Digital Image Database

FINAL PROPOSAL

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Executive Summary

Over the past year, 7-Eleven has recognized the significant need for a digital transformation in order to maintain a competitive edge in today's market economy, improve transaction times, and capitalize on the increasing growth of technology to produce experiences of the future. The group proposes to design a Digital Image Database at the request of 7-Eleven's Digital Department in order to facilitate development, approval, and implementation times for various projects incorporating inventory items sold by the company. The need for this database results from countless ongoing digital initiatives such as mobile applications, advertisements, social media engagements, and e-commerce sales, and potential future initiatives requiring visual and audio-visual content pertaining to 7-Eleven's vast inventory.

The initial concept for this database is centered on constraints currently faced by various teams within the Digital department (and ancillary issues faced by the Marketing Team), to include:

- Variability in project deadlines for each team
- No existent shared repository for immediate usage
- Little graphic design support for individual requests
- Long turn-around times for image creation and/or modification
- Lack of cross communication/information-sharing platform within the company (both internally and across various departments (Digital, Marketing, Merchandising))

Our proposal is to develop a project that will satisfy these requirements and optimally expedite both the production and design of digital content for the company's full-stack transformation, tying together ongoing efforts from within the company to create a cohesive effort and improve its digital edge. The high-level objectives we intend on covering include:

- Reducing digital content development turn-around times
- Increasing cross-department collaboration
- Capitalizing on pre-existing content localized within certain departments/teams
- Rapidly incorporate new, featured items upon availability
- Enhancing marketing, media, and delivery initiatives and customer experiences

We have also submitted the proposed Project Charter and Analysis based documents for the project, and intend on identifying any risks through our analysis and capitalizing on any pre-existing products and/or services from within the company that may facilitate the development of the database. Models of the database will be presented to key stakeholders within the Digital, Merchandising, and Inventory Departments during planning for evaluation on feasibility and accessibility prior to selecting the final concept and proceeding forward with execution.

Systems Proposal

Project Overview

To create a centralized digital image database (DID) to support the fast paced digital development work for various digital departments in 7-Eleven.

Project Objectives

- The creation of a centralized digital image database will empower the project teams to work on the items branding smoothly without any roadblocks.
- The system will speed up the project deliverables by providing timely access of the required images, the status (number of images, quality of images etc.) & availability of the images and will also serve as a single destination for raising image request for any products.
- This system will also support a feature of generating a request for upgrading already uploaded images. This may include updating the quality of the image or the size of the image.
- All the digital teams will be given access to the image repository. The database will include information about each product along with all the links for the images associated with it.
- This image database will be used as the single point to retrieve the images for the products to showcase on the website and on the product listings in the mobile application.

High Level Requirements/Deliverables

There are several deliverables that will be produced as a result of the successful completion of the centralized digital image database. If all the deliverables are not met, the project will not be considered as successful/completed.

- A tested and operational centralized digital image database with no defects meeting all requirements as stated in the scope statement.
- Creating a user interface for sign in and uploading the images, which are approved by the merchandising team.
- Integrating the functionality in the user interface to raise requests for upgrading the uploaded item images.
- Procure a licensed cloud storage for the image repository
- Quality assurance of the developed system, including test cases of all subdivided tasks.
- Providing support for the project during the integration with the old system and the transfer of the images to the DI cloud repository

Project Scope

In Scope:

- Procurement of high quality/professional images (nutritional info, product descriptions, 360 view of the products) of the all the new products that are being added to the 7-eleven products list. Moreover, upgrading the images for existing products if need be.
- Procurement of cloud storage system along with backup severs for storing the existing and acquired images.

- Creation of the user interface for uploading images along with their relevant information, raising requests for updating images, and viewing images of the products.
- Providing access to specific individual for viewing and downloading the images for internal use only.
- Develop a secure and efficient database containing all the information for a specific product along with links to its every image.
- Creating a sound project plan based on agile methodology. Sprint will kick off with a sprint planning meeting. Each sprint will be of 2 weeks and will be followed by sprint retrospective meeting.
- Entire team will update their daily tasks, dependency, risks and other call outs in the daily standup meetings. Daily standups will happen in war rooms.
- Project Manager will ensure that every team member is given access to JIRA (to see the user stories assigned to them), Confluence (to create documents related to one's task and update the same accordingly) and box (for sharing design documents and timelines for the project).

Out of Scope:

- Maintenance of the system after the successful completion
- Creation of authentication functionality to provide access to the user to view, upload and download the images.
- Checking the data integrity i.e. whether the images and information about the product are valid or not.

Constraints and Risks

- Collection of high-quality images for the newly released products.
- Number of resources required for contacting the vendor for the proper images of the product.
- Sustainability of newly developed processes (approval of the images from merchandizing team) and integration in a timely fashion.
- There are limited resources working on the development of the project. Absence or unavailability of the team members would result in delayed deliverables as there are no backup replacements.
- Developers may have technical limitations and would need extra time for complex implementations.

Assumptions

The project is based on the following assumptions:

- The human resources team can get the necessary resources required for the completion of the project
- The procurement team can get the cloud storage and all the cloud servers required to serve as image repository.
- The project manager will have full authority of the project team and support of the stakeholders of the project.
- Project manager will be responsible for setting up all the scrum meetings and notify the involvement of all the required members.
- There will be necessary training for all the team members new to agile methodology and project will provide the budget for it.

Project Success Criteria

Timely completion of deliverables which require High-Res digital images of the new/old products by the digital teams including but not limited to web and mobile application support team.

Expected Value

An increase in 7-Eleven's gross revenue and desire to compete in the technological realm are the driving factors for full-stack digital transformation. In the 4th Quarter of 2018, 7-Eleven's operating income increased an average of 47% ($88 million to $130 million), in which a significant portion was attributed to increased sales stemming from the proliferation of social media and online content and implementation of smartphone applications (7NOW Delivery, 7Rewards, Scan & Pay) and Amazon e-Commerce sales of proprietary goods.

We estimate that approximately 30% of the total revenue stems from the implementation of these additional digital resources, mainly because not all products are currently available for purchase.

Below are the current development timeframes based on current 7-Eleven Digital Team resources and personnel. The greatest amount of time is spent on obtaining and rendering product images:

- The estimated timeframe to create audiovisual social media content (Facebook, Instagram, Twitter) is approximately 1 post per week.
- Changes to 7-Eleven's webpage are implemented monthly.
- Approximately 500 items are launched and available for purchase in 1 month for the 7NOW mobile delivery application.
- Approximately 10 coupons are developed and incorporated for the 7Rewards mobile application.
- Approximately 10 new 7-Eleven proprietary items (food, beverages, or merchandise) are launched and available for purchase through Amazon in the span of 1 month.

With the incorporation of our project, we anticipate revenue from digital sales to double based on a significant increase in product selection, online presence, and advertising. The production of visual and audiovisual content would greatly facilitate product launches, making it capable for teams to push out new content and product launches on a weekly/bi-weekly basis (rather than monthly). Based on the 4th Quarter revenue, doubling 30% ($39 million to $78 million) would increase the company's overall revenue to approximately $169 million.

Requirements Definition

Functional

Functional Requirements are features or requirements the developer/programmer must implement to let the users accomplish required tasks.

1. Requirement: User – 1

The User should be able to login in the system using the company credentials

Case: The user must be able to login to the system using the company credentials. (The username and password can be autosaved if required by the user.)

Benefit: Maintenance of extra database table can be removed by using the existing credentials. Additionally, no other user outside the organisation will be able to access the portal.

2. Requirement User-2

The user must be able to choose between the product categories

Case: The user must be able to choose between product categories like beverages, food, daily needs etc. so that the addition of the product to the database gets easier.

Benefit: It will be easier for database admin to search for the product in the later stages.

3. Requirement User-3

The user must be able to view the product addition form

Case: The product addition form must be accessible to the user so that all the required field values can be filled about the product.

