Infosys Springboard

iAccelerate
Women's Hackathon

THEME 1: HEALTH & WELLNESS

PCOS Clustering & Personalized Healthcare Recommendations

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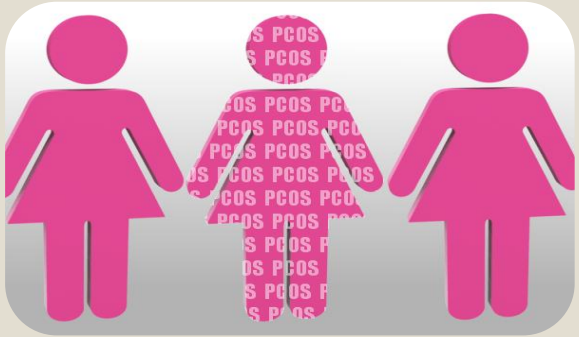
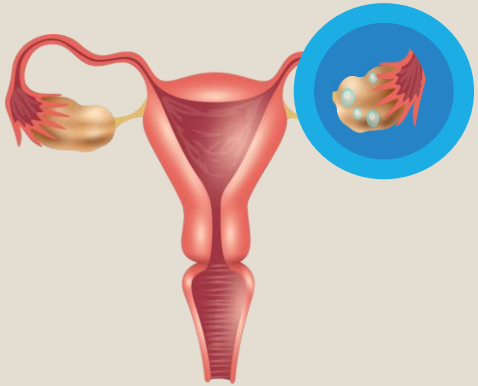


A Machine Learning-Based Solution

POLYCYSTIC OVARY SYNDROME (PCOS)

Women Scenario :-

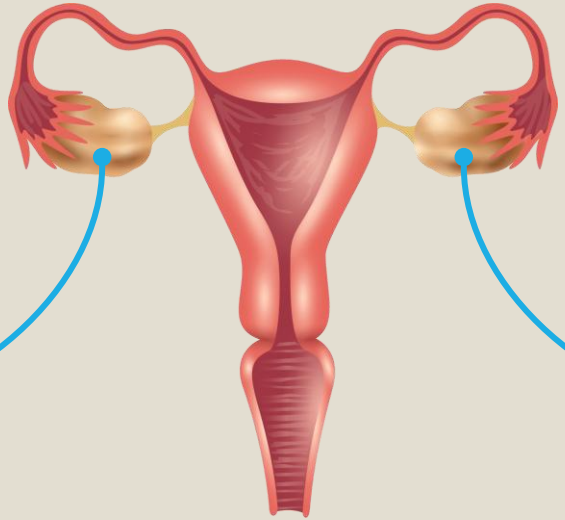


According to the Rashtriya Kishor SwathyaKaryakram study, around 18 % of women in India, predominantly from the Eastern regions, experience this syndrome, with approximately 70 % of cases remaining undiagnosed and according to data from the World Health Organization (WHO), approximately 116 million women worldwide, accounting for 3.4 % of the global female population, are impacted by PCOS

POLYCYSTIC OVARY DIAGNOSIS

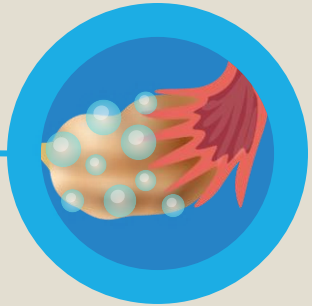
NORMAL OVARY

Venus has a beautiful name and very high temperatures



POLYCYSTIC OVARY

Mercury is the closest planet to the Sun and the smallest one



PROBLEM STATEMENT:

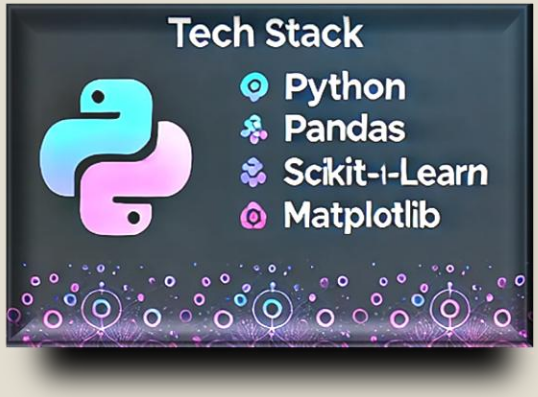
Women have diverse health needs, and generic healthcare approaches fail to provide personalized solutions.

