CHAPTER 9

RESULTS

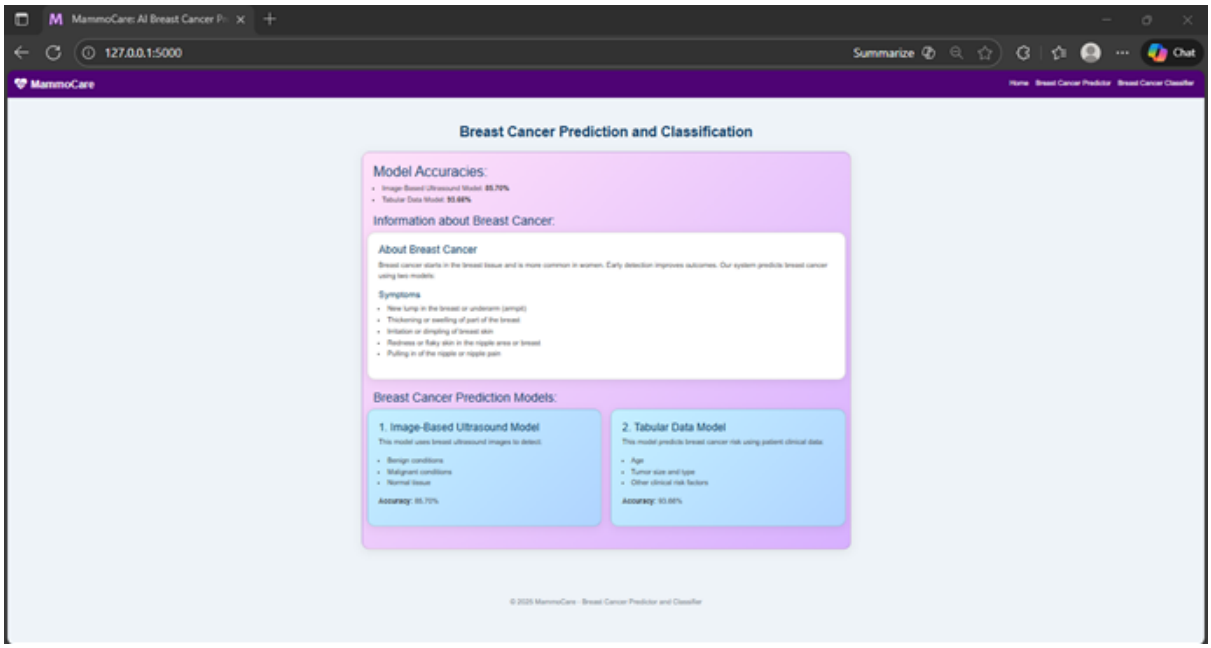

Fig 9.1:Homepage

Figure 9.1 shows the main homepage of our breast cancer detection and prognosis prediction system. It's the entry point where users land when they first access the website. The homepage provides navigation options to access different features—either uploading ultrasound images for classification or entering clinical data for prognosis prediction.

