Prediction of Sleep Disorders Using Data Analysis and Machine Learning

Comprehensive analysis of sleep health data, including disorders such as sleep apnea and insomnia, considering various factors such as BMI and profession.

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Problem Statement

Sleep disorders, such as insomnia and sleep apnea, disrupt sleep patterns and significantly impact physical and mental health. Despite their prevalence, diagnosing and managing these conditions remain challenging.

AIM

We aim to analyze sleep disorders using data science, improving understanding and treatment of irregular sleep patterns.

Why This Topic Matters

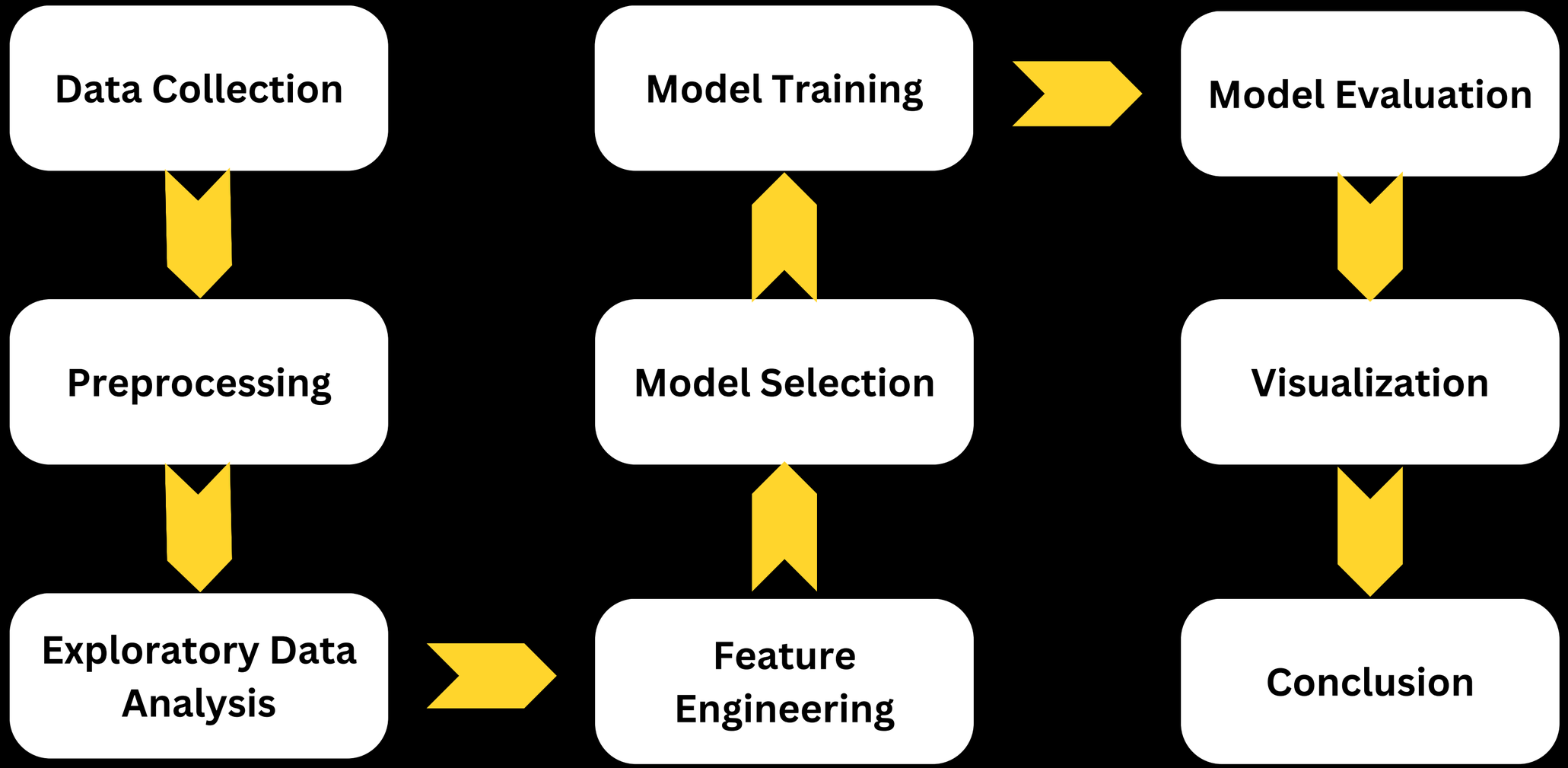
Understanding the Impact and Need

- **Critical for Health**
- **Prevalent and Overlooked**
- **Enhancing Solutions**

