dlnd_face_generation

March 3, 2019

1 Face Generation

In this project, you'll define and train a DCGAN on a dataset of faces. Your goal is to get a generator network to generate *new* images of faces that look as realistic as possible!

The project will be broken down into a series of tasks from **loading in data to defining and training adversarial networks**. At the end of the notebook, you'll be able to visualize the results of your trained Generator to see how it performs; your generated samples should look like fairly realistic faces with small amounts of noise.

1.0.1 Get the Data

You'll be using the CelebFaces Attributes Dataset (CelebA) to train your adversarial networks.

This dataset is more complex than the number datasets (like MNIST or SVHN) you've been working with, and so, you should prepare to define deeper networks and train them for a longer time to get good results. It is suggested that you utilize a GPU for training.

1.0.2 Pre-processed Data

Since the project's main focus is on building the GANs, we've done *some* of the pre-processing for you. Each of the CelebA images has been cropped to remove parts of the image that don't include a face, then resized down to 64x64x3 NumPy images. Some sample data is show below.

> If you are working locally, you can download this data by clicking here

This is a zip file that you'll need to extract in the home directory of this notebook for further loading and processing. After extracting the data, you should be left with a directory of data `processed_celeba_small/`

In [32]:
```
# can comment out after executing
# !unzip processed_celeba_small.zip
```

In [33]:
```
data_dir = 'processed_celeba_small/'

"""
DON'T MODIFY ANYTHING IN THIS CELL
"""
import pickle as pkl
import matplotlib.pyplot as plt
```

```
import numpy as np
import problem_unittests as tests
#import helper

%matplotlib inline
```

1.1 Visualize the CelebA Data

The CelebA dataset contains over 200,000 celebrity images with annotations. Since you're going to be generating faces, you won't need the annotations, you'll only need the images. Note that these are color images with 3 color channels (RGB) each.

1.1.1 Pre-process and Load the Data

Since the project's main focus is on building the GANs, we've done *some* of the pre-processing for you. Each of the CelebA images has been cropped to remove parts of the image that don't include a face, then resized down to 64x64x3 NumPy images. This *pre-processed* dataset is a smaller subset of the very large CelebA data.

> There are a few other steps that you'll need to **transform** this data and create a **DataLoader**.

Exercise: Complete the following `get_dataloader` function, such that it satisfies these requirements:

- Your images should be square, Tensor images of size `image_size x image_size` in the x and y dimension.
- Your function should return a DataLoader that shuffles and batches these Tensor images.

ImageFolder To create a dataset given a directory of images, it's recommended that you use PyTorch's ImageFolder wrapper, with a root directory `processed_celeba_small/` and data transformation passed in.

```
In [34]: # necessary imports
         import torch
         from torchvision import datasets
         from torchvision import transforms
```

```
In [35]: def get_dataloader(batch_size, image_size, data_dir='processed_celeba_small/'):
             """
             Batch the neural network data using DataLoader
             :param batch_size: The size of each batch; the number of images in a batch
             :param img_size: The square size of the image data (x, y)
             :param data_dir: Directory where image data is located
             :return: DataLoader with batched data
             """

             # TODO: Implement function and return a dataloader
             img_transforms = transforms.Compose([transforms.RandomResizedCrop(image_size),
```

```
                                        transforms.ToTensor()])
    data = datasets.ImageFolder(data_dir, transform=img_transforms)
    dataloader = torch.utils.data.DataLoader(data, batch_size=batch_size, shuffle=True)

    return dataloader
```

1.2 Create a DataLoader

Exercise: Create a DataLoader `celeba_train_loader` **with appropriate hyperparameters.** Call the above function and create a dataloader to view images. * You can decide on any reasonable `batch_size` parameter * Your `image_size` **must be** `32`. Resizing the data to a smaller size will make for faster training, while still creating convincing images of faces!

In [36]:
```
# Define function hyperparameters
batch_size = 32
img_size = 32

"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
# Call your function and get a dataloader
celeba_train_loader = get_dataloader(batch_size, img_size)
```

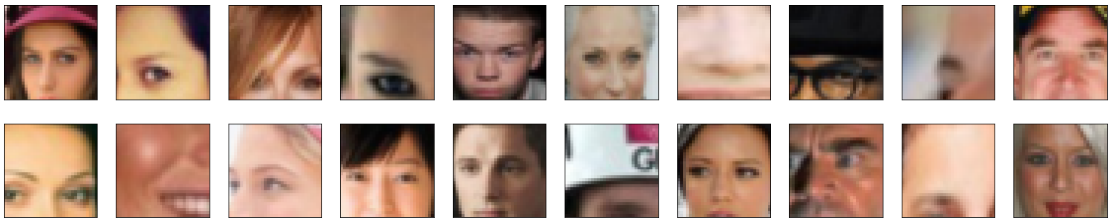
Next, you can view some images! You should seen square images of somewhat-centered faces.

Note: You'll need to convert the Tensor images into a NumPy type and transpose the dimensions to correctly display an image, suggested `imshow` code is below, but it may not be perfect.

In [37]:
```
# helper display function
def imshow(img):
    npimg = img.numpy()
    plt.imshow(np.transpose(npimg, (1, 2, 0)))

"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
# obtain one batch of training images
dataiter = iter(celeba_train_loader)
images, _ = dataiter.next() # _ for no labels

# plot the images in the batch, along with the corresponding labels
fig = plt.figure(figsize=(20, 4))
plot_size=20
for idx in np.arange(plot_size):
    ax = fig.add_subplot(2, plot_size/2, idx+1, xticks=[], yticks=[])
    imshow(images[idx])
```



Exercise: Pre-process your image data and scale it to a pixel range of -1 to 1 You need to do a bit of pre-processing; you know that the output of a `tanh` activated generator will contain pixel values in a range from -1 to 1, and so, we need to rescale our training images to a range of -1 to 1. (Right now, they are in a range from 0-1.)

```
In [38]: # TODO: Complete the scale function
         def scale(x, feature_range=(-1, 1)):
             ''' Scale takes in an image x and returns that image, scaled
                with a feature_range of pixel values from -1 to 1.
                This function assumes that the input x is already scaled from 0-1.'''
             # assume x is scaled to (0, 1)
             # scale to feature_range and return scaled x
             min, max = feature_range
             x = x * (max - min) + min

             return x
```

```
In [39]: """
         DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
         """
         # check scaled range
         # should be close to -1 to 1
         img = images[0]
         scaled_img = scale(img)

         print('Min: ', scaled_img.min())
         print('Max: ', scaled_img.max())
```

```
Min:  tensor(-1.)
Max:  tensor(0.9373)
```

---

2 Define the Model

A GAN is comprised of two adversarial networks, a discriminator and a generator.

2.1 Discriminator

Your first task will be to define the discriminator. This is a convolutional classifier like you've built before, only without any maxpooling layers. To deal with this complex data, it's suggested you use a deep network with **normalization**. You are also allowed to create any helper functions that may be useful.

Exercise: Complete the Discriminator class

- The inputs to the discriminator are 32x32x3 tensor images
- The output should be a single value that will indicate whether a given image is real or fake

```
In [40]: import torch.nn as nn
         import torch.nn.functional as F

         # helper conv function
         def conv(in_channels, out_channels, kernel_size, stride=2, padding=1, batch_norm=True):
             """Creates a convolutional layer, with optional batch normalization.
             """
             layers = []
             conv_layer = nn.Conv2d(in_channels, out_channels,
                                    kernel_size, stride, padding, bias=False)

             # append conv layer
             layers.append(conv_layer)

             if batch_norm:
                 # append batchnorm layer
                 layers.append(nn.BatchNorm2d(out_channels))

             # using Sequential container
             return nn.Sequential(*layers)
```

```
In [41]: class Discriminator(nn.Module):

             def __init__(self, conv_dim):
                 """
                 Initialize the Discriminator Module
                 :param conv_dim: The depth of the first convolutional layer
                 """
                 super(Discriminator, self).__init__()

                 # complete init function
                 self.conv_dim = conv_dim

                 # 32x32 input
                 self.conv1 = conv(3, conv_dim, 4, batch_norm=False) # first layer, no batch_nor
                 # 16x16 out
                 self.conv2 = conv(conv_dim, conv_dim*2, 4)
```

```
        # 8x8 out
        self.conv3 = conv(conv_dim*2, conv_dim*4, 4)
        # 4x4 out
        self.conv4 = conv(conv_dim*4, conv_dim*8, 4)
        # 2x2 out

        # final, fully-connected layer
        self.fc = nn.Linear(conv_dim*8*2*2, 1)


    def forward(self, x):
        """
        Forward propagation of the neural network
        :param x: The input to the neural network
        :return: Discriminator logits; the output of the neural network
        """
        # define feedforward behavior
        # all hidden layers + leaky relu activation
        out = F.leaky_relu(self.conv1(x), 0.2)
        out = F.leaky_relu(self.conv2(out), 0.2)
        out = F.leaky_relu(self.conv3(out), 0.2)
        out = F.leaky_relu(self.conv4(out), 0.2)

        # flatten
        out = out.view(-1, self.conv_dim*8*2*2)

        # final output layer
        x = self.fc(out)

        return x


"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
tests.test_discriminator(Discriminator)
```

```
Tests Passed
```

2.2 Generator

The generator should upsample an input and generate a *new* image of the same size as our training data `32x32x3`. This should be mostly transpose convolutional layers with normalization applied to the outputs.

Exercise: Complete the Generator class

- The inputs to the generator are vectors of some length `z_size`

- The output should be a image of shape 32x32x3

```
In [42]: # helper deconv function
         def deconv(in_channels, out_channels, kernel_size, stride=2, padding=1, batch_norm=True
             """Creates a transposed-convolutional layer, with optional batch normalization.
             """
             # create a sequence of transpose + optional batch norm layers
             layers = []
             transpose_conv_layer = nn.ConvTranspose2d(in_channels, out_channels,
                                                       kernel_size, stride, padding, bias=False)
             # append transpose convolutional layer
             layers.append(transpose_conv_layer)

             if batch_norm:
                 # append batchnorm layer
                 layers.append(nn.BatchNorm2d(out_channels))

             return nn.Sequential(*layers)
```

```
In [43]: class Generator(nn.Module):

             def __init__(self, z_size, conv_dim):
                 """
                 Initialize the Generator Module
                 :param z_size: The length of the input latent vector, z
                 :param conv_dim: The depth of the inputs to the *last* transpose convolutional
                 """
                 super(Generator, self).__init__()

                 # complete init function

                 self.conv_dim = conv_dim

                 # first, fully-connected layer
                 self.fc = nn.Linear(z_size, conv_dim*8*2*2)

                 # transpose conv layers
                 self.t_conv1 = deconv(conv_dim*8, conv_dim*4, 4)
                 self.t_conv2 = deconv(conv_dim*4, conv_dim*2, 4)
                 self.t_conv3 = deconv(conv_dim*2, conv_dim, 4)
                 self.t_conv4 = deconv(conv_dim, 3, 4, batch_norm=False)


             def forward(self, x):
                 """
                 Forward propagation of the neural network
                 :param x: The input to the neural network
                 :return: A 32x32x3 Tensor image as output
```

```
            """
            # define feedforward behavior
            # fully-connected + reshape
            out = self.fc(x)
            out = out.view(-1, self.conv_dim*8, 2, 2) # (batch_size, depth, 2, 2)

            # hidden transpose conv layers + relu
            out = F.leaky_relu(self.t_conv1(out), 0.2)
            out = F.leaky_relu(self.t_conv2(out), 0.2)
            out = F.leaky_relu(self.t_conv3(out), 0.2)

            # last layer + tanh activation
            out = self.t_conv4(out)
            out = F.tanh(out)

            return out

    """
    DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
    """
    tests.test_generator(Generator)
```

```
Tests Passed
```

2.3 Initialize the weights of your networks

To help your models converge, you should initialize the weights of the convolutional and linear layers in your model. From reading the original DCGAN paper, they say: > All weights were initialized from a zero-centered Normal distribution with standard deviation 0.02.

So, your next task will be to define a weight initialization function that does just this!

You can refer back to the lesson on weight initialization or even consult existing model code, such as that from the `networks.py` file in CycleGAN Github repository to help you complete this function.

Exercise: Complete the weight initialization function

- This should initialize only **convolutional** and **linear** layers
- Initialize the weights to a normal distribution, centered around 0, with a standard deviation of 0.02.
- The bias terms, if they exist, may be left alone or set to 0.

```
In [44]: def weights_init_normal(m):
             """
             Applies initial weights to certain layers in a model .
             The weights are taken from a normal distribution
             with mean = 0, std dev = 0.02.
             :param m: A module or layer in a network
```

```
        """
        # classname will be something like:
        # `Conv`, `BatchNorm2d`, `Linear`, etc.
        classname = m.__class__.__name__

        # TODO: Apply initial weights to convolutional and linear layers
        if classname == 'Conv' or classname == 'Linear':
            nn.init.normal_(m.weight.data, mean = 0, std = 0.02)
```

2.4 Build complete network

Define your models' hyperparameters and instantiate the discriminator and generator from the classes defined above. Make sure you've passed in the correct input arguments.

```
In [45]: """
         DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
         """
         def build_network(d_conv_dim, g_conv_dim, z_size):
             # define discriminator and generator
             D = Discriminator(d_conv_dim)
             G = Generator(z_size=z_size, conv_dim=g_conv_dim)

             # initialize model weights
             D.apply(weights_init_normal)
             G.apply(weights_init_normal)

             print(D)
             print()
             print(G)

             return D, G
```

Exercise: Define model hyperparameters

```
In [46]: # Define model hyperparams
         d_conv_dim = 32
         g_conv_dim = 32
         z_size = 100

         """
         DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
         """
         D, G = build_network(d_conv_dim, g_conv_dim, z_size)
```

```
Discriminator(
  (conv1): Sequential(
    (0): Conv2d(3, 32, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
```

```
  )
  (conv2): Sequential(
    (0): Conv2d(32, 64, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
    (1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (conv3): Sequential(
    (0): Conv2d(64, 128, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
    (1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (conv4): Sequential(
    (0): Conv2d(128, 256, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
    (1): BatchNorm2d(256, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (fc): Linear(in_features=1024, out_features=1, bias=True)
)

Generator(
  (fc): Linear(in_features=100, out_features=1024, bias=True)
  (t_conv1): Sequential(
    (0): ConvTranspose2d(256, 128, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False
    (1): BatchNorm2d(128, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (t_conv2): Sequential(
    (0): ConvTranspose2d(128, 64, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
    (1): BatchNorm2d(64, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (t_conv3): Sequential(
    (0): ConvTranspose2d(64, 32, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
    (1): BatchNorm2d(32, eps=1e-05, momentum=0.1, affine=True, track_running_stats=True)
  )
  (t_conv4): Sequential(
    (0): ConvTranspose2d(32, 3, kernel_size=(4, 4), stride=(2, 2), padding=(1, 1), bias=False)
  )
)
```

2.4.1 Training on GPU

Check if you can train on GPU. Here, we'll set this as a boolean variable `train_on_gpu`. Later, you'll be responsible for making sure that >* Models, * Model inputs, and * Loss function arguments

Are moved to GPU, where appropriate.

```
In [47]: """
         DON'T MODIFY ANYTHING IN THIS CELL
         """
         import torch
```

```
        # Check for a GPU
        train_on_gpu = torch.cuda.is_available()
        if not train_on_gpu:
            print('No GPU found. Please use a GPU to train your neural network.')
        else:
            print('Training on GPU!')
```

```
Training on GPU!
```

2.5 Discriminator and Generator Losses

Now we need to calculate the losses for both types of adversarial networks.

2.5.1 Discriminator Losses

- For the discriminator, the total loss is the sum of the losses for real and fake images, `d_loss = d_real_loss + d_fake_loss`.
- Remember that we want the discriminator to output 1 for real images and 0 for fake images, so we need to set up the losses to reflect that.

2.5.2 Generator Loss

The generator loss will look similar only with flipped labels. The generator's goal is to get the discriminator to *think* its generated images are *real*.

Exercise: Complete real and fake loss functions **You may choose to use either cross entropy or a least squares error loss to complete the following `real_loss` and `fake_loss` functions.**

```
In [48]: def real_loss(D_out):
             '''Calculates how close discriminator outputs are to being real.
                param, D_out: discriminator logits
                return: real loss'''

             batch_size = D_out.size(0)
             labels = torch.ones(batch_size)*0.9 # real labels = 1, with smoothing
             # move labels to GPU if available
             if train_on_gpu:
                 labels = labels.cuda()
             # binary cross entropy with logits loss
             criterion = nn.BCEWithLogitsLoss()
             # calculate loss
             loss = criterion(D_out.squeeze(), labels)
             return loss

         def fake_loss(D_out):
             '''Calculates how close discriminator outputs are to being fake.
```

```
        param, D_out: discriminator logits
        return: fake loss'''
    batch_size = D_out.size(0)
    labels = torch.zeros(batch_size) # fake labels = 0
    if train_on_gpu:
        labels = labels.cuda()
    criterion = nn.BCEWithLogitsLoss()
    # calculate loss
    loss = criterion(D_out.squeeze(), labels)
    return loss
```

2.6 Optimizers

Exercise: Define optimizers for your Discriminator (D) and Generator (G) Define optimizers for your models with appropriate hyperparameters.

```
In [49]: import torch.optim as optim

         # params
         lr = 0.0001
         beta1=0.1
         beta2=0.999 # default value

         # Create optimizers for the discriminator and generator
         d_optimizer = optim.Adam(D.parameters(), lr, [beta1, beta2])
         g_optimizer = optim.Adam(G.parameters(), lr, [beta1, beta2])
```

2.7 Training

Training will involve alternating between training the discriminator and the generator. You'll use your functions `real_loss` and `fake_loss` to help you calculate the discriminator losses.

- You should train the discriminator by alternating on real and fake images
- Then the generator, which tries to trick the discriminator and should have an opposing loss function

Saving Samples You've been given some code to print out some loss statistics and save some generated "fake" samples.

Exercise: Complete the training function Keep in mind that, if you've moved your models to GPU, you'll also have to move any model inputs to GPU.

```
In [50]: def train(D, G, n_epochs, print_every=50):
             '''Trains adversarial networks for some number of epochs
                param, D: the discriminator network
                param, G: the generator network
```

```
    param, n_epochs: number of epochs to train for
    param, print_every: when to print and record the models' losses
    return: D and G losses'''

# move models to GPU
if train_on_gpu:
    D.cuda()
    G.cuda()

# keep track of loss and generated, "fake" samples
samples = []
losses = []

# Get some fixed data for sampling. These are images that are held
# constant throughout training, and allow us to inspect the model's performance
sample_size=16
fixed_z = np.random.uniform(-1, 1, size=(sample_size, z_size))
fixed_z = torch.from_numpy(fixed_z).float()
# move z to GPU if available
if train_on_gpu:
    fixed_z = fixed_z.cuda()

# epoch training loop
for epoch in range(n_epochs):

    # batch training loop
    for batch_i, (real_images, _) in enumerate(celeba_train_loader):

        batch_size = real_images.size(0)

        # important rescaling step
        real_images = scale(real_images)

        # ============================================
        #          YOUR CODE HERE: TRAIN THE NETWORKS
        # ============================================

        # =========================================
        #             TRAIN THE DISCRIMINATOR
        # =========================================

        d_optimizer.zero_grad()

        # 1. Train with real images

        # Compute the discriminator losses on real images
        if train_on_gpu:
            real_images = real_images.cuda()
```

```
D_real = D(real_images)
d_real_loss = real_loss(D_real)

# 2. Train with fake images

# Generate fake images
z = np.random.uniform(-1, 1, size=(batch_size, z_size))
z = torch.from_numpy(z).float()
# move x to GPU, if available
if train_on_gpu:
    z = z.cuda()
fake_images = G(z)

# Compute the discriminator losses on fake images
D_fake = D(fake_images)
d_fake_loss = fake_loss(D_fake)

# add up loss and perform backprop
d_loss = d_real_loss + d_fake_loss
d_loss.backward()
d_optimizer.step()

# =========================================
#            TRAIN THE GENERATOR
# =========================================
g_optimizer.zero_grad()

# 1. Train with fake images and flipped labels

# Generate fake images
z = np.random.uniform(-1, 1, size=(batch_size, z_size))
z = torch.from_numpy(z).float()
if train_on_gpu:
    z = z.cuda()
fake_images = G(z)

# Compute the discriminator losses on fake images
# using flipped labels!
D_fake = D(fake_images)
g_loss = real_loss(D_fake) # use real loss to flip labels

# perform backprop
g_loss.backward()
g_optimizer.step()

# ==============================================
#              END OF YOUR CODE
```

```
                    # =============================================

                    # Print some loss stats
                    if batch_i % print_every == 0:
                        # append discriminator loss and generator loss
                        losses.append((d_loss.item(), g_loss.item()))
                        # print discriminator and generator loss
                        print('Epoch [{:5d}/{:5d}] | d_loss: {:6.4f} | g_loss: {:6.4f}'.format(
                                epoch+1, n_epochs, d_loss.item(), g_loss.item()))


                ## AFTER EACH EPOCH##
                # this code assumes your generator is named G, feel free to change the name
                # generate and save sample, fake images
                G.eval() # for generating samples
                samples_z = G(fixed_z)
                samples.append(samples_z)
                G.train() # back to training mode

            # Save training generator samples
            with open('train_samples.pkl', 'wb') as f:
                pkl.dump(samples, f)

            # finally return losses
            return losses
```

Set your number of training epochs and train your GAN!