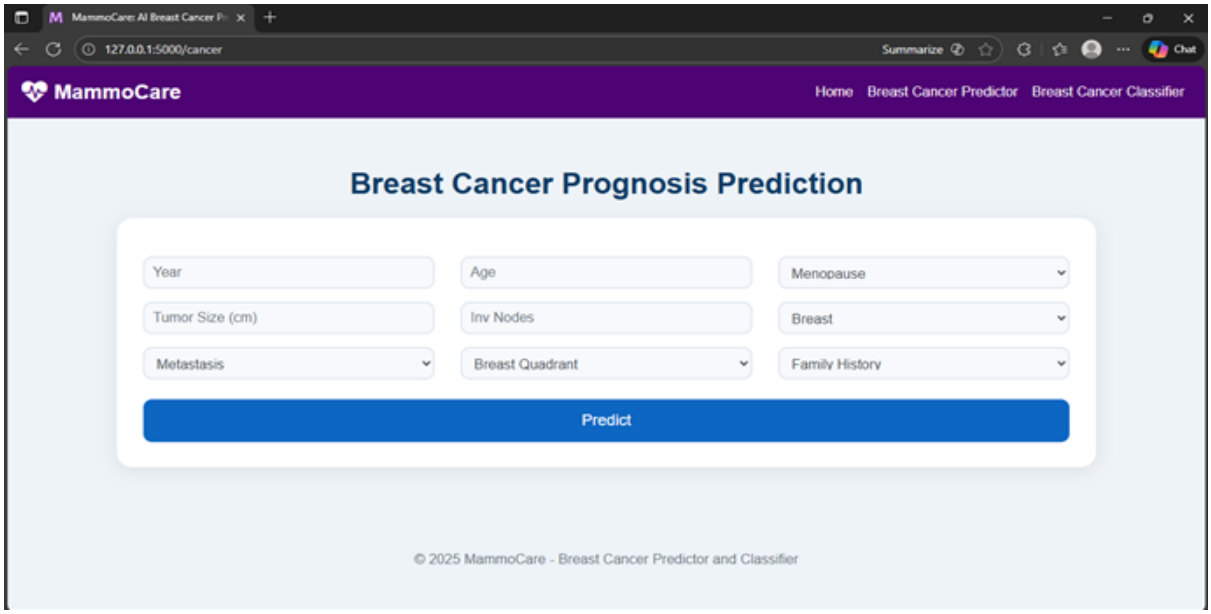

Fig 9.2: Prognosis prediction interface

Figure 9.2 shows the interface for breast cancer prognosis prediction. Users see a form where

they can input various clinical parameters including year of diagnosis, patient age, menopause status, tumor size, number of involved lymph nodes, affected breast side, metastasis status, breast quadrant location, and family history. These inputs feed into our machine learning model to predict whether the cancer is likely to progress or remain stable.

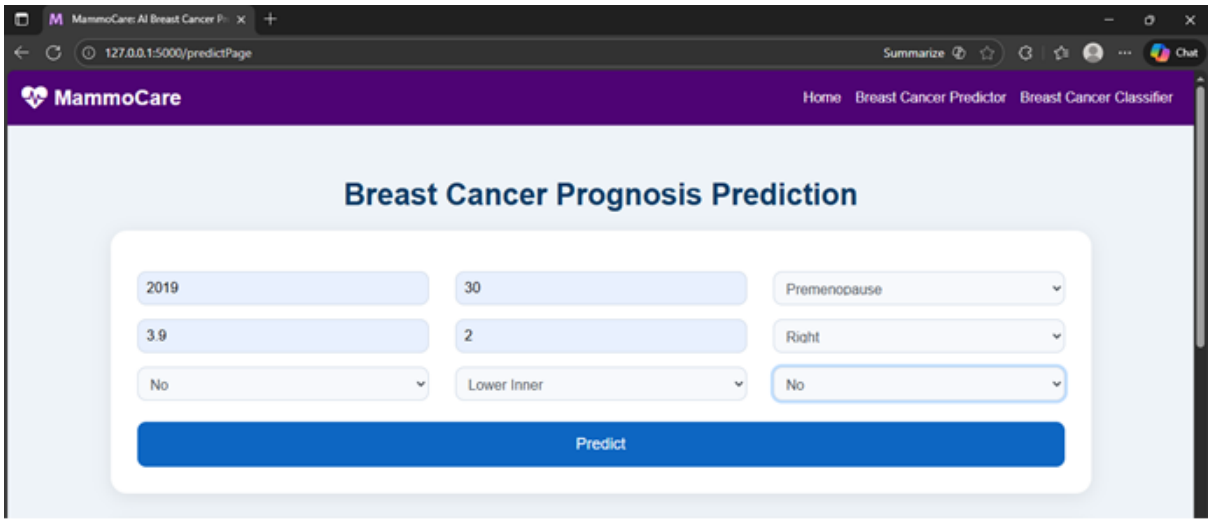

Fig 9.3:Inputs for prognosis prediction(Non-Progressive)

Figure 9.3 shows the MammoCare system's prognosis prediction input form filled out with sample data. This particular example shows inputs for a case that will be predicted as non-progressive. The form displays all the critical clinical parameters a doctor would typically consider when assessing breast cancer prognosis. Through this interface, healthcare providers can input a patient's diagnostic year, age, menopausal status, tumor size, number of invaded lymph nodes, affected breast side, metastasis status, breast quadrant, and family history.

