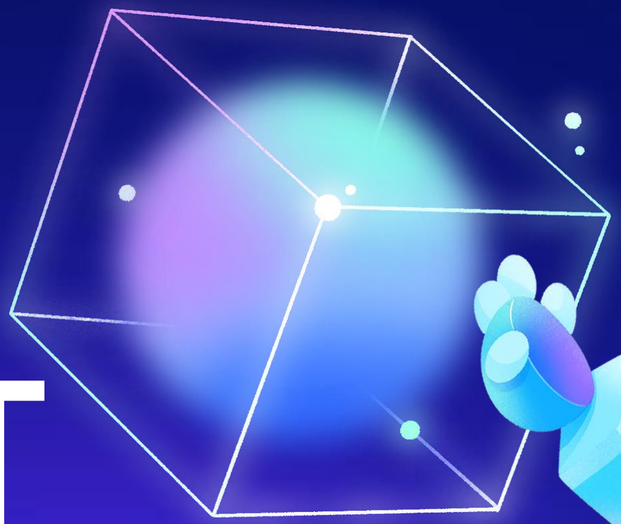
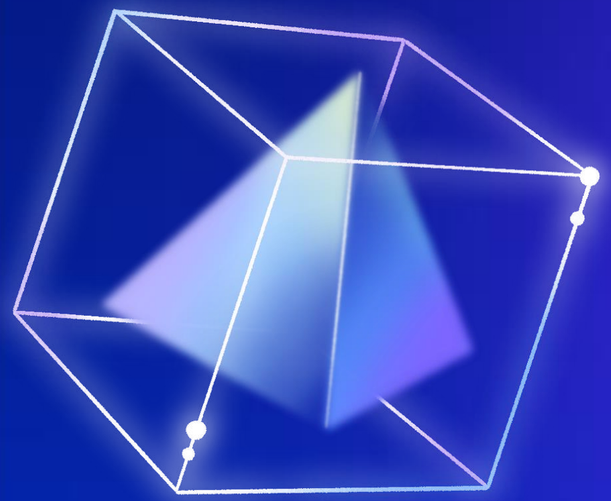
MACHINE LEARNING

# PROJECT





Sleep Disorder Detector using Supervised Machine Learning

# CSE-4878
# MACHINE LEARNING & DATA MINING LAB

**PREPARED FOR:**
**Mr. Md. Mahiuddin**
**Associate Professor**
**Dept. of CSE, IIUC**

# Meet Our Team

## SleepyHeads

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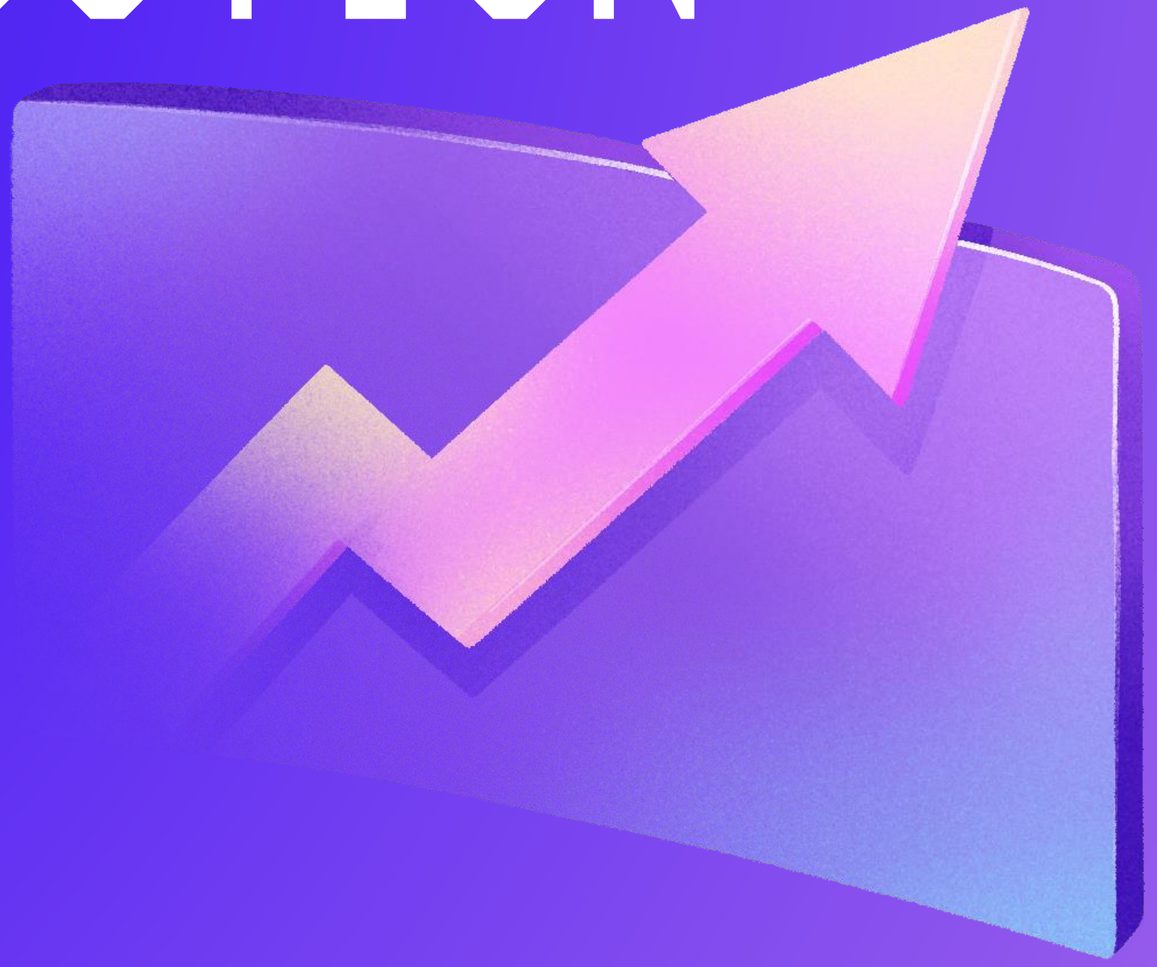
# INTRODUCTION

