

CSE 4754 Bioinformatics

Ensemble Machine Learning Models for Tumor Sample Classification

TCGA: UCEC, KICH, LIHC, ESCA



Team Members

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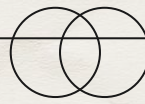
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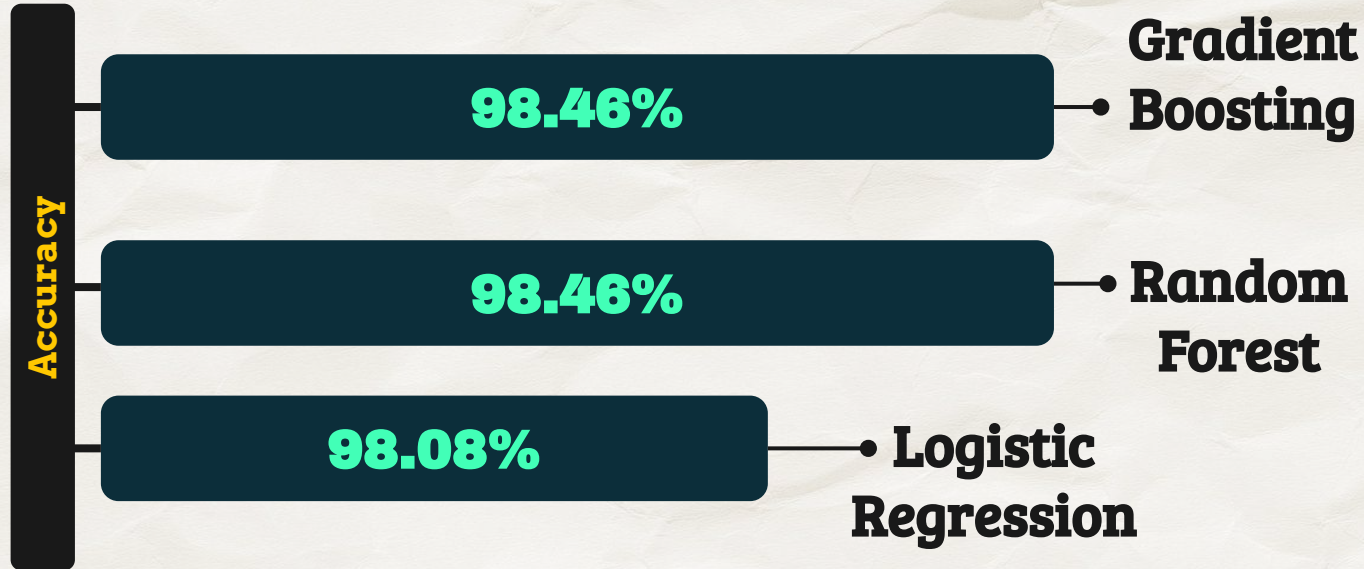
Introduction

Objective

Classification of UCEC, KICH, LIHC, ESCA tumor samples by tumor type using various types of machine learning models and ensembling them by max and avg voting.



Top 3 Models



Ensemble Learning

Max Voting

Each model in the ensemble makes a prediction for a given input, and the final prediction is determined by the mode of all the individual models.

Average Voting

Each model in the ensemble assigns a probability to each class for a given input. The final prediction is then determined by averaging these probabilities across all models.

Ensemble Learning Results

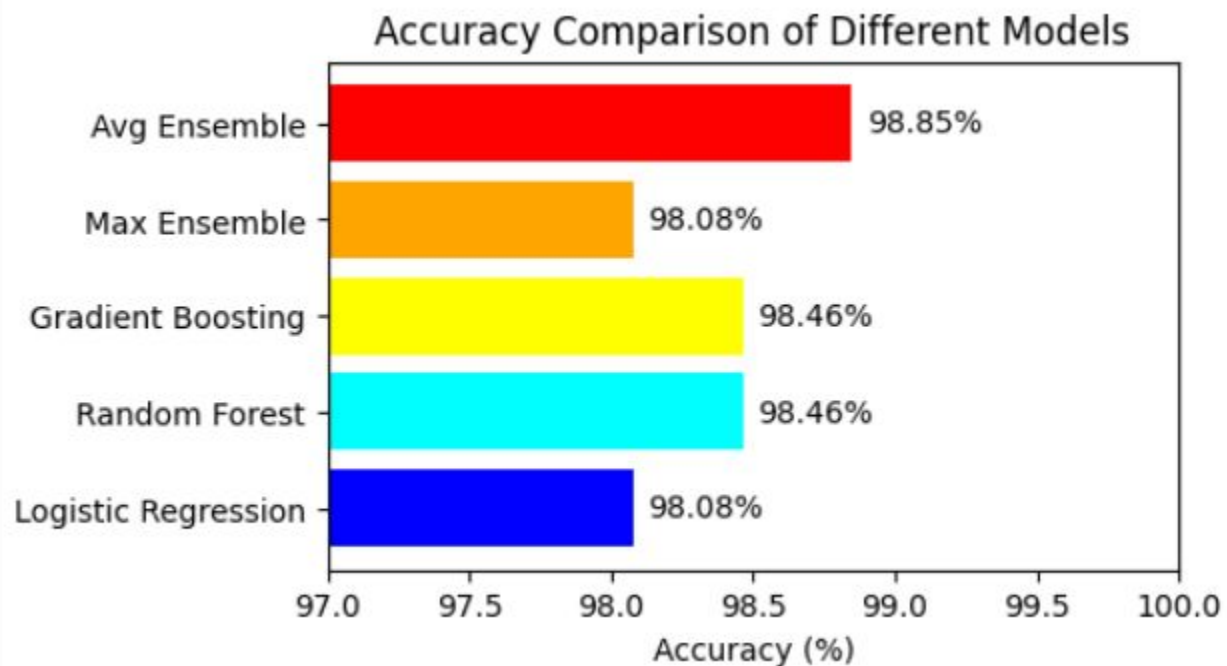
98.08%

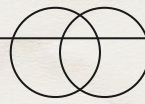
**Max
Voting**

98.85%

**Average
Voting**

Comparison





In conclusion, Average Voting Ensemble gave the best accuracy of 98.85%



Thank You!