Benefit: All the information about the product can be submitted at one place without missing any parameters

4. Requirement User-4

Field validation must be applied to the form

Case: Field value validations must be active on the form text boxes so that wrong/junk data cannot be submitted via form

Benefit: Vague and wrong values will not get submitted through the form. Also, it will check the submitted box link for the pictures.

5. Requirement User-5

User must be able to view the submitted entries after submission

Case: The user must be able to view the submitted entry after submission so that the entry can be revoked it the user finds a mistake in the submission.

Benefit: Duplicate data will not get inserted in the database table.

6. Requirement User-6

User must be able to edit and delete the submitted entry

Case: The user must be able to either edit or delete the submitted entry so that wrong submitted data can be corrected.

Benefit: A new entry will not be required to be submitted if a user makes a mistake during submission

7. Requirement Admin-1

Admin must be able to login in the system using company credentials

Case: The admin of the database must be allowed to login in the system using company credentials. Different privileges will be given to different users

Benefit: Maintenance of extra database table can be removed by using the existing user credentials.

8. Requirement Admin-2

The admin must be able to view all the submitted product descriptions

Case: The admin must be able to view all the submitted entries by the employees

Benefit: This will allow the admin to approve or reject the submitted entries

9. Requirement Admin-3

The admin must be able to approve, reject or modify a submitted entry

Case: The admin must be able to either approve or reject the submitted entries. Also, admin can edit any entry if required.

Benefit: Employees can directly contact the admin to make amendments in the submitted entries if required

10. Requirement Admin-4

The admin must be able to delete an existing entry from the database

Case: The admin must be able to delete any obsolete, duplicate or any other existing entry from the database

Benefit: If the company stop selling a certain product, the entry for that product can be deleted from the database to remove redundancy.

11. Requirement System-1

The system must be able to connect to the database

Case: The system must be able to connect to database while adding and removing entries.

Benefit: The submitted entries will not get lost due to connection errors.

12. Requirement System-2

The system must throw an error in case the connection breaks

Case: The system must send out a notification/error message in case the connection to the database breaks

Benefit: The submitted entries will not get lost due to broken connection

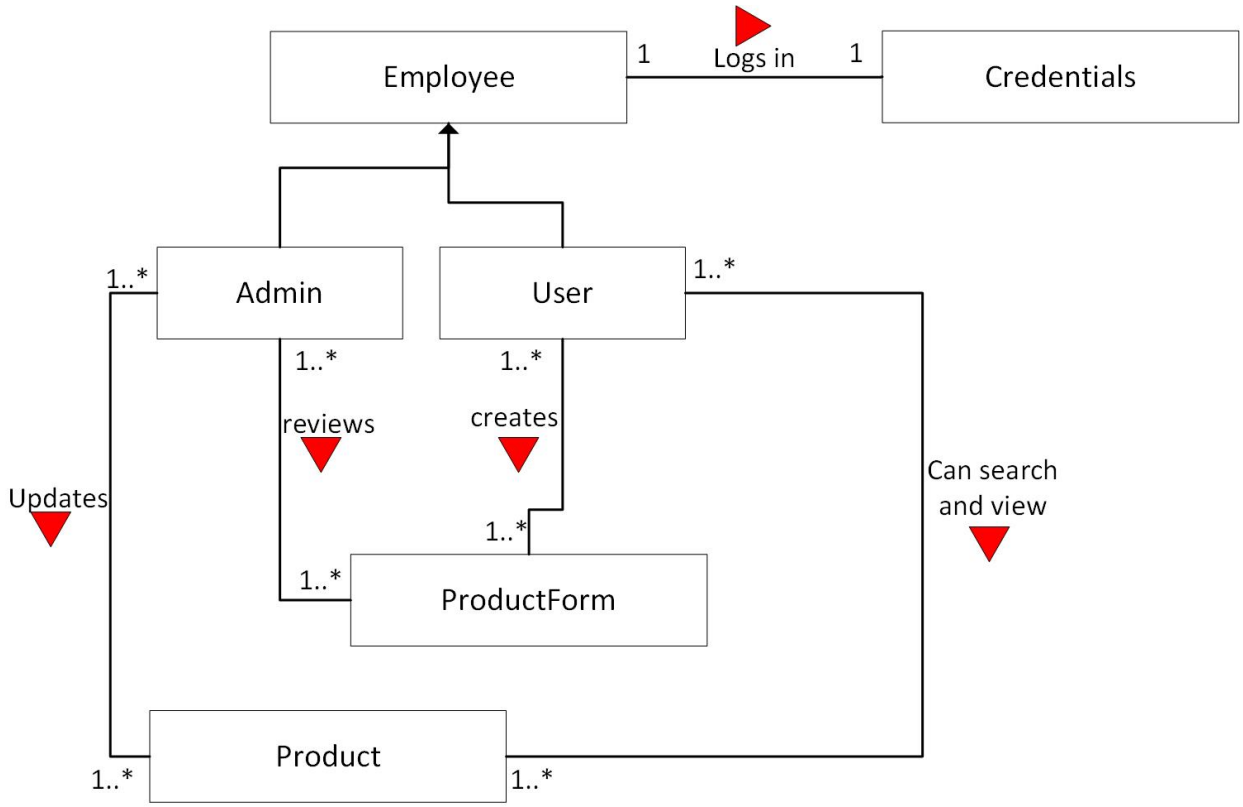
Non-Functional

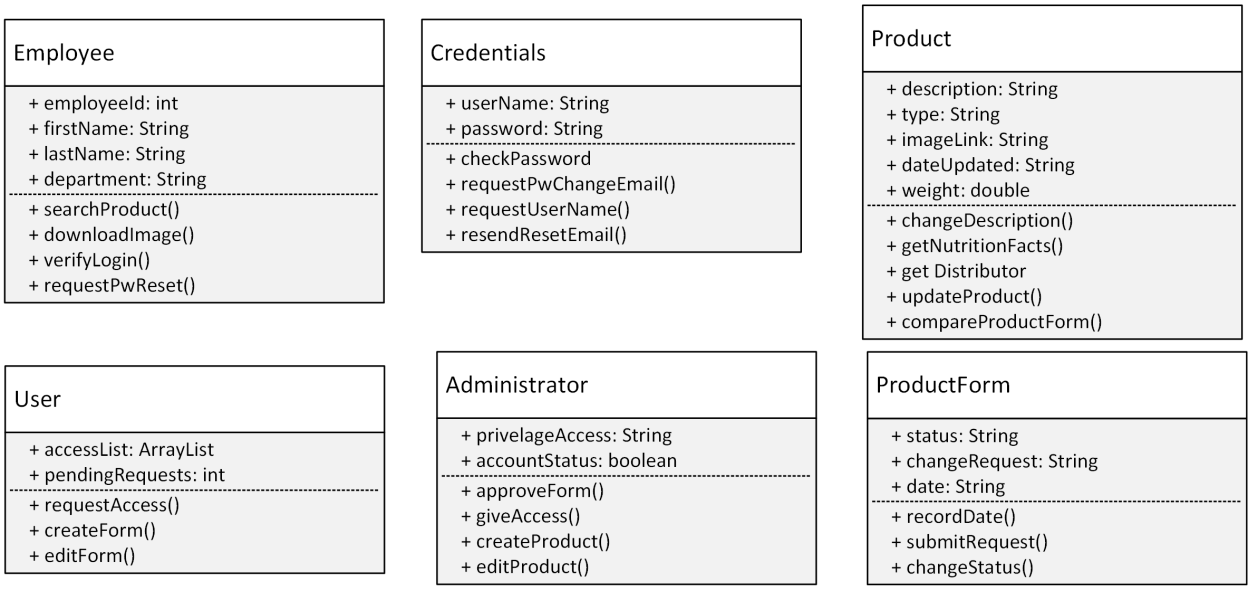
Non-functional requirements points out how the system behaves and what all are the constraints on the system.

