

Personalized Period Tracker with Analytics and Social Sync

Milestone: Project proposal

Group 8

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Introduction

Menstrual cycle tracking is an important tool for personal health awareness, allowing individuals to understand their cycle length, predict upcoming periods, and monitor associated symptoms. Beyond individual tracking, cycles often show patterns such as irregular lengths, consistent delays, or recurring symptoms. Moreover, cycle synchronization with friends is a well-documented phenomenon and can provide emotional support and practical coordination.

This project proposes a Personalized Period Tracker that enables users to record their cycles, daily flow, and symptoms. The system will analyze up to one year of historical data to provide insights such as average cycle length, detection of irregularities, and symptom trends. Additionally, a 'Sync with Friends' feature will allow users to connect with friends and view overlapping or predicted cycle timelines.

Theory for Period Tracking and Analytics

A menstrual cycle typically lasts between 25–35 days, with variations across individuals. By recording start dates and lengths across multiple months, cycle averages and variances can be calculated. Predictive analytics can estimate the next period start date based on historical averages, while deviations beyond a threshold (e.g., ± 7 days) can signal irregularities.

Symptoms such as cramps, headaches, and mood swings, recorded daily, can be correlated with flow levels or specific days of the cycle to identify recurring patterns. The social sync feature extends the application by allowing users to share limited cycle information with friends, helping identify overlapping or synchronized cycles.

Other Requirements

- A user can log zero to infinite cycles; each cycle belongs to exactly one user.
- A cycle can have zero to infinite period records; each record belongs to exactly one cycle.
- A cycle can have zero to infinite symptoms; each symptom belongs to exactly one cycle.
- A user can have zero to many friends; a friendship is a two-way relationship between two users.
- A user can set zero to many reminders; each reminder belongs to exactly one user.
- Analytics must cover at least 12 months of history, enabling detection of:
 - Average cycle length
 - Late or irregular cycles
 - Symptom frequency and trends
 - Overlaps with friends' cycles