall performance of the project. From the gantt chart, the user can be navigated to the project documents or project logs.
File Name	projectGantt.php
Users	All users involved in a project
Elements	Labels, Project Document Button, Project Logs Button, RACI Gantt Chart
Actions	Navigate to Project Documents, Navigate to Project Logs
Layouts	

Reference No.	S-05
Name	Project Documents Screen
Description	All documents uploaded in that project can be viewed in this page. Some of the documents can only be seen by limited people depending on what the uploader chose. Also in this page the user can acknowledge, download, and upload document.
File Name	projectDocuments.php
Users	All users involved in a project
Elements	Upload Button, Download Button, Acknowledge Button

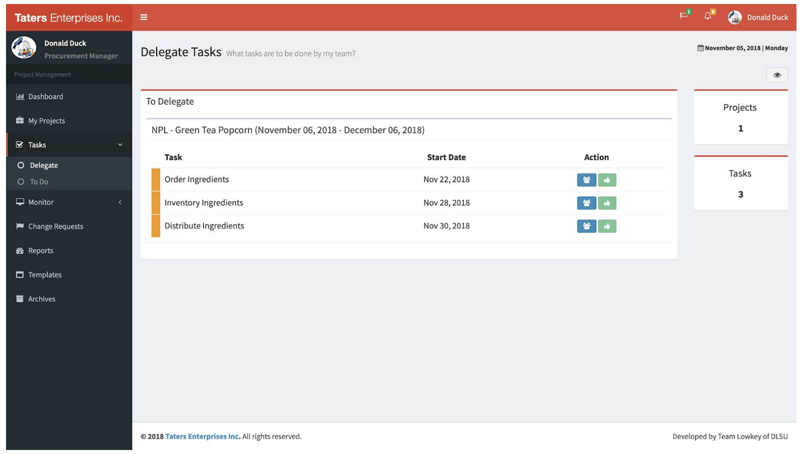
<table>
<tr><td>Actions</td><td>Upload Document, Download Document, Acknowledge Document</td></tr>
<tr><td>Layouts</td><td>
</td></tr>
</table>

Reference No.	S-06
Name	Project Logs Screen
Description	This is the page where the user can view all the actions that were done in the project.
File Name	projectLogs.php
Users	All users involved in a project
Elements	Timestamp Text, Log Details Text
Actions	Navigate to Project Gantt

Layouts	

Reference No.	S-07
Name	Delegate Task Screen
Description	This screen is where the department heads or the supervisors can delegate a task that was assigned to them by the project owner during project creation. When the delegate button is clicked it will show all the possible people that they can delegate the task to. To see the workload assessment of the a person in their team, the user can simply click on the name of the user and a modal with the workload assessment will appear.
File Name	taskDelegate.php
Users	Department Heads, and Supervisors
Elements	Delegate Button, Delegate Modal, Accept Task Button, View All Button, Workload Assessment Modal
Actions	Delegate a task

Layouts


Taters Enterprises Inc.
Donald Duck
Donald Duck
Procurement Manager
Project Management
Dashboard
My Projects
Tasks
Delegate
To Do
Monitor
Change Requests
Reports
Templates
Archives
Delegate Tasks What tasks are to be done by my team?
November 05, 2018 | Monday
To Delegate
NPL - Green Tea Popcorn (November 06, 2018 - December 06, 2018)
Task
Start Date
Action
Order Ingredients
Nov 22, 2018
Inventory Ingredients
Nov 28, 2018
Distribute Ingredients
Nov 30, 2018
Projects
1
Tasks
3
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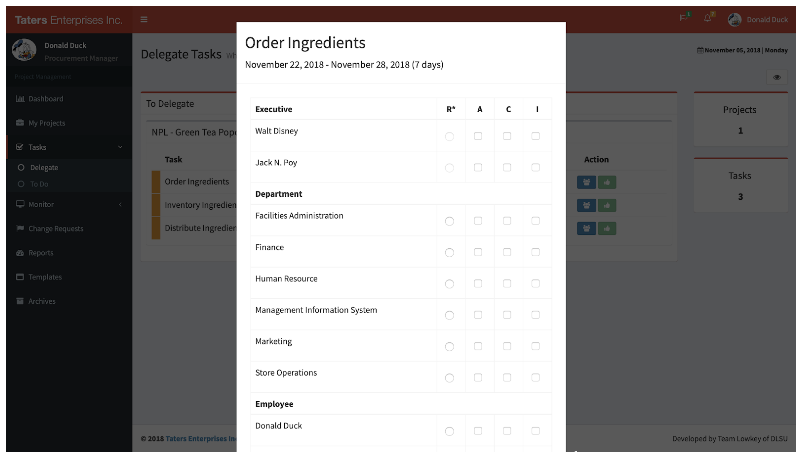
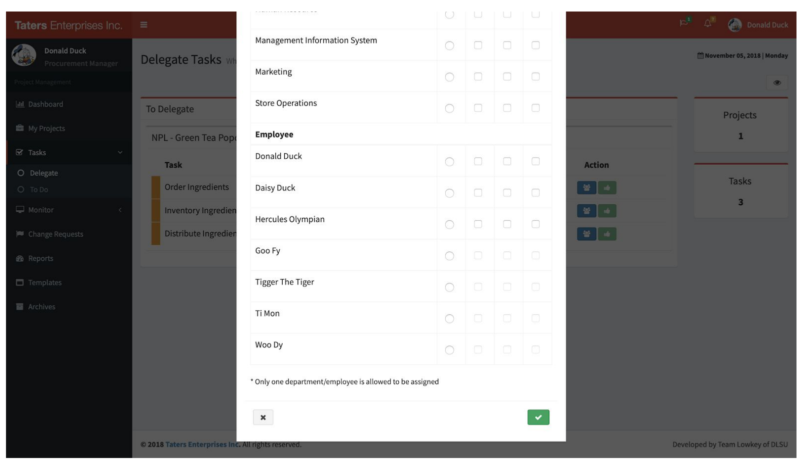
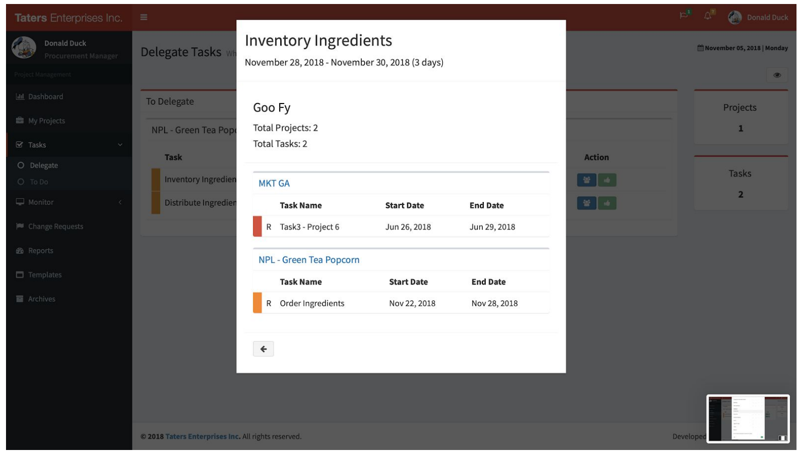
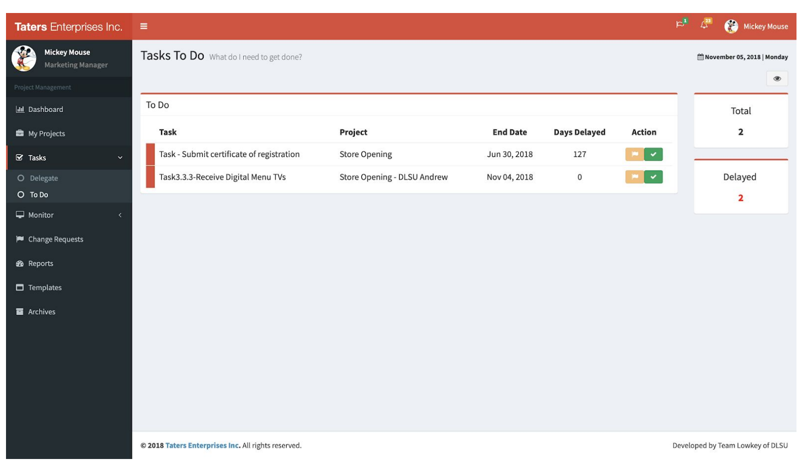
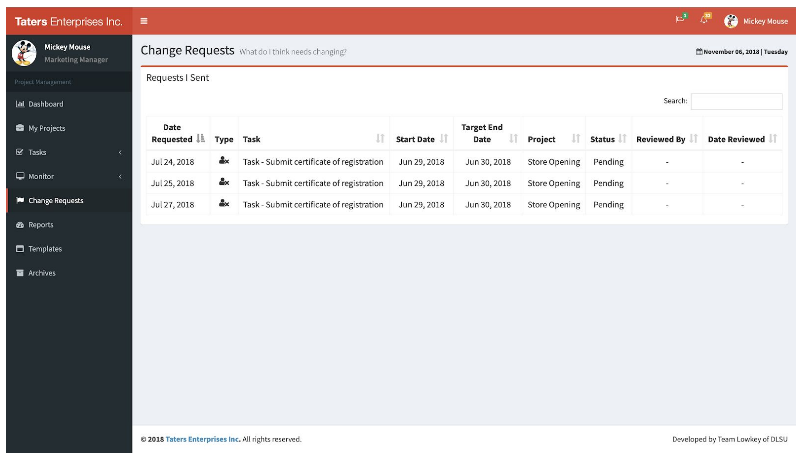
Developed by Team Lowkey of DLSU


Order Ingredients
November 22, 2018 - November 28, 2018 (7 days)
Executive
R*
A
C
I
Walt Disney
Jack N. Poy
Department
Facilities Administration
Finance
Human Resource
Management Information System
Marketing
Store Operations
Employee
Donald Duck

