MLCloud

A NO-CODE AUTOML PLATFORM

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INTRODUCTION

- Machine learning is powerful, but its complexity excludes non-programmers.
- MLCloud bridges this gap by providing an intuitive and user-friendly interface for automated machine learning
- It also enables students, analysts, and professionals to train and use machine learning models without writing code.

OBJECTIVES

- To develop an accessible and automated ML platform
- To simplify model training and evaluation for
- To deliver accurate and explainable results through a user-friendly interface

METHODOLOGY

MLCloud was developed using a **modern**, **full-stack microservices** architecture, separating the user interface, server logic, and machine learning engine for scalability and clarity.

Frontend

Frontend: React with TypeScript and Tailwind CSS, deployed on Vercel

Backend

Flask (Python) with JWT authentication and SQLite database, deployed on Render

ML

Scikit-learn and TPOT for automated model training and optimization.

RESULTS

successful automated ML pipeline, delivering strong performance and a seamless user experience.

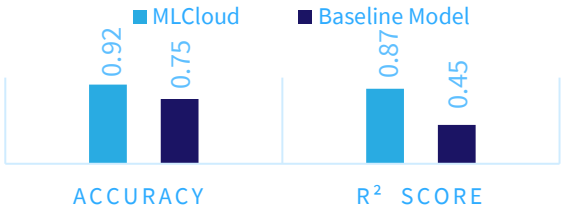
System success

- **Scalability:** size up to 100MB
- **Usability:** drag-and-drop uploading and real-time progress indicators

Performance

Classification: Achieved 92.4% accuracy, 90.4% F1-score on **customer churn** prediction.
Regression: Achieved a strong 0.87 R^2 score on **sales forecasting** data.
Efficiency: Automated model training and evaluation typically in under two minutes.

Model Performance Comparison



CONCLUSION

Achieved: MLCloud successfully delivers a functional, cloud-based AutoML platform that makes machine learning accessible to non-programmers. The system automates the end-to-end workflow and provides competitive model performance with minimal user input.

Recommendations for enhancement:

- Add real-time prediction API
- Add AI NLP to improve interaction with users
- Expand template library
- Enable team collaboration

REFERENCES

Scikit-learn: Machine Learning in Python
Flask Web Development Documentation
TPOT: Automated Machine Learning in Python