

UP Classroom

INTRODUCTION

UVLE

The **University Virtual Learning Environment (UVLe)** is the primary online course management system utilized by the University of the Philippines. It enables instructors to run courses from a single website and acts as a file-sharing platform. Specifically, the following can be done with the system:

1. Organize classes around topics and schedules
2. Upload digital materials to be used by students
3. Post announcements which automatically notify students via email, and
4. Create online forums for students to participate in.

The system is currently powered by an open-source application called **Moodle**, and is operated and maintained by the **Interactive Learning Center Diliman**.

It cannot be denied that UVLe is incredibly feature-rich. The system includes an integrated **plagiarism detector**, enables professors to **partition large classes** into smaller virtual groups to disseminate information, have **customized course materials** by restricting access to specific groups, and unlike other platforms, it **archives online chats and all attachments**— to name a few. In addition, in line with university custom, UVLe is supported by the University and Filipino taxpayers.

Problem Statement

However, despite the wide range of features that UVLe offers its audience— specifically, instructors determining which platform to use to most effectively conduct their courses— UVLe is often overlooked for other external platforms such as Google Classroom, Facebook Groups, and Google Mail. The reason for this is that the complexity of the platform is very much evident in its design. Simply put, UVLe is difficult to use.

While the platform is capable of much more than others, it lacks a seamless and convenient user interface. Movement from section to section is often confusing and unintuitive. In our experience, professors have had to provide detailed instructions on how to locate certain components. As an example, grades for a class are not found within the course main page but are instead compiled under the username above the page. While UVLe does offer a short, embedded tutorial on how to navigate a page, other platforms are designed to speak for themselves— they do not need manuals to be operated. (NOTE: the aforementioned tutorial makes no mention of where to find grades either).

UP Classroom

In line with this, the group's proposal is centered on the redesign of the current interface of UVLE, as well as better integration with CRS and mail. Hopefully, this proposal can create a better user experience and flow that will encourage instructors and students alike to utilize UVLE as the university's primary online course management system.

Advantages and Benefits

With the UP Classroom system, professors and students alike will be able to utilize a streamlined, functional, exciting, and incredibly important platform. For professors— should they choose to utilize this new and improved system over other online classroom platforms— this entails access to tools that could greatly impact the way they conduct their courses, and ease some of their workload with online tools. Through UP Classroom, they can utilize some of the tools in UVLe that are being ignored, such as a plagiarism checker, lab and facility reservation system, the Chairman administration module, mind-mapping activity areas, certificate generator, and QuickMail. In doing so, they can further ensure that no student will be left behind— whether this is due to personal circumstances, canceled classes, or even the prof's own external commitments.

On the part of the student, the ability to access all classes and their corresponding requirements in one streamlined portal will save them time and energy wasted on struggling to find course materials on Facebook chats and groups (that may have been deleted), having to go to the UP computer center to get their google classroom activated, and bugging their class beadles to communicate with their professors for missing materials. These realities may not seem like much, but they become incredibly burdensome over the course of semesters, years— and the entirety of their college stay. Furthermore, they will be able to benefit from learning supported by online tools and systems, which is particularly important for students who may learn better beyond the classroom. All of this will allow them to truly focus on the essentials: education and excellence.

I. PLANNING

Project Scope and Feasibility

The scope of the project proposal is to increase the number of students and professors utilizing the UVLe system, by modifying and improving its interface. Although the group also seeks to integrate UVLe with other UP platforms like CRS and UP email, the former has control over only the UP UVLE side of integration. Given that the proposal aims to modify and improve UP UVLE's interface as well as integrate it with other platforms solely created for the University of the Philippines such as UP email and CRS, the group concludes that this will be feasible in the long run.

Project Benefits

By pursuing this proposal, UVLE will be able to receive benefits such as:

- Cost reduction and avoidance
- Increased flexibility

- Increased number of active users
- Improvement of management and flow of systems
- More seamless integration of CRS and UPMail to UP UVLE

In planning the project, the class underwent the process of identifying and selecting IS Development Projects. Initially, members of the class identified potential development projects via a google form. After, in the second step of the process, the class ranked each IS development project through votation, and the contributors for the top ideas were assigned as leaders for each IS development project—which led to the third step: selection. It can be said that the group's decision to select an IS Development Project that is closely related to our academic interest, is an example of bottom-up planning, as we are striving to solve a specific operational education problem and take advantage of the possible benefits UVLe may receive.

II. ANALYSIS

Project Requirements

In order to better understand the entire system and processes of UP UVLE, the group made use of different methods of determining requirements.

