

SheCare AI: An Intelligent Women's Health Companion

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Abstract—Women's health is one of the big concerns because women don't have any smart personalized tools to help diagnose the issue. Most of the mobile apps only track periods, they don't offer advanced symptom analysis, accurate risk assessment or supportive conversations. This paper introduces SheCare AI, a healthcare platform that fills this gap. It uses artificial intelligence, machine learning, Natural Language Processing and a conversational AI assistant to provide support and assistance. The platform has a user- web application frontend, a secure backend and a database for storing information. It uses a model to predict PCOD risk with 91% accuracy. It analyzes daily entries of mood journal to understand how women feel. The platform also tracks cycles, provides nutrition advice, screens for endometriosis risk and also help to find nearby clinics. SheCare AI ensures security through authentication, data protection and input validation. Testing with over 150 users aged 18–45 showed that the platform aligns with gynecologist-validated PCOD screening criteria. SheCare AI proves that a mobile AI-integrated platform can improve women's healthcare without needing hospital infrastructure making it more accessible. The platform combines machine learning classification models, Natural Language Processing (NLP)-based sentiment analysis, and a context-aware conversational AI assistant to support women's health. Women's reproductive health management, around PCOD can be improved with SheCare AI. SheCare AI provides cycle tracking with a 2-day prediction accuracy for 87% of pilot users, cycle phase-aware nutritional guidance, endometriosis risk screening and a clinic finder using OpenStreetMap Overpass API, supporting women's health. SheCare AI is a stack API-driven healthcare platform that bridges the gap in women's reproductive health management particularly around PCOD. The platform provides a solution, for women's reproductive health, including PCOD risk prediction, menstrual cycle tracking and conversational support.

Index Terms—Polycystic Ovarian Disorder (PCOD), women's reproductive health, machine learning, NLP, sentiment analysis, XGBoost, Flask REST API, Supabase, context-aware AI, mobile health, menstrual cycle tracking, preventive healthcare.

I. INTRODUCTION

Women's reproductive health is one area that is often overlooked in healthcare. Many women experience problems. Like irregular periods, painful periods and Polycystic Ovarian Disorder (PCOD). In fact, one in five women of reproductive age in India have these issues. These problems don't just affect women's bodies they also take a toll on their health, nutrition and overall well-being. Irrespective of the fact that how common these conditions are most women don't get the right guidance and direction on time. SheCare AI helps to change this specific condition. It is a women's healthcare platform that uses artificial intelligence to help women manage their reproductive health by providing the accurate guidance and support.

Here is what SheCare AI offers:

1. A hybrid model that helps classify PCOD risk
2. A tool that analyzes mood and emotions
3. A conversational AI assistant that gives advice
4. A menstrual cycle tracker with predictions
5. Nutrition tips tailored to each woman
6. A screening for endometriosis risk
7. A feature to find clinics

Mobile health apps are becoming popular for improving women's healthcare. However existing apps are not very helpful. Some just track period cycles without giving information about symptoms. Others need a very expensive hospital equipment's that many women can't access and afford. Some mental health chatbots don't connect with physical health data.

This paper talks about SheCare AI and its contributions:

1. A flexible healthcare system that works with AI tools
2. A PCOD risk model that is 91%
3. A mood tracking system that gives real-time results

4. A conversational AI that gives personalized advice
5. Results from testing with, over 150 users that show it works with doctors' reviews.

The SheCare AI system helps women take control of their health. SheCare AI uses PCOD to give results. The conversational AI assistant uses women's health data. The mood sentiment analysis helps track emotions. The menstrual cycle tracking helps women to track their monthly cycles. The personalized nutrition recommendations help women to improve their diet. The endometriosis risk screening helps women to detect endometriosis at early stage. The nearby clinic finder helps women to find a good doctor.