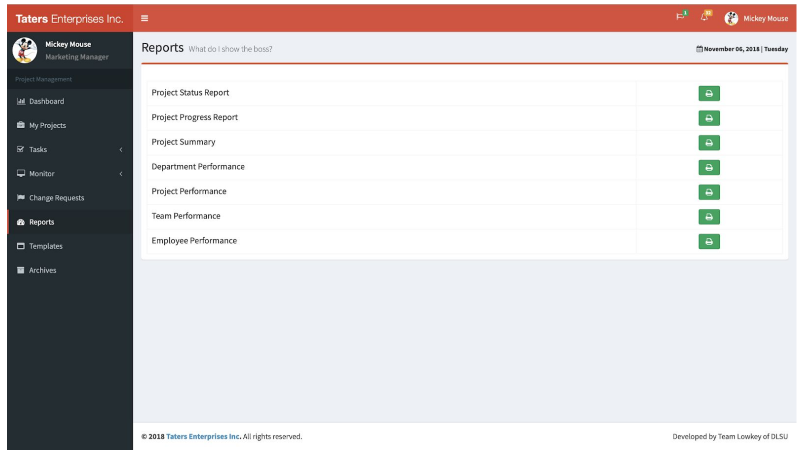

Management Information System
Marketing
Store Operations
Employee
Donald Duck
Daisy Duck
Hercules Olympian
Goo Fy
Tigger The Tiger
Ti Mon
Woo Dy
* Only one department/employee is allowed to be assigned

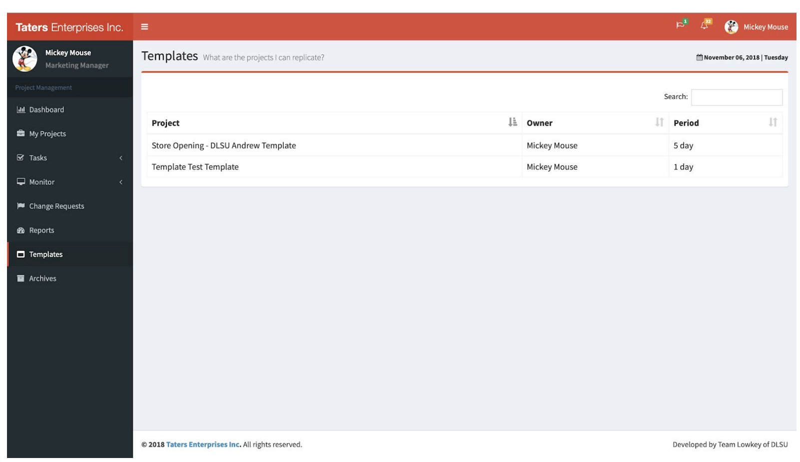
	

Reference No.	S-08
Name	Tasks To Do Screen
Description	All delayed tasks, and tasks that are assigned to the user can be viewed in this screen. The user can either mark the task as done or submit a request for change in performer or date 2 days before the deadline.
File Name	taskTodo.php
Users	All Users
Elements	Request for Change Button, Done Task Button, Request for Change Modal
Actions	Submit a change request, mark task as done
Layouts	

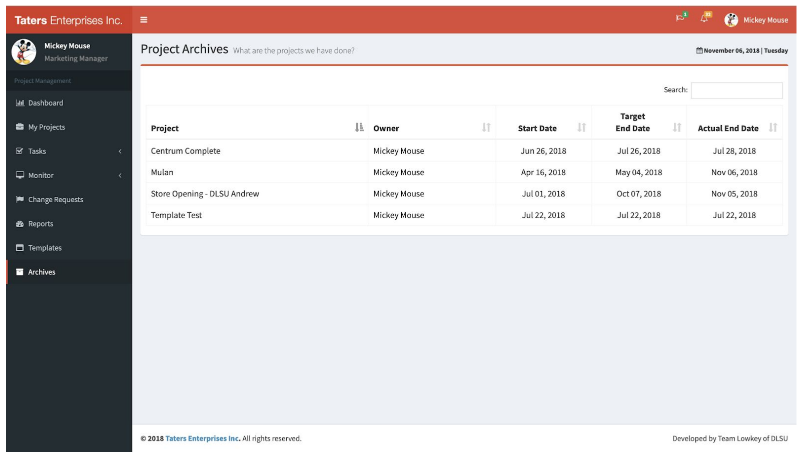
<table>
<tr><td>Reference No.</td><td>S-09</td></tr>
<tr><td>Name</td><td>Change Requests Screen</td></tr>
<tr><td>Description</td><td>All change requests that involves the user such as, the request they submitted or an employee seeking for their approval can be seen in this page.</td></tr>
<tr><td>File Name</td><td>rfc.php</td></tr>
<tr><td>Users</td><td>Department Heads and Supervisors</td></tr>
<tr><td>Elements</td><td>Change Requests Table</td></tr>
<tr><td>Actions</td><td>Navigate to Project Gantt</td></tr>
<tr><td>Layouts</td><td>
</td></tr>
</table>

Reference No.	S-10
Name	Reports Screen
Description	This screen shows all reports that the system can generate for the user.
File Name	reports.php
Users	All Users
Elements	Print Button
Actions	Print Report

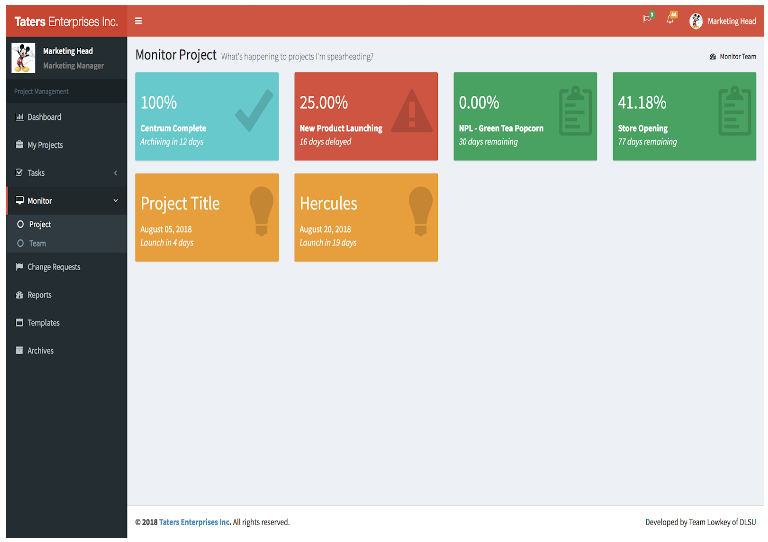
Layouts	

Reference No.	S-11
Name	Templates Screen
Description	All project templates can be seen here and used by a user.
File Name	templates.php
Users	Department Heads, and Supervisors
Elements	Templates Table
Actions	Navigate to Project Gantt
Layouts	

Reference No.	S-12

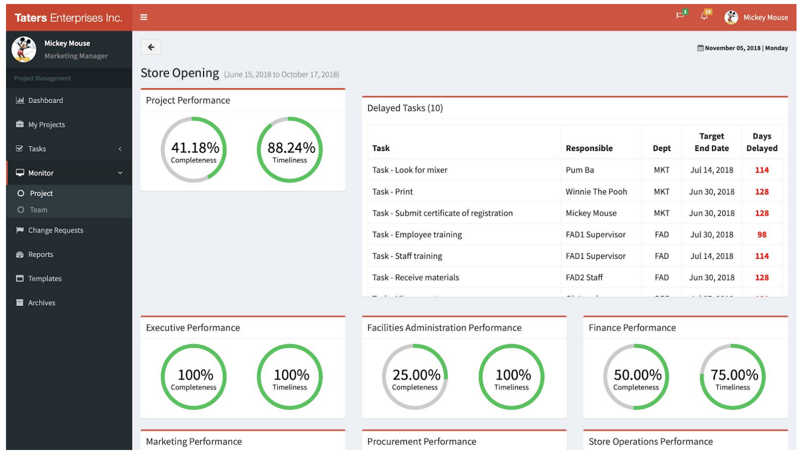
<table>
<tr><td>Name</td><td>Archives Screen</td></tr>
<tr><td>Description</td><td>All archived projects can be seen in the archives page.</td></tr>
<tr><td>File Name</td><td>archives.php</td></tr>
<tr><td>Users</td><td>Department Heads, and Supervisors</td></tr>
<tr><td>Elements</td><td>Archives Table</td></tr>
<tr><td>Actions</td><td>Navigate to Project Gantt</td></tr>
<tr><td>Layouts</td><td>
</td></tr>
</table>

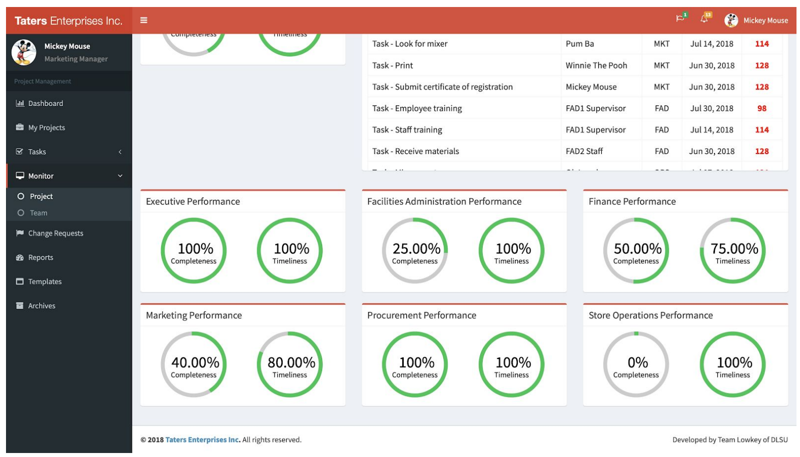
Reference No.	S-13.0
Name	Project Monitor Screen
Description	This page lets the user monitor all projects that he owns. The user can click on any of the projects in the page and they will be redirected to the monitor department screen.
File Name	monitorProject.php
Users	Department Heads, and Supervisors
Elements	Project Buttons
Actions	Navigate to Monitor Department Screen

