Online Activity No. 8 and 9: Applying the User-Centered System Design Process

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Chapter I. Introduction

Background of the study

In recent years, there has been a growing trend of educational attainment in all educational departments. That includes elementary, secondary, senior high school, and of course college. In such a trend, there is also a relative growth with the demand for tutoring. What was once an extended market for education has become its own market, where even college students can teach on a part time basis. However, in places like the Philippines, this market is not yet acknowledged nor appreciated. So, the demand for tutoring was not really answered properly, and the supply of tutors is not able to catch up to the demand. This is due to the lack of proper connectivity between students and tutors. This lack of connectivity includes the oversight of tutor advertisement, not enough exposure of services, large distances between students and tutors, and lacking information of services. Hence, StudyMatch was created. The goal of StudyMatch is to ensure that such connectivity is established into one centralized platform, and to have convenience like any industry and market do when it comes to making a transaction. It provides navigation, central payment, and a means of communicating with the students and the tutors. The purpose of StudyMatch is to let the country of the Philippines acknowledge the market of students and tutors in order for everyone to have a quality education anytime, anywhere.

Statement of the problem

The main problem of what the system attempts to fix is the lack of connectivity between tutors and students looking for tutors. With this problem, it has three (3) subproblems that the system will cover in the effort to make a connection between students and tutors:

(1) *There is a lack of information about local tutors for students to look for.*

Assuming that a tutor might exist near your local area, there is an impossibility for a student to be able to know that such services exist. It might waste any business opportunities from those in the business, and waste resources for students who are searching for one.

(2) *There is a great amount of distance between tutoring centers and students to find conventional services or contacts of freelancing tutors.*

Any student may opt for a conventional tutoring center for their needs, be it a college student, a high school student, or someone going into law. It is the most obvious and standard choice, even for finding some contacts for future tutors. However, a student may live on the outskirts of the city or live in another town where the commute time takes too long. This makes it exceedingly difficult for them to commit to their studies if they cannot access their needs via distance.

(3) *Conventional tutoring centers do not cover niche topics that a student from a different demographic may need.*

Assuming a student lives nearby and has information on local tutoring centers or even local tutors, it might not be the right tutoring for them as they do not cover their needed topics for their upcoming exams. For example, there might be a tutor nearby who can teach physics but cannot teach computer programming.

All of these subproblems contribute to lack of connectivity between tutors and students (the main problem). Often times, these interactions are done in an informal system like on social media. Furthermore, there are local social media groups that attempt to fix these problems, however, due to the chosen platform's capabilities, it only does little to contribute to the solution of these problems.

Assumption of the study

What the system of this study will do to solve all of the subproblems to help solve the main problems are:

(1) *Centralize information in one platform.* – If information is centralized, the students do not have to go from places to places just to find the appropriate tutoring services for their academic needs. It also makes it easier for local research to find the nearest tutoring services.
(2) *Nearest Tutor Match Making* – In addition to the centralization of information, an algorithm will be implemented in order to compile and gather the information automatically based on the geological data of the student using the system.
(3) *Filter-based Search* – Finally, the system is able to provide a personalized search that heavily depends on the student's need. This makes the search more faster and encourages other niche tutors to provide niche services. This also provides opportunities for people who have enough knowledge on a niche topic to consider becoming a tutor.

All of these assumptions are attempted into one system and one platform, which being the StudyMatch system.

Significance of the study

There are two types of beneficiaries of this system: client and service provider. The clients are students who are looking for a tutoring service. While the service provider will offer their services to the system in order for them to easily find some clients to work with. The following list is the complete list of the beneficiaries with a noting classification to them of whether they are the clients or the service provider:
1. Undergraduate Students (Client)
2. Freelance Tutors (Service Provider)
3. Highschool Students (Client)
4. Tutoring Service Center (Service Provider)
5. Part-Time Tutors (Service Provider)
6. Working Parents (Client)
7. Graduate Students (Client & Service Provider)

Chapter II. Research Design

The group should be able to identify here the steps of the design process model used and its corresponding description from the reference book. Aside from it, the researchers should also relate their own experiences and add it into the description of every stage of the design process model.

