

Machine Learning-Based Analysis for Diagnosis and Classification of Acute Lymphocytic Leukemia

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ABSTRACT

Our project developed Zumra, an AI system for diagnosing acute lymphoblastic leukemia (ALL) using the advanced YOLOv8 model by Ultralytics. Achieving a remarkable 95% accuracy, YOLOv8 outperformed the other four models tested. Zumra offers rapid and precise diagnostic capabilities, allowing image uploads, data storage, and providing model confidence scores, thereby delivering valuable insights to medical professionals.

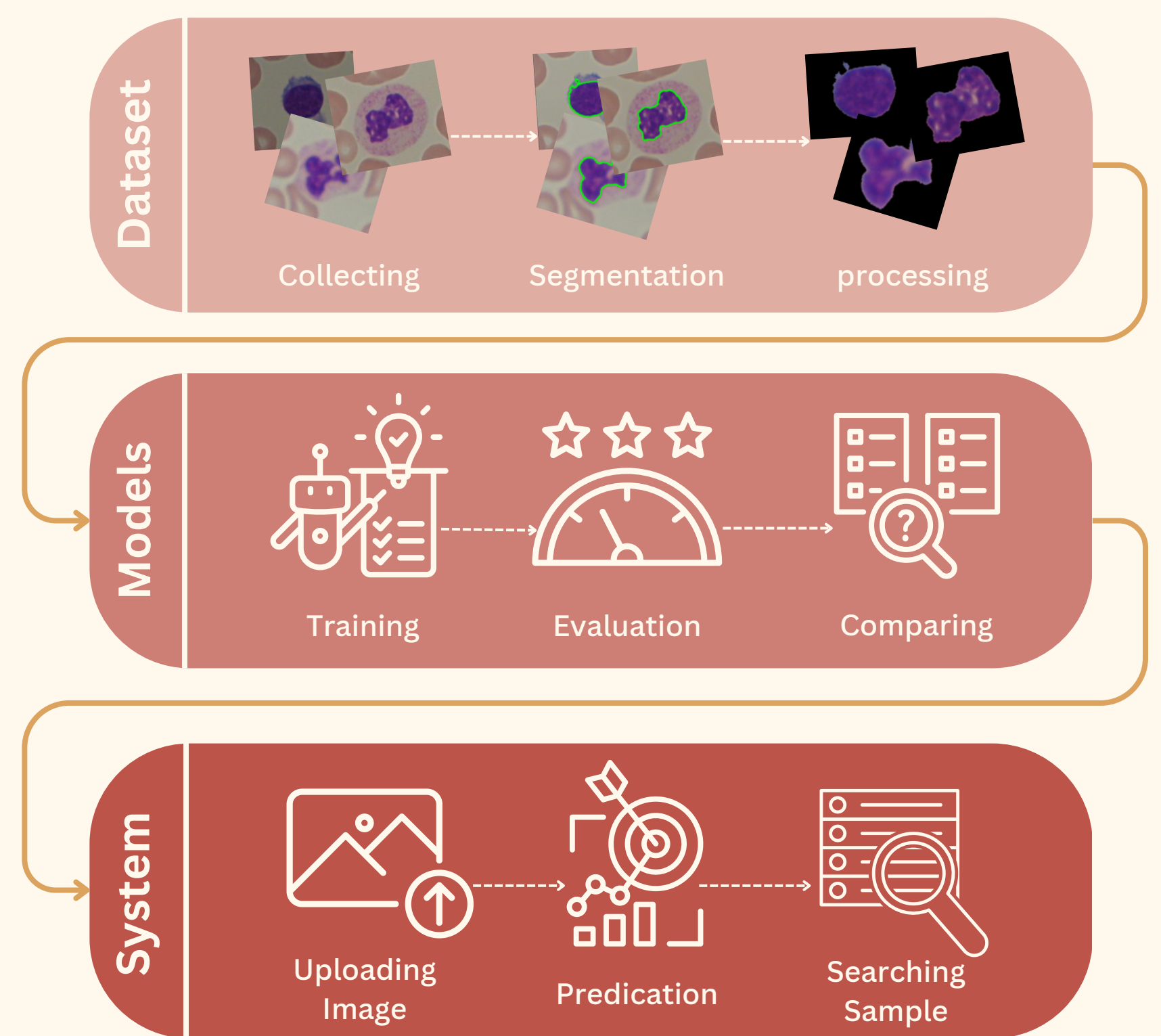
INTRODUCTION

Acute lymphoblastic leukemia (ALL) is a serious cancer that affects the bone marrow and blood, especially in young people, and requires prompt diagnosis and treatment. It can be diagnosed by bone marrow aspiration, cytogenetic analysis, and flow cytometry. Our project has facilitated faster and more accurate analysis of digital blood smear images, helping immediately identify acute lymphoblastic leukemia (ALL) cells.

