

**CS224N: NATURAL LANGUAGE PROCESSING WITH DEEP LEARNING**  
**ASSIGNMENT #2**

ANTHONY HO

1.
  - (a) Please see the coding portion of the assignment.
  - (b) Please see the coding portion of the assignment.
  - (c) The purpose of the placeholder variables is to allocate storage for data/labels before building the computation graph. The feed dictionaries allows us to inject data/labels into the placeholders in a computation graph.  
Please see the coding portion of the assignment for implementation.
  - (d) Please see the coding portion of the assignment.
  - (e) When the model's `train_op` is called, (1) it creates a gradient descent optimizer; (2) it calls `add_loss_op` to compute the cross entropy loss based on the data, labels, and current values of the variables `W` and `b`; (3) it computes the gradients w.r.t the loss via automatic differentiation; (4) and at the end it updates the values of the variables `W` and `b` in the direction of the gradient and in proportion to the learning rate as defined in `Config`.  
Please see the coding portion of the assignment for implementation.
2.
  - (a)
  - (b)
  - (c)
  - (d)
  - (e)
  - (f)
  - (g)
  - (h)
  - (i)
3.
  - (a)
  - (b)
  - (c)
  - (d)
  - (e)
  - (f)