



Department of Information Technology
COLLEGE OF ENGINEERING
CENTRAL LUZON STATE UNIVERSITY
Science City of Muñoz, Nueva Ecija



DOCUMENT REQUEST MANAGEMENT SYSTEM FOR THE OFFICE OF ADMISSION OF THE CENTRAL LUZON STATE UNIVERSITY

A Capstone Project
Presented to the
Faculty of the Department of Information Technology

In Partial Fulfillment
of the Requirements for the Course ITCAP 3200
IT Capstone Project 1

By:

Labiste, Darwin B.
Peneyra, Phoebe Joy L.
Sarmiento, Christine Dee V.

January 2022

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Labiste, Darwin B.

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Disclaimer:

"This project is submitted to the Department of Information Technology, College of Engineering in partial fulfillment of the requirements for the course "ITCAP 3200 IT Capstone Project 1" under the program of Bachelor of Science in Information Technology at the Central Luzon State University, Science City of Munoz, Nueva Ecija. It is the product of our work except where as indicated in the text. The project report or any portion thereof including the source code or any section may be freely copied and distributed provided that the source is acknowledged."

APPROVAL SHEET

This Capstone Project entitled "**DOCUMENT REQUEST MANAGEMENT SYSTEM FOR THE OFFICE OF ADMISSION OF THE CENTRAL LUZON STATE UNIVERSITY**", proposed and submitted by **Darwin B. Labiste, Phoebe Joy L. Peneyra, and Christine Dee V. Sarmiento**, in partial fulfillment of the requirements for the course for ITCAP 3200 – IT Capstone Project 1 – Title Proposal Oral Presentation.

CAPSTONE PROJECT PROPOSAL COMMITTEE

MS. MARIA ISABEL M. SANTOS

Chairman

Date Signed

DR. KHAVEE AGUSTUS W. BOTANGEN

Adviser/Member

Date Signed

MS. CHEZALEA FAYE A. PEÑA

Technical Critic/Member

Date Signed

Accepted and approved in partial fulfillment of the requirements for the course
ITCAP 3200 IT Capstone Project 1 – Title Proposal Oral Presentation.

DR. KHAVEE AGUSTUS W. BOTANGEN


IT Dept, Dept Chair

Date

CERTIFICATION OF MANUSCRIPT EDITING

This is to certify that the undersigned has read, reviewed, and edited the manuscript of **Darwin B. Labiste, Phoebe Joy L. Peneyra, and Christine Dee V. Sarmiento**, entitled "**DOCUMENT REQUEST MANAGEMENT SYSTEM FOR THE OFFICE OF ADMISSION OF THE CENTRAL LUZON STATE UNIVERSITY**", as a requirement for the completion of the ITCAP 3200 Capstone Project 1. This further certifies that the scope of editing is within the technical preparation of the manuscript only. This certification is issued to the aforementioned researchers for English Critic requirements.

Issued this 18th day of January, 2022, Science City of Munoz Nueva Ecija.


DIANA JOY L. BASADA
Editor, LiteraKultura Publication
Cordero, Lupao, Nueva Ecija

CHAPTER I

BACKGROUND OF THE STUDY

Introduction

The development team of the Office of Admission (OAd) in Central Luzon State University is currently pursuing various systems to complement their existing services. These systems are vital for the office to continue to serve with excellence despite the disruption of the COVID-19 pandemic. One of the target deliverables is a Document Request Management System, which the developers of this project aim to achieve.

The Document Request Management System (DRMS) will facilitate the processing of numerous documents requested by active and inactive students handled by the OAd. An estimated 100 emails/requests per day are received during regular days, while approximately 500 daily emails/requests are received during the enrollment period. These emails have different intentions that make tracking emails that consist of document requests (e.g., Certification of Grades, Certification of Enrollment, Transcript of Records, etc.) time-consuming.

DRMS is designed for the students, records-in-charge, and frontlines of the university in order to manage different types of document requested in the OAd. In addition, the system will provide automated emails to the clients (e.g., active and inactive students) regarding their requested document/s.

The DRMS will be convenient for requesting and managing documents, especially in this time of the pandemic, to avoid face-to-face interaction between OAd staff and clients. Fortunately, the developers designed a system that is applicable to either online or face-to-face setup.

Problem Statement

The COVID-19 pandemic necessitated the need to shift the provision of services offered by the Office of Admissions (OAd) from an in-person (face-to-face) mode to purely online. The current procedures in requesting document/s in the OAd include six steps which are ^[1] Fill up forms (see Appendix 1), ^[2] Present proof of payment, ^[3] Check the availability of the document/s, ^[4] Validate requirements, ^[5] Process the requested document, and ^[6] Send the requested document/s.

However, there are times that the OAd is unable to comply with some of the requested documents by the clients due to the email-based approach of requesting documents, whereas the records-in-charge and the frontlines are receiving tons of various emails. Some of these requests lack the information or requirements needed to process the document requested, making the transaction longer to complete. In addition, some students follow up on their requested documents that tend to cause a delay in processing or verifying other emails.

Table 1 represents the problems encountered during the email-based request of documents, including its corresponding weight. The weight represents the intensity of the

problem that must be solved. The weight is determined by numbers, whereas 3 is the highest while one is the lowest.

Table 1: Problem statement weight and its description

Weight	Problem description
3	There is no specific system for managing the requested documents of the active students that are requested by the records-in-charge (RIC). Since the university is currently using an email-based to request documents, it is difficult to handle requests because there are various types of emails such as requests, inquiries, and other school-related emails that cause delays in managing the requests.
3	The frontline has an existing system for managing the requested documents of the inactive student. Still, there is only one person who controls these requests causes difficulties when handling numerous requests.
2	The records-in-charge (RIC) and frontline are receiving many follow-ups and other emails; there are times that the staff cannot respond to the students' follow-up emails.
2	The requested documents in the records-in-charge (RIC) and the frontline takes longer to process due to lack of information or requirements to complete the transaction.
1	There are cases that some students are mistakenly requesting documents to other records-in-charge (RIC) or in the frontline.

Objectives of the Study

General Objectives

To develop a Document Request Management System for handling document requests in the Office of Admission (OAd) in Central Luzon State University that can be used online and face-to-face setup.