II. LITERATURE SURVEY

A review of existing research was done to find out what problems SheCare AI can solve. The results are in Table I. Some researchers, Devi and others made a

web application to predict PCOS using questions and answers with a type of math. They got 84% right. Their system could detect problems early. Did not use a lot of data and did not have a chat feature or track health. Haneesh and Mohamed Nisham used pictures from machines and math to get 88% right. Their system was good. Needed special equipment found in hospitals. Thakre and others looked at math models to find problems and got 82% right. They only looked at food and not health issues. Bhanu Priya and others made a chatbot to help with feelings and got 79% right. A big problem found in all research was that there was no app that could predict PCOS risk, track moods predict periods give food advice and have a chat feature, on a phone. SheCare AI was made to solve these problems. SheCare AI provides PCOS risk classification. SheCare AI tracks moods. SheCare AI predicts cycles. SheCare AI gives nutrition guidance. SheCare AI has AI support.

TABLE I. Literature Survey

Paper Title	Author / Year	Proposed Method	Advantages	Limitations
PCOS Detection Using Machine Learning and Medical App Development	Devi P.P. et al., 2024	Web app to predict PCOS using clinical features	Early AI-driven PCOS detection	Lacks large dataset validation
Identification of PCOS through Clinical Metrics and Ultrasonographic Imaging Analysis	Haneesh K.V. et al., 2023	Combined ultrasound + clinical data for PCOS detection	Improved diagnostic accuracy	Limited by imaging dependency
AI-Based Methods for Nutrition Level Detection	Thakre S. et al., 2023	Reviewed AI models for nutritional deficiency detection	Assesses deficiencies at scale	Needs real-time data integration
AI-Based Mental Health Assisted Chatbot System	Bhanu Priya P. et al., 2024	NLP chatbot for mental health support	Continuous, stigma-free emotional support	Lacks human empathy; privacy concerns

III. PROPOSED SYSTEM

A. System Overview

SheCare AI is a platform that helps women take care of their health. It is for women who're between 15 and 45 years old. The SheCare AI platform is based on three ideas: it should be easy to use it should be smart and it should be able to change and improve over time. The SheCare AI platform is easy to use because it is a

first platform, which means you can use it on your phone and you do not need to go to a clinic to use it. The SheCare AI platform is smart because it uses intelligence to understand your symptoms and give you personalized advice. The SheCare AI platform can also. Improve over time because it has a modular architecture, which means new features can be added without disrupting the way it works.