Layouts	

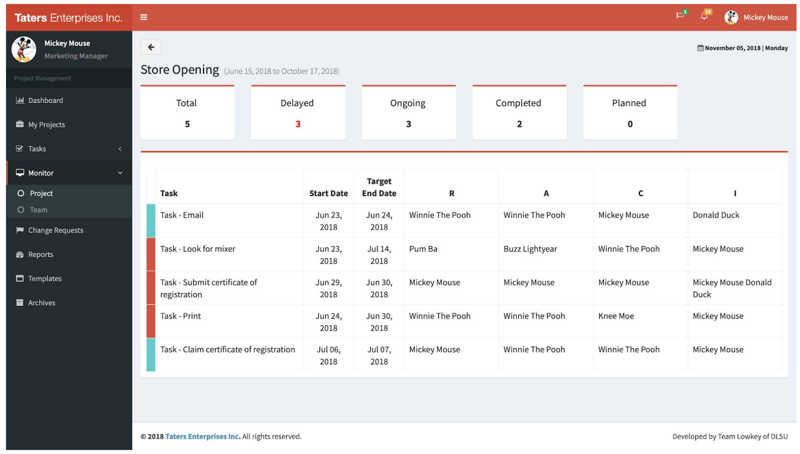
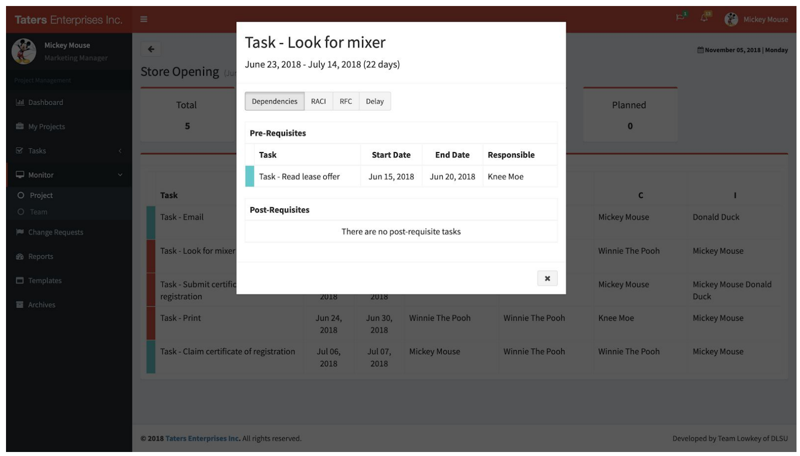
Reference No.	S-13.1
Name	Monitor Department Screen
Description	The monitor department screen shows the overall progress of the project, tasks that are delayed, and the departments involved in the project. From this page, it will navigate the user to the monitor department details screen.
File Name	monitorDepartment.php
Users	Department Heads, and Supervisors
Elements	Department Buttons
Actions	Navigate to Monitor Department Details Screen

Layouts

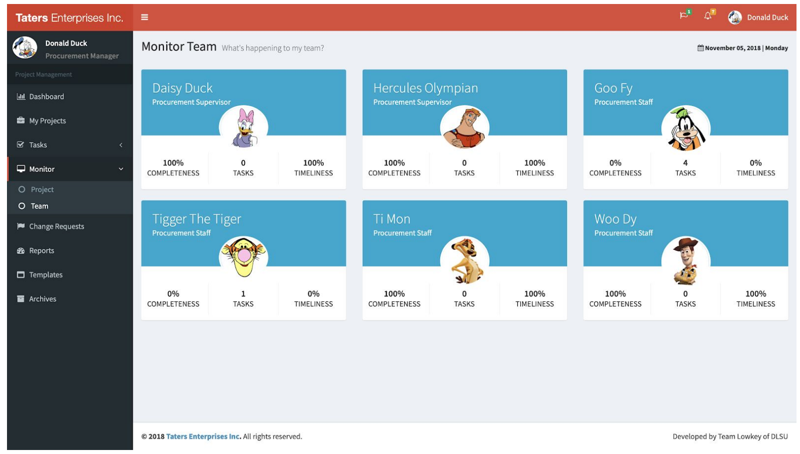


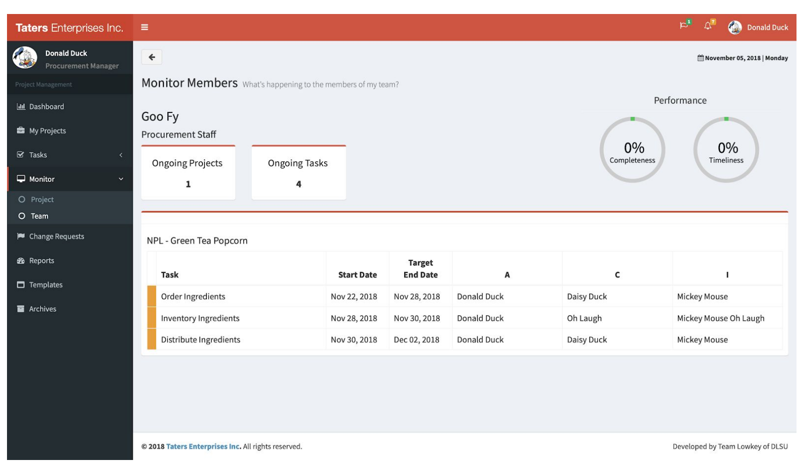


Reference No.	S-13.2
Name	Monitor Department Details Screen
Description	In this screen the user can see all the tasks assigned to the department he chose in the previous screen. It also shows the number of delayed, ongoing, completed, and planned tasks. The user can click on any of the tasks shown to be able to see the history of that task, such as the delegate and RFC history.
File Name	monitorDepartmentDetails.php
Users	Department Heads, and Supervisors
Elements	Task Detail Modal
Actions	Show task details modal

Layouts	 

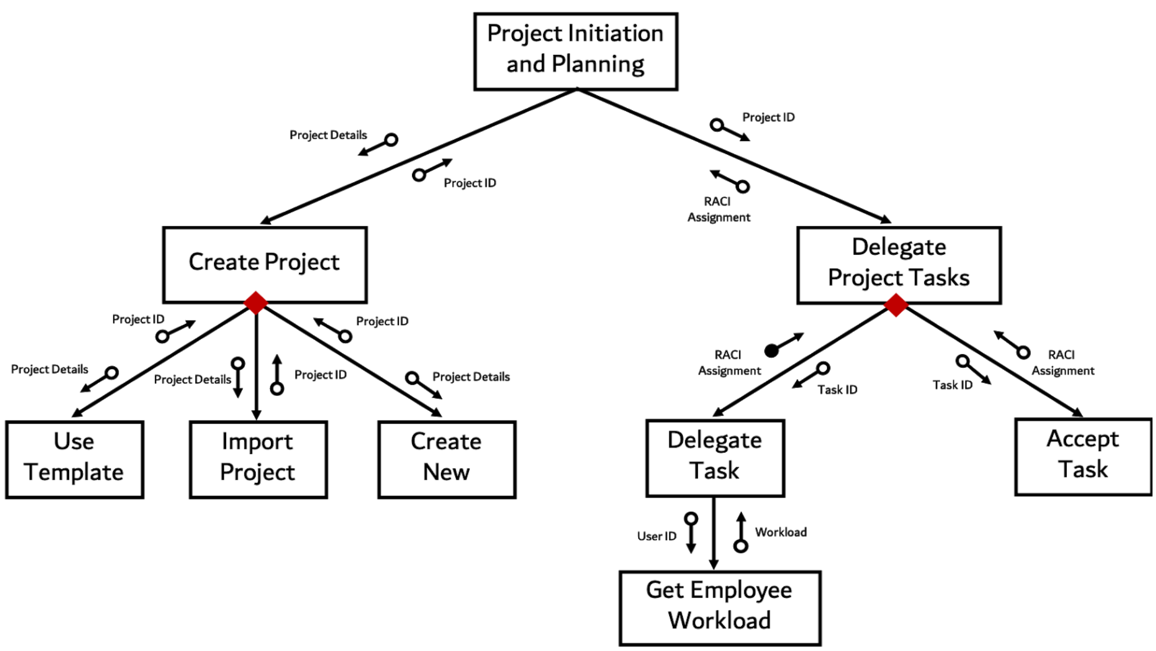
Reference No.	S-14.0
Name	Monitor Team Screen
Description	Monitor team can only be viewed by department head or the supervisors. It shows all employees directly under him. The user can choose an employee and they will be redirected monitor member screen.
File Name	monitorTeam.php
Users	Department Heads, and Supervisors
Elements	Employee Buttons
Actions	Navigate to Monitor Members Screen

Layouts	

Reference No.	S-14.2
Name	Monitor Members Screen
Description	This screen shows all tasks wherein the chosen employee is responsible. It also shows the status of those tasks and also the overall performance of that employee. The user can click on any of the tasks shown to be able to see the history of that task, such as the delegate and RFC history.
File Name	monitorMembers.php
Users	Department Heads, and Supervisors
Elements	Task Detail Modal
Actions	Show task details modal
Layouts	

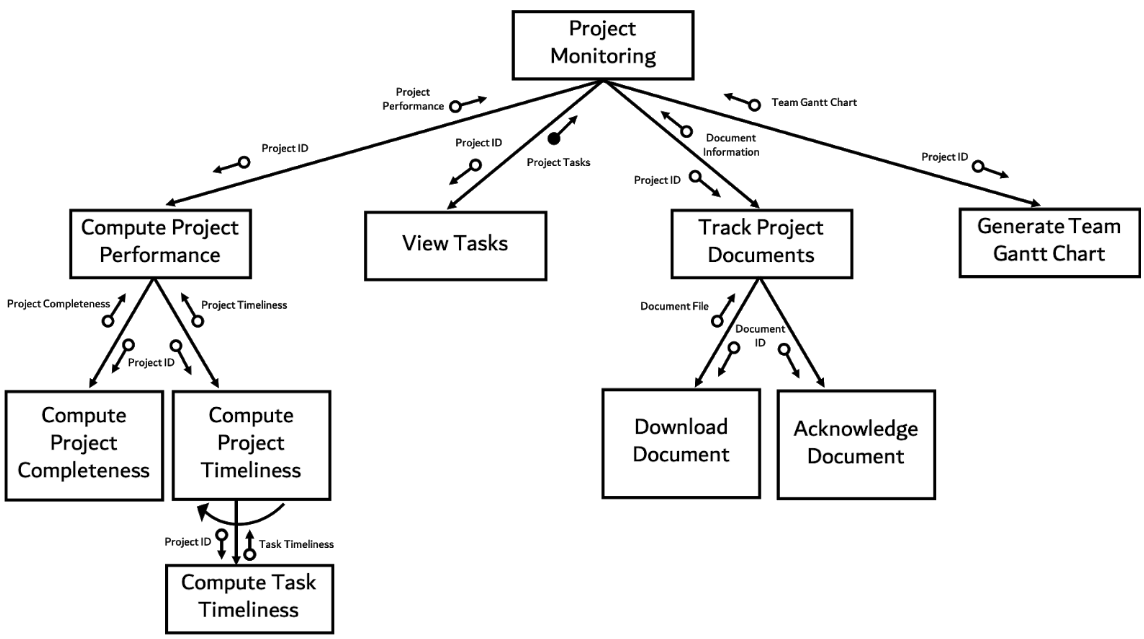
3.3. Structure Chart

To reiterate, the system is composed of four (4) modules modeled after the project management cycle. The first module could be considered the heart of the project as without it, the other modules would be useless. The first module is the Project Initiation and Planning. This module is simply the creation of the project. Functionalities and methods included are that of project scheduling, delegating tasks to the project team, viewing the workload of an employee and generation of the RACI Gantt chart. The method of creating a project can be done in three ways, thus is symbolized by the red diamond - using an existing template, importing a project from a spreadsheet file, and creating a project through the system from scratch. Once the project is created and scheduled appropriately, project tasks can now be delegated either by assigning it to one's team or by accepting a pre-delegated task. By assigning the task to one's team, one can also see the current workload the potential project team member has.



