Breast Cancer Detection

Leveraging AI for Early Prediction

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Introduction: A Crucial Need

Breast cancer remains a leading global health challenge, but early detection is a game-changer. This project harnesses the power of **Artificial Intelligence and web technology** to create an accessible and affordable detection tool, aiming to democratize risk prediction and improve survival rates.

1

Global Impact

One of the most common cancers worldwide.

2

Survival Rates

Early detection significantly improves chances.

3

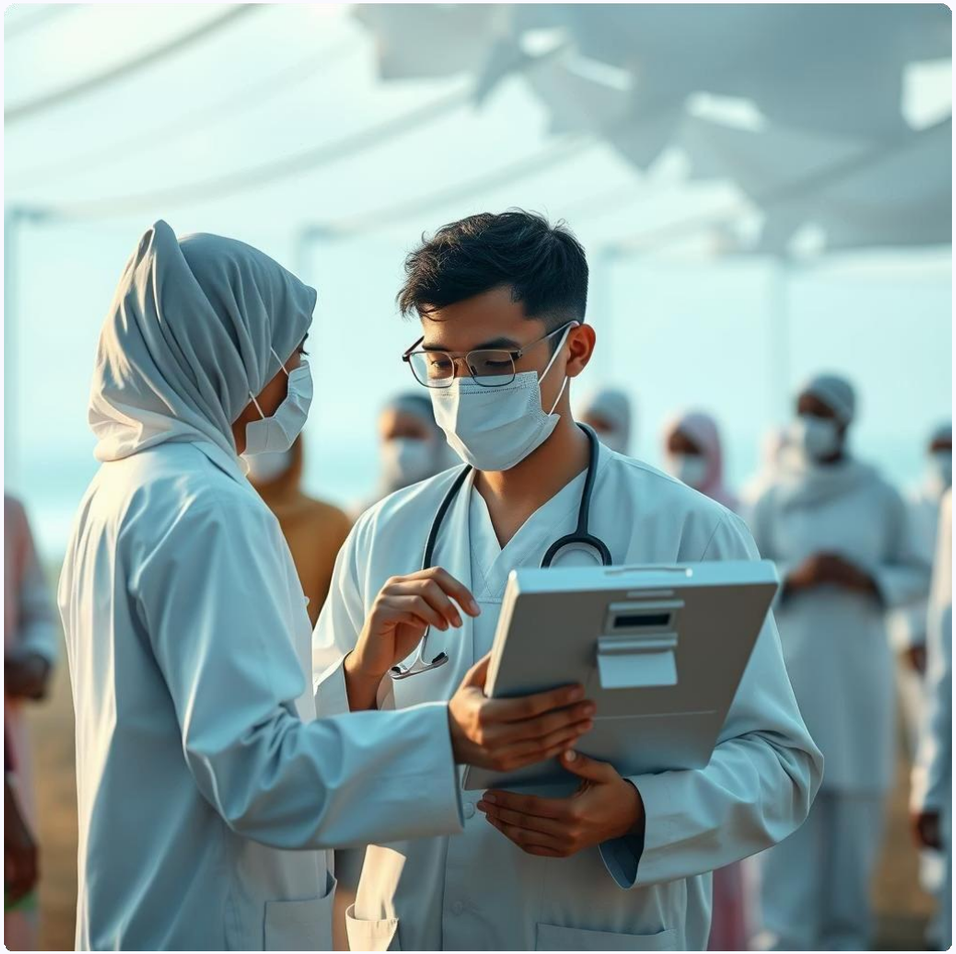
Project Goal

AI & web platform for accessible risk prediction.

The Challenge C Our Solution

Problem Statement

- Late diagnoses contribute to higher mortality rates.
- Limited access to affordable screening in underserved and rural areas.



Key Objectives

- Develop an AI-powered web platform for breast cancer risk prediction.
- Integrate multiple input methods: Manual, CSV upload, and Symptom Checker.
- Enable downloadable reports and provide vital awareness resources.

Our platform aims to bridge the gap in healthcare accessibility, empowering individuals with timely information.