Specific Objectives

Specifically, the developers aim to:

- To design a web-based application for the OAd that can be used in requesting and processing documents.
- To design a system that will require the students to submit all the necessary information and requirements needed to process their requests.
- To create an automated email feature that will notify the students regarding their requested documents and OAd's announcements.
- To develop a system that can generate various important reports such as numbers of pending requests, total numbers of requests, and more.
- To implement a feedback feature that will help the system to improve.
- To implement a different help section for each user (e.g., students, OAd staffs, admins) that contains numerous information such as procedures, documents, frequently asked questions, and more.

- To implement a tool that the OAd staff can use (e.g., RIC, frontline) to add notes to a certain request.
- To administer a feature for the dean of the OAd that can assess all student's request from both RICs and frontlines.

Scope and Limitation

The primary objective of the proposed project is to develop a Document Request Management System (DRMS) for the Office of Admission in Central Luzon State University (CLSU) that can cater requests of the active and inactive students to the records-in-charge (RIC) and the frontline desk.

The project can perform requesting, sending, and notifying the status of the requested documents. Furthermore, the system has user-oriented features such as complete validations, automated email, collection of information for various reports, user feedback, help sections, add notes, and assessment of requests.

The information collected by the system cannot be disclosed and used for unauthorized purposes of the user due to the RA 10173 or the Data Privacy Act of 2012. Although, being unable to provide the information needed will prevent the OAd staff from fulfilling the request of the active and inactive students. Submitting the request form will permits them to store the student's information. The collected information is only allowed to use for contacting the student whenever there are concerns (i.e., regarding the requested documents) and to process the documents that are requested.

Requesting documents requires filling up the request form with the personal information (i.e., to process the documents), documents to be requested (e.g., Certification of Grades, Checklists, Transcript of Records), the purpose of the request, delivery option, and additional messages (if necessary).

In processing documents, the RICs are responsible for performing the document transactions for active students, the currently enrolled students in the university, including those taking their master's and doctorate degrees, while frontline is in charge of inactive students, the graduate students, and unenrolled. The OAd staff and Admin are the only ones who can contact and view the information of the students to process their requested document. Furthermore, the OAd staff can decline requests with inappropriate contents such as spam messages, uploaded files that are not related to requesting documents, and falsified identities. In addition, the staff can allow the students to update their request form if minor corrections have been made. As soon as the requests are completed, the staff will send the requested documents through email using the system.

The automated email will be used to notify the student to know the status of their requested document. Three automated emails will be sent to the provided email address of the student: the first email to be received is the confirmation email that the student's request has been sent, including the step-by-step process of their request. Second, a notification that their information is successfully validated and will proceed to the next phase. Lastly, another notification that their requested documents and proof of payment are already validated, and their request is ready to be processed. Moreover, an automated email can also be used to update or inform the students that have pending requests whenever there

are announcements, such as delayed processing of documents due to restriction/lockdown in the university.

Validations are for checking and validating information and attachments in the request form. The request form has five (5) pages, ^[1] Data Privacy Notice, ^[2] Personal Information, ^[3] Document/Nature of Request, ^[4] Purpose, Delivery Option, and Additional Message (Optional), and ^[5] Review of the Request. If the inputted requirements are all valid, it will proceed to the next page. Otherwise, the system will ask the user for complete and valid inputs. Validation prevents incorrect inputs and incomplete requirements in the request form. On the other hand, the content of the uploaded files cannot be validated by the system thus, it only validates if the required field is not empty and contains valid file extensions. Furthermore, only the OAd staff can only review and check the content of the uploaded file.

The system collects important information to generate various reports, such as the number of pending requests, the total number of requests, and more.

The user feedback feature will require the students to leave suggestions and ratings for the system's performance and services. Feedback from the user will be used as the basis of the developer for the system's future improvements and to maintain the performance and services that the systems provide.

The help section contains information that will help the users to use the system properly. This information consists of systematic procedures of how the system will perform each of its functionality. This procedure will be shown using Graphic Interchange

Format (GIF) to inform the users how to use the system easily. Furthermore, there will be a help section for each type of user (e.g., students, staff, admin, dean) that acquires different help sections since the users have a separate user interface.

The system also has an add notes feature that the RICs and frontlines will use to add important notices such as reminders and annotations in the student's email request.

The assessment of requests is a feature that can supervise all requests from the OAd's dean interface. This feature will present the status of the requests whether it is pending, on process, or on delivery (if the request's delivery option is not through email). In addition, the dean can also assess the notes attached in a request to know the remarks of each request.

SIGNIFICANCE OF THE STUDY

The proposed project will be beneficial to the Office of Admission staff such as administrators, records-in-charge, frontlines, and for the students (active and inactive) of the university. The project is also timely and relevant as it provides ease of processing and requesting documents. It also helps the staff maximize their productivity, considering that work from home and flexible online learning is being implemented, and the work they can accomplish is limited due to the pandemic.

In addition, the project will be using features such as Requesting and Sending Documents, Complete Validations, Automated Email, Reports, Feedback, Help Sections, and Notes.

Requesting and *Sending* documents feature will enable both users to provide and access the documents that are being requested efficiently. It will be beneficial for the student as it will be accessible online, and they can request documents without involving personal transactions with the staff. They will not need to spend much time requesting and processing the documents since they can be sent through email or received door to door.

The *Complete Validation* feature will check if the students' request has missing or incomplete information and requirements, as it cannot accept invalid user input. It will ease processing the documents for the RIC and frontline since the validation prevents the request form from having invalid and incomplete inputs.

Automated Emails will easily notify and update the students about the status of their requests. It will also help to lessen the workload of the RIC and frontline, as they do not require updating the student time-to-time. In addition, automated emails can also use for informing the users regarding OAd's announcements including possible delays in the processing or delivering the requested documents. Furthermore, only the students who have pending requests are the ones who will be receiving such announcements.

Reports will help collect all the received emails to know the system's performance. The generated report will also document the numbers of pending requests, number of processed requests, total number of requests, and more.

The *Feedback* feature will get the user's suggestions and will be prioritized as it will help and ensure the enhancement of the system's features, providing a better user experience, and maintaining the system's effectiveness.

Help Section feature provides technical support to the users and guides them through specific tasks and actions regarding resolving queries. This feature will mitigate improper use of the system as each user module acquires a different help section.

Note feature will serve convenience for the RIC and frontline as it will easily remind them of the important details, remarks, and annotations they have listed in each received email request.

Assessment of requests will help the dean to easily supervise the requests including the pending and on-process document requests. In addition, the dean will also be able to track the current progress of the transaction such as the process and the delivery of the documents.