1. **Usability Requirements**
    - The system should allow the users to access the system from the Internet using HTML. The users can access the application using browser as an interface. As all the users are familiar with the usage of the browsers no training is required for that.
2. **Security Requirements**
    - Users with the valid authorization would be able access the system.
    - Only admins/special users will receive product approval authorizations.
3. **Reliability Requirements**
    - The image upload and product upload functionality would still function in case of server failure by utilizing backup servers.
4. **Performance Requirements**
    - The response time for uploading single image for a product is about 0.5 seconds. There should not be any lag or disruption while uploading any image or adding a product.
    - The application and the system should be able to handle multiple uploads without affecting the response time.
5. **Availability Requirements**
    - The system is available 100% for the user and is used 24 hrs a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.
6. **Scalability Requirements**
    - The application should be easily integrated within the intranet website of the organization and should be able to sustain under the current IT infrastructure.
7. **Maintainability/Portability Requirements**
    - There will be a maintenance period once a month for inventory updates and software updates.
    - The application should be integrated with other applications on different servers for backup purposes.
8. **Flexibility Requirements**
    - While the development of the application, provisions should be made so that application is flexible enough to be upgraded using future programming languages.
    - Different scenarios should be considered for adding future enhancements to the application.
9. **Supportability Requirements**
    - A support team should be assigned for providing user and admin support when needed.

Structural Models

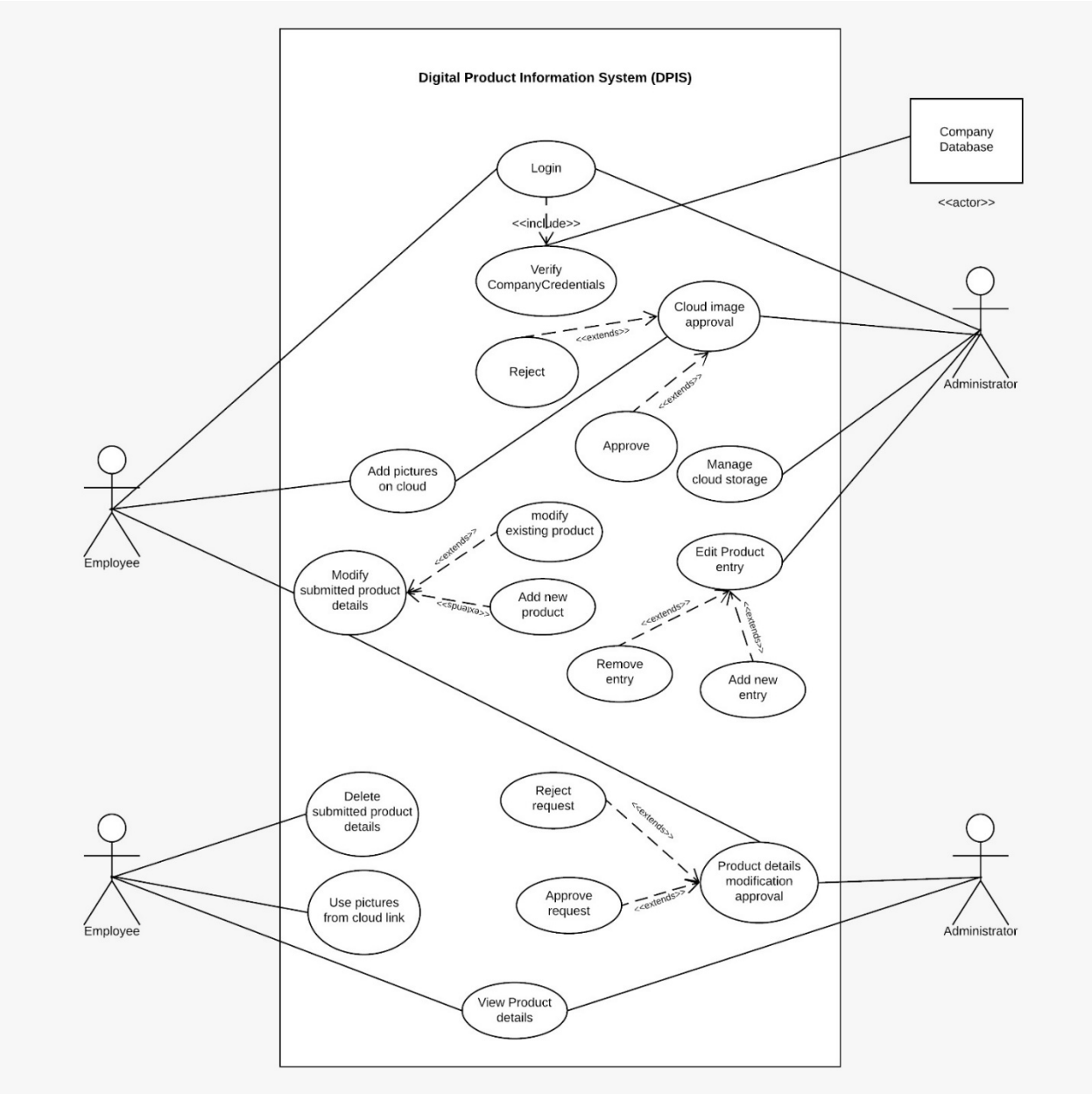
Class Diagram





Behavioral Model

Use Case Diagram



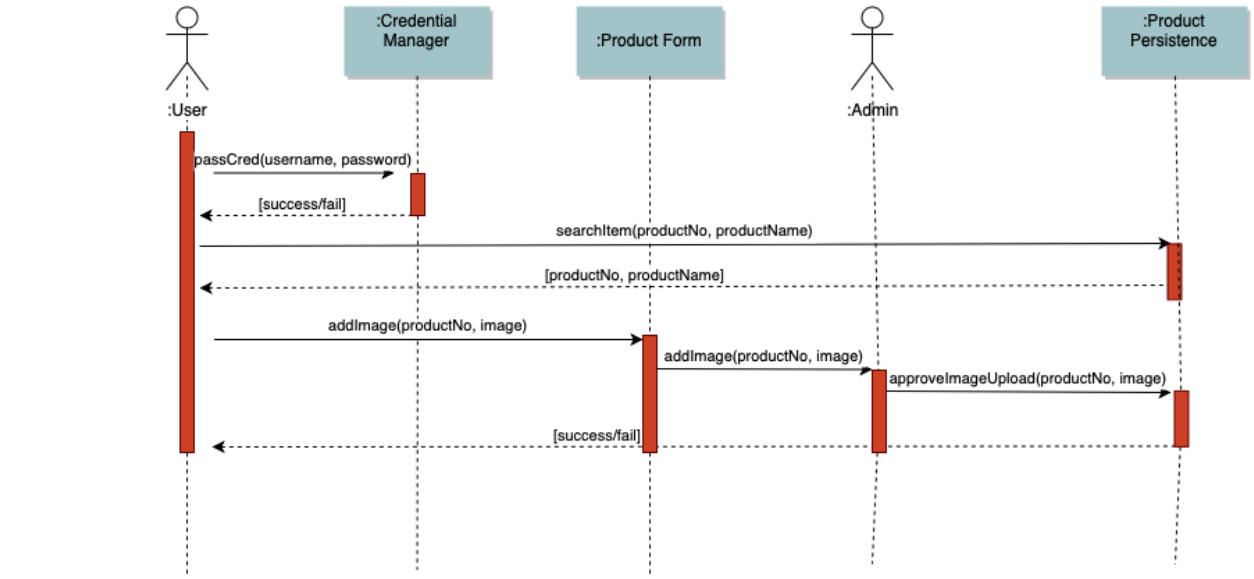
Use Case Description	
Use case	Digital Product Information Systems (DPIS)
ID	711_1
Scope	Add Pictures to Cloud
Priority	First priority
Summary	a user interface for sign in and uploading the images, which are approved by the merchandising team.
Primary Actor	User, Admin
Supporting Actor	Credentials Manager, Product form, Product Persistence
Stakeholder	Senior Developer, Database Architect, Project Manager, Graphic Designer, Infrastructure Architect
Generalization	
Include	Login-->verify the credential,
Extend	Add Image---> Approval notification
Precondition	There is a cloud environment setup for uploading the pictures. Database connections are setup
Trigger	User uploads the pictures to cloud, whenever there is a new picture available
Normal Flow	Login credentials check, Search the product, Add image with product details and approval
Sub Flow	Notify the user of approval success or failure for the image
Alternate Flow	NA
Post Conditions	The Images are uploaded into the cloud and access to the repository is provided to stakeholders
Open Issues	NA
Source	Images are obtained from the appropriate vendors
Author	Amruutha Chandrasekar Rao, Pulkit, Kat Ly
Revision and Date	10/31/2018

