



# Attention Deficit Hyperactivity Disorder (ADHD) Detection using ML

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TEAM TITLE  
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## INTRODUCTION

ADHD Overview  
Key Symptoms  
Early Detection  
Machine Learning Role  
Automated Detection

## DATASET & FEATURES FOR ADHD DETECTION

Synthetic Dataset  
Key Features  
ADHD Labels  
Data Split

## LIMITATION

- ◆ Data Quality and Availability
- ◆ Feature Selection
- ◆ Interpretability
- ◆ Overfitting
- ◆ Ethical Concerns
- ◆ Generalization to Diverse Populations
- ◆ Model Bias and Fairness
- ◆ Regulatory and Clinical Integration

## INTRODUCTION

### ◆ ADHD OVERVIEW

ADHD is a neurodevelopmental disorder affecting attention, impulsivity, and hyperactivity. Early diagnosis is crucial for effective treatment.

### ◆ KEY SYMPTOMS

Common symptoms include difficulty focusing, excessive movement, and impulsive behavior.

### ◆ EARLY DETECTION

Identifying ADHD early can lead to better management and support for affected individuals.

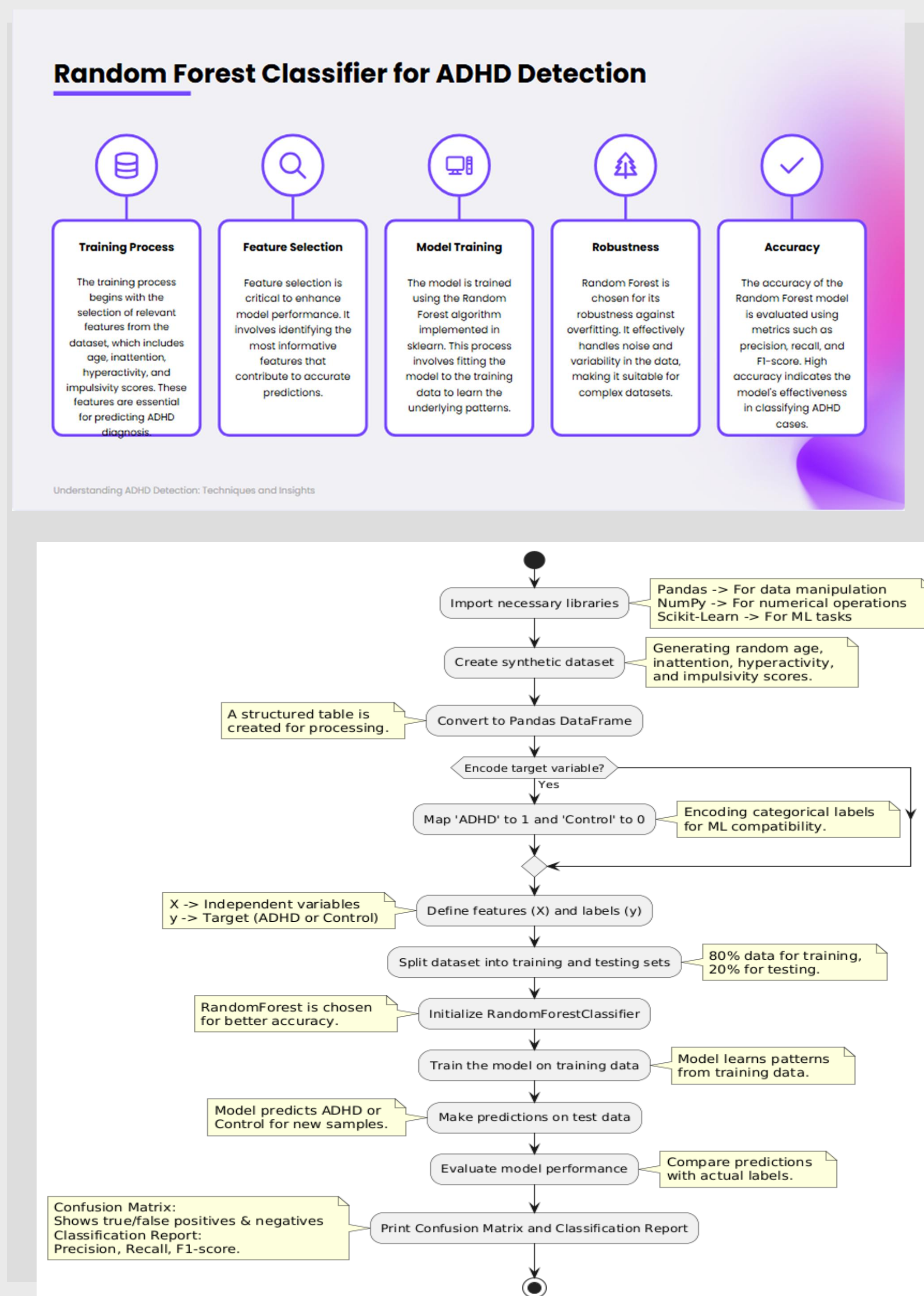
### ◆ MACHINE LEARNING ROLE

Machine Learning (ML) automates ADHD detection using behavioral data.

### ◆ AUTOMATED DETECTION

Automated systems can analyze patterns in data to assist in diagnosing ADHD more efficiently.

## METHODOLOGY



A BLOCK DIAGRAM: About the Methodology

## RESULTS

### ◆ Prediction of ADHD Diagnosis

Machine learning (ML) models can be trained to predict the likelihood of an individual having ADHD based on input features like behavioral data, medical history, and cognitive assessments..

### ◆ Identifying ADHD Subtypes

ML models can help identify different subtypes or manifestations of ADHD, such as inattentive, hyperactive-impulsive, or combined types. Clustering or classification models might categorize individuals based on symptoms, aiding in more personalized treatment options.

### ◆ Treatment Response Prediction

Some projects might focus on predicting how individuals with ADHD will respond to certain treatments (medications or behavioral therapies), potentially improving clinical decision-making.

### ◆ Improved Understanding of ADHD

By analyzing large datasets, ML models can highlight patterns that may not be immediately apparent to researchers, helping to refine the understanding of ADHD's underlying causes and how it manifests differently in different individuals.

## MATERIALS

Data Collection

Feature Selection

Model Training

Prediction

Evaluation

## CONCLUSIONS

In conclusion, while an ADHD machine learning project can lead to significant advancements in diagnosis, treatment, and understanding of ADHD, it faces challenges related to data availability, model interpretability, and ethical considerations. The success of such a project often depends on the careful management of these constraints

## LEARNING OUTCOMES

- ◆ Understanding Data Processing in ML
- ◆ Feature Engineering & Model Selection
- ◆ Training & Evaluating ML Models
- ◆ Real-World Application of ADHD Detection
- ◆ Deploying & Improving Models