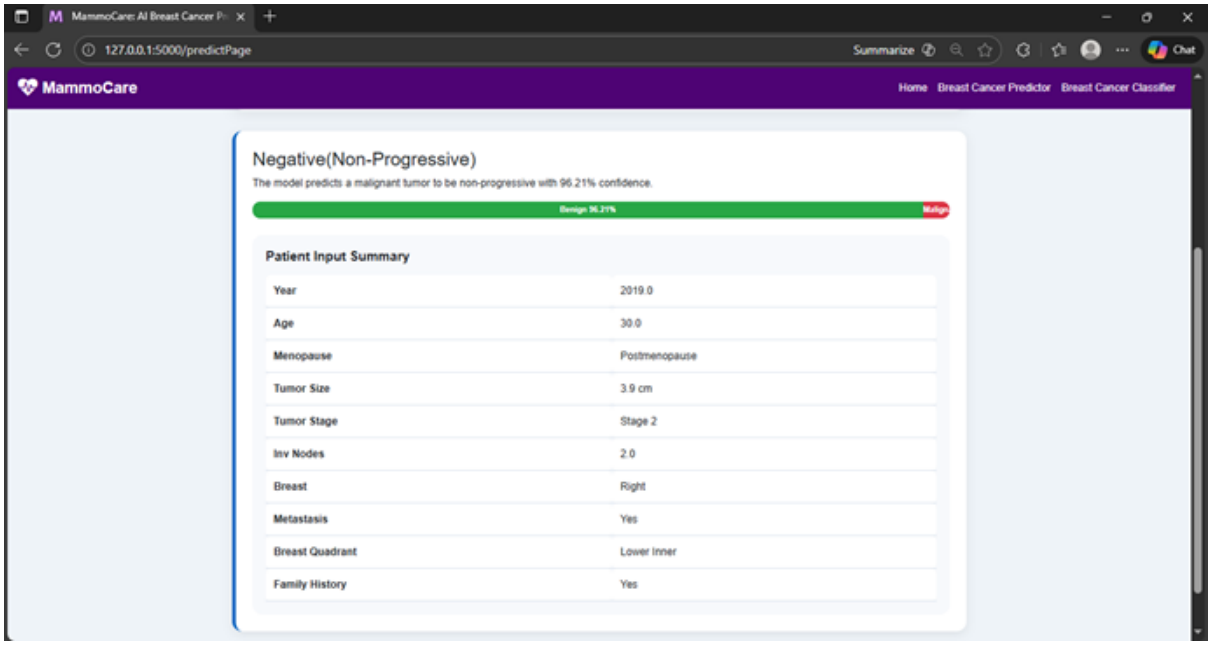

Fig 9.4: Output of the 'Breast Cancer Prognosis Prediction'(Non-Progressive)

Figure 9.4 illustrates the output from our prognosis prediction module. The system has analyzed

the input data and determined the tumor is ”Non-Progressive,” meaning it’s less likely to advance aggressively. The output includes a confidence level shown as a progress bar, plus a summary of the patient inputs that were used for the prediction. This summary helps ensure the data was entered correctly and lets clinicians verify the information before making treatment decisions.