CHAPTER II

This chapter discusses the related literature as well the existing alternative for the 'Document Request Management System' in order to understand more and elaborate on the important factors that need to be considered when developing a system.

REVIEW OF RELATED LITERATURE

A project that is a well-planned design from the beginning prevents problems in the future as it may also lower the development costs of the system because it can cover simple things that can be a big problem when used by other users in later events (MindSEO, 2019).

There are lots of different ways of developing a good design of a system such as easy navigation, responsive design, color scheme consistency, comfortable User Interface (UI), etc. These components are very important in developing a web design (Prabhu, 2020). In addition, a user-friendly application can give more productivity to its users which means they can do more tasks than what they think.

Developing a system should not be only limited in the designs, it is also important to develop a system to be secured and give the users its assurance for safeguarding their information. There are many ways of keeping the network secured like keeping the software up-to-date, enforcing a strong password policy, encrypting login pages, using a secured host, backup files frequently, etc. (Bassi, 2019).

Data privacy is an important factor in creating a system that stores information. Organizations have different ways of protecting their data. As stated by Patters (2020), the data privacy is a way of data security that concerns how properly the institution handles these data. This data privacy set by companies should be considered while developing and designing the data security of the system.

Moreover, having a system that will automatically organize requests and transactions made by students will greatly help the administrations in order to proceed and finish these tasks. In accordance with Wolch (2021), keeping tasks organized will increase productivity, reduce stress levels, helps to ensure to meet the deadline, and to be consistent in managing time-consuming working with these tasks.

As quoted by Evangelista (2020), record management will help the organization to manage or track the life cycle of records which is a more effective way of organizing records. In addition to that, it is convenient since it will be easier to search or finish tasks faster than manual managing of records.

Furthermore, keeping records and transactions through databases and monitoring these records through computers and/or laptops will result in a faster, easier, and time-efficient way of finishing tasks and showing good results in transactions (Escalon, nd).

In addition, there are standard features that should be considered in designing a good system. Matheu (2005) has enumerated several functionalities that should be included in designing an electronic document management system such as searching facility, viewing without the use of the original application, red-lining and marking-up feature,

printing and plotting, workflows and documents life cycles, revision and version control, document security, document relationships, status reporting, issues/distribution management, and remote access.

Moreover, there are also other recommended features/functions to be pondered especially in today's generation where technology is growing and providing solutions to make every single task easier. Eisenhower (n.d.) have listed several features that should be included in document management systems such as cloud access, intelligent organization, an attractive user interface, a robust search feature, file version control, permissions on what a different user can do with the file depending on his/her role, and universal format support for files.

Software failures may be due to incompetence in writing codes, inadequate testing, errors, misuse of the system, and unforeseen problems in the system (Pan, 1999).

Furthermore, there are many methods in validating and testing systems but the most known techniques used in validating system requirements are prototyping, animation, inspection, reviews, simulation, model-based, scenario-based, testing-based, and view-point oriented (Moketar et. al., 2018). In addition, many studies have recognized that prototyping is the most effective way in validating the requirements and to easily understand and present the suggested requirements from the clients.

In accordance with Khan & Khan (2012), the white box testing technique is a method for testing systems development. It can point out poor key management by examining internal functionality and analyzing the structure of the software. Furthermore,

there are different forms/types of white box testing techniques such as ^[1] Control Flow Testing, ^[2] Branch Testing, ^[3] Basis Path Testing, ^[4] Data Flow Testing, and ^[5] Loop Testing.

EXISTING ALTERNATIVES

In this phase, existing alternative systems will be discussed which will help the developers in minimizing the needed time in the development process to enable to have a more reliable, convenient, and efficient system for the university.

A. Electronic Document Tracking System (EDTS): A Prototype

A study that has been conducted by Demong et. al. (2009) aimed to design an electronic document tracking system to help the Faculty of the Office Management and Technology (FOMT) in regards to the transactions made by the clients. The administrative staff of the FOTM is having difficulties in managing documents due to manual managing documents. In addition, the system can be accessed through a web page where the user needs to input his/her login credentials.

B. File Tracking System for University of Kashmir: Design and Guidelines and Model Implementation

In keeping with Banday et.al. (2015) study, they aimed to develop and implement a file tracking system (FTS) for the University of Kashmir. The study also discussed the design, development, and implementation strategy. The application is implemented through a web-based application in order to be more accessible for the University of Kashmir. This is also designed to reduce the turnaround time and the delayed process of the file. The study includes the adaptation of the paperless file process and the tracking possibility of the process. The implementation of the paperless file process requires file creation where it will be done by the employees of the university including the office in-charges of several offices.

In addition, their proposed system is divided into three different operations and roles for the *Super Administrator*, *Administrators*, and *Auditors*. Each type of user is assigned to do a specific operation and role to maintain the system and ensure role-based security.

C. Development of a File Tracking System for Tertiary Institutions

According to Omoregbe et. al. (2014), most learning institutions, such as universities, usually generate a large volume of data. Furthermore, locating students' files among the other students' files can be inconvenient and time-consuming in processing these files.

This study aimed to develop a web-based application, Electronic File Tracking System for the Tertiary Institutions, and implement real-time processes and tracking requests, reminders, file sharing, decisions, and reports.

D. Computerized Record Management System of one National High School in the Philippines

According to Danlog et al. (2017), the study aimed to develop an effective Computerized Record Management System for the Quetegan National High School (QNHS) to provide efficient and accurate recording of records, to maintain and secure the student's records, and easy retrieval of student records, to lessen the workload of the staffs. The study is designed to provide proper management of information, handle the storage, maintenance, and retrieval of students' information, and lessen the problems encountered in the current Record Management of QNHS, such as unorganized and difficulty in searching and updating records and unsecured files. The proposed Computerized Record Management System features include the Registration, Computerized Filing of Records, and Automated Report Generation.

E. Electronic Document Management System for Higher Education Institution

The conducted study aimed to develop and deploy an Electronic Document Management System to support the Quality Management System of Capitol University. The system features include automated tracking and monitoring of tasks and documents, simple and accurate transmission of data files that should be tracked and monitored, fast retrieval of data, organized filing, added lists of quality records, and data bank wherein the files are placed organized in one location. It is designed to aid the minor lapses in the proper implementation of the documentation policy of the

university, such as no master list for all files, scattered records, no list of quality records, incomplete files, and disorganized files. In addition, their proposed system consists of two roles for the dean and secretary. Each role has its assigned specific tasks to maintain the system and to ensure security.

