PROJECT REPORT

VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

SUBJECT: INTRODUCTION TO INNOVATIVE PROJECTS

(PHY1901)

PROJECT NAME: PERIOD-PAL

Submitted by:

JESNA BINU MANCHERIKALAM(22MID0066)

Contents

1. Aim:

The primary aim of **Period Pal** is to design and develop a **comprehensive, inclusive, and intelligent menstrual health platform** that empowers users to track their cycles with accuracy, comfort, and confidence.

Through an intuitive user interface and visually rich frontend, the platform seeks to:

- **Predict menstrual cycles and ovulation windows** using smart algorithms,
- Allow users to **log symptoms, moods, and health patterns** for deeper self-awareness,
- Provide **personalized insights and charts** through interactive visualizations,
- Enhance **accessibility and responsiveness** for seamless use across all devices,
- Promote **mental well-being and body literacy**, breaking taboos around menstruation,
- And ultimately, build a **supportive digital companion** that adapts to individual needs while respecting privacy and user experience.

Period Pal is not just a tracker — it's a step toward **normalizing conversations around menstrual health**, powered by thoughtful frontend design and user-first technology.

2. Objectives:

1. **Personalized Cycle Tracking**
   Enable users to track their menstrual cycles accurately, offering customizable options for symptoms, moods, and flow levels tailored to individual needs.

2. **Prediction & Health Insights**
   Provide smart predictions for upcoming periods, ovulation, and fertile windows, using historical data and behavioral inputs for accurate forecasting.

3. **Interactive Health Dashboard**
   Present health trends, emotional patterns, and cycle summaries through intuitive visuals (charts, graphs) that promote better self-awareness and health monitoring.

4. **Privacy-Centric Design**
   Ensure all personal data is encrypted and stored securely, with optional account features for anonymous tracking or secure login access.

5. **Educational Support & Awareness**
   Promote menstrual education and break taboos by integrating helpful tips, myth-busting facts, and health advice within the platform.

6. **Inclusive & Accessible UI**
   Design an inclusive interface with non-gendered language, high-contrast colors, and support for screen readers to ensure accessibility for all users.

7. **Emotion & Symptom Logging**
   Allow users to log and analyze daily moods, pain levels, cravings, and other physical/emotional symptoms to build long-term health records.

8. **Scalable & Modular Frontend**
   Create a responsive and modular frontend that adapts to devices of all sizes and supports future feature integration like doctor consultations or reminders.

9. **Community & Empowerment**
   Encourage body positivity and empower users through a calm, welcoming interface that celebrates body literacy and emotional well-being.

10. **Data-Driven Recommendations**
    Use user patterns and analytics to provide personalized health suggestions, early warnings, or reminders for appointments and self-care activities.

3. Problem Statement:

Despite the increasing global awareness of menstrual health, many individuals still lack access to personalized, stigma-free, and educational menstrual tracking solutions. Existing apps often fail to address the diverse needs of users, offering limited insights, non-inclusive language, and unintuitive designs. Moreover, they rarely provide data-driven health recommendations or emotional support features, leaving users uninformed about their own cycle patterns and overall well-being.

There is a pressing need for a comprehensive, inclusive, and user-friendly platform that not only tracks menstrual cycles but also empowers users with health insights, emotional awareness, and educational support — all while ensuring privacy and accessibility.

4. Architecture :

The **Period Pal** platform is designed using a three-tier architecture to ensure efficient data management, user interactions, and real-time health insights. The architecture comprises the **Presentation Layer (Frontend)**, **Application Layer (Backend)**, and **Database Layer**. The system is equipped with several key modules to empower users with accurate menstrual health tracking, insights, and educational resources.

1. Presentation Layer (Frontend)

The **Frontend** layer provides an interactive and user-friendly interface for individual users. It is built using **HTML**, **CSS**, and **JavaScript** for dynamic rendering and component-based architecture.

Features:

- **User Roles:**
  - **General Users:** Menstrual tracking, health insights, and symptom logging.
  - **Admin/Healthcare Providers:** Manage educational content, analytics, and recommendations.
- **User Interface:**
  - **Cycle Tracker:** A calendar-based feature allowing users to log and predict menstrual cycles.
  - **Health Insights Dashboard:** Visualizes trends and patterns with interactive charts (using libraries like **ApexCharts**).
  - **Symptom & Mood Logging:** Allows users to track physical symptoms, emotions, and other health factors.
  - **Educational Content:** Provides facts, tips, and FAQs on menstrual health, body literacy, and emotional well-being.
- **Responsive Design:** Optimized for both **mobile** and **desktop** devices to ensure a smooth experience across all screen sizes.

5. Application Layer (Backend)

The **Backend** layer is powered by **Python Flask**, a lightweight web framework. It handles the core business logic, user requests, data processing, and real-time updates. Flask's flexibility enables efficient routing, handling user input, and interacting with the database.

Core Components:

- **Cycle Prediction Algorithm:**
  - A machine-learning-based model that predicts upcoming menstrual cycles and ovulation windows based on historical data.
- **Symptom Analytics Engine:**
  - Analyzes logged symptoms and moods to generate personalized recommendations and insights.
- **Real-Time Data Processing:**
  - Using **WebSockets** for live updates, such as changes to predicted cycle dates, notifications, and alerts about potential cycle irregularities.
- **External API Integrations:**
  - Integration with **weather services** to offer environmental factors that might affect menstrual health.
  - Integration with **health APIs** for providing additional insights (e.g., nutrition, fitness).

6. Database Layer (Storage and Management)

The database layer utilizes **SQLite**, a lightweight and efficient relational database, to store and manage all application data. SQLite is well-suited for the app's current needs, providing fast local access while allowing future scalability with minimal overhead.

Key Databases (SQLite):

- **User Database:**
  Stores user profiles, login credentials, and preferences. Tables are organized to handle different user types and ensure secure access and personalization.
- **Cycle Data Database:**
  Maintains logs of menstrual cycles, predicted cycle dates, and user-reported symptoms. This structured data supports accurate predictions and trend analysis over time.
- **Health Insights Database:**
  Captures patterns in emotional states, health behaviors, and user interactions. It enables the system to offer personalized recommendations based on historical trends.
- **Educational Content Database:**
  Contains educational material on menstrual health, body literacy, and FAQs. Admins can update the content, which is accessible to users for learning and awareness.

Key Features of the Platform Architecture:

- **Data Security:** All user data is encrypted and stored securely. Period Pal ensures that sensitive data (like cycle history) is handled with privacy and user consent.
- **Modular Design:** The architecture allows for easy scaling and adding new features in the future, such as community forums, doctor consultations, or integration with wearable devices (e.g., fitness trackers).

7. Features:

1. Menstrual Cycle Tracker

- **Cycle Log:** Users can easily track their menstrual cycles by logging start and end dates, flow intensity, symptoms, and moods.
- **Cycle Predictions:** Based on historical data, Period Pal predicts the next cycle dates, ovulation window, and fertile days.
- **Irregular Cycle Detection:** Provides insights into cycle irregularities and notifies
- users of any potential issues, offering tailored advice.

2. Symptom & Mood Tracking

- **Daily Logs:** Users can track various symptoms (e.g., cramps, headaches, fatigue) and moods (e.g., stress, happiness) throughout their cycle.
- **Personalized Insights:** Based on the tracked symptoms and moods, Period Pal offers health insights and tips, helping users better understand their bodies.

3. Health Insights & Recommendations

- **Data-Driven Insights:** Provides health tips based on tracked data, including dietary, lifestyle, and exercise suggestions.
- **Period Health Insights:** Gives personalized advice about managing period-related symptoms like cramps, bloating, and fatigue.
- **Cycle Health Analysis:** Analyzes trends in menstrual health, including any symptoms that regularly occur, and offers guidance on how to manage them.

4. Educational Content & Resources

- **Articles & Tips:** Period Pal features articles, tips, and frequently asked questions (FAQs) to educate users about menstrual health, reproductive wellness, and emotional well-being.
- **Body Literacy Resources:** Helps users understand their body's natural rhythms and hormonal changes.

5. Personalized Profile & Insights

- **Profile Customization:** Users can set up personalized profiles, including their cycle length, symptom preferences, and health goals.
- **Data Analysis:** Offers personalized cycle analysis, showing patterns in periods, ovulation, and symptoms to make tracking more effective.

6. User-friendly Interface

- **Intuitive Design:** The user interface is clean and easy to navigate, making it simple for users to log data, track cycles, and access features.
- **Responsive Layout:** Optimized for mobile, tablet, and desktop devices, ensuring a seamless experience across all platforms.
- **Accessibility Features:** Designed with accessibility in mind, ensuring that people with different abilities can easily use the platform.

7. Data Privacy & Security

- **Secure Authentication:** Users' data is protected with strong encryption methods and **JWT-based authentication** for secure access.
- **Role-Based Access Control (RBAC):** Ensures that only authorized users can access certain types of information, protecting user privacy.
- **Confidentiality:** User data such as cycle logs and health information are stored securely, with full respect for privacy.

8. Methodology:

1. Data Collection & Analysis

- **Gathered User Data:** Collected data on user preferences, health tracking habits, and features desired in a menstrual cycle tracking app through surveys, user interviews, and research studies.
- **Analyzed Data:** Analyzed collected data to identify trends, user needs, and pain points in existing period tracking apps. This helped in optimizing features like cycle predictions, health insights, and symptom tracking.
- **Behavioral Analysis:** Analyzed patterns in user behavior to recommend personalized health insights and provide recommendations for upcoming cycles, ensuring that **Period Pal** meets diverse user needs.