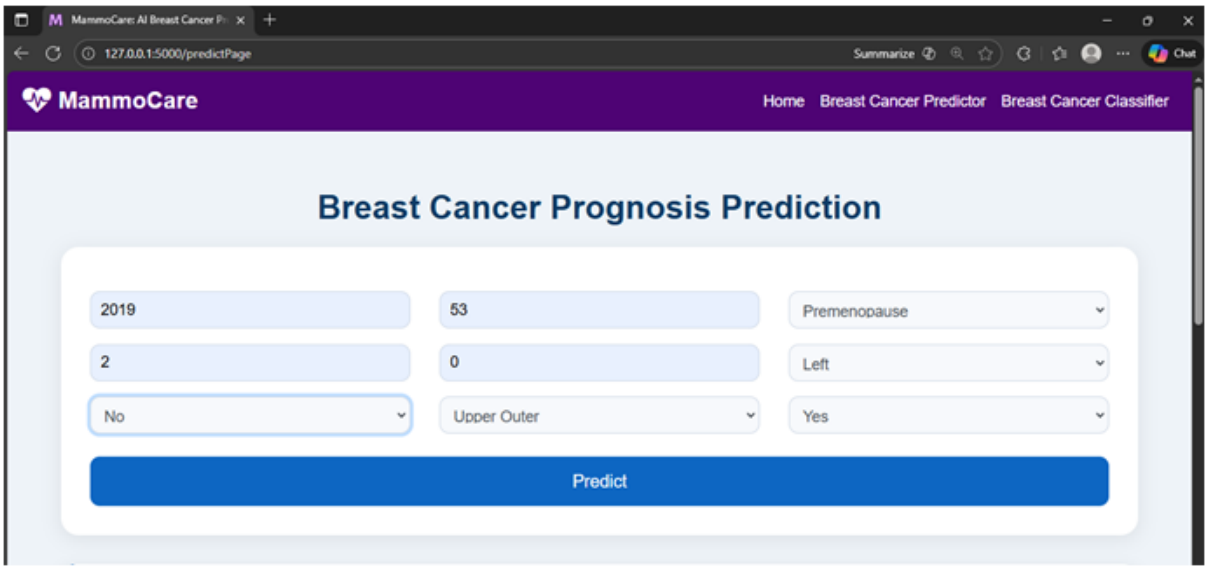

Fig 9.5: Inputs for prognosis prediction(Progressive)

Figure 9.5 shows another example of the prognosis prediction input form, but this time with data that indicates a higher-risk case. The form layout remains the same, but the specific values entered (like larger tumor size, more lymph node involvement, or presence of metastasis) will lead to a different prediction outcome.

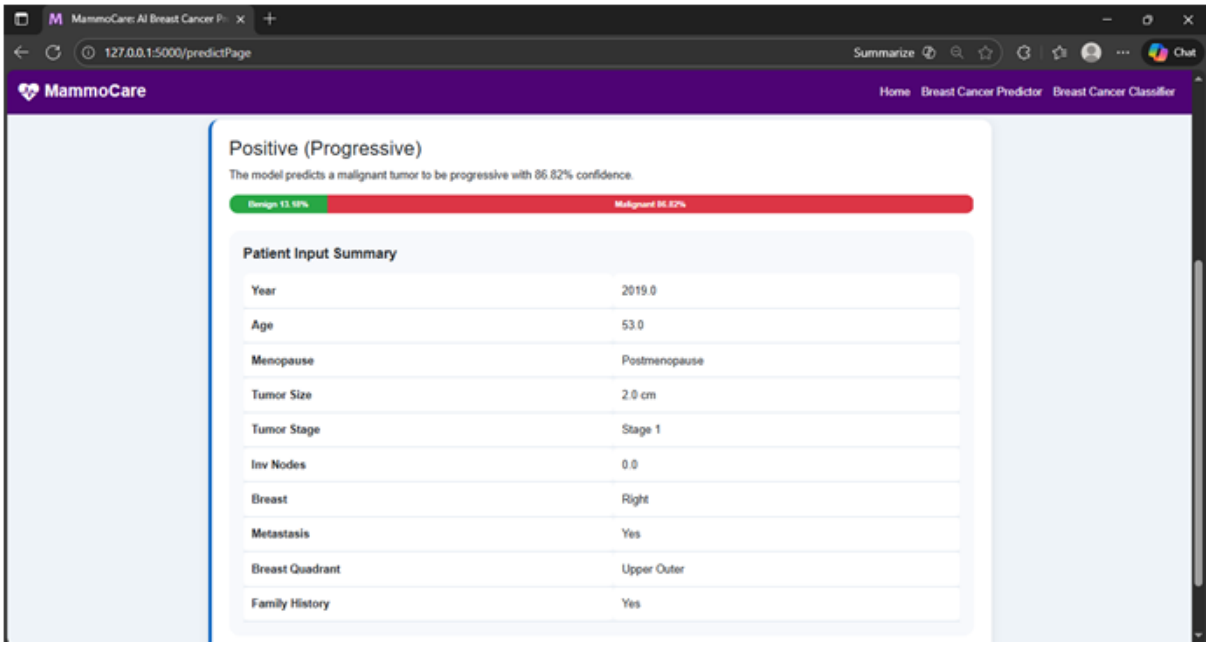

Fig 9.6: Output of the Breast Cancer Prognosis Prediction (Progressive)

Figure 9.6 shows the prediction results for a high-risk case. The system classifies this as ”Positive (Progressive),” indicating the cancer shows characteristics suggesting aggressive behavior and

potential advancement. The confidence level displays as 81.62%, showing the model's certainty in this prediction. This type of output would prompt clinicians to consider more aggressive treatment options or closer monitoring.