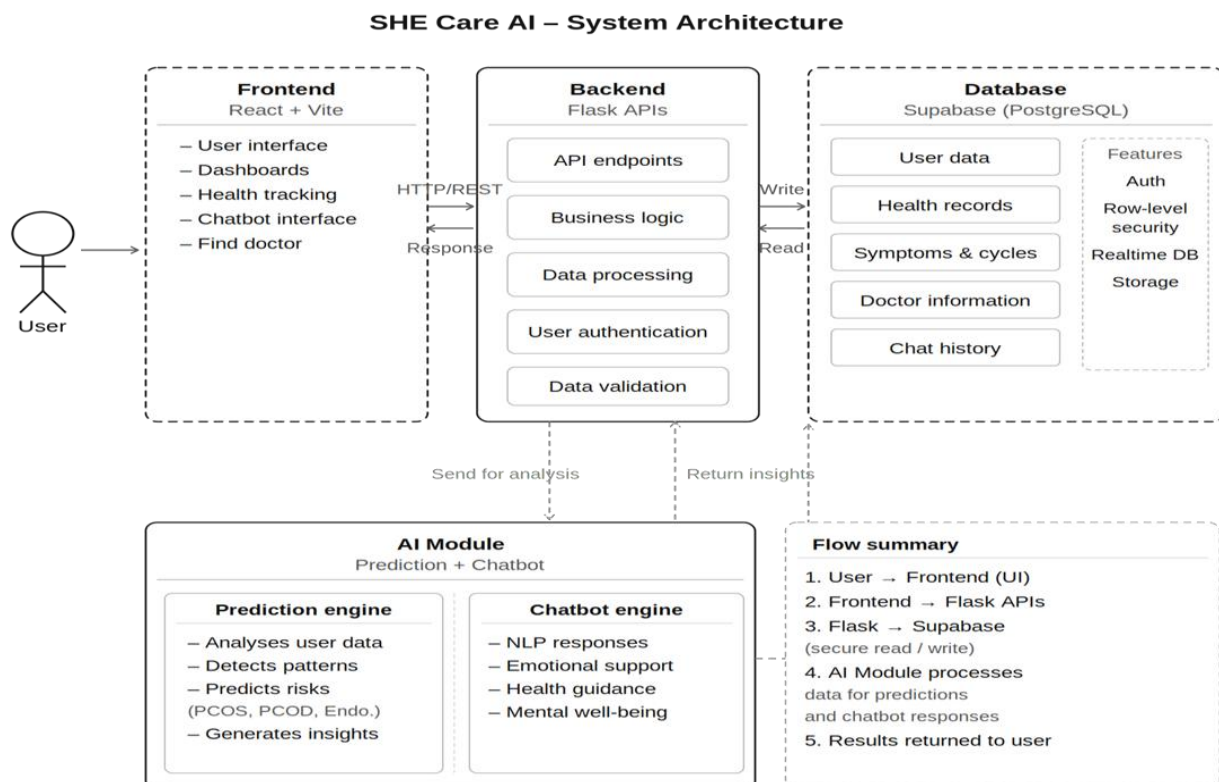
B. System Architecture

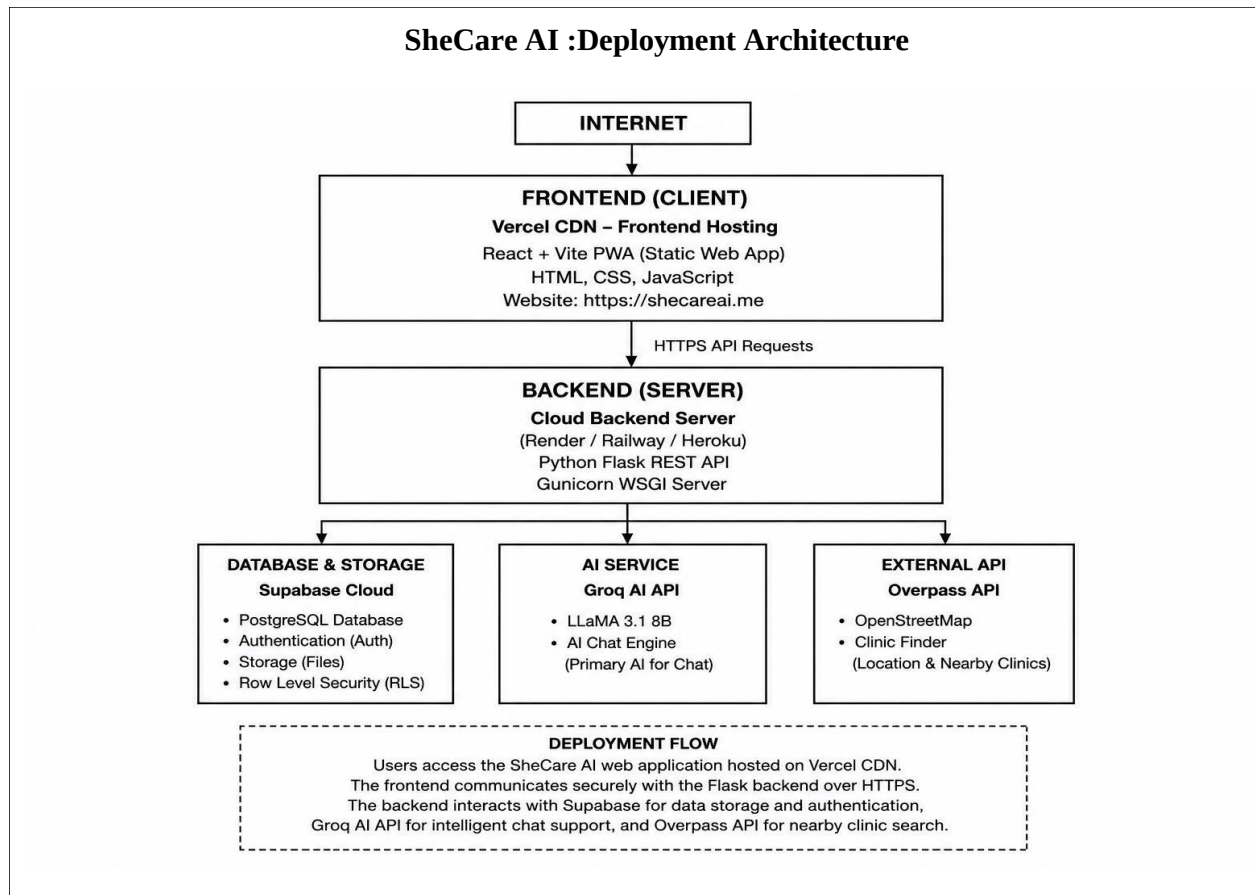
The SheCare AI system has four parts: the part that you see and interact with the part that manages the business logic the part that stores the data and the part that makes it smart. The part that you see and interact with is built using React and TypeScript. It talks to the other parts using Axios. The part that manages the business logic is built using Python Flask. It takes care of the artificial intelligence and machine learning. The part that stores the data is built using Supabase, which is a database that keeps your data safe. The part that makes it smart is built using machine learning models, natural language processing and Groq LLaMA 3.1 which is a conversational artificial intelligence.

