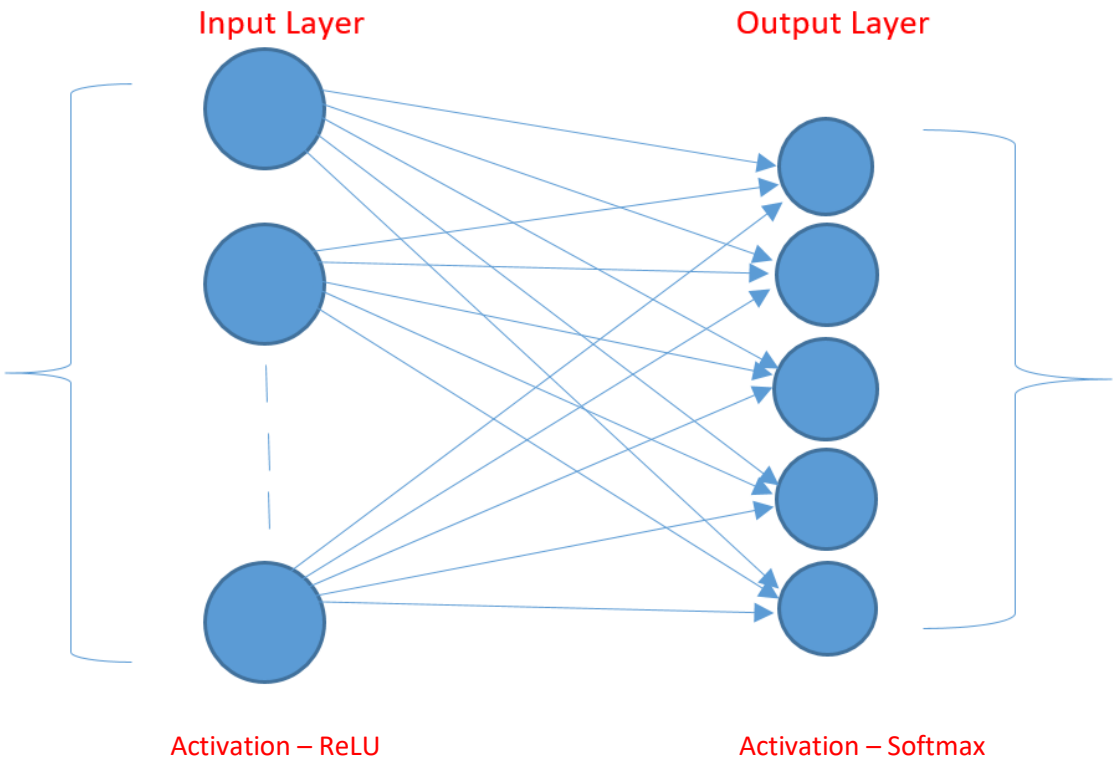
Artificial Neural Networks in Sleep Stage Prediction Model

