CHAPTER 1. INTRODUCTIONS

1.1 The Background

Sharing knowledge is needed in the world of lectures. Good for supporting value and adding to knowledge, because maybe the material presented in each class will be different regarding the delivery and addition of each material. Not only in lecture material, experience from seniors on campus is also very important to share with juniors to learn and minimize mistakes.

Talking about campuses, Atma Jaya Jogjakarta is one of the best private campuses in Indonesia. On average students have to complete 8 semesters to graduate from this university. Usually in supporting grades in a course, it has become a habit for juniors to ask seniors for files to be used as learning material and experience in dealing with tests that will soon take place. Moreover, in a department at this university there are lots of social clubs on campus, so juniors often ask seniors for files only in the community they follow.

The most proven way of learning outside the course or teaching by lecturers in increasing grades is with senior experience, whether in file material or unwritten experience by seniors. However, due to the pandemic that occurred from 2019, many students had to carry out the teaching and learning process from home or WFH (Work From Home), this made student learning enthusiasm decrease plus communication to seniors in sharing files or material became very hampered. Juniors cannot get material files that are needed outside of the learning process by the lecturer. Even if there are juniors who get additional material from seniors, only certain students may join the same community. So that the process of sharing knowledge through stories of experience or written material in the form of soft copy is not easy for everyone to get.

However, actually sharing material files is also much regretted by seniors because the material files that have been arranged and neatly stored are only given free of charge by juniors without any clear reward, so this is of course very beneficial for juniors but there is no advantage for seniors because there are many seniors who are not willing to provide material or experience summaries from seniors. Apart from these problems, students at Atma Jaya Yogyakarta often share files using social media accounts, this will of course be very annoying and uncomfortable, the giver will send files to many people who request files, if sending is done in a group, the recipient of the file will have to scroll and even provide a chat pin, so it will be troublesome if

there is more important information.

In this final project, the author innovates to solve problems in the Atma Jaya Yogyakarta community by creating a special website whose users are senior and junior students. Senior students or students who have material files can sell these materials neatly categorized on a platform, so that if there are students who need them, they can search and buy them on that platform. With this innovation, students who need material can openly view and buy material summaries or experience stories on a platform, this allows students who are not members of any community to stay updated on the platform that has been built. In addition to the benefits received for juniors who are looking for material, sellers who incidentally are seniors also get material benefits from their craft of storing and organizing summaries of material they have studied well.

1.2 Significant of the study

1.2.1. Formulation of Problems

Based on the background above, author identified the problems that occur in the field as follows:

1. How to build a E-Learning website platform,
2. How to build a website using atomic design Frontend Methodology,
3. How to build uncomplicated design that can be easily used by the user.

1.2.2. Limitation of problems

Due to limitation of time and resources, the scope of this study will be discussed as follow:

1. E-learning website platform is only compatible with web-browser,
2. The website will be hosted on managed localhost service,
3. E-learning platform frontend is not integrated yet between backend side and Frontend side
4. Website Observation about thesis research is form personal experience.

1.2.3. Research Purpose

1. The author wants to create a platform for sharing materials and learning with Atomic Design Methodology for internal development, especially for the Atma Jaya Yogyakarta community
2. This project is expected to help students in the Atma Jaya Yogyakarta community group material in a way more structural
3. The existence of this platform will make students more orderly and trigger to manage their documentation learning materials.

1.2.4. Research Benefit

Using the Atomic Design methodology for frontend development brings several benefits compared to not using it. Here are the advantages of employing the Atomic Design methodology:

1. Scalability: Atomic Design promotes scalability by breaking down UI components into smaller, reusable elements. This modular approach allows for easy composition and adaptation, enabling teams to create complex interfaces from a library of atomic components.
2. Consistency: By defining a clear structure and hierarchy of components, Atomic Design ensures consistency in design and behavior across the application. This consistency enhances the user experience and helps maintain a unified brand identity.
3. Reusability: Atomic Design encourages the creation of highly reusable components. Atoms, such as buttons or input fields, can be reused in multiple contexts, reducing development time and effort. This approach also facilitates updates and maintenance as changes to atomic components propagate throughout the system.
4. Collaboration: Atomic Design provides a common language and framework for collaboration between designers and developers. With a shared understanding of the atomic elements, both teams can work together more efficiently and effectively.
5. Design system creation: Atomic Design facilitates the creation of a design system—a centralized library of components, styles, and guidelines. A design system promotes consistency, accelerates development, and streamlines the onboarding process for new team members.