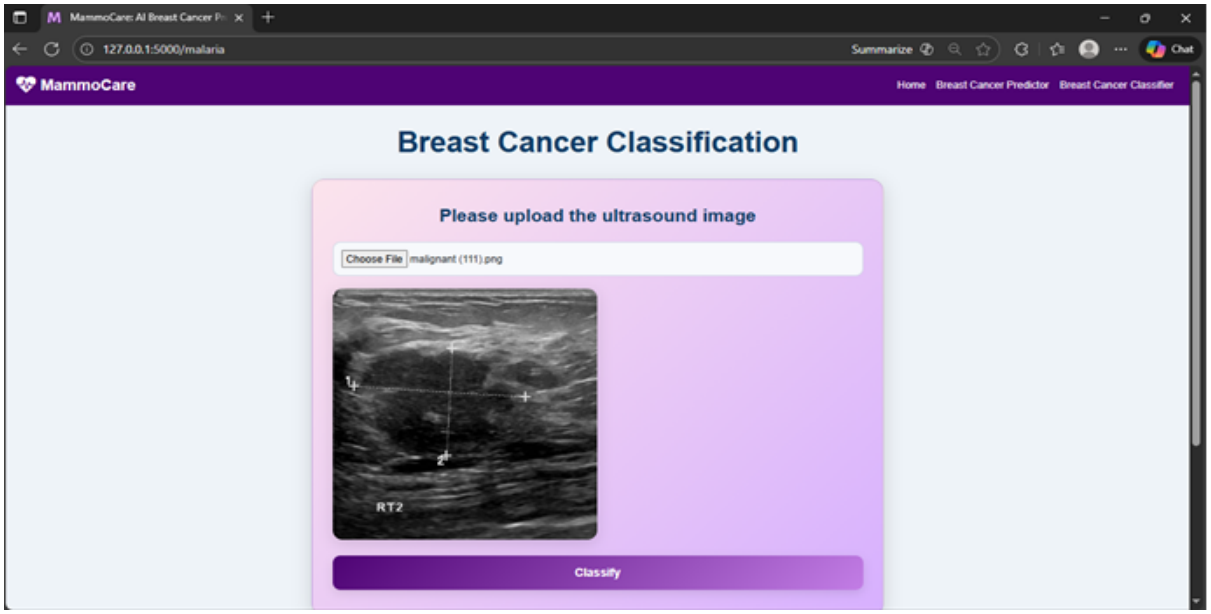

Fig 9.7: Malignant image as input for classification

Figure 9.7 shows where users upload ultrasound images for classification. There's a file upload option that lets users browse their computer and select an ultrasound scan. Once uploaded, the image appears in a preview section so users can verify they selected the correct file. A "Classify" button in the bottom right corner initiates the analysis process.