In [51]:
```
# set number of epochs
n_epochs = 50

### keep the cell running longer than 30 mins with GPU
import workspace_utils
from workspace_utils import active_session

with active_session():
    """
    DON'T MODIFY ANYTHING IN THIS CELL
    """
    # call training function
    losses = train(D, G, n_epochs=n_epochs)
```

```
Epoch [    1/   50] | d_loss: 1.3803 | g_loss: 0.8494
Epoch [    1/   50] | d_loss: 0.6461 | g_loss: 1.9046
Epoch [    1/   50] | d_loss: 0.5009 | g_loss: 2.8708
Epoch [    1/   50] | d_loss: 0.5722 | g_loss: 2.4141
Epoch [    1/   50] | d_loss: 0.5629 | g_loss: 2.5032
Epoch [    1/   50] | d_loss: 0.6254 | g_loss: 2.2364
```

```
Epoch [    1/   50] | d_loss: 1.0231 | g_loss: 1.0026
Epoch [    1/   50] | d_loss: 1.2742 | g_loss: 1.3416
Epoch [    1/   50] | d_loss: 1.1663 | g_loss: 1.7415
Epoch [    1/   50] | d_loss: 1.2019 | g_loss: 1.7604
Epoch [    1/   50] | d_loss: 1.2846 | g_loss: 1.4893
Epoch [    1/   50] | d_loss: 1.0288 | g_loss: 1.5160
Epoch [    1/   50] | d_loss: 1.0549 | g_loss: 1.5612
Epoch [    1/   50] | d_loss: 1.1215 | g_loss: 1.4031
Epoch [    1/   50] | d_loss: 0.9655 | g_loss: 1.0736
Epoch [    1/   50] | d_loss: 1.1430 | g_loss: 1.6721
Epoch [    1/   50] | d_loss: 1.3802 | g_loss: 1.8555
Epoch [    1/   50] | d_loss: 1.0160 | g_loss: 1.0736
Epoch [    1/   50] | d_loss: 1.1436 | g_loss: 0.8881
Epoch [    1/   50] | d_loss: 1.1237 | g_loss: 0.6998
Epoch [    1/   50] | d_loss: 1.1498 | g_loss: 1.3454
Epoch [    1/   50] | d_loss: 1.1710 | g_loss: 0.9878
Epoch [    1/   50] | d_loss: 1.4403 | g_loss: 0.9714
Epoch [    1/   50] | d_loss: 1.2250 | g_loss: 1.2557
Epoch [    1/   50] | d_loss: 1.1430 | g_loss: 1.2527
Epoch [    1/   50] | d_loss: 1.1415 | g_loss: 1.1005
Epoch [    1/   50] | d_loss: 1.2322 | g_loss: 0.9829
Epoch [    1/   50] | d_loss: 1.3476 | g_loss: 1.0419
Epoch [    1/   50] | d_loss: 1.1861 | g_loss: 1.0109
Epoch [    1/   50] | d_loss: 1.1555 | g_loss: 1.1664
Epoch [    1/   50] | d_loss: 1.3512 | g_loss: 0.9923
Epoch [    1/   50] | d_loss: 1.4163 | g_loss: 0.8937
Epoch [    1/   50] | d_loss: 1.2439 | g_loss: 1.0709
Epoch [    1/   50] | d_loss: 1.1552 | g_loss: 0.8325
Epoch [    1/   50] | d_loss: 1.2124 | g_loss: 0.8282
Epoch [    1/   50] | d_loss: 1.1100 | g_loss: 1.2178
Epoch [    1/   50] | d_loss: 1.1792 | g_loss: 0.8544
Epoch [    1/   50] | d_loss: 1.2758 | g_loss: 1.2120
Epoch [    1/   50] | d_loss: 1.1353 | g_loss: 1.1215
Epoch [    1/   50] | d_loss: 1.1028 | g_loss: 1.1491
Epoch [    1/   50] | d_loss: 1.3218 | g_loss: 0.7600
Epoch [    1/   50] | d_loss: 1.1073 | g_loss: 0.7604
Epoch [    1/   50] | d_loss: 1.1200 | g_loss: 1.0510
Epoch [    1/   50] | d_loss: 1.1214 | g_loss: 1.1632
Epoch [    1/   50] | d_loss: 1.0761 | g_loss: 0.8978
Epoch [    1/   50] | d_loss: 1.0658 | g_loss: 1.1011
Epoch [    1/   50] | d_loss: 1.1099 | g_loss: 1.1359
Epoch [    1/   50] | d_loss: 1.2885 | g_loss: 1.4494
Epoch [    1/   50] | d_loss: 1.1682 | g_loss: 1.4546
Epoch [    1/   50] | d_loss: 1.2965 | g_loss: 1.0339
Epoch [    1/   50] | d_loss: 1.4040 | g_loss: 1.7550
Epoch [    1/   50] | d_loss: 1.2129 | g_loss: 1.4314
Epoch [    1/   50] | d_loss: 1.4347 | g_loss: 1.4415
Epoch [    1/   50] | d_loss: 1.4429 | g_loss: 0.5565
```

```
Epoch [    1/   50] | d_loss: 1.1246 | g_loss: 1.1025
Epoch [    1/   50] | d_loss: 1.2797 | g_loss: 1.6608
Epoch [    1/   50] | d_loss: 1.1278 | g_loss: 1.1516
Epoch [    2/   50] | d_loss: 1.0472 | g_loss: 1.0834
Epoch [    2/   50] | d_loss: 1.1879 | g_loss: 1.0728
Epoch [    2/   50] | d_loss: 1.1979 | g_loss: 1.5817
Epoch [    2/   50] | d_loss: 0.8940 | g_loss: 1.0724
Epoch [    2/   50] | d_loss: 1.1002 | g_loss: 1.1548
Epoch [    2/   50] | d_loss: 1.1943 | g_loss: 1.1332
Epoch [    2/   50] | d_loss: 1.0780 | g_loss: 1.3673
Epoch [    2/   50] | d_loss: 1.0312 | g_loss: 1.0077
Epoch [    2/   50] | d_loss: 1.1201 | g_loss: 1.4476
Epoch [    2/   50] | d_loss: 1.0284 | g_loss: 0.8873
Epoch [    2/   50] | d_loss: 1.1345 | g_loss: 1.4173
Epoch [    2/   50] | d_loss: 1.0544 | g_loss: 1.4390
Epoch [    2/   50] | d_loss: 1.2247 | g_loss: 0.7394
Epoch [    2/   50] | d_loss: 1.1676 | g_loss: 0.9313
Epoch [    2/   50] | d_loss: 1.3783 | g_loss: 0.8390
Epoch [    2/   50] | d_loss: 1.0494 | g_loss: 0.9016
Epoch [    2/   50] | d_loss: 0.9982 | g_loss: 1.1686
Epoch [    2/   50] | d_loss: 0.9565 | g_loss: 1.0067
Epoch [    2/   50] | d_loss: 1.0239 | g_loss: 1.0553
Epoch [    2/   50] | d_loss: 1.0469 | g_loss: 1.7683
Epoch [    2/   50] | d_loss: 1.1365 | g_loss: 1.3954
Epoch [    2/   50] | d_loss: 1.1178 | g_loss: 1.7683
Epoch [    2/   50] | d_loss: 0.8917 | g_loss: 1.6792
Epoch [    2/   50] | d_loss: 1.2121 | g_loss: 0.8182
Epoch [    2/   50] | d_loss: 1.0266 | g_loss: 1.2618
Epoch [    2/   50] | d_loss: 0.9855 | g_loss: 1.4114
Epoch [    2/   50] | d_loss: 1.0996 | g_loss: 0.8922
Epoch [    2/   50] | d_loss: 1.1200 | g_loss: 1.3110
Epoch [    2/   50] | d_loss: 1.1500 | g_loss: 0.8072
Epoch [    2/   50] | d_loss: 1.0811 | g_loss: 1.0060
Epoch [    2/   50] | d_loss: 1.3494 | g_loss: 1.5080
Epoch [    2/   50] | d_loss: 1.2277 | g_loss: 0.9086
Epoch [    2/   50] | d_loss: 1.0832 | g_loss: 0.8291
Epoch [    2/   50] | d_loss: 1.2186 | g_loss: 1.2003
Epoch [    2/   50] | d_loss: 0.9669 | g_loss: 1.6667
Epoch [    2/   50] | d_loss: 1.0819 | g_loss: 1.2288
Epoch [    2/   50] | d_loss: 0.9827 | g_loss: 1.4863
Epoch [    2/   50] | d_loss: 1.4366 | g_loss: 0.7651
Epoch [    2/   50] | d_loss: 0.9873 | g_loss: 1.1224
Epoch [    2/   50] | d_loss: 0.9341 | g_loss: 1.7076
Epoch [    2/   50] | d_loss: 0.9911 | g_loss: 1.3171
Epoch [    2/   50] | d_loss: 0.8090 | g_loss: 1.7077
Epoch [    2/   50] | d_loss: 1.2891 | g_loss: 0.8069
Epoch [    2/   50] | d_loss: 1.0575 | g_loss: 2.3682
Epoch [    2/   50] | d_loss: 1.0617 | g_loss: 0.9958
```

```
Epoch [    2/   50] | d_loss: 1.0067 | g_loss: 1.4271
Epoch [    2/   50] | d_loss: 1.0506 | g_loss: 0.9332
Epoch [    2/   50] | d_loss: 1.0361 | g_loss: 1.2125
Epoch [    2/   50] | d_loss: 1.1667 | g_loss: 0.9192
Epoch [    2/   50] | d_loss: 0.9146 | g_loss: 1.0499
Epoch [    2/   50] | d_loss: 1.0859 | g_loss: 1.4667
Epoch [    2/   50] | d_loss: 1.0657 | g_loss: 1.8768
Epoch [    2/   50] | d_loss: 0.9837 | g_loss: 1.3804
Epoch [    2/   50] | d_loss: 1.2979 | g_loss: 1.2370
Epoch [    2/   50] | d_loss: 1.1853 | g_loss: 1.8718
Epoch [    2/   50] | d_loss: 0.8646 | g_loss: 1.3493
Epoch [    2/   50] | d_loss: 1.2235 | g_loss: 1.6517
Epoch [    3/   50] | d_loss: 0.9083 | g_loss: 1.2096
Epoch [    3/   50] | d_loss: 0.9826 | g_loss: 1.4169
Epoch [    3/   50] | d_loss: 0.9747 | g_loss: 0.8607
Epoch [    3/   50] | d_loss: 0.8936 | g_loss: 1.6162
Epoch [    3/   50] | d_loss: 0.8566 | g_loss: 1.6899
Epoch [    3/   50] | d_loss: 1.0938 | g_loss: 1.4469
Epoch [    3/   50] | d_loss: 1.5314 | g_loss: 0.5515
Epoch [    3/   50] | d_loss: 1.1358 | g_loss: 1.0849
Epoch [    3/   50] | d_loss: 1.0672 | g_loss: 1.7737
Epoch [    3/   50] | d_loss: 0.9277 | g_loss: 1.1751
Epoch [    3/   50] | d_loss: 1.0568 | g_loss: 1.1880
Epoch [    3/   50] | d_loss: 1.3357 | g_loss: 0.8824
Epoch [    3/   50] | d_loss: 1.0849 | g_loss: 0.9716
Epoch [    3/   50] | d_loss: 1.1509 | g_loss: 2.2696
Epoch [    3/   50] | d_loss: 0.9296 | g_loss: 0.9840
Epoch [    3/   50] | d_loss: 0.8499 | g_loss: 1.1294
Epoch [    3/   50] | d_loss: 0.9250 | g_loss: 1.5187
Epoch [    3/   50] | d_loss: 0.9752 | g_loss: 1.2153
Epoch [    3/   50] | d_loss: 1.0897 | g_loss: 1.5609
Epoch [    3/   50] | d_loss: 1.2166 | g_loss: 1.2485
Epoch [    3/   50] | d_loss: 1.0585 | g_loss: 1.2792
Epoch [    3/   50] | d_loss: 1.1328 | g_loss: 1.3780
Epoch [    3/   50] | d_loss: 1.4914 | g_loss: 0.7604
Epoch [    3/   50] | d_loss: 1.2352 | g_loss: 0.8078
Epoch [    3/   50] | d_loss: 0.9753 | g_loss: 1.2954
Epoch [    3/   50] | d_loss: 0.8068 | g_loss: 1.2589
Epoch [    3/   50] | d_loss: 0.7578 | g_loss: 1.0832
Epoch [    3/   50] | d_loss: 1.1609 | g_loss: 1.9294
Epoch [    3/   50] | d_loss: 0.7721 | g_loss: 1.3641
Epoch [    3/   50] | d_loss: 0.8734 | g_loss: 1.6767
Epoch [    3/   50] | d_loss: 0.9926 | g_loss: 0.8438
Epoch [    3/   50] | d_loss: 0.8192 | g_loss: 1.5730
Epoch [    3/   50] | d_loss: 1.0796 | g_loss: 2.4928
Epoch [    3/   50] | d_loss: 0.8187 | g_loss: 1.5718
Epoch [    3/   50] | d_loss: 0.8999 | g_loss: 0.9075
Epoch [    3/   50] | d_loss: 0.8065 | g_loss: 1.4747
```

```
Epoch [    3/   50] | d_loss: 0.8861 | g_loss: 1.0034
Epoch [    3/   50] | d_loss: 1.0597 | g_loss: 0.5692
Epoch [    3/   50] | d_loss: 0.7915 | g_loss: 1.6282
Epoch [    3/   50] | d_loss: 1.0161 | g_loss: 1.5536
Epoch [    3/   50] | d_loss: 0.8700 | g_loss: 1.4996
Epoch [    3/   50] | d_loss: 0.8104 | g_loss: 1.3608
Epoch [    3/   50] | d_loss: 0.8978 | g_loss: 1.1262
Epoch [    3/   50] | d_loss: 1.0362 | g_loss: 1.3126
Epoch [    3/   50] | d_loss: 0.8241 | g_loss: 1.8353
Epoch [    3/   50] | d_loss: 1.0062 | g_loss: 1.2063
Epoch [    3/   50] | d_loss: 1.1117 | g_loss: 2.1274
Epoch [    3/   50] | d_loss: 1.1195 | g_loss: 0.9693
Epoch [    3/   50] | d_loss: 1.1691 | g_loss: 1.1567
Epoch [    3/   50] | d_loss: 1.1593 | g_loss: 0.7216
Epoch [    3/   50] | d_loss: 0.8675 | g_loss: 1.7450
Epoch [    3/   50] | d_loss: 0.6210 | g_loss: 1.4213
Epoch [    3/   50] | d_loss: 0.8246 | g_loss: 1.6267
Epoch [    3/   50] | d_loss: 1.0940 | g_loss: 1.1765
Epoch [    3/   50] | d_loss: 0.7398 | g_loss: 0.9580
Epoch [    3/   50] | d_loss: 0.7130 | g_loss: 1.2839
Epoch [    3/   50] | d_loss: 0.9981 | g_loss: 1.0651
Epoch [    4/   50] | d_loss: 0.9164 | g_loss: 2.0580
Epoch [    4/   50] | d_loss: 1.1504 | g_loss: 2.5948
Epoch [    4/   50] | d_loss: 0.7394 | g_loss: 1.3091
Epoch [    4/   50] | d_loss: 0.6011 | g_loss: 1.7897
Epoch [    4/   50] | d_loss: 1.0284 | g_loss: 1.0963
Epoch [    4/   50] | d_loss: 1.1719 | g_loss: 1.0402
Epoch [    4/   50] | d_loss: 0.7388 | g_loss: 1.7034
Epoch [    4/   50] | d_loss: 0.7896 | g_loss: 1.8106
Epoch [    4/   50] | d_loss: 0.7794 | g_loss: 2.2269
Epoch [    4/   50] | d_loss: 0.8555 | g_loss: 1.9971
Epoch [    4/   50] | d_loss: 0.6405 | g_loss: 2.0575
Epoch [    4/   50] | d_loss: 0.7616 | g_loss: 1.0987
Epoch [    4/   50] | d_loss: 0.6760 | g_loss: 2.2106
Epoch [    4/   50] | d_loss: 1.0032 | g_loss: 3.1067
Epoch [    4/   50] | d_loss: 1.4115 | g_loss: 3.2817
Epoch [    4/   50] | d_loss: 0.9967 | g_loss: 1.1833
Epoch [    4/   50] | d_loss: 1.0460 | g_loss: 0.8590
Epoch [    4/   50] | d_loss: 0.8039 | g_loss: 1.4226
Epoch [    4/   50] | d_loss: 0.7435 | g_loss: 1.2388
Epoch [    4/   50] | d_loss: 0.9552 | g_loss: 0.9457
Epoch [    4/   50] | d_loss: 0.7047 | g_loss: 1.4866
Epoch [    4/   50] | d_loss: 0.9016 | g_loss: 1.4196
Epoch [    4/   50] | d_loss: 0.9128 | g_loss: 1.2094
Epoch [    4/   50] | d_loss: 0.7330 | g_loss: 1.7651
Epoch [    4/   50] | d_loss: 1.0883 | g_loss: 0.9388
Epoch [    4/   50] | d_loss: 0.7991 | g_loss: 1.1361
Epoch [    4/   50] | d_loss: 0.9344 | g_loss: 2.6567
```

```
Epoch [    4/   50] | d_loss: 0.8538 | g_loss: 1.3568
Epoch [    4/   50] | d_loss: 0.7294 | g_loss: 1.8912
Epoch [    4/   50] | d_loss: 0.9863 | g_loss: 0.9605
Epoch [    4/   50] | d_loss: 1.0488 | g_loss: 2.0667
Epoch [    4/   50] | d_loss: 0.8384 | g_loss: 1.1854
Epoch [    4/   50] | d_loss: 0.9227 | g_loss: 1.1929
Epoch [    4/   50] | d_loss: 0.8344 | g_loss: 2.5324
Epoch [    4/   50] | d_loss: 1.0939 | g_loss: 2.3384
Epoch [    4/   50] | d_loss: 0.6929 | g_loss: 1.8740
Epoch [    4/   50] | d_loss: 0.9499 | g_loss: 1.1974
Epoch [    4/   50] | d_loss: 0.6738 | g_loss: 1.4463
Epoch [    4/   50] | d_loss: 0.7281 | g_loss: 1.0042
Epoch [    4/   50] | d_loss: 0.6881 | g_loss: 1.1442
Epoch [    4/   50] | d_loss: 0.6998 | g_loss: 1.0781
Epoch [    4/   50] | d_loss: 0.8606 | g_loss: 1.2826
Epoch [    4/   50] | d_loss: 0.7449 | g_loss: 2.5864
Epoch [    4/   50] | d_loss: 0.8292 | g_loss: 1.9588
Epoch [    4/   50] | d_loss: 0.7269 | g_loss: 1.7999
Epoch [    4/   50] | d_loss: 0.6890 | g_loss: 1.9376
Epoch [    4/   50] | d_loss: 0.6237 | g_loss: 2.2460
Epoch [    4/   50] | d_loss: 0.8038 | g_loss: 1.1922
Epoch [    4/   50] | d_loss: 0.9355 | g_loss: 1.1957
Epoch [    4/   50] | d_loss: 0.7814 | g_loss: 2.0946
Epoch [    4/   50] | d_loss: 0.7622 | g_loss: 1.6294
Epoch [    4/   50] | d_loss: 1.0034 | g_loss: 1.1517
Epoch [    4/   50] | d_loss: 1.0923 | g_loss: 1.7276
Epoch [    4/   50] | d_loss: 0.8538 | g_loss: 1.1114
Epoch [    4/   50] | d_loss: 0.8339 | g_loss: 1.9034
Epoch [    4/   50] | d_loss: 0.7168 | g_loss: 2.0894
Epoch [    4/   50] | d_loss: 0.8916 | g_loss: 1.3755
Epoch [    5/   50] | d_loss: 0.6233 | g_loss: 1.8400
Epoch [    5/   50] | d_loss: 0.6161 | g_loss: 1.5990
Epoch [    5/   50] | d_loss: 0.6776 | g_loss: 1.9095
Epoch [    5/   50] | d_loss: 0.9259 | g_loss: 2.0895
Epoch [    5/   50] | d_loss: 0.8576 | g_loss: 2.0619
Epoch [    5/   50] | d_loss: 0.8722 | g_loss: 1.1776
Epoch [    5/   50] | d_loss: 0.8395 | g_loss: 1.1992
Epoch [    5/   50] | d_loss: 0.5597 | g_loss: 2.4227
Epoch [    5/   50] | d_loss: 0.6401 | g_loss: 1.9982
Epoch [    5/   50] | d_loss: 0.6400 | g_loss: 1.5235
Epoch [    5/   50] | d_loss: 0.6962 | g_loss: 1.5277
Epoch [    5/   50] | d_loss: 0.6295 | g_loss: 2.5910
Epoch [    5/   50] | d_loss: 0.7231 | g_loss: 1.4614
Epoch [    5/   50] | d_loss: 0.7280 | g_loss: 0.9132
Epoch [    5/   50] | d_loss: 0.5556 | g_loss: 1.9037
Epoch [    5/   50] | d_loss: 0.8120 | g_loss: 1.2821
Epoch [    5/   50] | d_loss: 1.0020 | g_loss: 2.7529
Epoch [    5/   50] | d_loss: 0.6677 | g_loss: 1.4735
```

```
Epoch [    5/   50] | d_loss: 0.5398 | g_loss: 1.8519
Epoch [    5/   50] | d_loss: 0.8846 | g_loss: 3.1437
Epoch [    5/   50] | d_loss: 0.4779 | g_loss: 1.9806
Epoch [    5/   50] | d_loss: 0.5917 | g_loss: 1.6043
Epoch [    5/   50] | d_loss: 0.9504 | g_loss: 2.2487
Epoch [    5/   50] | d_loss: 0.8027 | g_loss: 1.7037
Epoch [    5/   50] | d_loss: 0.6707 | g_loss: 1.5177
Epoch [    5/   50] | d_loss: 0.6279 | g_loss: 1.8522
Epoch [    5/   50] | d_loss: 0.8409 | g_loss: 1.5337
Epoch [    5/   50] | d_loss: 1.0048 | g_loss: 3.1626
Epoch [    5/   50] | d_loss: 0.5336 | g_loss: 1.8155
Epoch [    5/   50] | d_loss: 0.6538 | g_loss: 1.8662
Epoch [    5/   50] | d_loss: 0.6123 | g_loss: 1.8400
Epoch [    5/   50] | d_loss: 0.7215 | g_loss: 3.0555
Epoch [    5/   50] | d_loss: 0.8175 | g_loss: 2.1356
Epoch [    5/   50] | d_loss: 0.4938 | g_loss: 2.1341
Epoch [    5/   50] | d_loss: 0.5271 | g_loss: 2.0242
Epoch [    5/   50] | d_loss: 0.6515 | g_loss: 1.8113
Epoch [    5/   50] | d_loss: 0.6048 | g_loss: 2.1185
Epoch [    5/   50] | d_loss: 0.7258 | g_loss: 1.3787
Epoch [    5/   50] | d_loss: 0.9164 | g_loss: 2.8649
Epoch [    5/   50] | d_loss: 0.5072 | g_loss: 2.7120
Epoch [    5/   50] | d_loss: 0.8076 | g_loss: 2.7030
Epoch [    5/   50] | d_loss: 0.8819 | g_loss: 1.9872
Epoch [    5/   50] | d_loss: 0.6792 | g_loss: 1.6056
Epoch [    5/   50] | d_loss: 0.8929 | g_loss: 0.8780
Epoch [    5/   50] | d_loss: 0.8643 | g_loss: 1.8561
Epoch [    5/   50] | d_loss: 0.7870 | g_loss: 3.6213
Epoch [    5/   50] | d_loss: 0.5751 | g_loss: 2.2278
Epoch [    5/   50] | d_loss: 0.5576 | g_loss: 1.3898
Epoch [    5/   50] | d_loss: 0.7590 | g_loss: 3.2165
Epoch [    5/   50] | d_loss: 1.7283 | g_loss: 4.6210
Epoch [    5/   50] | d_loss: 0.8764 | g_loss: 0.8708
Epoch [    5/   50] | d_loss: 0.5797 | g_loss: 1.9620
Epoch [    5/   50] | d_loss: 0.5569 | g_loss: 2.1069
Epoch [    5/   50] | d_loss: 0.8452 | g_loss: 1.0773
Epoch [    5/   50] | d_loss: 0.8446 | g_loss: 1.6089
Epoch [    5/   50] | d_loss: 0.7224 | g_loss: 2.3796
Epoch [    5/   50] | d_loss: 0.6513 | g_loss: 1.3421
Epoch [    6/   50] | d_loss: 0.9110 | g_loss: 2.9294
Epoch [    6/   50] | d_loss: 0.7608 | g_loss: 1.9728
Epoch [    6/   50] | d_loss: 0.5437 | g_loss: 1.8852
Epoch [    6/   50] | d_loss: 0.7466 | g_loss: 1.5585
Epoch [    6/   50] | d_loss: 0.6875 | g_loss: 1.6308
Epoch [    6/   50] | d_loss: 1.1197 | g_loss: 2.7706
Epoch [    6/   50] | d_loss: 0.5908 | g_loss: 2.5048
Epoch [    6/   50] | d_loss: 0.6297 | g_loss: 2.5022
Epoch [    6/   50] | d_loss: 0.5882 | g_loss: 2.5725
```

```
Epoch [    6/   50] | d_loss: 0.6749 | g_loss: 1.7199
Epoch [    6/   50] | d_loss: 0.9448 | g_loss: 2.3090
Epoch [    6/   50] | d_loss: 0.7130 | g_loss: 2.7379
Epoch [    6/   50] | d_loss: 0.9418 | g_loss: 1.7283
Epoch [    6/   50] | d_loss: 0.5122 | g_loss: 1.5195
Epoch [    6/   50] | d_loss: 0.7128 | g_loss: 2.8077
Epoch [    6/   50] | d_loss: 0.5878 | g_loss: 2.0009
Epoch [    6/   50] | d_loss: 0.7090 | g_loss: 1.7630
Epoch [    6/   50] | d_loss: 0.6782 | g_loss: 1.7770
Epoch [    6/   50] | d_loss: 0.7997 | g_loss: 2.7615
Epoch [    6/   50] | d_loss: 0.6943 | g_loss: 2.1302
Epoch [    6/   50] | d_loss: 0.8565 | g_loss: 1.0594
Epoch [    6/   50] | d_loss: 0.6697 | g_loss: 2.0521
Epoch [    6/   50] | d_loss: 0.6144 | g_loss: 2.6046
Epoch [    6/   50] | d_loss: 0.5203 | g_loss: 1.9044
Epoch [    6/   50] | d_loss: 0.6780 | g_loss: 2.7696
Epoch [    6/   50] | d_loss: 0.6719 | g_loss: 1.2351
Epoch [    6/   50] | d_loss: 0.7146 | g_loss: 1.1112
Epoch [    6/   50] | d_loss: 1.2527 | g_loss: 0.8069
Epoch [    6/   50] | d_loss: 0.6385 | g_loss: 2.2227
Epoch [    6/   50] | d_loss: 0.5478 | g_loss: 2.0015
Epoch [    6/   50] | d_loss: 0.7742 | g_loss: 2.0845
Epoch [    6/   50] | d_loss: 0.9472 | g_loss: 2.0499
Epoch [    6/   50] | d_loss: 0.8173 | g_loss: 2.0825
Epoch [    6/   50] | d_loss: 0.6050 | g_loss: 2.1232
Epoch [    6/   50] | d_loss: 0.6944 | g_loss: 3.3430
Epoch [    6/   50] | d_loss: 0.8545 | g_loss: 1.0481
Epoch [    6/   50] | d_loss: 0.6542 | g_loss: 2.6027
Epoch [    6/   50] | d_loss: 1.0478 | g_loss: 4.0876
Epoch [    6/   50] | d_loss: 0.5112 | g_loss: 3.0513
Epoch [    6/   50] | d_loss: 0.4711 | g_loss: 2.6044
Epoch [    6/   50] | d_loss: 0.6276 | g_loss: 1.7705
Epoch [    6/   50] | d_loss: 1.0895 | g_loss: 4.3202
Epoch [    6/   50] | d_loss: 0.7693 | g_loss: 2.9916
Epoch [    6/   50] | d_loss: 0.7173 | g_loss: 2.9716
Epoch [    6/   50] | d_loss: 0.8622 | g_loss: 1.4394
Epoch [    6/   50] | d_loss: 0.6029 | g_loss: 1.9366
Epoch [    6/   50] | d_loss: 0.8916 | g_loss: 3.3963
Epoch [    6/   50] | d_loss: 0.4321 | g_loss: 3.0437
Epoch [    6/   50] | d_loss: 0.7690 | g_loss: 1.7620
Epoch [    6/   50] | d_loss: 0.4802 | g_loss: 2.3885
Epoch [    6/   50] | d_loss: 0.4891 | g_loss: 2.7759
Epoch [    6/   50] | d_loss: 0.5461 | g_loss: 1.9226
Epoch [    6/   50] | d_loss: 0.5729 | g_loss: 1.6236
Epoch [    6/   50] | d_loss: 0.6122 | g_loss: 2.3467
Epoch [    6/   50] | d_loss: 0.8003 | g_loss: 3.5105
Epoch [    6/   50] | d_loss: 0.5331 | g_loss: 2.3218
Epoch [    6/   50] | d_loss: 0.6059 | g_loss: 1.6776
```

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Epoch [    7/   50] | d_loss: 0.5644 | g_loss: 2.6413
Epoch [    7/   50] | d_loss: 0.6083 | g_loss: 1.7861
Epoch [    7/   50] | d_loss: 0.5533 | g_loss: 1.5695
Epoch [    7/   50] | d_loss: 0.4379 | g_loss: 3.0312
Epoch [    7/   50] | d_loss: 0.6359 | g_loss: 1.5099
Epoch [    7/   50] | d_loss: 0.8019 | g_loss: 3.0775
Epoch [    7/   50] | d_loss: 0.8135 | g_loss: 2.5579
Epoch [    7/   50] | d_loss: 0.8161 | g_loss: 1.3459
Epoch [    7/   50] | d_loss: 0.4396 | g_loss: 2.4442
Epoch [    7/   50] | d_loss: 0.8757 | g_loss: 1.9786
Epoch [    7/   50] | d_loss: 0.8182 | g_loss: 1.5572
Epoch [    7/   50] | d_loss: 0.7123 | g_loss: 1.4954
Epoch [    7/   50] | d_loss: 0.8278 | g_loss: 2.6266
Epoch [    7/   50] | d_loss: 0.6044 | g_loss: 1.3669
Epoch [    7/   50] | d_loss: 0.8487 | g_loss: 1.0870
Epoch [    7/   50] | d_loss: 0.5750 | g_loss: 2.3321
Epoch [    7/   50] | d_loss: 0.5169 | g_loss: 2.2065
Epoch [    7/   50] | d_loss: 0.5771 | g_loss: 2.2225
Epoch [    7/   50] | d_loss: 0.5516 | g_loss: 2.4077
Epoch [    7/   50] | d_loss: 0.6679 | g_loss: 1.5447
Epoch [    7/   50] | d_loss: 0.7650 | g_loss: 3.0198
Epoch [    7/   50] | d_loss: 0.4455 | g_loss: 2.5789
Epoch [    7/   50] | d_loss: 0.7029 | g_loss: 2.5807
Epoch [    7/   50] | d_loss: 0.6978 | g_loss: 1.8931
Epoch [    7/   50] | d_loss: 0.5304 | g_loss: 1.6226
Epoch [    7/   50] | d_loss: 0.6043 | g_loss: 2.1585
Epoch [    7/   50] | d_loss: 1.2838 | g_loss: 0.9460
Epoch [    7/   50] | d_loss: 1.3265 | g_loss: 3.7481
Epoch [    7/   50] | d_loss: 0.5365 | g_loss: 2.5344
Epoch [    7/   50] | d_loss: 0.7590 | g_loss: 1.2479
Epoch [    7/   50] | d_loss: 0.5113 | g_loss: 2.6683
Epoch [    7/   50] | d_loss: 0.5484 | g_loss: 2.3578
Epoch [    7/   50] | d_loss: 0.6097 | g_loss: 1.7955
Epoch [    7/   50] | d_loss: 0.6468 | g_loss: 2.2385
Epoch [    7/   50] | d_loss: 0.4965 | g_loss: 1.8380
Epoch [    7/   50] | d_loss: 0.7619 | g_loss: 1.4332
Epoch [    7/   50] | d_loss: 0.8191 | g_loss: 2.5933
Epoch [    7/   50] | d_loss: 0.7944 | g_loss: 2.1346
Epoch [    7/   50] | d_loss: 0.9841 | g_loss: 0.9643
Epoch [    7/   50] | d_loss: 0.5934 | g_loss: 2.3913
Epoch [    7/   50] | d_loss: 0.5484 | g_loss: 2.3638
Epoch [    7/   50] | d_loss: 0.6730 | g_loss: 2.7081
Epoch [    7/   50] | d_loss: 0.7134 | g_loss: 2.9936
Epoch [    7/   50] | d_loss: 0.7602 | g_loss: 1.9537
Epoch [    7/   50] | d_loss: 0.6102 | g_loss: 1.8320
Epoch [    7/   50] | d_loss: 0.5718 | g_loss: 2.1587
Epoch [    7/   50] | d_loss: 0.5126 | g_loss: 2.3313
Epoch [    7/   50] | d_loss: 0.5489 | g_loss: 1.7204
```