When you use the SheCare AI platform your request goes through a process. The frontend, which is the part that you see and interact with sends a request to the backend, which's the part that manages the business logic. The backend checks if the request is valid and if it is it sends the request to the service and machine learning layers. The data is then. Retrieved from the database and the response is sent back, to the frontend, which shows it to you. This design makes it easy to scale the platform, which means it can handle a lot of users at the time.

C. Core Feature Modules

The SheCare AI platform has seven features: the Menstrual Cycle Tracker, the PCOD Risk Assessment, the Mood Journal, the Nutrition Engine, the AI Chat Assistant, the Endometriosis Screening and the Clinic Finder. The Menstrual Cycle Tracker helps you track your periods and it can even predict when your next period will be. The PCOD Risk Assessment uses intelligence to evaluate your risk of getting PCOD and it gives you personalized advice. The Mood Journal is a feature where you can write about how you're feeling and it can even show you trends and patterns. The Nutrition Engine gives you meal plans based on your menstrual cycle and your risk of getting PCOD. The AI Chat Assistant is an artificial intelligence that can help you with any questions or concerns you have. The Endometriosis Screening is a tool that helps you identify if you have endometriosis. It can even help you track your pain. The Clinic Finder is a tool that helps you find healthcare facilities and it can even give you directions to get there. The SheCare AI platform is a platform that can help women take care of their reproductive health in many different ways. The SheCare AI platform uses the SheCare AI system to provide these features.





IV. METHODOLOGY

A. Data Collection and Preprocessing

We talked to over 150 women, aged 18 to 45. Asked them to take a survey about their menstrual cycle experience. These women told us about the pain they feel and the symptoms they have like acne and hair loss. We also showed our questions to doctors who specialize in womens health to make sure we were asking the things, about PCOD. This way we made sure our information was good. Then we looked at the information we got and got rid of the answers that were not correct and filled in the answers that were missing. We figured out each womans body mass index from how tall she's how much she weighs. Then we put the women into groups based on their weight. Underweight, normal, overweight and obese.