Sleep plays a crucial role in our overall physical and mental well-being. This project is designed to empower individuals by offering them personalized insights into their sleep health.



# PROJECT BENIFITS

01

Personalized Insights: Gain a deeper understanding of your sleep health and potential risks.


02

Sleep Disorder Awareness: Raise awareness of common sleep disorders like insomnia and sleep apnea.

03

User-Friendly Interface: Easy access and interpretation of sleep health data through a user-friendly interface.

# Why ML?

## Limitations of Traditional Methods

- Costly sleep studies.
- Time-consuming procedures.
- Requirement for specialized equipment.
- Complexity of interpreting data, often requiring medical expertise.

## Power of ML

- Machine learning automates data analysis, making it faster and more accessible.
- ML models can learn from vast datasets, providing more nuanced insights.

# Methodology

## 1.Data Acquisition

Collect relevant sleep and lifestyle datasets from kaggle, a public repository of datasets.

## 2.Data Cleaning

Combine and merge datasets for a comprehensive analysis.

## 3.Data Preprocessing

Save the cleaned data as a binary file in colab for efficient access.

## 4.Model Training

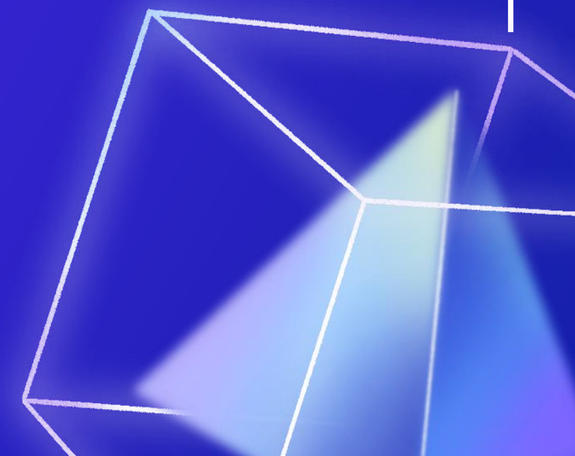
Select the algorithm with the best classification accuracy.