2. System Architecture Design

- **Frontend & Backend Structure:** Designed the overall system architecture, defining a clear separation between the frontend (presentation layer) and backend (application layer). This allowed for scalability, security, and efficient user interaction.
- **Database Schema:** Developed a flexible and scalable database schema using SQL Lite to handle user profiles, cycle data, health logs, and recommendations. Ensured seamless integration with the frontend and backend for real-time updates.
- **UI/UX Wireframes:** Created wireframes and interactive prototypes for the user interface (UI) to ensure an intuitive experience. Emphasized simple navigation, clear visual hierarchy, and accessible design elements, catering to the target audience's preferences.

3. Technology Implementation

- **Frontend Development:**
  - Built the frontend using **HTML**, **CSS**, and **JavaScript**, ensuring responsiveness and smooth user experience across devices (desktop, mobile).
  - Used **Tailwind CSS** for rapid UI development, enabling easy customization and making the design process faster while ensuring a modern and clean look.

- Integrated **ApexCharts** to display visual insights such as cycle predictions, mood tracking, and health charts dynamically.

- **Backend Development:**
  - Developed the backend using **Python Flask**, implementing core functionalities like user authentication , cycle prediction algorithms, and data analytics.
  - Used **SQL databases** (SQL Lite) for handling structured data like user profiles and health logs, ensuring efficient storage and retrieval of data.
  - Built **RESTful APIs** for seamless communication between frontend and backend, ensuring a smooth and responsive user experience.

9. Implementation Plan:

1. **Requirement Analysis & Research**
   - Gather user requirements (targeting health-conscious individuals).
   - Define features such as period tracking, cycle prediction, health insights, and mood tracking.
2. **Technology Stack Selection & Architecture Design**
   - **Frontend:** HTML, CSS, JavaScript.
   - **Backend:** Python Flask.
   - **Database:** SQLite for structured data (e.g., user profiles, educational content), enabling lightweight, efficient local storage and easy schema management.
   - Design a three-tier architecture for scalability and performance.
3. **UI/UX Design & Prototyping**
   - Develop wireframes and interactive prototypes.
   - Focus on ease of use and intuitive navigation for all users.
4. **Frontend Development**
   - Implement responsive UI with HTML, CSS, and JavaScript.
   - Add dynamic elements for period tracking, health insights, and mood analysis.
5. **Backend Development & API Integration**
   - Build the backend with Python Flask.
   - Develop RESTful APIs for smooth data exchange between frontend and backend.
   - Integrate JWT for user authentication and role-based access control.

1. Application Layer (Backend)

The **Backend** layer is powered by **Python Flask**, a lightweight web framework. It handles the core business logic, user requests, data processing, and real-time updates. Flask's flexibility enables efficient routing, handling user input, and interacting with the database.

Core Components:

- **User Authentication & Authorization:**
    - Implement **JWT-based login** with **Role-Based Access Control (RBAC)** to manage user roles such as general users and admins.
        - **Cycle Prediction Algorithm:**
    - A machine-learning-based model that predicts upcoming menstrual cycles and ovulation windows based on historical data.
        - **Symptom Analytics Engine:**
    - Analyzes logged symptoms and moods to generate personalized recommendations and insights.
        - **Real-Time Data Processing:**
    - Using **WebSockets** for live updates, such as changes to predicted cycle dates, notifications, and alerts about potential cycle irregularities.
        - **External API Integrations:**
    - Integration with **weather services** to offer environmental factors that might affect menstrual health.
    - Integration with **health APIs** for providing additional insights (e.g., nutrition, fitness).
        - **RESTful APIs:**
    - Exposes APIs for integration with mobile apps or third-party health services for a more connected experience.

2. Database Design & Implementation

The Database Layer uses **SQLite3** (a lightweight relational SQL database) to store and manage user data, health logs, and insights. It ensures quick access to user-specific data while being ideal for mobile or embedded applications due to its low overhead and simplicity.

Key Tables:

- **User Table:** Stores user profiles, login credentials (hashed), and preferences using structured SQL tables. Different user roles (e.g., regular user, admin) can be handled via a `user_type` field.

```
CREATE TABLE users (
    user_id INTEGER PRIMARY KEY AUTOINCREMENT,
    username TEXT NOT NULL,
    password TEXT NOT NULL,
    email TEXT UNIQUE NOT NULL,
    preferences TEXT,
    user_type TEXT DEFAULT 'user'
);
```

- **Cycle Data Table:** Stores menstrual cycle logs including start date, end date, flow intensity, and symptoms for analysis and prediction.

```
CREATE TABLE cycle_data (
    cycle_id INTEGER PRIMARY KEY AUTOINCREMENT,
    user_id INTEGER,
    start_date DATE,
    end_date DATE,
    flow_intensity TEXT,
    symptoms TEXT,
    FOREIGN KEY (user_id) REFERENCES users(user_id)
);
```

- **Health Insights Table:** Stores derived health patterns, mood logs, and system interaction notes, enabling personalized recommendations.

```
CREATE TABLE health_insights (
    insight_id INTEGER PRIMARY KEY AUTOINCREMENT,
    user_id INTEGER,
    date_logged DATE,
    mood TEXT,
    notes TEXT,
    FOREIGN KEY (user_id) REFERENCES users(user_id)
);
```

- **Educational Content Table:** Contains structured content related to menstrual health, body literacy, and FAQs. Admins can update the content.

```
CREATE TABLE educational_content (
    content_id INTEGER PRIMARY KEY AUTOINCREMENT,
    title TEXT,
    category TEXT,
    content TEXT,
    last_updated DATE
);
```

Key Features of the Platform Architecture:

- **Data Security:** All sensitive user data (like cycle history) is stored securely. Passwords are hashed before storage. SQLite databases can be encrypted using external tools or SQLite extensions for enhanced security.
- **Modular Design:** The relational schema is designed to allow easy feature expansion such as:
    - Community forums
    - Doctor consultations
    - Integration with wearable device data (logged into new tables)
    -

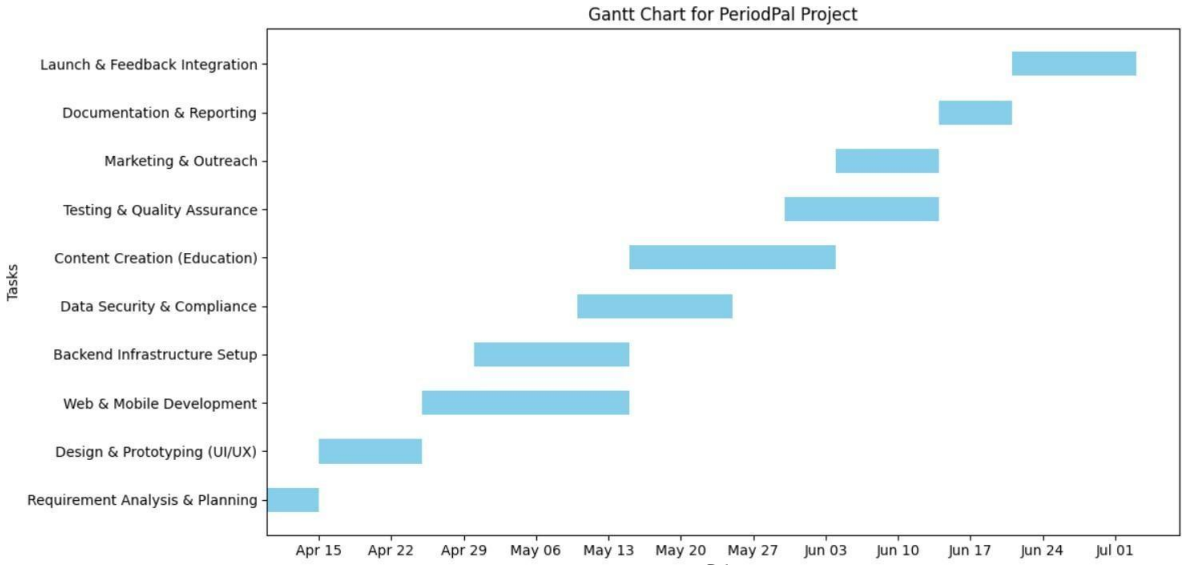
- **Implemented SQLite** to manage all application data, including structured data like user profiles and login credentials, as well as semi-structured data such as cycle logs, health-related entries, and mood tracking.
- Designed relational tables to ensure data integrity, efficient querying, and seamless access across user-facing features.

6. **Cycle Prediction Algorithm & Health Insights**
    - Implement machine learning-based cycle prediction algorithm.
    - Integrate personalized health insights based on the user's cycle and mood data.