```
Epoch [    7/   50] | d_loss: 0.9546 | g_loss: 3.1951
Epoch [    7/   50] | d_loss: 0.6558 | g_loss: 2.4966
Epoch [    7/   50] | d_loss: 0.6551 | g_loss: 2.5593
Epoch [    7/   50] | d_loss: 0.4546 | g_loss: 2.6728
Epoch [    7/   50] | d_loss: 0.7782 | g_loss: 3.7030
Epoch [    7/   50] | d_loss: 0.6641 | g_loss: 2.1965
Epoch [    7/   50] | d_loss: 0.6069 | g_loss: 2.7614
Epoch [    7/   50] | d_loss: 0.6328 | g_loss: 1.5428
Epoch [    7/   50] | d_loss: 0.5867 | g_loss: 2.7061
Epoch [    8/   50] | d_loss: 0.8507 | g_loss: 3.7454
Epoch [    8/   50] | d_loss: 0.7846 | g_loss: 1.6325
Epoch [    8/   50] | d_loss: 0.5471 | g_loss: 1.9898
Epoch [    8/   50] | d_loss: 0.6091 | g_loss: 2.2491
Epoch [    8/   50] | d_loss: 0.7014 | g_loss: 2.8579
Epoch [    8/   50] | d_loss: 0.4859 | g_loss: 2.7159
Epoch [    8/   50] | d_loss: 0.5956 | g_loss: 1.1499
Epoch [    8/   50] | d_loss: 0.6137 | g_loss: 2.3597
Epoch [    8/   50] | d_loss: 0.7280 | g_loss: 3.5860
Epoch [    8/   50] | d_loss: 0.5305 | g_loss: 3.2614
Epoch [    8/   50] | d_loss: 0.7500 | g_loss: 2.5677
Epoch [    8/   50] | d_loss: 0.6426 | g_loss: 1.8236
Epoch [    8/   50] | d_loss: 0.6979 | g_loss: 1.9607
Epoch [    8/   50] | d_loss: 0.6064 | g_loss: 2.0905
Epoch [    8/   50] | d_loss: 0.5075 | g_loss: 2.6335
Epoch [    8/   50] | d_loss: 1.1182 | g_loss: 1.4977
Epoch [    8/   50] | d_loss: 0.5789 | g_loss: 1.9810
Epoch [    8/   50] | d_loss: 0.6585 | g_loss: 2.5817
Epoch [    8/   50] | d_loss: 0.6523 | g_loss: 2.4826
Epoch [    8/   50] | d_loss: 0.6528 | g_loss: 2.7803
Epoch [    8/   50] | d_loss: 0.6667 | g_loss: 1.4969
Epoch [    8/   50] | d_loss: 0.4680 | g_loss: 2.5098
Epoch [    8/   50] | d_loss: 0.5040 | g_loss: 2.5176
Epoch [    8/   50] | d_loss: 0.4436 | g_loss: 2.9092
Epoch [    8/   50] | d_loss: 0.7498 | g_loss: 2.9059
Epoch [    8/   50] | d_loss: 0.9553 | g_loss: 2.7254
Epoch [    8/   50] | d_loss: 1.0797 | g_loss: 3.4984
Epoch [    8/   50] | d_loss: 0.7815 | g_loss: 1.1791
Epoch [    8/   50] | d_loss: 0.6339 | g_loss: 1.5629
Epoch [    8/   50] | d_loss: 0.5724 | g_loss: 1.7246
Epoch [    8/   50] | d_loss: 0.5093 | g_loss: 2.6177
Epoch [    8/   50] | d_loss: 1.0954 | g_loss: 1.0182
Epoch [    8/   50] | d_loss: 0.7249 | g_loss: 0.9441
Epoch [    8/   50] | d_loss: 0.5797 | g_loss: 3.4878
Epoch [    8/   50] | d_loss: 0.5155 | g_loss: 2.7396
Epoch [    8/   50] | d_loss: 0.5308 | g_loss: 1.7761
Epoch [    8/   50] | d_loss: 0.5169 | g_loss: 3.3755
Epoch [    8/   50] | d_loss: 1.0719 | g_loss: 1.4965
Epoch [    8/   50] | d_loss: 0.5535 | g_loss: 1.7103
```

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Epoch [    8/   50] | d_loss: 0.4958 | g_loss: 2.4377
Epoch [    8/   50] | d_loss: 0.6356 | g_loss: 1.7474
Epoch [    8/   50] | d_loss: 0.5563 | g_loss: 2.4250
Epoch [    8/   50] | d_loss: 0.8060 | g_loss: 3.3052
Epoch [    8/   50] | d_loss: 0.7451 | g_loss: 1.6400
Epoch [    8/   50] | d_loss: 0.4546 | g_loss: 2.0622
Epoch [    8/   50] | d_loss: 0.5928 | g_loss: 1.7777
Epoch [    8/   50] | d_loss: 0.5450 | g_loss: 1.7723
Epoch [    8/   50] | d_loss: 0.7057 | g_loss: 3.9911
Epoch [    8/   50] | d_loss: 0.5608 | g_loss: 2.5366
Epoch [    8/   50] | d_loss: 0.5156 | g_loss: 2.6382
Epoch [    8/   50] | d_loss: 0.8737 | g_loss: 2.9253
Epoch [    8/   50] | d_loss: 0.5647 | g_loss: 2.5396
Epoch [    8/   50] | d_loss: 0.5817 | g_loss: 3.1395
Epoch [    8/   50] | d_loss: 0.7831 | g_loss: 1.2470
Epoch [    8/   50] | d_loss: 1.2514 | g_loss: 0.8158
Epoch [    8/   50] | d_loss: 0.5466 | g_loss: 2.5828
Epoch [    8/   50] | d_loss: 0.5084 | g_loss: 3.3185
Epoch [    9/   50] | d_loss: 1.3100 | g_loss: 1.4925
Epoch [    9/   50] | d_loss: 0.5318 | g_loss: 1.9152
Epoch [    9/   50] | d_loss: 1.1260 | g_loss: 3.6696
Epoch [    9/   50] | d_loss: 0.4178 | g_loss: 2.5518
Epoch [    9/   50] | d_loss: 0.6151 | g_loss: 2.6631
Epoch [    9/   50] | d_loss: 0.4801 | g_loss: 3.4363
Epoch [    9/   50] | d_loss: 0.5663 | g_loss: 1.1490
Epoch [    9/   50] | d_loss: 0.5825 | g_loss: 3.3954
Epoch [    9/   50] | d_loss: 0.5967 | g_loss: 1.3779
Epoch [    9/   50] | d_loss: 0.5790 | g_loss: 2.7743
Epoch [    9/   50] | d_loss: 0.6579 | g_loss: 1.7425
Epoch [    9/   50] | d_loss: 0.8093 | g_loss: 2.0835
Epoch [    9/   50] | d_loss: 0.7044 | g_loss: 2.3297
Epoch [    9/   50] | d_loss: 0.6578 | g_loss: 3.2518
Epoch [    9/   50] | d_loss: 0.8955 | g_loss: 2.7462
Epoch [    9/   50] | d_loss: 0.4424 | g_loss: 2.8498
Epoch [    9/   50] | d_loss: 0.6277 | g_loss: 3.6837
Epoch [    9/   50] | d_loss: 0.6513 | g_loss: 2.0988
Epoch [    9/   50] | d_loss: 0.6131 | g_loss: 2.5552
Epoch [    9/   50] | d_loss: 0.5004 | g_loss: 2.2577
Epoch [    9/   50] | d_loss: 0.7753 | g_loss: 1.1924
Epoch [    9/   50] | d_loss: 0.5144 | g_loss: 2.9285
Epoch [    9/   50] | d_loss: 0.7719 | g_loss: 2.8548
Epoch [    9/   50] | d_loss: 0.5791 | g_loss: 2.3177
Epoch [    9/   50] | d_loss: 0.7939 | g_loss: 3.3939
Epoch [    9/   50] | d_loss: 0.7035 | g_loss: 1.3985
Epoch [    9/   50] | d_loss: 0.7614 | g_loss: 0.9290
Epoch [    9/   50] | d_loss: 0.3876 | g_loss: 3.1873
Epoch [    9/   50] | d_loss: 0.7018 | g_loss: 2.3547
Epoch [    9/   50] | d_loss: 0.4499 | g_loss: 1.5429
```

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Epoch [    9/   50] | d_loss: 0.4138 | g_loss: 2.6059
Epoch [    9/   50] | d_loss: 1.2995 | g_loss: 0.7807
Epoch [    9/   50] | d_loss: 0.5273 | g_loss: 3.2351
Epoch [    9/   50] | d_loss: 0.9668 | g_loss: 1.0292
Epoch [    9/   50] | d_loss: 1.0973 | g_loss: 1.1506
Epoch [    9/   50] | d_loss: 0.8580 | g_loss: 3.7180
Epoch [    9/   50] | d_loss: 0.9081 | g_loss: 1.3381
Epoch [    9/   50] | d_loss: 0.5155 | g_loss: 3.1670
Epoch [    9/   50] | d_loss: 0.9564 | g_loss: 2.0254
Epoch [    9/   50] | d_loss: 0.7121 | g_loss: 2.2369
Epoch [    9/   50] | d_loss: 0.7674 | g_loss: 1.8711
Epoch [    9/   50] | d_loss: 0.5668 | g_loss: 2.4261
Epoch [    9/   50] | d_loss: 0.5796 | g_loss: 2.0219
Epoch [    9/   50] | d_loss: 0.7002 | g_loss: 1.3625
Epoch [    9/   50] | d_loss: 0.5558 | g_loss: 2.5582
Epoch [    9/   50] | d_loss: 0.6634 | g_loss: 2.9330
Epoch [    9/   50] | d_loss: 0.5218 | g_loss: 2.7535
Epoch [    9/   50] | d_loss: 0.4856 | g_loss: 2.3360
Epoch [    9/   50] | d_loss: 0.4786 | g_loss: 2.7047
Epoch [    9/   50] | d_loss: 0.6844 | g_loss: 1.5752
Epoch [    9/   50] | d_loss: 0.5129 | g_loss: 2.2986
Epoch [    9/   50] | d_loss: 0.5954 | g_loss: 2.7821
Epoch [    9/   50] | d_loss: 0.6080 | g_loss: 2.5178
Epoch [    9/   50] | d_loss: 0.6376 | g_loss: 2.3617
Epoch [    9/   50] | d_loss: 0.4514 | g_loss: 2.0631
Epoch [    9/   50] | d_loss: 0.6190 | g_loss: 2.7747
Epoch [    9/   50] | d_loss: 0.4483 | g_loss: 3.0119
Epoch [   10/   50] | d_loss: 0.6317 | g_loss: 2.5171
Epoch [   10/   50] | d_loss: 0.6235 | g_loss: 2.7626
Epoch [   10/   50] | d_loss: 0.5239 | g_loss: 1.7267
Epoch [   10/   50] | d_loss: 0.8833 | g_loss: 3.0780
Epoch [   10/   50] | d_loss: 0.5313 | g_loss: 1.7076
Epoch [   10/   50] | d_loss: 0.4602 | g_loss: 2.4395
Epoch [   10/   50] | d_loss: 0.5335 | g_loss: 1.7684
Epoch [   10/   50] | d_loss: 0.4541 | g_loss: 1.6609
Epoch [   10/   50] | d_loss: 0.5121 | g_loss: 2.2903
Epoch [   10/   50] | d_loss: 0.6644 | g_loss: 2.8120
Epoch [   10/   50] | d_loss: 0.7285 | g_loss: 3.0036
Epoch [   10/   50] | d_loss: 1.2740 | g_loss: 0.9395
Epoch [   10/   50] | d_loss: 0.5736 | g_loss: 2.4536
Epoch [   10/   50] | d_loss: 0.4040 | g_loss: 3.0060
Epoch [   10/   50] | d_loss: 0.5525 | g_loss: 2.4807
Epoch [   10/   50] | d_loss: 0.5321 | g_loss: 2.9493
Epoch [   10/   50] | d_loss: 0.6057 | g_loss: 2.4587
Epoch [   10/   50] | d_loss: 0.8719 | g_loss: 3.1021
Epoch [   10/   50] | d_loss: 0.6206 | g_loss: 2.2740
Epoch [   10/   50] | d_loss: 0.5112 | g_loss: 1.8805
Epoch [   10/   50] | d_loss: 0.5150 | g_loss: 3.0069
```

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Epoch [   10/   50] | d_loss: 0.4576 | g_loss: 2.3863
Epoch [   10/   50] | d_loss: 0.4942 | g_loss: 2.3007
Epoch [   10/   50] | d_loss: 0.7155 | g_loss: 2.8479
Epoch [   10/   50] | d_loss: 0.6646 | g_loss: 2.2103
Epoch [   10/   50] | d_loss: 0.4636 | g_loss: 2.1205
Epoch [   10/   50] | d_loss: 0.8171 | g_loss: 3.8356
Epoch [   10/   50] | d_loss: 0.7244 | g_loss: 3.4195
Epoch [   10/   50] | d_loss: 0.8199 | g_loss: 3.2825
Epoch [   10/   50] | d_loss: 0.5527 | g_loss: 2.0827
Epoch [   10/   50] | d_loss: 0.4891 | g_loss: 2.3847
Epoch [   10/   50] | d_loss: 0.7332 | g_loss: 1.3313
Epoch [   10/   50] | d_loss: 0.5209 | g_loss: 2.0621
Epoch [   10/   50] | d_loss: 0.5532 | g_loss: 2.5093
Epoch [   10/   50] | d_loss: 0.6704 | g_loss: 3.8682
Epoch [   10/   50] | d_loss: 0.5617 | g_loss: 2.0750
Epoch [   10/   50] | d_loss: 0.6068 | g_loss: 2.6753
Epoch [   10/   50] | d_loss: 0.5023 | g_loss: 3.4814
Epoch [   10/   50] | d_loss: 0.7391 | g_loss: 1.4852
Epoch [   10/   50] | d_loss: 0.5584 | g_loss: 3.1394
Epoch [   10/   50] | d_loss: 0.6622 | g_loss: 1.4034
Epoch [   10/   50] | d_loss: 0.4932 | g_loss: 2.9722
Epoch [   10/   50] | d_loss: 0.6898 | g_loss: 2.8307
Epoch [   10/   50] | d_loss: 0.5513 | g_loss: 3.3642
Epoch [   10/   50] | d_loss: 0.8773 | g_loss: 3.5188
Epoch [   10/   50] | d_loss: 0.5459 | g_loss: 1.9784
Epoch [   10/   50] | d_loss: 0.8182 | g_loss: 1.0961
Epoch [   10/   50] | d_loss: 0.4044 | g_loss: 2.1457
Epoch [   10/   50] | d_loss: 0.4150 | g_loss: 3.4066
Epoch [   10/   50] | d_loss: 0.5515 | g_loss: 1.7933
Epoch [   10/   50] | d_loss: 0.8598 | g_loss: 1.4247
Epoch [   10/   50] | d_loss: 0.4994 | g_loss: 2.9582
Epoch [   10/   50] | d_loss: 0.5327 | g_loss: 2.1400
Epoch [   10/   50] | d_loss: 0.6245 | g_loss: 3.0496
Epoch [   10/   50] | d_loss: 0.6891 | g_loss: 3.7075
Epoch [   10/   50] | d_loss: 0.6736 | g_loss: 2.6033
Epoch [   10/   50] | d_loss: 0.5040 | g_loss: 2.6582
Epoch [   11/   50] | d_loss: 0.4737 | g_loss: 2.0059
Epoch [   11/   50] | d_loss: 1.0242 | g_loss: 1.5014
Epoch [   11/   50] | d_loss: 0.4662 | g_loss: 3.2391
Epoch [   11/   50] | d_loss: 0.6037 | g_loss: 1.7252
Epoch [   11/   50] | d_loss: 0.6978 | g_loss: 1.9929
Epoch [   11/   50] | d_loss: 0.5147 | g_loss: 2.8882
Epoch [   11/   50] | d_loss: 0.6834 | g_loss: 1.6240
Epoch [   11/   50] | d_loss: 0.4729 | g_loss: 3.2160
Epoch [   11/   50] | d_loss: 1.0059 | g_loss: 1.1612
Epoch [   11/   50] | d_loss: 0.7812 | g_loss: 2.9945
Epoch [   11/   50] | d_loss: 0.6731 | g_loss: 1.5598
Epoch [   11/   50] | d_loss: 0.5579 | g_loss: 2.4015
```

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Epoch [   11/   50] | d_loss: 0.5483 | g_loss: 2.4725
Epoch [   11/   50] | d_loss: 0.6100 | g_loss: 1.7631
Epoch [   11/   50] | d_loss: 0.6966 | g_loss: 2.6774
Epoch [   11/   50] | d_loss: 0.6753 | g_loss: 3.2199
Epoch [   11/   50] | d_loss: 0.4690 | g_loss: 1.8159
Epoch [   11/   50] | d_loss: 0.5359 | g_loss: 2.5417
Epoch [   11/   50] | d_loss: 0.9531 | g_loss: 1.0895
Epoch [   11/   50] | d_loss: 0.8541 | g_loss: 3.3040
Epoch [   11/   50] | d_loss: 0.5411 | g_loss: 3.3809
Epoch [   11/   50] | d_loss: 0.3773 | g_loss: 3.4931
Epoch [   11/   50] | d_loss: 0.6149 | g_loss: 1.4043
Epoch [   11/   50] | d_loss: 0.6046 | g_loss: 2.6144
Epoch [   11/   50] | d_loss: 0.5541 | g_loss: 3.2513
Epoch [   11/   50] | d_loss: 0.4401 | g_loss: 2.7574
Epoch [   11/   50] | d_loss: 0.8263 | g_loss: 3.4038
Epoch [   11/   50] | d_loss: 0.4777 | g_loss: 3.1469
Epoch [   11/   50] | d_loss: 0.7276 | g_loss: 3.0448
Epoch [   11/   50] | d_loss: 0.4947 | g_loss: 2.0166
Epoch [   11/   50] | d_loss: 0.6994 | g_loss: 2.0228
Epoch [   11/   50] | d_loss: 0.5183 | g_loss: 2.0654
Epoch [   11/   50] | d_loss: 0.8715 | g_loss: 1.6246
Epoch [   11/   50] | d_loss: 0.6011 | g_loss: 3.2947
Epoch [   11/   50] | d_loss: 0.4724 | g_loss: 4.0172
Epoch [   11/   50] | d_loss: 1.0754 | g_loss: 2.1116
Epoch [   11/   50] | d_loss: 0.6702 | g_loss: 1.1383
Epoch [   11/   50] | d_loss: 0.9082 | g_loss: 2.3503
Epoch [   11/   50] | d_loss: 0.4334 | g_loss: 1.8459
Epoch [   11/   50] | d_loss: 0.5478 | g_loss: 2.4287
Epoch [   11/   50] | d_loss: 0.6186 | g_loss: 3.0400
Epoch [   11/   50] | d_loss: 0.8277 | g_loss: 2.9390
Epoch [   11/   50] | d_loss: 0.6437 | g_loss: 1.6743
Epoch [   11/   50] | d_loss: 0.5666 | g_loss: 2.3734
Epoch [   11/   50] | d_loss: 1.3880 | g_loss: 1.7862
Epoch [   11/   50] | d_loss: 0.6049 | g_loss: 2.9422
Epoch [   11/   50] | d_loss: 0.9160 | g_loss: 4.9104
Epoch [   11/   50] | d_loss: 0.6176 | g_loss: 2.0675
Epoch [   11/   50] | d_loss: 0.5961 | g_loss: 3.1287
Epoch [   11/   50] | d_loss: 0.5283 | g_loss: 2.3393
Epoch [   11/   50] | d_loss: 0.5196 | g_loss: 3.3383
Epoch [   11/   50] | d_loss: 0.5840 | g_loss: 2.6839
Epoch [   11/   50] | d_loss: 0.6559 | g_loss: 2.1205
Epoch [   11/   50] | d_loss: 0.6003 | g_loss: 2.4759
Epoch [   11/   50] | d_loss: 0.5606 | g_loss: 1.7882
Epoch [   11/   50] | d_loss: 0.5442 | g_loss: 2.5026
Epoch [   11/   50] | d_loss: 0.7160 | g_loss: 3.3552
Epoch [   12/   50] | d_loss: 0.6681 | g_loss: 2.6059
Epoch [   12/   50] | d_loss: 0.6123 | g_loss: 2.4380
Epoch [   12/   50] | d_loss: 0.5541 | g_loss: 1.7714
```

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Epoch [   12/   50] | d_loss: 0.4432 | g_loss: 2.0209
Epoch [   12/   50] | d_loss: 0.5298 | g_loss: 1.7090
Epoch [   12/   50] | d_loss: 0.5408 | g_loss: 2.3610
Epoch [   12/   50] | d_loss: 0.4785 | g_loss: 3.2908
Epoch [   12/   50] | d_loss: 0.4910 | g_loss: 1.9445
Epoch [   12/   50] | d_loss: 0.5540 | g_loss: 3.6708
Epoch [   12/   50] | d_loss: 1.1576 | g_loss: 1.2470
Epoch [   12/   50] | d_loss: 0.4475 | g_loss: 2.5519
Epoch [   12/   50] | d_loss: 0.3770 | g_loss: 2.3700
Epoch [   12/   50] | d_loss: 0.5441 | g_loss: 1.9263
Epoch [   12/   50] | d_loss: 0.6511 | g_loss: 1.8996
Epoch [   12/   50] | d_loss: 0.5049 | g_loss: 2.8299
Epoch [   12/   50] | d_loss: 0.8610 | g_loss: 3.1217
Epoch [   12/   50] | d_loss: 0.4720 | g_loss: 2.4660
Epoch [   12/   50] | d_loss: 1.0160 | g_loss: 0.7236
Epoch [   12/   50] | d_loss: 0.8159 | g_loss: 1.5462
Epoch [   12/   50] | d_loss: 0.4191 | g_loss: 3.2613
Epoch [   12/   50] | d_loss: 0.9718 | g_loss: 1.2587
Epoch [   12/   50] | d_loss: 0.5980 | g_loss: 3.3937
Epoch [   12/   50] | d_loss: 0.5261 | g_loss: 3.0807
Epoch [   12/   50] | d_loss: 0.5835 | g_loss: 3.3456
Epoch [   12/   50] | d_loss: 0.4212 | g_loss: 2.6927
Epoch [   12/   50] | d_loss: 0.6281 | g_loss: 1.3740
Epoch [   12/   50] | d_loss: 0.6458 | g_loss: 1.3834
Epoch [   12/   50] | d_loss: 0.5616 | g_loss: 1.7540
Epoch [   12/   50] | d_loss: 0.4532 | g_loss: 3.2407
Epoch [   12/   50] | d_loss: 0.8907 | g_loss: 4.3097
Epoch [   12/   50] | d_loss: 0.4161 | g_loss: 2.4626
Epoch [   12/   50] | d_loss: 1.0138 | g_loss: 4.8878
Epoch [   12/   50] | d_loss: 0.4000 | g_loss: 2.3372
Epoch [   12/   50] | d_loss: 0.5187 | g_loss: 2.2720
Epoch [   12/   50] | d_loss: 0.5260 | g_loss: 1.9057
Epoch [   12/   50] | d_loss: 0.7998 | g_loss: 1.5046
Epoch [   12/   50] | d_loss: 0.5040 | g_loss: 1.8660
Epoch [   12/   50] | d_loss: 0.5514 | g_loss: 3.8270
Epoch [   12/   50] | d_loss: 0.7213 | g_loss: 3.4320
Epoch [   12/   50] | d_loss: 0.4505 | g_loss: 2.4257
Epoch [   12/   50] | d_loss: 0.4444 | g_loss: 2.9148
Epoch [   12/   50] | d_loss: 0.5294 | g_loss: 1.5920
Epoch [   12/   50] | d_loss: 0.5427 | g_loss: 2.7082
Epoch [   12/   50] | d_loss: 0.6459 | g_loss: 2.9714
Epoch [   12/   50] | d_loss: 0.4529 | g_loss: 3.1382
Epoch [   12/   50] | d_loss: 0.4832 | g_loss: 3.6639
Epoch [   12/   50] | d_loss: 0.8403 | g_loss: 3.6905
Epoch [   12/   50] | d_loss: 0.4009 | g_loss: 2.8006
Epoch [   12/   50] | d_loss: 0.4186 | g_loss: 2.5255
Epoch [   12/   50] | d_loss: 0.8785 | g_loss: 1.3946
Epoch [   12/   50] | d_loss: 0.6126 | g_loss: 2.1330
```

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Epoch [   12/   50] | d_loss: 0.4646 | g_loss: 4.2760
Epoch [   12/   50] | d_loss: 0.4049 | g_loss: 3.0247
Epoch [   12/   50] | d_loss: 0.7299 | g_loss: 2.5375
Epoch [   12/   50] | d_loss: 0.4579 | g_loss: 3.2705
Epoch [   12/   50] | d_loss: 0.4901 | g_loss: 2.8736
Epoch [   12/   50] | d_loss: 0.7734 | g_loss: 2.8265
Epoch [   13/   50] | d_loss: 0.5162 | g_loss: 3.1418
Epoch [   13/   50] | d_loss: 0.4493 | g_loss: 1.9765
Epoch [   13/   50] | d_loss: 0.9676 | g_loss: 4.2314
Epoch [   13/   50] | d_loss: 0.5857 | g_loss: 1.5374
Epoch [   13/   50] | d_loss: 0.5903 | g_loss: 3.1491
Epoch [   13/   50] | d_loss: 0.7665 | g_loss: 1.1099
Epoch [   13/   50] | d_loss: 0.5702 | g_loss: 1.5085
Epoch [   13/   50] | d_loss: 0.4644 | g_loss: 2.0237
Epoch [   13/   50] | d_loss: 0.7080 | g_loss: 3.8626
Epoch [   13/   50] | d_loss: 0.6073 | g_loss: 3.7736
Epoch [   13/   50] | d_loss: 0.4229 | g_loss: 2.3452
Epoch [   13/   50] | d_loss: 0.6211 | g_loss: 3.3994
Epoch [   13/   50] | d_loss: 0.5779 | g_loss: 2.6920
Epoch [   13/   50] | d_loss: 0.5194 | g_loss: 1.9875
Epoch [   13/   50] | d_loss: 0.5137 | g_loss: 2.9715
Epoch [   13/   50] | d_loss: 0.4604 | g_loss: 3.3435
Epoch [   13/   50] | d_loss: 0.6002 | g_loss: 2.6852
Epoch [   13/   50] | d_loss: 0.4501 | g_loss: 3.2895
Epoch [   13/   50] | d_loss: 0.4570 | g_loss: 2.8101
Epoch [   13/   50] | d_loss: 0.6263 | g_loss: 2.0342
Epoch [   13/   50] | d_loss: 0.5744 | g_loss: 3.0796
Epoch [   13/   50] | d_loss: 0.5762 | g_loss: 2.8360
Epoch [   13/   50] | d_loss: 0.5998 | g_loss: 1.5706
Epoch [   13/   50] | d_loss: 0.5805 | g_loss: 1.0944
Epoch [   13/   50] | d_loss: 0.5255 | g_loss: 2.3931
Epoch [   13/   50] | d_loss: 0.5123 | g_loss: 2.3546
Epoch [   13/   50] | d_loss: 0.6174 | g_loss: 2.3558
Epoch [   13/   50] | d_loss: 0.4396 | g_loss: 2.6656
Epoch [   13/   50] | d_loss: 0.4125 | g_loss: 2.5333
Epoch [   13/   50] | d_loss: 0.7160 | g_loss: 0.9482
Epoch [   13/   50] | d_loss: 0.6996 | g_loss: 3.9030
Epoch [   13/   50] | d_loss: 0.4305 | g_loss: 1.9897
Epoch [   13/   50] | d_loss: 0.5825 | g_loss: 2.4563
Epoch [   13/   50] | d_loss: 0.4367 | g_loss: 2.2664
Epoch [   13/   50] | d_loss: 0.4187 | g_loss: 2.8132
Epoch [   13/   50] | d_loss: 0.4953 | g_loss: 2.1551
Epoch [   13/   50] | d_loss: 0.5709 | g_loss: 2.1628
Epoch [   13/   50] | d_loss: 0.4377 | g_loss: 2.3118
Epoch [   13/   50] | d_loss: 0.5530 | g_loss: 2.7771
Epoch [   13/   50] | d_loss: 0.4283 | g_loss: 4.0285
Epoch [   13/   50] | d_loss: 0.8306 | g_loss: 1.1231
Epoch [   13/   50] | d_loss: 0.4397 | g_loss: 3.2930
```

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Epoch [   13/   50] | d_loss: 0.4770 | g_loss: 2.8466
Epoch [   13/   50] | d_loss: 0.9155 | g_loss: 1.4477
Epoch [   13/   50] | d_loss: 0.4404 | g_loss: 2.8729
Epoch [   13/   50] | d_loss: 0.8195 | g_loss: 3.4963
Epoch [   13/   50] | d_loss: 0.6061 | g_loss: 1.5218
Epoch [   13/   50] | d_loss: 0.4411 | g_loss: 2.8413
Epoch [   13/   50] | d_loss: 0.4711 | g_loss: 2.8396
Epoch [   13/   50] | d_loss: 0.4276 | g_loss: 1.9531
Epoch [   13/   50] | d_loss: 0.4743 | g_loss: 2.0724
Epoch [   13/   50] | d_loss: 0.4149 | g_loss: 1.7638
Epoch [   13/   50] | d_loss: 0.5222 | g_loss: 2.5562
Epoch [   13/   50] | d_loss: 0.4519 | g_loss: 2.5538
Epoch [   13/   50] | d_loss: 0.4093 | g_loss: 2.6156
Epoch [   13/   50] | d_loss: 0.4565 | g_loss: 2.3271
Epoch [   13/   50] | d_loss: 0.4868 | g_loss: 2.6407
Epoch [   14/   50] | d_loss: 0.4852 | g_loss: 2.4838
Epoch [   14/   50] | d_loss: 1.0944 | g_loss: 1.1274
Epoch [   14/   50] | d_loss: 0.6150 | g_loss: 2.0135
Epoch [   14/   50] | d_loss: 0.6685 | g_loss: 2.4740
Epoch [   14/   50] | d_loss: 0.4808 | g_loss: 3.6810
Epoch [   14/   50] | d_loss: 0.4523 | g_loss: 2.8541
Epoch [   14/   50] | d_loss: 0.4453 | g_loss: 2.4451
Epoch [   14/   50] | d_loss: 0.3942 | g_loss: 2.5084
Epoch [   14/   50] | d_loss: 0.4222 | g_loss: 3.1715
Epoch [   14/   50] | d_loss: 0.4562 | g_loss: 2.7473
Epoch [   14/   50] | d_loss: 0.4429 | g_loss: 3.4587
Epoch [   14/   50] | d_loss: 0.4675 | g_loss: 2.1745
Epoch [   14/   50] | d_loss: 0.5376 | g_loss: 2.5988
Epoch [   14/   50] | d_loss: 0.5449 | g_loss: 3.7657
Epoch [   14/   50] | d_loss: 0.4517 | g_loss: 2.7851
Epoch [   14/   50] | d_loss: 0.6408 | g_loss: 4.0634
Epoch [   14/   50] | d_loss: 0.4376 | g_loss: 2.0314
Epoch [   14/   50] | d_loss: 0.4311 | g_loss: 2.1795
Epoch [   14/   50] | d_loss: 0.8558 | g_loss: 2.3307
Epoch [   14/   50] | d_loss: 0.5479 | g_loss: 2.5815
Epoch [   14/   50] | d_loss: 0.5431 | g_loss: 1.6003
Epoch [   14/   50] | d_loss: 0.6484 | g_loss: 2.7873
Epoch [   14/   50] | d_loss: 0.5807 | g_loss: 1.4374
Epoch [   14/   50] | d_loss: 0.4243 | g_loss: 2.7438
Epoch [   14/   50] | d_loss: 0.4544 | g_loss: 3.6510
Epoch [   14/   50] | d_loss: 0.5783 | g_loss: 2.3238
Epoch [   14/   50] | d_loss: 0.4572 | g_loss: 1.9197
Epoch [   14/   50] | d_loss: 0.6739 | g_loss: 1.7619
Epoch [   14/   50] | d_loss: 0.4198 | g_loss: 3.4115
Epoch [   14/   50] | d_loss: 0.4109 | g_loss: 3.0213
Epoch [   14/   50] | d_loss: 0.4228 | g_loss: 1.5622
Epoch [   14/   50] | d_loss: 0.5812 | g_loss: 1.6648
Epoch [   14/   50] | d_loss: 0.4871 | g_loss: 2.8452
```