- 🔴 Challenges:
- - Lack of personalized healthcare
- - Inadequate PCOS detection
- - Absence of AI-driven healthcare solutions

INNOVATION & UNIQUE APPROACH

✅ Our Solution:

-Data-driven segmentation using Hierarchical Clustering & GMM
- Predictive insights for personalized healthcare recommendations
- Machine Learning-powered recommendations



🔬 **Tech Stack: Python, Pandas, Scikit-learn, Matplotlib**

IMPLEMENTATION & FEASIBILITY

1 **Data Collection:** PCOS dataset

2 **Preprocessing:** Feature selection & encoding

3 **Clustering:** Hierarchical Clustering & GMM

4 **Evaluation:** Silhouette Score

5 **Results:** Personalized recommendations

THOUGHT PROCESS & LEARNINGS

01

🔹 **What Inspired This Project?**

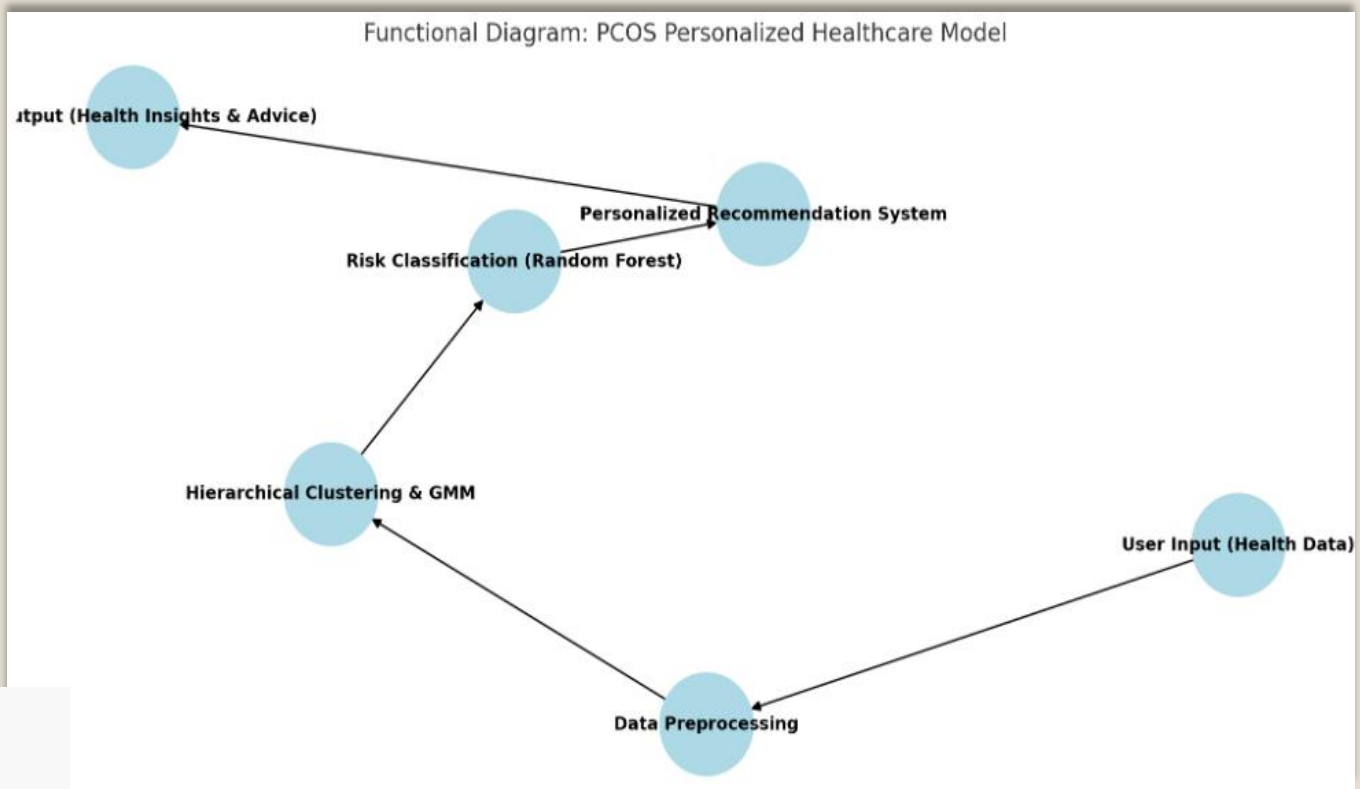
- The need for AI-powered, personalized healthcare solutions
- The gap in PCOS diagnosis & treatment