10. Timeline (Work Plan)

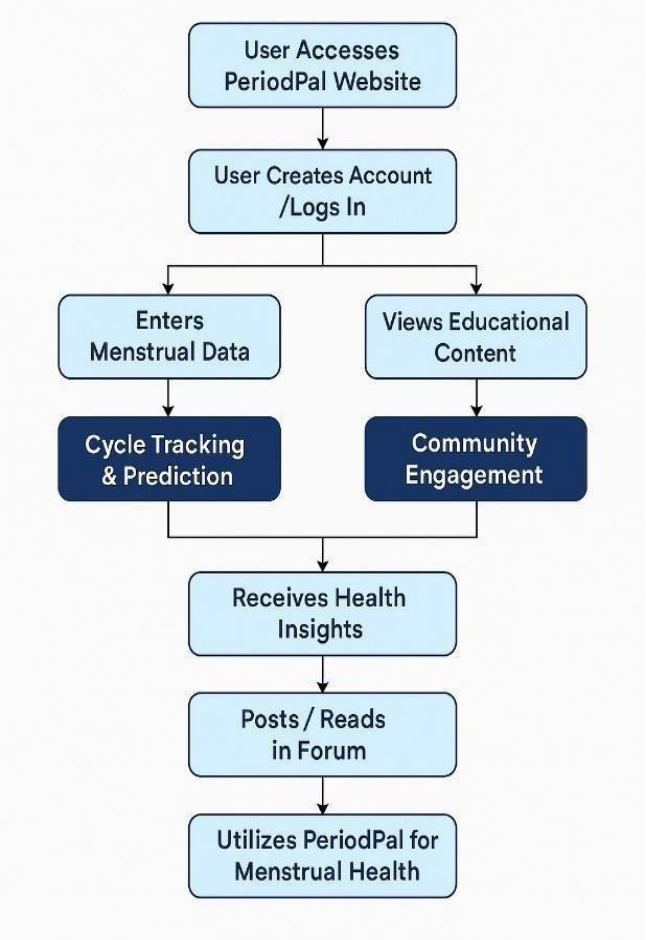
Month	**Task**
Month 1	Requirements Gathering & UI Design
Month 2	Frontend and Backend Setup
Month 3	Cycle Prediction & Tracking Features
Month 4	Awareness Module Integration
Month 5	Testing and User Feedback
Month 6	Finalization and Deployment

Gantt Chart (estimated months)



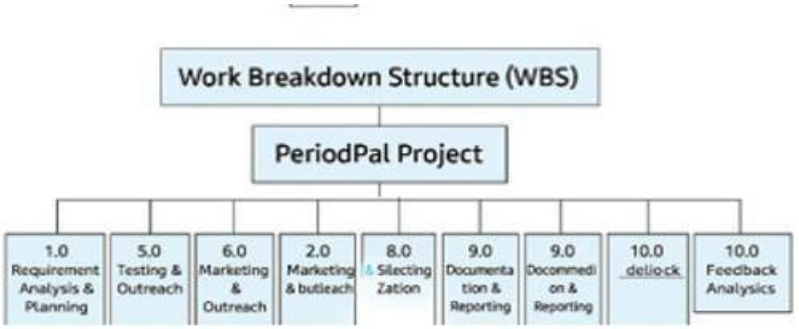
Userflow Diagram

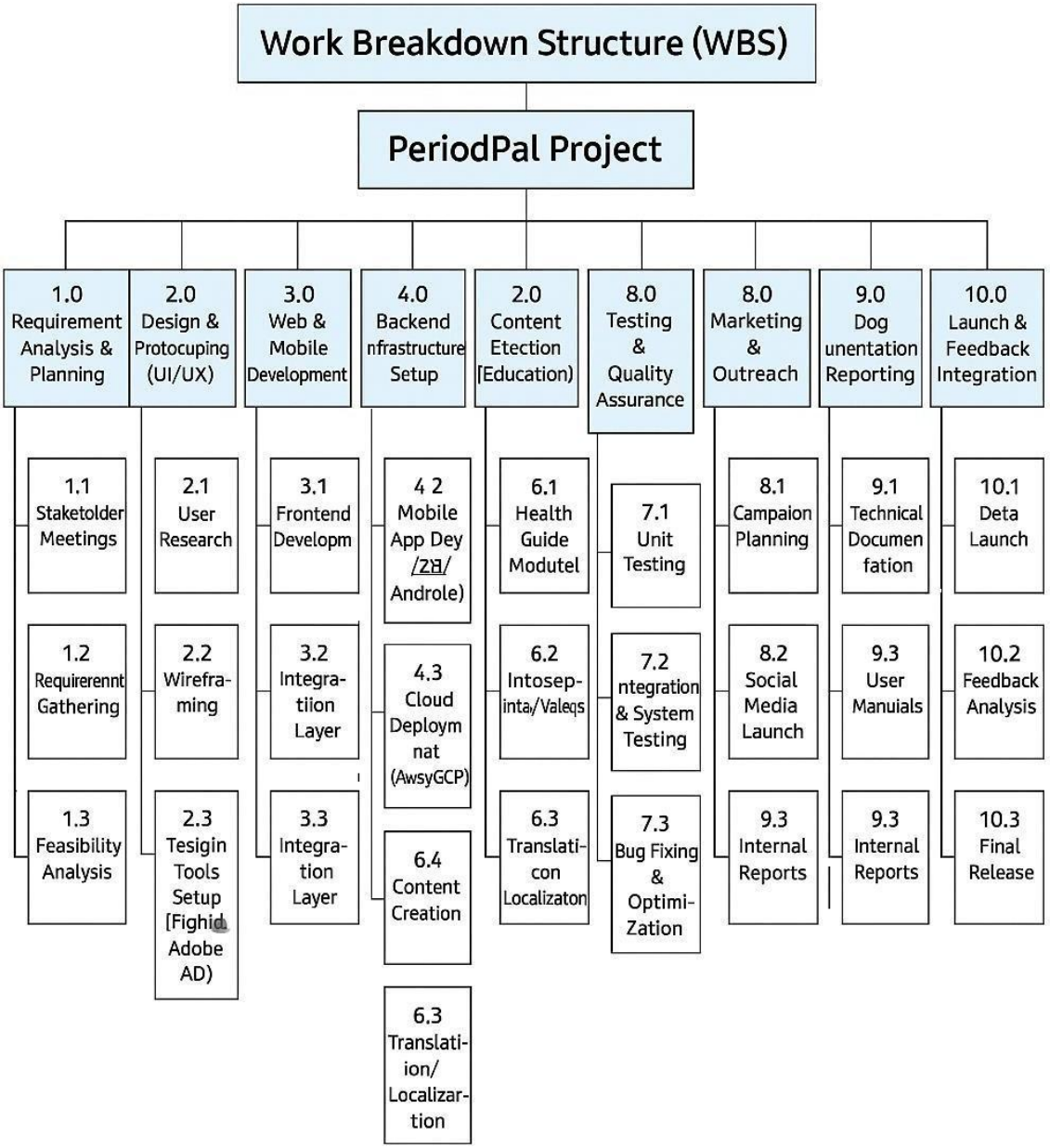
(Shows user login, data input, prediction engine, awareness module, and output via dashboard)



Work Breakdown Structure (WBS) – PeriodPal Project

WBS Code	Task	Subtasks/Description
1.0	**Requirement Analysis & Planning**	1.1 Stakeholder Meetings 1.2 Requirements Gathering 1.3 Feasibility Analysis
2.0	**Design & Prototyping (UI/UX)**	2.1 User Research 2.2 Wireframing 2.3 Design Tools Setup (Figma, Adobe XD)
3.0	**Web & Mobile Development**	3.1 Frontend Development 3.2 Mobile App Dev (iOS/Android) 3.3 Integration Layer
4.0	**Backend Infrastructure Setup**	4.1 Database Architecture 4.2 API Development 4.3 Cloud Deployment (AWS/GCP)
5.0	**Data Security & Compliance**	5.1 Encryption Implementation 5.2 HIPAA/GDPR Checks 5.3 Secure Login (OAuth)
6.0	**Content Creation (Education)**	6.1 Health Guide Modules 6.2 Infographics/Videos 6.3 Translation/Localization
7.0	**Testing & Quality Assurance**	7.1 Unit Testing 7.2 Integration & System Testing 7.3 Bug Fixing & Optimization
8.0	**Marketing & Outreach**	8.1 Campaign Planning 8.2 Social Media Launch 8.3 PR & Influencer Collaboration
9.0	**Documentation & Reporting**	9.1 Technical Documentation 9.2 User Manuals 9.3 Internal Reports
10.0	**Launch & Feedback Integration**	10.1 Beta Launch 10.2 Feedback Analysis 10.3 Final Release


Work Breakdown Structure (WBS)
PeriodPal Project
1.0 Requirement Analysis & Planning
5.0 Testing & Outreach
6.0 Marketing & Outreach
2.0 Marketing & butleach
8.0 Silecting Zation
9.0 Documenta tion & Reporting
9.0 Docommedi on & Reporting
10.0 deliock
10.0 Feedback Analysics


Work Breakdown Structure (WBS)
PeriodPal Project
1.0 Requirement Analysis & Planning
2.0 Design & Protocuping (UI/UX)
3.0 Web & Mobile Development
4.0 Backend nfrastructure Setup
2.0 Content Etection [Education)
8.0 Testing & Quality Assurance
8.0 Marketing & Outreach
9.0 Dog unentation Reporting
10.0 Launch & Feedback Integration
1.1 Staketolder Meetings
1.2 Requirerennt Gathering
1.3 Feasibility Analysis
2.1 User Research
2.2 Wirefra-ming
2.3 Tesigin Tools Setup [Fighid Adobe AD)
3.1 Frontend Developm
3.2 Integra-tiion Layer
3.3 Integra-tion Layer
4 2 Mobile App Dey /ВZ/ Androle)
4.3 Cloud Deploym nat (AwsyGCP)
6.4 Content Creation
6.3 Translati-ion/ Localizar-tion
6.1 Health Guide Modutel
6.2 Intosep-intaı/Valeqs
6.3 Translati-con Localizaton
7.1 Unit Testing
7.2 ntegration & System Testing
7.3 Bug Fixing & Optimi-Zation
8.1 Campaion Planning
8.2 Social Media Launch
9.3 Internal Reports
9.1 Technical Documen fation
9.3 User Manuials
9.3 Internal Reports
10.1 Deta Launch
10.2 Feedback Analysis
10.3 Final Release

