SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
Deemed to be **University** *u/s 3 of UGC Act, 1956*

PREDICTION OF PARKINSON'S DISEASE

21CSC305P - MACHINE LEARNING

REVIEW - 3

BATCH 12 :-

P. DIMPUL DURGA - RA2211003011478

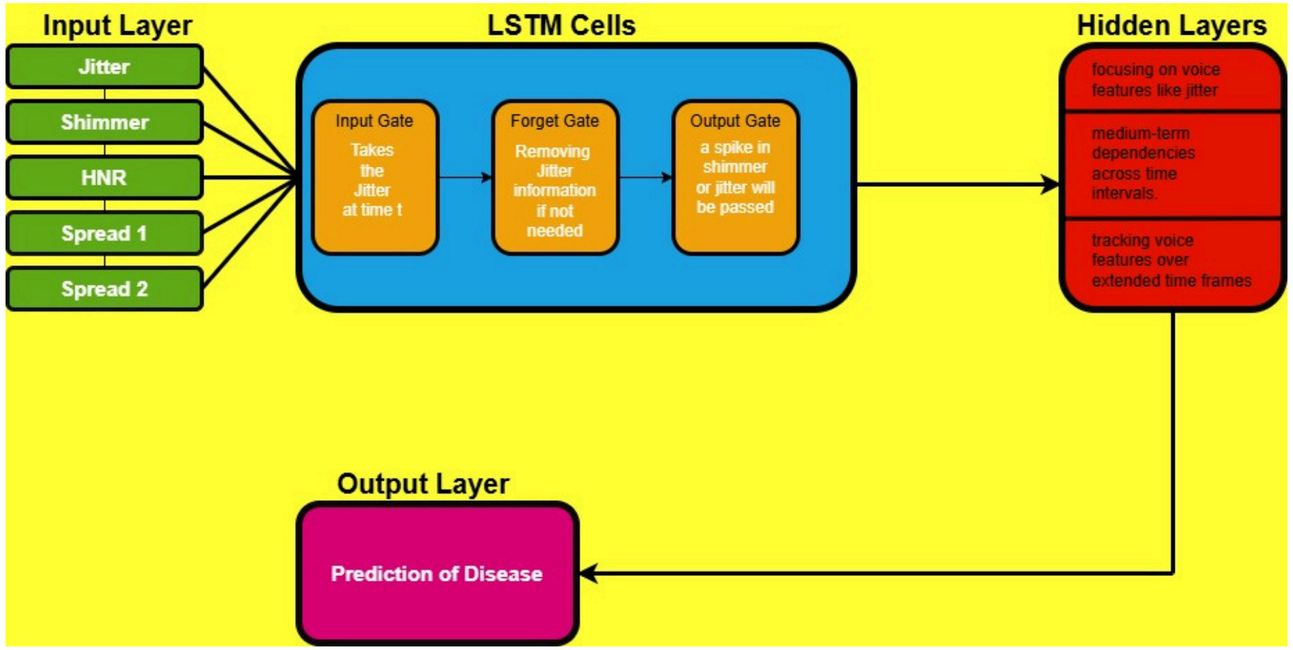
K. SAILAGA - RA2211003011482

T. RAGHU - RA2211003011483

K. CHARMI AKSHITA - RA2211003011485

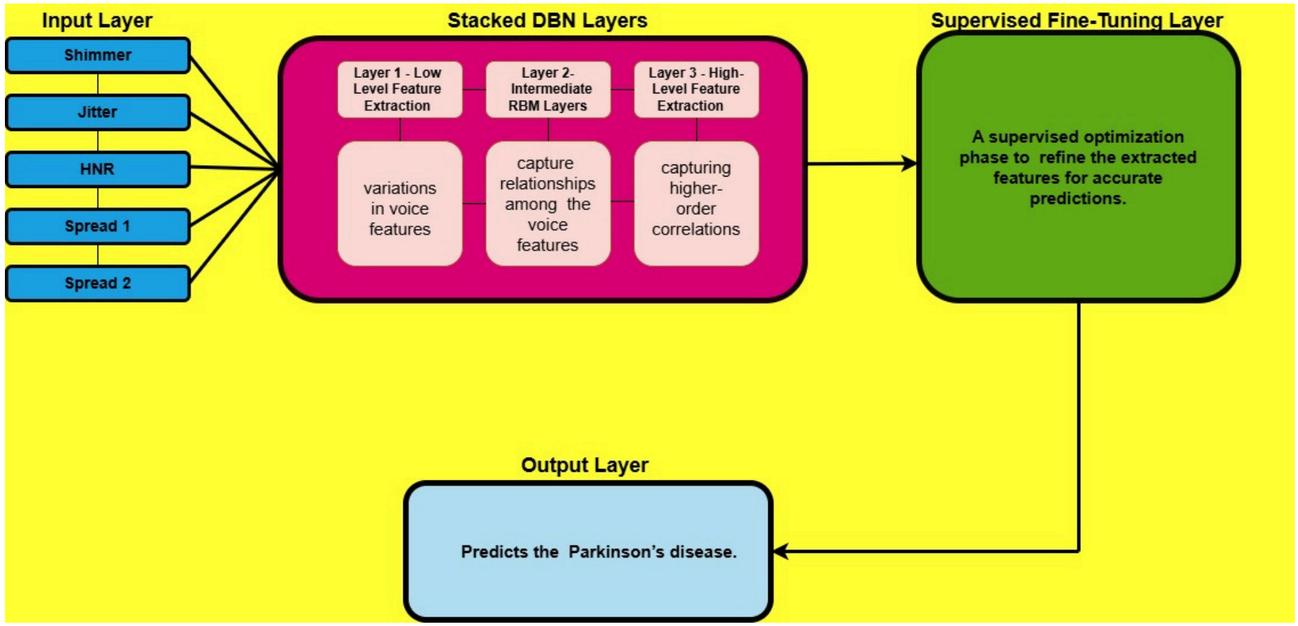
DEEP LEARNING METHODS

Long Short-Term Memory (LSTM) networks are a specialized type of recurrent neural network (RNN) designed to handle and retain information across long sequences, addressing the issue of vanishing gradients that limits standard RNNs. Each LSTM cell contains three gates—input, forget, and output—that control the flow of information, enabling the network to selectively remember or discard information as needed. This architecture allows LSTMs to capture dependencies over extended time periods, making them ideal for tasks involving sequential data such as language processing, time-series forecasting, and speech recognition. By maintaining a cell state that evolves over time, LSTMs can retain important historical data while processing new information, which is especially useful for applications like demand forecasting, anomaly detection, and text generation.



DEEP LEARNING METHODS

A Deep Belief Network (DBN) is a type of deep neural network composed of multiple layers of stochastic, unsupervised networks, commonly known as Restricted Boltzmann Machines (RBMs). Each layer in a DBN learns to represent the features of the input data in a progressively more abstract way, making DBNs highly effective at capturing