02

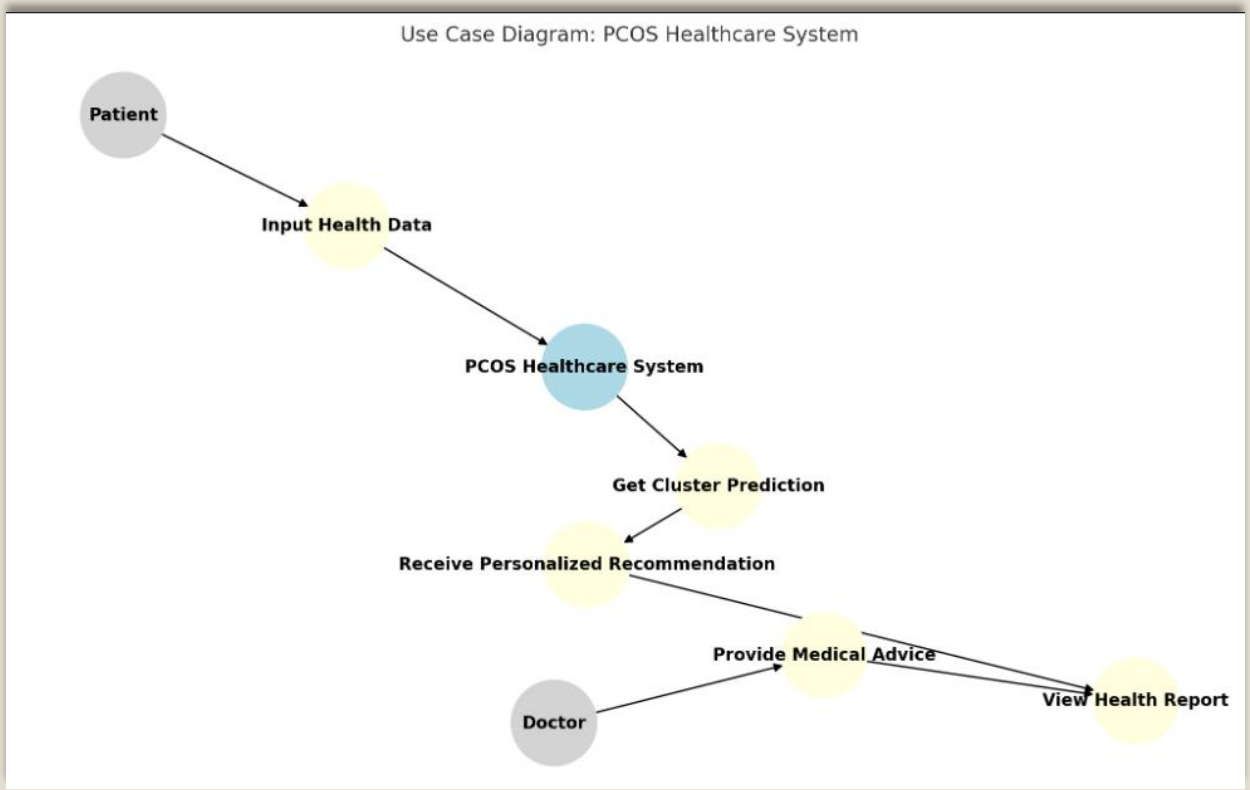
🔹 **Challenges Faced & Solutions:**

✅ Data Preprocessing: Handled missing values
✅ Model Optimization: Tuned clusters using silhouette scores
✅ Interpretability: Mapped clusters to recommendations

FUNCTIONAL DIAGRAM

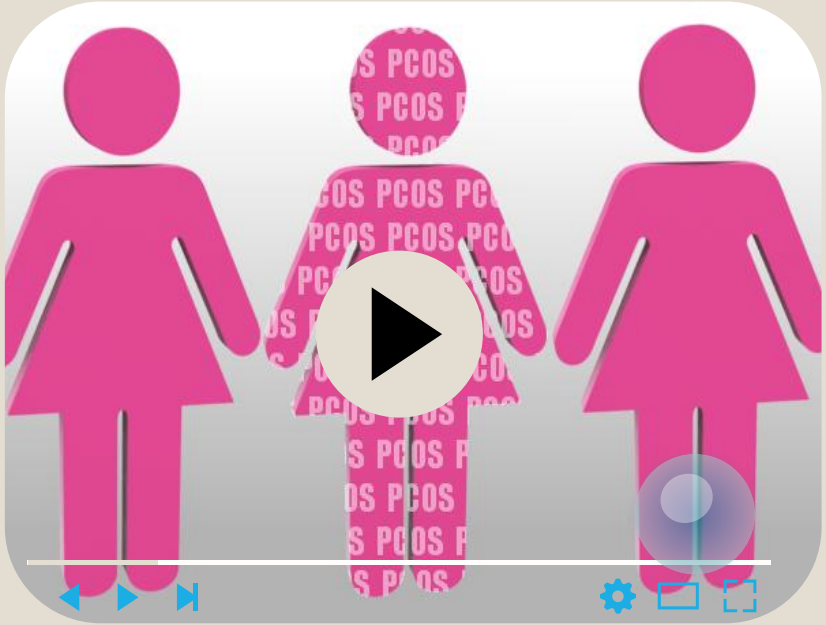


USECASE DIAGRAM



CODE:

GitHub:
https://github.com/BarkhaKumari-1/PCOS-Detection-ML



Future Enhancements

🚀 **Next Steps:**

- Expand dataset for broader female health conditions
- Integrate Deep Learning for better feature extraction
- Develop a Web App for user-friendly health assessment
- Collaborate with healthcare providers for real-world testing


Join Us in Revolutionizing
Women's Healthcare!
Thank You Infosys Springboard for incredible platform