Use Case Description	
Use case	Digital Product Information Systems (DPIS)_modify Submitted product
ID	711_2
Scope	Modify A Product detail
Priority	Second priority
Summary	Products listed can be upgraded or changed by logging in the system and items can be added
Primary Actor	User ,Admin
Supporting Actor	Credentials Manager, Product form ,Product Persistence
Stakeholder	Senior Developer, Database Architect ,Project Manager, Graphic Designer ,Infrastructure Architect
Generalization	
Include	Login-->verify the credential,
Extend	Modify the submitted product details---> modify product ,Add new product , Edit product --> Remove entry ,Add new entry
Precondition	There is a cloud environment setup for uploading the pictures . Database connections are setup. There is product listing in the interface
Trigger	User uploads the pictures to cloud ,whenever there is a new picture available
Normal Flow	Login credentials check , Search the product , Add item with product details ,add item approval
Sub Flow	Notify the user of approval success or failure for the additem
Alternate Flow	Add item approval is failed then there is an alternate flow for modifyitem approval.
Post Conditions	The product details are modified and access to the repository is provided to stakeholders
Open Issues	NA
Source	new released product details are obtained from vendors
Author	Amruutha Chandrasekar Rao, Pulkit, Kat Ly
Revision and Date	10/31/2018

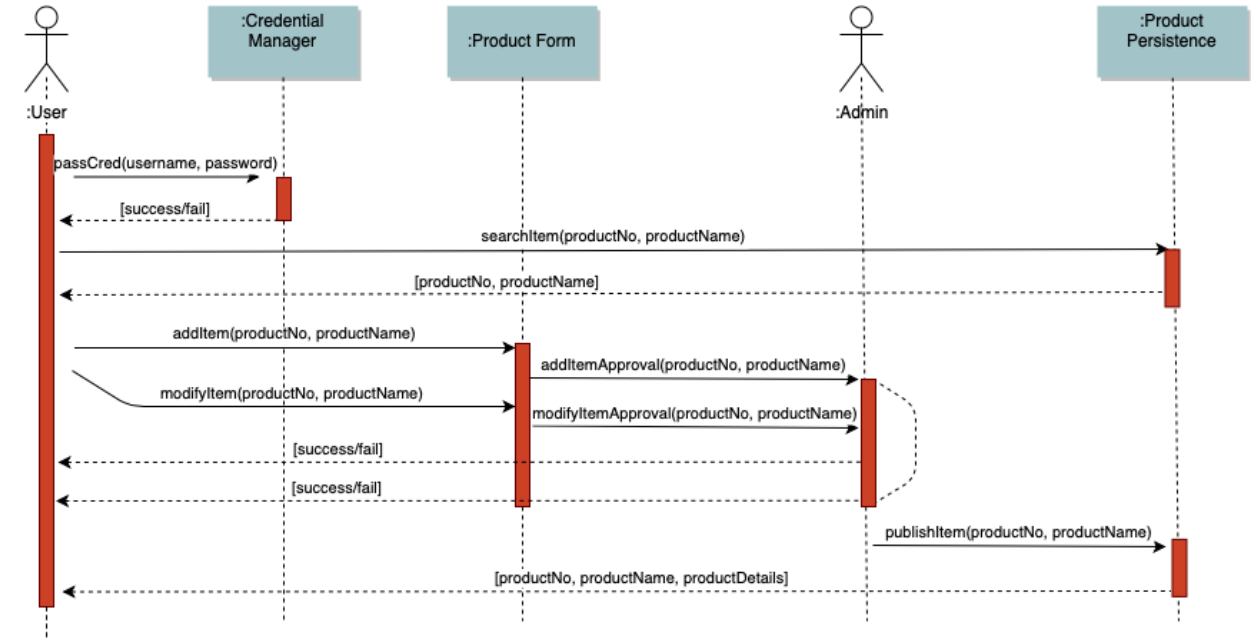
Dynamic Models

Sequence Diagrams

add pictures on cloud

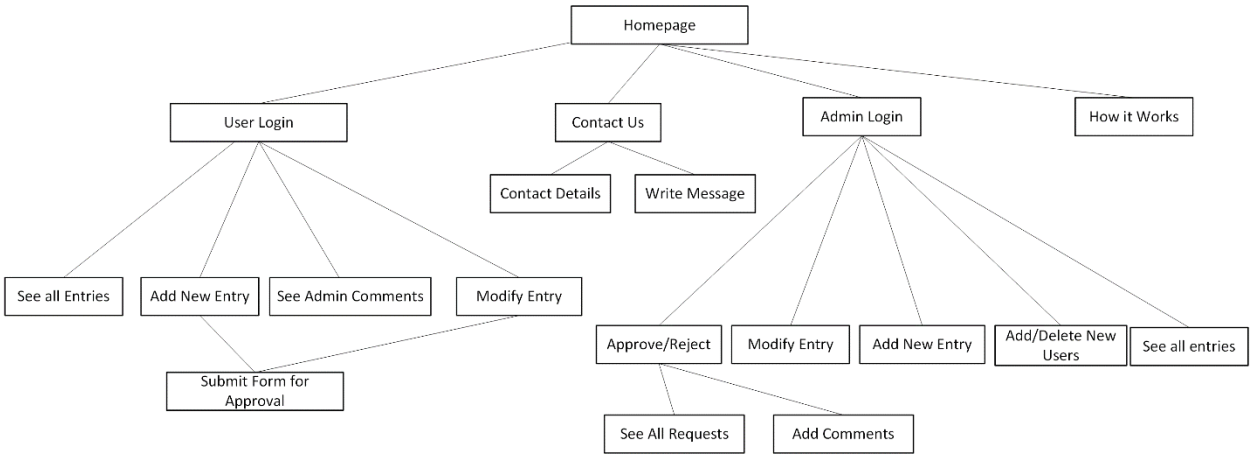


modify submitted product details

