Report for Lab 2
Learning and convolutional neural networks

[redacted]

Ex 2.7

Figure 1. The Results after Applying Function sliding_window

Ex 2.8

Figure 2. The Results after Applying Function strict_local_maxima

Ex 2.17

There are more errors when learning rate is reduced from 0.001 to 0.0001, since loss function hasn't arrived its local minimum when the learning rate is too low.

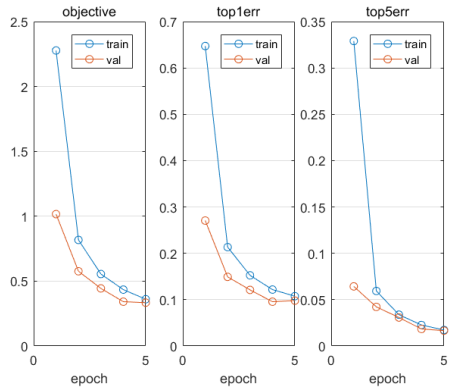

Figure 3. Errors at Learning Rate 0.001

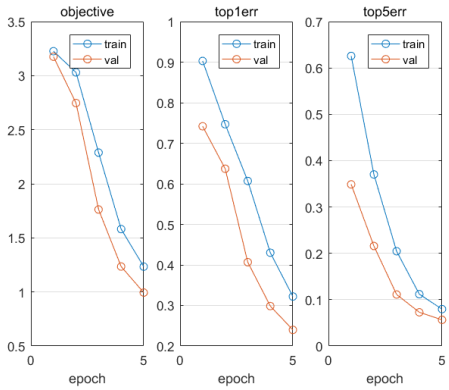

Figure 4. Errors at Learning Rate 0.0001

Ex 2.18 - 2.20

Recall and precision of given network and my network are shown in Table 1. We did not improve the result.

Characters	Recall		Precision	
	Given Network	**My Network**	**Given Network**	**My Network**
a	**0.91**	0.88	**0.95**	0.90
b	**0.92**	0.91	**0.91**	0.89
c	**0.92**	0.87	**0.86**	**0.86**
d	**0.90**	0.88	**0.94**	**0.94**
e	**0.89**	0.81	**0.91**	0.87
f	**0.97**	**0.97**	**0.76**	0.72
g	**0.86**	0.84	**0.96**	0.91
h	**0.89**	0.86	**0.95**	0.92
i	0.80	**0.84**	**0.94**	0.88
j	**0.93**	0.90	**0.96**	0.95
k	**0.93**	0.88	**0.93**	**0.93**
l	**0.90**	**0.90**	0.80	**0.82**
m	**0.94**	0.92	**0.96**	0.95
n	**0.91**	**0.91**	**0.95**	0.87
o	**0.93**	0.91	**0.87**	0.83
p	**0.96**	0.94	**0.94**	**0.94**
q	**0.94**	0.92	**0.94**	**0.94**
r	**0.86**	0.83	**0.94**	0.87
s	**0.95**	0.93	0.82	**0.88**
t	**0.89**	0.88	**0.92**	0.95
u	**0.92**	0.87	**0.95**	**0.95**
v	0.87	**0.88**	**0.96**	**0.96**
w	**0.94**	**0.94**	**0.96**	0.95
x	**0.96**	0.94	**0.91**	0.86
y	**0.94**	0.93	**0.91**	0.90
z	**0.93**	0.91	**0.94**	**0.94**

Table 1. Recall and Precision of Given Network and My Network