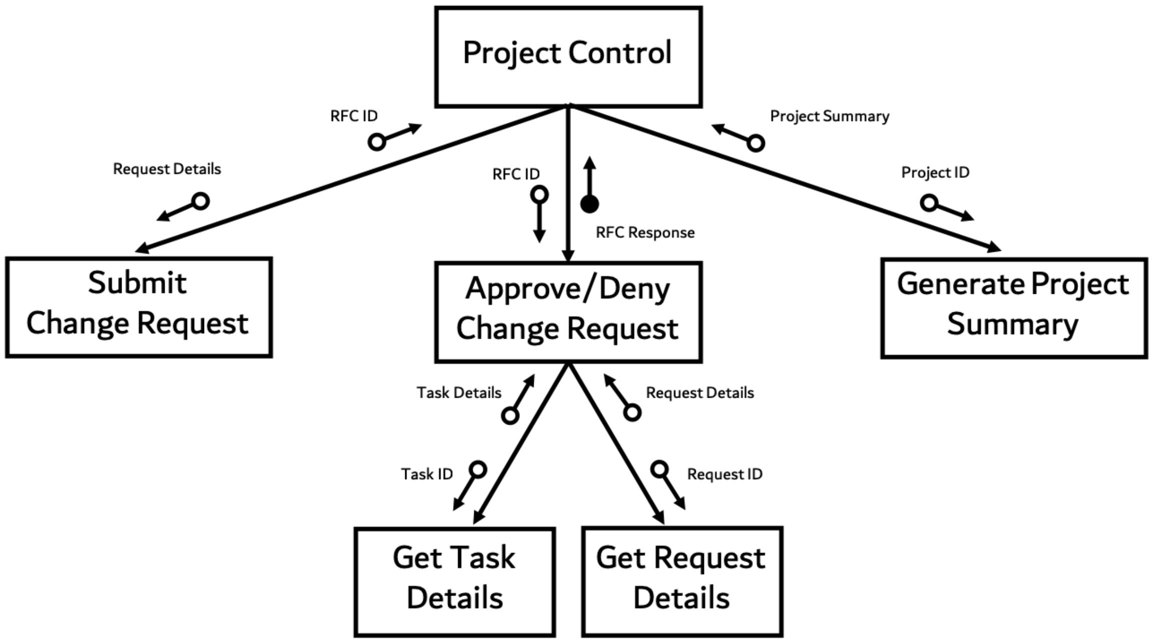
Project Initiation and Planning Structure Chart

The second module is Project Monitoring. This module is where the user will interact the most with. This is also where data will come from which will be used for the succeeding modules. The project tasks and necessary details is important to be accessible the most in this module as to serve transparency to the project team. Project Performance is computed by computing each of the tasks' performance. Tracking of documents can either be of downloading a document tagged to a project, and/or acknowledging a document that a specific user has viewed its contents. The Team Gantt chart is simply a departmental or team refined version of the initial project RACI Gantt Chart. The system handles project, task, document, and team monitoring as illustrated below.



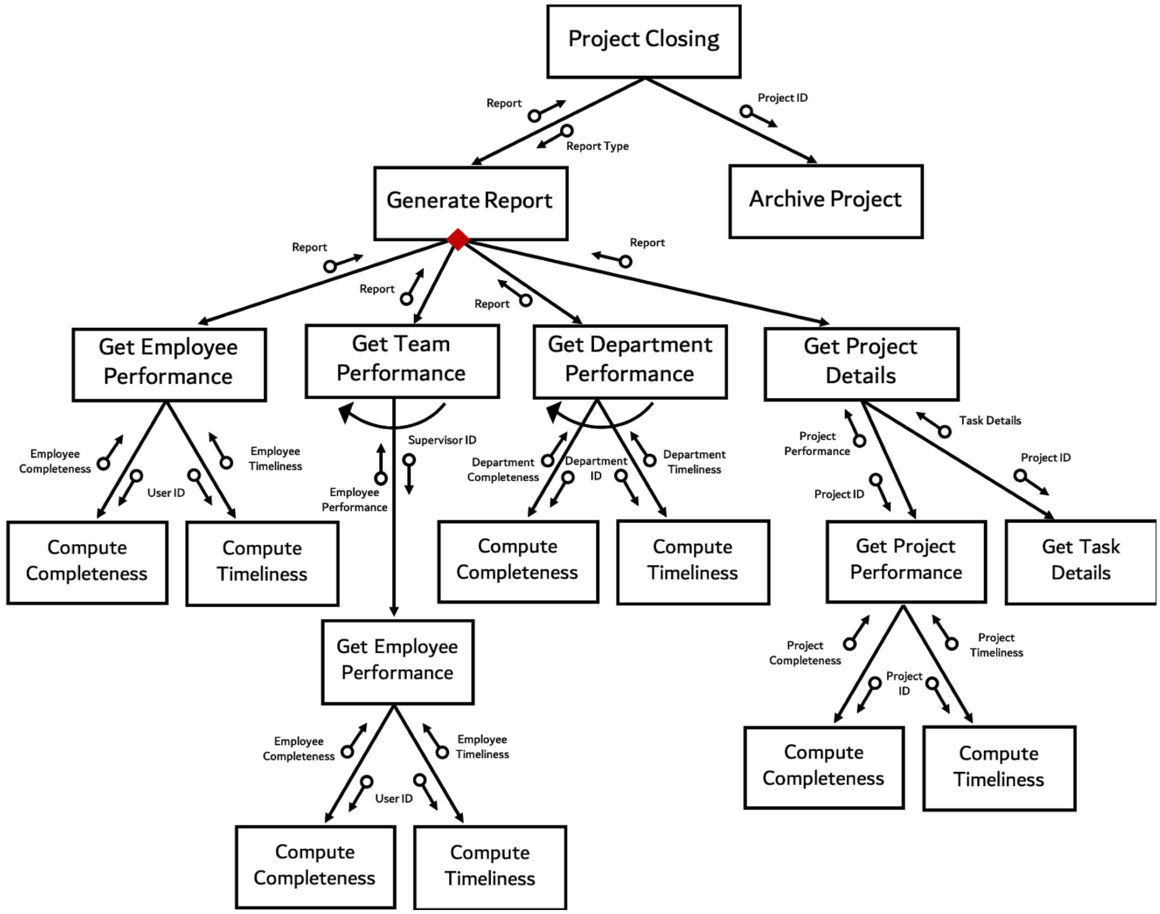
Project Monitoring Structure Chart

The third module is Project Control. This module provides information for both its preceding and succeeding modules. Mainly, it handles the change requests, whether submitted, approved, or denied. It applies the changes necessary and updates the project and tasks involved. This module also prepares the data for a significant report in a project, which is the project summary report. This is only done once a project is completed.



Project Control Structure Chart

The fourth and last module is Project Closing. The methods included here are that of reports generation and project archiving. Project Archiving will have a lasting impact on the company, as they do not have a way of documenting their projects, let alone keeping a record of each and every one of them including the data it holds. The archiving process will is only applicable to completed projects, therefore, the system will validate a project's completeness before it is archived. Once project is archived, no change may be made to the project. Various reports can be generated to aid in project and employee performance.



Project Closing Structure Chart

3.4. Module Specifications

Reference No.	M-01
Name	Project Initiation and Planning
Description	This module covers all preparations before the project is actually implemented, specifically, the project description, process identification, and role assignment to project team. In this module, all processes in the system can be modified.
Inputs	Projects Table RACI Table Tasks Table

	Templates Table Import Template
Outputs	RACI Gantt Chart Team Gantt Workload Assessment
Called Modules	M-02: Project Monitoring
Calling Modules	None

Reference No.	M-02
Name	Project Monitoring
Description	This module provides a platform for projects to be properly tracked based on progress and timeliness. This also ensures that everyone involved in the project are informed with the status of the project, and if there are any adjustments to the target dates. This also provides insight for succeeding task performers on when they could initiate their task, and who to follow-up on.
Inputs	Tasks Table RACI Table Documents Table DocumentAcknowledgement Table AssessmentProject Table
Outputs	Project Status Report Project Progress Report Project Summary Report Project Performance Report
Called Modules	M-03: Project Control M-04: Project Closing
Calling Modules	M-01: Project Initiation and Planning

Reference No.	M-03

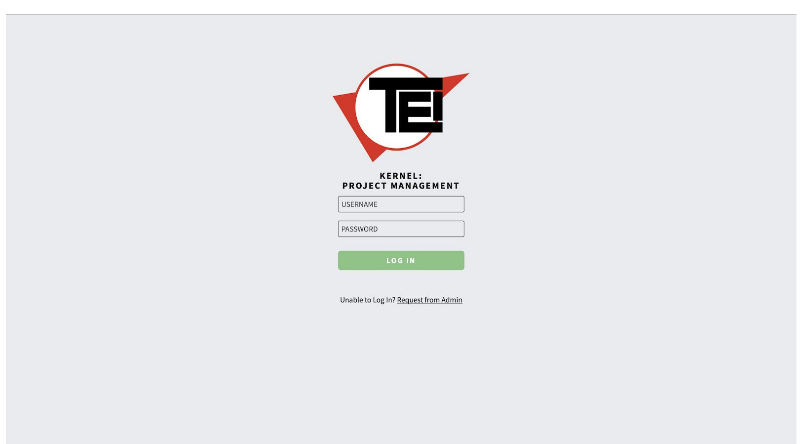
Name	Project Control
Description	Project control covers the knowledge application and evaluation of completed projects to provide insights that will improve business processes and prevent any problems and delays from reoccurring.
Inputs	changeRequest Table Tasks Table RACI Table AssessmentDepartment Table AssessmentEmployee Table AssessmentProject Table
Outputs	Project Assessment Employee Assessment Department Assessment Project SUmmary
Called Modules	M-03: Project Closing
Calling Modules	M-02: Project Monitoring