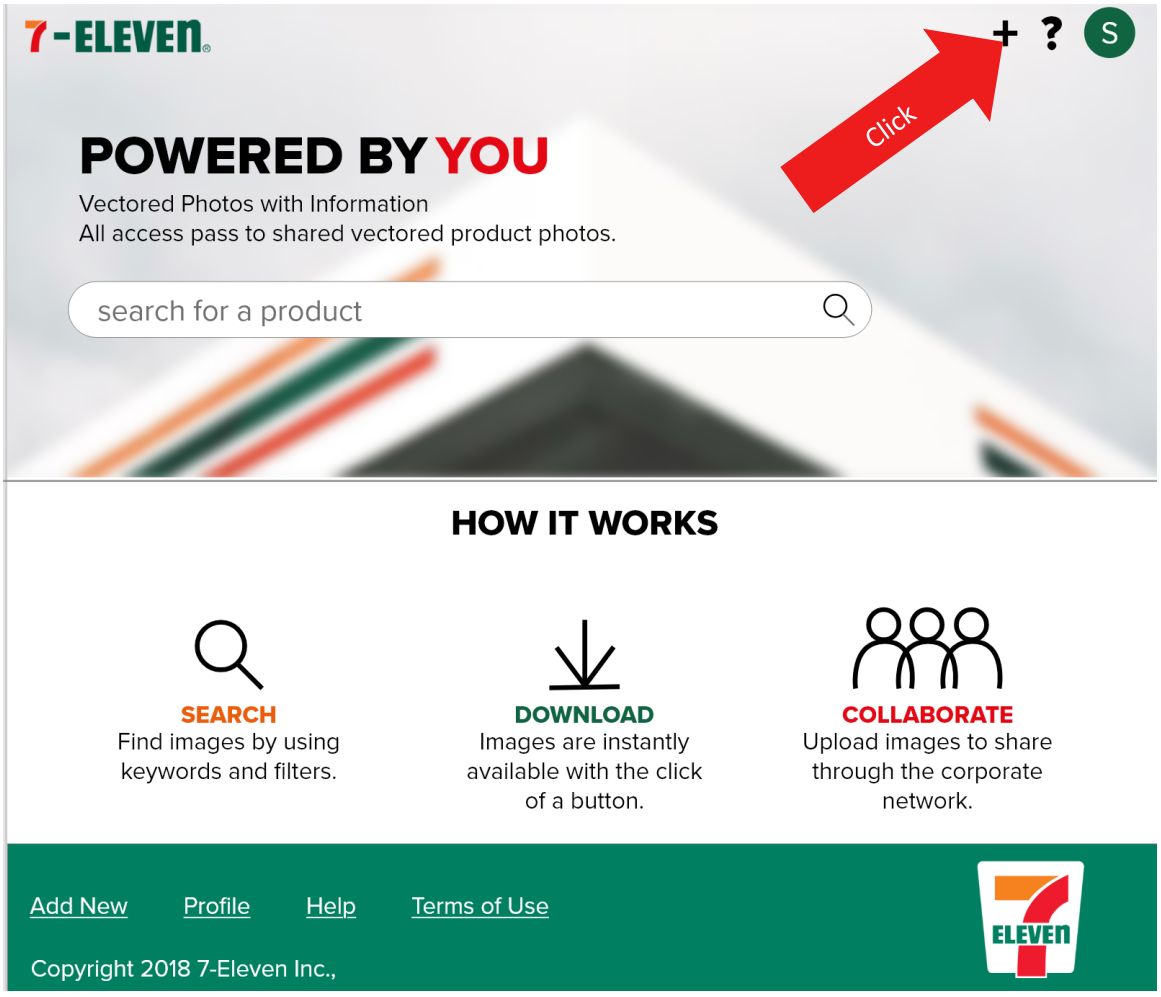


Design Documents

Navigation Diagram



Add New Entry-Flow



7-ELEVEN search... + ? S

Add New Product Image

Vectorized Image of Product

Drag or click to upload an image

Nutritional Information

Drag or click to upload an image

Other Uploads

Drag or click to upload an image

Additional Information/Message

Submit

Add New Product Image

Successful Submission

Thank you!

A system administrator will review your submission and may ask for additional information or edits. Once approved, you will be notified through your profile messages.

Ticket #: 11242018002

Nutrition Facts

Serving size About 13 pieces (28g)

Amount per serving

Calories 160

	% Daily Value*
Total Fat 10g	13%
Saturated Fat 1.5g	8%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 270mg	12%
Total Carbohydrate 16g	6%
Dietary Fiber less than 1g	3%
Total Sugars 1g	
Protein 2g	
Vitamin D 0mcg	0%
Calcium 20mg	0%
Iron 0.4mg	2%
Potassium 80mg	0%

Not a significant source of added sugars.

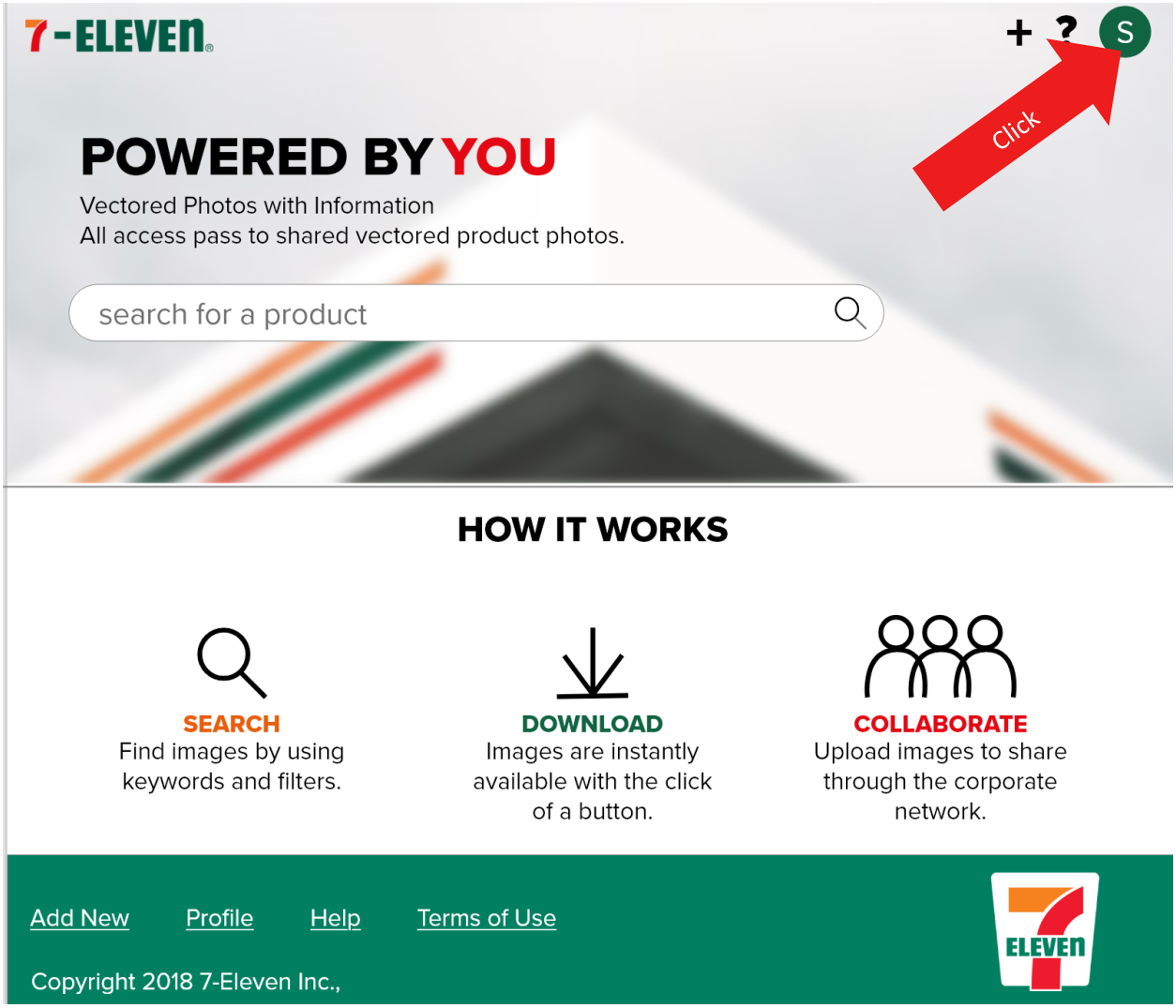
* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Ingredients: Enriched Corn Meal (Corn Meal, Ferrous Sulfate, Niacin, Thiamin Mononitrate, Riboflavin, Folic Acid), Vegetable Oil (Corn, Canola, and/or Sunflower Oil), Cheese Seasoning (Whey, Cheddar Cheese [Milk, Cheese Cultures, Salt, Enzymes], Canola Oil, Maltodextrin [Made from Corn], Natural and Artificial Flavors, Salt, Whey Protein Concentrate, Monosodium Glutamate, Lactic Acid, Citric Acid, Artificial Color [Yellow 6]), and Salt.
CONTAINS MILK INGREDIENTS.

