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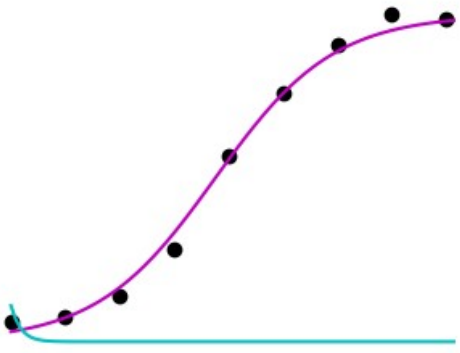
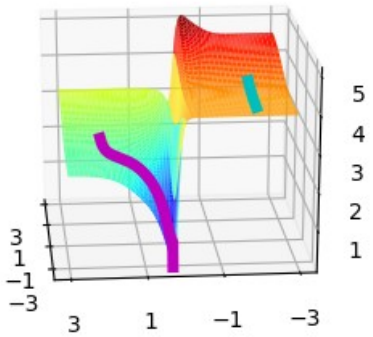
BLG 454E ASSIGNMENT 2

Part1:

The added/ changed code statement	Explanation
one = 1/(1 + my_exp(-np.dot(X,w))) - y	σ(x Tp w)−yp
two = one + y	σ(x Tp w)
three = np.ones(y.shape) - 1/(1 + my_exp(-np.dot(X,w)))	(1−σ(x Tp w))x p̃
regsum = 2 * np.sum(one*two*three*X, axis=0)	To sum all gradients
grad = regsum[np.newaxis,:].T	To increase the dimension of array





Part2:

The added/ changed code statement	Explanation
w_reg = np.empty(w.shape)	
one = 1/(1 + my_exp(-np.dot(X,w))) - y	
two = one + y	
three = np.ones(y.shape) - 1/(1 + my_exp(-np.dot(X,w)))	
reg = 2 * np.sum(one*two*three*X, axis=0)	
w_reg[:] = w[:]	w_reg is equal to copy of entire w
w_reg[0] = 0	Bias is equalized to zero
grad = tmp[np.newaxis,:].T + 2*lam*w_reg	Normalize