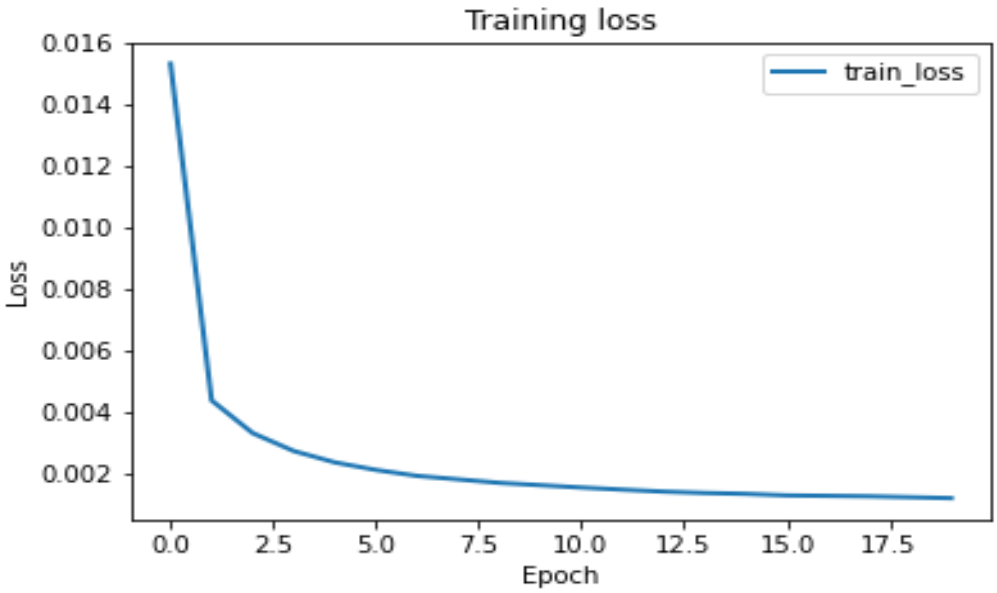
1. Show your model architecture and loss function. (MSE or ...)

```python
class AutoEncoder(nn.Module):
    def __init__(self):
        '''
            Model initialize
        '''
        super(AutoEncoder, self).__init__()
        # Encoder
        self.conv1 = nn.Conv2d(3, 32, 3)
        self.conv2 = nn.Conv2d(32, 64, 3)
        self.pool = nn.MaxPool2d(2, return_indices = True)

        # Decoder
        self.unpool = nn.MaxUnpool2d(2)
        self.deconv2 = nn.ConvTranspose2d(64, 32, 3)
        self.deconv1 = nn.ConvTranspose2d(32, 3, 3)

        # Save for Unpooling
        self.indices = []

        return
```

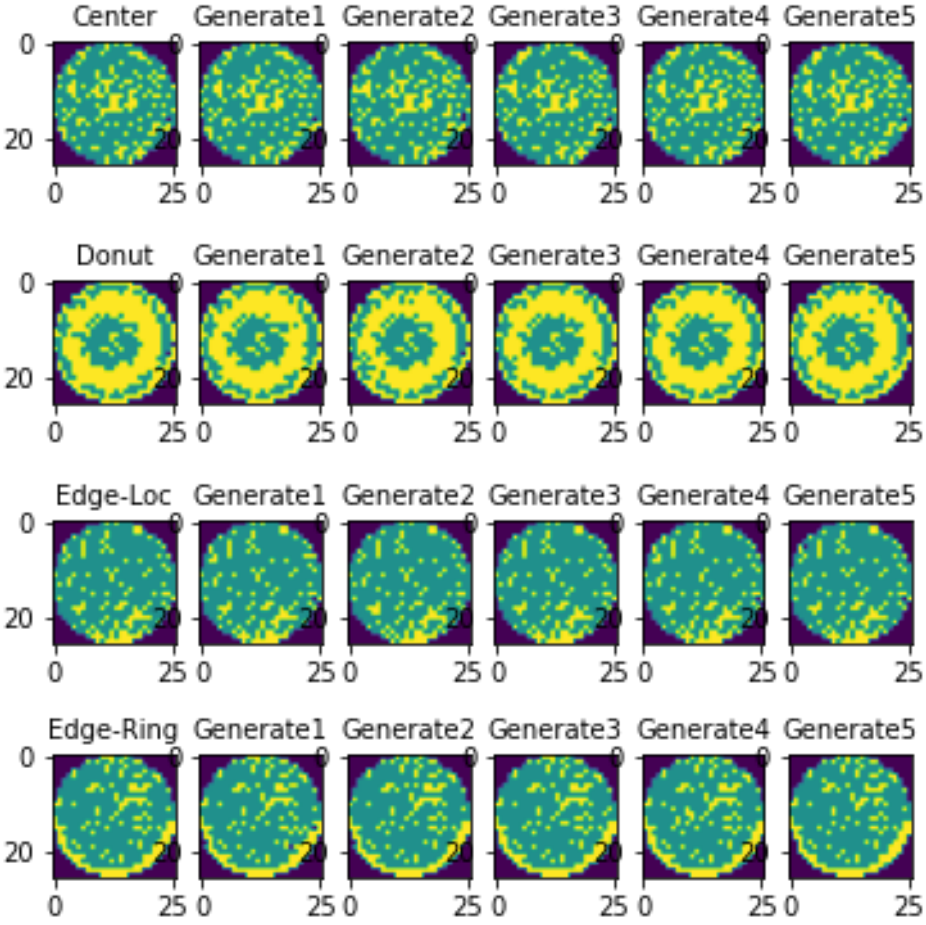
```
----------------------------------------------------------------
        Layer (type)               Output Shape         Param #
================================================================
            Conv2d-1           [-1, 32, 24, 24]             896
         MaxPool2d-2  [[-1, 32, 12, 12], [-1, 32, 12, 12]]
            Conv2d-3           [-1, 64, 10, 10]          18,496
         MaxPool2d-4  [[-1, 64, 5, 5], [-1, 64, 5, 5]]
       MaxUnpool2d-5           [-1, 64, 10, 10]               0
  ConvTranspose2d-6           [-1, 32, 12, 12]          18,464
       MaxUnpool2d-7           [-1, 32, 24, 24]               0
  ConvTranspose2d-8            [-1, 3, 26, 26]             867
================================================================
Total params: 38,723
Trainable params: 38,723
Non-trainable params: 0
----------------------------------------------------------------
Input size (MB): 0.01
Forward/backward pass size (MB): 181.10
Params size (MB): 0.15
Estimated Total Size (MB): 181.26
----------------------------------------------------------------
```