The first method that the group used was interviewing individuals. The group interviewed both professors of UP Diliman and students of UP College of Business Administration. Due to conflicting schedules, however, the group was not able to conduct an interview with Dr. Lansangan, a representative of the UP UVLE. Below are some questions addressed to the interviewees:

- UP students in the College of Business Administration
 1. What online platform does their professor use to disseminate information? (UVLE, Google Classroom, Facebook group, etc.)
 2. What online platform do they, as students, find the most convenient and practical to be used for their classes
 - a) What specific features do they like in these online platforms
 3. Is it inconvenient or confusing for them to have to check information about their classes on different platforms?
 4. Would it be helpful to have just one website that all their professors could utilize to disseminate information online?
 5. How would they want the interface to look like?
 6. How easily can students access these platforms? From their laptops? Mobile devices?
- UP professors in the College of Business Administration
 1. What online platform they prefer to use to conveniently disseminate information to their students
 2. What specific features do they like in these online platforms
 3. Why they prefer to use this platform as compared to others

4. What they use online platforms for the most (announcements, posting powerpoints, online submissions, etc.)
5. What features they would want in an online platform that their chosen platform does not currently have

This activity is essential because it enabled us to understand the impact of the system on its end-users— their experiences, issues, ideas— all of which would give us direction in planning the changes that would be necessary for creating the UP Classroom to best fit their needs. It is always essential to gather information from a system's users, as they themselves benefit or are hindered by it. In taking into account their experience, the analysis process is made much easier as we can be assured that we are going in the right direction by solving existing and important problems.

Analyzing Procedures and Other Documents

Below are the steps in determining the problems with the Existing System:

- Gather information from the interviews
- Identify problems with having too many online groups/classrooms

For identifying the Opportunity to Meet New Need, the group

- Analyzed the answers from interviews
- Identified key features students and professors find necessary

Current System vs. New System

From the information gathered, we were able to establish the structure of the current system to be modified into the structure of the new system:

Business Process Reengineering

Current System

UVLe is the current platform that UP has provided for information dissemination between professors and their students. On the website, teachers can post announcements, academic materials, grades, and the like for their students to view, as well as access a wide range of academic and file-sharing tools. However, professors opt to use other platforms such as Facebook groups, Google classrooms, mailing lists, and class beadles, due to the complicated interface of UVLe; the site is very overwhelming at first glance with its many features and messy interface.

New System

Through Business Process Reengineering (BPR), this existing process of school-related activities could be made more efficient. As mentioned, the various platforms used case inefficiencies and confusion between students and professors. By changing the interface of UVLE with the help of suggestions from students and professors and strictly implementing that this platform must be used, the process of information dissemination will be more efficient and convenient for professors and students alike.

Data Flow Diagram

The use of data flow diagrams helped the group further elaborate on the new system of UVLE and pinpoint pivotal areas. These diagrams were essential in helping us to analyze how exactly the new UP Classroom program would be able to accomplish its intended purpose, determine how the system can handle the data it is given, detect errors in the system, and eventually, given the proper skills, serve as a basis in writing the new code of UP Classroom.

Data flows, data stores, processes, and sources/sinks

- **Source/Sink-** Both UP professors and students take the roles of sources and sinks. The professors act as the source when they would want to post information such as announcements, grades, quizzes, exams, etc. Students will then be the receivers of this information, thus acting as a sink. Students act as sources when they submit requirements and would want to reach out to their professors through UP classroom. The professors will act as the sinks once they receive the submissions of the said students.
- **Processes-** The work or actions performed on data inside the system would be the use of different Google platforms connected with UP Classroom (which is essentially just a UP branded Google classroom) such as Google docs, sheets, forms, and the like. The source has the freedom to choose in what way he/she would want to translate or transform the given data/information. By incorporating the various Google applications to the process of class activities and submissions, the flow of information is smooth and will all be done in similar environments.
- **Data Store-** The data store in this situation would pertain to the accumulation or collection of said submissions from the students and the grades given by the teachers. Submission info other than the files would also include time and date of submissions and other info to ensure that data is properly recorded and made sure that it is timely. Another data store is the availability of other sources of information available to students such as powerpoints, word documents, cases, problem sets, and other additional work material.
- **Data Flow-** The data flows in UP Classroom are the information that professors and students alike would want to get across to one another. This could be in the form of submissions, announcements, examinations, grades, etc. Most of the data will flow to and from the professors since the grades, requirements, and tests will come from him, and individuals will also come back to him– acting as a central hub for all the information in the UP Classroom.