User – Centered System Design Process

This section discusses the design process model used by the group wherein it is composed of the following stages:

A. **Task Analysis**

Since the system caters for both the client and the service provider, there are two total hierarchical tasks that cover both the client side and the side of the service provider. The following figure is the task hierarchy analysis of how the client attempts to make a transaction with a tutor:
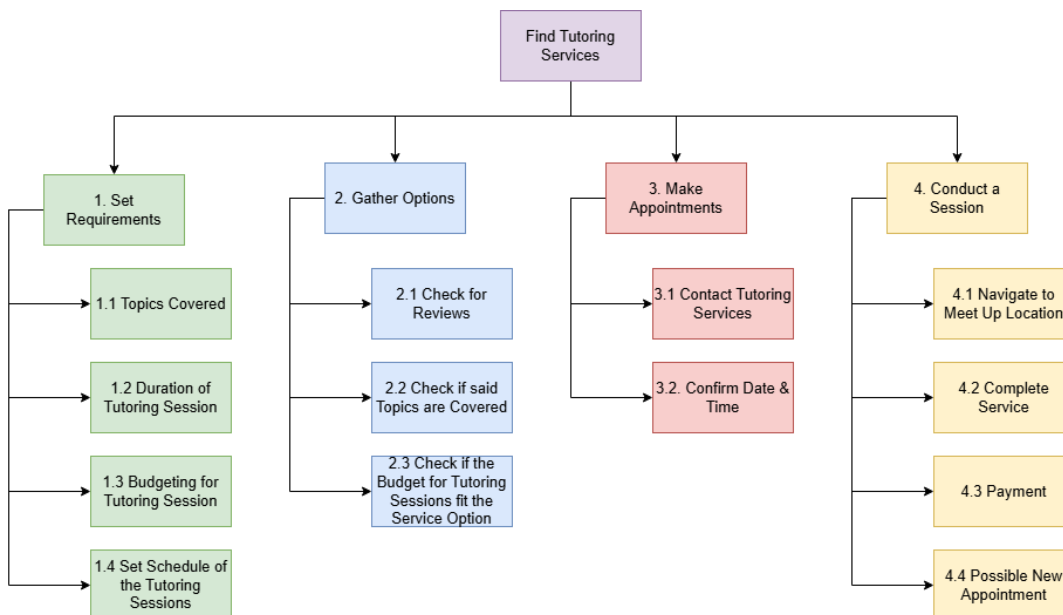
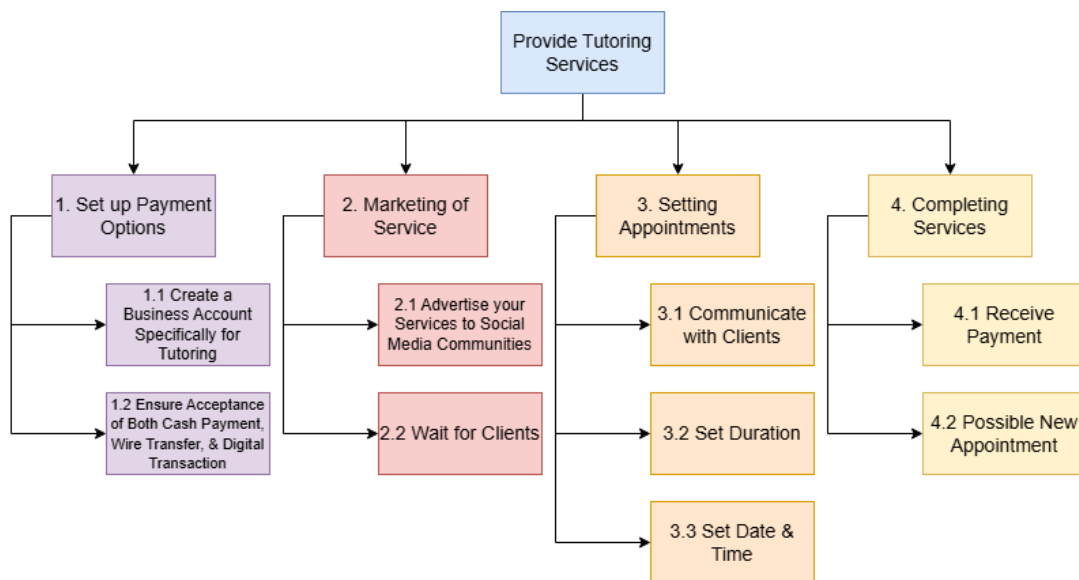

Figure 1. Client Task Hierarchy

There are four major tasks when finding a tutoring service, or a tutor transaction. The first is setting up the requirements of what mind the client needs. Be it what they want to study, the duration of the tutoring session they can allocate from their daily routine, the budget, and of course the time and date for the session. This is what every client needs to do to have the optimal experience for tutoring, to be a benefit for their academic life rather than a burden.

