

**Universiti Teknologi MARA**

**Sleepwell: The Development of Personalized Sleep  
Application**

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## **ABSTRACT**

This thesis titled SleepWell: The Development of Personalized Sleep Application is web-based system designed to assist university students in improving better sleep. The project addresses the problems faced by students including lack awareness about the importance of sleep, academic pressure such as a heavy workload especially during exams and failure to apply sleep hygiene. SleepWell incorporates features such as a sleep calculator that helps users determine recommended sleep times based on their desired wake-up time. The system also provides tips for improving sleep quality, access to calming music to reduce stress and offers recommendations for sleep accessories, which users can purchase directly through the platform. The objective of this project is to identify the user requirement for university students in developing Personalized Sleep Application, to develop the web-based system with a sleep calculator in improving better sleep and to evaluate Personalized Sleep Application regarding the solution to improve quality sleep. Personalized Sleep Application will use the waterfall model for the methodology. The waterfall model is a project management approach where each phase is completed before the next one begins, following a sequential order. It consists of five stages: requirements gathering, design, implementation, testing, and maintenance. SleepWell system has successfully achieved its goals by providing a solution to improve sleep quality. In the future, more enhancements can be made in this system to improve its overall functionality and accessibility such as introduce integrating notifications with the clock system, seamless payment gateway to streamline the payment process and improve user experience, enhance chatbot with AI and human support integration to improve the chatbot's functionality and , introducing a mobile version of the SleepWell system would greatly improve accessibility and convenience for users.

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# CHAPTER 1

## INTRODUCTION

Sleep is vital for the health and well-being of university students, impacting cognitive function, memory, and concentration. Despite its importance, most university students have trouble getting a good night's sleep because of various factors leading to poor academic performance and health issues. Factors such as lack awareness, academic pressure and lack of sleep hygiene contribute to sleep deprivation. The proposed solution is to develop Personalized Sleep Application, SleepWell, to help students improve their sleep quality. This system features a sleep calculator, tips for better sleep, soothing music, and recommendations for sleep accessories. The goal is to provide a comprehensive tool to help students prioritize and help to achieve in improving better sleep, thereby enhancing their overall well-being and academic success. Chapter one covers background study, problem statement, research questions, research objectives, scope and project significance.

### 1.1 Background Study

Everyone needs to have enough sleep for each day. Maithany et al., (2024), observed sleep is important for the health and well-being of university students. The brain can't function properly when it does not get enough sleep, which might impair one's ability to think clearly, process memories, and concentrate. According to Lucy and Brandon (2024), sleep has an essential function in recharging the body and mind so that everyone wakes up feeling alert and rejuvenated. A good night's sleep is also essential for maintaining physical health and preventing illness. Other studies reported that the incidence of sleeping problems among university students was 14.9 to 70.3% (Chowdhury, et al., 2021). However, most university students have trouble getting a good night's sleep because of various factors. According to Maithany et al., (2024), College students often oversleep on weekends after skipping sleep during the week to study and socialise. For best performance, most healthy adults need to sleep between 7 and 9 hours every night. Other than that, more than 60% of people have trouble getting enough sleep. Sleep deprivation ranks third among college students' obstacles and has been linked to a decline in academic performance, a reduction in attention span, impaired