The context diagram (Figure 1.0) shows an **overview of the UP classroom system**. The main purpose of the group proposing the UP Classroom System is for more convenient interaction between students and professors on one main platform wherein data and information may be exchanged. As shown by the diagram, the main entities interacting with each other in the system is a professor and a student with data flowing in the form of inquiries, submissions, edits, announcements, and more. Through the UP Classroom System, different kinds of

information and data may be conveniently exchanged by both professors and students for more efficiency and effectivity when it comes to these kinds of processes for class.

For other projects, creating a DFD will be essential in allowing programmers to plan how new programs can achieve goals and purposes, create a flow of decisions based on specific data given, utilize the DFD as a means of explaining complicated system processes or code, and detect errors and inefficiencies through Gap Analysis– all of which are extremely important.

LEVEL 0 DIAGRAM

The diagram (Figure 1.1) is a **decomposed version** of the context diagram of the UP Classroom System. This Level-0 diagram shows the major processes, data flows, and data stores in the UP Classroom System. As previously seen on the context diagram, the professor and the student are the main entities (source and sink) interacting with each other and exchanging data. The processes or work/actions performed on the data are the receiving and transformation of information, such as assignments and grades, then the updating of the test file or grades file, which then information is stored on the respective data stores, and lastly the production of the final grade, which translates into the data regarding grades seen on CRS accounts.

Decision Tables of one or more of the processes

The Decision Table (Figure 1.2) describes the **possible conditions** met when one of the processes– in this case, a submission– is finished. The conditions above can calculate possible additions or deductions to a grade depending on other factors such as late submissions. Possible factors affecting grades could be how late or early a requirement is submitted or possible extracurricular activities that add to the grade.

Below are some questions that helped the group during requirements modeling to gather the information needed for logic modeling

- Which parts of UP Classroom can model the decisions made by the professor (user)?
- How can the system model the decisions made by professors on a daily basis– such as grading based on given criteria, percentage pass/fail, etc.– and make them more efficient and effective?
- How can the system take into account details that influence grades such as tardiness, bonuses, etc. before producing a final grade?

Entity Relationship Diagrams

The next step that the group took was to construct Entity Relationship (E-R) Diagrams. This focused on the users of the proposed UP Classroom and specified the certain courses of actions that they can take.

The diagram (Figure 1.3) shows the entities, such as student, class, professor, and the like, of UP Classroom, as well as the relationships among these entities and their attributes. The cardinalities are also shown regarding the instances and relationships. An example would be how a requirement must be posted in at least one class dashboard or more and a class dashboard must contain at least one requirement or more.

The diagram (Figure 1.4) shows us something similar to the general E-R Diagram, but attributes have also been placed below each entity. An attribute is a named property or characteristic of an entity that the organization or system is interested in and also defines the entity type. Attributes may also be used to describe or identify entities. In the case of the student, attributes that would describe the person are the name, mobile number, and such. On the other hand, attributes that would define the student include Student_ID or student number and such.

The ER Diagram is integral as it serves as a visual starting point for us to be able to determine the necessary entities existing in the system and the relationships between each.

Candidate Primary

- **Student: Student_ID** - Used for the identification of each individual student, giving them a unique code in order to easily identify them. Information may be organized by the first few digits referring to what year they entered the University.
- **Professor: Professor_ID** - Used for the identification of each individual professor, being able to identify a professor by a code alongside their name. Each professor may or may not be linked to their corresponding class IDs which they teach in.
- **College: College_ID** - Refers to the ID given to each unique college.
- **Course: Course_ID** - Refers to the ID given to each individual course given in a specific college, under a college may be several course IDs available or only one.
- **Class: Class_ID** - Refers to the ID given to each class under the course and college.
- **Class Dashboard: Dashboard_ID** - Refers to the ID given to the specific dashboard given for the class.
- **Submission: Submission Title** - Submission Titles refer to the title of each individual submission given by the student in order to identify which submission is given by which specific student or what submission are they submitting for what requirement.
- **Requirement: Requirement Title** - Refers to the title given to the requirement asked of by the professor in order to identify what is the deliverable required for that task.

III. DESIGN

Normalization

Next, the group conducted formalization to convert complex data structures into simpler, more stable data structures.

FIRST NORMAL FORM

Columns highlighted are the primary keys that make each row unique from one another. This will also help the system distinguish one attribute from another. Example: If two people have the same first name, simply look at their student ID to differentiate the two. The same goes for professors, requirements, submissions, and colleges.

With each primary key available, subsequent information can be connected to the primary key that can be used to further see details on the primary key. For example from your student ID, you can get the name, birthday, college, student number, etc. Each primary key has more dependent information attached to it depending on how rich the primary key is.

SECOND NORMAL FORM

The two main Primary Keys that determine functional dependencies among the information above are the Student_ID's and the Professor_ID's. Both keys are unique and will be the main determinant of which Student_ID refers to which subsequent student and their accompanying information such as name, student number, e-mail, etc. and the same will go for the Professor_ID.