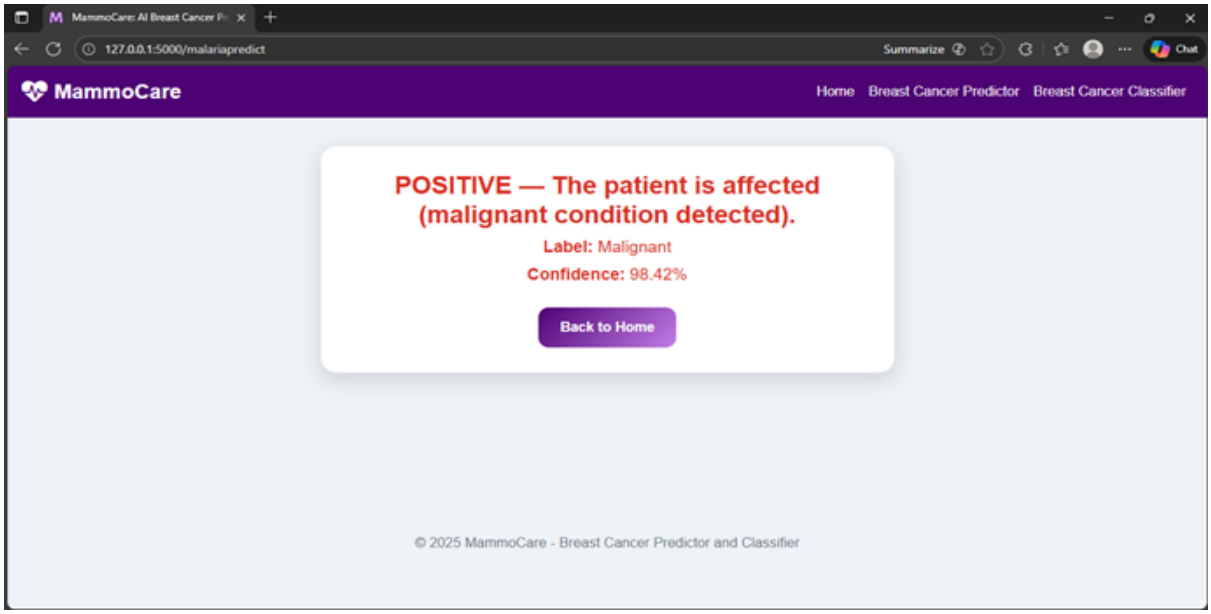

Fig 9.8: Output of the Breast Cancer Classification (Malignant)

Figure 9.8 shows the results page where MammoCare displays the classification outcome after analyzing the uploaded ultrasound image. The system has determined the scan shows malignant tissue, classifying the patient as "POSITIVE — The patient is affected." The predicted class is

labeled as ”Malignant” with a confidence level of 98.42%, indicating very high certainty in this diagnosis. Such high confidence helps clinicians trust the system’s assessment.

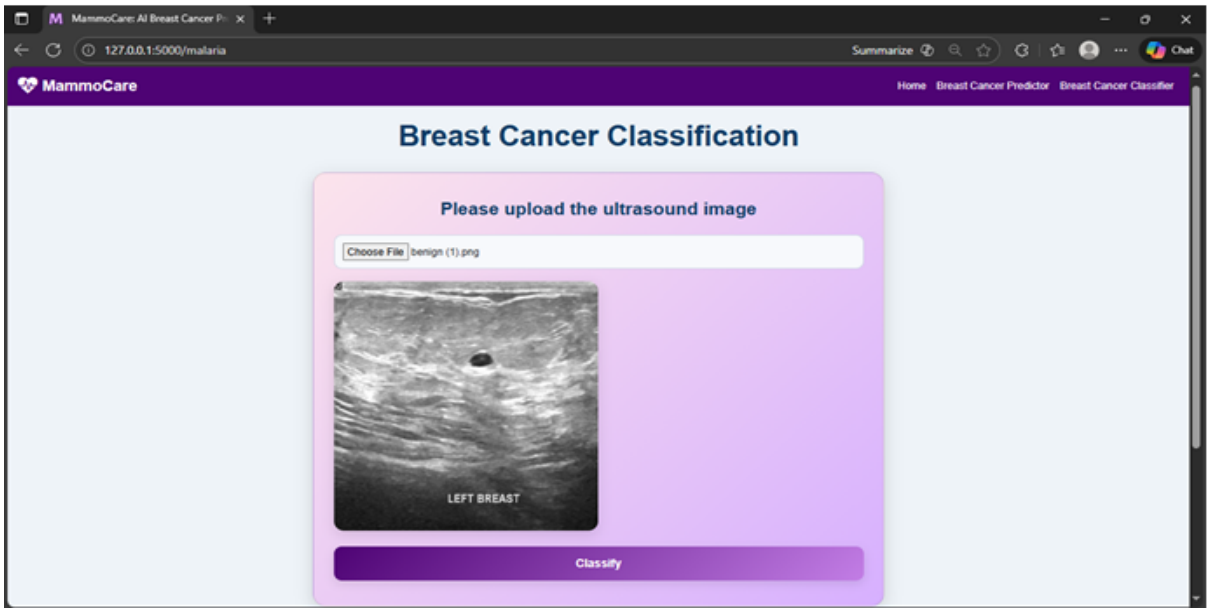

Fig 9.9: Benign image as input for classification

Similar to Figure 9.7,Figure 9.9 shows the upload interface but with a different ultrasound image—one that will be classified as benign. The interface remains consistent, with the same file upload option, image preview section, and classify button in the bottom right corner.