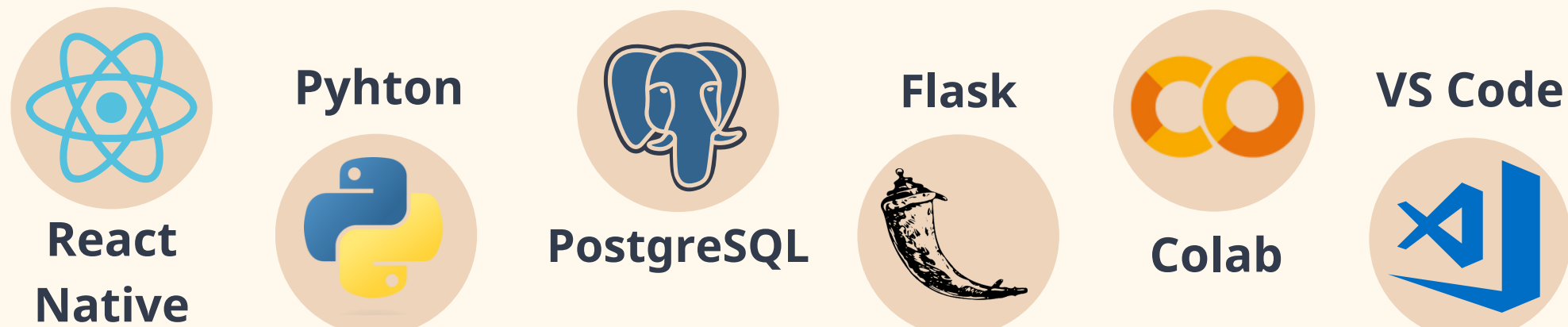
OBJECTIVES

- Enhance the diagnostic process.
- Provide an easily accessible tool to assist medical professionals.
- Evaluate and compare the performance and accuracy of five different models on two medical imaging datasets.

