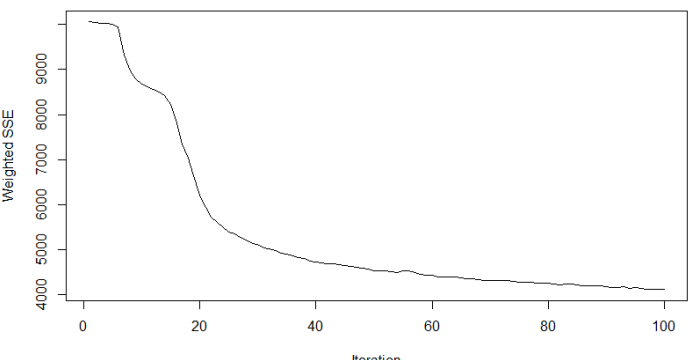


- mnist data sdr로 차원축소 후 mlp 예측 모델 만들기

1. sdr data로 mlp fitting

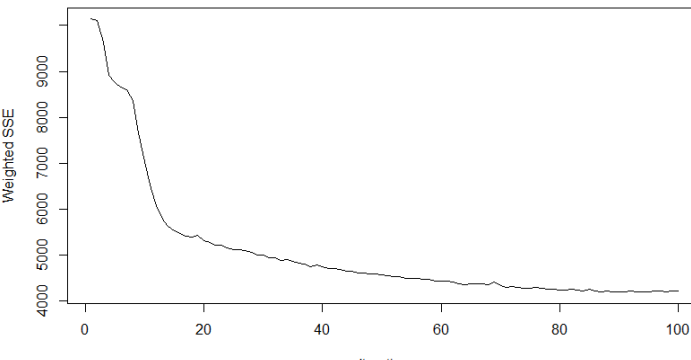
- ✓ learning rate = 0.1, hidden layer 3개, 각 노드 개수 10개

시간: 20.39604 mins

Confusion matrix	정분류율
<pre> y tes 1 2 3 2 953 617 254 5 219 740 647 9 338 1056 437 </pre>	0.404866
Plot the iterative training and test error of the net	
	

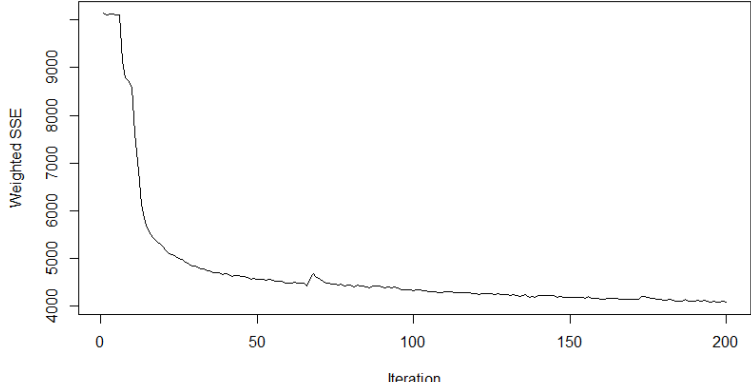
- ✓ learning rate = 0.5, hidden layer 3개, 각 노드 개수 10개, learning function = "Std_Backpropagation", maxiter = 100

시간: 20.86326 mins

Confusion matrix	정분류율
<pre> y tes 1 2 3 2 885 814 125 5 193 1170 243 9 352 1275 204 </pre>	0.429386
Plot the iterative training and test error of the net	
	

- ✓ learning rate = 0.5, hidden layer 3개, 각 노드 개수 (10,10,5), learning function = "Std_Backpropagation", maxiter = 200

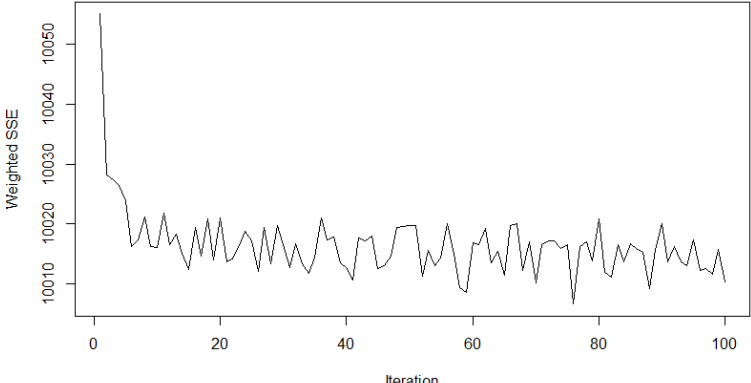
시간: 20.45736 mins

Confusion matrix	정분류율
<pre> y. tes 1 2 3 2 1232 340 252 5 396 607 603 9 678 542 611 </pre>	0.4656909
Plot the iterative training and test error of the net	
	

2. dr data로 mlp fitting

- ✓ learning rate = 0.1, hidden layer 3개, 각 노드 개수 10개

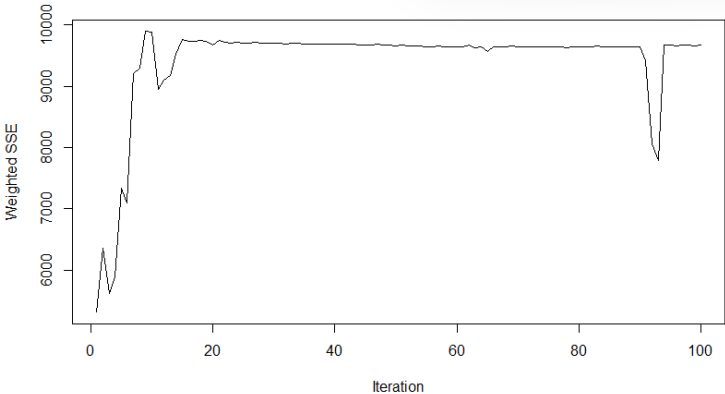
시간: 40.27718 secs (가장 빠름)

Confusion matrix	정분류율
<pre> y. tes 1 3 2 1824 0 5 1599 7 9 1815 16 </pre>	0.3480327
Plot the iterative training and test error of the net	
	

3. original data로 mlp fitting

✓ learning rate = 0.1, hidden layer 3개, 각 노드 개수 (300, 100, 10), learning function = "Std_Backpropagation", maxiter = 100

시간: 53.8476 mins

Confusion matrix	정분류율
<pre>y. tes 1 2 3 2 76 9 1739 5 16 143 1447 9 15 2 1814</pre>	0.3864284
Plot the iterative training and test error of the net	
	

- 간단한 데이터에서 sdr로 차원축소 후 SVM, logistic regression 예측 모델 만들기

Data: parkinsons (n=195, p=22) -> train set : 150개, test set: 45개로 사용

1. SVM

1) P=2로 sdr 후 fitting

Confusion matrix	정분류율
<pre> predictions 0 1 0 0 4 1 10 31 </pre>	0.6888889

2) p=3로 sdr 후 fitting

Confusion matrix	정분류율
<pre> predictions 1 2 1 0 0 2 10 35 </pre>	0.7777778

3) p =10로 sdr 후 fitting

Confusion matrix	정분류율
<pre> predictions 1 2 1 0 0 2 10 35 </pre>	0.7777778

4) original data로 fitting

Confusion matrix	정분류율
<pre> predictions 0 1 0 6 0 1 4 35 </pre>	0.9111111

Original data로 예측한 결과가 가장 좋았음 -> 해결해야함

2. logistic regression

: 데이터의 n 이 너무 작아서 fitting이 binary하게 되지 않음