F. E-Document Tracking System

According to Eder (2015), Document Tracking Services (DTS) is used as a web-based application that allows school districts to streamline how they complete and update a wide array of school and district-level reports. The study is designed primarily for the Department of Science and Technology – X to improve the efficiency of retrieving the document online at any time and tracking the movement of documents in and out of the offices. The system features have the capability to monitor updated documents and generate reports immediately while archiving the completed transactions that can be retrieved anytime. The proposed system acquires three interactions for each type of user: the administrator, the signatories, and the employees.

SUMMARY

This segment is to summarize, enumerate, and define the functions of the different document tracking systems, and other related works that will be implemented in the proposed system like automated email for the notification feature. A table is used to highlight the different characteristics of the existing alternatives.

Table 2: Summary of all features/function of each existing alternatives

NOTE: Check (✓) indicates that the system has features/ function while x mark (x) indicates if it is not stated or included.

Features	Electronic Document Tracking System (EDTS): A Prototype	File Tracking System for University of Kashmir: Design and Guidelines and Model Implementation	Development of a File Tracking System for Tertiary Institutions	Computerized Record Management System of one National High School in the Philippines	Electronic Document Management System for Higher Education Institution	E-Document Tracking System
Request Document	✓	x	x	x	x	✓
Send Document	✓	x	x	x	✓	✓
Record Document	✓	x	x	✓	✓	✓
Fast Searching	x	✓	x	x	x	x
Scheduling	x	✓	x	x	✓	x
Reminders	x	✓		x	x	x
Messaging	x	✓	✓	x	x	x
Tracking File	✓	✓	✓	x	✓	✓
Activity log	x	x	✓	✓	✓	x
Generate Reports	x	x	x	✓	✓	✓

Request Document. This feature is used to request documents regarding the documents needed by the users/clients.

Send Document. This feature is used to send requested documents to the system and in order to send the documents to the users/clients.

Record Document. This feature enables the administrator to keep a record of the documents associated with the users/clients' transactions.

Fast Searching. This feature is used to search for the specific document requests that users/clients need.

Scheduling. This feature is used to plan the tasks that must be completed in order to meet the goals and priorities set for each day.

Reminders. This feature is to help users to be reminded of their pending tasks through emails and in the system notification.

Messaging. This feature enables administrators to communicate directly with users/clients about their transactions.

Tracking File. This feature enables administrators to keep track of the documents requested by users/clients. It is used to determine whether the file is being processed or received by users/clients.

Activity Log. This feature is used to analyze or view the recorded activities that users perform in the system, as well as to track the amount of time that users spend on each task.

Generate Reports. This feature enables administrators/users to print or download reports.

SYNTHESIS

In this segment, the developers discussed the features and functions from related works that can also be implemented in the proposed system and to design and develop a document request management system for the Office of Admission in Central Luzon State University (CLSU).

The implementation of Document Request Management System shows great advantage especially in the midst of pandemic, as it gives convenience for the students and administrators of the university to process the requests and inquiries immediately through the system which reduces workload and organized tasks for the administrators for more efficiency and convenient way of use.

The table below represents different features/functions along with its description that will be also implemented in the proposed system.

Table 3: Features/Functions from the existing alternative that will be used in the system

Features	DESCRIPTION
Send Documents	Administrators can send requested documents through the system.
Request Document/s	Active and inactive students can requests documents filling up request form and providing the requirements.
Validation of Request	The students are able to review their request information before submitting. The RIC and frontline can validate all the information and requirements submitted by the students.
Generate Reports	This feature allow the administrator to access and download the reports.

CHAPTER 3

METHODOLOGY

This chapter focuses on the method and techniques used by developers to carry out the study and system development.

On the system development, the developers will apply the System Development Life Cycle (SDLC) method.