Forms

The group critiqued the current interfaces and features of Google Classroom and UVLE and identified both good and bad points. This enabled the team to create a design that would maximize the features of both platforms with major and minor improvements done for efficiency in usage. Listed below are the key features noted and improved from the two platforms that will be used in designing UP Classroom.

1. Dropdown menu- placed at the top of the page for visibility and easy access; contains access points to different supporting applications for UP Classroom
2. Icons - Icons are simple and unique which also help communicate their function and with a name at the bottom.
3. Color - Colors are uniform and match Google's color scheme and make it so that each icon is distinguishable even by color.
4. Pop up menu - Pop-up menu is simple and short with titles to help divide the menu even further into understandable and digestive parts.
5. Mixed Upper and Lower Case- text is written with uppercase first letters and preceding letters in lowercase
6. Abbreviations- Abbreviations are utilized for course codes, as students (users) all have a common understanding of this.
7. Highlight- Icon or function currently being hovered over by your cursor helps in indicating on what function you will use if you click it or helps to identify which one you are currently on at a glance. Additionally, the highlights act as a border when no borders are around.

8. Easy Navigation System- The page clearly demonstrates how to move forward and back through the use of home links, backward arrows, and an overall sidebar menu.
9. Meaningful Titles - Titles are clear and each shows the most general to more specific titles starting from class name and specific class code to named submission titles.
10. Spacing- line spacing- while not double-spaced- does not detract from one's ability to read the text. There are clear and defined spaces between paragraphs, and between types of text such as titles and descriptions.
11. Natural Language Interaction- the interface utilizes inputs and outputs written in conventional English. There is also an option to translate the page if necessary.
12. Justification- Text is justified to the left with ragged right margins.
13. Form Interaction- the password field is formatted in a similar manner with paper-based forms, in which the user enters specific information to prompt a response from the system.
14. Balanced Layout- the interface has balanced spacing and emphasizes more important information. It also utilizes margins on either side and between important page components, as well as clear and concise labels.
15. Cookie Crumbs- the cookie crumbs will enable navigation easily and intuitively. It will allow users to keep track of and maintain awareness of their locations within documents, submission bins, files or attachments, and the like.

Aside from the features mentioned above, the group would also like to propose the following added features that were not found in the two platforms, namely Google Classroom and UVLE.

1. Search Tool- Users usually struggle with the retrieval of files from the two platforms, especially if numerous files have already been submitted or posted by both students and professors alike. There is no option to search for submission bins, file names or folders that need to be accessed and instead, the users will have to manually scroll and look for them. With the search tool, users may easily type in a keyword from the file they are looking for, and search results will appear regarding the specific files that the keyword is in the title. There may also be filters for the search tool, such as if the file is from one of the submission bins, lectures, and more. The group believes that by having this, the platform will be more quick and user-friendly as the users do not have to go through countless files just to find one file they need.
2. Customizable Quick Access Tab- As mentioned, users usually have a difficult time finding files that they need. With the customizable quick access tab, users may just drag desired files into this tab for easier access. This is useful when there are files that are frequently accessed or are very important and need to be accessed again in the future. With this, users do not have to go through numerous files every time they need to access these specific files.

The above features and suggestions are essential in creating any platform, as users will be unwilling to adopt any new system if they are unable to easily navigate through it, comprehend it, and utilize it with ease- as in the case of UVLe, which contains many substantial

and essential features, but is too complex and difficult for its end-users. The design is of particular importance to this project because it is one of the primary things hindering UVLe from maintaining a relevance equal to its other online learning counterparts.

In the same way, design is integral to any project because it is the image that is presented to users. For example, a website on financial information would be ignored even if it contained the most tools and up-to-date statistics if text was uneven, dropdown menus did not exist, and the layout was extremely unbalanced. Good design is an indicator of a good system, and bad design has the ability to turn users away.

Steps to Implement Proposed Improvements and Solutions

In order for the group to achieve the improvements and solutions for a more efficient and effective platform, we have come up with a few steps:

- The first step is to conduct a survey with UP students and professors as respondents. With this, the problems regarding the multiple class platforms may be found, and the team will be able to gauge if these issues are relevant based on the number of people experiencing them.
- Once survey results are collected, the team may be able to see if the proposed solutions will be helpful in creating a more efficient centralized platform for students and professors. Aside from this, they may use the survey results to also factor in more relevant problems and propose more solutions for these when designing the UP Classroom.
- The team may consult an IS specialist regarding the proposed solutions, design, and their feasibility and effectivity.
- A prototype may then be made out of all the information. It may be tested out first by a few to see if it will be as effective and efficient as the goal of the team. Further improvements may also be done based on the test runs.
- Once the team is satisfied with the results of the test runs, they may then make an actual platform wherein continuous improvements may be done to meet the needs of users. The group may also propose to the UP administration the utilization of one centralized platform, UP Classroom, for all the classroom needs and requirements of both students and professors in the university.