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Epoch [   14/   50] | d_loss: 0.4742 | g_loss: 3.9350
Epoch [   14/   50] | d_loss: 0.5796 | g_loss: 1.6898
Epoch [   14/   50] | d_loss: 0.5447 | g_loss: 2.9706
Epoch [   14/   50] | d_loss: 0.4132 | g_loss: 3.6875
Epoch [   14/   50] | d_loss: 0.4882 | g_loss: 2.7628
Epoch [   14/   50] | d_loss: 0.5400 | g_loss: 1.5287
Epoch [   14/   50] | d_loss: 0.4497 | g_loss: 2.6270
Epoch [   14/   50] | d_loss: 0.4954 | g_loss: 2.8521
Epoch [   14/   50] | d_loss: 0.4588 | g_loss: 2.7610
Epoch [   14/   50] | d_loss: 0.4607 | g_loss: 3.6279
Epoch [   14/   50] | d_loss: 0.3856 | g_loss: 3.0757
Epoch [   14/   50] | d_loss: 1.3897 | g_loss: 5.0074
Epoch [   14/   50] | d_loss: 0.9487 | g_loss: 4.3432
Epoch [   14/   50] | d_loss: 0.6032 | g_loss: 1.2316
Epoch [   14/   50] | d_loss: 0.4464 | g_loss: 2.8005
Epoch [   14/   50] | d_loss: 0.6000 | g_loss: 4.1629
Epoch [   14/   50] | d_loss: 0.6509 | g_loss: 1.6953
Epoch [   14/   50] | d_loss: 0.4149 | g_loss: 2.3874
Epoch [   14/   50] | d_loss: 0.4345 | g_loss: 2.2167
Epoch [   14/   50] | d_loss: 0.5176 | g_loss: 1.9020
Epoch [   14/   50] | d_loss: 0.4145 | g_loss: 2.6019
Epoch [   14/   50] | d_loss: 0.6331 | g_loss: 2.5884
Epoch [   14/   50] | d_loss: 0.7951 | g_loss: 3.4812
Epoch [   14/   50] | d_loss: 0.5175 | g_loss: 3.1254
Epoch [   15/   50] | d_loss: 0.4672 | g_loss: 3.6989
Epoch [   15/   50] | d_loss: 0.4848 | g_loss: 2.5031
Epoch [   15/   50] | d_loss: 0.5045 | g_loss: 3.0081
Epoch [   15/   50] | d_loss: 0.4106 | g_loss: 2.9986
Epoch [   15/   50] | d_loss: 0.4521 | g_loss: 2.1425
Epoch [   15/   50] | d_loss: 0.9344 | g_loss: 3.9875
Epoch [   15/   50] | d_loss: 0.6778 | g_loss: 2.7827
Epoch [   15/   50] | d_loss: 0.7080 | g_loss: 1.5625
Epoch [   15/   50] | d_loss: 0.4772 | g_loss: 2.8452
Epoch [   15/   50] | d_loss: 0.6842 | g_loss: 2.4431
Epoch [   15/   50] | d_loss: 0.5933 | g_loss: 3.8450
Epoch [   15/   50] | d_loss: 0.7465 | g_loss: 1.1253
Epoch [   15/   50] | d_loss: 0.4279 | g_loss: 2.1727
Epoch [   15/   50] | d_loss: 0.8127 | g_loss: 3.6298
Epoch [   15/   50] | d_loss: 0.5607 | g_loss: 3.1877
Epoch [   15/   50] | d_loss: 0.3844 | g_loss: 3.1589
Epoch [   15/   50] | d_loss: 0.4225 | g_loss: 2.9109
Epoch [   15/   50] | d_loss: 0.6201 | g_loss: 2.3302
Epoch [   15/   50] | d_loss: 0.8441 | g_loss: 2.0537
Epoch [   15/   50] | d_loss: 0.4294 | g_loss: 4.0929
Epoch [   15/   50] | d_loss: 0.5397 | g_loss: 2.7645
Epoch [   15/   50] | d_loss: 0.5540 | g_loss: 3.6958
Epoch [   15/   50] | d_loss: 0.5550 | g_loss: 2.5482
Epoch [   15/   50] | d_loss: 0.5647 | g_loss: 2.7956
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Epoch [   15/   50] | d_loss: 0.4430 | g_loss: 3.0873
Epoch [   15/   50] | d_loss: 0.6511 | g_loss: 2.2481
Epoch [   15/   50] | d_loss: 0.5451 | g_loss: 2.0455
Epoch [   15/   50] | d_loss: 0.4034 | g_loss: 2.1772
Epoch [   15/   50] | d_loss: 0.5690 | g_loss: 1.7262
Epoch [   15/   50] | d_loss: 0.4852 | g_loss: 3.5816
Epoch [   15/   50] | d_loss: 0.4223 | g_loss: 2.9544
Epoch [   15/   50] | d_loss: 0.8444 | g_loss: 3.4761
Epoch [   15/   50] | d_loss: 0.3918 | g_loss: 3.9258
Epoch [   15/   50] | d_loss: 0.5174 | g_loss: 2.4788
Epoch [   15/   50] | d_loss: 0.4615 | g_loss: 2.2467
Epoch [   15/   50] | d_loss: 0.5600 | g_loss: 3.0106
Epoch [   15/   50] | d_loss: 0.4497 | g_loss: 2.9050
Epoch [   15/   50] | d_loss: 0.5112 | g_loss: 2.2691
Epoch [   15/   50] | d_loss: 0.5072 | g_loss: 3.6084
Epoch [   15/   50] | d_loss: 0.5268 | g_loss: 2.4398
Epoch [   15/   50] | d_loss: 0.5371 | g_loss: 3.0747
Epoch [   15/   50] | d_loss: 0.5056 | g_loss: 2.8067
Epoch [   15/   50] | d_loss: 0.5484 | g_loss: 2.6619
Epoch [   15/   50] | d_loss: 0.4086 | g_loss: 3.0125
Epoch [   15/   50] | d_loss: 0.5111 | g_loss: 1.5971
Epoch [   15/   50] | d_loss: 0.4760 | g_loss: 3.3663
Epoch [   15/   50] | d_loss: 0.3978 | g_loss: 3.0471
Epoch [   15/   50] | d_loss: 0.5425 | g_loss: 2.7232
Epoch [   15/   50] | d_loss: 0.4834 | g_loss: 3.8571
Epoch [   15/   50] | d_loss: 0.4967 | g_loss: 3.0087
Epoch [   15/   50] | d_loss: 0.4424 | g_loss: 2.9158
Epoch [   15/   50] | d_loss: 0.3955 | g_loss: 2.8507
Epoch [   15/   50] | d_loss: 0.5794 | g_loss: 2.7216
Epoch [   15/   50] | d_loss: 0.5194 | g_loss: 2.1910
Epoch [   15/   50] | d_loss: 0.4334 | g_loss: 2.6402
Epoch [   15/   50] | d_loss: 0.4545 | g_loss: 2.8027
Epoch [   15/   50] | d_loss: 0.4342 | g_loss: 2.9777
Epoch [   16/   50] | d_loss: 0.6438 | g_loss: 3.2258
Epoch [   16/   50] | d_loss: 0.4412 | g_loss: 1.9436
Epoch [   16/   50] | d_loss: 0.5294 | g_loss: 3.5052
Epoch [   16/   50] | d_loss: 0.7020 | g_loss: 1.3875
Epoch [   16/   50] | d_loss: 0.4822 | g_loss: 2.0660
Epoch [   16/   50] | d_loss: 0.5086 | g_loss: 2.5483
Epoch [   16/   50] | d_loss: 0.4965 | g_loss: 2.0730
Epoch [   16/   50] | d_loss: 0.4837 | g_loss: 3.3506
Epoch [   16/   50] | d_loss: 0.6371 | g_loss: 3.7091
Epoch [   16/   50] | d_loss: 0.5333 | g_loss: 2.7952
Epoch [   16/   50] | d_loss: 0.5150 | g_loss: 2.6887
Epoch [   16/   50] | d_loss: 0.5170 | g_loss: 3.2302
Epoch [   16/   50] | d_loss: 0.9121 | g_loss: 2.0929
Epoch [   16/   50] | d_loss: 0.7474 | g_loss: 4.1293
Epoch [   16/   50] | d_loss: 0.5134 | g_loss: 3.1731
```

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Epoch [   16/   50] | d_loss: 0.4838 | g_loss: 3.3863
Epoch [   16/   50] | d_loss: 0.5191 | g_loss: 2.8519
Epoch [   16/   50] | d_loss: 0.5059 | g_loss: 2.5613
Epoch [   16/   50] | d_loss: 0.5652 | g_loss: 1.8993
Epoch [   16/   50] | d_loss: 0.6696 | g_loss: 3.7917
Epoch [   16/   50] | d_loss: 0.3754 | g_loss: 4.6636
Epoch [   16/   50] | d_loss: 0.4295 | g_loss: 2.3029
Epoch [   16/   50] | d_loss: 0.5724 | g_loss: 2.6887
Epoch [   16/   50] | d_loss: 0.4316 | g_loss: 3.2641
Epoch [   16/   50] | d_loss: 0.5585 | g_loss: 2.4629
Epoch [   16/   50] | d_loss: 0.4977 | g_loss: 2.3117
Epoch [   16/   50] | d_loss: 0.4745 | g_loss: 3.3025
Epoch [   16/   50] | d_loss: 0.4884 | g_loss: 2.4124
Epoch [   16/   50] | d_loss: 0.4380 | g_loss: 3.4614
Epoch [   16/   50] | d_loss: 0.4249 | g_loss: 2.6315
Epoch [   16/   50] | d_loss: 0.4893 | g_loss: 2.3848
Epoch [   16/   50] | d_loss: 0.3749 | g_loss: 2.3462
Epoch [   16/   50] | d_loss: 0.4886 | g_loss: 3.4539
Epoch [   16/   50] | d_loss: 1.0437 | g_loss: 1.6458
Epoch [   16/   50] | d_loss: 0.4698 | g_loss: 2.4702
Epoch [   16/   50] | d_loss: 0.5316 | g_loss: 2.3535
Epoch [   16/   50] | d_loss: 0.4934 | g_loss: 2.9501
Epoch [   16/   50] | d_loss: 0.6440 | g_loss: 2.5254
Epoch [   16/   50] | d_loss: 0.3754 | g_loss: 3.5156
Epoch [   16/   50] | d_loss: 0.7533 | g_loss: 1.8005
Epoch [   16/   50] | d_loss: 0.5067 | g_loss: 3.3669
Epoch [   16/   50] | d_loss: 0.6208 | g_loss: 3.3631
Epoch [   16/   50] | d_loss: 0.4719 | g_loss: 3.2108
Epoch [   16/   50] | d_loss: 0.6713 | g_loss: 2.9078
Epoch [   16/   50] | d_loss: 0.4616 | g_loss: 3.3230
Epoch [   16/   50] | d_loss: 0.4841 | g_loss: 4.1218
Epoch [   16/   50] | d_loss: 0.4339 | g_loss: 2.5142
Epoch [   16/   50] | d_loss: 0.4988 | g_loss: 2.4230
Epoch [   16/   50] | d_loss: 0.4946 | g_loss: 2.9312
Epoch [   16/   50] | d_loss: 0.6839 | g_loss: 1.2759
Epoch [   16/   50] | d_loss: 0.5246 | g_loss: 3.7556
Epoch [   16/   50] | d_loss: 0.4449 | g_loss: 3.0980
Epoch [   16/   50] | d_loss: 0.3749 | g_loss: 3.7731
Epoch [   16/   50] | d_loss: 0.4961 | g_loss: 3.3761
Epoch [   16/   50] | d_loss: 0.4740 | g_loss: 1.4245
Epoch [   16/   50] | d_loss: 0.6447 | g_loss: 4.5772
Epoch [   16/   50] | d_loss: 0.4566 | g_loss: 2.9244
Epoch [   17/   50] | d_loss: 0.4509 | g_loss: 2.7589
Epoch [   17/   50] | d_loss: 0.9807 | g_loss: 1.5151
Epoch [   17/   50] | d_loss: 0.4238 | g_loss: 3.1756
Epoch [   17/   50] | d_loss: 0.5428 | g_loss: 3.1493
Epoch [   17/   50] | d_loss: 0.4109 | g_loss: 3.6122
Epoch [   17/   50] | d_loss: 0.8564 | g_loss: 1.4799
```

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Epoch [   17/   50] | d_loss: 0.4815 | g_loss: 4.0539
Epoch [   17/   50] | d_loss: 0.6407 | g_loss: 3.0030
Epoch [   17/   50] | d_loss: 0.4162 | g_loss: 2.7051
Epoch [   17/   50] | d_loss: 0.4426 | g_loss: 3.0569
Epoch [   17/   50] | d_loss: 0.5145 | g_loss: 2.5586
Epoch [   17/   50] | d_loss: 0.5329 | g_loss: 2.9028
Epoch [   17/   50] | d_loss: 0.5866 | g_loss: 3.6830
Epoch [   17/   50] | d_loss: 0.5926 | g_loss: 2.1067
Epoch [   17/   50] | d_loss: 0.4662 | g_loss: 4.0583
Epoch [   17/   50] | d_loss: 0.3785 | g_loss: 3.3872
Epoch [   17/   50] | d_loss: 0.5754 | g_loss: 3.0822
Epoch [   17/   50] | d_loss: 0.5152 | g_loss: 3.4258
Epoch [   17/   50] | d_loss: 0.4393 | g_loss: 2.7229
Epoch [   17/   50] | d_loss: 0.7501 | g_loss: 1.4166
Epoch [   17/   50] | d_loss: 0.4509 | g_loss: 2.7329
Epoch [   17/   50] | d_loss: 0.7753 | g_loss: 1.8111
Epoch [   17/   50] | d_loss: 0.4100 | g_loss: 3.1042
Epoch [   17/   50] | d_loss: 0.8582 | g_loss: 3.3922
Epoch [   17/   50] | d_loss: 0.4946 | g_loss: 3.1694
Epoch [   17/   50] | d_loss: 0.4480 | g_loss: 3.1270
Epoch [   17/   50] | d_loss: 0.5121 | g_loss: 2.5645
Epoch [   17/   50] | d_loss: 0.4615 | g_loss: 3.5710
Epoch [   17/   50] | d_loss: 0.5277 | g_loss: 2.3513
Epoch [   17/   50] | d_loss: 0.5567 | g_loss: 3.2975
Epoch [   17/   50] | d_loss: 0.4622 | g_loss: 3.0822
Epoch [   17/   50] | d_loss: 0.6198 | g_loss: 3.7857
Epoch [   17/   50] | d_loss: 0.4756 | g_loss: 4.3247
Epoch [   17/   50] | d_loss: 0.9667 | g_loss: 4.1574
Epoch [   17/   50] | d_loss: 0.4081 | g_loss: 2.4134
Epoch [   17/   50] | d_loss: 0.4721 | g_loss: 3.1012
Epoch [   17/   50] | d_loss: 0.4303 | g_loss: 3.4541
Epoch [   17/   50] | d_loss: 0.4650 | g_loss: 2.0629
Epoch [   17/   50] | d_loss: 0.6317 | g_loss: 4.9741
Epoch [   17/   50] | d_loss: 0.4124 | g_loss: 3.1380
Epoch [   17/   50] | d_loss: 0.5280 | g_loss: 2.0556
Epoch [   17/   50] | d_loss: 0.5221 | g_loss: 2.3949
Epoch [   17/   50] | d_loss: 0.6834 | g_loss: 3.2663
Epoch [   17/   50] | d_loss: 0.6594 | g_loss: 1.4751
Epoch [   17/   50] | d_loss: 0.4019 | g_loss: 3.9323
Epoch [   17/   50] | d_loss: 0.4954 | g_loss: 3.4759
Epoch [   17/   50] | d_loss: 0.7725 | g_loss: 4.9687
Epoch [   17/   50] | d_loss: 0.5249 | g_loss: 2.4079
Epoch [   17/   50] | d_loss: 0.5708 | g_loss: 2.6347
Epoch [   17/   50] | d_loss: 0.6330 | g_loss: 2.4381
Epoch [   17/   50] | d_loss: 0.6265 | g_loss: 2.4210
Epoch [   17/   50] | d_loss: 0.4777 | g_loss: 3.1836
Epoch [   17/   50] | d_loss: 0.7283 | g_loss: 2.6934
Epoch [   17/   50] | d_loss: 0.6666 | g_loss: 3.4357
```

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Epoch [   17/   50] | d_loss: 0.4992 | g_loss: 2.8498
Epoch [   17/   50] | d_loss: 0.4069 | g_loss: 2.6037
Epoch [   17/   50] | d_loss: 0.6689 | g_loss: 1.8767
Epoch [   18/   50] | d_loss: 0.4564 | g_loss: 2.3230
Epoch [   18/   50] | d_loss: 0.3747 | g_loss: 3.3670
Epoch [   18/   50] | d_loss: 0.4138 | g_loss: 2.1282
Epoch [   18/   50] | d_loss: 0.5148 | g_loss: 2.5606
Epoch [   18/   50] | d_loss: 0.7399 | g_loss: 1.0264
Epoch [   18/   50] | d_loss: 0.5002 | g_loss: 1.7727
Epoch [   18/   50] | d_loss: 0.4066 | g_loss: 3.0570
Epoch [   18/   50] | d_loss: 0.4074 | g_loss: 3.7158
Epoch [   18/   50] | d_loss: 0.4793 | g_loss: 3.4838
Epoch [   18/   50] | d_loss: 1.2057 | g_loss: 1.0552
Epoch [   18/   50] | d_loss: 0.3965 | g_loss: 3.0083
Epoch [   18/   50] | d_loss: 0.4985 | g_loss: 3.0450
Epoch [   18/   50] | d_loss: 0.4431 | g_loss: 2.8660
Epoch [   18/   50] | d_loss: 0.4230 | g_loss: 4.1062
Epoch [   18/   50] | d_loss: 0.5992 | g_loss: 1.6557
Epoch [   18/   50] | d_loss: 0.4821 | g_loss: 2.1474
Epoch [   18/   50] | d_loss: 0.4866 | g_loss: 3.6424
Epoch [   18/   50] | d_loss: 0.4130 | g_loss: 2.7073
Epoch [   18/   50] | d_loss: 0.5253 | g_loss: 2.7608
Epoch [   18/   50] | d_loss: 0.4348 | g_loss: 3.3185
Epoch [   18/   50] | d_loss: 0.4945 | g_loss: 2.7809
Epoch [   18/   50] | d_loss: 0.5074 | g_loss: 2.7726
Epoch [   18/   50] | d_loss: 0.6106 | g_loss: 3.1866
Epoch [   18/   50] | d_loss: 0.5818 | g_loss: 2.3421
Epoch [   18/   50] | d_loss: 1.0199 | g_loss: 1.0290
Epoch [   18/   50] | d_loss: 0.6298 | g_loss: 2.2221
Epoch [   18/   50] | d_loss: 0.4947 | g_loss: 3.0508
Epoch [   18/   50] | d_loss: 0.6319 | g_loss: 1.5631
Epoch [   18/   50] | d_loss: 0.7976 | g_loss: 0.8382
Epoch [   18/   50] | d_loss: 0.6643 | g_loss: 4.4091
Epoch [   18/   50] | d_loss: 0.3913 | g_loss: 4.0758
Epoch [   18/   50] | d_loss: 0.5606 | g_loss: 1.7798
Epoch [   18/   50] | d_loss: 0.5622 | g_loss: 3.4482
Epoch [   18/   50] | d_loss: 0.3910 | g_loss: 2.6647
Epoch [   18/   50] | d_loss: 0.5164 | g_loss: 2.5506
Epoch [   18/   50] | d_loss: 0.3832 | g_loss: 3.7775
Epoch [   18/   50] | d_loss: 0.4181 | g_loss: 3.5270
Epoch [   18/   50] | d_loss: 0.5605 | g_loss: 3.3371
Epoch [   18/   50] | d_loss: 0.4996 | g_loss: 2.6894
Epoch [   18/   50] | d_loss: 0.5062 | g_loss: 3.3824
Epoch [   18/   50] | d_loss: 0.4847 | g_loss: 3.4581
Epoch [   18/   50] | d_loss: 0.6089 | g_loss: 1.2356
Epoch [   18/   50] | d_loss: 0.4540 | g_loss: 3.5271
Epoch [   18/   50] | d_loss: 0.4283 | g_loss: 2.3711
Epoch [   18/   50] | d_loss: 0.4596 | g_loss: 3.5609
```

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Epoch [   18/   50] | d_loss: 0.4036 | g_loss: 3.1512
Epoch [   18/   50] | d_loss: 0.4597 | g_loss: 3.3989
Epoch [   18/   50] | d_loss: 0.6983 | g_loss: 1.5950
Epoch [   18/   50] | d_loss: 0.5551 | g_loss: 2.2639
Epoch [   18/   50] | d_loss: 0.3668 | g_loss: 3.8598
Epoch [   18/   50] | d_loss: 0.5636 | g_loss: 1.7091
Epoch [   18/   50] | d_loss: 0.4622 | g_loss: 3.7061
Epoch [   18/   50] | d_loss: 0.4139 | g_loss: 3.6018
Epoch [   18/   50] | d_loss: 0.4120 | g_loss: 3.4046
Epoch [   18/   50] | d_loss: 0.6760 | g_loss: 1.3189
Epoch [   18/   50] | d_loss: 0.7859 | g_loss: 1.4207
Epoch [   18/   50] | d_loss: 0.6247 | g_loss: 2.0825
Epoch [   19/   50] | d_loss: 0.5743 | g_loss: 3.9095
Epoch [   19/   50] | d_loss: 0.5808 | g_loss: 2.4896
Epoch [   19/   50] | d_loss: 0.3931 | g_loss: 2.7838
Epoch [   19/   50] | d_loss: 0.4526 | g_loss: 2.6477
Epoch [   19/   50] | d_loss: 0.8005 | g_loss: 1.1977
Epoch [   19/   50] | d_loss: 0.5125 | g_loss: 2.9524
Epoch [   19/   50] | d_loss: 0.4941 | g_loss: 3.9780
Epoch [   19/   50] | d_loss: 0.4856 | g_loss: 2.4288
Epoch [   19/   50] | d_loss: 0.4171 | g_loss: 3.0626
Epoch [   19/   50] | d_loss: 0.6100 | g_loss: 3.7280
Epoch [   19/   50] | d_loss: 0.5503 | g_loss: 2.7870
Epoch [   19/   50] | d_loss: 0.3969 | g_loss: 3.1124
Epoch [   19/   50] | d_loss: 0.5881 | g_loss: 2.4219
Epoch [   19/   50] | d_loss: 0.4578 | g_loss: 2.3962
Epoch [   19/   50] | d_loss: 0.4368 | g_loss: 1.9033
Epoch [   19/   50] | d_loss: 0.4851 | g_loss: 2.8952
Epoch [   19/   50] | d_loss: 0.6433 | g_loss: 3.7831
Epoch [   19/   50] | d_loss: 0.6308 | g_loss: 4.0917
Epoch [   19/   50] | d_loss: 0.5574 | g_loss: 2.6117
Epoch [   19/   50] | d_loss: 1.0387 | g_loss: 1.1159
Epoch [   19/   50] | d_loss: 0.4109 | g_loss: 3.1165
Epoch [   19/   50] | d_loss: 0.5494 | g_loss: 2.0592
Epoch [   19/   50] | d_loss: 0.4963 | g_loss: 2.1971
Epoch [   19/   50] | d_loss: 0.4323 | g_loss: 3.1367
Epoch [   19/   50] | d_loss: 0.5261 | g_loss: 2.9978
Epoch [   19/   50] | d_loss: 0.5304 | g_loss: 2.0337
Epoch [   19/   50] | d_loss: 0.4293 | g_loss: 3.3944
Epoch [   19/   50] | d_loss: 0.6567 | g_loss: 1.6053
Epoch [   19/   50] | d_loss: 0.4121 | g_loss: 3.4681
Epoch [   19/   50] | d_loss: 0.3868 | g_loss: 2.9874
Epoch [   19/   50] | d_loss: 0.5644 | g_loss: 3.1647
Epoch [   19/   50] | d_loss: 0.4622 | g_loss: 2.4341
Epoch [   19/   50] | d_loss: 0.4893 | g_loss: 2.7052
Epoch [   19/   50] | d_loss: 0.7085 | g_loss: 3.9177
Epoch [   19/   50] | d_loss: 0.4243 | g_loss: 2.5564
Epoch [   19/   50] | d_loss: 0.3952 | g_loss: 3.2360
```

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Epoch [   19/   50] | d_loss: 0.6313 | g_loss: 2.0203
Epoch [   19/   50] | d_loss: 0.7091 | g_loss: 3.8586
Epoch [   19/   50] | d_loss: 0.5638 | g_loss: 2.3061
Epoch [   19/   50] | d_loss: 0.4387 | g_loss: 3.8212
Epoch [   19/   50] | d_loss: 0.3822 | g_loss: 2.8271
Epoch [   19/   50] | d_loss: 0.3851 | g_loss: 3.3450
Epoch [   19/   50] | d_loss: 0.4708 | g_loss: 3.4865
Epoch [   19/   50] | d_loss: 0.5194 | g_loss: 4.1179
Epoch [   19/   50] | d_loss: 0.4708 | g_loss: 2.1337
Epoch [   19/   50] | d_loss: 0.4075 | g_loss: 4.0590
Epoch [   19/   50] | d_loss: 0.3763 | g_loss: 3.3825
Epoch [   19/   50] | d_loss: 0.5513 | g_loss: 2.4719
Epoch [   19/   50] | d_loss: 0.6817 | g_loss: 1.6677
Epoch [   19/   50] | d_loss: 0.7084 | g_loss: 2.4836
Epoch [   19/   50] | d_loss: 0.5846 | g_loss: 1.3467
Epoch [   19/   50] | d_loss: 0.5949 | g_loss: 3.7689
Epoch [   19/   50] | d_loss: 0.5190 | g_loss: 1.8554
Epoch [   19/   50] | d_loss: 0.5309 | g_loss: 2.6834
Epoch [   19/   50] | d_loss: 0.5067 | g_loss: 4.0737
Epoch [   19/   50] | d_loss: 0.4104 | g_loss: 2.6887
Epoch [   19/   50] | d_loss: 0.4615 | g_loss: 3.7719
Epoch [   20/   50] | d_loss: 2.2757 | g_loss: 0.9093
Epoch [   20/   50] | d_loss: 0.4020 | g_loss: 2.8569
Epoch [   20/   50] | d_loss: 0.3846 | g_loss: 4.4978
Epoch [   20/   50] | d_loss: 0.4092 | g_loss: 3.0786
Epoch [   20/   50] | d_loss: 0.4748 | g_loss: 2.4125
Epoch [   20/   50] | d_loss: 0.5721 | g_loss: 2.9489
Epoch [   20/   50] | d_loss: 0.5978 | g_loss: 3.9846
Epoch [   20/   50] | d_loss: 0.3915 | g_loss: 3.2621
Epoch [   20/   50] | d_loss: 0.4764 | g_loss: 2.1724
Epoch [   20/   50] | d_loss: 0.3870 | g_loss: 3.5240
Epoch [   20/   50] | d_loss: 0.5161 | g_loss: 2.3199
Epoch [   20/   50] | d_loss: 0.5051 | g_loss: 3.2357
Epoch [   20/   50] | d_loss: 0.3959 | g_loss: 2.4396
Epoch [   20/   50] | d_loss: 0.3977 | g_loss: 2.6108
Epoch [   20/   50] | d_loss: 0.4392 | g_loss: 2.5590
Epoch [   20/   50] | d_loss: 0.4591 | g_loss: 3.0120
Epoch [   20/   50] | d_loss: 0.6116 | g_loss: 2.4265
Epoch [   20/   50] | d_loss: 0.4650 | g_loss: 2.1078
Epoch [   20/   50] | d_loss: 0.5165 | g_loss: 2.3364
Epoch [   20/   50] | d_loss: 0.8128 | g_loss: 1.3823
Epoch [   20/   50] | d_loss: 0.6418 | g_loss: 3.5996
Epoch [   20/   50] | d_loss: 0.4017 | g_loss: 3.1049
Epoch [   20/   50] | d_loss: 0.5781 | g_loss: 1.9725
Epoch [   20/   50] | d_loss: 0.4352 | g_loss: 2.4336
Epoch [   20/   50] | d_loss: 0.4610 | g_loss: 2.1323
Epoch [   20/   50] | d_loss: 0.4815 | g_loss: 2.6751
Epoch [   20/   50] | d_loss: 0.8166 | g_loss: 4.0355
```