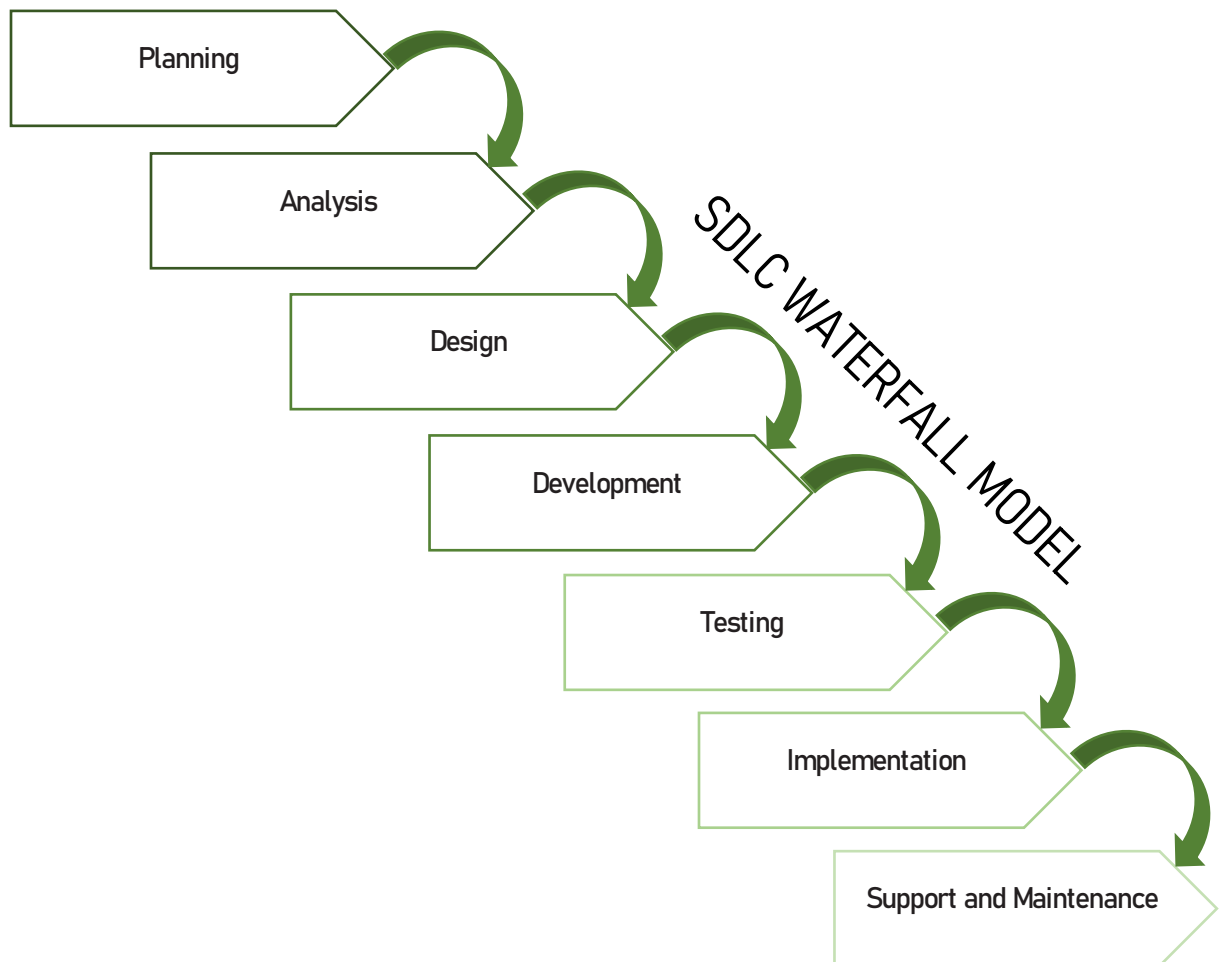


Figure 1: SDCL Waterfall Model (7 phases)

As shown in figure 1, it represents the waterfall model which will serve as a guide for the developers to perform and develop the proposed system. This method is consisting of various phases such as ^[1] Planning, ^[2] Analysis, ^[3] Design, ^[4] Development, ^[5] Testing, ^[6] Implementation, and ^[7] Support and Maintenance.

A. PLANNING

This phase will allow the developers to observe, learn, and gather information regarding with the transaction of the documents in the Office of Admission of Central Luzon State University. It will also help the developers to strategize the proposed system to provide and design a user-friendly web-based application, a document request management system for the University.

Preliminary Investigation

To gather more information that will help the development process in the proposed system, the developers will coordinate with the Office of Admission together with their IT team. In this way, the developers will gain more knowledge in the problems regarding to the current procedures of requesting and issuing of documents in the Office of Admission (OAd).

Moreover, surveying students regarding to their experiences in requesting documents and interviewing the OAd staff concerning to their encountered problems and

difficulties in processing the requested documents will also help the developers to specify other problems.

In addition, brainstorming together with the IT team of the Office of Admission is a great tool for the developers to gather countless ideas, specifying the functions and features of the system, and merge these bright ideas in order to design possible solutions to the problems encountered by the users including the dean, active and inactive students, and the staff of the Office of Admission.

Fishbone Diagram

The fishbone or cause and effect diagram is a structured approach used to visualize by brainstorming the possible causes of the problems, it also identifies the root of causes. The brainstormed ideas will be sort and categorized to be an useful one. The head or mouth of the fish is intended to display the problem or effect. On the other hand, the smaller bones are the lists of the contributing causes which has various cause categories.

The gathered information regarding to the current procedures of requesting a document in the frontline service will be reviewed and analyzed. This data will allow the developers to pin down different complications that the Office of Admission, active and inactive students have encountered in regards to the requesting and issuing of documents through other email platform such as the Gmail.

Survey Questionnaire for Active Students

- Are you aware of the proper procedure of requesting documents such as Certification of Grades (COG), Transcript of Records (TOR), etc. in the Office of Admission?
- Does the Office of Admission need to improve their services when it comes to responding and processing email requests?
- Do you often experience delays in issuing your requested documents?
- Do you often send follow up emails for your requested document/s?
- Do you think it will be more convenient for you to track/trace the status of the document/s you requested in the Office of Admission?
- The service of the Office of Admission staff upon responding to email requests. (Likert Scale)
- Response Time and confirmation of email request. (Likert Scale)
- The amount of time it took to receive your requested documents. (Likert Scale)

Interviewing the personnel of the Office of Admission

- How they manage and process the different requested documents?
- If it is valid to use the form 6 as an alternative requirement for the proof of identity (only for active students).
- The pricing of each documents.
- The lists of available documents that can be requested to the RIC staff

- The lists of the designated RIC staff for each colleges
- Request for the official file of the ISO forms.

B. ANALYSIS

Feasibility Studies

This study functions to understand the requirements of the development and to identify whether the proposed system is technical, operational, economical, or time feasible.

Technical Feasibility

Evaluating the technical complexity is a requirement to prove the technical feasibility of the system, it also determines if the system can be implemented. Important phase of technical feasibility is identifying the shell that determines the system's quality and success in order to develop the system.

In this portion of the feasibility study, the developers will specify the techniques, programs, and other requirements in developing the suggested system. This study will be important in identifying whether the proposed system is technical feasible and can be implemented in the Office of the Admission in Central Luzon State University.

Operational Feasibility

Operational feasibility works on measuring how well the system solves the problem and taking advantage of the available opportunities during defining of scope and the way it satisfies the requirements during the phase of requirement analysis in the development of the system.

The operational feasibility study is to indicate the requirements of the proposed system whether it can be operational to the staff of the Office of Admission including the dean and also to the users which are the active and inactive students.

In addition, in this study the developers will discuss the suggested system requirements in order to operate the system efficiently. It is to ensure that the proposed system will work properly and operational for the dean, active and inactive students, and staff.

Economic Feasibility

The analysis of cost and benefit is to determine the economic feasibility of the system. Economic feasibility is a method that is frequently used for evaluating a new system to prove its effectiveness, it also determines the benefits and savings that the system will provide which will be compared to the total costs of the

developed system. In order to determine whether system is ready to be implemented, the benefits must overtake the total costs.

In this study, the developers will discuss the expenses in the development of the document request management system. The developers will also include the pricing of some features in the system that will help the system to be more operational and more efficient.

Schedule Feasibility

Schedule feasibility includes plan, strategy, and process that must achieve within the given time frame. It will serve as the basis whether the project will be successful or will fail. In addition, schedule feasibility indicates how much time the project will take to complete.

In part, the developers will discussed the schedules of the tasks to be done. It will help the development process of the document request management system to be implemented over the duration of the project.

In addition, the developers will create a task scheduler using a Gantt chart to ensure that the proposed system is feasible to conduct in term of time allotted in developing the system. The task scheduler is to keep track of the tasks and maximize the time spend on conducting the system. In addition, the Gantt chart can help the developers to be reminded of the deadlines and check the project's task

order and status. All of these tasks have an exact date to begin and due dates to follow in order to meet the exact date to complete the entire system.

Flowchart of the Current Procedure

It is important to understand how the current procedures work in order to implement these procedures to the system.

