1. Introduction

Knowledge acquisition refers to the process of acquiring new information, skills, or understanding [1], [2] In the context of student lecture reflection activities at universities, knowledge acquisition involves students actively engaging with course material, reflecting on their learning experiences, and integrating new knowledge into their existing mental frameworks [3]. This process enables students to deepen their understanding, critically analyze the concepts presented in lectures, and apply the acquired knowledge to real-world situations. To facilitate knowledge acquisition, universities often employ knowledge acquisition systems, which can be digital platforms or tools designed to support students in organizing, synthesizing, and retaining information. These systems may provide features such as note-taking capabilities, multimedia resources, interactive quizzes, and collaborative spaces for discussions [4].

Students engage with course material using the Learning Management System (LMS), a digital platform designed for interactive learning [5]. After each lecture meeting, students leave lecture reflections, which involve reflecting on what they have learned and convey what material they do not understand. However, managing and analyzing the substantial volume of student lecture reflection data can pose a challenge for lecturers, so that an automation system is needed to check constraints and store knowledge of the solution to the problem [6]. These problems can be solved by using a knowledge acquisition system by utilizing student lecture reflection data, then extracting knowledge from the problems faced by them by inferring knowledge using the Large Language Model (LLM) about those problems and through tacit knowledge from lecturers [7], [8].

This research aims to explore the process of knowledge acquisition from student lecture reflection data, harnessing the capabilities of the LLM and tacit knowledge from lecturers to infer solutions. The acquired knowledge is then stored in a knowledge base, enabling both students and lecturers to access comprehensive information on frequently faced challenges and their corresponding resolutions. This research demonstrates the following contributions:

- Extracting text information of student lecture reflection in each lecture meeting.
- Create the categorical classification model for each student lecture reflection using Bidirectional Encoder Representations from Transformers (BERT).
- Perform knowledge acquisition for each student lecture reflection by using capabilities of the LLM or tacit knowledge from lecturers.
- Saving the acquired knowledge in a knowledge base, enabling both students and lecturers to access comprehensive information on frequently faced challenges and their corresponding resolutions.