Conclusion

As UP students, we experience inconvenience and confusion every semester in dealing with the various platforms our professors choose to use for disseminating information: from UVLE to Google Classroom to Facebook to class beadles, and sometimes not even any platform at all. We have been experiencing this for three years of our college lives already thus far, without ever thinking of a potential solution that would enable us to have a better focus on our education. It is learning about systems analysis and design that pushed us to think out of the box and idealize a more convenient and user-friendly virtual platform for all UP students and professors to use. It helped us enrich our knowledge about the many features of UVLE, as well

as recognize the features of other platforms such as Google Classroom that made professors prefer it over UVLE. However, we also acknowledged our limits as students that have only begun to learn about the complexities of system analysis and design, and so we did the best we could with our abilities to plan a potential UP classroom that would combine the key features of both UVLE and Google Classroom. We understand that we do not have all the resources at the moment in order to bring this plan to action, but with all the lessons we are now equipped with due to this project, we hope that we would at least be able to bring this matter to attention with the Interacting Learning Center Diliman. Overall, this project taught us to take a more active role in the furtherance and development of our education. Even if we may not experience these changes in our time at this university, maybe the future students of UP Diliman will – and we will take pride in knowing that our footsteps were a part of the pathway to change towards a more progressive and successful university.

APPENDICES

Figure 1.0

CONTEXT DIAGRAM

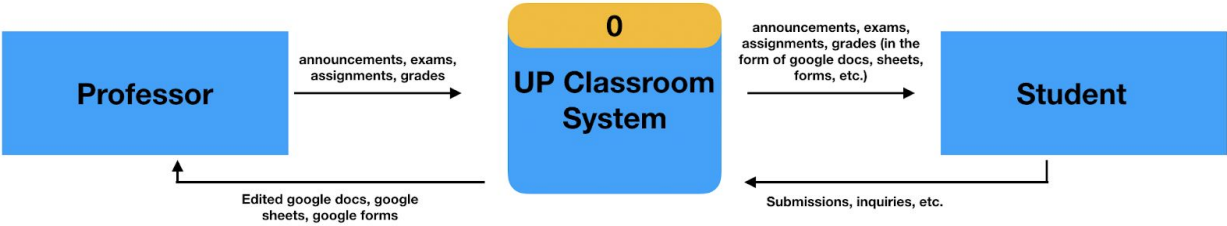


Figure 1.1

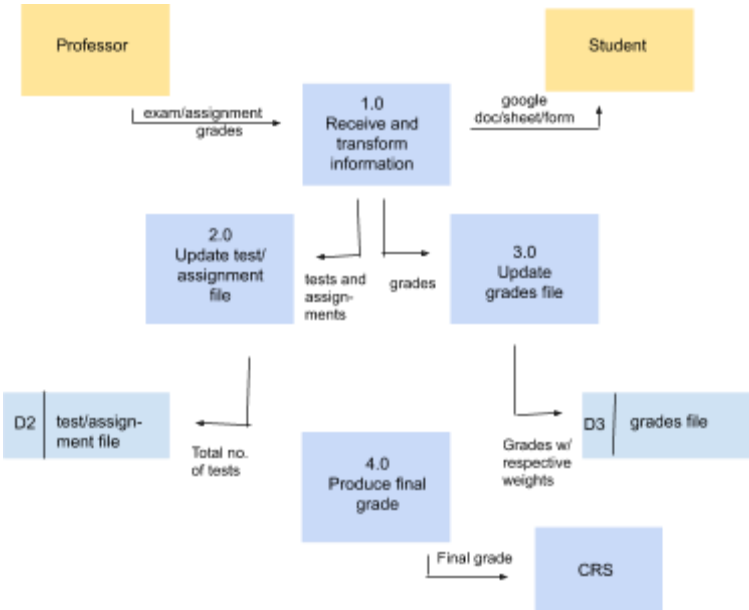


Figure 1.2

Condition Stubs	Conditions/ Courses of Action	Rules						
		1	2	3	4	5	6	7
Action Stubs	Requirement Submitted							
	Days Late							
	Grade							
	Calculate Deductions							
	Calculate Bonuses							