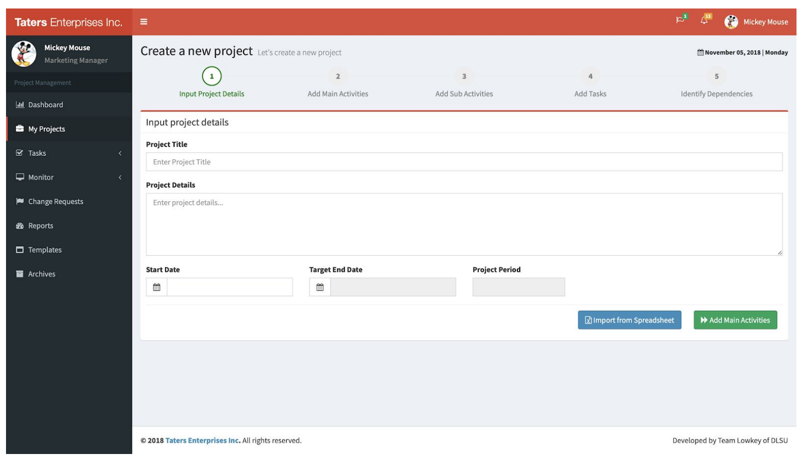
Reference No.	M-04
Name	Project Closing
Description	Project closing covers the handling of completed projects. This is the accumulation of knowledge acquired from the project which can be used as reference for future improvements.
Inputs	changeRequest Table Tasks Table RACI Table Projects Table AssessmentDepartment Table AssessmentEmployee Table AssessmentProject Table
Outputs	Department Performance Report Project Status Report

	Project Progress Report Project Summary Report Project Performance Report Team Performance Report Employee Performance Report
Called Modules	None
Calling Modules	M-02: Project Monitoring M-03: Project Control

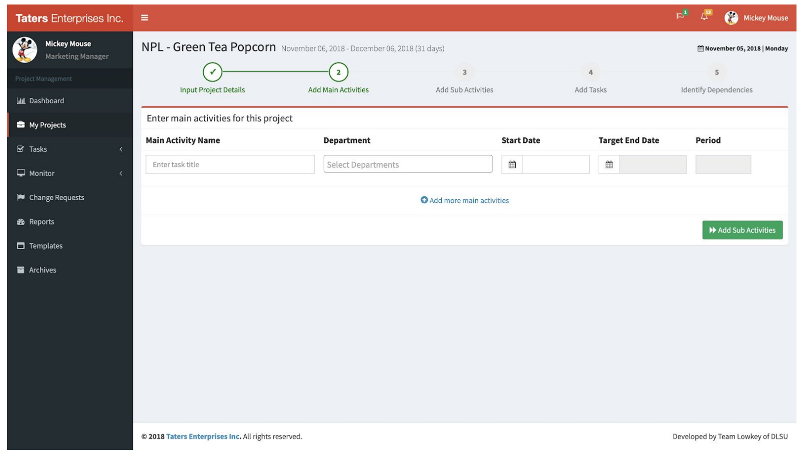
3.5. Forms Specifications

This section focuses on the screens wherein a form is present by detailing the purpose of the form, the data needed to complete a form and a transaction, the users who may encounter the screen, and how often it is submitted through the system.

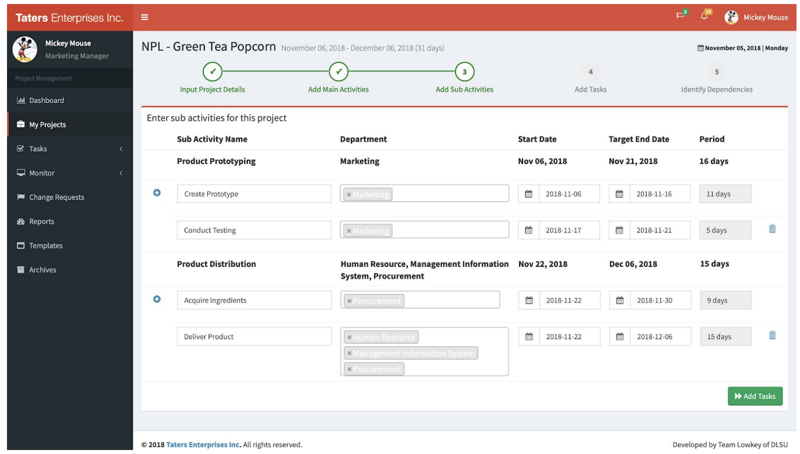
Reference No.	F-01
Name	Login
Description	User has to input their registered username and password in order to gain access to the system.
Input To	Dashboard Screen
Accomplished By	Any user who needs to access their account
Layout	

<table>
<tr><td>Reference No.</td><td>F-02.1</td></tr>
<tr><td>Name</td><td>Create New Project (Project Details)</td></tr>
<tr><td>Description</td><td>Creating a new project can be done through this page. All fields are required to have an input to be able to proceed to the next step, which is adding main activities.</td></tr>
<tr><td>Input To</td><td>Add Main Activities Screen
Projects Table
AssessmentProject Table
Logs Table
Notifications Table</td></tr>
<tr><td>Accomplished By</td><td>Executives, Department Heads, and Supervisors</td></tr>
<tr><td>Layout</td><td>
</td></tr>
</table>

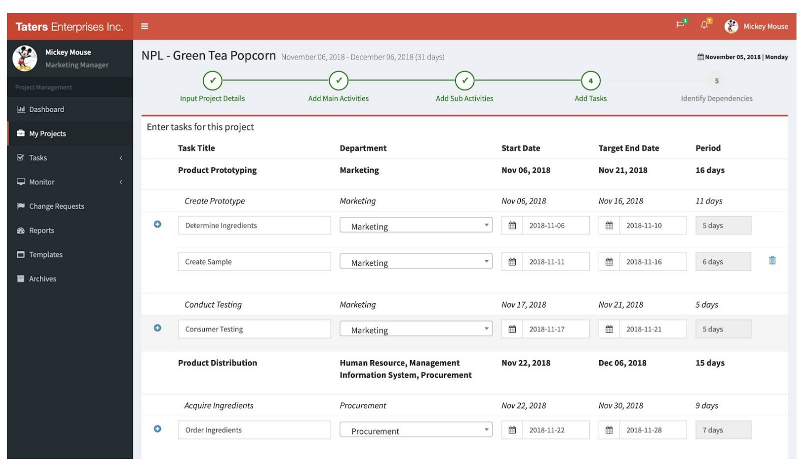
Reference No.	F-02.2
Name	Create New Project (Main Activity)
Description	Adding main activities can be done through this page. All fields are required to have an input to be able to proceed to the next step, which is adding sub activities.
Input To	Add Sub Activities Screen Tasks Table RACI Table Logs Table Notifications Table

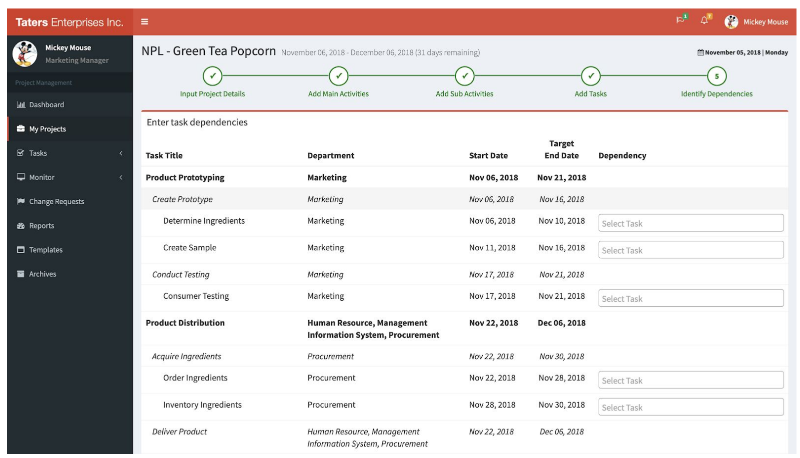
Accomplished By	Executives, Department Heads, and Supervisors
Layout	

Reference No.	F-02.3
Name	Create New Project (Sub Activity)
Description	Adding sub activities can be done through this page. All fields are required to have an input to be able to proceed to the next step, which is adding tasks.
Input To	Add Tasks Screen Tasks Table RACI Table Logs Table Notifications Table
Accomplished By	Executives, Department Heads, and Supervisors

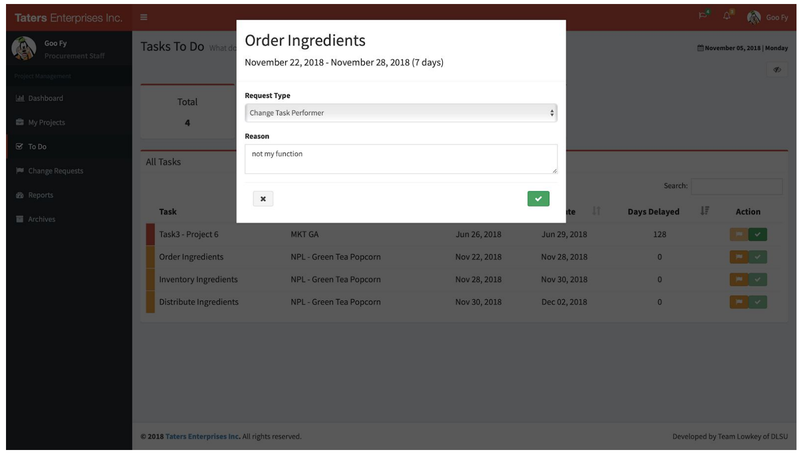
<table>
<tr><td>Layout</td><td>
</td></tr>
</table>

