1. What are Channels and Kernels (according to EVA)?
   * *Answer :*
     + *Channels in a Neural networks are the carrier of a particular feature of an image. Each channel ignore the orther attributes of a feature and is interested only on the feature it carries forward.*
     + *Kernel (or Feature extracter) is the matrix which convolves on the input to extract features. Every channels will have a particular kernel in each layer.*
2. Why should we (nearly) always use 3x3 kernels?
   * *Answer:*
     + *It is always preferable to use a odd number sized kernel as it can support left/right/middle and top/bottom/middle feature extraction contrary to even sized kernel.(Symmetric)*
     + *We use 3x3 Kernels because:*
       - *We can go upto smaller receptive field to capture smaller and complex features of an image*
       - *With smaller receptive fields we can use more number of features*
       - *Less number of parameters required (compared to 5x5 or 7x7 or more) with same*
         * *To reduce the dimension by 4, 5x5 uses 25 parameters, whereas two 3x3 will use (9+9)  = 18 Parameters Without biases*
         * *To reduce the dimension by 6, 7x7 uses 49 parameters, whereas three 3x3 will use (9+9+9)  = 27 Parameters Without biases*
       - *Most graphics card nowadays are accelerated on 3x3 Kernels.*
3. How many times to we need to perform 3x3 convolutions operations to reach close to 1x1 from 199x199 (type each layer output like 199x199 > 197x197...)
   * *Answer : 99 Layers  : (199-1)/2*
   * *Layers : 199x199 > 197x197 > 195x195 > 193x193 > 191x191 > 189x189 > 187x187 > 185x185 > 183x183 > 181x181 > 179x179 > 177x177 > 175x175 > 173x173 > 171x171 > 169x169 > 167x167 > 165x165 > 163x163 > 161x161 > 159x159 > 157x157 > 155x155 > 153x153 > 151x151 > 149x149 > 147x147 > 145x145 > 143x143 > 141x141 > 139x139 > 137x137 > 135x135 > 133x133 > 131x131 > 129x129 > 127x127 > 125x125 > 123x123 > 121x121 > 119x119 > 117x117 > 115x115 > 113x113 > 111x111 > 109x109 > 107x107 > 105x105 > 103x103 > 101x101 > 99x99 > 97x97 > 95x95 > 93x93 > 91x91 > 89x89 > 87x87 > 85x85 > 83x83 > 81x81 > 79x79 > 77x77 > 75x75 > 73x73 > 71x71 > 69x69 > 67x67 > 65x65 > 63x63 > 61x61 > 59x59 > 57x57 > 55x55 > 53x53 > 51x51 > 49x49 > 47x47 > 45x45 > 43x43 > 41x41 > 39x39 > 37x37 > 35x35 > 33x33 > 31x31 > 29x29 > 27x27 > 25x25 > 23x23 > 21x21 > 19x19 > 17x17 > 15x15 > 13x13 > 11x11 > 9x9 > 7x7 > 5x5 > 3x3 > 1x1*
4. How are kernels initialized?
   * *Answer : The kernels are initialized randomly using the gaussian distribution centered around 0. So the values are more frequent near to 0 compared to more positive or negative values.*
5. What happens during the training of a DNN?
   * *During the Training of DNN:*
     + *Initially the weights are initialized and the output is calcualted based on the input, weights and biases,this is caled a forward propagation*
     + *Then the Model compares the output and backpropagation happens. In back propagation, the delta of the Neural net calculated output is compared with the actual output and the delta is used to adjust weights soa as to decrease the loss.*
     + *one pair of forward and back propagation is called an epoch. After every epoch, the next calculated value of the network is expected to move closer towards the actual value.*
     + *We specify how many epochs the DNN is supposed to be trained for.*