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Epoch [   20/   50] | d_loss: 0.3907 | g_loss: 3.3657
Epoch [   20/   50] | d_loss: 0.4565 | g_loss: 4.0036
Epoch [   20/   50] | d_loss: 0.7208 | g_loss: 5.4050
Epoch [   20/   50] | d_loss: 0.4313 | g_loss: 2.9051
Epoch [   20/   50] | d_loss: 0.5344 | g_loss: 3.4097
Epoch [   20/   50] | d_loss: 0.4486 | g_loss: 3.9357
Epoch [   20/   50] | d_loss: 0.4176 | g_loss: 2.5438
Epoch [   20/   50] | d_loss: 0.6582 | g_loss: 3.2608
Epoch [   20/   50] | d_loss: 0.9535 | g_loss: 4.9830
Epoch [   20/   50] | d_loss: 0.5765 | g_loss: 1.8520
Epoch [   20/   50] | d_loss: 0.5039 | g_loss: 2.4693
Epoch [   20/   50] | d_loss: 0.8194 | g_loss: 4.4372
Epoch [   20/   50] | d_loss: 0.4322 | g_loss: 2.1626
Epoch [   20/   50] | d_loss: 0.6306 | g_loss: 1.5399
Epoch [   20/   50] | d_loss: 0.9547 | g_loss: 1.3728
Epoch [   20/   50] | d_loss: 0.5371 | g_loss: 2.4749
Epoch [   20/   50] | d_loss: 0.3884 | g_loss: 4.3787
Epoch [   20/   50] | d_loss: 0.6467 | g_loss: 1.9382
Epoch [   20/   50] | d_loss: 0.4780 | g_loss: 2.5718
Epoch [   20/   50] | d_loss: 0.4366 | g_loss: 2.5854
Epoch [   20/   50] | d_loss: 0.3985 | g_loss: 2.4793
Epoch [   20/   50] | d_loss: 0.4090 | g_loss: 3.0293
Epoch [   20/   50] | d_loss: 0.5160 | g_loss: 2.9724
Epoch [   20/   50] | d_loss: 0.4996 | g_loss: 2.6260
Epoch [   20/   50] | d_loss: 0.5998 | g_loss: 2.5094
Epoch [   20/   50] | d_loss: 0.5074 | g_loss: 2.4143
Epoch [   20/   50] | d_loss: 0.4893 | g_loss: 3.4133
Epoch [   20/   50] | d_loss: 0.4770 | g_loss: 2.6505
Epoch [   20/   50] | d_loss: 0.3741 | g_loss: 4.3994
Epoch [   20/   50] | d_loss: 0.6729 | g_loss: 3.4171
Epoch [   21/   50] | d_loss: 0.4945 | g_loss: 2.2271
Epoch [   21/   50] | d_loss: 0.4105 | g_loss: 2.9992
Epoch [   21/   50] | d_loss: 0.4663 | g_loss: 2.9977
Epoch [   21/   50] | d_loss: 0.4491 | g_loss: 3.2100
Epoch [   21/   50] | d_loss: 0.4737 | g_loss: 3.9027
Epoch [   21/   50] | d_loss: 0.6368 | g_loss: 3.2427
Epoch [   21/   50] | d_loss: 0.6342 | g_loss: 1.9933
Epoch [   21/   50] | d_loss: 0.4907 | g_loss: 3.4996
Epoch [   21/   50] | d_loss: 0.4739 | g_loss: 2.8416
Epoch [   21/   50] | d_loss: 0.4943 | g_loss: 2.9070
Epoch [   21/   50] | d_loss: 0.9202 | g_loss: 3.9572
Epoch [   21/   50] | d_loss: 0.4184 | g_loss: 3.2161
Epoch [   21/   50] | d_loss: 0.3815 | g_loss: 3.6016
Epoch [   21/   50] | d_loss: 0.4759 | g_loss: 3.4828
Epoch [   21/   50] | d_loss: 0.4690 | g_loss: 3.6989
Epoch [   21/   50] | d_loss: 0.4914 | g_loss: 3.4074
Epoch [   21/   50] | d_loss: 0.4042 | g_loss: 3.1116
Epoch [   21/   50] | d_loss: 0.4338 | g_loss: 2.9105
```

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Epoch [   21/   50] | d_loss: 0.4936 | g_loss: 4.1870
Epoch [   21/   50] | d_loss: 0.5190 | g_loss: 3.5250
Epoch [   21/   50] | d_loss: 0.4744 | g_loss: 3.4909
Epoch [   21/   50] | d_loss: 0.4361 | g_loss: 3.3833
Epoch [   21/   50] | d_loss: 0.4948 | g_loss: 1.8480
Epoch [   21/   50] | d_loss: 0.4056 | g_loss: 2.9490
Epoch [   21/   50] | d_loss: 0.4786 | g_loss: 2.0875
Epoch [   21/   50] | d_loss: 0.4799 | g_loss: 3.7971
Epoch [   21/   50] | d_loss: 0.4393 | g_loss: 2.7921
Epoch [   21/   50] | d_loss: 0.5425 | g_loss: 2.3076
Epoch [   21/   50] | d_loss: 0.4232 | g_loss: 3.4841
Epoch [   21/   50] | d_loss: 0.4057 | g_loss: 3.2277
Epoch [   21/   50] | d_loss: 0.4173 | g_loss: 1.9121
Epoch [   21/   50] | d_loss: 0.9008 | g_loss: 4.7008
Epoch [   21/   50] | d_loss: 0.4692 | g_loss: 3.8953
Epoch [   21/   50] | d_loss: 0.3991 | g_loss: 3.5857
Epoch [   21/   50] | d_loss: 0.5450 | g_loss: 2.2062
Epoch [   21/   50] | d_loss: 0.4373 | g_loss: 2.9993
Epoch [   21/   50] | d_loss: 0.4044 | g_loss: 4.1102
Epoch [   21/   50] | d_loss: 0.3815 | g_loss: 3.5675
Epoch [   21/   50] | d_loss: 0.5016 | g_loss: 2.6328
Epoch [   21/   50] | d_loss: 0.5720 | g_loss: 3.0960
Epoch [   21/   50] | d_loss: 0.4260 | g_loss: 3.0147
Epoch [   21/   50] | d_loss: 0.5337 | g_loss: 3.1843
Epoch [   21/   50] | d_loss: 0.4016 | g_loss: 3.7754
Epoch [   21/   50] | d_loss: 0.4384 | g_loss: 2.8570
Epoch [   21/   50] | d_loss: 0.4561 | g_loss: 2.6629
Epoch [   21/   50] | d_loss: 0.4530 | g_loss: 3.0550
Epoch [   21/   50] | d_loss: 0.5272 | g_loss: 2.0759
Epoch [   21/   50] | d_loss: 0.3918 | g_loss: 3.5115
Epoch [   21/   50] | d_loss: 0.5068 | g_loss: 2.0986
Epoch [   21/   50] | d_loss: 0.3874 | g_loss: 2.5886
Epoch [   21/   50] | d_loss: 0.4088 | g_loss: 3.7388
Epoch [   21/   50] | d_loss: 0.4261 | g_loss: 3.2827
Epoch [   21/   50] | d_loss: 0.4403 | g_loss: 3.8144
Epoch [   21/   50] | d_loss: 0.7726 | g_loss: 1.6069
Epoch [   21/   50] | d_loss: 0.5687 | g_loss: 3.5669
Epoch [   21/   50] | d_loss: 0.4077 | g_loss: 3.0326
Epoch [   21/   50] | d_loss: 0.5247 | g_loss: 2.2022
Epoch [   22/   50] | d_loss: 0.5772 | g_loss: 3.2754
Epoch [   22/   50] | d_loss: 0.4011 | g_loss: 3.6552
Epoch [   22/   50] | d_loss: 0.5044 | g_loss: 2.8314
Epoch [   22/   50] | d_loss: 0.6977 | g_loss: 4.2879
Epoch [   22/   50] | d_loss: 0.4992 | g_loss: 3.9077
Epoch [   22/   50] | d_loss: 0.5200 | g_loss: 2.1520
Epoch [   22/   50] | d_loss: 0.4171 | g_loss: 3.1931
Epoch [   22/   50] | d_loss: 0.4150 | g_loss: 3.1791
Epoch [   22/   50] | d_loss: 0.5206 | g_loss: 3.0977
```

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Epoch [   22/   50] | d_loss: 0.4191 | g_loss: 4.5337
Epoch [   22/   50] | d_loss: 0.4607 | g_loss: 3.7121
Epoch [   22/   50] | d_loss: 0.4954 | g_loss: 3.5963
Epoch [   22/   50] | d_loss: 1.1333 | g_loss: 1.8939
Epoch [   22/   50] | d_loss: 0.4221 | g_loss: 2.2134
Epoch [   22/   50] | d_loss: 0.5370 | g_loss: 4.0734
Epoch [   22/   50] | d_loss: 0.3793 | g_loss: 3.5949
Epoch [   22/   50] | d_loss: 0.5258 | g_loss: 4.1880
Epoch [   22/   50] | d_loss: 0.4416 | g_loss: 3.8604
Epoch [   22/   50] | d_loss: 0.8865 | g_loss: 4.1736
Epoch [   22/   50] | d_loss: 0.3988 | g_loss: 3.8756
Epoch [   22/   50] | d_loss: 0.4848 | g_loss: 3.1951
Epoch [   22/   50] | d_loss: 0.6469 | g_loss: 2.4284
Epoch [   22/   50] | d_loss: 0.6777 | g_loss: 1.7672
Epoch [   22/   50] | d_loss: 0.8575 | g_loss: 3.7717
Epoch [   22/   50] | d_loss: 0.4653 | g_loss: 4.0292
Epoch [   22/   50] | d_loss: 0.3834 | g_loss: 2.8604
Epoch [   22/   50] | d_loss: 0.3890 | g_loss: 3.3602
Epoch [   22/   50] | d_loss: 0.5034 | g_loss: 2.8852
Epoch [   22/   50] | d_loss: 0.3824 | g_loss: 3.0502
Epoch [   22/   50] | d_loss: 0.6025 | g_loss: 3.2609
Epoch [   22/   50] | d_loss: 0.6559 | g_loss: 1.2739
Epoch [   22/   50] | d_loss: 0.5064 | g_loss: 2.7649
Epoch [   22/   50] | d_loss: 0.4016 | g_loss: 2.7914
Epoch [   22/   50] | d_loss: 0.4287 | g_loss: 2.4077
Epoch [   22/   50] | d_loss: 0.4462 | g_loss: 2.6557
Epoch [   22/   50] | d_loss: 0.4014 | g_loss: 4.0843
Epoch [   22/   50] | d_loss: 0.4202 | g_loss: 4.1510
Epoch [   22/   50] | d_loss: 0.4657 | g_loss: 2.3678
Epoch [   22/   50] | d_loss: 0.4211 | g_loss: 3.8332
Epoch [   22/   50] | d_loss: 0.3775 | g_loss: 3.9344
Epoch [   22/   50] | d_loss: 0.4529 | g_loss: 3.7440
Epoch [   22/   50] | d_loss: 0.6286 | g_loss: 3.6457
Epoch [   22/   50] | d_loss: 0.4273 | g_loss: 3.8618
Epoch [   22/   50] | d_loss: 0.4891 | g_loss: 4.1055
Epoch [   22/   50] | d_loss: 0.4618 | g_loss: 2.9411
Epoch [   22/   50] | d_loss: 0.5649 | g_loss: 4.0381
Epoch [   22/   50] | d_loss: 0.4125 | g_loss: 3.2902
Epoch [   22/   50] | d_loss: 0.4162 | g_loss: 3.2901
Epoch [   22/   50] | d_loss: 0.3928 | g_loss: 3.2743
Epoch [   22/   50] | d_loss: 0.4136 | g_loss: 2.5400
Epoch [   22/   50] | d_loss: 0.4530 | g_loss: 2.9324
Epoch [   22/   50] | d_loss: 1.0746 | g_loss: 1.4203
Epoch [   22/   50] | d_loss: 0.4104 | g_loss: 3.1080
Epoch [   22/   50] | d_loss: 0.4615 | g_loss: 2.1828
Epoch [   22/   50] | d_loss: 0.4578 | g_loss: 3.7214
Epoch [   22/   50] | d_loss: 0.5090 | g_loss: 2.6726
Epoch [   22/   50] | d_loss: 0.3983 | g_loss: 3.9871
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Epoch [   23/   50] | d_loss: 0.4239 | g_loss: 3.1150
Epoch [   23/   50] | d_loss: 0.5526 | g_loss: 2.0581
Epoch [   23/   50] | d_loss: 0.6001 | g_loss: 2.8886
Epoch [   23/   50] | d_loss: 1.4649 | g_loss: 0.9862
Epoch [   23/   50] | d_loss: 0.4386 | g_loss: 2.7452
Epoch [   23/   50] | d_loss: 0.3990 | g_loss: 3.2990
Epoch [   23/   50] | d_loss: 0.4706 | g_loss: 3.3311
Epoch [   23/   50] | d_loss: 0.5257 | g_loss: 3.2963
Epoch [   23/   50] | d_loss: 0.3762 | g_loss: 3.1197
Epoch [   23/   50] | d_loss: 0.4545 | g_loss: 2.6729
Epoch [   23/   50] | d_loss: 0.4791 | g_loss: 2.3744
Epoch [   23/   50] | d_loss: 0.4024 | g_loss: 3.9652
Epoch [   23/   50] | d_loss: 0.4070 | g_loss: 3.7659
Epoch [   23/   50] | d_loss: 0.4240 | g_loss: 3.9249
Epoch [   23/   50] | d_loss: 0.4631 | g_loss: 4.3083
Epoch [   23/   50] | d_loss: 0.4095 | g_loss: 2.9374
Epoch [   23/   50] | d_loss: 0.4032 | g_loss: 3.5021
Epoch [   23/   50] | d_loss: 0.3852 | g_loss: 2.4734
Epoch [   23/   50] | d_loss: 0.4423 | g_loss: 3.5272
Epoch [   23/   50] | d_loss: 0.3801 | g_loss: 3.3453
Epoch [   23/   50] | d_loss: 0.5738 | g_loss: 1.4032
Epoch [   23/   50] | d_loss: 0.4012 | g_loss: 4.2090
Epoch [   23/   50] | d_loss: 0.5545 | g_loss: 2.7923
Epoch [   23/   50] | d_loss: 0.5110 | g_loss: 2.9718
Epoch [   23/   50] | d_loss: 0.7552 | g_loss: 3.8019
Epoch [   23/   50] | d_loss: 0.4349 | g_loss: 2.5500
Epoch [   23/   50] | d_loss: 0.4420 | g_loss: 2.9981
Epoch [   23/   50] | d_loss: 0.4944 | g_loss: 3.9316
Epoch [   23/   50] | d_loss: 0.9311 | g_loss: 4.4918
Epoch [   23/   50] | d_loss: 0.4316 | g_loss: 2.7377
Epoch [   23/   50] | d_loss: 0.5181 | g_loss: 3.4176
Epoch [   23/   50] | d_loss: 0.5695 | g_loss: 1.9960
Epoch [   23/   50] | d_loss: 0.4766 | g_loss: 2.7524
Epoch [   23/   50] | d_loss: 0.4129 | g_loss: 3.0337
Epoch [   23/   50] | d_loss: 0.3884 | g_loss: 3.4330
Epoch [   23/   50] | d_loss: 0.7780 | g_loss: 2.1280
Epoch [   23/   50] | d_loss: 0.4831 | g_loss: 3.1928
Epoch [   23/   50] | d_loss: 0.5082 | g_loss: 2.2829
Epoch [   23/   50] | d_loss: 0.3858 | g_loss: 3.4478
Epoch [   23/   50] | d_loss: 0.4238 | g_loss: 3.5053
Epoch [   23/   50] | d_loss: 0.5143 | g_loss: 2.4303
Epoch [   23/   50] | d_loss: 0.3840 | g_loss: 3.5297
Epoch [   23/   50] | d_loss: 0.3815 | g_loss: 3.1705
Epoch [   23/   50] | d_loss: 0.4297 | g_loss: 4.0401
Epoch [   23/   50] | d_loss: 0.4368 | g_loss: 3.1435
Epoch [   23/   50] | d_loss: 0.4602 | g_loss: 2.7310
Epoch [   23/   50] | d_loss: 0.3911 | g_loss: 4.1349
Epoch [   23/   50] | d_loss: 0.4628 | g_loss: 2.5262
```

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Epoch [   23/   50] | d_loss: 0.4163 | g_loss: 4.1268
Epoch [   23/   50] | d_loss: 0.4064 | g_loss: 3.0527
Epoch [   23/   50] | d_loss: 0.3987 | g_loss: 3.1821
Epoch [   23/   50] | d_loss: 0.9821 | g_loss: 5.1579
Epoch [   23/   50] | d_loss: 0.4028 | g_loss: 2.6268
Epoch [   23/   50] | d_loss: 0.6876 | g_loss: 3.2865
Epoch [   23/   50] | d_loss: 0.4733 | g_loss: 3.8228
Epoch [   23/   50] | d_loss: 0.4305 | g_loss: 3.7699
Epoch [   23/   50] | d_loss: 0.4571 | g_loss: 2.8251
Epoch [   24/   50] | d_loss: 0.4047 | g_loss: 2.8594
Epoch [   24/   50] | d_loss: 0.5081 | g_loss: 3.3544
Epoch [   24/   50] | d_loss: 0.4129 | g_loss: 3.3218
Epoch [   24/   50] | d_loss: 0.4286 | g_loss: 2.9155
Epoch [   24/   50] | d_loss: 0.3916 | g_loss: 3.5341
Epoch [   24/   50] | d_loss: 1.2473 | g_loss: 4.5101
Epoch [   24/   50] | d_loss: 0.4397 | g_loss: 3.1014
Epoch [   24/   50] | d_loss: 0.4057 | g_loss: 2.5349
Epoch [   24/   50] | d_loss: 0.5300 | g_loss: 3.0150
Epoch [   24/   50] | d_loss: 0.4688 | g_loss: 2.4466
Epoch [   24/   50] | d_loss: 0.5976 | g_loss: 3.4001
Epoch [   24/   50] | d_loss: 0.4409 | g_loss: 3.3508
Epoch [   24/   50] | d_loss: 0.4185 | g_loss: 2.3902
Epoch [   24/   50] | d_loss: 0.5028 | g_loss: 3.7498
Epoch [   24/   50] | d_loss: 0.3927 | g_loss: 2.2495
Epoch [   24/   50] | d_loss: 0.4410 | g_loss: 2.6728
Epoch [   24/   50] | d_loss: 0.4271 | g_loss: 2.2928
Epoch [   24/   50] | d_loss: 0.4201 | g_loss: 3.7758
Epoch [   24/   50] | d_loss: 0.4696 | g_loss: 2.5798
Epoch [   24/   50] | d_loss: 0.3934 | g_loss: 2.8542
Epoch [   24/   50] | d_loss: 0.3939 | g_loss: 3.4748
Epoch [   24/   50] | d_loss: 0.3729 | g_loss: 3.9420
Epoch [   24/   50] | d_loss: 0.4638 | g_loss: 3.4074
Epoch [   24/   50] | d_loss: 0.4601 | g_loss: 2.9890
Epoch [   24/   50] | d_loss: 0.4912 | g_loss: 4.2130
Epoch [   24/   50] | d_loss: 0.6658 | g_loss: 2.4311
Epoch [   24/   50] | d_loss: 0.6697 | g_loss: 3.4939
Epoch [   24/   50] | d_loss: 0.4693 | g_loss: 2.0339
Epoch [   24/   50] | d_loss: 0.3980 | g_loss: 3.4272
Epoch [   24/   50] | d_loss: 0.3757 | g_loss: 4.5767
Epoch [   24/   50] | d_loss: 0.4511 | g_loss: 2.8659
Epoch [   24/   50] | d_loss: 0.4573 | g_loss: 3.2154
Epoch [   24/   50] | d_loss: 0.4117 | g_loss: 2.5442
Epoch [   24/   50] | d_loss: 0.5276 | g_loss: 3.4029
Epoch [   24/   50] | d_loss: 0.4522 | g_loss: 2.6275
Epoch [   24/   50] | d_loss: 0.4989 | g_loss: 3.0494
Epoch [   24/   50] | d_loss: 0.4106 | g_loss: 2.7949
Epoch [   24/   50] | d_loss: 0.4291 | g_loss: 4.5514
Epoch [   24/   50] | d_loss: 0.3678 | g_loss: 3.7423
```