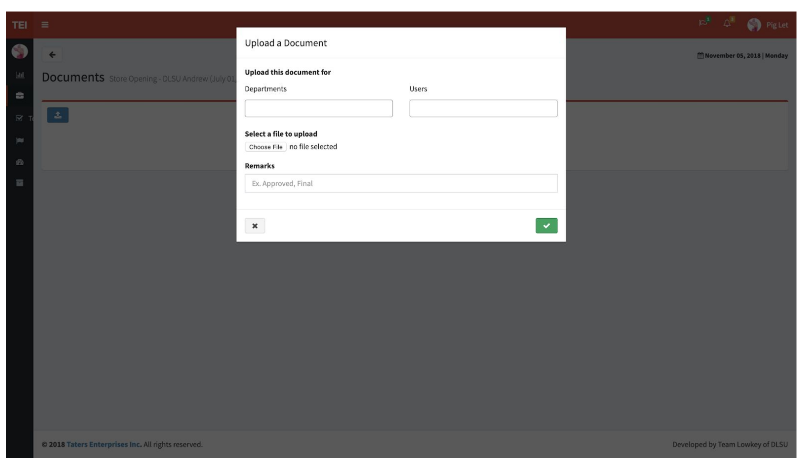
Reference No.	F-02.4
Name	Create New Project (Tasks)
Description	Adding tasks can be done through this page. All fields are required to have an input to be able to proceed to the next step, which is adding dependencies if there are any.
Input To	Add Dependencies Screen Tasks Table RACI Table Logs Table Notifications Table
Accomplished By	Executives, Department Heads, and Supervisors

<table>
<tr><td>Layout</td><td>
</td></tr>
</table>

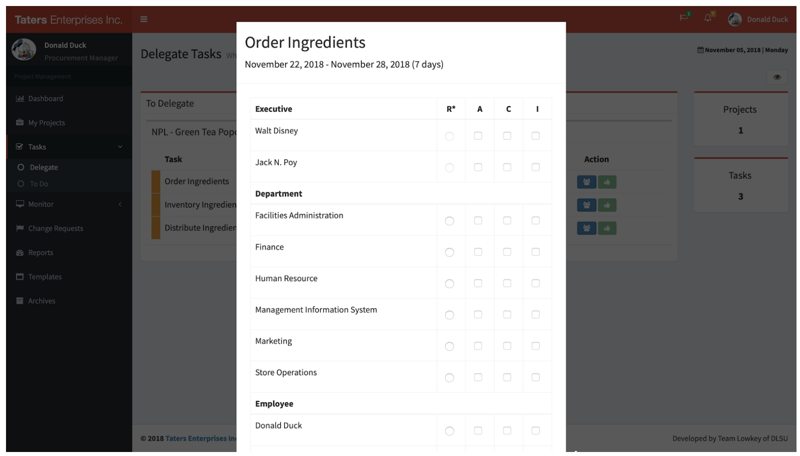
Reference No.	F-02.5
Name	Create New Project (Dependencies)
Description	Setting the prerequisite tasks of each task can be done in this page.
Input To	Project Gantt Screen Dependencies Table Logs Table Notifications Table
Accomplished By	Executives, Department Heads, and Supervisors
Layout	

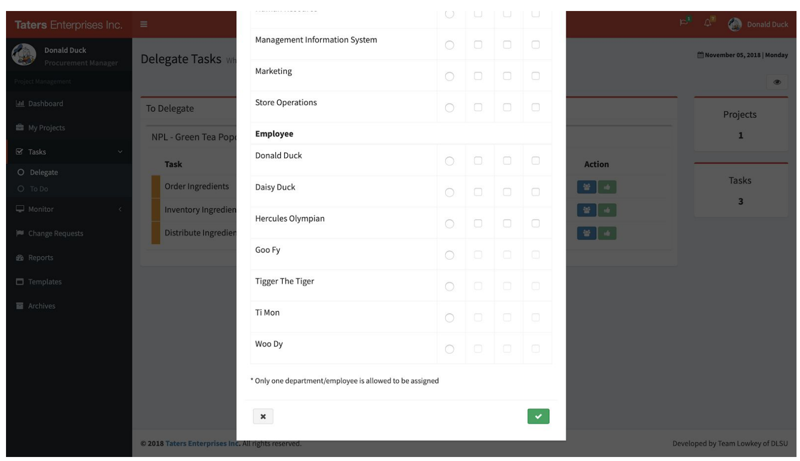
Reference No.	F-03
Name	Request for Change
Description	All users in the company can request for a change either for a performer or for a date.
Input To	ChangeRequests Table
Accomplished By	All users who needs to submit a request for change Logs Table Notifications Table

Layout	

Reference No.	F-04
Name	Upload Document
Description	Lets the users upload documents in a specific project.
Input To	Documents Table DocumentAcknowledgement Table Logs Table Notifications Table
Accomplished By	All users who needs to upload a document
Layout	

Reference No.	F-05
Name	Delegate Task

<table>
<tr><td>Description</td><td>This form lets either the department head or the supervisor delegate task to their employees or to another department as Responsible, Accountable, Consulted or Informed.</td></tr>
<tr><td>Input To</td><td>RACI Table
Logs Table
Notifications Table</td></tr>
<tr><td>Accomplished By</td><td>Department Heads and Supervisors</td></tr>
<tr><td>Layout</td><td>




</td></tr>
</table>

3.6. Reports Specifications

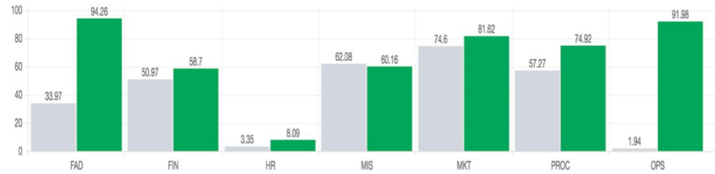
This section focuses on screens that produce report, specifically the organization of multiple entries of data into a table. Each report has a name, description, specific purpose, the users who may encounter the screen, and how often they may encounter it.

Reference No.	R-01
Name	Department Performance Report
Description	This report shows a bar chart of the completeness and timeliness of each department. It also shows all the projects that a department is currently doing and its corresponding target end date, completeness, and timeliness.
Used and Prepared By	President
Volume and Frequency	Once as needed
Purpose	The purpose of this report is for the President to be able to assess the performance of each department in terms of their completeness and timeliness.
Tables Used	Users, Departments, Projects, Tasks, RACI

Layout

Department Performance Report

2018



Facilities Administration		Project	End Date	Completeness	Timeliness
33.97% Completeness	94.26% Timeliness	New Product Launching	July 17, 2018	0.00%	100.00%
		Store Opening	October 17, 2018	25.00%	100.00%

Finance		Project	End Date	Completeness	Timeliness
50.97% Completeness	58.70% Timeliness	Store Opening	October 17, 2018	50.00%	75.00%

Human Resource		Project	End Date	Completeness	Timeliness
3.35% Completeness	8.09% Timeliness	MKT GA	July 30, 2018	0.00%	0.00%

Management Information System		Project	End Date	Completeness	Timeliness
62.08% Completeness	60.16% Timeliness	Software Update	August 01, 2018	50.00%	50.00%
		Store Opening - DLSU Andrew	December 18, 2018	100.00%	100.00%

Marketing		Project	End Date	Completeness	Timeliness
74.60% Completeness	81.62% Timeliness	Mulan	May 04, 2018	100.00%	100.00%
		New Product Launching	July 17, 2018	50.00%	50.00%
		Template Test	July 22, 2018	100.00%	100.00%
		Centrum Complete	July 26, 2018	100.00%	100.00%
		Store Opening	October 17, 2018	40.00%	80.00%
		Store Opening - DLSU Andrew	December 18, 2018	92.00%	80.00%

Procurement		Project	End Date	Completeness	Timeliness
57.27% Completeness	74.92% Timeliness	New Product Launching	July 17, 2018	100.00%	100.00%
		Centrum Complete	July 26, 2018	100.00%	100.00%
		MKT GA	July 30, 2018	0.00%	0.00%
		Store Opening	October 17, 2018	100.00%	100.00%
		Store Opening - DLSU Andrew	December 18, 2018	0.00%	100.00%

Store Operations		Project	End Date	Completeness	Timeliness
1.94% Completeness	91.98% Timeliness	Store Opening	October 17, 2018	0.00%	100.00%

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

Reference No.	R-02
Name	Project Status Report
Description	The Project Status Report shows all tasks that were planned, tasks that were accomplished either last week or last month depending on the interval that the user chose, problems encountered (tasks that are delayed), risks (pending change requests and tasks that needs to be delegated), and tasks that are upcoming next week or month.
Used and Prepared By	President, and Heads and Supervisors involved in a project
Volume and Frequency	R-02
Purpose	The purpose of this report is for the project owner to immediately see the current status of a project and if there are risks and problems that need their immediate attention.
Tables Used	Users, Projects, Tasks, RACI, ChangeRequests

Layout	

Project Status Report

Title: Store Opening - DLSU Andrew **Duration:** July 01, 2018 - December 18, 2018

Description: 10th floor. 1st Taters branch in Taft **Owner:** Mickey Mouse

Planned Last Week

Task	Start Date	End Date	Responsible	Status
Task3.3.3-Receive Digital Menu TVs	Jul 25, 2018	Nov 04, 2018	Mickey Mouse	Ongoing

Accomplished Tasks Last Week

There were No Tasks Accomplished Last Week

Problems Encountered

Task	End Date	Actual End Date	Days Delayed	Responsible	Status	Remarks
Task3.3.3-Receive Digital Menu TVs	Nov 04, 2018	-	4	Mickey Mouse	Ongoing	-

Planned Next Week

Task	Start Date	End Date	Responsible	Status
Task3.3.3-Receive Digital Menu TVs	Jul 25, 2018	Nov 04, 2018	Mickey Mouse	Ongoing

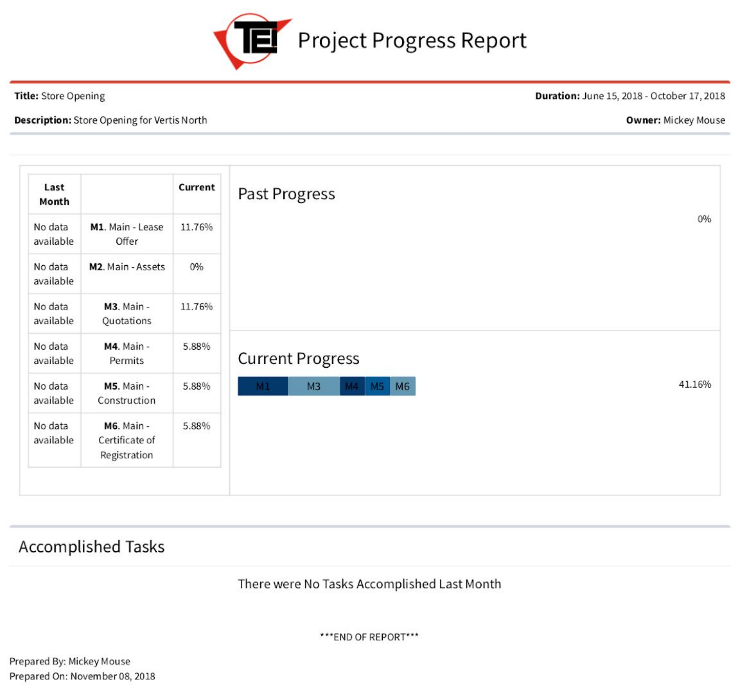
Risks

There are no Risks

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

Reference No.	R-03
Name	Project Progress Report
Description	Depending on the interval that was chosen, this report will generate a weekly or monthly progress report of a specific project. All the main activities will be shown as well as its current progress and last week or month's progress. Tasks accomplished within the week or month will also be shown in this report.
Used and Prepared By	President, and Heads and Supervisors involved in a project
Volume and Frequency	Once as needed
Purpose	This report is for the project owner to see the progress of each main activity in a project. It also shows the previous

	progress for them to see how much a project has progressed through time.
Tables Used	Users, Tasks, RACI
Layout	