In this part, developers illustrates the current procedure of requesting documents in the frontline services using a flowchart. The developers also demonstrates the flowchart of the proposed system in how does the system work. In this way, it will be easier to pin point the difference between the current procedure requesting documents and the procedures of requesting through the system.

Flowchart of the Proposed Project

In this part, the flowchart diagram illustrates the procedure of requesting and processing of the documents of both active and inactive students. The diagram will help to trace the step-by-step procedures that is used to guide the developers in implementing the system. It also demonstrates the concept and the flow of the proposed system.

Conceptual Framework

Central Luzon State University processes a lot of transactions where OAd staff, dean, and students are encountering problems upon processing and responding to the requests. The university must have an independent and reliable system that can be used for efficient response and proper distribution of the student's queries to prevent delayed issuing and processing of the document/s since it is the common concern needed to be resolved. Implementing the Document Request Management System would enhance the delivery service in terms of transacting and tracking the requested document/s whether the process is succeeding or failing.

The system will require the active and inactive students to fill up the request form and complete the requirements, such as proof of identity and payment. This system allows the active and inactive students to efficiently send and receive their requests once they have submitted and attached a complete requirement. After submitting requirements and request form, there will be a validation phase where it checks and validates the inputs of the users in order to proceed the processing state. Automated email messages will be used to update and notify the students regarding the procedure in requesting documents and during the delivery phase. In addition, automated emails will be used for announcing important notices. The dean will easily monitor all the transactions, as per request will continuously process by the RIC and frontline without delaying and failing.

The proposed project is also expected to be a user-friendly system, as it will help the end-users to understand and adopt the new system. It will also be responsive as the interface will be available for different devices depending on their screen size.

System Requirements Checklist

The developers have interviewed the Office of Admission to collect data that will indicate the needed requirements for the system. Also, the developers will use five general categories, which are outputs, inputs, processes, performance and controls.

The output illustrates the primary purpose of the implemented system. The input contains the important details of the students that will be used for processing, validating and tracking documents. Processes includes the inquiries of the students that will be review, verify, and evaluate by the OAd staff. In addition, processes will also involve delivery options that the students choose whether the document will be sent through email, drop box, or courier. The performance is how the system performs its functionalities in which it must support users simultaneously and must accessible and available during office hours. The controls identify the accessibility of various users. The dean has the full access of the system, the RIC and frontline securing and processing students' inquiries, and the students can only view their requests.

Through the interview, the developers can identify the main problems they encounter when requesting documents via email. This can help the developers to gather information to indicate the requirements that need to be displayed in the system. It also helps developers in determining specifications and the system's objective.

C. DESIGN

Use Case Diagram

Use case diagram is a model that is used to visualize actors' roles. It also illustrates the actions, services, and functions that the system must perform. The illustration is used to translate into design choices and the priorities of the development. This diagram identifies the internal and external factors that will influence the system, some factors can be consider in implementing the system.

In this portion, the developers illustrated the use case diagram of the Document Request Management System. This diagram depicts the system's key functionality and requirements. It includes the summary of the context and process flow of the interaction between the use cases, actors, and the system. Moreover, the relationship will be used to assess the process of the system and how it works.

Data Flow Diagram (DFD)

Data Flow Diagram is a graphical representation of the system that aims to show the flow of data through a process. It includes stored data from data inputs and outputs, and the movement of data in different sub-processes. It also describes the different entities and the relationships of it.

The developers used the data flow diagram to illustrate and discuss the process of the document requested by the users and documents issued by the OAd staffs. The diagram

was used to also show the detailed processes, sub-processes, and data stores that comprise the system as a whole. The diagram also displays the execution of every transaction in which the user was involved, such as students filling up the provided form for requesting document/s to the Office of Admission (OAd). The staff including the dean will check and validate the students' inquiries if the requirements are completed/met, and will proceed to the processing of the requested documents for finalizing the success of the transaction.

Entity Relationship Diagram (ERD)

This diagram illustrates the relationship between entities in a database by graphical representation. It is a method of visualizing how the information is interconnected to the system. The developers will show the relationship through the use of the main components of an ERD, which are entities, action, attributes, connecting lines, and cardinality through the use of crow's foot notation.

Crow's foot notation (IE notation) uses graphical symbols to display the relationship of each entity whether it is one-to-many, many-to-many, and one-to-many or many-to-one. The crow's foot used lines to connect each entity. It also uses symbols in the end of the line to describe the relationships' cardinality. It has an easy-to-use format to help complex relationship to communicate.

User Interface Design

Throughout the development of the system, it is necessary to conduct a plan for creating and designing a system before the implementation, wherein it will possibly generate a more responsive and functional product/system. The developers will be using the Adobe XD application for generating the prototype of the system. In order to improve the situation of document transactions, the developers come up with applying guidelines through the use of the methods of the design process. The design process defines systematic procedures before the implementation (Chicago Architecture Center, 2019) It consists of 6 steps: 1) Define the Problem, 2) Collect Information, 3) Brainstorm and Analyze Ideas, 4) Develop Solutions, 5) Gather Feedback, and 6) Improve.

This method will be used by the developers in other to design the system more user-friendly and to give better experience to the end-users.

D. DEVELOPMENT

In this portion, the developers discusses the techniques used in developing the system. Including the methods or tools used by developers in the frontend, backend, and middleware.

Frontend is one of the components of a system. It is the part of the web page that users can see and interact or also known as the user interface (UI) of the system. Having a good user interface will boost the experience of the end-users.

Middleware is the software used in order to have connection between the database and application. It is also used in the system in order to be used through online since it will be upload in the web server and end-users needs to be connected to a network to access the system.

Lastly, the backend is the main functionality of the system. It is to enable the system to process the functions properly. The backend of the system cannot be seen by the end-user as it contains the codes of the system. In addition, being careless in developing the backend of the system might lead to unnecessary problems, bugs, and error.

E. TESTING

The testing phase is to ensure the system's consistency and accessibility. The developers together with the IT team of OAd will examine the overall functionality and ensure that the system's actual performance matches the system requirements before it is implemented in the University.

Moreover, the technique that will be used by the developers to test the system is known as white box testing. The white box testing is a testing technique used to verify the flow of the input and output of the system in order to improve the design, usability, and security by testing the internal structure, design, and coding of software. It has testing so-called Clear box testing in which the code is visible to the testers.

In this white box, testing will assist developers in validating the input and output of the system. This technique is used to ensure that the system runs correctly and consistently. In addition, it tests all logical structures to ensure that the systems operate without errors. Furthermore, this testing will also measure the whole system's functionality.