Comments

I could not find the manufacturers contact.

Profile Flow



7-ELEVEN search... + ? S

S

Sarah Tse
sarah.tse@7eleven.com
Eimployee

Welcome, Sarah!

Notifications

11242018001 - Your change has been approved
11242018002 - Please make changes

View All

Contact Us

Email: images@7eleven.com
Helpdesk Line: +1 (972)-458-2711

Help

-How do I add an image?
-How do I view notifications?
-How long does it take for a system administrator to accept changes?
-I want to update a product, how do I do that?
-How do I contact the helpdesk?
-I got an error, what should I do?
-I forgot my password, where can I reset it?

View All

Add New Profile Help Terms of Use

Software Design

<table>
<tr><td>Method Name: passCred</td><td>Class Name: credentialVerfication</td></tr>
<tr><td colspan="2">Description of responsibilities:

Implement the necessary behavior to verify the credentials, which provides authorization to all valid personnel to access the contents and functionality of the application</td></tr>
<tr><td>Arguments Received:

username
password</td><td>Data Type:

string
string</td></tr>
<tr><td>Return Value:

loginSuccess</td><td>Data Type:

Boolean</td></tr>
<tr><td colspan="2">Message and Example:
passCred(username, password) : Boolean
loginSuccess = passCred (pulkitA2018, uTd@2018)</td></tr>
<tr><td colspan="2">Algorithm Specification:

If username & password are not null, then
Authorize user to login and access the application
Return true
Else if username or password is incorrect, then
Ask user to re-enter the username or password
Return false
Else
Return false</td></tr>
</table>

Method Name: searchItem	**Class Name:** imageSearch

Description of responsibilities:

This method is responsible for all the valid search that happens within the application. This provides all the information of the product currently available in the inventory.

Arguments Received:	**Data Type:**
productNo productName	integer string

Return Value:	**Data Type:**
productDeatils	Object object

Message and Example:

searchItem (productNo, productName): Object object
var productDeatils **= {};**
productDeatils = searchItem (21222834, burtbeesLipBlam)

Algorithm Specification:

If productNo and productName are not null, then
Search for the item
Retrieve the details of the item from the database
Return true
Else if productNo or productName is incorrect, then
Show error to user (No items matching the criteria exist in the database)
Ask the user to correct the details
Return false
Else
Return false

Method Name: addImage	**Class Name:** imageUpload
Description of responsibilities: This method is responsible for adding an image for an already existing item in the catalog. This method when invoked updates the database and provides a 0/1 as feedback for failure/success respectively.	
Arguments Received: productNo imageUrl	**Data Type:** integer string
Return Value: uploadSuccess	**Data Type:** Boolean
Message and Example: addImage (productNo, imageUrl): Boolean uploadSuccess = searchItem (21222834, https://www.cloudXXstorage.com/repo/seven11/burtbeesLB/vanilla/3-top.jpg)	

Algorithm Specification:
 	
If productNo and imageUrl are not null, then
Add the image details in the database for the specific product
Retrieve the image from the cloud using the URL
Add the image along with the product to show on the website
Return true
Else
Return false	

Method Name: modifyItem	**Class Name:** updateItemDetails
Description of responsibilities: This method updates any and all the details regarding an item.	
Arguments Received: productNo productName details	**Data Type:** integer string object Object
Return Value: successRequest	**Data Type:** Boolean
Message and Example: var details = {} modifyItem (productNo, productName, details): Boolean details = {expiryDate: 12/12/18, flavor: apple} successRequest = searchItem (21222834, burtbeesLipBlam, details)	

Algorithm Specification:
 	
If productNo, productName, and details are not null, then
Update the all the mentioned details for the specific product
Return true
Else
Return false	

Testing

Test Approach

We intend on conducting manual testing using select individuals of the Digital Team in order to verify the accuracy, validity, quality, and performance of our application. Using the recipient to test the product will also give us the ability to gauge understanding from the end-user and receive immediate feedback should any issues arise. All testing will be conducted post-development, and will utilize sample cases derived from pre-existing inventory items.

The specific test cases used will be focused on functional (end-to-end) and security testing to simulate a full user-level experience. This will verify correctness across all layers of the Single-Sign On, User Interfaces, database, product approval queue, and cloud image repository, ensuring full functionality across each individual component for this project while also certifying the integrity of the data captured within.

Login testing will be imperative for security purposes to ensure that only authorized users are allowed to edit and access 7-Eleven inventory items and potential proprietary items. Limiting access to select employees (via admins) will also allow product information and images to be retained and mitigate the likelihood of redundancy or duplication of effort.

Test Cases

Test Case:	Login Page – Access database using company credentials
Description:	An authorized user should be able to successfully login to the application using 7-Eleven's Single Sign-On (SSO) authentication.
Precondition:	• User must already possess SSO authentication. • Admin has already granted login and access rights for user.
Assumption:	• Supported browser is being used.
Test Steps:	1. Navigate to the application page. 2. In the *username* field, enter the email address for 7-Eleven SSO. 3. Press tab to move to the next field or click in the *password* field. 4. Enter 7-Eleven SSO password into field. 5. Click "Login."
Expected Result:	The homepage will be displayed, showing options to search for a product through the Search bar or click on the "Product Addition" form to add an additional product into the application.

Test Case:	Search Items – Browse or search for specific products by category or attributes
Description:	An authorized user can search for a specific item either by browsing through categories (e.g. Chips, Cookies, Household Items) or search by specific product details (e.g. Product Name, Product Number).
Precondition:	• User must already possess SSO authentication. • Admin has already granted login and access rights for user. • Product has already been approved and added into the application.
Assumption:	• Supported browser is being used. • User is already logged in to the application.
Test Steps:	1. In the "Search for a product" search bar, type a keyword or specific product attribute. 2. Click the magnifying glass to conduct search.
Expected Result:	Results page will be displayed, showing all product options that match the inputted keyword or attribute. User can click "Download" to receive product images or "View Info" to view all product information stored within the database.

Test Case:	View/Edit Item – Manage product information through Product Addition Form
Description:	An authorized user can access the Product Addition Form to create a new product for the database, change information on the product, and/or add additional information about a product in accordance to pre-defined field value constraints.
Precondition:	• User must already possess SSO authentication. • Admin has already granted login and access rights for user.
Assumption:	• Supported browser is being used. • User is already logged in to the application.
Test Steps:	1. Click on "Product Addition Form" in the application home page. 2. User will see Product Form appear in a pop-up window. 3. Input product information fields (minimum mandatory fields: **Name, Size, Product Number (SLIN)**; optional fields: **Product Description, Nutritional Information, Ingredients, Manufacturer, Distributor, Product Allergy Indicators**). 4. Click "Submit for Review" at the bottom of the form.
Expected Result:	User will see a confirmation message stating, "Product has been submitted" immediately upon clicking "Submit for Review."

Test Case:	Edit/Delete Entries – Remove or edit existing Product Addition entries after submittal
Description:	An authorized user can remove or edit Product Addition Forms sitting in the queue after inputting and submitting through the application (prior to Admin review, approval, and acceptance). **If the Product Addition Form has already been actioned by the Admin and removed from the queue, products can only be edited through User submittal of another Product Addition Form and/or deleted by the Admin.**
Precondition:	• User must already possess SSO authentication. • Admin has already granted login and access rights for user.
Assumption:	• Supported browser is being used. • User is already logged in to the application.
Test Steps:	1. From the application home page, click on “Submitted Entries” tab. 2. Search for the submitted item in the list, and click on “Product Number” to view specific product. 3. Details on product will display in a pop-up Product Addition Form. a. To edit, edit the desired fields and click “Submit for Review at the bottom of the form. b. To delete, click “Delete Entry” at the bottom of the form.
Expected Result:	If editing a product, after clicking “Submit for Review,” the Product Approval Form will close and the item will be listed in the Submitted Entries queue with a new date-time stamp. If deleting a product, after clicking “Delete Entry,” the Product Approval Form will close and the item will no longer be listed in the Submitted Entries queue.