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Epoch [   24/   50] | d_loss: 0.4762 | g_loss: 3.5690
Epoch [   24/   50] | d_loss: 0.4373 | g_loss: 2.3682
Epoch [   24/   50] | d_loss: 0.4540 | g_loss: 2.8593
Epoch [   24/   50] | d_loss: 0.4446 | g_loss: 3.5463
Epoch [   24/   50] | d_loss: 0.4147 | g_loss: 2.6126
Epoch [   24/   50] | d_loss: 0.3948 | g_loss: 3.3802
Epoch [   24/   50] | d_loss: 0.4257 | g_loss: 3.7315
Epoch [   24/   50] | d_loss: 0.3773 | g_loss: 4.3033
Epoch [   24/   50] | d_loss: 0.4216 | g_loss: 4.4367
Epoch [   24/   50] | d_loss: 0.4412 | g_loss: 2.7673
Epoch [   24/   50] | d_loss: 0.4001 | g_loss: 3.5222
Epoch [   24/   50] | d_loss: 0.3759 | g_loss: 3.9344
Epoch [   24/   50] | d_loss: 0.4325 | g_loss: 3.4586
Epoch [   24/   50] | d_loss: 0.4907 | g_loss: 2.6566
Epoch [   24/   50] | d_loss: 0.4818 | g_loss: 4.0843
Epoch [   24/   50] | d_loss: 0.4040 | g_loss: 2.4783
Epoch [   24/   50] | d_loss: 0.4010 | g_loss: 3.1702
Epoch [   24/   50] | d_loss: 0.4635 | g_loss: 3.6211
Epoch [   25/   50] | d_loss: 0.3800 | g_loss: 3.7001
Epoch [   25/   50] | d_loss: 0.8344 | g_loss: 1.9292
Epoch [   25/   50] | d_loss: 0.5103 | g_loss: 3.9401
Epoch [   25/   50] | d_loss: 0.3973 | g_loss: 1.9876
Epoch [   25/   50] | d_loss: 0.4264 | g_loss: 2.8882
Epoch [   25/   50] | d_loss: 0.5424 | g_loss: 3.0453
Epoch [   25/   50] | d_loss: 0.4611 | g_loss: 2.5398
Epoch [   25/   50] | d_loss: 1.0799 | g_loss: 3.7050
Epoch [   25/   50] | d_loss: 0.4420 | g_loss: 4.3409
Epoch [   25/   50] | d_loss: 0.4530 | g_loss: 2.7161
Epoch [   25/   50] | d_loss: 0.4488 | g_loss: 3.3214
Epoch [   25/   50] | d_loss: 0.5184 | g_loss: 2.4294
Epoch [   25/   50] | d_loss: 0.4203 | g_loss: 2.4274
Epoch [   25/   50] | d_loss: 0.3959 | g_loss: 3.9863
Epoch [   25/   50] | d_loss: 0.4240 | g_loss: 2.6872
Epoch [   25/   50] | d_loss: 0.4875 | g_loss: 2.8003
Epoch [   25/   50] | d_loss: 0.4545 | g_loss: 2.4280
Epoch [   25/   50] | d_loss: 0.4847 | g_loss: 3.2150
Epoch [   25/   50] | d_loss: 0.3877 | g_loss: 3.3306
Epoch [   25/   50] | d_loss: 0.4979 | g_loss: 3.6899
Epoch [   25/   50] | d_loss: 0.4858 | g_loss: 3.8945
Epoch [   25/   50] | d_loss: 0.8252 | g_loss: 4.8907
Epoch [   25/   50] | d_loss: 0.4001 | g_loss: 4.9720
Epoch [   25/   50] | d_loss: 0.4091 | g_loss: 3.4951
Epoch [   25/   50] | d_loss: 0.4283 | g_loss: 3.2935
Epoch [   25/   50] | d_loss: 0.3941 | g_loss: 4.2880
Epoch [   25/   50] | d_loss: 0.4233 | g_loss: 3.4337
Epoch [   25/   50] | d_loss: 0.3705 | g_loss: 3.7227
Epoch [   25/   50] | d_loss: 0.5335 | g_loss: 3.3744
Epoch [   25/   50] | d_loss: 0.5127 | g_loss: 2.7684
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Epoch [   25/   50] | d_loss: 0.4352 | g_loss: 3.4800
Epoch [   25/   50] | d_loss: 0.3908 | g_loss: 2.4494
Epoch [   25/   50] | d_loss: 0.4876 | g_loss: 2.1502
Epoch [   25/   50] | d_loss: 0.5190 | g_loss: 2.3374
Epoch [   25/   50] | d_loss: 0.5896 | g_loss: 3.1181
Epoch [   25/   50] | d_loss: 0.4964 | g_loss: 4.4938
Epoch [   25/   50] | d_loss: 0.4450 | g_loss: 2.5561
Epoch [   25/   50] | d_loss: 0.8321 | g_loss: 1.6922
Epoch [   25/   50] | d_loss: 0.4605 | g_loss: 3.1680
Epoch [   25/   50] | d_loss: 0.4955 | g_loss: 3.0459
Epoch [   25/   50] | d_loss: 0.5241 | g_loss: 3.2314
Epoch [   25/   50] | d_loss: 0.6054 | g_loss: 3.0592
Epoch [   25/   50] | d_loss: 0.5907 | g_loss: 3.3756
Epoch [   25/   50] | d_loss: 0.5323 | g_loss: 3.3788
Epoch [   25/   50] | d_loss: 0.4931 | g_loss: 3.6107
Epoch [   25/   50] | d_loss: 0.4396 | g_loss: 2.3135
Epoch [   25/   50] | d_loss: 0.4087 | g_loss: 3.0124
Epoch [   25/   50] | d_loss: 0.5018 | g_loss: 2.1803
Epoch [   25/   50] | d_loss: 0.4064 | g_loss: 3.4923
Epoch [   25/   50] | d_loss: 0.4236 | g_loss: 2.6348
Epoch [   25/   50] | d_loss: 0.4479 | g_loss: 3.5009
Epoch [   25/   50] | d_loss: 0.5836 | g_loss: 2.9757
Epoch [   25/   50] | d_loss: 0.4241 | g_loss: 2.4821
Epoch [   25/   50] | d_loss: 0.4982 | g_loss: 2.8353
Epoch [   25/   50] | d_loss: 0.4456 | g_loss: 2.0073
Epoch [   25/   50] | d_loss: 0.5540 | g_loss: 4.3538
Epoch [   25/   50] | d_loss: 0.4013 | g_loss: 2.6327
Epoch [   26/   50] | d_loss: 0.6260 | g_loss: 3.0710
Epoch [   26/   50] | d_loss: 0.5238 | g_loss: 3.6303
Epoch [   26/   50] | d_loss: 0.4517 | g_loss: 3.7714
Epoch [   26/   50] | d_loss: 0.4109 | g_loss: 3.6082
Epoch [   26/   50] | d_loss: 0.4602 | g_loss: 3.9566
Epoch [   26/   50] | d_loss: 0.5145 | g_loss: 2.8455
Epoch [   26/   50] | d_loss: 0.3981 | g_loss: 3.7005
Epoch [   26/   50] | d_loss: 0.4636 | g_loss: 2.9933
Epoch [   26/   50] | d_loss: 0.4258 | g_loss: 2.7060
Epoch [   26/   50] | d_loss: 0.4480 | g_loss: 2.7593
Epoch [   26/   50] | d_loss: 0.4608 | g_loss: 3.8161
Epoch [   26/   50] | d_loss: 0.4812 | g_loss: 3.8874
Epoch [   26/   50] | d_loss: 0.4346 | g_loss: 2.1181
Epoch [   26/   50] | d_loss: 0.4214 | g_loss: 2.9527
Epoch [   26/   50] | d_loss: 0.5464 | g_loss: 4.6195
Epoch [   26/   50] | d_loss: 0.3986 | g_loss: 3.9917
Epoch [   26/   50] | d_loss: 0.4053 | g_loss: 2.5972
Epoch [   26/   50] | d_loss: 0.7278 | g_loss: 4.9504
Epoch [   26/   50] | d_loss: 0.4422 | g_loss: 3.0457
Epoch [   26/   50] | d_loss: 0.4444 | g_loss: 3.3563
Epoch [   26/   50] | d_loss: 0.7071 | g_loss: 3.8811
```

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Epoch [   26/   50] | d_loss: 0.4264 | g_loss: 2.5794
Epoch [   26/   50] | d_loss: 0.5052 | g_loss: 2.8207
Epoch [   26/   50] | d_loss: 0.4493 | g_loss: 3.3161
Epoch [   26/   50] | d_loss: 0.5401 | g_loss: 2.2305
Epoch [   26/   50] | d_loss: 0.4519 | g_loss: 3.3117
Epoch [   26/   50] | d_loss: 0.3945 | g_loss: 3.5806
Epoch [   26/   50] | d_loss: 0.3882 | g_loss: 4.0406
Epoch [   26/   50] | d_loss: 0.4485 | g_loss: 3.5273
Epoch [   26/   50] | d_loss: 0.4328 | g_loss: 4.6832
Epoch [   26/   50] | d_loss: 1.0456 | g_loss: 6.0910
Epoch [   26/   50] | d_loss: 0.3741 | g_loss: 3.7158
Epoch [   26/   50] | d_loss: 0.3807 | g_loss: 4.8513
Epoch [   26/   50] | d_loss: 0.3748 | g_loss: 3.6610
Epoch [   26/   50] | d_loss: 0.3918 | g_loss: 3.6748
Epoch [   26/   50] | d_loss: 0.4881 | g_loss: 3.0543
Epoch [   26/   50] | d_loss: 0.4119 | g_loss: 3.3164
Epoch [   26/   50] | d_loss: 0.4848 | g_loss: 2.7446
Epoch [   26/   50] | d_loss: 0.4004 | g_loss: 4.2554
Epoch [   26/   50] | d_loss: 0.4792 | g_loss: 3.9554
Epoch [   26/   50] | d_loss: 0.4150 | g_loss: 2.6549
Epoch [   26/   50] | d_loss: 0.4104 | g_loss: 3.7442
Epoch [   26/   50] | d_loss: 0.5322 | g_loss: 2.0821
Epoch [   26/   50] | d_loss: 0.3811 | g_loss: 3.9289
Epoch [   26/   50] | d_loss: 0.6422 | g_loss: 3.3948
Epoch [   26/   50] | d_loss: 0.5188 | g_loss: 3.4170
Epoch [   26/   50] | d_loss: 0.4451 | g_loss: 3.2149
Epoch [   26/   50] | d_loss: 0.4776 | g_loss: 2.0402
Epoch [   26/   50] | d_loss: 0.6948 | g_loss: 3.7867
Epoch [   26/   50] | d_loss: 0.4475 | g_loss: 4.2652
Epoch [   26/   50] | d_loss: 0.3818 | g_loss: 3.1894
Epoch [   26/   50] | d_loss: 0.4099 | g_loss: 3.7521
Epoch [   26/   50] | d_loss: 0.4340 | g_loss: 3.2798
Epoch [   26/   50] | d_loss: 0.5066 | g_loss: 2.9662
Epoch [   26/   50] | d_loss: 0.4880 | g_loss: 3.4176
Epoch [   26/   50] | d_loss: 0.5655 | g_loss: 1.8532
Epoch [   26/   50] | d_loss: 0.3753 | g_loss: 3.6246
Epoch [   27/   50] | d_loss: 0.4295 | g_loss: 3.6076
Epoch [   27/   50] | d_loss: 0.5860 | g_loss: 3.6830
Epoch [   27/   50] | d_loss: 0.4822 | g_loss: 2.3469
Epoch [   27/   50] | d_loss: 0.4209 | g_loss: 2.3174
Epoch [   27/   50] | d_loss: 0.3840 | g_loss: 3.4941
Epoch [   27/   50] | d_loss: 0.5602 | g_loss: 1.5161
Epoch [   27/   50] | d_loss: 0.5298 | g_loss: 5.0601
Epoch [   27/   50] | d_loss: 0.4348 | g_loss: 3.5959
Epoch [   27/   50] | d_loss: 0.8320 | g_loss: 4.8002
Epoch [   27/   50] | d_loss: 0.5103 | g_loss: 2.8375
Epoch [   27/   50] | d_loss: 0.4096 | g_loss: 4.6422
Epoch [   27/   50] | d_loss: 0.3982 | g_loss: 2.5864
```

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Epoch [   27/   50] | d_loss: 0.4338 | g_loss: 3.0108
Epoch [   27/   50] | d_loss: 0.3959 | g_loss: 2.6254
Epoch [   27/   50] | d_loss: 0.4512 | g_loss: 3.7071
Epoch [   27/   50] | d_loss: 0.4285 | g_loss: 2.8094
Epoch [   27/   50] | d_loss: 0.3803 | g_loss: 3.4722
Epoch [   27/   50] | d_loss: 0.5344 | g_loss: 4.0713
Epoch [   27/   50] | d_loss: 0.6232 | g_loss: 3.5905
Epoch [   27/   50] | d_loss: 0.4299 | g_loss: 3.7777
Epoch [   27/   50] | d_loss: 0.4205 | g_loss: 4.1827
Epoch [   27/   50] | d_loss: 0.5388 | g_loss: 2.9476
Epoch [   27/   50] | d_loss: 0.8396 | g_loss: 0.4039
Epoch [   27/   50] | d_loss: 0.4740 | g_loss: 3.1274
Epoch [   27/   50] | d_loss: 0.4394 | g_loss: 3.4276
Epoch [   27/   50] | d_loss: 0.3626 | g_loss: 4.1580
Epoch [   27/   50] | d_loss: 0.4162 | g_loss: 4.1876
Epoch [   27/   50] | d_loss: 0.5167 | g_loss: 3.2676
Epoch [   27/   50] | d_loss: 0.4210 | g_loss: 2.7205
Epoch [   27/   50] | d_loss: 0.4889 | g_loss: 3.3214
Epoch [   27/   50] | d_loss: 0.4165 | g_loss: 2.3908
Epoch [   27/   50] | d_loss: 0.3779 | g_loss: 3.7241
Epoch [   27/   50] | d_loss: 0.7070 | g_loss: 4.2326
Epoch [   27/   50] | d_loss: 0.5073 | g_loss: 3.2872
Epoch [   27/   50] | d_loss: 0.4699 | g_loss: 3.8537
Epoch [   27/   50] | d_loss: 0.3663 | g_loss: 3.7528
Epoch [   27/   50] | d_loss: 0.4082 | g_loss: 3.2060
Epoch [   27/   50] | d_loss: 0.4587 | g_loss: 3.7663
Epoch [   27/   50] | d_loss: 0.4326 | g_loss: 4.8531
Epoch [   27/   50] | d_loss: 0.4950 | g_loss: 2.4517
Epoch [   27/   50] | d_loss: 0.4946 | g_loss: 2.4948
Epoch [   27/   50] | d_loss: 0.3946 | g_loss: 2.2525
Epoch [   27/   50] | d_loss: 0.4133 | g_loss: 2.8805
Epoch [   27/   50] | d_loss: 0.6182 | g_loss: 2.1832
Epoch [   27/   50] | d_loss: 0.3879 | g_loss: 4.2517
Epoch [   27/   50] | d_loss: 0.4832 | g_loss: 2.8732
Epoch [   27/   50] | d_loss: 0.4755 | g_loss: 2.5193
Epoch [   27/   50] | d_loss: 0.3916 | g_loss: 2.5514
Epoch [   27/   50] | d_loss: 0.9503 | g_loss: 4.7208
Epoch [   27/   50] | d_loss: 0.5116 | g_loss: 3.0071
Epoch [   27/   50] | d_loss: 0.4147 | g_loss: 3.8051
Epoch [   27/   50] | d_loss: 0.4190 | g_loss: 3.6525
Epoch [   27/   50] | d_loss: 0.4131 | g_loss: 4.0321
Epoch [   27/   50] | d_loss: 0.3980 | g_loss: 3.8618
Epoch [   27/   50] | d_loss: 0.3929 | g_loss: 3.2969
Epoch [   27/   50] | d_loss: 0.5236 | g_loss: 3.5766
Epoch [   27/   50] | d_loss: 0.4004 | g_loss: 4.0925
Epoch [   28/   50] | d_loss: 0.3901 | g_loss: 3.8073
Epoch [   28/   50] | d_loss: 0.7075 | g_loss: 1.4983
Epoch [   28/   50] | d_loss: 0.4924 | g_loss: 3.4128
```

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Epoch [   28/   50] | d_loss: 0.3814 | g_loss: 3.9574
Epoch [   28/   50] | d_loss: 0.3662 | g_loss: 4.3140
Epoch [   28/   50] | d_loss: 0.4576 | g_loss: 3.7369
Epoch [   28/   50] | d_loss: 0.4072 | g_loss: 3.3721
Epoch [   28/   50] | d_loss: 0.5642 | g_loss: 3.2706
Epoch [   28/   50] | d_loss: 0.5487 | g_loss: 2.5991
Epoch [   28/   50] | d_loss: 0.4233 | g_loss: 3.3759
Epoch [   28/   50] | d_loss: 0.4054 | g_loss: 4.5697
Epoch [   28/   50] | d_loss: 0.3860 | g_loss: 3.2362
Epoch [   28/   50] | d_loss: 0.3764 | g_loss: 4.2794
Epoch [   28/   50] | d_loss: 0.4685 | g_loss: 3.3629
Epoch [   28/   50] | d_loss: 0.4989 | g_loss: 4.6278
Epoch [   28/   50] | d_loss: 0.4325 | g_loss: 2.7361
Epoch [   28/   50] | d_loss: 0.3934 | g_loss: 3.7793
Epoch [   28/   50] | d_loss: 0.4042 | g_loss: 4.1844
Epoch [   28/   50] | d_loss: 0.6625 | g_loss: 1.6046
Epoch [   28/   50] | d_loss: 0.3940 | g_loss: 2.7844
Epoch [   28/   50] | d_loss: 0.7609 | g_loss: 3.5853
Epoch [   28/   50] | d_loss: 0.4189 | g_loss: 3.0916
Epoch [   28/   50] | d_loss: 0.4246 | g_loss: 3.5525
Epoch [   28/   50] | d_loss: 0.3764 | g_loss: 3.0348
Epoch [   28/   50] | d_loss: 0.4163 | g_loss: 4.0987
Epoch [   28/   50] | d_loss: 0.3880 | g_loss: 2.7094
Epoch [   28/   50] | d_loss: 0.4169 | g_loss: 3.7196
Epoch [   28/   50] | d_loss: 0.4453 | g_loss: 2.8014
Epoch [   28/   50] | d_loss: 0.4206 | g_loss: 4.2985
Epoch [   28/   50] | d_loss: 0.4323 | g_loss: 2.2353
Epoch [   28/   50] | d_loss: 0.3853 | g_loss: 5.0874
Epoch [   28/   50] | d_loss: 0.4834 | g_loss: 2.9130
Epoch [   28/   50] | d_loss: 0.4175 | g_loss: 3.8218
Epoch [   28/   50] | d_loss: 0.6508 | g_loss: 1.4830
Epoch [   28/   50] | d_loss: 0.5070 | g_loss: 1.5568
Epoch [   28/   50] | d_loss: 0.3971 | g_loss: 2.4357
Epoch [   28/   50] | d_loss: 0.6645 | g_loss: 2.3920
Epoch [   28/   50] | d_loss: 0.4300 | g_loss: 3.2927
Epoch [   28/   50] | d_loss: 0.3785 | g_loss: 4.2086
Epoch [   28/   50] | d_loss: 0.4826 | g_loss: 2.4456
Epoch [   28/   50] | d_loss: 0.4019 | g_loss: 5.1995
Epoch [   28/   50] | d_loss: 0.4261 | g_loss: 4.7138
Epoch [   28/   50] | d_loss: 0.4123 | g_loss: 4.2711
Epoch [   28/   50] | d_loss: 0.4165 | g_loss: 5.1845
Epoch [   28/   50] | d_loss: 0.3664 | g_loss: 3.8675
Epoch [   28/   50] | d_loss: 0.4646 | g_loss: 3.9072
Epoch [   28/   50] | d_loss: 0.4677 | g_loss: 3.0862
Epoch [   28/   50] | d_loss: 0.4408 | g_loss: 3.0660
Epoch [   28/   50] | d_loss: 0.5175 | g_loss: 2.3312
Epoch [   28/   50] | d_loss: 0.4665 | g_loss: 2.9869
Epoch [   28/   50] | d_loss: 0.5527 | g_loss: 2.3529
```

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Epoch [   28/   50] | d_loss: 0.3966 | g_loss: 3.6250
Epoch [   28/   50] | d_loss: 0.4094 | g_loss: 3.6971
Epoch [   28/   50] | d_loss: 0.4584 | g_loss: 4.2218
Epoch [   28/   50] | d_loss: 0.5853 | g_loss: 4.0139
Epoch [   28/   50] | d_loss: 0.4340 | g_loss: 3.2580
Epoch [   28/   50] | d_loss: 0.5417 | g_loss: 3.6269
Epoch [   29/   50] | d_loss: 0.3995 | g_loss: 2.9817
Epoch [   29/   50] | d_loss: 0.4171 | g_loss: 4.0199
Epoch [   29/   50] | d_loss: 0.8042 | g_loss: 3.1350
Epoch [   29/   50] | d_loss: 0.4229 | g_loss: 4.2037
Epoch [   29/   50] | d_loss: 0.4319 | g_loss: 3.3946
Epoch [   29/   50] | d_loss: 0.3732 | g_loss: 4.1714
Epoch [   29/   50] | d_loss: 0.4022 | g_loss: 3.2143
Epoch [   29/   50] | d_loss: 0.5763 | g_loss: 2.4545
Epoch [   29/   50] | d_loss: 0.4245 | g_loss: 3.7924
Epoch [   29/   50] | d_loss: 0.4300 | g_loss: 5.0679
Epoch [   29/   50] | d_loss: 0.4405 | g_loss: 3.0887
Epoch [   29/   50] | d_loss: 0.3736 | g_loss: 4.0735
Epoch [   29/   50] | d_loss: 0.3733 | g_loss: 4.6615
Epoch [   29/   50] | d_loss: 1.5372 | g_loss: 6.0065
Epoch [   29/   50] | d_loss: 0.6409 | g_loss: 2.3998
Epoch [   29/   50] | d_loss: 0.4219 | g_loss: 3.6690
Epoch [   29/   50] | d_loss: 0.5379 | g_loss: 2.6685
Epoch [   29/   50] | d_loss: 0.5715 | g_loss: 2.1390
Epoch [   29/   50] | d_loss: 0.6481 | g_loss: 1.5186
Epoch [   29/   50] | d_loss: 0.4497 | g_loss: 4.8000
Epoch [   29/   50] | d_loss: 0.3739 | g_loss: 3.8742
Epoch [   29/   50] | d_loss: 0.4112 | g_loss: 3.6795
Epoch [   29/   50] | d_loss: 0.5186 | g_loss: 2.8299
Epoch [   29/   50] | d_loss: 0.5593 | g_loss: 2.0207
Epoch [   29/   50] | d_loss: 0.3819 | g_loss: 3.9414
Epoch [   29/   50] | d_loss: 0.3782 | g_loss: 3.8511
Epoch [   29/   50] | d_loss: 0.3938 | g_loss: 3.0957
Epoch [   29/   50] | d_loss: 0.4441 | g_loss: 3.1295
Epoch [   29/   50] | d_loss: 0.4142 | g_loss: 2.6229
Epoch [   29/   50] | d_loss: 0.4175 | g_loss: 3.5910
Epoch [   29/   50] | d_loss: 0.3825 | g_loss: 3.2324
Epoch [   29/   50] | d_loss: 0.5018 | g_loss: 2.9448
Epoch [   29/   50] | d_loss: 0.4506 | g_loss: 4.2501
Epoch [   29/   50] | d_loss: 0.4814 | g_loss: 3.9492
Epoch [   29/   50] | d_loss: 0.4364 | g_loss: 3.3076
Epoch [   29/   50] | d_loss: 0.4059 | g_loss: 2.6614
Epoch [   29/   50] | d_loss: 0.4186 | g_loss: 2.7831
Epoch [   29/   50] | d_loss: 0.4210 | g_loss: 2.6836
Epoch [   29/   50] | d_loss: 0.8072 | g_loss: 0.9849
Epoch [   29/   50] | d_loss: 0.6613 | g_loss: 0.8063
Epoch [   29/   50] | d_loss: 0.4951 | g_loss: 4.7605
Epoch [   29/   50] | d_loss: 0.4920 | g_loss: 4.1684
```

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Epoch [   29/   50] | d_loss: 0.3829 | g_loss: 4.3731
Epoch [   29/   50] | d_loss: 0.7491 | g_loss: 2.7498
Epoch [   29/   50] | d_loss: 0.3773 | g_loss: 4.0501
Epoch [   29/   50] | d_loss: 0.4496 | g_loss: 2.8889
Epoch [   29/   50] | d_loss: 0.4513 | g_loss: 3.4352
Epoch [   29/   50] | d_loss: 0.5445 | g_loss: 3.3580
Epoch [   29/   50] | d_loss: 0.5807 | g_loss: 3.9758
Epoch [   29/   50] | d_loss: 0.4245 | g_loss: 3.8260
Epoch [   29/   50] | d_loss: 0.4059 | g_loss: 4.4447
Epoch [   29/   50] | d_loss: 0.5282 | g_loss: 2.2712
Epoch [   29/   50] | d_loss: 0.4109 | g_loss: 2.6999
Epoch [   29/   50] | d_loss: 0.3944 | g_loss: 4.0890
Epoch [   29/   50] | d_loss: 0.4330 | g_loss: 3.9649
Epoch [   29/   50] | d_loss: 0.3905 | g_loss: 2.9998
Epoch [   29/   50] | d_loss: 0.5915 | g_loss: 3.6824
Epoch [   30/   50] | d_loss: 0.4182 | g_loss: 3.1080
Epoch [   30/   50] | d_loss: 0.4580 | g_loss: 3.4988
Epoch [   30/   50] | d_loss: 0.8589 | g_loss: 4.3181
Epoch [   30/   50] | d_loss: 0.3953 | g_loss: 3.8246
Epoch [   30/   50] | d_loss: 0.8302 | g_loss: 1.7999
Epoch [   30/   50] | d_loss: 0.4545 | g_loss: 3.4509
Epoch [   30/   50] | d_loss: 0.3811 | g_loss: 4.2059
Epoch [   30/   50] | d_loss: 0.4252 | g_loss: 2.3139
Epoch [   30/   50] | d_loss: 0.4033 | g_loss: 2.9094
Epoch [   30/   50] | d_loss: 0.7116 | g_loss: 3.6906
Epoch [   30/   50] | d_loss: 0.4098 | g_loss: 3.0806
Epoch [   30/   50] | d_loss: 0.7521 | g_loss: 3.8370
Epoch [   30/   50] | d_loss: 0.4980 | g_loss: 2.1310
Epoch [   30/   50] | d_loss: 0.4413 | g_loss: 4.5381
Epoch [   30/   50] | d_loss: 0.4359 | g_loss: 3.2420
Epoch [   30/   50] | d_loss: 0.4036 | g_loss: 2.4643
Epoch [   30/   50] | d_loss: 0.4398 | g_loss: 3.3755
Epoch [   30/   50] | d_loss: 0.4069 | g_loss: 3.9281
Epoch [   30/   50] | d_loss: 0.4391 | g_loss: 3.1716
Epoch [   30/   50] | d_loss: 0.8846 | g_loss: 5.0667
Epoch [   30/   50] | d_loss: 0.5143 | g_loss: 4.1995
Epoch [   30/   50] | d_loss: 1.3183 | g_loss: 4.4721
Epoch [   30/   50] | d_loss: 0.5551 | g_loss: 2.5054
Epoch [   30/   50] | d_loss: 0.7399 | g_loss: 0.7820
Epoch [   30/   50] | d_loss: 0.3992 | g_loss: 3.5360
Epoch [   30/   50] | d_loss: 0.4440 | g_loss: 2.4155
Epoch [   30/   50] | d_loss: 0.4819 | g_loss: 3.3977
Epoch [   30/   50] | d_loss: 0.4294 | g_loss: 4.3442
Epoch [   30/   50] | d_loss: 0.3830 | g_loss: 4.7086
Epoch [   30/   50] | d_loss: 0.5547 | g_loss: 2.7876
Epoch [   30/   50] | d_loss: 0.5846 | g_loss: 1.6515
Epoch [   30/   50] | d_loss: 0.4711 | g_loss: 3.6333
Epoch [   30/   50] | d_loss: 0.5566 | g_loss: 1.2391
```