Project Progress Report

Title: Store Opening **Duration:** June 15, 2018 - October 17, 2018

Description: Store Opening for Vertis North **Owner:** Mickey Mouse

Last Month		Current
No data available	**M1**. Main - Lease Offer	11.76%
No data available	**M2**. Main - Assets	0%
No data available	**M3**. Main - Quotations	11.76%
No data available	**M4**. Main - Permits	5.88%
No data available	**M5**. Main - Construction	5.88%
No data available	**M6**. Main - Certificate of Registration	5.88%

Past Progress

0%

Current Progress

M1 M3 M4 M5 M6

41.16%

Accomplished Tasks

There were No Tasks Accomplished Last Month

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

Reference No.	R-04
Name	Project Summary Report
Description	This report gives an overview of what happened with the project. It shows the timeliness of the overall project and all the departments included in the project. It also includes the members of the project, their department, the total number of tasks assigned to them and their timeliness.
Used and Prepared By	President, and Heads and Supervisors involved in a project
Volume and Frequency	Once as needed

Purpose	The Project Summary Report is best generated after a project has been completed. This report, from the name itself, gives the project owner a summary of all the things that has happened to a project.
Tables Used	Users, Tasks, RACI, ChangeRequests

Layout

Project Summary Report

Title: Store Opening

Initial Duration: June 15, 2018 - October 17, 2018

Owner: Mickey Mouse

Actual Duration: June 15, 2018 - Present

Description: Store Opening for Vertis North

Team Members

Name	Position	Department	Total Tasks	Delayed Tasks	Timeliness
Walt Disney	President	Executive	1	0	100%
FAD2 Staff	FAD Staff	Facilities Administration	2	0	100%
FAD1 Supervisor	FAD Supervisor	Facilities Administration	2	0	100%
Finance3 Staff	Finance Staff	Finance	1	0	100%
Knee Moe	Finance Manager	Finance	3	1	66.67%
Pum Ba	Marketing Staff	Marketing	1	0	100%
Winnie The Pooh	Marketing Supervisor	Marketing	2	0	100%
Mickey Mouse	Marketing Manager	Marketing	2	1	50.00%
Ti Mon	Procurement Staff	Procurement	1	0	100%
Store Operations3 Staff	Store Operations Staff	Store Operations	1	0	100%
Oh Laugh	Store Operations Manager	Store Operations	1	0	100%

Delayed Tasks

Task	Target End Date	Actual End Date	Days Delayed	Responsible	Department	Reason
Task - Read lease offer	Jun 20, 2018	Jul 24, 2018	34	Knee Moe	Finance	done
Task - Claim certificate of registration	Jul 07, 2018	Jul 23, 2018	16	Mickey Mouse	Marketing	went on leave

Early Tasks

There were no early tasks

Change Requests

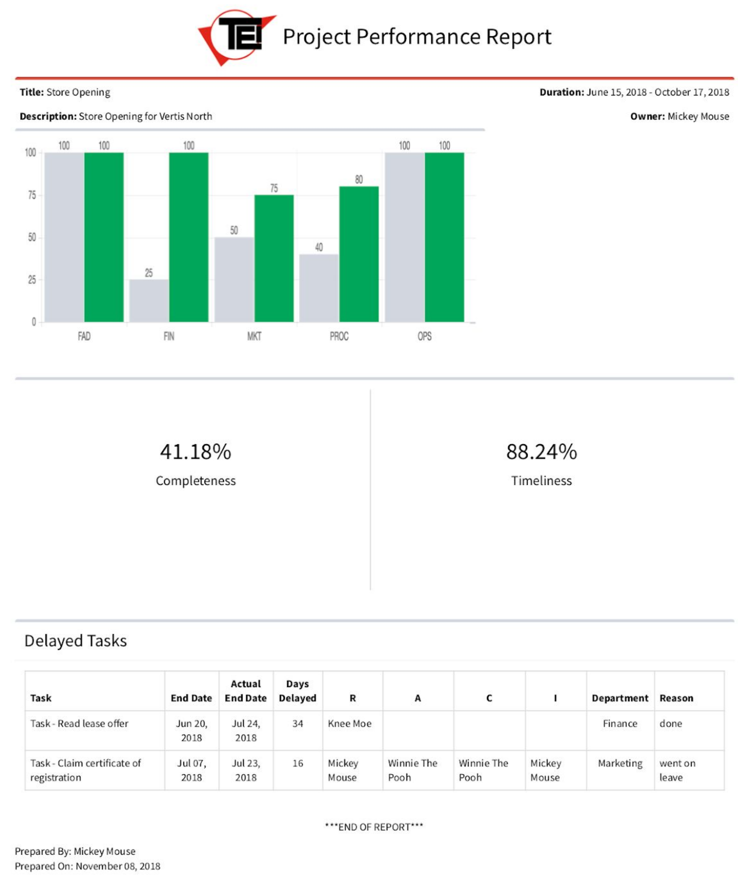
Task	Type	Date Requested	Reason	Requested By	Department	Status	Reviewed By	Date Reviewed	Remarks
Sub - Acquire certification of registration	Change Performer	Jul 06, 2018	On leave	FAD1 Staff	Facilities Administration	Approved	Mickey Mouse	Jul 25, 2018	-
Task - Look for mixer	Change Date	Jun 14, 2018	Documents were put on hold	Store Operations1 Supervisor	Store Operations	Approved	Mickey Mouse	Jun 15, 2018	-
Task - Submit certificate of registration	Change Performer	Jul 24, 2018	la lang	Mickey Mouse	Marketing	Pending	-	Nov 08, 2018	-
Task - Turnover of store	Change Performer	Jul 24, 2018	pagod	Knee Moe	Finance	Approved	Mickey Mouse	Jul 25, 2018	-
Task - Look for mixer	Change Performer	Jun 13, 2018	hirap	Pum Ba	Marketing	Denied	Mickey Mouse	Jun 14, 2018	fa
Task - Submit certificate of registration	Change Performer	Jul 25, 2018	does it go in?	Mickey Mouse	Marketing	Pending	-	Nov 08, 2018	-
Task - Submit certificate of registration	Change Performer	Jul 27, 2018	Wronmg staff	Mickey Mouse	Marketing	Pending	-	Nov 08, 2018	-

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

Reference No.	R-05
Name	Project Performance Report
Description	This reports generates the performance metrics of a project and all the departments involved in a project in terms of its completeness and timeliness. All delayed tasks are also shown in a table format.
Used and Prepared By	President, and Heads and Supervisors involved in a project
Volume and Frequency	Once as needed
Purpose	The purpose of this report is for the project owner to see how all the departments involved in their project are performing. In here, the project owner can determine which departments are causing the delay, as well as the task that is delayed.
Tables Used	Users, Tasks, RACI

Layout



Project Performance Report

Title: Store Opening

Duration: June 15, 2018 - October 17, 2018

Description: Store Opening for Vertis North

Owner: Mickey Mouse

41.18%
Completeness

88.24%
Timeliness

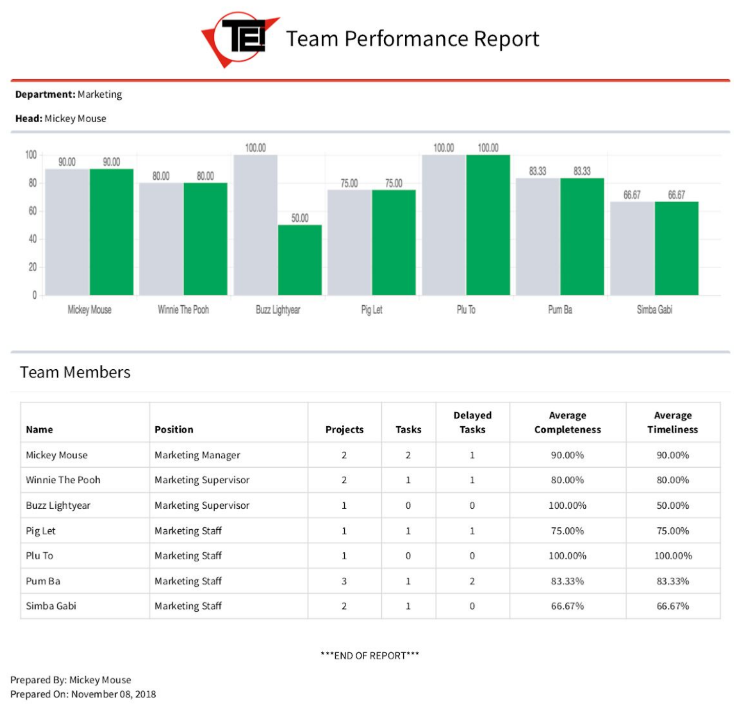
Delayed Tasks

Task	End Date	Actual End Date	Days Delayed	R	A	C	I	Department	Reason
Task - Read lease offer	Jun 20, 2018	Jul 24, 2018	34	Knee Moe				Finance	done
Task - Claim certificate of registration	Jul 07, 2018	Jul 23, 2018	16	Mickey Mouse	Winnie The Pooh	Winnie The Pooh	Mickey Mouse	Marketing	went on leave

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

Reference No.	R-06
Name	Team Performance Report
Description	Team Performance Report shows the performance metrics of all the user's subordinates. It also shows the number of projects and tasks a certain person is currently handling and also the number of delayed task per user.
Used and Prepared By	Department Heads and Supervisors
Volume and Frequency	Once as needed
Purpose	This report is for the department heads and supervisors to see how their subordinates are performing. It also shows