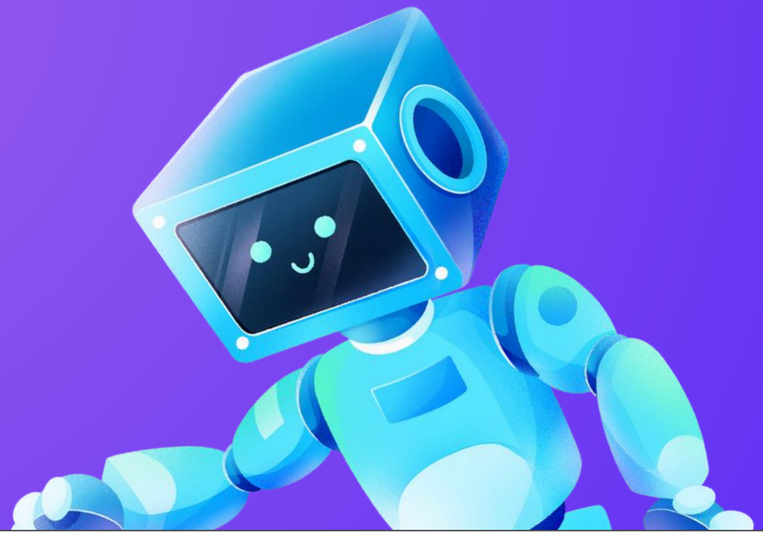
## 5.Model Serialization

Use pickle to save the trained model as "classifier. Pkl".

## 6. Website Development

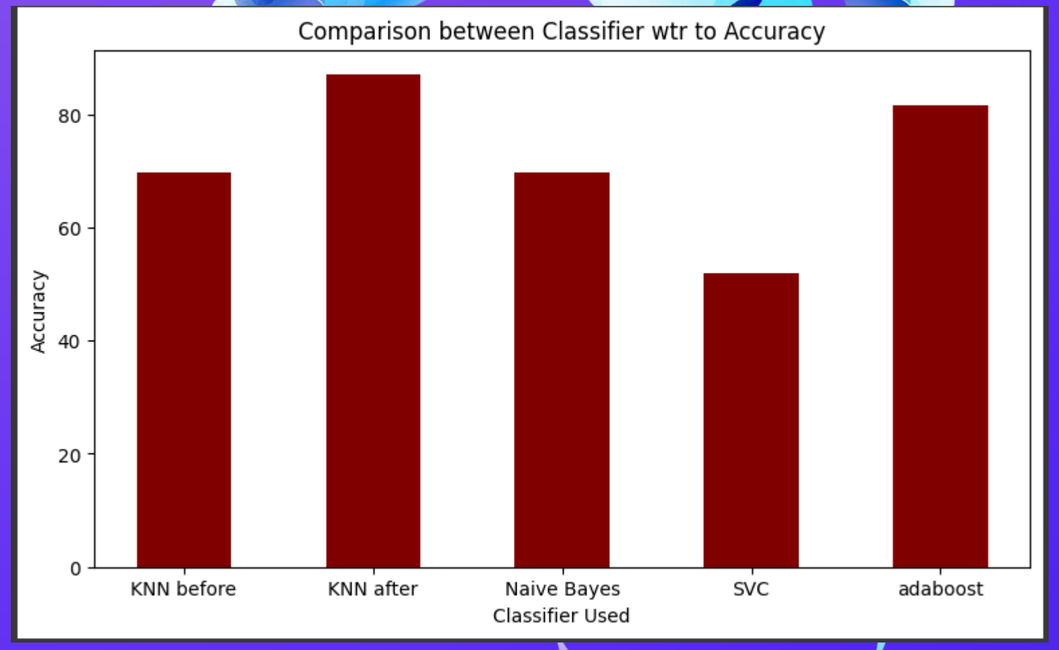
Build the interface, which is user-friendly and have dedicated output pages.





# Result

We achieved an 87.85 accuracy with the KNN After machine learning model.




```
knn2 = KNeighborsClassifier(n_neighbors=5)
knn2.fit(x_train,y_train)
pred_knn2 = knn2.predict(x_test)
KNN2 = accuracy_score(pred_knn2,y_test)*100
ki2 = {'KNN after':KNN2}
AccDict.update(ki2)
print(KNN2)

Accuracy - 87.05688375927453
```

# Conclusion

In summary, this project effectively showcases the potential of artificial intelligence in improving the accessibility and efficiency of sleep analysis. The user-friendly website empowers individuals to proactively manage their sleep health by providing valuable insights and increasing awareness of potential sleep disorders. We anticipate further advancements by integrating additional data sources and expanding the website's capabilities to provide personalized recommendations for enhancing sleep quality.

# THANK YOU!