FIREPRED

MLOps Mini Project

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INTRODUCTION

MLOps integrate machine learning and DevOps, automating ML model deployment, management, and scaling in production. It promotes collaboration, reproducibility, and scalability for efficient development and maintenance of ML systems with consistent performance.

Necessity

Develop an intelligent forest fire prediction system that leverages machine learning classifier algorithms, such as logistic regression and random forest, while integrating MLOps principles for efficient and robust model development, deployment, and maintenance.

Dataset

The dataset consists of probabilities of forest fire occurring at various places, alongside parameters such as humidity, oxygen and temperature

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Model Training

Various classification models are trained to achieve the best results for classifying fire prediction.

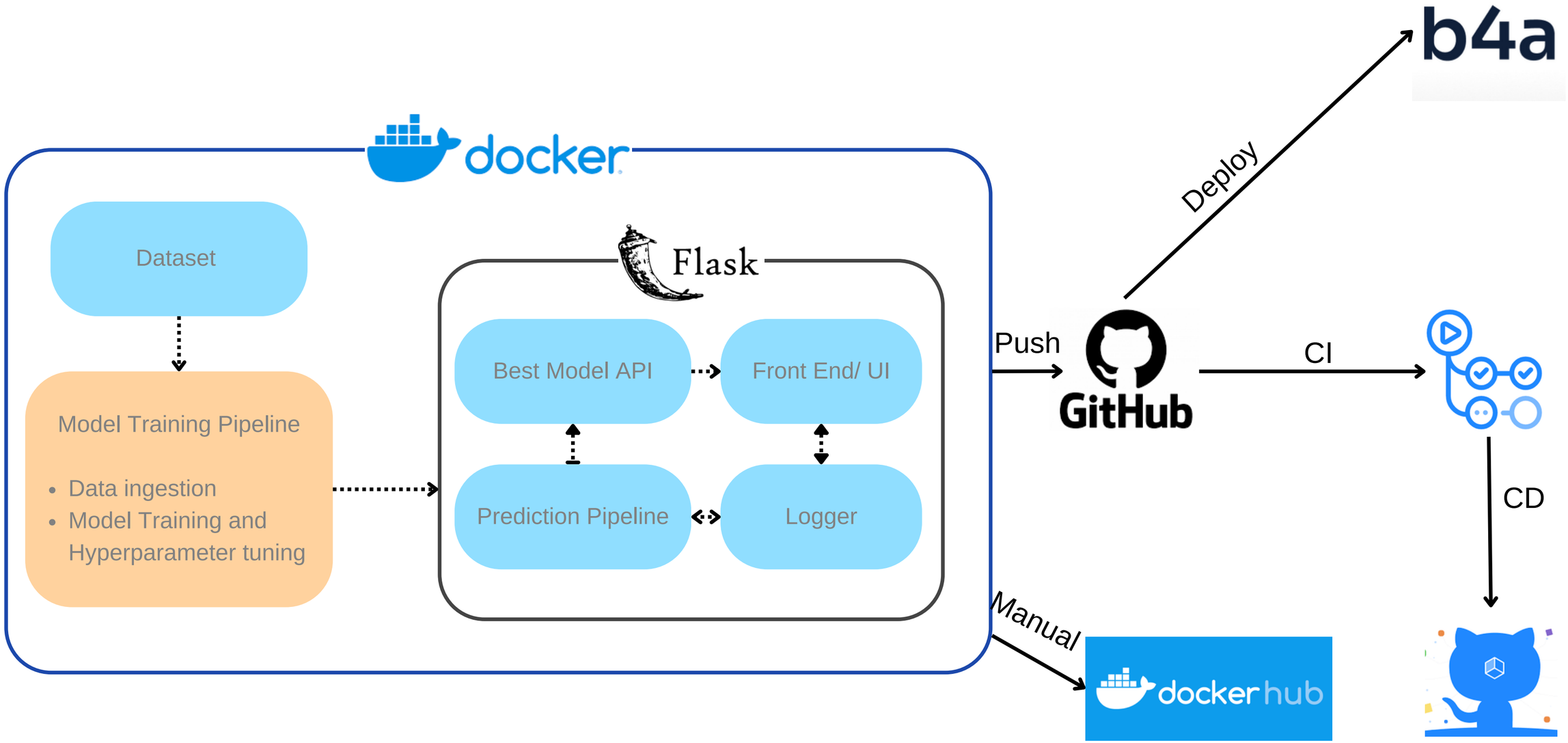
- Logistic Regression
- Support Vector Classifier
- Random Forest Classifier
- Naive Bayes
- LGBM Classifier

RESULTS

MODEL USED	ACCURACY OF EACH MODEL
LOGISTIC REGRESSION	83.3 %
LGBM CLASSIFIER	83.5 %
NAIVE BAYES	82.52 %
SVC	82.57 %
RANDOM FOREST	85.4 %

RandomForestClassifer achieved the highest accuracy amongst all models.

SYSTEM DESIGN



CONCLUSION

The forest fire prediction project leveraged ML algorithms and MLOps principles to build an accurate fire risk assessment system. MLOps ensured data compatibility, quality, reproducibility, and scalability, demonstrating its potential in fire management applications.

THANK YOU