This homework is done by Tianwei Mo.

1. 256\*256\*100
2. 40\*80\*2400
3. 32\*300\*512\*512
4. K1 and k2 are in [0, 1]
5. 5\*4
6. The largest positive Z[I, j] appears when X[I, j] and X[i+1, j] are the biggest and X[I, j+1] and X[i+1, j+1] are the smallest. That is 3 + 3 = 6 when I = [1, 2, 3, 4] and j = 3.
7. The largest negative Z[I, j] appears when X[I, j] and X[i+1, j] are the smallest and X[I, j+1] and X[i+1, j+1] are the biggest. That is -3 + -3 = -6 when I = [1, 2, 3, 4] and j = 0.
8. Z[I, j] = 0 when I, j = [0, 1], [0, 2], [1, 1], [1, 2]
9. Z has shape [46, 62, 20]. U has the same shape as Z.
10. The number of input channels is [48, 64, 10]. The number of output channels is [46, 62, 20]
11. For each z, there are k1+k2+n multiplications. The total number is (3+3+10)\*46\*62\*20=912640
12. 3\*3\*10\*20+20=1820
13. Dj/dz = dj/du \* du/dz = dj/du \* (exp(-z)/(1+exp(-z))^2)
14. Dj/dw = dj/dz \* dz/dw = dj/dz \*
15. Dj/dx = dj/dz \* dz/dx = dj/dz \*
16. Y = [1, 3, 0, 1]
17. Y = [2, 3, 10, 1]
18. Y[I, j, n] =