

Menstruation Cycle Information Analysis for Pattern Recognition: Determination of Algorithm on Stakeholder Requirement

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The menstrual cycle of a healthy woman is systematic and individually unique. As it is directly related to a woman's physical and mental health, the menstrual cycle plays a major role in individual nutrition, social and psychological decision-making. As women frequently forget the exact date of menstruation, lots of mobile apps are developed to assist them. All such apps use 28 as the approximate date, but the experiences are very dependent. Therefore, to utilize individualized menstruation cycle guidance app development, it is required to develop an algorithm to predict the date of menstruation. Then the objective of this work is to study the collection and analysis of field data to realize what model is suited for cycle prediction. The data was collected using 30 women between the ages of 20-35 with their menstrual cycle dates for one year. Then this time series data was analysed using cumulative moving average (CMA), and Auto-Regressive Integrated Moving Average (ARIMA). The analysis shows both methods can predict menstrual dates with an average accuracy of 90%, which is acceptable to the purpose of the work. However, it is decided to use either method to predict the menstrual date for users who newly registered or use the app for less than one-year period, as the utilized data set limitations. It is required to analyse more advanced seasonal level prediction models when the app is evolved with more users and collecting data.

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