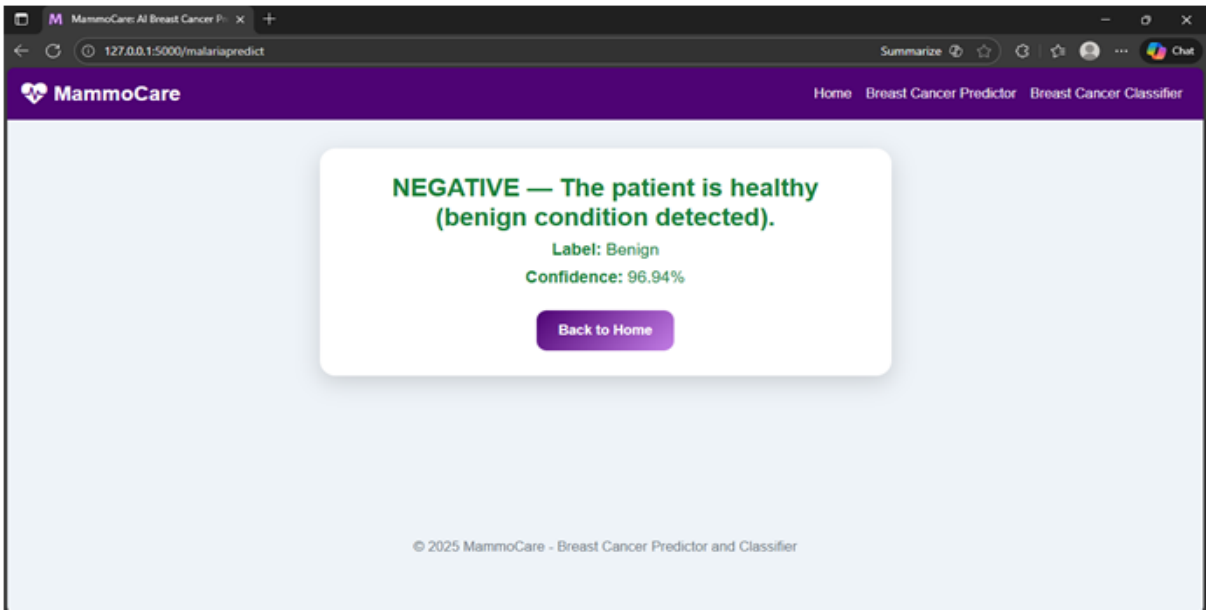

Fig 9.10: Output of the Breast Cancer Classification (Benign)

Figure 9.10 shows the results page now shows a benign classification. The system determines ”NEGATIVE — The patient is healthy” with a predicted class of ”Benign” and confidence level of 96.94%. This means the ultrasound shows a non-cancerous mass or normal tissue. The high confidence level provides reassurance that the classification is reliable.

