

Universiti Teknologi MARA

**Mobile App of Mood Prediction Based
on Menstrual Cycle using Machine
Learning Algorithm**

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ABSTRACT

Mood is a psychological state that responsible for emotional feeling in human mind and it deeply affected by premenstrual symptoms (PMS). Large part of women community undergoes that phase. It can cause a sudden changes of mood which lead to decreasing of the Quality of Life (QOL). With this project creates a mobile app that analyse the mood pattern which also correspond with menstrual cycle to be able to predict mood. The development model used for this project is Agile model development cycle. It implemented Supervised Learning algorithm with Bayes' Theorem model for the calculation of mood prediction using Python programming language. The template design was built using Node.js and Visual Code Studio. And it used Cordova for designing interface. The ambulatory assessment used was momentary self-report which conducted with Google Form. The project was tested to 30 women which was chosen selectively with diverse age of group which have a regular menstruation period. The accuracy for this project was determined within 8 weeks of data collected. The analysis for this shows that the dataset is too small to give strong validation of the its impact. Increasing the sample size and randomly choose the sample would improve this project as the prediction could be more accurate and reliable.

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CHAPTER 1

INTRODUCTION

This chapter provides the foundation and the background of this project, problem statement, objectives, scope of the project, and significance in this field of reinforcement learning and the summary of this project.

1.1 Background of study

A menstrual cycle is the process of ovulation and menstruation in women. Moreover, the endocrine system is the one controlling the menstrual cycle & it retained during a series of complex relations of hormones (Chen and Ward, 2014). Thus, during the menstrual cycle, some women would go through a premenstrual syndrome (PMS) phase. According to Sahin, Ozdemir, & Unsal(2014), PMS is characterized by a substantial variety of emotional and somatic indicators and social changes happened before the menstruation phase of menstrual cycle. Furthermore, they stated the PMS diminishing subsequently the preliminary phase of the menstrual period, and it is categorized as a somatic disorder in 10th revision record of International Classification of Disease (ICD). It had been reported that more than (85-90%) women had PMS that includes psychological changes, involving annoyance, gloominess, food cravings, and chest pain early or throughout menstruation (Watanabe & Shirakawa, 2015).

After several studies regarding PMS, it is reasonable to say that PMS and woman's emotion state have a very closely linked. Additionally, Cernian, Olteanu, Carstoiu, & Mares(2017) stated that the nervous system that manipulates the entire body is generating emotions corresponding to medicine and psychology. Contrariwise, in the study conducted by Dhamija & Boulton(2017) stated that emotion is categorized by a collection of interconnected