Project Management Documents

Work Breakdown Structure

Task Name	Predecessor	Estimated Effort (in days)	Estimated Start Date	Estimated End Date	Assigned Resources
Pre-initiation		**6**			
Determine scope constraints		2	10/01/2018	10/02/2018	Pulkit, Dhruv
Time Constraints		1	10/03/2018	10/03/2018	Pulkit, Dhruv
Budget and Cost Constraints		2	10/03/2018	10/04/2018	Pulkit, Dhruv
Business Cases		1	10/05/2018	10/05/2018	Sarah, Amruutha
1.0 Initiation		**10**			
1.1 Evaluate Business needs	Pre-initiation	1	10/08/2018	10/08/2018	Sarah, Amruutha
1.2 Identify project manager and stakeholders		2	10/09/2018	10/10/2018	Katherine, Pulkit, Dhruv
1.3 Create statement of work		2	10/11/2018	10/12/2018	Sarah, Amruutha
1.4 Project Charter	1.1, 1.2, 1.3	3	10/15/2018	10/17/2018	Dhruv
1.5 Approval of project charter	1.4	1	10/18/2018	10/18/2018	Katherine
1.6 Kick-off	1.5	1	10/21/2018	10/21/2018	All
2.0 Planning		**11**			
2.1 Requirement Document	1.6	3	10/22/2018	10/24/2018	Pulkit
2.2 Requirement Approval	2.1	1	10/25/2018	10/25/2018	Katherine
2.3 Project budget	2.2, 2.3	3	10/26/2018	10/26/2018	Sarah, Amruutha
2.4 Create WBS	2.2, 2.3	3	10/29/2018	10/31/2018	Pulkit
2.5 Project Plan creation	2.4	2	11/01/2018	11/02/2018	Sarah
2.6 Approval of project plan	2.5	1	11/04/2018	11/04/2018	Katherine
3.0 Execution		**23**			
3.1 Creation of project team	2.6	1	11/06/2018	11/06/2018	Katherine
3.2 Designing the project	2.6	8	11/07/2018	11/09/2018	Pulkit, Dhruv, Sarah
3.3 Integration of product with existing system	3.2	3	11/11/2018	11/13/2018	Pulkit, Dhruv, Sarah
3.4 Test Case Development	3.2	3	11/09/2018	11/11/2018	Amruutha
3.5 Product Testing	3.3, 3.4	3	11/14/2018	11/16/2018	Amruutha, Sarah
3.6 UAT	3.5	3	11/19/2018	11/21/2018	Sarah
3.7 UAT Sign-off	3.6	1	11/22/2018	11/22/2018	Sarah
4.0 Monitoring and Controlling					
4.1 Project report and status updates			11/01/2018	12/15/2018	
4.2 Update project plan			11/01/2018	12/15/2018	
4.3 Evaluate changes			11/01/2018	12/15/2018	
4.4 Implement changes			11/01/2018	12/15/2018	
4.5 Corrective actions against constraints			11/01/2018	12/15/2018	
5.0 Closure		**10**			
5.1 Take approvals from development and testing teams	3.6	1	11/25/2018	11/25/2018	Pulkit, Dhruv
5.2 Take sign-offs from development and testing teams	5.1	1	11/25/2018	11/25/2018	Pulkit, Dhruv
5.3 Create product usage and deployment and testing teams	3.6	3	11/26/2018	11/28/2018	Amruutha
5.4 Document the risks and lessons learned	3.6	2	12/01/2018	12/02/2018	Amruutha
5.5 Schedule handovers and knowledge transfers	3.7	1	12/03/2018	12/03/2018	Sarah
5.6 Close Procurements	5.1	2	12/04/2018	12/05/2018	Katherine, Pulkit, Dhruv
Total		**60**			

Meeting Minutes

MEETING / PROJECT NAME	Project Milestone 2 Discussion
MINUTES PREPARED BY:	Amruutha Chandrasekar

DATE: Friday, September 21st, 2018
TIME: 5:00 PM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Discussion and understanding the details involved in project milestone 2 and allocation of work to resources.

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
Project milestone 2 has include the project title, project charter, WBS and Minutes of meeting.		1 hr

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Executive summary	Katherine Ly	09/25/2018 at 10:00 AM
Work breakdown structure	Pulkit Agrawal	09/25/2018 at 10:00 AM
Title page and Use case diagrams	Sarah Tse	09/25/2018 at 10:00 AM
Functional Requirement and meeting minutes	Amruutha Chandrasekar Rao	09/25/2018 at 10:00 AM
Project Charter and Scope	Dhruv Kapania	09/25/2018 at 10:00 AM

5. NEXT MEETING (if applicable)

DATE	Tuesday, September 25th, 2018	TIME	10:00 AM	LOCATION	Graduate lounge
OBJECTIVE	Review the work completed and discuss on any rework and summarization				

MEETING / PROJECT NAME	Project Milestone 2 Update
MINUTES PREPARED BY:	Amruutha Chandrasekar

DATE: Tuesday, September 25th, 2018
TIME: 5:00 PM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Review the work completed and discuss on any rework and summarization

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
Project milestone 2 has summarization. Design section is not applicable for milestone 2. Implementation plan is required in WBS.		1 hr

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Including the WBS dictionary	Katherine Ly	09/26/2018 at 10:00 PM
Adding use case diagram description and review	Pulkit Agrawal	09/26/2018 at 10:00 PM
Summarizing the contents	Sarah Tse	09/26/2018 at 10:00 PM
Implementation plan	Amruutha Chandrasekar Rao	09/26/2018 at 10:00 PM
Summarized document review	Dhruv Kapania	09/26/2018 at 10:00 PM

5. NEXT MEETING (if applicable)

DATE	Friday, October 19th, 2018	TIME	10:00 AM	LOCATION	Graduate lounge
OBJECTIVE	Discuss Project Milestone 3				

MEETING / PROJECT NAME	Project Milestone 3 Discussion and Assignment
MINUTES PREPARED BY:	Sarah Tse

DATE: Monday, October 22nd, 2018
TIME: 5:00 PM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Discuss the analysis activities of Project Milestone 3 and delegate tasks to other members

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
Project Milestone 3 must include the requirements and use case, class and sequence diagrams.	Kat Ly	1 hr

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Sequence Diagram	Katherine Ly	10/31/2018 at 9:00 PM
Use Case Diagram	Pulkit Agrawal	10/31/2018 at 9:00 PM
Formatting, Class Diagram, Meeting Minutes	Sarah Tse	10/31/2018 at 9:00 PM
Use Case Descriptions	Amruutha Chandrasekar Rao	10/31/2018 at 9:00 PM
Functional and Non-functional requirements	Dhruv Kapania	10/31/2018 at 9:00 PM

5. NEXT MEETING (if applicable)

DATE	Tuesday, October 30th, 2018	TIME	10:00 AM	LOCATION	Graduate lounge
OBJECTIVE	Review status of action items and give feedback if applicable.				

MEETING / PROJECT NAME	Project Milestone 3 Discussion and Assignment
MINUTES PREPARED BY:	Sarah Tse

DATE: Tuesday, October 30th, 2018
TIME: 10:00 AM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Review status of action items and give feedback if applicable.

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
Present Functional and Non-functional requirements	Dhruv Kapania	15 min
Present use case descriptions.	Amruutha Chandrasekar Rao	15 min
Feedback of diagrams created.	Kat Ly, Sarah Tse, Pulkit Agrawal	30 min

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Sequence Diagram	Katherine Ly	10/31/2018 at 9:00 PM
Use Case Diagram	Pulkit Agrawal	10/31/2018 at 9:00 PM
Formatting, Class Diagram, Meeting Minutes	Sarah Tse	10/31/2018 at 10:00 PM
Use Case Descriptions	Amruutha Chandrasekar Rao	10/31/2018 at 9:00 PM
Functional and Non-functional requirements	Dhruv Kapania	10/31/2018 at 9:00 PM

5. NEXT MEETING (if applicable)

MEETING / PROJECT NAME	Final Report
MINUTES PREPARED BY:	Amruutha Chandrasekar

DATE: Wednesday, November 7th,
TIME: 5:00 PM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Discussion and understanding the details involved Final Report and allocation of work to resources.