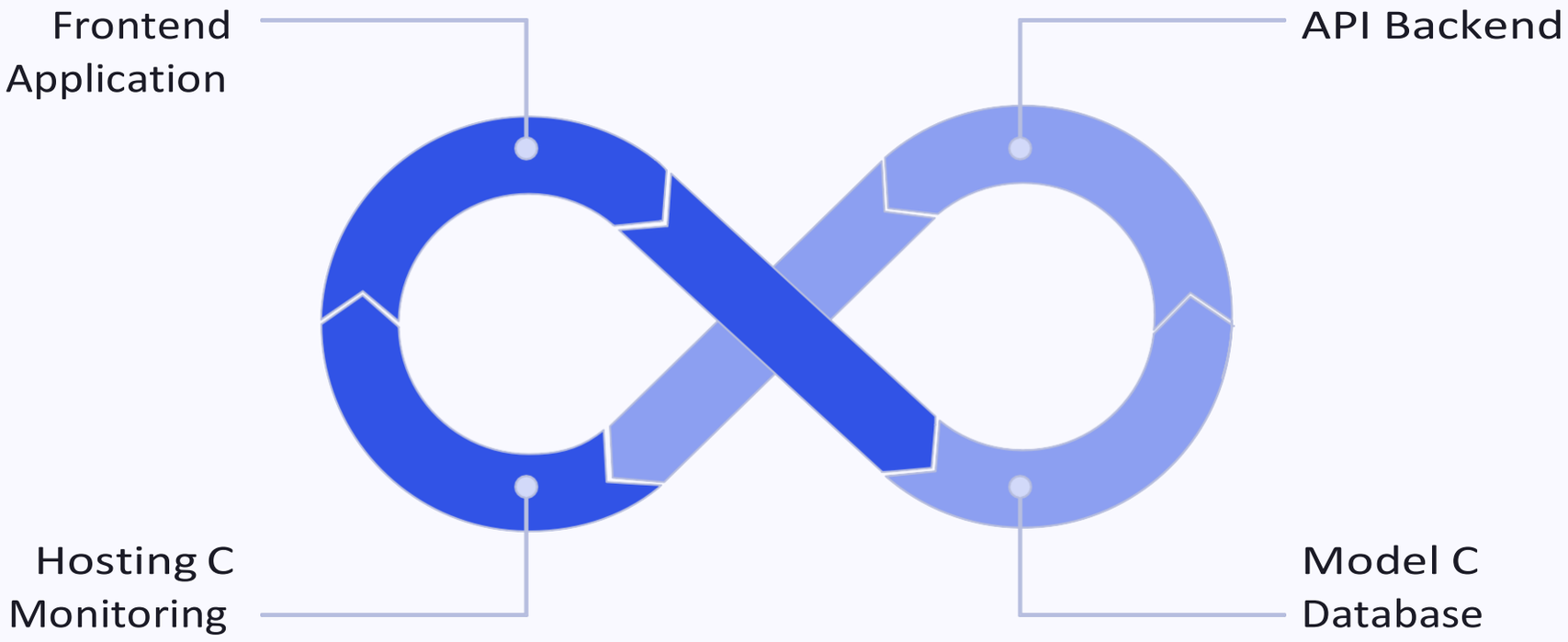
Methodology: From Data to Prediction

Core Components

- **Dataset:** Winsconsin Breast Cancer Dataset, a widely recognized benchmark.
- **ML Model:** (Algorithm to be confirmed, e.g., Random Forest or Support Vector Machine) selected for optimal predictive accuracy.

System Architecture: The Tech Stack

Our platform is built with a robust and scalable architecture, leveraging modern web technologies to ensure a seamless user experience.



- **Frontend:** React (HTML, CSS, JavaScript) for dynamic and responsive user interfaces.
- **Backend:** Python (Flask/Django) to handle data processing, AI model integration, and API services.
- **Database:** MySQL or MongoDB (depending on data structure needs) for efficient data management.
- **Hosting:** Deployed on platforms like Hostinger for reliable web access.

Key Features: Empowering Users

Our platform is designed with the user in mind, providing diverse input options and valuable resources.

Prediction Modes

Manual Entry, CSV Upload, Symptom Checker Quiz.

Downloadable Reports

Comprehensive, shareable prediction outputs.

Support Resources

National & International helplines, NGO listings.

Privacy Protection

No user data is stored, ensuring confidentiality.