In addition, suggestion from the Office of Admission after the test and pre-operation will be added and will be revalidated again until the developers have satisfied the clients in regards of the system performances and reliability.

F. IMPLEMENTATION

This phase is to deploy and operate the new system in its intended environment. After the developers have finished the development process, testing, and satisfy the system requirements needed by the Office of Admission, the proposed system will be implemented and revalidate while other end-users are using it.

This process involves accessing the systems performance and functionality to maintain the system's stability. The developers will perform a system dry run as well as training for the system's end user and evaluate the system. Dry run does not include software in working during the process; the developers are manually working to trace the value of the variables through their code. The developers manually check the variables that is supposed to used or updated.

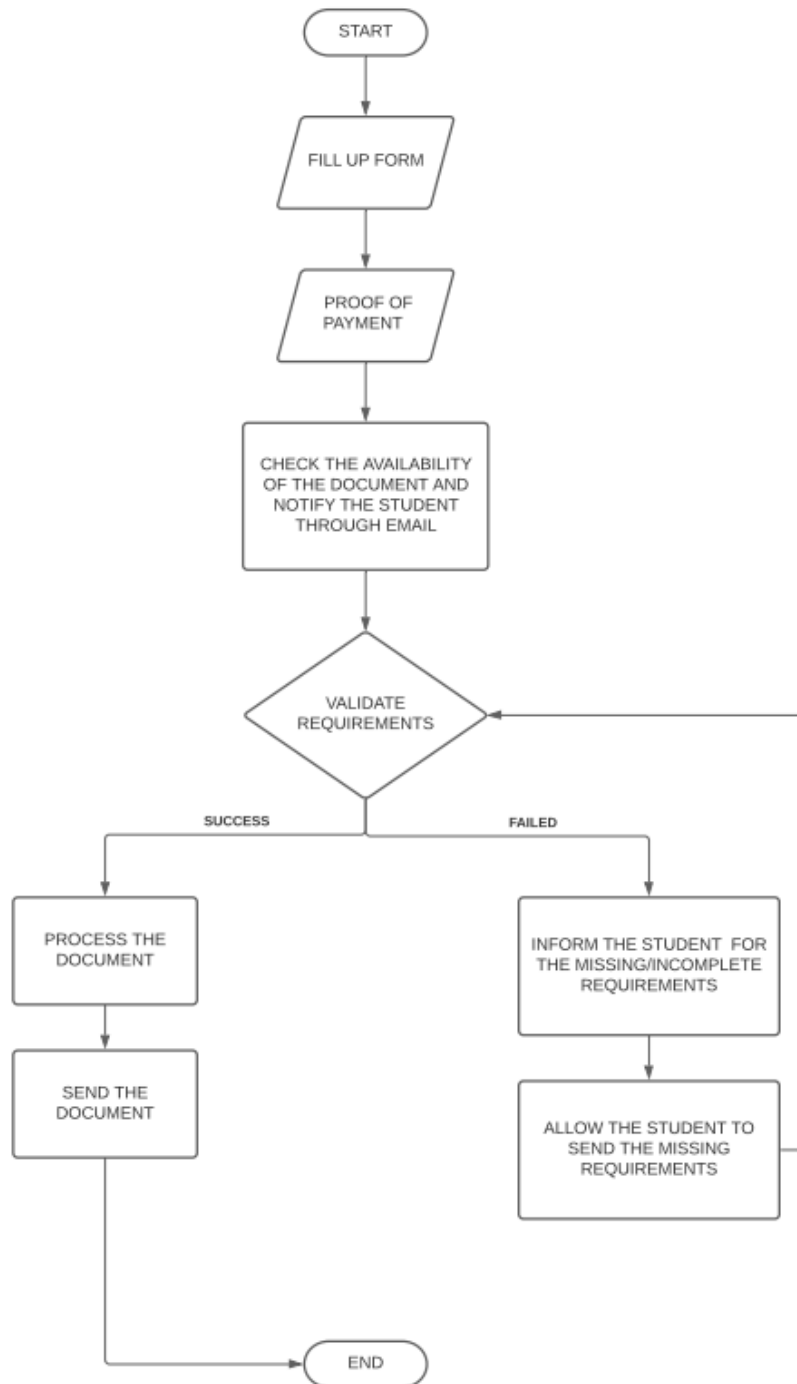
As part of the evaluation, the developers will use an evaluation tool. Developers will use the ISO/IEC 25010 product quality model. It comprises eight quality characteristics: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability. The stated qualities help the developer to determine whether the system meets the stated requirements of the clients.