B. PCOD Risk Assessment Model

We used three machine learning models to see if we could predict the risk of getting PCOD. The three models were Logistic Regression, Decision Tree and

XGBoost. We split our data into two groups: we used 80 percent of it to train the models and 20 percent to test them. Then we checked how well each model worked by looking at how accurate it was how precise it was, how well it recalled information and its F1-score. The XGBoost model worked the best it was 91 percent of the time its precision was 89 percent and it recalled information 90 percent of the time.

Our model that predicts the risk of PCOD uses a system where we give points for each symptom of PCOD. For example, if a woman has periods, we give her 20 points and if she has a family history of PCOD we give her 15 points. We also consider the woman's age so women who are between 15 and 35 years old get a multiplier of 1.0. We put the risk into three categories: moderate or low. Based on the woman's PCOD risk profile we give her suggestions to help her. The PCOD risk prediction model is what we use to make these predictions, about PCOD risk. The PCOD risk model is important for women to understand their risk of getting PCOD.

C. NLP Mood Sentiment Analysis Pipeline

We looked at what the women wrote in their journals to see how they were feeling. We used TextBlob to get a score that tells us if what they wrote is generally good or bad. We then said that what they wrote was Positive, Negative or Neutral based on the score we got from TextBlob. We were able to figure out when the women were feeling happy, sad, anxious or angry. We got it right about 85% of the time. The women's emotions, like happiness, sadness, anxiety and anger were all identified by TextBlob with this level of accuracy.

D. Context-Aware Conversational AI

Sakhi, our chatbot uses a model called Groq LLaMA 3.1 8B Instant. This model helps her give guidance based on a woman's health details. These details include her PCOD risk, mood and where she is in her cycle. We keep track of 10 conversations to understand the context. The main idea behind Sakhi is to offer support. Our approach is to be supportive not to send users to a doctor away. If there's a problem with the Groq API we have a plan that will kick in. The Groq LLaMA 3.1 8B Instant model helps Sakhi give the guidance. Sakhi uses this model to understand the woman's condition. The chatbot gets information, about PCOD risk, mood and menstrual cycle stage. The guiding principles of Sakhi encourage a support-oriented approach. The support-oriented approach is used by Sakhi. In case of the outage of the Groq API a backup plan will be activated.

E. Database Design and Security Architecture

We used Supabase with PostgreSQL as our database. Each table is connected to the user ID. We store data, in JSONB format in columns. For security we use JWT authentication, row-level security and clean user inputs. The Supabase and PostgreSQL help us manage data safely. We rely on Supabase for our database needs.

F. Application Testing

The frontend was built using React 19 TypeScript and Vite 7. The backend was developed using Python 3.12 Flask 3.0.0. We performed testing of our application on simulators and real devices as well as through web browsers. We verified the API endpoints with automated tests.

V. RESULTS AND EVALUATION

A. ML Model Performance

Table II shows how the three machine learning models performed when it came to predicting the risk of PCOD. We looked at 20 percent of the samples which's 30 samples out of

150 total samples. The XGBoost model did better than the models, in every way. The XGBoost model uses a method that combines lots of information like periods and high body mass index.

The XGBoost model got 91% accuracy by looking at what people said about their symptoms of PCOD. This shows that the system is easy to use in a doctor's office. The XGBoost model and PCOD are things that can help doctors with PCOD.

TABLE II. PCOD Classification Model Performance Comparison

Model	Accuracy	Precision	Recall	F1-Score
Logistic Regression	83%	81%	82%	81.5%
Decision Tree	79%	77%	80%	78.5%
XGBoost (Deployed)	91%	89%	90%	89.5%

B. NLP Mood Analysis Performance

We used a tool called TextBlob to figure out how people were feeling. It agreed with the experts' 85% of the time. We looked at 200 examples to see how well it worked. The tool was also able to find the emotion that people were feeling in 88% of the examples where people had multiple emotions. When we looked at how people emotions changed over time the tool was able to say if they were getting better, worse or staying the same 82% of the time.