complex patterns. DBNs are typically pre-trained layer by layer in an unsupervised fashion, where each layer learns from the hidden representations of the previous one. This approach helps the network build hierarchical feature representations, which can then be fine-tuned with supervised learning for specific tasks. DBNs have been successfully applied in areas such as image and speech recognition, where they can recognize and generate patterns within data, though they have largely been supplanted by more advanced deep learning models like convolutional and recurrent neural networks due to computational efficiency and scalability. Nonetheless, DBNs remain important for foundational understanding in deep learning, especially in learning and feature extraction.



OUTPUT

```python
import numpy as np  # Importing numpy

# Modified input data that might lead to predicting Parkinson's disease
input_data = (230.07600,245.89600,220.05500,0.00889,0.00012,0.00766,0.00868,0.01498,0.02598,0.15000,0.01263,0.01580,0.02002,0.03089,0.00839,20.77500,0.322229,0.541367,-9.348300

# changing input data to a numpy array
input_data_as_numpy_array = np.asarray(input_data)

# reshape the numpy array
input_data_reshaped = input_data_as_numpy_array.reshape(1,-1)

# standardize the data
std_data = scaler.transform(input_data_reshaped)

prediction = model.predict(std_data)
print(prediction)

if (prediction[0] == 0):
    print("The Person does not have Parkinson's Disease")
else:
    print("The Person has Parkinson's")
```

```
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 19ms/step
[[0.]]
The Person does not have Parkinson's Disease
```

FRONT END OUTPUT