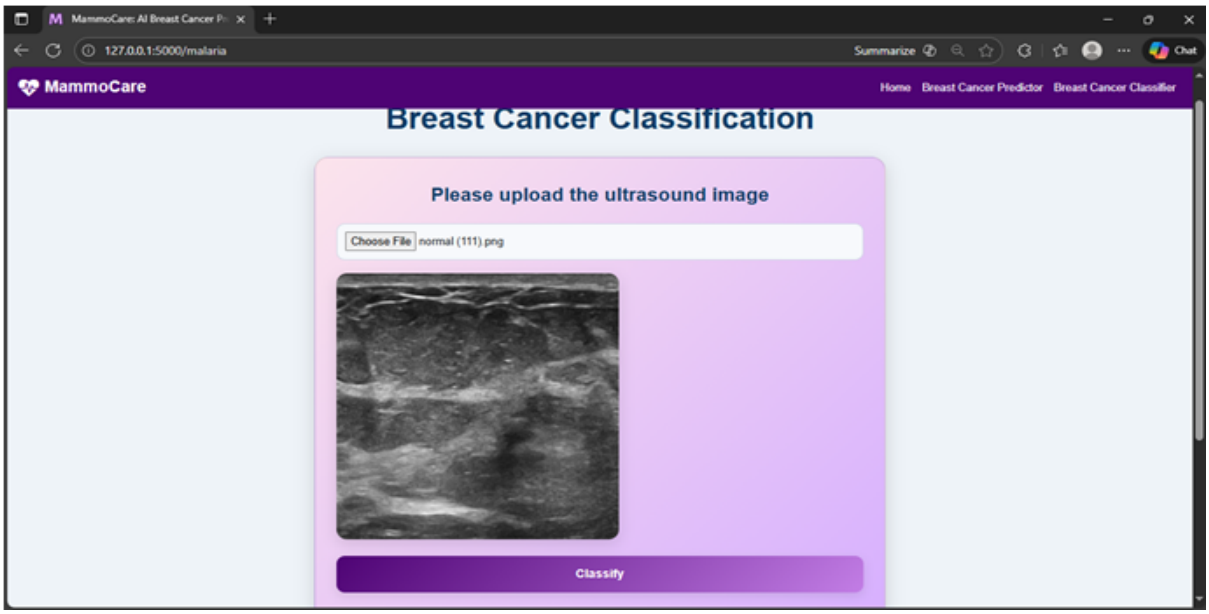

Fig 9.11: Benign image as input for classification

Figure 9.11 shows another example of the MammoCare breast cancer classification interface showing an ultrasound image upload. This demonstrates the consistency of our user interface across different use cases.

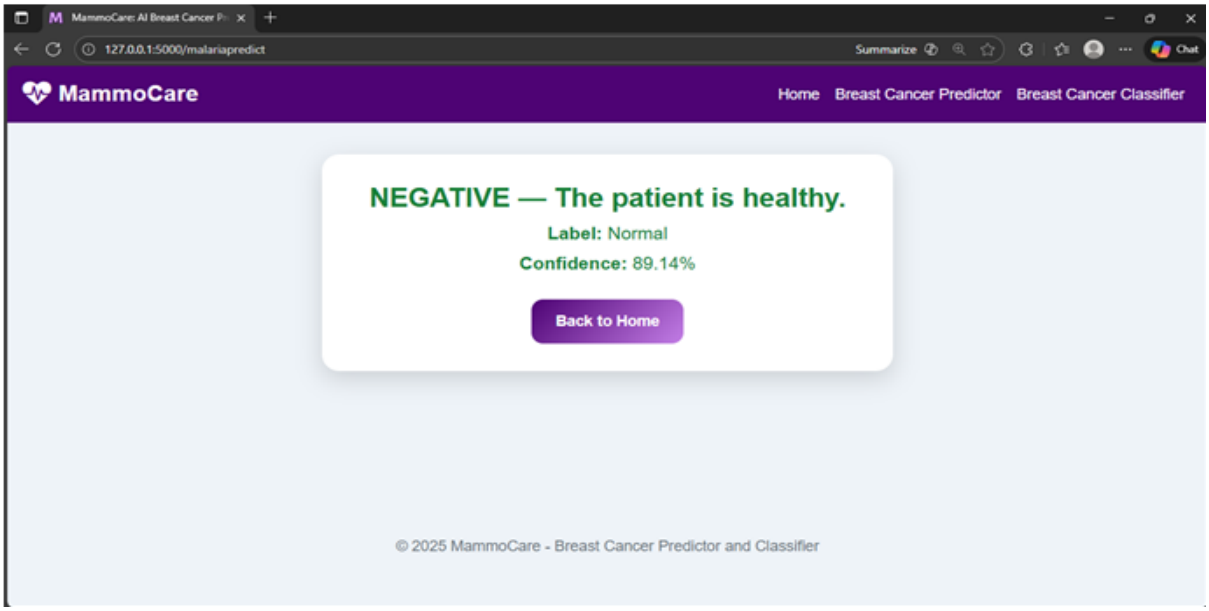

Fig 9.12: Output of the Breast Cancer Classification (Benign)

Figure 9.12 shows the final results page shows a classification of completely normal breast tissue. The system indicates ”NEGATIVE — The patient is healthy” with a predicted class of ”Normal” and confidence level of 89.14%. While slightly lower than the benign classification confidence, this still represents a strong prediction that no abnormalities are present in the ultrasound scan.