Figure 1.3

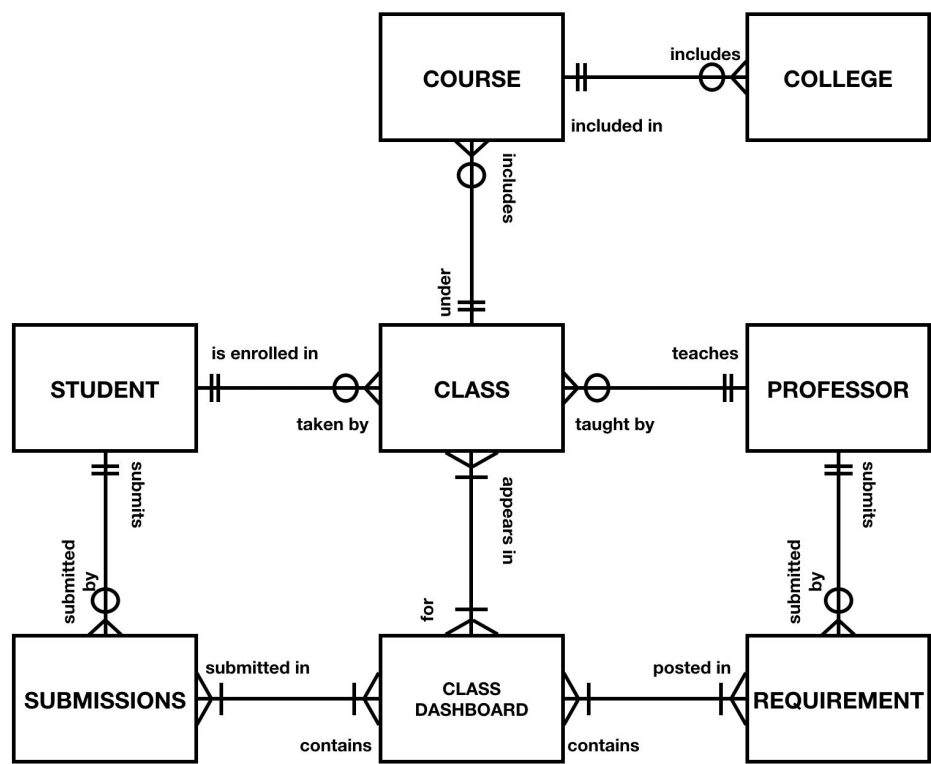


Figure 1.4

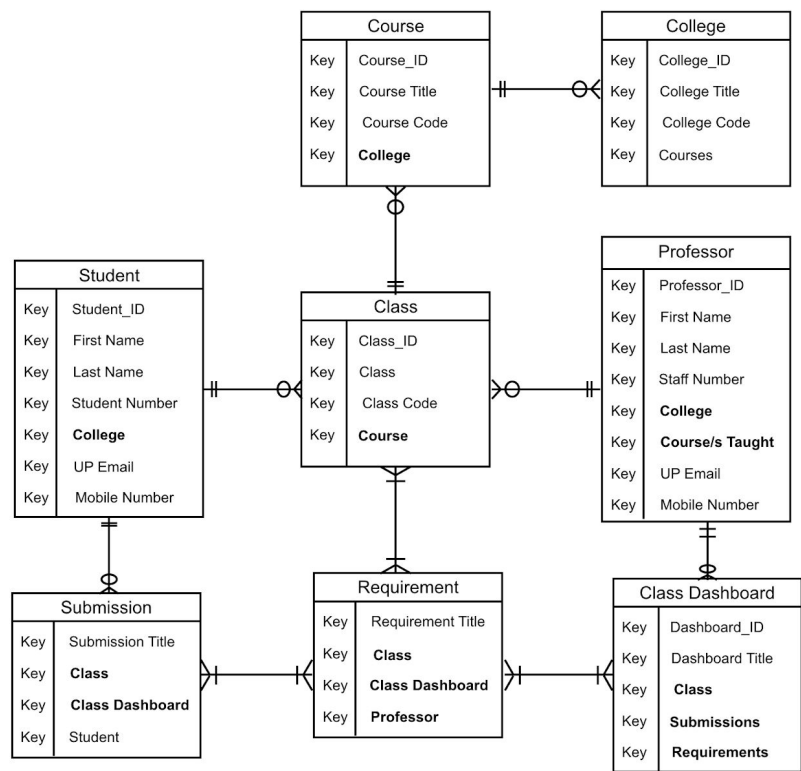


Figure 1.5: Diagrams for Normalization

STUDENT						
Student ID	First Name	Last Name	Student Number	College	UP Email	Mobile Number
quilala_p3	Patricia	Quilala	2017-00173	Business Administration	pequilala3@up.edu.ph	9175360098
serrano_j	Jannah	Serrano	2016-01033	Business Administration	jss@up.edu.ph	9178827640
tan_d5	Dani	Tan	2016-0035	Business Administration	dmt@up.edu.ph	9178301749
narciso_n	Nikki	Narciso	2016-0055	Business Administration	nan@up.edu.ph	9173329864