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Epoch [   30/   50] | d_loss: 0.5008 | g_loss: 3.2541
Epoch [   30/   50] | d_loss: 0.4045 | g_loss: 3.8528
Epoch [   30/   50] | d_loss: 0.4386 | g_loss: 3.5703
Epoch [   30/   50] | d_loss: 0.3849 | g_loss: 2.7754
Epoch [   30/   50] | d_loss: 0.5309 | g_loss: 2.2517
Epoch [   30/   50] | d_loss: 0.5024 | g_loss: 3.5361
Epoch [   30/   50] | d_loss: 0.4493 | g_loss: 3.6382
Epoch [   30/   50] | d_loss: 0.3875 | g_loss: 3.8824
Epoch [   30/   50] | d_loss: 0.4909 | g_loss: 3.3405
Epoch [   30/   50] | d_loss: 0.3797 | g_loss: 2.7172
Epoch [   30/   50] | d_loss: 0.3774 | g_loss: 3.4804
Epoch [   30/   50] | d_loss: 0.3831 | g_loss: 3.7699
Epoch [   30/   50] | d_loss: 0.4676 | g_loss: 3.2398
Epoch [   30/   50] | d_loss: 0.4251 | g_loss: 3.4390
Epoch [   30/   50] | d_loss: 0.3777 | g_loss: 3.0722
Epoch [   30/   50] | d_loss: 0.5676 | g_loss: 4.9662
Epoch [   30/   50] | d_loss: 0.3793 | g_loss: 3.2850
Epoch [   30/   50] | d_loss: 0.4438 | g_loss: 2.8254
Epoch [   30/   50] | d_loss: 0.4139 | g_loss: 3.1467
Epoch [   30/   50] | d_loss: 0.7862 | g_loss: 3.7980
Epoch [   30/   50] | d_loss: 0.3996 | g_loss: 3.7592
Epoch [   30/   50] | d_loss: 0.4134 | g_loss: 3.1436
Epoch [   30/   50] | d_loss: 0.4168 | g_loss: 3.4015
Epoch [   30/   50] | d_loss: 0.4368 | g_loss: 4.3811
Epoch [   31/   50] | d_loss: 0.3821 | g_loss: 3.4478
Epoch [   31/   50] | d_loss: 0.4627 | g_loss: 2.5123
Epoch [   31/   50] | d_loss: 0.4056 | g_loss: 3.4939
Epoch [   31/   50] | d_loss: 0.3930 | g_loss: 3.2470
Epoch [   31/   50] | d_loss: 0.3989 | g_loss: 4.0339
Epoch [   31/   50] | d_loss: 0.4382 | g_loss: 3.5868
Epoch [   31/   50] | d_loss: 0.3688 | g_loss: 3.9944
Epoch [   31/   50] | d_loss: 0.4049 | g_loss: 4.5628
Epoch [   31/   50] | d_loss: 0.4480 | g_loss: 2.6878
Epoch [   31/   50] | d_loss: 0.3948 | g_loss: 3.8986
Epoch [   31/   50] | d_loss: 0.4572 | g_loss: 3.0747
Epoch [   31/   50] | d_loss: 0.6094 | g_loss: 2.0685
Epoch [   31/   50] | d_loss: 0.4630 | g_loss: 3.2215
Epoch [   31/   50] | d_loss: 0.3588 | g_loss: 4.5987
Epoch [   31/   50] | d_loss: 0.4605 | g_loss: 2.0631
Epoch [   31/   50] | d_loss: 0.6497 | g_loss: 3.7392
Epoch [   31/   50] | d_loss: 0.4295 | g_loss: 2.8420
Epoch [   31/   50] | d_loss: 0.4156 | g_loss: 4.2472
Epoch [   31/   50] | d_loss: 0.3567 | g_loss: 4.4084
Epoch [   31/   50] | d_loss: 0.3818 | g_loss: 3.0760
Epoch [   31/   50] | d_loss: 0.3985 | g_loss: 4.1962
Epoch [   31/   50] | d_loss: 0.4989 | g_loss: 3.9208
Epoch [   31/   50] | d_loss: 0.4221 | g_loss: 3.5234
Epoch [   31/   50] | d_loss: 0.4482 | g_loss: 3.2094
```

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Epoch [   31/   50] | d_loss: 0.4895 | g_loss: 2.2099
Epoch [   31/   50] | d_loss: 0.5011 | g_loss: 2.1871
Epoch [   31/   50] | d_loss: 0.4392 | g_loss: 2.4066
Epoch [   31/   50] | d_loss: 0.5110 | g_loss: 2.1706
Epoch [   31/   50] | d_loss: 0.4035 | g_loss: 2.8655
Epoch [   31/   50] | d_loss: 0.3884 | g_loss: 2.3646
Epoch [   31/   50] | d_loss: 0.4203 | g_loss: 4.1130
Epoch [   31/   50] | d_loss: 0.4170 | g_loss: 2.5840
Epoch [   31/   50] | d_loss: 0.4724 | g_loss: 3.5202
Epoch [   31/   50] | d_loss: 0.4263 | g_loss: 2.5201
Epoch [   31/   50] | d_loss: 0.4367 | g_loss: 2.5149
Epoch [   31/   50] | d_loss: 0.3688 | g_loss: 4.2787
Epoch [   31/   50] | d_loss: 0.4730 | g_loss: 2.7290
Epoch [   31/   50] | d_loss: 0.8080 | g_loss: 1.1452
Epoch [   31/   50] | d_loss: 0.6915 | g_loss: 5.0546
Epoch [   31/   50] | d_loss: 0.3674 | g_loss: 3.3933
Epoch [   31/   50] | d_loss: 0.3805 | g_loss: 3.8204
Epoch [   31/   50] | d_loss: 0.4346 | g_loss: 2.2888
Epoch [   31/   50] | d_loss: 0.4186 | g_loss: 3.8001
Epoch [   31/   50] | d_loss: 0.3703 | g_loss: 4.7047
Epoch [   31/   50] | d_loss: 0.3960 | g_loss: 3.3527
Epoch [   31/   50] | d_loss: 0.4336 | g_loss: 3.1319
Epoch [   31/   50] | d_loss: 0.3983 | g_loss: 2.4538
Epoch [   31/   50] | d_loss: 0.4729 | g_loss: 3.4449
Epoch [   31/   50] | d_loss: 0.3882 | g_loss: 3.0809
Epoch [   31/   50] | d_loss: 0.3907 | g_loss: 2.9428
Epoch [   31/   50] | d_loss: 0.3937 | g_loss: 3.1484
Epoch [   31/   50] | d_loss: 0.4025 | g_loss: 4.6281
Epoch [   31/   50] | d_loss: 0.4215 | g_loss: 2.6840
Epoch [   31/   50] | d_loss: 0.3861 | g_loss: 4.0307
Epoch [   31/   50] | d_loss: 0.3877 | g_loss: 4.4641
Epoch [   31/   50] | d_loss: 0.4266 | g_loss: 3.3351
Epoch [   31/   50] | d_loss: 0.4311 | g_loss: 3.6990
Epoch [   32/   50] | d_loss: 0.4401 | g_loss: 3.6023
Epoch [   32/   50] | d_loss: 0.5134 | g_loss: 3.2098
Epoch [   32/   50] | d_loss: 0.4274 | g_loss: 4.3807
Epoch [   32/   50] | d_loss: 0.6495 | g_loss: 3.0813
Epoch [   32/   50] | d_loss: 0.4817 | g_loss: 3.5825
Epoch [   32/   50] | d_loss: 0.4349 | g_loss: 2.0702
Epoch [   32/   50] | d_loss: 0.5108 | g_loss: 2.2682
Epoch [   32/   50] | d_loss: 0.3750 | g_loss: 3.4215
Epoch [   32/   50] | d_loss: 0.5018 | g_loss: 3.9039
Epoch [   32/   50] | d_loss: 1.0379 | g_loss: 4.8928
Epoch [   32/   50] | d_loss: 0.4335 | g_loss: 3.4654
Epoch [   32/   50] | d_loss: 0.4319 | g_loss: 4.0790
Epoch [   32/   50] | d_loss: 0.4393 | g_loss: 3.1707
Epoch [   32/   50] | d_loss: 0.4760 | g_loss: 3.0106
Epoch [   32/   50] | d_loss: 0.4110 | g_loss: 3.5093
```

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Epoch [   32/   50] | d_loss: 0.3891 | g_loss: 4.1311
Epoch [   32/   50] | d_loss: 0.5158 | g_loss: 2.1262
Epoch [   32/   50] | d_loss: 0.4233 | g_loss: 3.5683
Epoch [   32/   50] | d_loss: 0.4780 | g_loss: 3.1372
Epoch [   32/   50] | d_loss: 0.4227 | g_loss: 2.9788
Epoch [   32/   50] | d_loss: 0.3789 | g_loss: 3.0343
Epoch [   32/   50] | d_loss: 0.4521 | g_loss: 3.3018
Epoch [   32/   50] | d_loss: 0.4576 | g_loss: 3.1611
Epoch [   32/   50] | d_loss: 0.3802 | g_loss: 4.2999
Epoch [   32/   50] | d_loss: 0.4012 | g_loss: 3.5795
Epoch [   32/   50] | d_loss: 0.3793 | g_loss: 3.0740
Epoch [   32/   50] | d_loss: 0.3946 | g_loss: 3.0893
Epoch [   32/   50] | d_loss: 0.4402 | g_loss: 3.1249
Epoch [   32/   50] | d_loss: 0.4063 | g_loss: 2.9929
Epoch [   32/   50] | d_loss: 0.3550 | g_loss: 3.9886
Epoch [   32/   50] | d_loss: 0.4216 | g_loss: 3.1888
Epoch [   32/   50] | d_loss: 0.5837 | g_loss: 2.9612
Epoch [   32/   50] | d_loss: 0.3669 | g_loss: 3.9975
Epoch [   32/   50] | d_loss: 0.5157 | g_loss: 3.6941
Epoch [   32/   50] | d_loss: 0.4468 | g_loss: 3.4280
Epoch [   32/   50] | d_loss: 0.4760 | g_loss: 2.8153
Epoch [   32/   50] | d_loss: 0.4586 | g_loss: 3.0298
Epoch [   32/   50] | d_loss: 0.3782 | g_loss: 3.7236
Epoch [   32/   50] | d_loss: 0.5175 | g_loss: 4.1659
Epoch [   32/   50] | d_loss: 0.4642 | g_loss: 2.4782
Epoch [   32/   50] | d_loss: 0.3785 | g_loss: 2.7978
Epoch [   32/   50] | d_loss: 0.3824 | g_loss: 3.4439
Epoch [   32/   50] | d_loss: 0.3970 | g_loss: 4.3150
Epoch [   32/   50] | d_loss: 0.5128 | g_loss: 2.8107
Epoch [   32/   50] | d_loss: 0.4274 | g_loss: 2.9092
Epoch [   32/   50] | d_loss: 0.3708 | g_loss: 4.0654
Epoch [   32/   50] | d_loss: 0.3953 | g_loss: 4.0236
Epoch [   32/   50] | d_loss: 0.5125 | g_loss: 2.5237
Epoch [   32/   50] | d_loss: 0.4136 | g_loss: 3.6277
Epoch [   32/   50] | d_loss: 0.4011 | g_loss: 2.4808
Epoch [   32/   50] | d_loss: 0.6414 | g_loss: 1.9547
Epoch [   32/   50] | d_loss: 0.5433 | g_loss: 3.6835
Epoch [   32/   50] | d_loss: 0.4122 | g_loss: 2.6676
Epoch [   32/   50] | d_loss: 0.4366 | g_loss: 4.7131
Epoch [   32/   50] | d_loss: 0.4379 | g_loss: 2.4710
Epoch [   32/   50] | d_loss: 0.5922 | g_loss: 1.7042
Epoch [   32/   50] | d_loss: 0.5784 | g_loss: 2.0278
Epoch [   33/   50] | d_loss: 0.3761 | g_loss: 3.4930
Epoch [   33/   50] | d_loss: 0.3972 | g_loss: 3.5619
Epoch [   33/   50] | d_loss: 0.3881 | g_loss: 5.1893
Epoch [   33/   50] | d_loss: 0.4242 | g_loss: 3.2547
Epoch [   33/   50] | d_loss: 0.3740 | g_loss: 4.7661
Epoch [   33/   50] | d_loss: 0.4250 | g_loss: 3.1613
```

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Epoch [   33/   50] | d_loss: 0.4148 | g_loss: 4.0488
Epoch [   33/   50] | d_loss: 0.4178 | g_loss: 3.2238
Epoch [   33/   50] | d_loss: 0.5386 | g_loss: 2.1431
Epoch [   33/   50] | d_loss: 0.4041 | g_loss: 3.6665
Epoch [   33/   50] | d_loss: 0.5380 | g_loss: 2.8300
Epoch [   33/   50] | d_loss: 0.8850 | g_loss: 3.9507
Epoch [   33/   50] | d_loss: 0.3761 | g_loss: 2.3792
Epoch [   33/   50] | d_loss: 0.5226 | g_loss: 4.1268
Epoch [   33/   50] | d_loss: 0.4814 | g_loss: 3.8758
Epoch [   33/   50] | d_loss: 0.3970 | g_loss: 3.6931
Epoch [   33/   50] | d_loss: 1.1093 | g_loss: 4.6934
Epoch [   33/   50] | d_loss: 0.4948 | g_loss: 1.8920
Epoch [   33/   50] | d_loss: 0.3742 | g_loss: 3.1887
Epoch [   33/   50] | d_loss: 0.4703 | g_loss: 3.7451
Epoch [   33/   50] | d_loss: 0.4217 | g_loss: 1.9534
Epoch [   33/   50] | d_loss: 0.4262 | g_loss: 2.5629
Epoch [   33/   50] | d_loss: 0.3747 | g_loss: 2.6627
Epoch [   33/   50] | d_loss: 0.4294 | g_loss: 3.0132
Epoch [   33/   50] | d_loss: 0.5221 | g_loss: 3.0461
Epoch [   33/   50] | d_loss: 0.3749 | g_loss: 4.3272
Epoch [   33/   50] | d_loss: 0.4107 | g_loss: 3.4913
Epoch [   33/   50] | d_loss: 0.3996 | g_loss: 4.7493
Epoch [   33/   50] | d_loss: 0.4712 | g_loss: 2.5274
Epoch [   33/   50] | d_loss: 0.4633 | g_loss: 3.7758
Epoch [   33/   50] | d_loss: 0.3840 | g_loss: 3.1330
Epoch [   33/   50] | d_loss: 0.5963 | g_loss: 2.4385
Epoch [   33/   50] | d_loss: 0.5096 | g_loss: 4.1670
Epoch [   33/   50] | d_loss: 0.4035 | g_loss: 2.5218
Epoch [   33/   50] | d_loss: 0.4193 | g_loss: 4.5776
Epoch [   33/   50] | d_loss: 0.4230 | g_loss: 3.1794
Epoch [   33/   50] | d_loss: 0.4022 | g_loss: 3.2614
Epoch [   33/   50] | d_loss: 0.5445 | g_loss: 2.7247
Epoch [   33/   50] | d_loss: 0.4112 | g_loss: 5.3190
Epoch [   33/   50] | d_loss: 0.4052 | g_loss: 3.5977
Epoch [   33/   50] | d_loss: 0.4999 | g_loss: 3.6113
Epoch [   33/   50] | d_loss: 0.3749 | g_loss: 4.3014
Epoch [   33/   50] | d_loss: 0.4625 | g_loss: 5.1338
Epoch [   33/   50] | d_loss: 0.5726 | g_loss: 3.6053
Epoch [   33/   50] | d_loss: 0.4386 | g_loss: 4.3665
Epoch [   33/   50] | d_loss: 0.4816 | g_loss: 2.9828
Epoch [   33/   50] | d_loss: 0.4127 | g_loss: 4.3108
Epoch [   33/   50] | d_loss: 0.5389 | g_loss: 3.0642
Epoch [   33/   50] | d_loss: 0.4000 | g_loss: 4.5232
Epoch [   33/   50] | d_loss: 0.4035 | g_loss: 2.3341
Epoch [   33/   50] | d_loss: 0.5386 | g_loss: 2.6933
Epoch [   33/   50] | d_loss: 0.4546 | g_loss: 2.8949
Epoch [   33/   50] | d_loss: 0.3835 | g_loss: 3.9925
Epoch [   33/   50] | d_loss: 0.4169 | g_loss: 2.8696
```

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Epoch [   33/   50] | d_loss: 0.6079 | g_loss: 2.7938
Epoch [   33/   50] | d_loss: 0.4197 | g_loss: 3.2886
Epoch [   33/   50] | d_loss: 0.3663 | g_loss: 3.1581
Epoch [   34/   50] | d_loss: 0.4301 | g_loss: 2.2773
Epoch [   34/   50] | d_loss: 0.3931 | g_loss: 2.7807
Epoch [   34/   50] | d_loss: 0.5747 | g_loss: 2.9063
Epoch [   34/   50] | d_loss: 0.6891 | g_loss: 1.5347
Epoch [   34/   50] | d_loss: 0.5164 | g_loss: 2.8767
Epoch [   34/   50] | d_loss: 0.4057 | g_loss: 4.5466
Epoch [   34/   50] | d_loss: 0.6627 | g_loss: 5.7179
Epoch [   34/   50] | d_loss: 0.5841 | g_loss: 4.8681
Epoch [   34/   50] | d_loss: 0.3745 | g_loss: 4.1192
Epoch [   34/   50] | d_loss: 0.3986 | g_loss: 5.0828
Epoch [   34/   50] | d_loss: 0.3855 | g_loss: 4.3373
Epoch [   34/   50] | d_loss: 0.3998 | g_loss: 3.9878
Epoch [   34/   50] | d_loss: 0.4156 | g_loss: 3.0333
Epoch [   34/   50] | d_loss: 0.8118 | g_loss: 3.4896
Epoch [   34/   50] | d_loss: 0.3900 | g_loss: 3.5509
Epoch [   34/   50] | d_loss: 0.4104 | g_loss: 2.9015
Epoch [   34/   50] | d_loss: 0.3902 | g_loss: 4.5444
Epoch [   34/   50] | d_loss: 0.3902 | g_loss: 4.4781
Epoch [   34/   50] | d_loss: 0.4837 | g_loss: 4.3775
Epoch [   34/   50] | d_loss: 0.3808 | g_loss: 2.7359
Epoch [   34/   50] | d_loss: 0.5082 | g_loss: 2.4807
Epoch [   34/   50] | d_loss: 0.9995 | g_loss: 1.3121
Epoch [   34/   50] | d_loss: 0.5547 | g_loss: 4.4170
Epoch [   34/   50] | d_loss: 0.5924 | g_loss: 4.4724
Epoch [   34/   50] | d_loss: 0.3926 | g_loss: 2.7326
Epoch [   34/   50] | d_loss: 0.4241 | g_loss: 2.0148
Epoch [   34/   50] | d_loss: 0.4307 | g_loss: 2.9852
Epoch [   34/   50] | d_loss: 0.4494 | g_loss: 4.2927
Epoch [   34/   50] | d_loss: 0.4056 | g_loss: 3.8274
Epoch [   34/   50] | d_loss: 0.4999 | g_loss: 3.4757
Epoch [   34/   50] | d_loss: 0.4130 | g_loss: 3.4154
Epoch [   34/   50] | d_loss: 0.3647 | g_loss: 3.2719
Epoch [   34/   50] | d_loss: 0.6991 | g_loss: 3.4709
Epoch [   34/   50] | d_loss: 0.4187 | g_loss: 3.4127
Epoch [   34/   50] | d_loss: 0.5103 | g_loss: 2.8782
Epoch [   34/   50] | d_loss: 0.4766 | g_loss: 2.7477
Epoch [   34/   50] | d_loss: 0.7431 | g_loss: 1.9369
Epoch [   34/   50] | d_loss: 0.3612 | g_loss: 3.7649
Epoch [   34/   50] | d_loss: 0.4011 | g_loss: 3.8240
Epoch [   34/   50] | d_loss: 0.4000 | g_loss: 3.8191
Epoch [   34/   50] | d_loss: 0.4315 | g_loss: 2.9870
Epoch [   34/   50] | d_loss: 0.3938 | g_loss: 3.3197
Epoch [   34/   50] | d_loss: 0.4149 | g_loss: 2.7134
Epoch [   34/   50] | d_loss: 0.3899 | g_loss: 4.1685
Epoch [   34/   50] | d_loss: 0.3851 | g_loss: 2.9961
```

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Epoch [   34/   50] | d_loss: 0.3982 | g_loss: 3.0540
Epoch [   34/   50] | d_loss: 1.1187 | g_loss: 4.0078
Epoch [   34/   50] | d_loss: 0.3813 | g_loss: 4.2126
Epoch [   34/   50] | d_loss: 0.3772 | g_loss: 4.1495
Epoch [   34/   50] | d_loss: 0.4418 | g_loss: 3.1371
Epoch [   34/   50] | d_loss: 0.4722 | g_loss: 3.1142
Epoch [   34/   50] | d_loss: 0.4289 | g_loss: 3.1489
Epoch [   34/   50] | d_loss: 0.3978 | g_loss: 4.5207
Epoch [   34/   50] | d_loss: 0.4757 | g_loss: 2.8211
Epoch [   34/   50] | d_loss: 0.8305 | g_loss: 2.0902
Epoch [   34/   50] | d_loss: 0.5024 | g_loss: 2.5890
Epoch [   34/   50] | d_loss: 0.5603 | g_loss: 2.5999
Epoch [   35/   50] | d_loss: 0.3590 | g_loss: 4.1274
Epoch [   35/   50] | d_loss: 0.4465 | g_loss: 3.4230
Epoch [   35/   50] | d_loss: 1.3559 | g_loss: 5.8638
Epoch [   35/   50] | d_loss: 0.4962 | g_loss: 3.3036
Epoch [   35/   50] | d_loss: 0.4061 | g_loss: 2.7609
Epoch [   35/   50] | d_loss: 0.8934 | g_loss: 3.4635
Epoch [   35/   50] | d_loss: 0.4057 | g_loss: 3.3020
Epoch [   35/   50] | d_loss: 0.4361 | g_loss: 3.2855
Epoch [   35/   50] | d_loss: 0.3900 | g_loss: 4.1224
Epoch [   35/   50] | d_loss: 0.4087 | g_loss: 4.0760
Epoch [   35/   50] | d_loss: 0.3973 | g_loss: 3.0456
Epoch [   35/   50] | d_loss: 0.5923 | g_loss: 2.3981
Epoch [   35/   50] | d_loss: 0.4004 | g_loss: 3.7613
Epoch [   35/   50] | d_loss: 0.4055 | g_loss: 3.5358
Epoch [   35/   50] | d_loss: 0.4124 | g_loss: 2.9478
Epoch [   35/   50] | d_loss: 0.5779 | g_loss: 4.3119
Epoch [   35/   50] | d_loss: 0.4874 | g_loss: 3.8940
Epoch [   35/   50] | d_loss: 0.6614 | g_loss: 2.1924
Epoch [   35/   50] | d_loss: 0.5601 | g_loss: 3.3845
Epoch [   35/   50] | d_loss: 0.6398 | g_loss: 3.1579
Epoch [   35/   50] | d_loss: 0.5911 | g_loss: 1.9291
Epoch [   35/   50] | d_loss: 0.4727 | g_loss: 3.3866
Epoch [   35/   50] | d_loss: 0.4479 | g_loss: 3.2767
Epoch [   35/   50] | d_loss: 0.4012 | g_loss: 4.0132
Epoch [   35/   50] | d_loss: 0.3661 | g_loss: 4.1678
Epoch [   35/   50] | d_loss: 0.6738 | g_loss: 4.4672
Epoch [   35/   50] | d_loss: 0.3769 | g_loss: 4.6703
Epoch [   35/   50] | d_loss: 0.4344 | g_loss: 3.1200
Epoch [   35/   50] | d_loss: 0.4138 | g_loss: 3.1643
Epoch [   35/   50] | d_loss: 0.3823 | g_loss: 4.0756
Epoch [   35/   50] | d_loss: 0.4335 | g_loss: 2.1626
Epoch [   35/   50] | d_loss: 0.4807 | g_loss: 2.7795
Epoch [   35/   50] | d_loss: 0.4693 | g_loss: 3.0518
Epoch [   35/   50] | d_loss: 0.3536 | g_loss: 3.4110
Epoch [   35/   50] | d_loss: 0.4100 | g_loss: 3.8148
Epoch [   35/   50] | d_loss: 0.5584 | g_loss: 2.6735
```

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Epoch [   35/   50] | d_loss: 0.4685 | g_loss: 3.8946
Epoch [   35/   50] | d_loss: 0.5591 | g_loss: 4.5504
Epoch [   35/   50] | d_loss: 0.3837 | g_loss: 3.2792
Epoch [   35/   50] | d_loss: 0.4187 | g_loss: 3.9780
Epoch [   35/   50] | d_loss: 0.4792 | g_loss: 2.6396
Epoch [   35/   50] | d_loss: 0.4111 | g_loss: 2.9881
Epoch [   35/   50] | d_loss: 0.3997 | g_loss: 3.3727
Epoch [   35/   50] | d_loss: 0.4006 | g_loss: 3.6323
Epoch [   35/   50] | d_loss: 0.3798 | g_loss: 3.6103
Epoch [   35/   50] | d_loss: 0.3885 | g_loss: 3.9339
Epoch [   35/   50] | d_loss: 0.5346 | g_loss: 2.4160
Epoch [   35/   50] | d_loss: 0.3868 | g_loss: 3.1399
Epoch [   35/   50] | d_loss: 0.3913 | g_loss: 2.0375
Epoch [   35/   50] | d_loss: 0.5034 | g_loss: 3.7023
Epoch [   35/   50] | d_loss: 0.6850 | g_loss: 1.0230
Epoch [   35/   50] | d_loss: 0.5755 | g_loss: 4.1791
Epoch [   35/   50] | d_loss: 0.6458 | g_loss: 2.1804
Epoch [   35/   50] | d_loss: 0.3971 | g_loss: 4.3707
Epoch [   35/   50] | d_loss: 0.6382 | g_loss: 5.3247
Epoch [   35/   50] | d_loss: 0.4120 | g_loss: 3.8589
Epoch [   35/   50] | d_loss: 0.3795 | g_loss: 3.2836
Epoch [   36/   50] | d_loss: 0.5292 | g_loss: 3.6657
Epoch [   36/   50] | d_loss: 0.4039 | g_loss: 3.1069
Epoch [   36/   50] | d_loss: 0.8253 | g_loss: 1.7204
Epoch [   36/   50] | d_loss: 0.4181 | g_loss: 3.2227
Epoch [   36/   50] | d_loss: 0.3726 | g_loss: 3.7593
Epoch [   36/   50] | d_loss: 0.4591 | g_loss: 2.6272
Epoch [   36/   50] | d_loss: 0.4184 | g_loss: 3.7421
Epoch [   36/   50] | d_loss: 0.5865 | g_loss: 2.0995
Epoch [   36/   50] | d_loss: 0.5897 | g_loss: 3.4115
Epoch [   36/   50] | d_loss: 0.3672 | g_loss: 4.4893
Epoch [   36/   50] | d_loss: 0.4046 | g_loss: 3.6308
Epoch [   36/   50] | d_loss: 0.4906 | g_loss: 2.8479
Epoch [   36/   50] | d_loss: 0.3998 | g_loss: 2.3808
Epoch [   36/   50] | d_loss: 0.5376 | g_loss: 3.5189
Epoch [   36/   50] | d_loss: 0.4552 | g_loss: 3.6080
Epoch [   36/   50] | d_loss: 0.5899 | g_loss: 3.5947
Epoch [   36/   50] | d_loss: 0.4173 | g_loss: 3.0882
Epoch [   36/   50] | d_loss: 0.3781 | g_loss: 3.5494
Epoch [   36/   50] | d_loss: 0.3684 | g_loss: 4.6990
Epoch [   36/   50] | d_loss: 0.4098 | g_loss: 5.2975
Epoch [   36/   50] | d_loss: 0.4674 | g_loss: 2.9766
Epoch [   36/   50] | d_loss: 0.4442 | g_loss: 2.8574
Epoch [   36/   50] | d_loss: 0.3807 | g_loss: 4.0237
Epoch [   36/   50] | d_loss: 0.4967 | g_loss: 2.9774
Epoch [   36/   50] | d_loss: 0.4993 | g_loss: 2.0482
Epoch [   36/   50] | d_loss: 0.4302 | g_loss: 3.3840
Epoch [   36/   50] | d_loss: 0.4774 | g_loss: 2.4759
```

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Epoch [   36/   50] | d_loss: 0.5961 | g_loss: 2.3556
Epoch [   36/   50] | d_loss: 0.4064 | g_loss: 3.5057
Epoch [   36/   50] | d_loss: 0.3938 | g_loss: 3.5697
Epoch [   36/   50] | d_loss: 0.5885 | g_loss: 3.4509
Epoch [   36/   50] | d_loss: 0.5086 | g_loss: 2.4899
Epoch [   36/   50] | d_loss: 0.3666 | g_loss: 4.2874
Epoch [   36/   50] | d_loss: 0.4283 | g_loss: 2.7654
Epoch [   36/   50] | d_loss: 0.4116 | g_loss: 3.4024
Epoch [   36/   50] | d_loss: 0.3877 | g_loss: 3.3495
Epoch [   36/   50] | d_loss: 0.4137 | g_loss: 3.0947
Epoch [   36/   50] | d_loss: 0.3700 | g_loss: 4.3002
Epoch [   36/   50] | d_loss: 0.3518 | g_loss: 4.1822
Epoch [   36/   50] | d_loss: 0.7171 | g_loss: 3.4273
Epoch [   36/   50] | d_loss: 0.4453 | g_loss: 3.6642
Epoch [   36/   50] | d_loss: 0.6743 | g_loss: 2.2842
Epoch [   36/   50] | d_loss: 0.3799 | g_loss: 3.3002
Epoch [   36/   50] | d_loss: 0.3585 | g_loss: 3.6326
Epoch [   36/   50] | d_loss: 0.6675 | g_loss: 2.1843
Epoch [   36/   50] | d_loss: 0.6182 | g_loss: 2.0314
Epoch [   36/   50] | d_loss: 0.4260 | g_loss: 3.5343
Epoch [   36/   50] | d_loss: 0.3700 | g_loss: 2.7926
Epoch [   36/   50] | d_loss: 0.4757 | g_loss: 3.1916
Epoch [   36/   50] | d_loss: 0.4219 | g_loss: 2.6365
Epoch [   36/   50] | d_loss: 0.4181 | g_loss: 3.9579
Epoch [   36/   50] | d_loss: 0.7248 | g_loss: 4.8401
Epoch [   36/   50] | d_loss: 0.3500 | g_loss: 4.3541
Epoch [   36/   50] | d_loss: 0.4753 | g_loss: 3.2516
Epoch [   36/   50] | d_loss: 0.4561 | g_loss: 2.8320
Epoch [   36/   50] | d_loss: 0.3691 | g_loss: 4.5400
Epoch [   36/   50] | d_loss: 0.4317 | g_loss: 2.1383
Epoch [   37/   50] | d_loss: 0.6521 | g_loss: 1.4431
Epoch [   37/   50] | d_loss: 0.4668 | g_loss: 4.0120
Epoch [   37/   50] | d_loss: 0.3869 | g_loss: 3.5115
Epoch [   37/   50] | d_loss: 0.4649 | g_loss: 3.1343
Epoch [   37/   50] | d_loss: 0.3509 | g_loss: 3.9192
Epoch [   37/   50] | d_loss: 0.6210 | g_loss: 3.3892
Epoch [   37/   50] | d_loss: 0.4585 | g_loss: 4.5094
Epoch [   37/   50] | d_loss: 0.4134 | g_loss: 4.1186
Epoch [   37/   50] | d_loss: 0.4278 | g_loss: 3.0500
Epoch [   37/   50] | d_loss: 0.3714 | g_loss: 3.8500
Epoch [   37/   50] | d_loss: 0.3836 | g_loss: 4.7820
Epoch [   37/   50] | d_loss: 0.4661 | g_loss: 3.8734
Epoch [   37/   50] | d_loss: 0.4608 | g_loss: 2.7409
Epoch [   37/   50] | d_loss: 0.4153 | g_loss: 3.7467
Epoch [   37/   50] | d_loss: 0.4390 | g_loss: 2.9385
Epoch [   37/   50] | d_loss: 0.4431 | g_loss: 3.0778
Epoch [   37/   50] | d_loss: 0.4040 | g_loss: 3.1073
Epoch [   37/   50] | d_loss: 0.6133 | g_loss: 3.2599
```