C. Cycle Prediction Accuracy

We made an algorithm that tries to predict when a woman's next period will be, based on the three cycles. It was able to predict the time within two days for 87% of the women who tried it out over three months.

D. User Satisfaction and Clinical Validation

We asked 150 women what they thought of the AI and 92% said it was helpful. 88% said the report about

their risk of PCOD was easy to understand and useful. 85% said the platform encouraged them to go see a doctor when they needed to. We also asked some gynecologists to look at the logic that the platform uses to figure out the risk of PCOD. They said it was good and made sense. They suggested that we add some lab tests, like hormone levels to make the platform even more accurate and useful, for doctors.

SCREENSHOTS OF SHECARE AI PLATFORM ARE AS FOLLOWS: -

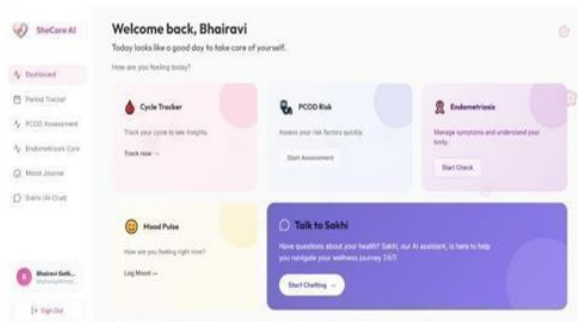


Fig. 1 Personalized Health Dashboard

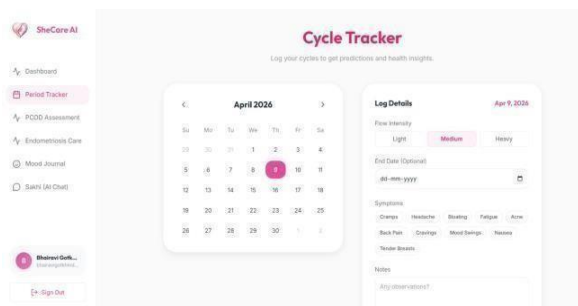