CLASS			
Class ID	Class	Class Code	Course
1-0001	BA 101	1203	Business Administration
1-0002	BA 182	1029	Business Administration
1-0003	BA 114	1394	Business Administration and Accountancy
1-0004	BA 141	18620	Business Administration

COURSE			
Course ID	Course Title	Course Code	College
101	Business Administration	1141	Virata School of Business
102	Business Administration and Accountancy	1142	Virata School of Business

DASHBOARD				
Dashboard ID	Dashboard Title	Class	Submission Title	Requirement Title
Dashboard-1	Pat's Dashboard	BA 101	BA101Q1	BA101Q1
Dashboard-2	Dani's Dashboard	BA 182	BA182LE1	BA182LE1

PROFESSOR						
Professor ID	First Name	Last Name	Faculty Number	College	UP Email	Mobile Number
asinas_m	Mark	Asinas	2012-00173	Business Administration	asinas_m@up.edu.ph	9174180382
calso_a	Angelica	Also	2016-01233	Business Administration	calso_a@up.edu.ph	9174881639
wong_d	Debbie	Wong	2008-0035	Business Administration	wong_d@up.edu.ph	9173194820
canseco_r	Roy	Canseco	2019-0055	Business Administration	canseco_r@up.edu.ph	9179310382

REQUIREMENT			
Requirement Title	Class	Class Dashboard	Professor ID
BA101Q1	BA 101	Dashboard-1	sandoval_b
BA186LE1	Ba 186	Dashboard-2	canseco_r

SUBMISSION			
Submission Title	Class	Class Dashboard	Student
BA101Q1	BA 101	Dashboard-1	quilala_p3
BA186LE1	Ba 182	Dashboard-2	tan_d5

COLLEGE			
College ID	College Title	College Code	Number of Courses
1	Virate School of Business	122	2
2	School of Economics	123	2

Figure 1.6: Second Normal Form

PROFESSOR ID	COLLEGE ID
asinas_m	1
calso_a	1
arcenas_a	2
dedios_e	2

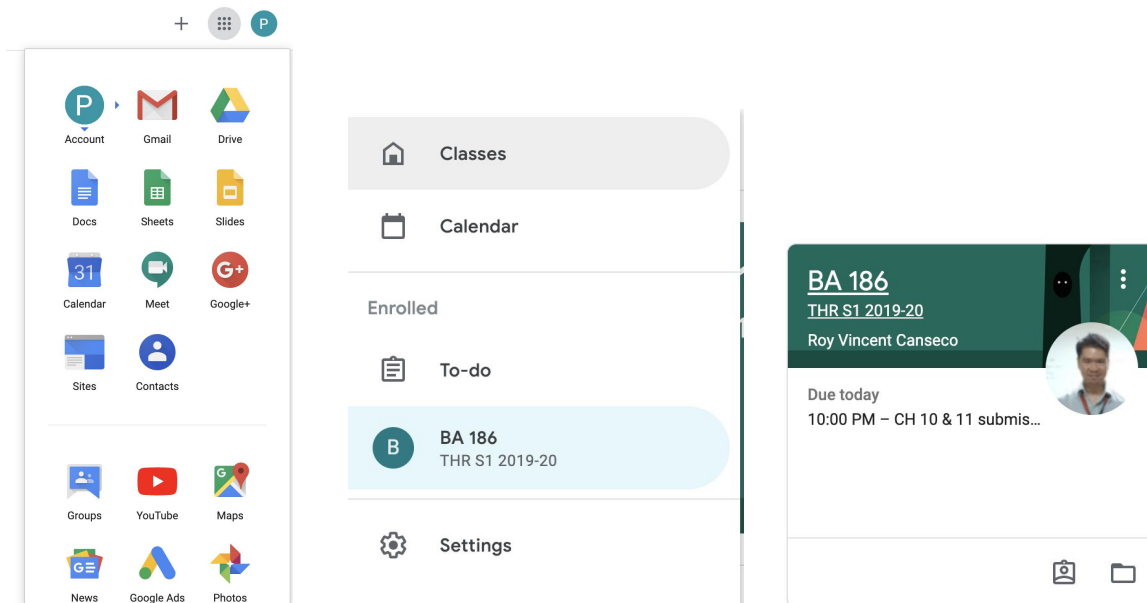
STUDENT ID	DASHBOARD ID
quilala_p3	Dashboard-1
tan_d5	Dashboard-2
narciso_n	Dashboard-3