1.3 Literature Review

Many existing studies have been conducted that related to this study, Designing e-platform with Atomic Design Frontend Methodology. Some of them have similar case on our discussed studies. The works that referred as example for this study revolve around developing community E-learning platfrom, Development of Community Platform Service, and Atomic Design Frontend Methodology. The following works are reference in this study to develop the application:

1. Exploring user behavior in online communities.

   Hsu, C. L., Lin, J. C. C., & Lin, C. L. (2013). Exploring user behavior in online communities: The moderating effects of social support. Information & Management, This thesis aimed to investigate the impact of social support on user behavior in online communities. The researchers conducted an online survey among 356 users of online communities and analyzed the data using structural equation modeling. The results revealed that social support significantly affected users' attitudes, social norms, and behavioral intentions to participate in online communities. In addition, the study found that social support moderated the relationships between attitudes and behavioral intentions, as well as between social norms and behavioral intentions. The study suggests that social support plays a critical role in fostering user engagement and participation in online communities, and that online community managers should consider implementing strategies to enhance social support to promote user participation.

2. The impact of online learning communities on motivation and learning outcomes: A study of Chinese college students. Journal of Educational Technology Development and Exchange by Zhang, J., & Song, W. (2019).

   This study examined the impact of online learning communities on motivation and learning outcomes among Chinese college students. The study surveyed 228 undergraduate students who were enrolled in an online course and analyzed the data using structural equation modeling. The results indicated that online learning communities positively affected students' motivation and learning outcomes. Specifically, the study found that online learning communities facilitated the exchange of information and resources, encouraged interaction and collaboration among students, and provided

emotional and cognitive support. The study highlights the potential of online learning communities to enhance students' motivation and learning outcomes and recommends that instructors incorporate online learning communities as part of their instructional design.

3. Exploring the use of social media for community-building in higher education. Computers & Education by Oztok, M., Zingaro, D., Makos, A., & Hewitt, J. (2019).

   The study aimed to explore the use of social media for community-building in higher education. The researchers conducted a case study of a university course that utilized a social media platform for online discussions and collaboration among students. The study collected data through surveys, interviews, and content analysis of the social media platform. The findings revealed that the use of social media facilitated the creation of a sense of community among the students, enhanced communication and collaboration, and promoted active learning. The study also identified several factors that contributed to the successful use of social media for community-building, including instructor support and guidance, student participation, and the integration of social media into the course design. The study suggests that social media has the potential to support community-building in higher education and can be a valuable tool for instructors to engage students and promote learning outcomes. Regenerate response

4. An Integrated Approach to the Design of Digital Learning Materials Based on Atomic Design. Journal of Educational Technology & Society, by Hu, W., & Wu, C. (2020) This research article explores the application of Atomic Design principles in the design of digital learning materials. It discusses how the use of atomic components and a modular design approach can enhance the user experience and promote effective learning. From the study, Atomic Design has clear Visual Hierarchy, Atomic Design emphasizes the structure and hierarchy of components, ensuring a well-organized and intuitive user interface. When testing the prototype, participants can better understand the visual hierarchy and navigate through the information architecture, providing valuable feedback on the clarity and effectiveness of the design.

5. Impact Atomic Design and the "State of the Art" of UX for build Interactive Client Side by Tognazzini, B. (2015). This article by Bruce Tognazzini discusses the application of Atomic Design principles in user experience (UX) design, emphasizing the importance of modularity and component-based design for creating user-friendly and adaptable

interfaces. With Atomic Design, maintaining and updating the product becomes more manageable. Since components are organized hierarchically, making changes to a specific component or group of components is easier and less likely to cause unintended consequences. This maintainability ensures a more sustainable and adaptable design system.

1.4 Schedule

No	Activities	Weeks									
		1	2	3	4	5	6	7	8	9	10
1	Literature review										
2	Requirement analysis										
3	System design and development										
4	Testing										
5	Paper writing										

Table 1-1. Schedule

1.5 Organizational Structure of the Paper

As for the systematic structure, this study is divided into five chapters, with detail as shown below:

Chapter 1: Introduction

In this chapter, this study shows the background of the problem, problem identification including the formulation and the limitation of the study. This chapter alsoshow relevant study in the section of literature review.

Chapter 2: Software Requirements

In this chapter, this study shows the functional and non-functional requirement of the software as written in a Software Requirement Specifications document. Including the

introduction of the tools being used in this study.

Chapter 3: Software Design

In this chapter, this study shows the discussion of the architecture of the software, along with how many modules we should create during the development, and databases design.

Chapter 4: Implementation and testing

In this chapter, this study shows implementation on the modules in the previous chapter (code and interface), along with the detailed explanation of the implementation.

Chapter 5: Conclusion

In this chapter, this study shows the feedback from certain users and how we can improve the software in the future after this study is conducted.