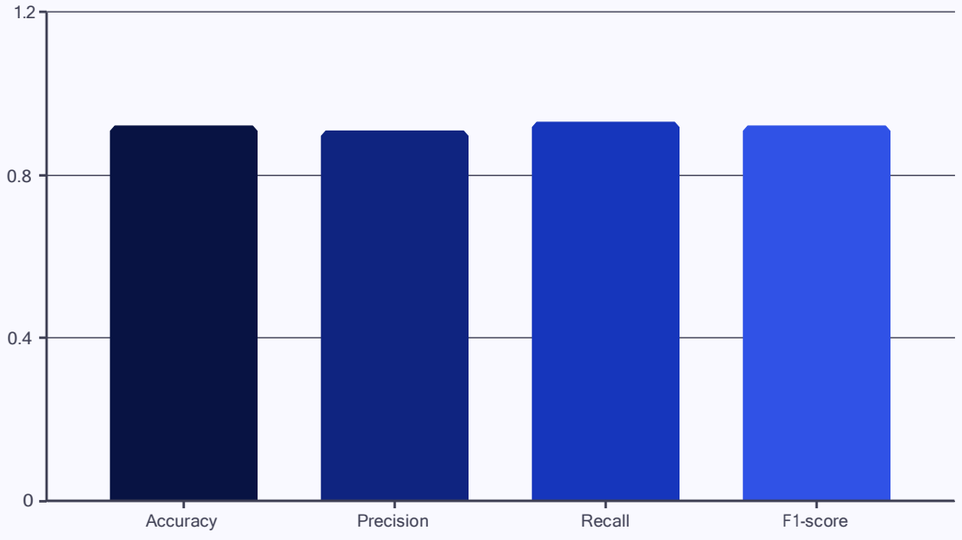
Responsive UI

Optimized for seamless use across all devices.

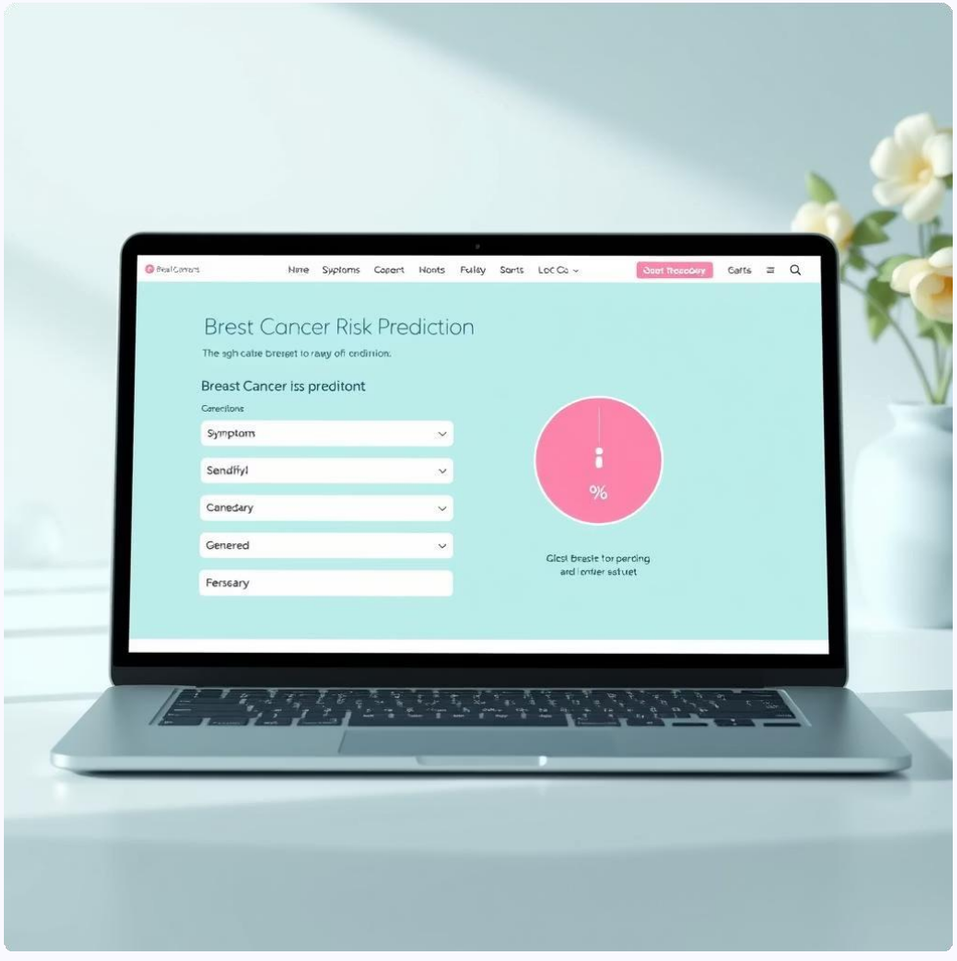
Results: Performance C User Experience

Model Performance

Our chosen ML model demonstrates strong performance in predicting breast cancer risk.



Application in Action



The application provides clear, actionable results. Users receive a risk assessment along with an explanation of contributing factors, presented in an intuitive interface.

Scope: Impact, Limitations C Future

Applications

- **Hospitals:** Supplementary screening tool.
- **NGOs:** Facilitating community health initiatives.
- **Rural Health Camps:** Expanding access in remote areas.
- **Awareness Programs:** Educational support.

Limitations

- Dependency on dataset quality.
- Not a substitute for professional medical diagnosis.

Future Scope

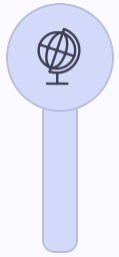


Image-Based Detection

Integrating deep learning for mammogram analysis.

Multi-Language Support

Reaching a wider global audience.

Dedicated Mobile App

Enhanced accessibility and native features.

Thank You!

Any Questions?