PROFESSOR ID	CLASS ID
sandoval_b	1-0001
paredes_l	1-0002
asinas_m	1-0004

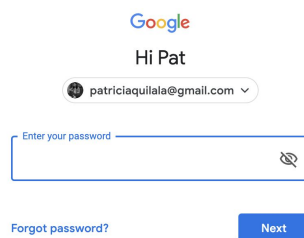
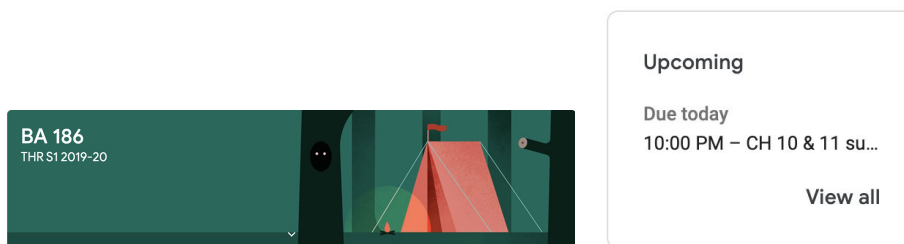
CLASS ID	COURSE ID
1-0001	101
1-0003	102

Design - Forms

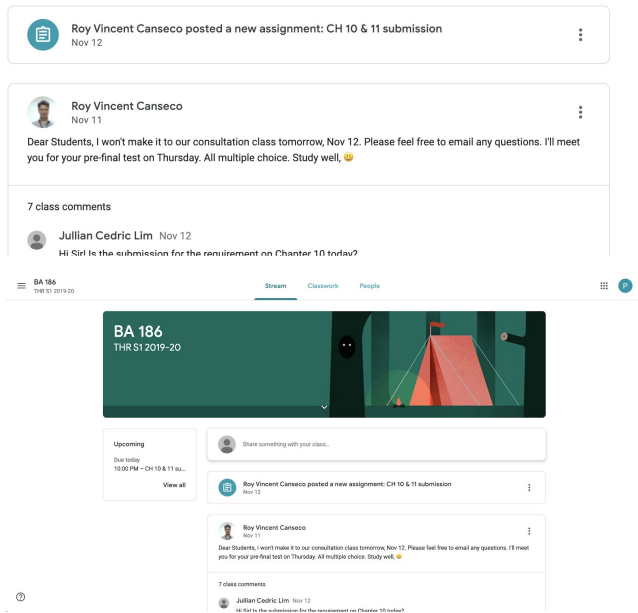
Dropdown menu, icons, color, pop-up menu, Meaningful titles



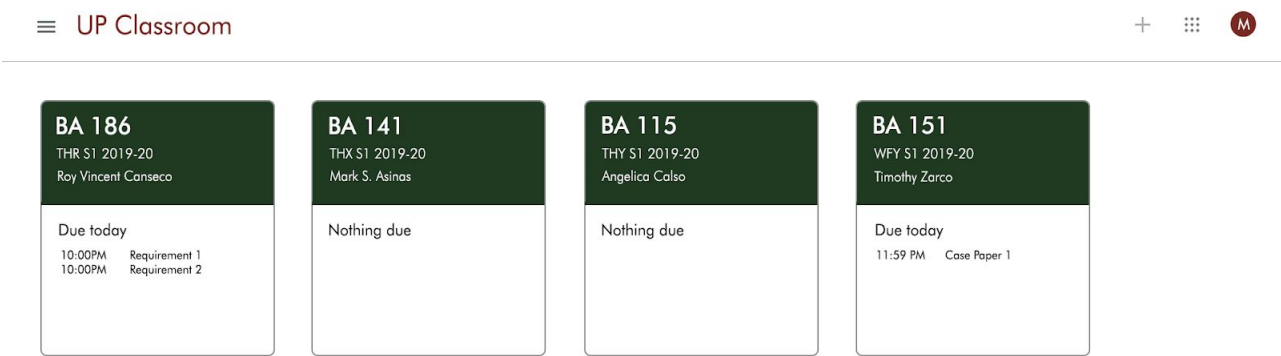
Mixed upper and lower case, Abbreviations, Highlight, Form Interaction, Cookie Crumbs



Easy navigation system, Justification, Natural Language Interaction, Balanced Layout, Spacing



Proposed Interface Samples
Homepage



Assignments

 BA 186
THR S1 2019-20

Announcements

Assignments

Grades

Due 10:00 PM

Requirement 1

- Guidelines
- 1) Lalala
 - 2) Somethin somethin
 - 3) Nananana

Roy Vincent Canseco | 22 November 2019

Your Work

+ Add or create

Plagiarism Check