**Detection of obstructive sleep apnea**

**Group Number: 8**

**Group members: Sri Kalyan Reddy Akiti**

**Motivation**: The motivation for detecting obstructive sleep apnea is to help people who may have trouble breathing while they sleep. By finding these cases early, we can provide treatments that make them feel better and prevent other health problems. Using machine learning technology, we aim to make it easier and more convenient to find these issues, improving overall health and understanding of sleep disorders.

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**Problem Definition**:

Input: ECG Signal features

Output: Normal /Anomaly Binary classification

**Data:** <https://www.kaggle.com/datasets/ronitf/apnea-disease>

dataset with various features related to patients, including EEG signal amplitudes in different frequency bands, hair phenotype, heart rate, skin conductance, skin temperature, cortisol level, blood pressure, and apnea severity. Each row in the dataset represents data for a single patient. The values in each column represent measurements or characteristics for that patient.

**Proposed method/algorithm**:

I plan to test various classification algorithms to assess their accuracy and select the most effective one.

**Related work/Existing Methods:**

Doctors typically examine patient data to determine if an individual has a particular disease or not, relying on human expertise. However, machine learning can be incorporated to solve this problem with the highest possible accuracy, analyzing reported data to determine whether a person has a disease or not. Different researchers have employed various algorithms, including neural networks, to address the problem. The primary objective is to develop a model capable of performing tasks that doctors traditionally handle.

**Evaluation:**

Accuracy of previous models from research papers ranges between 80 – 90.

**References:**

[1] https://ieeexplore.ieee.org/document/9923904

[2] https://www.sciencedirect.com/science/article/abs/pii/S1746809423000149?via%3Dihub

[3] https://dblp.org/search?q=Detection+of+obstructive+sleep+apnea+