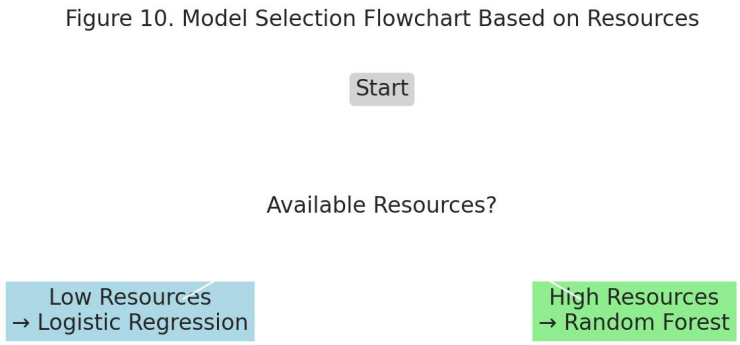


Figure 10. Model Selection Flowchart Based on Resources

Chapter 5: Conclusion and Future Work

5.1 Conclusion

This study investigated traditional ML models for diabetes screening in resource-constrained settings.Random Forest showed the best predictive performance， Logistic Regression was most robust and efficient， and SHAP analysis revealed clinically relevant features.A deployment strategy was proposed for both advanced and limited-resource environments.

5.2 Research Contributions

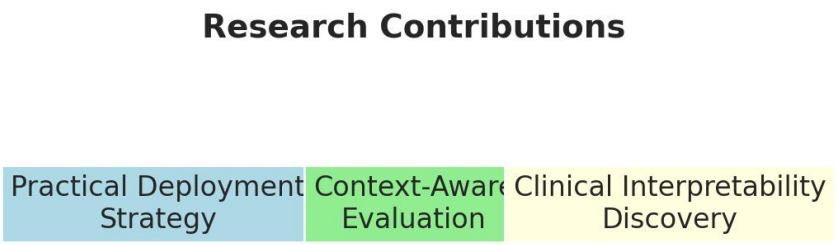
-Developed a context-aware evaluation framework for ML in healthcare.

-Identified interpretable clinical features using SHAP.

-Proposed practical deployment strategies for varying resource levels.

-Validated the practicality of traditional ML in real-world constraints.

Figure 11. Key Contributions of This Study



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