<table>
<tr><td></td><td>the workload of each person for the user to be able to determine who can handle more work if need be. The main purpose of this report is to aid in the appraisal of employees every year.</td></tr>
<tr><td>Tables Used</td><td>Users, Projects, Tasks, RACI</td></tr>
<tr><td>Layout</td><td>


Team Performance Report

Department: Marketing

Head: Mickey Mouse

Team Members

Name	Position	Projects	Tasks	Delayed Tasks	Average Completeness	Average Timeliness
Mickey Mouse	Marketing Manager	2	2	1	90.00%	90.00%
Winnie The Pooh	Marketing Supervisor	2	1	1	80.00%	80.00%
Buzz Lightyear	Marketing Supervisor	1	0	0	100.00%	50.00%
Pig Let	Marketing Staff	1	1	1	75.00%	75.00%
Plu To	Marketing Staff	1	0	0	100.00%	100.00%
Pum Ba	Marketing Staff	3	1	2	83.33%	83.33%
Simba Gabi	Marketing Staff	2	1	0	66.67%	66.67%

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018
</td></tr>
</table>

Reference No.	R-07
Name	Employee Performance Report
Description	This report generates all the projects the user is or was involved for the calendar year. It shows their completeness and timeliness for each project, and their overall completeness and timeliness. This report also generates all change requests that the user has submitted.
Used and Prepared By	Anyone

Volume and Frequency	Once as needed
Purpose	The purpose of this report is for the employee to see their performance in terms of completeness and timeliness. This is helpful for the employee to know if there's a need for them to improve on a certain area.
Tables Used	Users, Projects, Tasks, RACI

Layout

Employee Performance Report

Name: Mickey Mouse
Position: Marketing Manager
Department: Marketing

90.00% Completeness

90.00% Timeliness

Store Opening (Jun 15, 2018 - Oct 17, 2018)			Completess: 50.00%			Timeliness: 50.00%		
Task	**Start Date**	**End Date**	**Actual End Date**	**Days Delayed**	**A**	**C**	**I**	**Status**
Task - Submit certificate of registration	Jun 29, 2018	Jun 30, 2018	-	-	Mickey Mouse	Mickey Mouse	Mickey Mouse Donald Duck	Ongoing
Task - Claim certificate of registration	Jul 06, 2018	Jul 07, 2018	Jul 23, 2018	16	Winnie The Pooh	Winnie The Pooh	Mickey Mouse	Complete

Mulan (Apr 16, 2018 - May 04, 2018)			Completess: 100.00%			Timeliness: 100.00%		
Task	**Start Date**	**End Date**	**Actual End Date**	**Days Delayed**	**A**	**C**	**I**	**Status**
Task 1 - Project 7	Apr 16, 2018	May 04, 2018	May 04, 2018	0				Complete

Store Opening - DLSU Andrew (Jul 01, 2018 - Dec 18, 2018)			Completess: 88.89%			Timeliness: 88.89%		
Task	**Start Date**	**End Date**	**Actual End Date**	**Days Delayed**	**A**	**C**	**I**	**Status**
Task2.1.3	Jul 12, 2018	Jul 13, 2018	Jul 13, 2018	0	Buzz Lightyear	Oh Laugh	Walt Disney	Complete
Task2.2.1	Jul 14, 2018	Jul 15, 2018	Jul 15, 2018	0	Winnie The Pooh	Oh Laugh	Walt Disney	Complete
Task3.1.1-Attach sample product sizing	Jul 25, 2018	Jul 28, 2018	Jul 28, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.1.2-Attach Light Bulbs	Jul 25, 2018	Jul 30, 2018	Jul 30, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.1.3-Test all elecrical equipment	Jul 25, 2018	Aug 03, 2018	Aug 03, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.2.1-Packaging inventory	Jul 25, 2018	Aug 05, 2018	Aug 05, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.2.2-Food inventory	Jul 25, 2018	Aug 10, 2018	Aug 10, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.2.3-Equipment inventory	Jul 25, 2018	Aug 15, 2018	Aug 15, 2018	0	Jack N. Poy	Oh Laugh	Walt Disney	Complete
Task3.3.3-Receive Digital Menu TVs	Jul 25, 2018	Nov 04, 2018	-	-	Jack N. Poy	Oh Laugh	Walt Disney	Ongoing

Template Test (Jul 22, 2018 - Jul 22, 2018)			Completess: 100.00%			Timeliness: 100.00%		
Task	**Start Date**	**End Date**	**End Date**	**Delayed**	**A**	**C**	**I**	**Status**
Task	**Start Date**	**End Date**	**Actual End Date**	**Days Delayed**	**A**	**C**	**I**	**Status**
aaa	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
aab	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
aba	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
abb	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
baa	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
bab	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
bba	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete
bbb	Jul 22, 2018	Jul 22, 2018	Jul 22, 2018	0				Complete

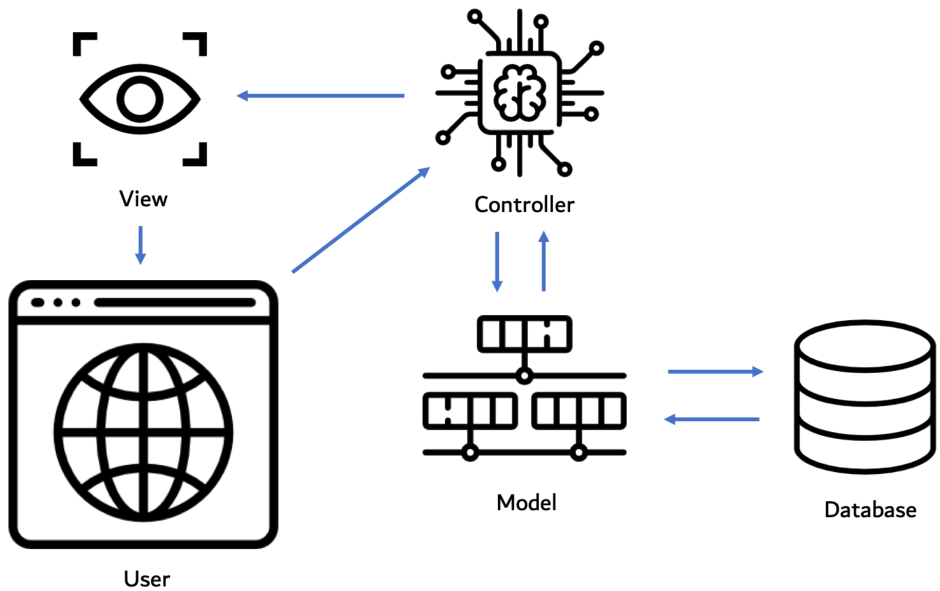
Change Requests

Task	End Date	Type	Date Requested	Reason	Status	Reviewed By	Reviewed Date
Task - Submit certificate of registration	Jun 30, 2018	Change Performer	Jul 24, 2018	la lang	Pending	-	-
Task - Submit certificate of registration	Jun 30, 2018	Change Performer	Jul 25, 2018	does it go in?	Pending	-	-
Task - Submit certificate of registration	Jun 30, 2018	Change Performer	Jul 27, 2018	Wronmg staff	Pending	-	-

END OF REPORT

Prepared By: Mickey Mouse
Prepared On: November 08, 2018

4.0. Architectural Design



Kernel Architectural Design

The system utilizes the CodeIgniter Model-View-Controller (MVC) framework as illustrated above. From a user point of view, the user will simply need to access the system through a web browser and click on different action or navigation buttons. From the system's point of view, as the user tries to access the system, the controller will begin the request cycle. Each action performed that requires data processing or view manipulating is considered a request.

The controller is responsible for bridging the data and the view together. Data processing also happens in the controller where it prepares the data for the model to insert into the database, or for the view to display to the user. The model is the only access point to and from the database. It handles reading and writing of data through SQL queries. The database is simply the storage of a collection of data segregated into tables. The system only makes use of one database. Lastly, the view is the format of data that the user sees.

The request cycle, as mentioned earlier, begins with an event-trigger to the controller, which then calls the model to access the database and gather the requested data. The model then returns the data to the controller, and after some processing, the controller sends the results to the view. The view then organizes the screen according to the layout set and by inserting the data in their respective positions.

5.0. Maintenance Plan

System Maintenance and Support activities include, but are not limited to, diagnosing and correcting bugs/errors, maintaining and updating software and configuration settings, and continuous improvement and implementation of significant features to the overall system. These activities may be conducted by in-house developers present in the company or the original developers of the system. All system updates and configuration should be recorded for proper accountability and reference for future updates and developers.

There are various types of maintenance, and it is important to know what they are and the appropriate approach on tackling each one of them. To name a few, there are preventive maintenance, controlled maintenance, and corrective maintenance.

Preventive maintenance can be easily related to the phrase "Prevention is better than cure". As the name itself, this type of maintenance focuses on detecting the possible risks in the system before they develop to a full-blown error. This type of maintenance can be practiced by doing routine inspections, which will include testing and adjustments, on the system to ensure that the modules and functions are performing as expected. A maintenance log sheet may be produced and recorded to keep track of each preventive maintenance approach as follows:

Date	Performed By	Risks Found (Description)	Concerned Module/Function
mm-dd-yyyy			

Preventive Maintenance Log Sheet Template

Controlled Maintenance are scheduled and performed according to the company for the system's improvement. The controlled maintenance may handle the new updates of the tools used in the system released by a specific vendor. A monthly/yearly improvement and system code refactoring may be planned to continuously better the system and its processes. A fixed maintenance schedule may be produced given the appropriate information:

Date of Execution	Update to Address	Concerned Module/Function	Assigned Performer
mm-dd-yyyy			

Corrective Maintenance Log Sheet Template

Corrective Maintenance is triggered by an error generated by the system or, in worst cases, when the system crashes entirely. The main goal for this type of maintenance is to solve the identified bug/problem and get the system restored and running normally as soon as possible. An error may be reported by a user using the following form:

User Report Form	
Report Date:	mm-dd-yyyy
Reported By:	
Module/Function:	
Event Description /Scenario:	
System Behavior:	
Comments:	

User Report Form Template

Given that the error/problem has surfaced and is brought to the attention to the developers, the information at hand may be logged in a system errors sheet which would keep track of the bugs found, as these may not be entirely avoided and spotted during the development stage. The sheet is formatted as follows:

Report Date	Reported By	Problem Descriptio n	Expected Result	Actual Result	Resolved Date	Resolved By
mm-dd-yyyy					mm-dd-yyyy	

System Errors Log Sheet Template