The second is the gathering service option based on the geological data the client gathered. They might have gathered this data from social media communities, though there can be many more sources. The client weighs our many service options when it comes to the distance, budget, covered topics, and reviews. Again, in the effort to have the optimal experience of tutoring.

The third is making the appointment itself, where the client may contact the service provider to make the necessary arrangements. The client sets the date and time and informs the service provider what they need from them.

And finally, the fourth, which is completing the transaction. The client must travel to the meetup, or the place of the tutor, where they will do a tutoring session. Once a tutoring session is completed, the service provider will receive their payment for their provided services. A possible new appointment might be created depending on the experience of the client. Such appointments will be a reoccurring service. A client may not go back to the service provider again if the experience is bad, but if it is good, then a good transaction has been made.

All these tasks are based on the researchers' personal experience and surveyed demographic. It is a standard convention to do these tasks via social media for an optimal experience of finding a tutor.

Figure 2. Service Provider Task Hierarchy

Figure 2 further explains the side of the service provider when it comes to creating a transaction, or a service transaction. Like Figure 1, the service provider task hierarchy is split into four major tasks. First is setting up the payment options. In this digital age, there are a lot of options for payment rather than direct cash. That includes wire transfer and a digital transaction. The service provider might have to create a separate account purely for such services, either for taxes or segregated balance for easy audit. This makes it convenient for both the client and service provider when certain options are not available.

The second is marketing of service. This includes social media and sharing contacts the service provider may know. This is probably the most longest task, as they have to wait for a client to come once the information has been disseminated. The third is setting up an appointment. In cases where a client contacts the service provider, the service provider will set the appointment

themselves to keep track of their jobs and tasks. They set the duration, the details of the session, and of course the date and time. And once everything is confirmed and ready, the appointment is formalized.

And finally, fourth, it is the completion of the services. Where the client will pay the service provider based on the details from the appointment, a possible new appointment might be created for a reoccurrence of services. These tasks are also based on the researcher's experience and the surveyed demographics. These tasks are especially conducted in social media.

B. **Requirements Gathering**

The researchers have conducted three requirement gathering procedures, each pertaining to the influence of design and requirements of the entire system. The following list explains the method used and what was the result of those methods.

- **Interview** – The researchers conducted this method of requirement gathering in order to know the perspectives of the students finding their preferred tutor, and the tutors having to manage such business with little connectivity.
- **Observation** – The researchers conducted several observations on several social media networks and platforms in regard to tutoring services and how they attempt to connect clients and service providers. This was conducted for the sake of the tutors on how they attempt to conduct a transaction.
- **Related-Literature** – The researchers referred several related-literature to help gather more requirements for the system. The literature includes standard system transaction, tutoring transaction, and freelancing transaction platform.

Based on the requirement gathering, the following list are the results of those gathering:

- **User Requirements** – The client users require a wide range of options for tutors in a local area. While the service provider requires a wide range of potential clients in a local area and means to communicate with them if ever those potential clients contact the service provider.
- *Functional Requirements* – The functional requirements of the system are centralized platform, communication system, navigation system, and a centralized payment system. All of these systems are a result of the required tasks needed to be accomplished by both the client and the service provider.
- *Data Requirements* – The required data for this system are the basic information of both the client and the service provider, the date and time for an appointment, the hourly basis for the appointment, the geolocation of the service provider for the client, payment information, topics covered by the client and service provider, and the appointment details such as duration of the session and the location of the session.
- *Environmental Requirements* – Both the client and the service provider are not technologically literate to make such appointments for each other. They often use simple systems through an easily accessible platform. In such a case, the environmental requirements that was decided upon is the portability of the system. The system must be able to be accessible anywhere, anytime, to cover any real-time transaction.