Fig. 2 Cycle Tracker -Period & Symptom Logging

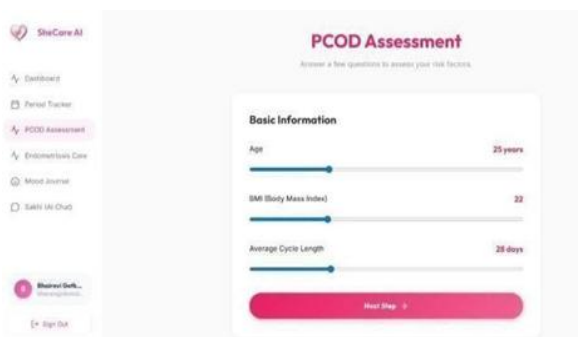


Fig.3 PCOD Assessment

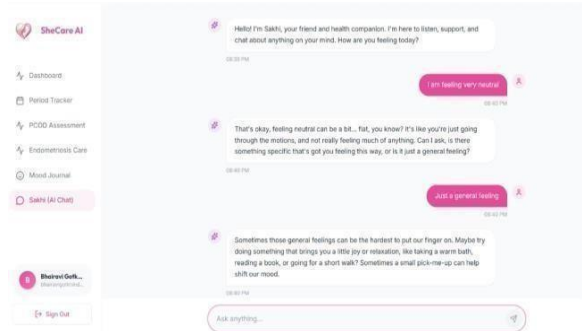


Fig.4 Sakhi — AI Chat Assistant

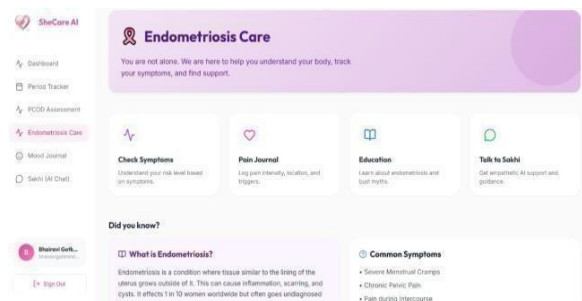


Fig. 5 Endometriosis Care Module

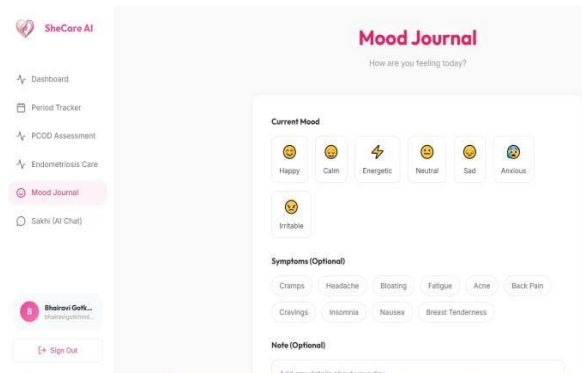


Fig. 6 Mood Journal Module

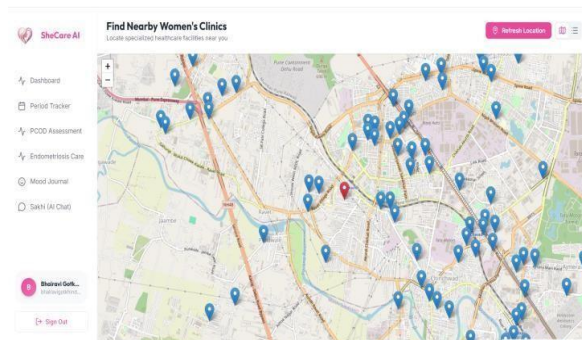


Fig. 7 Geolocation-based Women's Clinic Locator

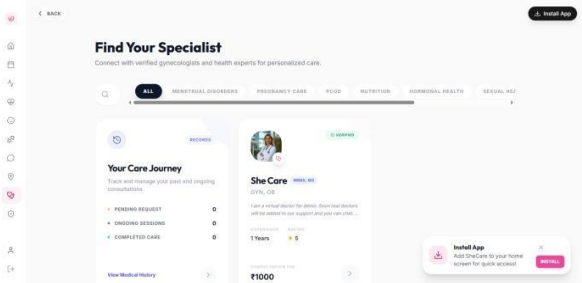


Fig 8. Specialist Finder

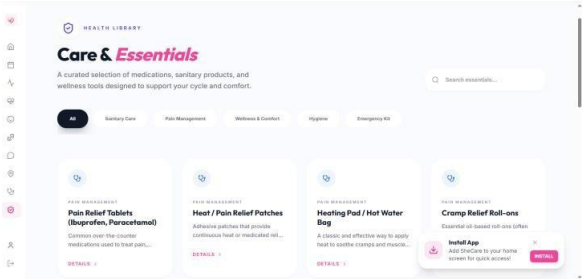


Fig 9. Medication Recommendation Module

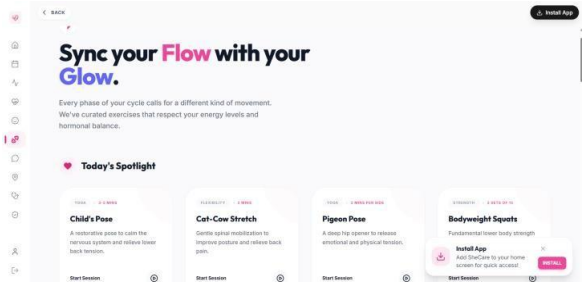


Fig 10. Workout Recommendation Module



Fig 11. Quiz Module

VI. COMPARATIVE STUDY

Table III presents a comprehensive comparison of SheCare AI against existing AI-driven women's health systems across key dimensions including algorithmic approach, input modality, achievable accuracy, and breadth of health features.