Phase – 1

Architecture



Input layer – 28 neurons

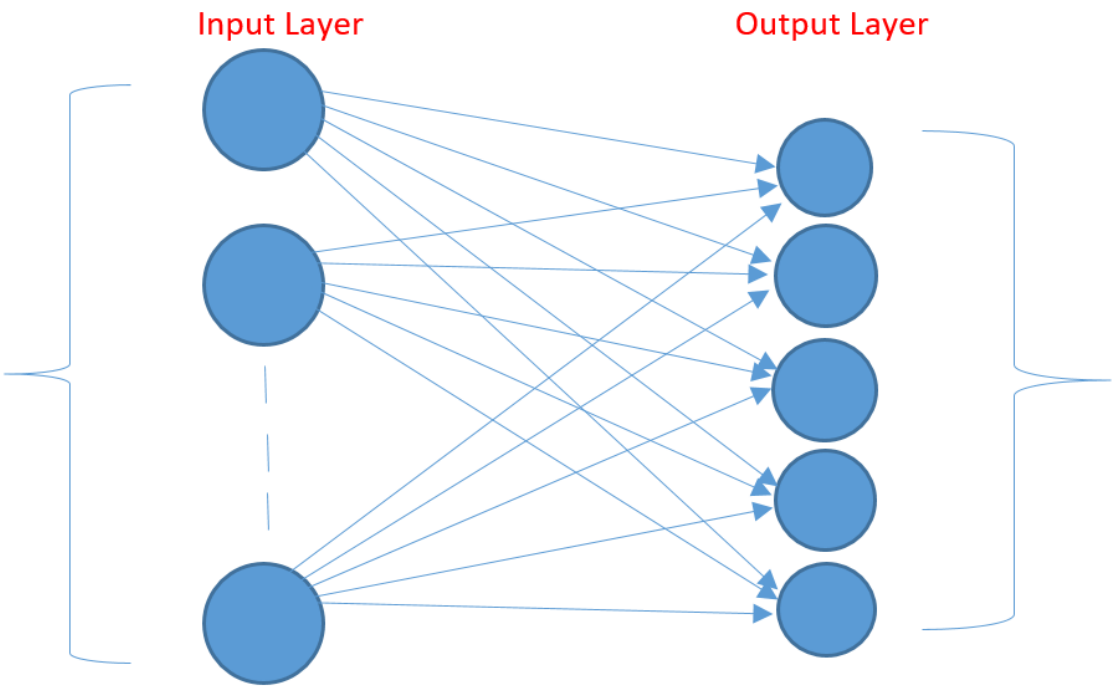
Output layer – 5 neurons

Classification Report

	precision	recall	f1-score	support
0	0.92	0.93	0.92	7621
1	0.73	0.24	0.37	444
2	0.64	0.29	0.40	1834
3	0.75	0.56	0.64	1632
4	0.60	0.20	0.30	969
micro avg	0.86	0.70	0.78	12500
macro avg	0.73	0.44	0.53	12500
weighted avg	0.82	0.70	0.74	12500
samples avg	0.70	0.70	0.70	12500

Phase – 2

Architecture



Input Layer – 42 neurons

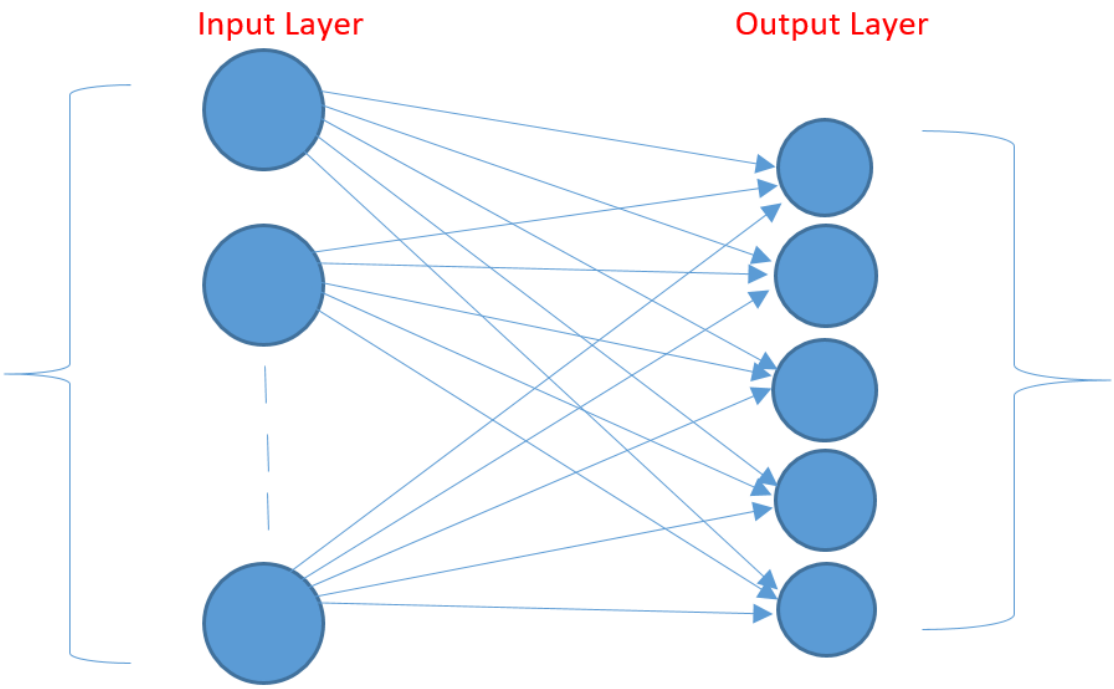
Output Layer – 5 neurons

Classification Report

	precision	recall	f1-score	support
0	0.92	0.94	0.93	7621
1	0.74	0.23	0.35	444
2	0.67	0.50	0.57	1834
3	0.73	0.63	0.68	1632
4	0.73	0.23	0.35	969
micro avg	0.86	0.76	0.80	12500
macro avg	0.76	0.51	0.58	12500
weighted avg	0.84	0.76	0.78	12500
samples avg	0.76	0.76	0.76	12500

Phase – 3

Architecture



Input Layer – 210 neurons

Output Layer – 5 neurons

Classification Report

	precision	recall	f1-score	support
0	0.98	0.95	0.96	7621
1	0.87	0.74	0.80	444
2	0.79	0.81	0.80	1834
3	0.90	0.82	0.86	1632
4	0.87	0.69	0.77	969
micro avg	0.93	0.89	0.91	12500
macro avg	0.88	0.80	0.84	12500
weighted avg	0.93	0.89	0.91	12500
samples avg	0.89	0.89	0.89	12500