- *Usability Requirements* – The usability requirements for this system are ease of flow for transaction where the client or the service provider can directly make a transaction without any additional steps, personalized experience for finding tutors and managing clients, and networking accessibility for proper communication of client-to-service provider.
- *Designers Requirements* – The requirements for the designers of the system, and of course the overall design of the system, are direct-to-the-point design with a minimalistic view. This is to ensure that the designers are able to properly implement the system without any advanced features, and to not waste any time on the user's end navigate on the system.

C. **Storyboarding and Prototyping**

In this section, the storyboarding, otherwise the flow of the system will be discussed. The following figure is the flow of the system:
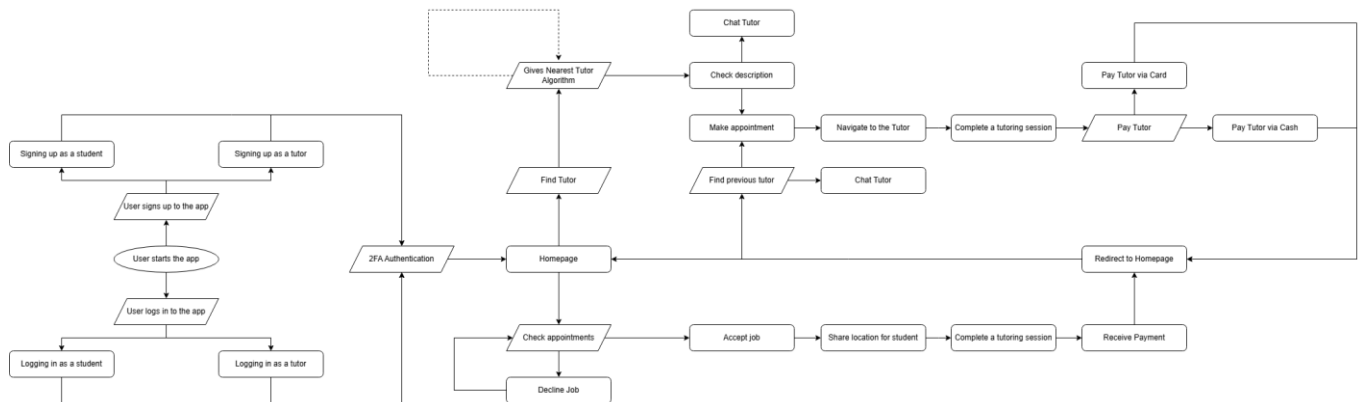

Figure 3. Flow of the System

The flow is divided into three sections. The first section is the user management system located on the left side of Figure 3, where the client and the service provider log in to their account or sign up for a new one. After that, they will be redirected to the home page that is catered differently for client and service providers. The second section to the top involves the system of how the client makes a transaction with the service provider. While the third section at the bottom is the standard transaction of how the service provider interacts with the client for a tutoring session.

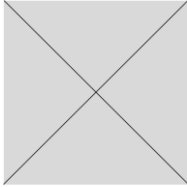|		
LOGO	**SIGN IN** Email Password ✕ REMEMBER PASSWORD FORGOT PASSWORD REGISTER LOGIN	**BACK Tutor Name** Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed nec massa est. Duis in velit mi. In pulvinar orci velit, eget vestibulum velit aliquet ut. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed nec massa est. Lorem ipsum dolor sit amet ▶
Splash View	**Sign-in View**	**Chat View**
The splash view, otherwise known as the splash screen, is a loading screen for launching an application. This will be displayed for 1-2 seconds.	This view is responsible for user authentication for a personalized experience. And also, a launching site for the registration view and the menu view.	This view is responsible for client-business communication. It is a standardized view that will be used for both the client and tutors.

Figure 4. General View

REGISTER
AS STUDENT

Full Name

Contact Number

Email

| Day | Month | Year |

☒ I consent to the information provided in accordance with the Privacy Policy and Terms and Conditions while acknowledging that the information provided is true.

REGISTER

CURRENT TUTORS

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
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Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

FIND TUTOR   SETTINGS

STUDENT SETTINGS

SETTINGS
FIND THE TUTORS YOU NEED

Tutor Maximum Distance (km)

Specialization   ▼

Price Range

CANCEL   SAVE

Registration – Client View

This view enables the client to create their own account classified as a student in order to access the student-based features with personalized experience.

Menu – Client View

This is the general view of the clients. They will see any past or previous interactions with tutors that have been deemed interesting by the client.