TABLE III. Comparative Analysis: SheCare AI vs. Existing Systems

System/ Study	Algorith m Used	Dataset/ Input	Accura cy (%)	Remarks
Devi et al. [1], 2024	Logistic Regression, SVM	Clinical feature questionnaire	84%	Early detection; no NLP; limited dataset validation
Haneesh et al. [2], 2023	CNN +Clinical fusion	Ultrasound images + clinical data	88%	High accuracy but requires
Thakre et al. [3], 2023	Variou s AI/M L models	Nutrition al health data	82%	Focuses on nutrition; not reproducti ve health-specific
Bhanu Priya et al. [4], 2024	NLP, Sentimen t Analysis	Mentalheal th text inputs	79%	Good for emotional support; lacks PCOD diagnostic capability
She Care AI (Propose d)	XGBoos t + Logistic Regression + NLP	Self-reported symptom survey + mood/cycl e data	91%	Highest accuracy; combines detection, tracking,

SheCare AI gets the results when it comes to classifying things correctly it is right about 91% of the time. This is better than all the systems that were compared to it. At the time SheCare AI can do a lot of things that the other systems cannot. The good thing about SheCare AI is that it does not need any equipment from a hospital or a laboratory to work. It just needs people to tell it what symptoms they are experiencing. They can do this on their mobile phone. SheCare AI is special because it can have conversations, with people and understand what they are talking about. This is something that the other systemsre not able to do. This means that SheCare AI can talk to people in a way that is personalized and can

keep talking to them over time not once. This is an improvement and it helps people a lot.

VII. CONCLUSION

SheCare AI is a platform that helps women manage their health. This platform is special because it uses intelligence to analyze the symptoms that women report. When the platform looks at this information it can tell if a woman is at risk of getting a condition called PCOD. The platform is very good at doing this. It is right about 91% of the time.

The best part is that women do not need to go to a hospital to use the platform. They can use it on their phones. The platform also looks at how women's feeling and can talk to them in a way that makes sense. It can even help women figure out when they will get their periods and give them advice on what to eat.

The people who made the platform wanted to make sure it was easy to update and fix. So, they made it in a way that lets them change one part of the platform without affecting the parts. The platform is also very safe and secure so women do not have to worry about their information getting out.

The people who made SheCare AI want to keep making it better. They have four things they want to work on. First, they want to use information from devices like fitness trackers to help the platform understand women's bodies better. Second, they want to add information from blood tests to help doctors diagnose PCOD. Third they want to make the platform available in different languages so more women can use it. Fourth they want to make sure the platform can get better over time without putting women's private information at risk. SheCare AI is a useful tool, for women's reproductive health management and it will keep getting better. The future of SheCare AI is exciting. It will continue to help women manage their reproductive health.

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REFERENCES

- [1] P. P. Devi, G. Sw. Swaminathan, R. Gayatri, and S. Sangeetha, "PCOS Detection Using Machine Learning and Medical App Development," 2024.
- [2] K. V. Haneesh and M. N. Mohamed Nisham, "Identification of Polycystic Ovarian Syndrome Through Clinical Metrics and Ultrasonographic Imaging Analysis," 2023.
- [3] S. Thakre, A. Patil, and B. Ghodge, "A Comprehensive Survey on AI-Based Methods and Technologies Used to Detect Nutrition Level Malnourishment," 2023.
- [4] P. Bhanu Priya, R. Subhash, G. Lakshmi, and A. Ashwini, "AI-Based Mental Health Assisted Chatbot System," 2024.
- [5] World Health Organization, Women's Health and Technology Integration: Global Health Report. Geneva, Switzerland: WHO Press, 2023.
- [6] T. Chen and C. Guestrin, "XGBoost: A Scalable Tree Boosting System," in Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2016, pp. 785–794.