Cost Estimation Table (Moderately Low Budget / Indie Launch Version)

S.No.	Cost Component	Estimated Cost (INR)	Justification
1	Cloud Hosting (Basic VPS or Firebase)	₹5,000	Firebase Blaze Plan or low-tier VPS for backend/API
2	Web App Development (Self + Freelancer)	₹10,000	Mostly self-developed + small help from a freelancer (design/API)
3	Mobile App (Basic Flutter or PWA)	₹5,000	Flutter app or Progressive Web App for Android/iOS
4	Domain Name (1 Year)	₹800	.com or .in domain from trusted provider
5	UI/UX Design	₹2,000	Simple design with Figma + maybe freelance polish
6	Content Development	₹2,000	Write content yourself, hire someone for visuals/infographics
7	Testing & QA	₹1,000	Manual testing + tools like BrowserStack (trial or low-tier)
8	Marketing & Outreach	₹3,000	Targeted Instagram/YouTube campaigns + poster designs
9	Research & Feedback	₹1,000	Google Forms incentives, feedback collection
10	Contingency / Buffer	₹2,200	For sudden costs like subscriptions, extra help, or urgent fixes
	Total	**₹32,000**	Good enough for a clean MVP with hosting, mobile support, and promotion

Literature Review – Period Pal

1. Introduction

Menstrual tracking applications have gained significant popularity in recent years, particularly with increased awareness around women’s health and the rise of mobile health (mHealth) solutions. "Period Pal" contributes to this domain by offering a personalized and secure tracking system. This literature review explores existing research, technologies, and tools in the field of menstrual health tracking, along with architectural considerations for front-end and back-end development.

2. Existing Menstrual Tracking Systems

Several commercial applications dominate the menstrual tracking market, such as Clue, Flo, and My Calendar. Studies (Johnston-Robledo & Chrisler, 2020) highlight that while these apps are widely used, users express concerns about data privacy, lack of inclusivity, and poor prediction accuracy.

Clue emphasizes scientific backing and personalization, but is criticized for limited free features.
Flo uses AI to predict cycles but was involved in privacy controversies (Wall Street Journal, 2021).
My Calendar is simple and user-friendly but lacks modern UX/UI and health tips.
These existing tools demonstrate the demand for intuitive, accurate, and private menstrual tracking apps. However, they leave gaps in transparency, data ethics, and cultural inclusivity, which "Period Pal" aims to address.

3. Front-End Technologies in Health Apps

The front-end of health apps plays a critical role in engagement. Research by Nielsen Norman Group (2018) and user-centered design studies (IDEO, 2019) show that health apps must prioritize:

- Visual simplicity
- Emotional comfort through design
- Accessibility features (WCAG standards)

Modern front-end frameworks like React.js and Vue.js are favored for their component-based architecture, for future use which enhances reusability and maintainability (Wieruch, 2020). These are ideal for building responsive and dynamic UIs necessary in apps like "Period Pal".

4. Back-End and Data Architecture in mHealth
The back-end of mHealth apps must handle:
Data sensitivity and compliance (e.g., HIPAA, GDPR)
Accurate predictions using historical data

User authentication and scalability

Studies in secure architecture for health apps (Kim et al., 2018) emphasize the use of token-based authentication (e.g., JWT) and encrypted databases. Technologies such as Node.js with Express, Django, or Flask are common for building robust APIs. NoSQL databases like Sqllite allow flexible storage of user-cycle data, while PostgreSQL supports structured analytics and predictions.

Some research (Shih et al., 2015) also suggests incorporating machine learning models to predict ovulation and symptoms, which could be a future scope for "Period Pal".

Challenges Identified in Literature

- Data Privacy: Users are increasingly skeptical about how apps handle personal data (EFF, 2021). Many menstrual tracking apps fail to disclose data sharing practices clearly.
- Prediction Accuracy: Most cycle predictors rely on averages rather than personalized cycles, leading to inaccuracies.
- Inclusivity: Many apps assume binary gender norms, ignoring users who menstruate but do not identify as female.
- Engagement Drop-off: Without meaningful interaction, users often stop using the app after a few months (Digital Health Research, 2020).

5. Research Gaps and Innovation Potential

Based on the above, there's a clear need for:

- Privacy-focused, open-source alternatives.
- Cycle prediction based on real-time data trends, not static averages.
- An inclusive, customizable UI for diverse identities.
- Integration of mental health tracking as periods often correlate with mood changes.

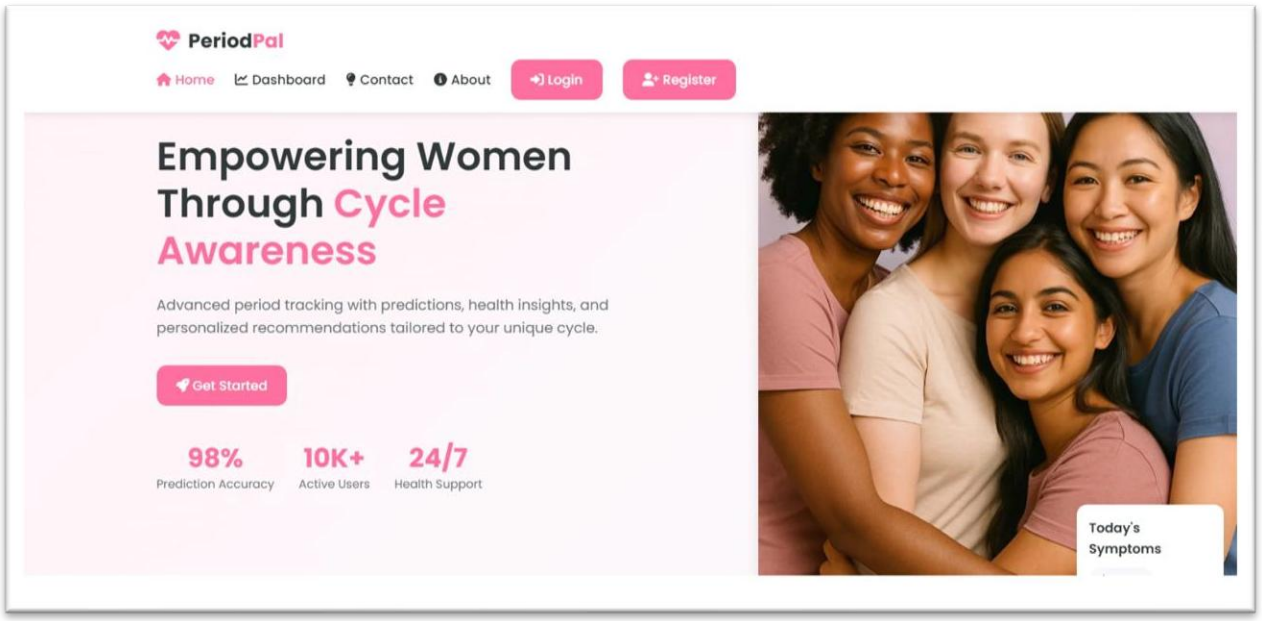
"Period Pal" aims to address these gaps with an ethically designed, user-centric, and inclusive system.

7. **Testing & Debugging**
    - Conduct unit tests, integration tests, and user acceptance testing (UAT).
    - Ensure data accuracy and security.
8. **Deployment & User Training**
    - Deploy the platform on cloud services like AWS or Heroku.
    - Provide user documentation and tutorials for new users.
9. **Maintenance & Scaling**

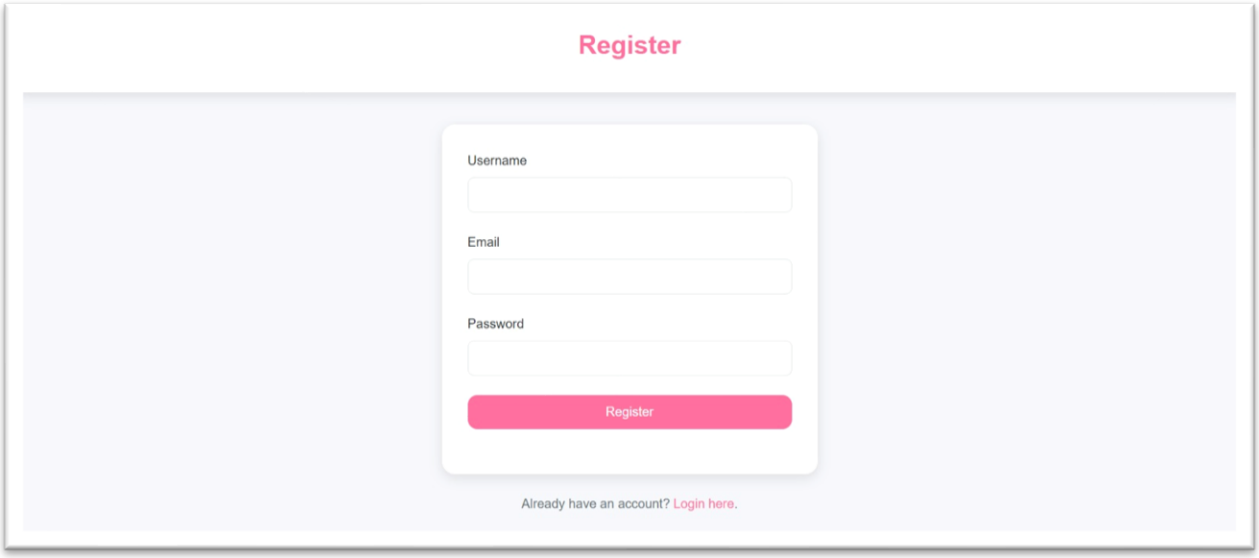
- Regularly monitor system performance and address bugs.
- Scale the platform as the user base grows, adding new features and updates.