Client – Setup View

This is the view to cater to the configuration settings of the search algorithm responsible for finding tutors in the local area. These settings exist in order to further cater the personalized experience of the user.
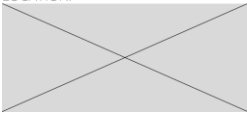
BACK TUTORS

REJECT INTERESTED

LOCATION:

This is the client view for finding their preferred tutor based on the search algorithm of the app. The client either rejects or take an interest to a tutor's services.

Client Find View - Setup View

Figure 5. Client View

REGISTER
AS BUSINESS

Full Name

Business Name

Contact Number

Email

| Day | Month | Year |

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REGISTER

CURRENT CLIENTS

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

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Tutor Name
Specialization: XYZ
Located At: XYZ

Tutor Name
Specialization: XYZ
Located At: XYZ

FIND TUTOR   SETTINGS

BUSINESS SETTINGS

SETTINGS
LET STUDENTS FIND YOU

Location

Specialization ▼

Price Range

CANCEL   SAVE

Registration – Business View

This view enables the tutor to create their own account

Menu – Business View

This is the general view of the tutor. They will see their current   and   past

Business – Setup View

This is the view to the configuration settings of the business account in aid of

classified as a business account in order to access the business-based features.	interactions with their clients, especially good for future arrangements.	the search algorithm in order to be found by potential clients.

Figure 6. Service Provider View

Requirements Summary:

		iOS	Android
MINIMUM REQUIREMENTS	Processor Cores	Dual-core Processor	Dual-core processor
	OS	iOS 12 or later	Android 8.0(Oreo) or later
	RAM	2 GB	2 GB
RECOMMENDED REQUIRMENTS	Processor Cores	Quad-core processor	Quad-core processor
	OS	iOS 14 or later	Android 10.0 (Pie) or later
	RAM	4 GB	4 GB
OTHER REQUIREMENTS	Permissions	Location, Notifications, and Storage	Location, Notifications, and Storage

Figure 7. System Requirements

Figure 3 is the technical requirements to run the system. This is not only for the prototype, but for the overall system.

D. **Evaluation of prototype**

Area of Evaluation	5	4	3	2	1

Criteria					
A. Visibility of System Status - The system design provides appropriate feedback like message prompts in response to user actions.		/			
- The message prompts are clear, visible and understandable.	/				
B. Match between the system and the real world. - Used words, phrases and concepts according to users' language rather than system-oriented words and computer jargons.		/			
C. User control and freedom - The system design provides ways of allowing users to easily "get in" and "get out" if they find themselves in unfamiliar parts of the system.		/			
D. Consistency and Standards - The colors, text, labels, buttons and other elements in the design are uniform from start to finish.	/				
- Text and icons are not too small or too big.	/				
- Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages.	/				
E. **Error Prevention** - The system design provides automatic detection of errors and prevents them from occurring in the first place.			/		
- Idiot proofing mechanisms are applied	/				
F. Help users recognize, diagnose and recover from errors. - Error messages and the terms used are recognizable, familiar and understandable for the users.		/			
G. Recognition rather than recall - Objects, icons, actions and options are visible for the user. - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do.	/				
H. Flexibility and efficiency of use - The system design provides easy to navigate menus. - the system does not make wasteful time of system resources.	/				
I. Aesthetic and minimalist design -Graphics and animations used are not difficult to look at and do not clutter (mess) up the screen. - Information provided is relevant and needed for the system design.	/				
J. Help and Documentation -the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed.	/				

Chapter III. Conclusion and Recommendation

In conclusion, with the lack of connection between students and tutors, it proved difficult to enhance your understanding of several academic subjects. What this system offers is a bridge to make the connection strong. Which be a centralized platform where students can easily find tutors in their local area, while tutors are easily able to find clients to make a living out of there services. Through several data gathering procedures, the researchers were able to design a centralized platform with all-in-one simple features to make a complete tutor service transaction between the client and the service provider.

For notes of recommendations, such system should be able to cover deeply for communication and caters deeply towards the service provider as well. What the system offers at this current state is generalized assistance for both parties. A means to improve the current state of connectivity. Though, the goal for this project is to establish such a connection. Furthermore, the project should gather more data based on the uses of this system, in order to further establish the extended needs of the client and service provider and might be able to implement on future iterations of the design.