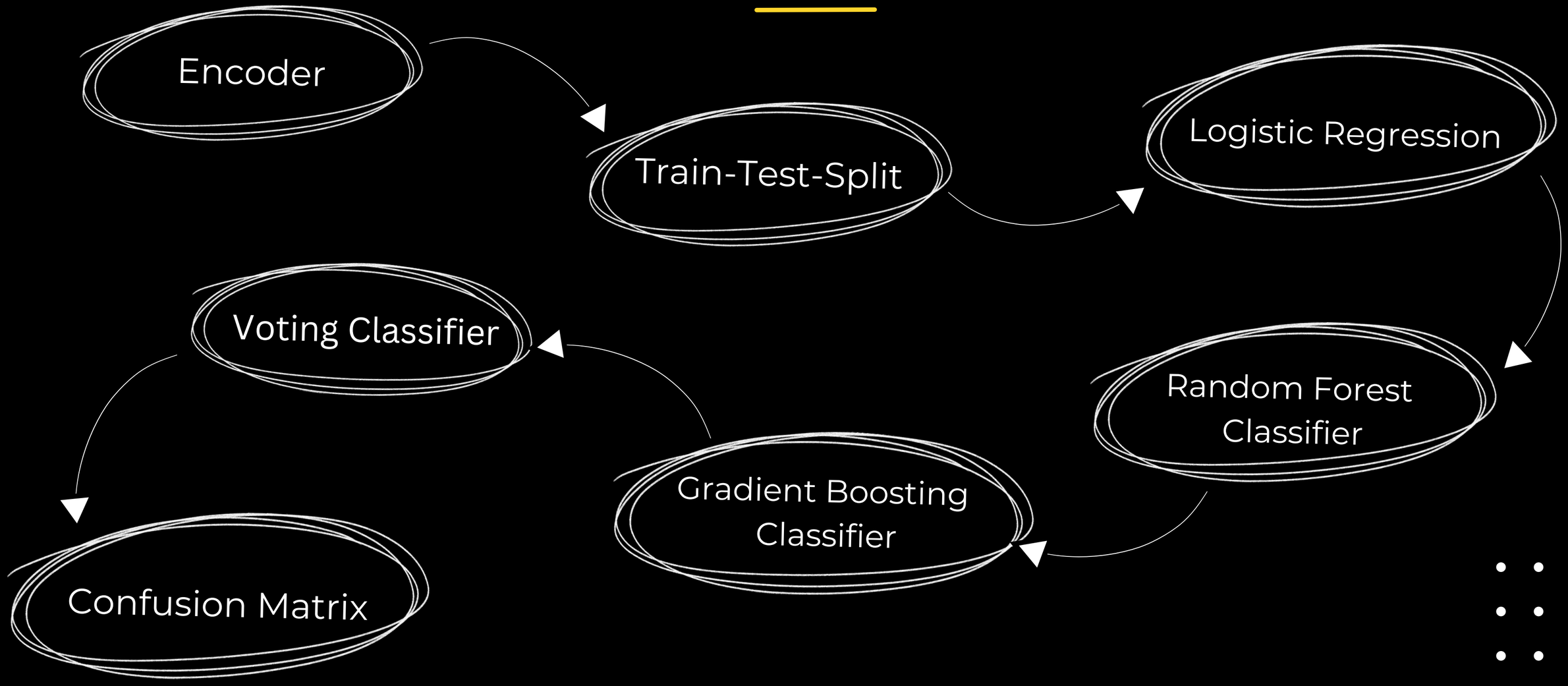
Tech Stack

- **Programming Languages:** Python
- **Libraries:** NumPy, Pandas, Scikit-learn, Matplotlib, Seaborn
- **Tools:** Power BI for visualization
- **Data source:** Kaggle

Project Workflow



Machine Learning Algorithms and Techniques



Visualisation and Classification

- Demographics
- Lifestyle
- Cardio-Vascular

CONCLUSION

Final Insights and Implications

- **Insightful Analysis**: Advanced techniques provided a deep understanding of sleep disorders and their predictors.
- **Powerful Ensemble**: Integrating multiple models, the Voting Classifier delivered superior accuracy and reliability.
- **Robust Metrics**: High F1 Scores, Recall, and ROC-AUC demonstrate the model's effectiveness in early detection.
- **Impactful Tool:** This project offers a valuable solution for managing and improving sleep

THANK YOU!

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