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
Final Report has include software design , Testing approach and test cases , User interface design		1 hr

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Testing approach and test cases	Katherine Ly	11/27/2018 at 10:00 AM
Create User interface design WND	Pulkit Agrawal	11/27/2018 at 10:00 AM
Interface Design and Compiling the report	Sarah Tse	11/27/2018 at 10:00 AM
Testcases and Quality Management approach	Amruutha Chandrasekar Rao	11/27/2018 at 10:00 AM
Software Design	Dhruv Kapania	11/27/2018 at 10:00 AM

5. NEXT MEETING (if applicable)

DATE	Tuesday, 11/27/2018	TIME	10:00 AM	LOCATION	Graduate lounge
OBJECTIVE	Review the work completed and discuss on any rework and summarization				

MEETING / PROJECT NAME	Final Report
MINUTES PREPARED BY:	Amruutha Chandrasekar

DATE: Tuesday, November 27th, 2018
TIME: 10:00 AM
LOCATION: Graduate lounge, JSOM

1. MEETING OBJECTIVE

Review the work completed and discuss on any changes and compilation of final report.

2. ATTENDEES PRESENT

NAME	ROLE	EMAIL	PHONE
Dhruv Kapania	Senior Developer	Dhruv.Kapania@utdallas.edu	(999) 968-4862
Pulkit Agrawal	Database Architect	Pulkit.Agrawal@utdallas.edu	(469) 380-4922
Katherine Ly	Project Manager	Katherine.Ly@utdallas.edu	(214) 274-6839
Sarah Tse	Graphic Designer	Sht160130@utdallas.edu	(817) 757-9440
Amruutha Chandrasekar Rao	Infrastructure Architect	axc170001@utdallas.edu	(460) 781-0004

3. AGENDA & NOTES, DECISIONS, ISSUES

TOPIC	OWNER	TIME
1.Title Page and Table of Contents 2.Software Design: Methods for software design 3.Testcases		1 hr

4. ACTION ITEMS

ACTION	ACTION TO BE TAKEN BY	COMPLETE BY
Review of test cases and including the changes	Katherine Ly	11/28/2018 at 10:00 AM
Review changes for User interface	Pulkit Agrawal	11/28/2018 at 10:00 AM
Interface Design and Compiling the report	Sarah Tse	11/28/2018 at 10:00 AM
Testcases and Quality Management approach	Amruutha Chandrasekar Rao	11/28/2018 at 10:00 AM
Software Design	Dhruv Kapania	11/28/2018 at 10:00 AM

5. NEXT MEETING (if applicable)

DATE	NA	TIME	NA	LOCATION	NA
OBJECTIVE	NA				

Lessons Learned

Pulkit Agrawal

Planning: Planning seems to be the most important phase in the project. Proper research during the planning phase will surely decide the success of the project. Planning is the most crucial factor in both quality and timely delivery of the desired work. Creating project charter and work-breakdown structures, use case and class diagrams are very essential part.

Team work: An important aspect for project success is team-work. Proper assignment of the tasks, timely meetings and proper team assessment activities are an essential component of the project life cycle. A well-balanced and dedicated team can lead any type of project to a smooth completion.

Another thing I learned is importance of communication. Communication between the team-members and the management is a rather crucial factor. If you face any issue, you should report it immediately rather than fighting with it. It will save both time and money. Communication gaps often create a lot of problems which results in serious problems afterwards.

I also learned that security aspect is important during project planning and execution phase. Keeping in mind all the security factors in the initial phase will help us to prevent any concerns in the later stages.

There we several ups and downs during our course which I think the team handled well. It was wonderful experience working with people from different nationalities and skills.

Amruutha Chandrasekar Rao

This project has been a great opportunity to learn and work along with a diverse team. There are few lessons that I have learnt over the course of four weeks which I have described below.

- **Communication in a group**: Communication means co creating meaning and I would take responsibility for understanding of the person whom I am communicating. This would ensure not only the content is clearly conveyed but also emphasis the importance of taking accountability in a group project.

- **Prioritizing**: Although the tasks are assigned to individual team members and reviews are completed. There has to be priority set on a work item if there is a dependency of the same with others. This would ensure more importance is given to a work item if it has higher impact on the project deliverables.

Dhruv Kapania

There are many vital things that I learned after working on this project. Following are few important lessons I think will help me during future endeavors.

- **Planning**: The essence of the completing a project on time while maintaining the quality is project planning. It is the single most important step in successful project delivery.
- **Team work:** To deliver a successful project you need a team you can rely on. A team that supports you when you need it the most. Take the burden when time calls for it and delegate the tasks properly as well. A well-balanced trustworthy team is a sure way for success.

- **Know your objectives**: It is a part of planning, but this is to be revisited every time team has a meeting to keep everything on track and maintain a proper pace for timely delivery.

There are many small things which are equally important as to the ones mentioned above that have accumulated due to all the work that we put in this project. This experience has led me to believe that every project can be successfully delivered by setting realistic goals, proper delegation of tasks and having a supporting team member.

Katherine Ly

Although the project started off relatively easy with the Project Proposal, I soon realized how systematic and pragmatic Project Management and Systems Analysis must be, regardless of the topic at hand. While a simple framework can be developed from a problem statement, it requires a lot of thorough analysis and coordination to develop both the administrative structure (via the Project Charter and WBS) and technical aspects (Use Case diagrams, sequence diagrams, software methodology, UI design) to incorporate and implement a proposed system effectively.

I have conducted (simple) project management for various Department of Defense-level projects, but there were no official Project Charters drafted - only Statements of Work with summarized timelines, WBS, and Budget Analysis. Similar to the anecdotes that were brought up in class, I was a first-hand witness to numerous timeline changes and unnecessary budget increases. With a solid framework such as the one we developed for this Digital Image Database, all of these government projects would have been much better efforts.

From my perspective, the most valued aspect of this project comes from having a cohesive team, and it is something that all projects must have in order to function in an effective manner. Every milestone in this project is indicative of deliverables we would develop in real-life, and each deliverable requires a substantial amount of brainstorming and collaboration just to develop the next portion. Regardless of the project topic at hand (whether it is software development or biomedical engineering), all require a proactive team driven by the guidelines set from the stakeholders, project sponsor, and the eventual project charter. This aspect plus that of proper (and realistic) planning will be crucial for my future endeavors, whatever that may be.

Sarah Tse

By doing this project, I learned an immense amount about project management and the software development life cycle. As an undergraduate fast tracking to obtain a master's degree, I don't have any experience with the industry at all so this project has given me exposure to how projects work in the corporate world. Specifically, I learned about UI design, modeling and project management concepts since these were the portions I contributed.

Personally, I thought UI design was one of the harder portions of the project because I knew I had to fulfill the technical portion of drawing the navigation and also make the UI robust. Trying to fit design

aspects into the technical constraints was difficult because it was hard to think of everything that a daily user would want.

On another note, modeling was my favorite portion of the class because it provided me a way to translate high level ideas into technical ones. Before this class, I had never heard of these models so doing technical projects were considerably harder since I didn't have a way to translate my ideas.

Lastly, learning about project management was an eye opener and great supplemental material to Systems Analysis. In my perspective, project management is vague enough to include any project but also detailed enough to produce a project that meets the client's needs. Aside from the technical skills I gained in this class, my key takeaway from this project is the project management application which I will be able to take to the real world. Working in a team has helped simulated the corporate environment and I'm glad that I got a chance to experience a part of project management instead of going in blind when I got to the industry.