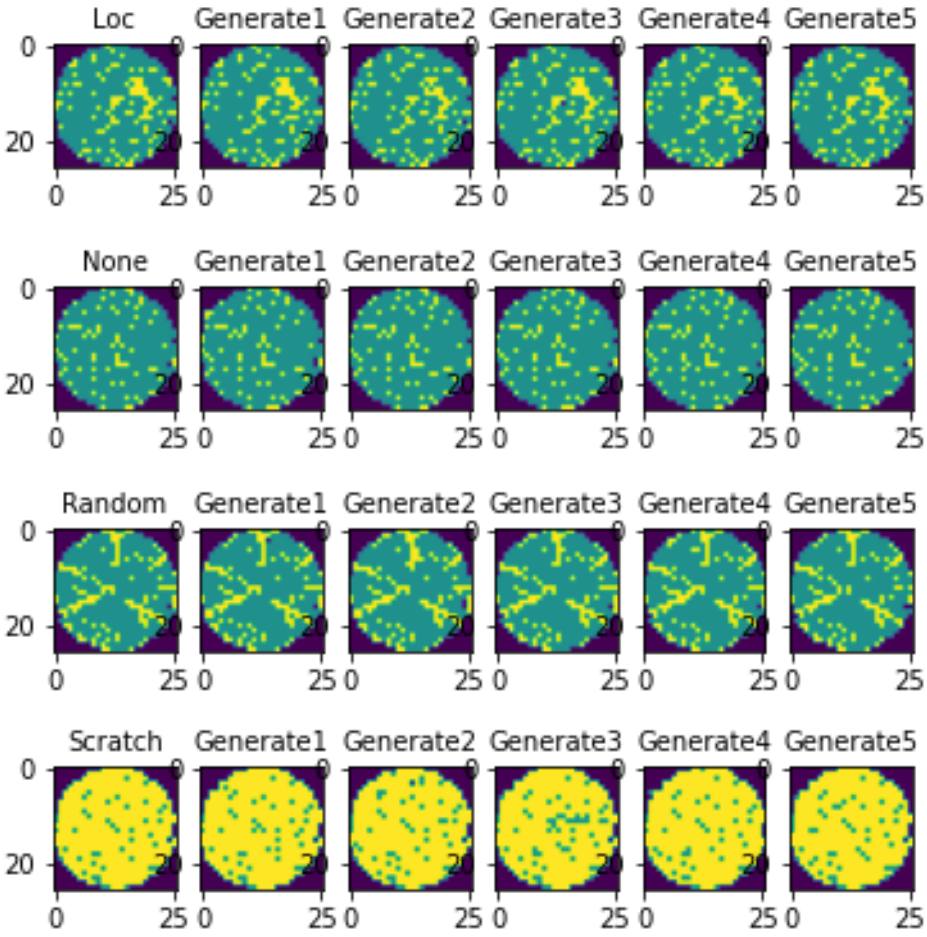
Optimizing for MSE means your generated output intensities are *symmetrically close* to the input intensities. A higher-than-training intensity is penalized by the same amount as an equally valued lower intensity.

2. Plot training loss.



3. Visualize 5 generated samples for each class like this:




Loc
Generate1
Generate2
Generate3
Generate4
Generate5
None
Generate1
Generate2
Generate3
Generate4
Generate5
Random
Generate1
Generate2
Generate3
Generate4
Generate5
Scratch
Generate1
Generate2
Generate3
Generate4
Generate5
0
20
0
25