11. UI screen shots:

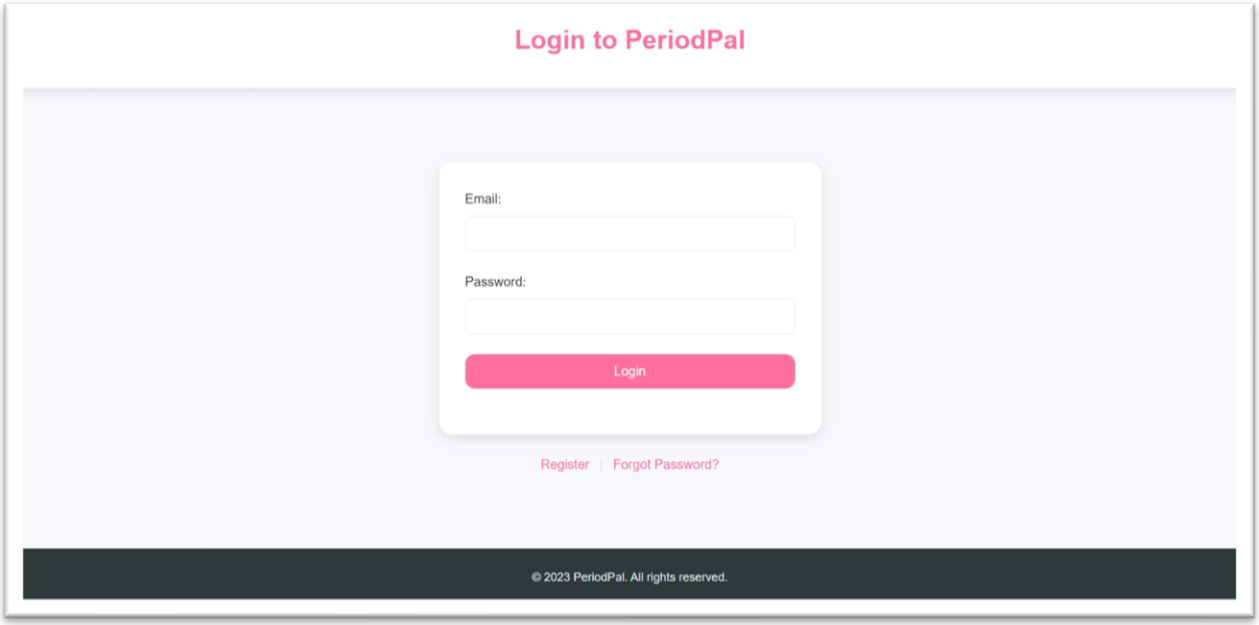
Home Page:



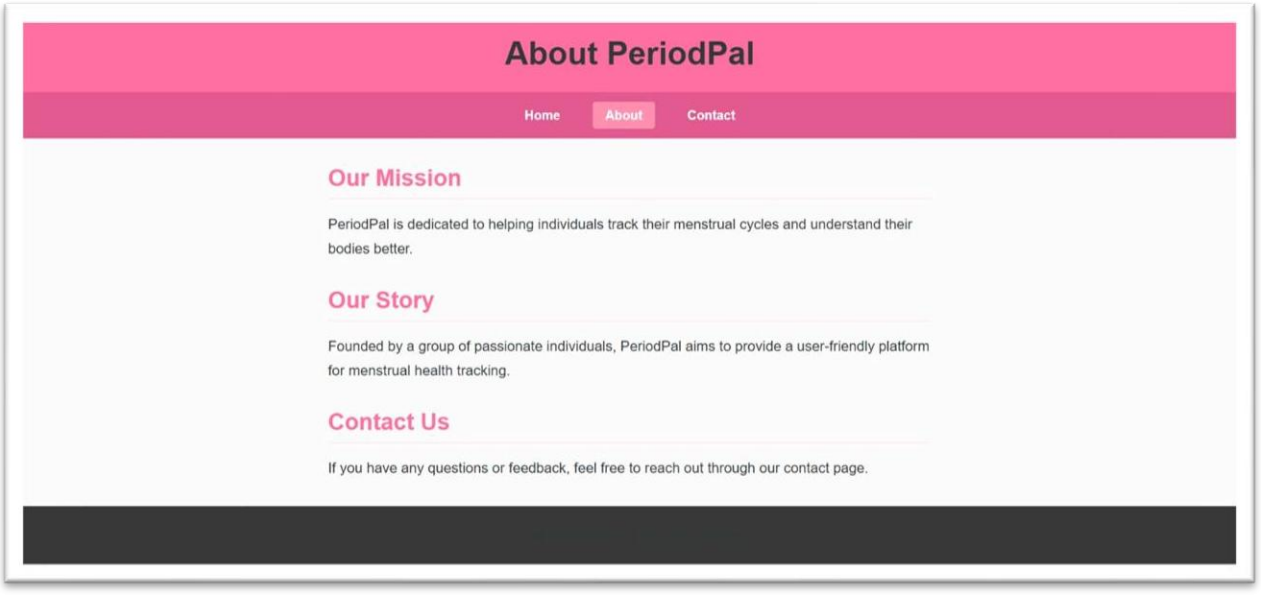
Sign Up Page:



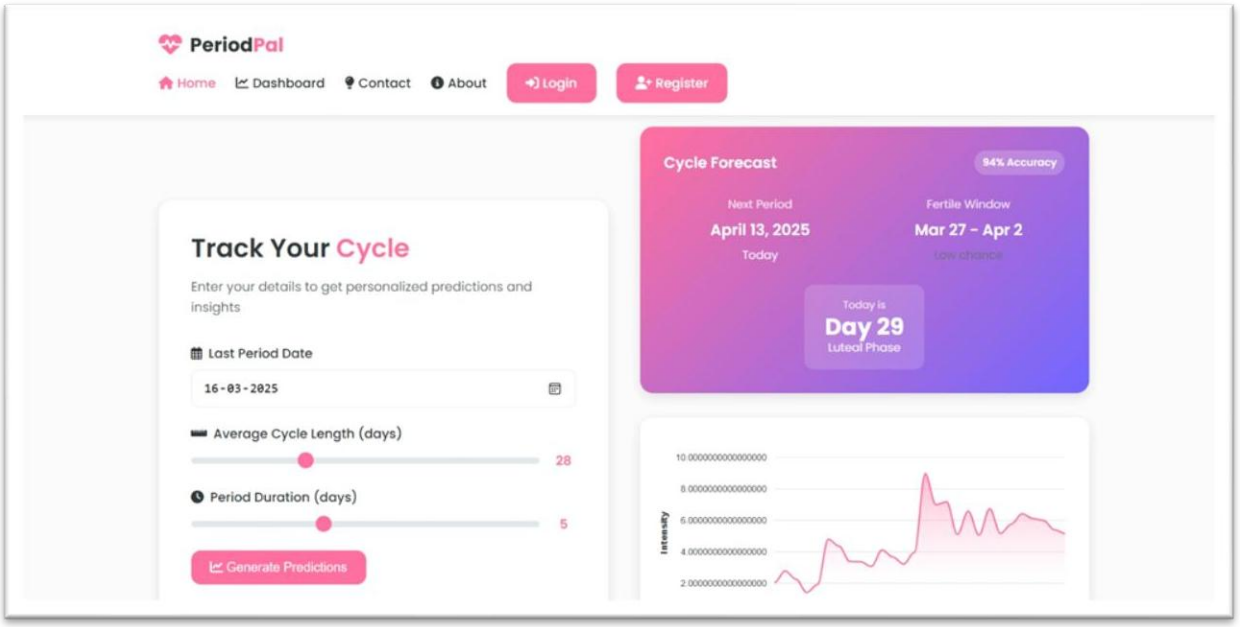
Login Page:



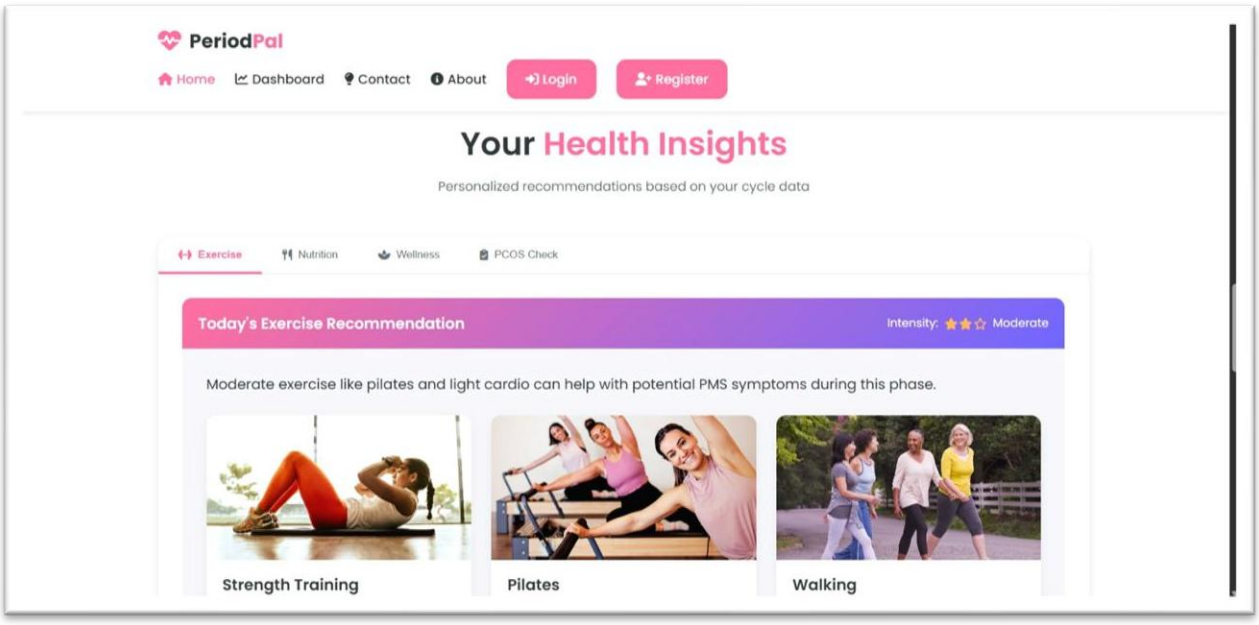
About Page:



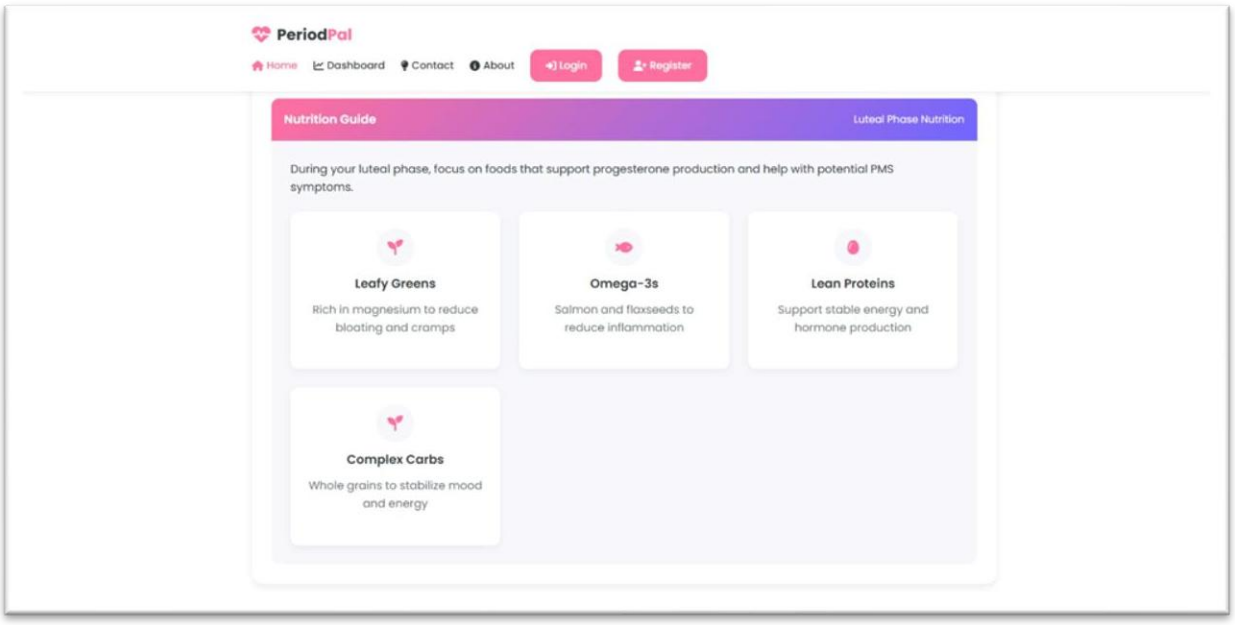
Cycle Tracking Engine:



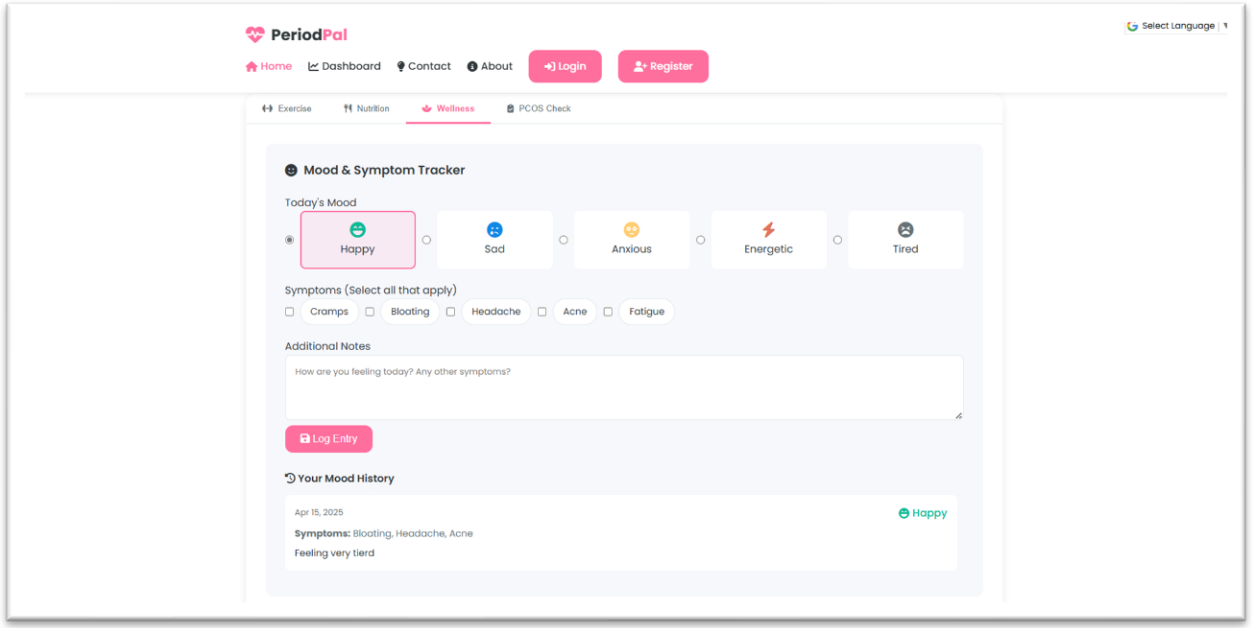
Exercise Recommendation Page:



Nutrition Guide:

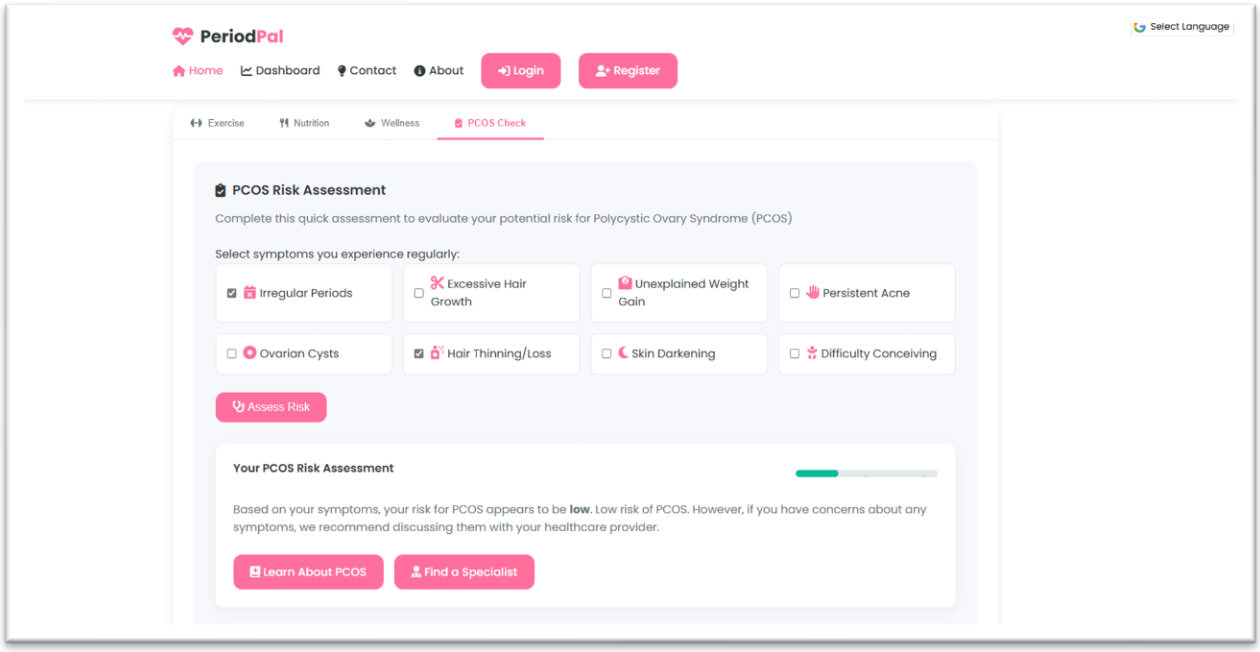


Mood And Symptom Tracker:

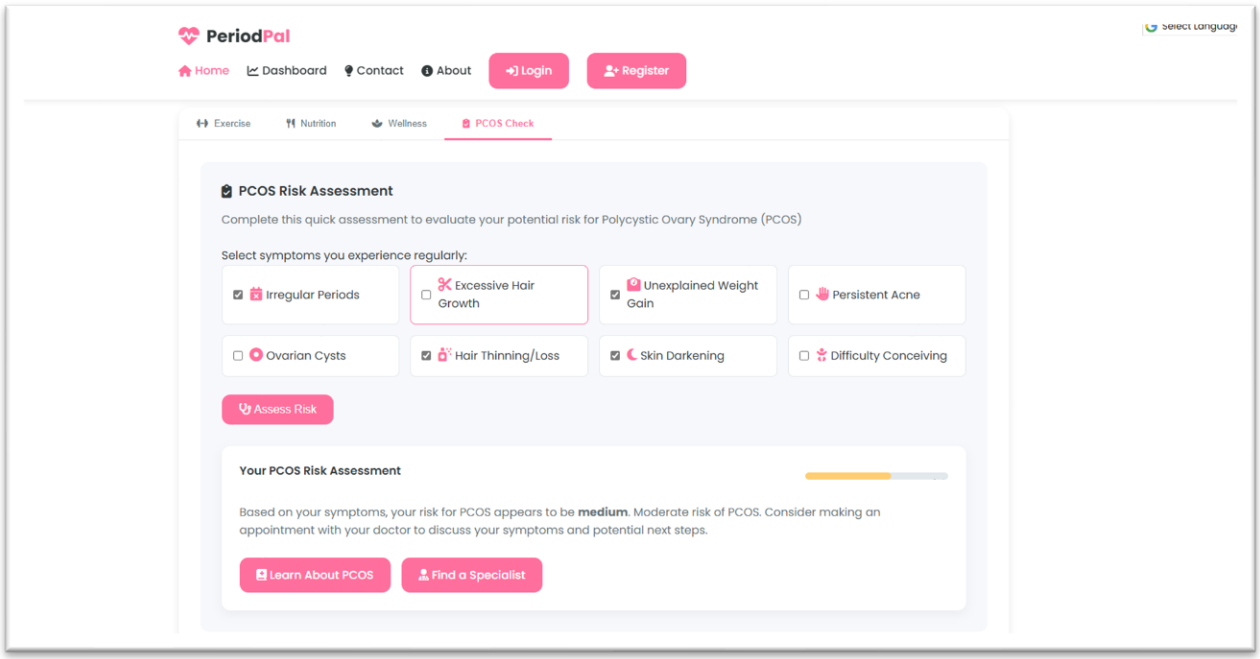


Pcos Risk Manager:

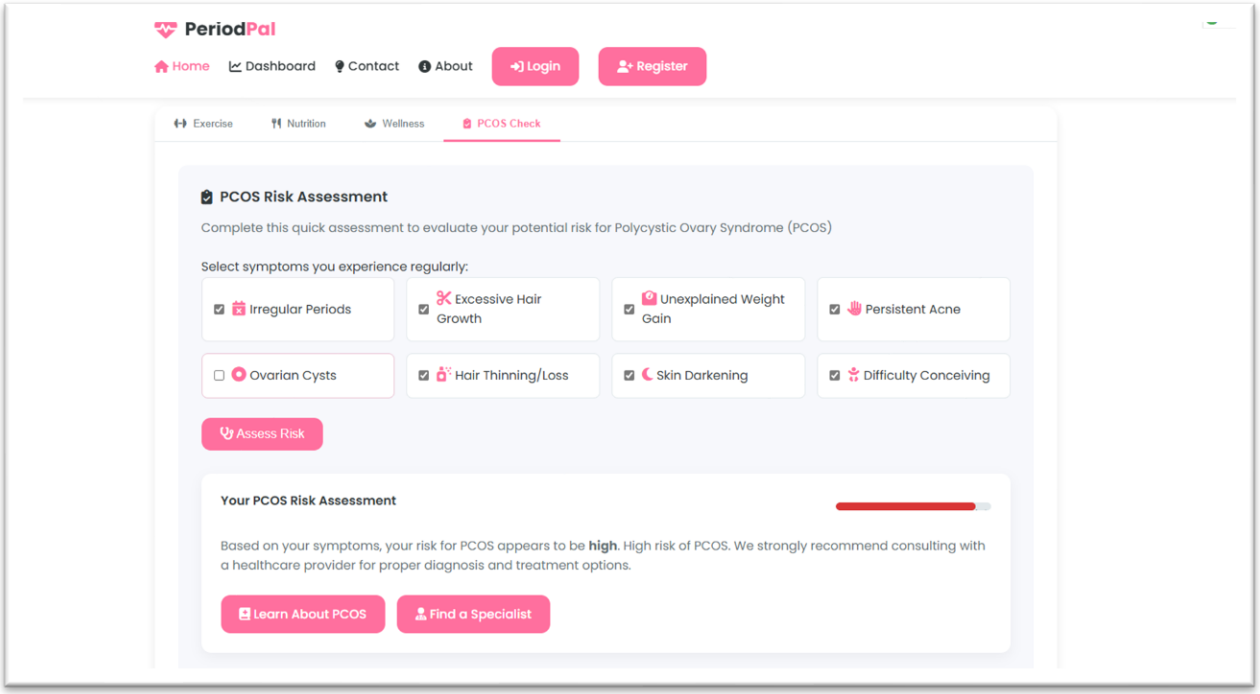
-low risk



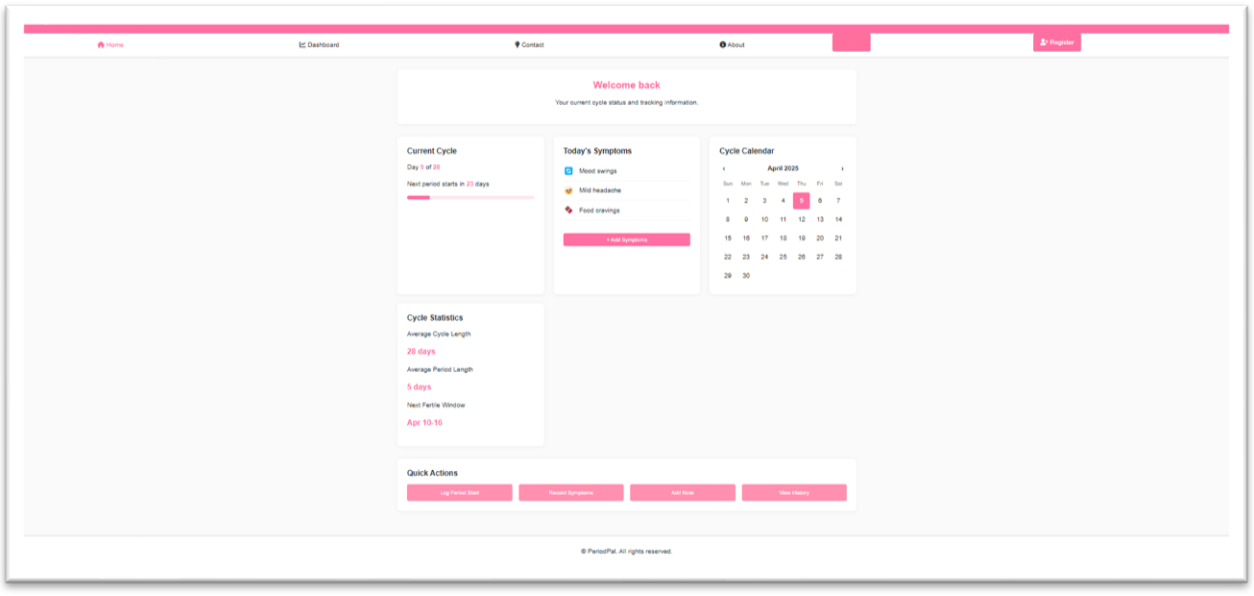
moderate risk



high risk



Dashboard



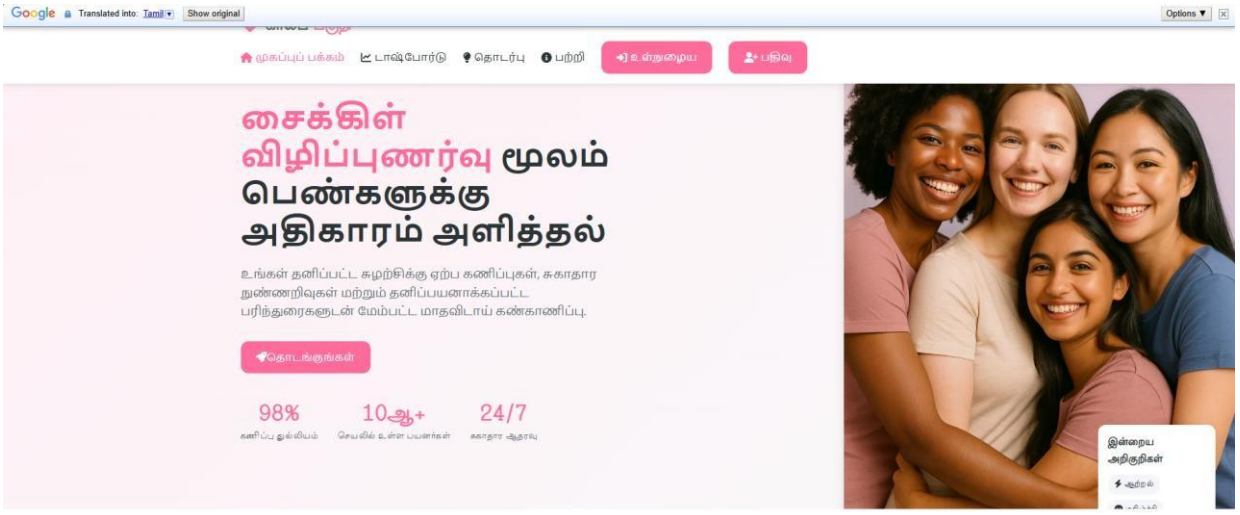
Multilingual Support

• Add multiple languages to reach a wider audience without a barrier of language

-The google translate API is embedded

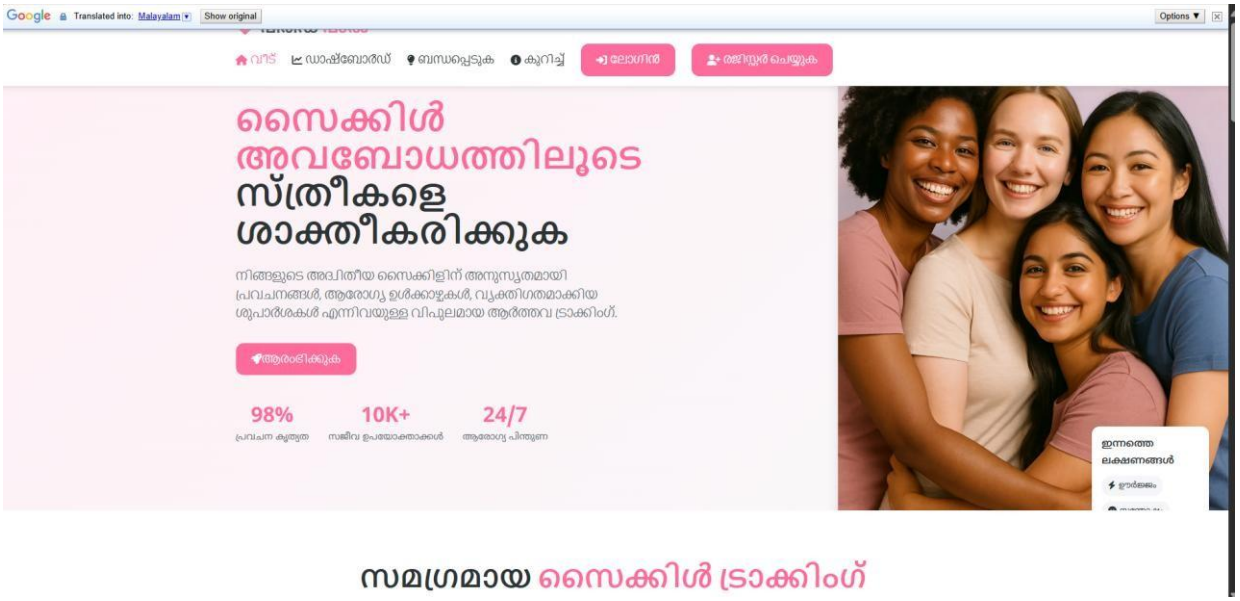
12. Mutli-Lingual Support

-Tamil



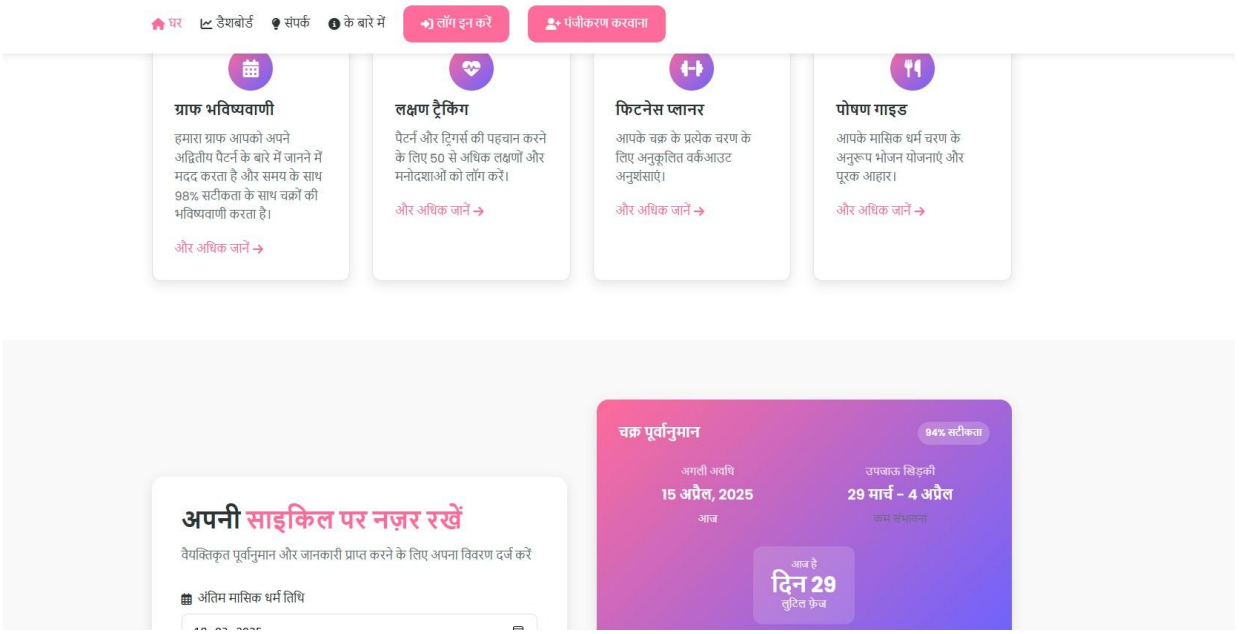
விரிவான சுழற்சி கண்காணிப்பு

Malayalam



സമഗ്രമായ സൈക്കിൾ ട്രാക്കിംഗ്

Hindi



Foreign Language(Japanses)

<u>Frontend & Backend Codes are in:</u>

GitHub link: https://github.com/Jess33B/iip

13. Future Enhancements:

- **Integration with Wearables**
  - Sync with devices like Fitbit for real-time health data.
- **AI-Based Personalization**
  - Use machine learning for more accurate cycle predictions and **Community Features**
  - Introduce forums or discussion boards for user interaction and support.
- **Export Data (Download logs as CSV):**
  - Users will be able to export their cycle logs, health entries, and mood tracking data as CSV files. This feature will support data portability, personal record-keeping, and external health consultations.
- **Telemedicine Integration**
  - Enable consultations with healthcare professionals for period-related concerns.
- **Advanced Notifications & Reminders**
  - Offer customizable reminders for period, ovulation, and symptom tracking.
- **Data Analytics for Health Insights**
  - Provide in-depth analytics on cycle irregularities and mood patterns.
- **Gamification & Rewards**
  - Introduce points or rewards for regular tracking and milestones.
- **Dark Mode (Toggle for low-light usage):**
  - A dark mode interface will be introduced to reduce eye strain during nighttime or low-light usage. Users can toggle between light and dark themes based on their preferences for a more comfortable experience.

14. Conclusion:

Period Pal aims to revolutionize the way individuals track and manage their menstrual health, offering an intuitive and responsive platform that combines period tracking, health insights, and personalized predictions. With its user-centric design, built using HTML, CSS, JavaScript, and Python Flask for the backend, Period Pal offers a seamless experience across devices. The platform's future enhancements, such as wearable integrations, AI-based personalization, and community features, will continue to elevate its value, empowering users to take control of their health in a more informed and supportive environment. By combining technology with personalized care, Period Pal stands as a comprehensive tool for improving women's health and wellness.

12. Bibilography:

Core Health Resources

1. http://www.who.int/health-topics/menstrual-health (WHO)
2. http://www.unicef.org/wash/menstrual-hygiene (UNICEF)
3. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC8240456 (NIH research)

Technical Development

4. http://flask.palletsprojects.com (Backend)
5. http://www.sqlitetutorial.net (Database)
6. http://developer.mozilla.org/en-US/docs/Web (Frontend)
7. http://apexcharts.com/docs (Data Visualization)
8. http://jwt.io/introduction (Authentication)

Privacy & Security

9. http://gdpr-info.eu (Compliance)
10. http://www.hipaajournal.com/health-apps-hipaa-compliance

UI/UX Design

11. http://material.io/design (Google's guidelines)
12. http://www.nngroup.com/articles/mobile-health (Usability)
13. http://webaim.org/resources/contrastchecker (Accessibility)

Open Source Projects

14. http://github.com/DripTracker/drip
15. http://www.periodtracker.openhumans.org

Health APIs

16. http://developer.fitbit.com (Wearables)
17. http://openweathermap.org/api (Environment)
18. http://cloud.google.com/translate/docs (Localization)

Women's Health

19. http://www.acog.org/womens-health (Ob-Gyn)
20. http://www.plannedparenthood.org/learn/health-and-wellness/menstruation
21. http://www.pcosaa.org/resources (PCOS)

Mental Health

22. http://www.nimh.nih.gov/health/topics/women-and-mental-health
23. http://www.mentalhealth.gov/basics

Deployment

24. http://vercel.com/docs (Frontend)
25. http://www.heroku.com/documentation (Backend)

Standards

26. http://www.hl7.org/fhir (Health data)
27. http://www.w3.org/WAI/standards-guidelines/wcag (Accessibility)

Inspiration

28. http://helloclue.com/articles/science (Clue's research)
29. http://www.menstrualhygieneday.org/resources

Project Tools

30. https://github.com/Jess33B/iip