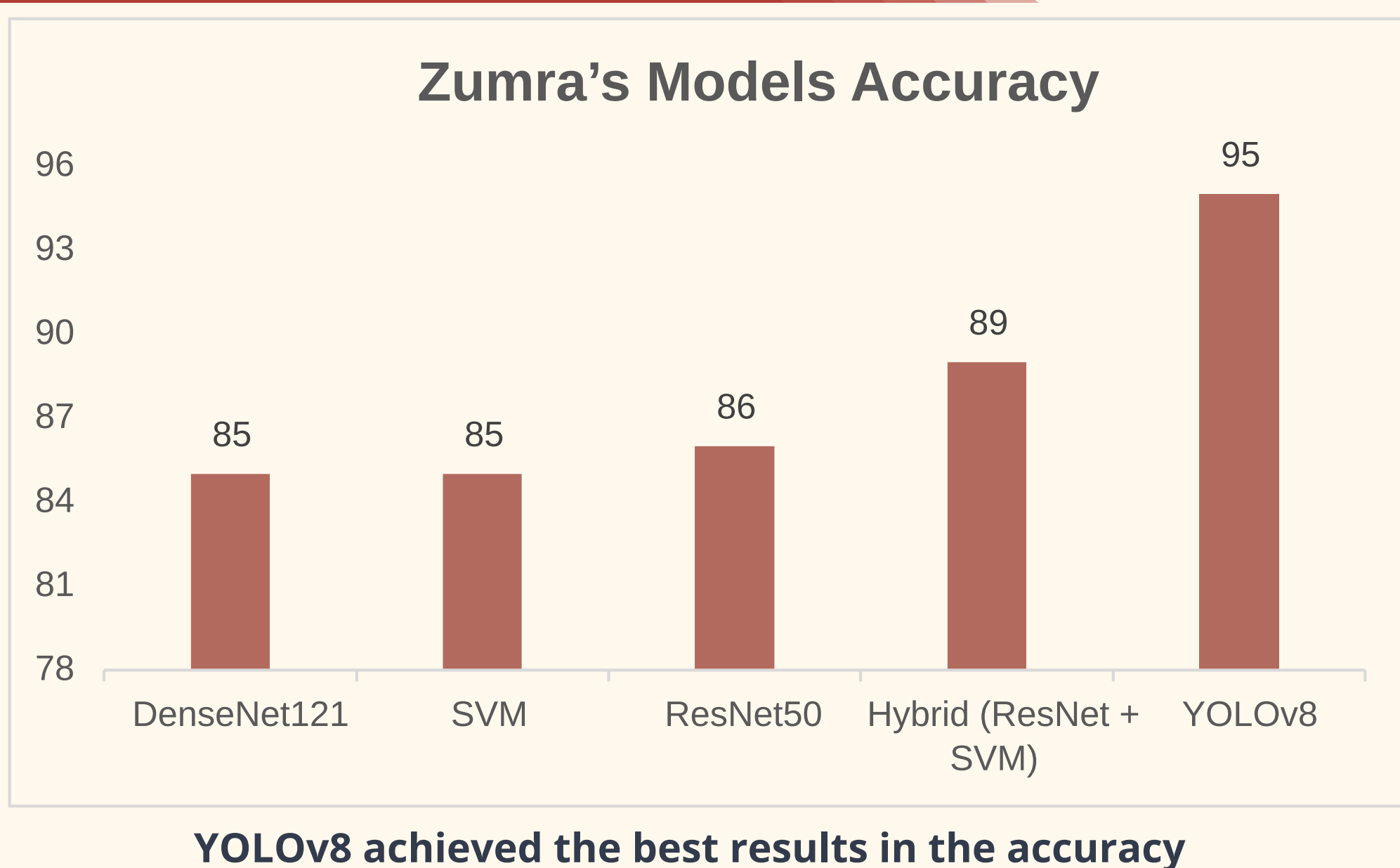
METHODOLOGY



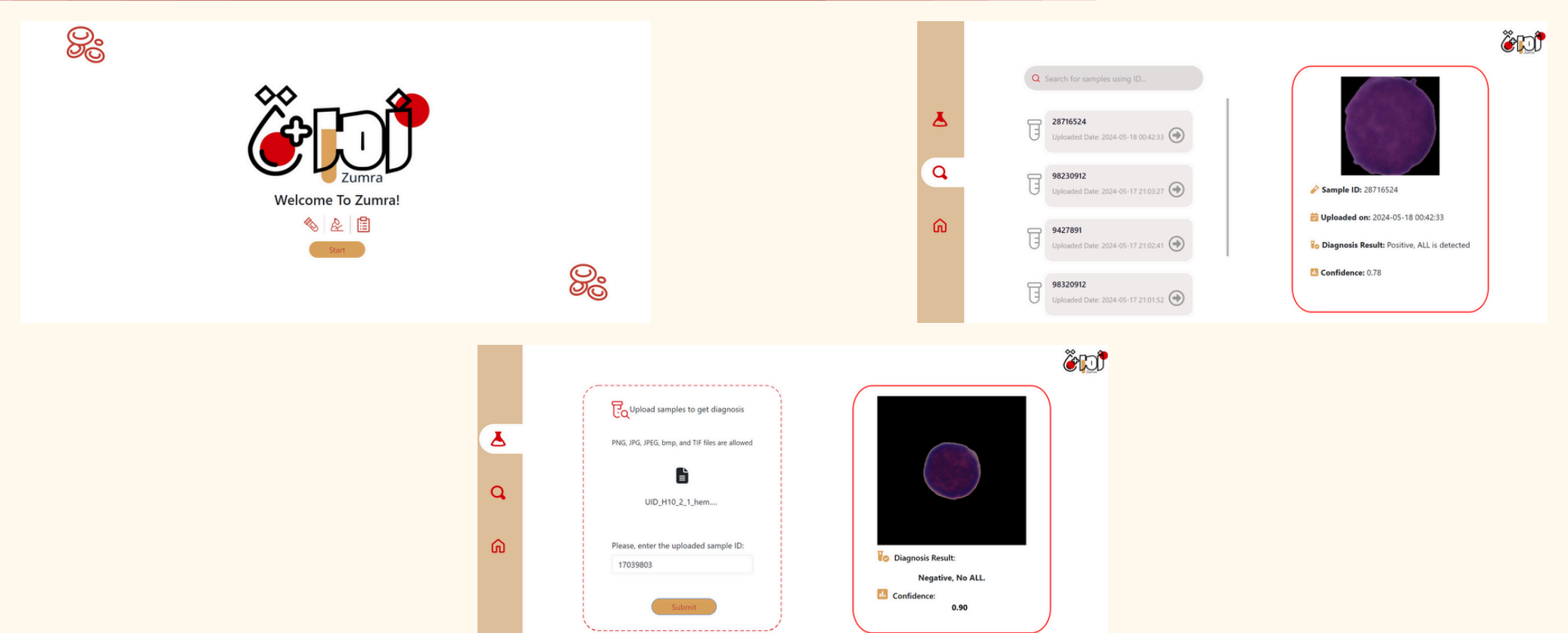
TOOLS



RESULT



INTERFACES



CONTACT

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References and Demo

FUTURE WORK

- Image Validation
- Utilizing Local Data
- Exploration of Generative AI
- User Override Button