G. SUPPORT AND MAINTENANCE

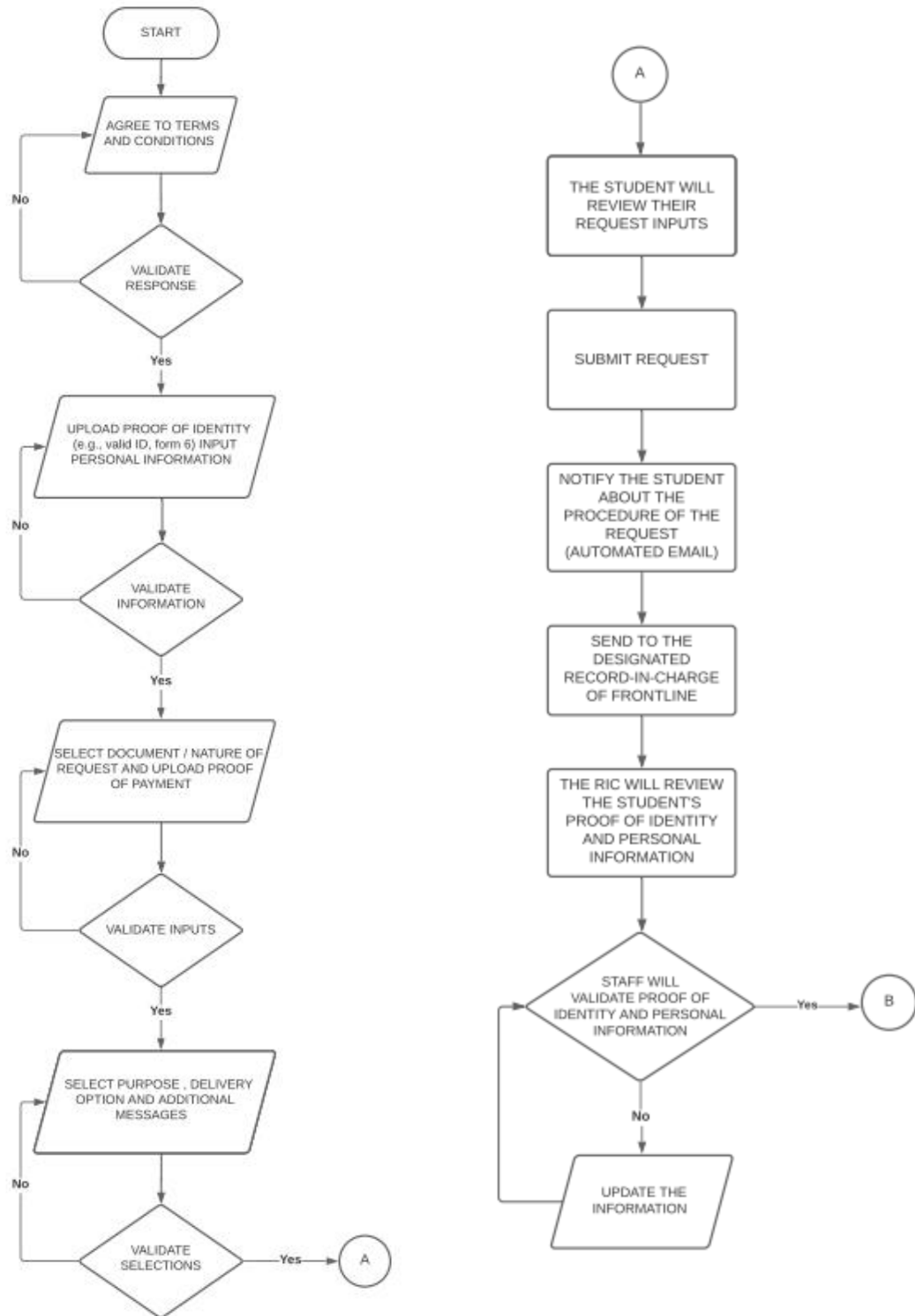
The developer fully helps its users by providing a wide variety of software support and maintenance facilities to ensure that the delivered software runs seamlessly and fully in compliance with the specifications of its users. The support and maintenance of the developers in the system are the following:

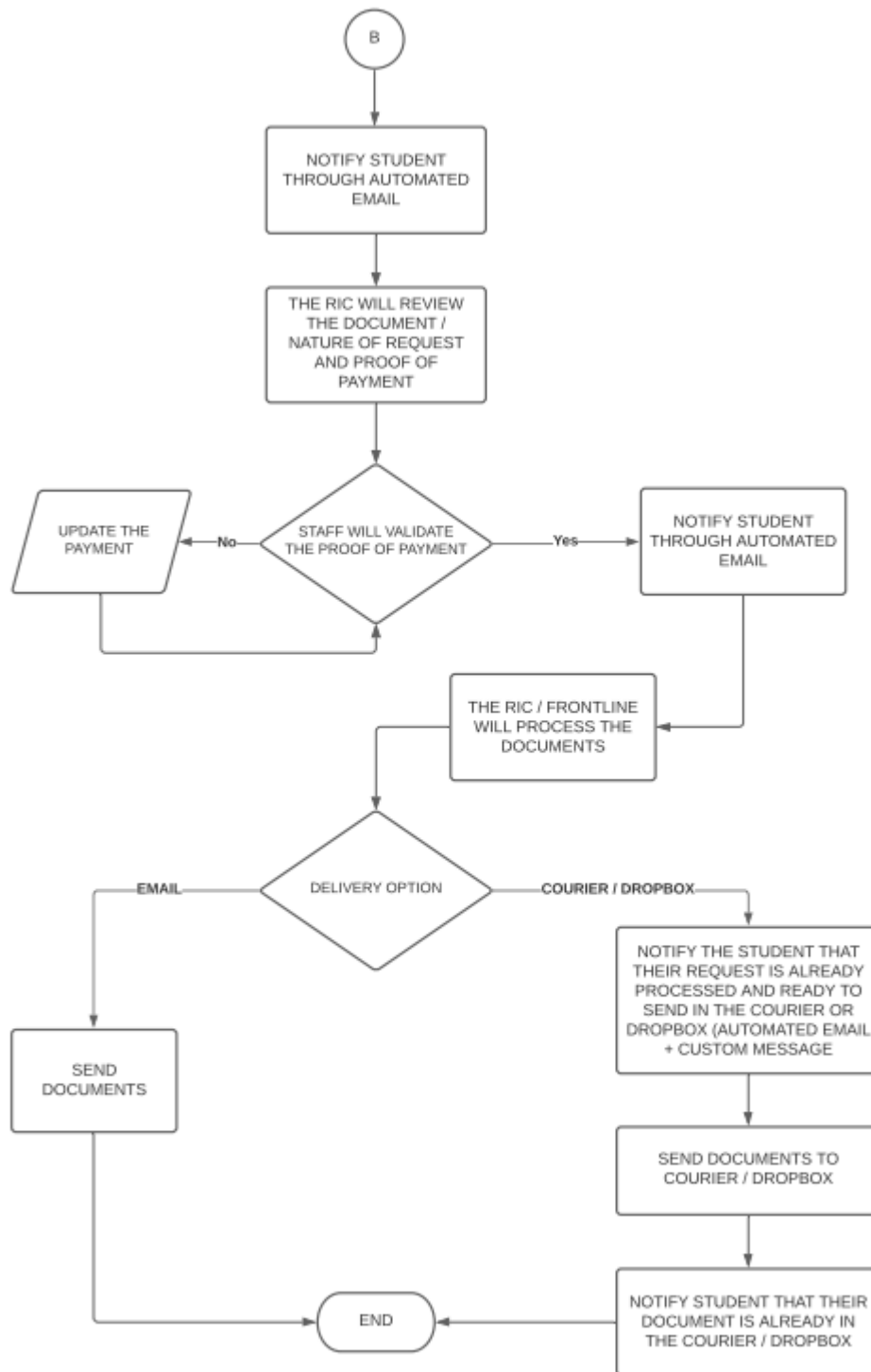
- Video tutorials
- Step-by-step instruction/documentation on how the system works
- User's feedbacks
- Data backup and recovery strategies
- System security measurements
- Help section

Flowchart (Current Procedure)



Flowchart (Proposed Procedure)





[illegible]