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Epoch [   37/   50] | d_loss: 0.4063 | g_loss: 3.1056
Epoch [   37/   50] | d_loss: 0.3887 | g_loss: 3.0204
Epoch [   37/   50] | d_loss: 0.4036 | g_loss: 3.1346
Epoch [   37/   50] | d_loss: 0.5943 | g_loss: 4.2494
Epoch [   37/   50] | d_loss: 0.4100 | g_loss: 4.0553
Epoch [   37/   50] | d_loss: 0.4621 | g_loss: 3.3108
Epoch [   37/   50] | d_loss: 0.4534 | g_loss: 2.8383
Epoch [   37/   50] | d_loss: 0.3641 | g_loss: 3.7350
Epoch [   37/   50] | d_loss: 0.4653 | g_loss: 3.4380
Epoch [   37/   50] | d_loss: 0.8079 | g_loss: 1.9407
Epoch [   37/   50] | d_loss: 0.4922 | g_loss: 4.5916
Epoch [   37/   50] | d_loss: 0.5032 | g_loss: 4.4551
Epoch [   37/   50] | d_loss: 0.7338 | g_loss: 1.2497
Epoch [   37/   50] | d_loss: 0.3908 | g_loss: 4.2496
Epoch [   37/   50] | d_loss: 0.3916 | g_loss: 3.1149
Epoch [   37/   50] | d_loss: 0.4128 | g_loss: 3.6273
Epoch [   37/   50] | d_loss: 0.3804 | g_loss: 2.4502
Epoch [   37/   50] | d_loss: 0.3577 | g_loss: 2.9263
Epoch [   37/   50] | d_loss: 0.3692 | g_loss: 4.3706
Epoch [   37/   50] | d_loss: 0.3936 | g_loss: 3.3378
Epoch [   37/   50] | d_loss: 0.4249 | g_loss: 2.4530
Epoch [   37/   50] | d_loss: 0.3807 | g_loss: 2.4129
Epoch [   37/   50] | d_loss: 0.4169 | g_loss: 3.5147
Epoch [   37/   50] | d_loss: 0.4175 | g_loss: 3.2324
Epoch [   37/   50] | d_loss: 0.4562 | g_loss: 3.4292
Epoch [   37/   50] | d_loss: 0.3976 | g_loss: 3.1576
Epoch [   37/   50] | d_loss: 0.4033 | g_loss: 3.8021
Epoch [   37/   50] | d_loss: 0.3990 | g_loss: 4.2608
Epoch [   37/   50] | d_loss: 0.4846 | g_loss: 3.1957
Epoch [   37/   50] | d_loss: 0.3970 | g_loss: 2.7149
Epoch [   37/   50] | d_loss: 0.4035 | g_loss: 3.0497
Epoch [   37/   50] | d_loss: 0.3877 | g_loss: 3.2022
Epoch [   37/   50] | d_loss: 0.5055 | g_loss: 1.6555
Epoch [   37/   50] | d_loss: 0.4081 | g_loss: 3.2544
Epoch [   37/   50] | d_loss: 0.4451 | g_loss: 3.6118
Epoch [   37/   50] | d_loss: 0.5333 | g_loss: 4.1296
Epoch [   37/   50] | d_loss: 0.3909 | g_loss: 3.5178
Epoch [   37/   50] | d_loss: 0.3616 | g_loss: 3.8700
Epoch [   37/   50] | d_loss: 0.4352 | g_loss: 3.1819
Epoch [   38/   50] | d_loss: 0.5150 | g_loss: 2.9556
Epoch [   38/   50] | d_loss: 0.4285 | g_loss: 4.1124
Epoch [   38/   50] | d_loss: 0.4120 | g_loss: 3.5878
Epoch [   38/   50] | d_loss: 0.5205 | g_loss: 2.3323
Epoch [   38/   50] | d_loss: 0.6643 | g_loss: 2.0882
Epoch [   38/   50] | d_loss: 0.4118 | g_loss: 3.9559
Epoch [   38/   50] | d_loss: 0.3881 | g_loss: 2.2702
Epoch [   38/   50] | d_loss: 0.5189 | g_loss: 4.1122
Epoch [   38/   50] | d_loss: 0.3754 | g_loss: 5.0968
```

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Epoch [   38/   50] | d_loss: 0.3930 | g_loss: 3.6045
Epoch [   38/   50] | d_loss: 0.4065 | g_loss: 3.0088
Epoch [   38/   50] | d_loss: 0.8607 | g_loss: 4.3984
Epoch [   38/   50] | d_loss: 0.3909 | g_loss: 3.7486
Epoch [   38/   50] | d_loss: 0.4730 | g_loss: 3.0902
Epoch [   38/   50] | d_loss: 0.5319 | g_loss: 3.0717
Epoch [   38/   50] | d_loss: 0.5245 | g_loss: 2.2592
Epoch [   38/   50] | d_loss: 0.3766 | g_loss: 4.3195
Epoch [   38/   50] | d_loss: 0.4903 | g_loss: 4.0298
Epoch [   38/   50] | d_loss: 0.4653 | g_loss: 2.8577
Epoch [   38/   50] | d_loss: 0.4907 | g_loss: 3.8274
Epoch [   38/   50] | d_loss: 0.4673 | g_loss: 3.4156
Epoch [   38/   50] | d_loss: 0.5812 | g_loss: 4.0142
Epoch [   38/   50] | d_loss: 0.4184 | g_loss: 4.5081
Epoch [   38/   50] | d_loss: 0.6167 | g_loss: 3.0154
Epoch [   38/   50] | d_loss: 0.4156 | g_loss: 2.9813
Epoch [   38/   50] | d_loss: 0.4483 | g_loss: 3.3582
Epoch [   38/   50] | d_loss: 0.4518 | g_loss: 3.1937
Epoch [   38/   50] | d_loss: 0.4199 | g_loss: 5.1942
Epoch [   38/   50] | d_loss: 0.5537 | g_loss: 5.2024
Epoch [   38/   50] | d_loss: 0.4043 | g_loss: 3.6584
Epoch [   38/   50] | d_loss: 0.4094 | g_loss: 3.1442
Epoch [   38/   50] | d_loss: 0.3813 | g_loss: 3.6695
Epoch [   38/   50] | d_loss: 0.4459 | g_loss: 3.5334
Epoch [   38/   50] | d_loss: 0.4385 | g_loss: 3.8495
Epoch [   38/   50] | d_loss: 0.3742 | g_loss: 3.0204
Epoch [   38/   50] | d_loss: 0.3822 | g_loss: 4.4109
Epoch [   38/   50] | d_loss: 0.3617 | g_loss: 3.7607
Epoch [   38/   50] | d_loss: 0.3989 | g_loss: 3.1263
Epoch [   38/   50] | d_loss: 0.4722 | g_loss: 2.5973
Epoch [   38/   50] | d_loss: 0.7947 | g_loss: 4.6770
Epoch [   38/   50] | d_loss: 0.4505 | g_loss: 5.3810
Epoch [   38/   50] | d_loss: 0.3704 | g_loss: 4.7934
Epoch [   38/   50] | d_loss: 0.3844 | g_loss: 3.3426
Epoch [   38/   50] | d_loss: 0.4705 | g_loss: 5.2544
Epoch [   38/   50] | d_loss: 0.3830 | g_loss: 3.4363
Epoch [   38/   50] | d_loss: 0.4003 | g_loss: 2.7977
Epoch [   38/   50] | d_loss: 0.4315 | g_loss: 3.8200
Epoch [   38/   50] | d_loss: 0.4563 | g_loss: 2.6066
Epoch [   38/   50] | d_loss: 0.3930 | g_loss: 4.4483
Epoch [   38/   50] | d_loss: 0.4153 | g_loss: 3.7158
Epoch [   38/   50] | d_loss: 0.4108 | g_loss: 3.7661
Epoch [   38/   50] | d_loss: 0.4568 | g_loss: 3.7564
Epoch [   38/   50] | d_loss: 0.4298 | g_loss: 3.0811
Epoch [   38/   50] | d_loss: 0.3868 | g_loss: 4.3380
Epoch [   38/   50] | d_loss: 0.3754 | g_loss: 3.7809
Epoch [   38/   50] | d_loss: 0.3734 | g_loss: 4.4310
Epoch [   38/   50] | d_loss: 0.4213 | g_loss: 2.5907
```

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Epoch [   39/   50] | d_loss: 0.4264 | g_loss: 3.8048
Epoch [   39/   50] | d_loss: 0.5223 | g_loss: 4.1906
Epoch [   39/   50] | d_loss: 0.4310 | g_loss: 2.8645
Epoch [   39/   50] | d_loss: 0.3783 | g_loss: 4.8988
Epoch [   39/   50] | d_loss: 0.4983 | g_loss: 4.2092
Epoch [   39/   50] | d_loss: 0.3849 | g_loss: 3.5719
Epoch [   39/   50] | d_loss: 0.4360 | g_loss: 3.8128
Epoch [   39/   50] | d_loss: 0.4623 | g_loss: 2.4115
Epoch [   39/   50] | d_loss: 0.3948 | g_loss: 3.4684
Epoch [   39/   50] | d_loss: 0.4212 | g_loss: 3.8373
Epoch [   39/   50] | d_loss: 0.3924 | g_loss: 3.1098
Epoch [   39/   50] | d_loss: 0.4913 | g_loss: 1.8380
Epoch [   39/   50] | d_loss: 0.4454 | g_loss: 4.0106
Epoch [   39/   50] | d_loss: 0.4089 | g_loss: 3.6008
Epoch [   39/   50] | d_loss: 0.4178 | g_loss: 4.4914
Epoch [   39/   50] | d_loss: 0.4221 | g_loss: 3.7289
Epoch [   39/   50] | d_loss: 1.1703 | g_loss: 1.0381
Epoch [   39/   50] | d_loss: 0.4051 | g_loss: 4.2222
Epoch [   39/   50] | d_loss: 0.6060 | g_loss: 3.9896
Epoch [   39/   50] | d_loss: 0.5186 | g_loss: 3.0619
Epoch [   39/   50] | d_loss: 0.3823 | g_loss: 4.0438
Epoch [   39/   50] | d_loss: 0.3880 | g_loss: 3.2053
Epoch [   39/   50] | d_loss: 0.6976 | g_loss: 4.2159
Epoch [   39/   50] | d_loss: 0.4402 | g_loss: 3.3123
Epoch [   39/   50] | d_loss: 1.0329 | g_loss: 3.4159
Epoch [   39/   50] | d_loss: 0.7613 | g_loss: 3.3894
Epoch [   39/   50] | d_loss: 0.7347 | g_loss: 3.4258
Epoch [   39/   50] | d_loss: 0.4151 | g_loss: 3.5096
Epoch [   39/   50] | d_loss: 0.4158 | g_loss: 3.3071
Epoch [   39/   50] | d_loss: 0.4044 | g_loss: 4.4274
Epoch [   39/   50] | d_loss: 0.3870 | g_loss: 3.4447
Epoch [   39/   50] | d_loss: 0.3644 | g_loss: 3.3638
Epoch [   39/   50] | d_loss: 0.3888 | g_loss: 3.7717
Epoch [   39/   50] | d_loss: 0.9395 | g_loss: 0.9776
Epoch [   39/   50] | d_loss: 0.5105 | g_loss: 3.5915
Epoch [   39/   50] | d_loss: 0.4136 | g_loss: 3.9798
Epoch [   39/   50] | d_loss: 0.3865 | g_loss: 4.0228
Epoch [   39/   50] | d_loss: 0.5019 | g_loss: 3.4221
Epoch [   39/   50] | d_loss: 1.0299 | g_loss: 1.2941
Epoch [   39/   50] | d_loss: 0.4590 | g_loss: 3.6900
Epoch [   39/   50] | d_loss: 0.4344 | g_loss: 2.8192
Epoch [   39/   50] | d_loss: 0.8115 | g_loss: 0.9596
Epoch [   39/   50] | d_loss: 0.5633 | g_loss: 1.4551
Epoch [   39/   50] | d_loss: 0.4194 | g_loss: 3.0585
Epoch [   39/   50] | d_loss: 1.0312 | g_loss: 4.8377
Epoch [   39/   50] | d_loss: 0.4997 | g_loss: 2.4844
Epoch [   39/   50] | d_loss: 0.6108 | g_loss: 3.2172
Epoch [   39/   50] | d_loss: 0.3892 | g_loss: 4.3599
```

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Epoch [   39/   50] | d_loss: 0.4002 | g_loss: 4.1110
Epoch [   39/   50] | d_loss: 0.4261 | g_loss: 3.9447
Epoch [   39/   50] | d_loss: 0.4065 | g_loss: 2.8417
Epoch [   39/   50] | d_loss: 0.3708 | g_loss: 3.0347
Epoch [   39/   50] | d_loss: 0.4457 | g_loss: 2.5921
Epoch [   39/   50] | d_loss: 0.5043 | g_loss: 4.6878
Epoch [   39/   50] | d_loss: 0.4994 | g_loss: 2.8262
Epoch [   39/   50] | d_loss: 0.3669 | g_loss: 3.2954
Epoch [   39/   50] | d_loss: 0.4846 | g_loss: 2.7920
Epoch [   40/   50] | d_loss: 0.4387 | g_loss: 3.7476
Epoch [   40/   50] | d_loss: 0.3952 | g_loss: 3.3877
Epoch [   40/   50] | d_loss: 0.3626 | g_loss: 4.1278
Epoch [   40/   50] | d_loss: 0.5451 | g_loss: 2.7031
Epoch [   40/   50] | d_loss: 0.4549 | g_loss: 4.3791
Epoch [   40/   50] | d_loss: 0.3916 | g_loss: 3.3319
Epoch [   40/   50] | d_loss: 0.4413 | g_loss: 3.3672
Epoch [   40/   50] | d_loss: 0.4375 | g_loss: 3.5010
Epoch [   40/   50] | d_loss: 0.3979 | g_loss: 3.6044
Epoch [   40/   50] | d_loss: 0.4773 | g_loss: 2.2789
Epoch [   40/   50] | d_loss: 0.5345 | g_loss: 2.7584
Epoch [   40/   50] | d_loss: 0.5233 | g_loss: 2.3578
Epoch [   40/   50] | d_loss: 0.3528 | g_loss: 2.7331
Epoch [   40/   50] | d_loss: 0.4380 | g_loss: 3.8965
Epoch [   40/   50] | d_loss: 0.3746 | g_loss: 4.6666
Epoch [   40/   50] | d_loss: 0.4010 | g_loss: 4.0298
Epoch [   40/   50] | d_loss: 0.5585 | g_loss: 2.4450
Epoch [   40/   50] | d_loss: 0.5220 | g_loss: 4.3279
Epoch [   40/   50] | d_loss: 0.4057 | g_loss: 4.0290
Epoch [   40/   50] | d_loss: 0.3710 | g_loss: 4.2662
Epoch [   40/   50] | d_loss: 0.4421 | g_loss: 3.9075
Epoch [   40/   50] | d_loss: 0.3789 | g_loss: 3.8914
Epoch [   40/   50] | d_loss: 0.3895 | g_loss: 4.4120
Epoch [   40/   50] | d_loss: 0.4006 | g_loss: 3.6616
Epoch [   40/   50] | d_loss: 0.3782 | g_loss: 4.4928
Epoch [   40/   50] | d_loss: 0.7514 | g_loss: 0.8517
Epoch [   40/   50] | d_loss: 0.3977 | g_loss: 3.1826
Epoch [   40/   50] | d_loss: 0.5282 | g_loss: 2.0389
Epoch [   40/   50] | d_loss: 0.3715 | g_loss: 2.7773
Epoch [   40/   50] | d_loss: 0.4805 | g_loss: 3.8157
Epoch [   40/   50] | d_loss: 0.7823 | g_loss: 3.8155
Epoch [   40/   50] | d_loss: 0.4097 | g_loss: 4.0751
Epoch [   40/   50] | d_loss: 0.5079 | g_loss: 2.7071
Epoch [   40/   50] | d_loss: 0.4099 | g_loss: 4.3553
Epoch [   40/   50] | d_loss: 0.3611 | g_loss: 3.8060
Epoch [   40/   50] | d_loss: 0.4651 | g_loss: 3.0928
Epoch [   40/   50] | d_loss: 0.6090 | g_loss: 2.8465
Epoch [   40/   50] | d_loss: 0.3858 | g_loss: 3.3207
Epoch [   40/   50] | d_loss: 0.5023 | g_loss: 4.0441
```

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Epoch [   40/   50] | d_loss: 0.4455 | g_loss: 3.8093
Epoch [   40/   50] | d_loss: 0.3966 | g_loss: 2.4130
Epoch [   40/   50] | d_loss: 0.3562 | g_loss: 4.2823
Epoch [   40/   50] | d_loss: 0.3970 | g_loss: 5.1500
Epoch [   40/   50] | d_loss: 0.4009 | g_loss: 4.2721
Epoch [   40/   50] | d_loss: 0.3777 | g_loss: 3.6258
Epoch [   40/   50] | d_loss: 0.5835 | g_loss: 4.8409
Epoch [   40/   50] | d_loss: 0.3928 | g_loss: 4.1185
Epoch [   40/   50] | d_loss: 0.3873 | g_loss: 3.4915
Epoch [   40/   50] | d_loss: 0.3768 | g_loss: 4.1380
Epoch [   40/   50] | d_loss: 0.4280 | g_loss: 3.6562
Epoch [   40/   50] | d_loss: 0.3903 | g_loss: 2.4816
Epoch [   40/   50] | d_loss: 0.4256 | g_loss: 3.0482
Epoch [   40/   50] | d_loss: 0.4037 | g_loss: 4.1762
Epoch [   40/   50] | d_loss: 0.5241 | g_loss: 3.4739
Epoch [   40/   50] | d_loss: 0.3710 | g_loss: 3.8720
Epoch [   40/   50] | d_loss: 0.3821 | g_loss: 2.8998
Epoch [   40/   50] | d_loss: 0.4137 | g_loss: 3.3562
Epoch [   41/   50] | d_loss: 2.2830 | g_loss: 5.4999
Epoch [   41/   50] | d_loss: 0.3619 | g_loss: 4.1905
Epoch [   41/   50] | d_loss: 0.3763 | g_loss: 3.8341
Epoch [   41/   50] | d_loss: 0.3713 | g_loss: 3.5024
Epoch [   41/   50] | d_loss: 0.3789 | g_loss: 2.8978
Epoch [   41/   50] | d_loss: 0.7244 | g_loss: 1.3538
Epoch [   41/   50] | d_loss: 0.5451 | g_loss: 3.3056
Epoch [   41/   50] | d_loss: 0.4124 | g_loss: 3.5244
Epoch [   41/   50] | d_loss: 0.3800 | g_loss: 3.1503
Epoch [   41/   50] | d_loss: 0.4078 | g_loss: 3.3693
Epoch [   41/   50] | d_loss: 0.3944 | g_loss: 3.0097
Epoch [   41/   50] | d_loss: 0.4294 | g_loss: 3.1330
Epoch [   41/   50] | d_loss: 0.4110 | g_loss: 3.2694
Epoch [   41/   50] | d_loss: 0.3909 | g_loss: 3.3973
Epoch [   41/   50] | d_loss: 0.4515 | g_loss: 4.4214
Epoch [   41/   50] | d_loss: 0.3992 | g_loss: 3.3127
Epoch [   41/   50] | d_loss: 0.3609 | g_loss: 4.3072
Epoch [   41/   50] | d_loss: 0.4278 | g_loss: 3.3192
Epoch [   41/   50] | d_loss: 0.4479 | g_loss: 3.4599
Epoch [   41/   50] | d_loss: 0.4912 | g_loss: 1.5474
Epoch [   41/   50] | d_loss: 0.5988 | g_loss: 2.5619
Epoch [   41/   50] | d_loss: 0.3629 | g_loss: 4.5092
Epoch [   41/   50] | d_loss: 0.4727 | g_loss: 2.5598
Epoch [   41/   50] | d_loss: 0.4196 | g_loss: 3.8352
Epoch [   41/   50] | d_loss: 0.4363 | g_loss: 3.6703
Epoch [   41/   50] | d_loss: 0.4814 | g_loss: 3.0014
Epoch [   41/   50] | d_loss: 0.8624 | g_loss: 1.8133
Epoch [   41/   50] | d_loss: 0.4889 | g_loss: 3.5024
Epoch [   41/   50] | d_loss: 0.5755 | g_loss: 2.9208
Epoch [   41/   50] | d_loss: 0.4108 | g_loss: 3.8591
```

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Epoch [   41/   50] | d_loss: 0.3973 | g_loss: 4.4182
Epoch [   41/   50] | d_loss: 0.3791 | g_loss: 3.5541
Epoch [   41/   50] | d_loss: 0.4073 | g_loss: 3.9308
Epoch [   41/   50] | d_loss: 0.4251 | g_loss: 3.3102
Epoch [   41/   50] | d_loss: 0.4251 | g_loss: 2.0309
Epoch [   41/   50] | d_loss: 0.4032 | g_loss: 3.6964
Epoch [   41/   50] | d_loss: 0.4179 | g_loss: 4.0943
Epoch [   41/   50] | d_loss: 0.5456 | g_loss: 4.0625
Epoch [   41/   50] | d_loss: 0.4621 | g_loss: 2.6482
Epoch [   41/   50] | d_loss: 0.4276 | g_loss: 3.9690
Epoch [   41/   50] | d_loss: 0.4296 | g_loss: 4.3070
Epoch [   41/   50] | d_loss: 0.4154 | g_loss: 2.9877
Epoch [   41/   50] | d_loss: 0.4009 | g_loss: 3.9865
Epoch [   41/   50] | d_loss: 0.4509 | g_loss: 3.0879
Epoch [   41/   50] | d_loss: 0.3801 | g_loss: 3.9455
Epoch [   41/   50] | d_loss: 0.4019 | g_loss: 3.4397
Epoch [   41/   50] | d_loss: 0.3902 | g_loss: 3.2178
Epoch [   41/   50] | d_loss: 0.5687 | g_loss: 2.3774
Epoch [   41/   50] | d_loss: 0.5614 | g_loss: 2.8970
Epoch [   41/   50] | d_loss: 0.4372 | g_loss: 4.1727
Epoch [   41/   50] | d_loss: 0.4366 | g_loss: 3.9078
Epoch [   41/   50] | d_loss: 0.3865 | g_loss: 1.9234
Epoch [   41/   50] | d_loss: 0.3622 | g_loss: 3.4279
Epoch [   41/   50] | d_loss: 0.5101 | g_loss: 2.4482
Epoch [   41/   50] | d_loss: 0.3732 | g_loss: 4.0181
Epoch [   41/   50] | d_loss: 0.4024 | g_loss: 2.3107
Epoch [   41/   50] | d_loss: 0.3980 | g_loss: 3.3900
Epoch [   42/   50] | d_loss: 0.4054 | g_loss: 3.1419
Epoch [   42/   50] | d_loss: 0.5566 | g_loss: 5.2937
Epoch [   42/   50] | d_loss: 0.3971 | g_loss: 3.8449
Epoch [   42/   50] | d_loss: 0.4137 | g_loss: 3.5105
Epoch [   42/   50] | d_loss: 0.3898 | g_loss: 3.1762
Epoch [   42/   50] | d_loss: 0.4505 | g_loss: 4.8384
Epoch [   42/   50] | d_loss: 0.6828 | g_loss: 2.5451
Epoch [   42/   50] | d_loss: 0.6027 | g_loss: 3.8223
Epoch [   42/   50] | d_loss: 0.6603 | g_loss: 4.0764
Epoch [   42/   50] | d_loss: 0.3815 | g_loss: 4.3391
Epoch [   42/   50] | d_loss: 0.8812 | g_loss: 3.6694
Epoch [   42/   50] | d_loss: 0.4749 | g_loss: 3.4005
Epoch [   42/   50] | d_loss: 0.4678 | g_loss: 3.0871
Epoch [   42/   50] | d_loss: 0.4476 | g_loss: 3.9044
Epoch [   42/   50] | d_loss: 0.4133 | g_loss: 2.4040
Epoch [   42/   50] | d_loss: 0.4087 | g_loss: 5.1987
Epoch [   42/   50] | d_loss: 0.8122 | g_loss: 4.2840
Epoch [   42/   50] | d_loss: 0.4829 | g_loss: 3.3126
Epoch [   42/   50] | d_loss: 0.4233 | g_loss: 2.8970
Epoch [   42/   50] | d_loss: 0.3659 | g_loss: 4.3414
Epoch [   42/   50] | d_loss: 0.4108 | g_loss: 3.3164
```

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Epoch [   42/   50] | d_loss: 0.3951 | g_loss: 3.2061
Epoch [   42/   50] | d_loss: 0.4709 | g_loss: 2.8804
Epoch [   42/   50] | d_loss: 0.3608 | g_loss: 3.7872
Epoch [   42/   50] | d_loss: 0.4605 | g_loss: 2.7076
Epoch [   42/   50] | d_loss: 0.4527 | g_loss: 2.4741
Epoch [   42/   50] | d_loss: 0.4149 | g_loss: 3.1104
Epoch [   42/   50] | d_loss: 0.3811 | g_loss: 3.7374
Epoch [   42/   50] | d_loss: 0.4283 | g_loss: 3.7170
Epoch [   42/   50] | d_loss: 0.4344 | g_loss: 3.8911
Epoch [   42/   50] | d_loss: 0.7618 | g_loss: 0.7497
Epoch [   42/   50] | d_loss: 0.3685 | g_loss: 5.0500
Epoch [   42/   50] | d_loss: 0.4314 | g_loss: 3.2328
Epoch [   42/   50] | d_loss: 0.6218 | g_loss: 4.2249
Epoch [   42/   50] | d_loss: 0.4633 | g_loss: 2.9143
Epoch [   42/   50] | d_loss: 0.3676 | g_loss: 3.7551
Epoch [   42/   50] | d_loss: 0.5312 | g_loss: 3.6361
Epoch [   42/   50] | d_loss: 0.4293 | g_loss: 2.3008
Epoch [   42/   50] | d_loss: 0.3929 | g_loss: 2.1225
Epoch [   42/   50] | d_loss: 0.4363 | g_loss: 3.9521
Epoch [   42/   50] | d_loss: 0.4506 | g_loss: 5.0615
Epoch [   42/   50] | d_loss: 0.5811 | g_loss: 3.7047
Epoch [   42/   50] | d_loss: 0.3591 | g_loss: 3.8255
Epoch [   42/   50] | d_loss: 0.3787 | g_loss: 3.6636
Epoch [   42/   50] | d_loss: 0.4330 | g_loss: 3.4707
Epoch [   42/   50] | d_loss: 0.6313 | g_loss: 2.7659
Epoch [   42/   50] | d_loss: 0.4032 | g_loss: 4.0682
Epoch [   42/   50] | d_loss: 0.5450 | g_loss: 2.7930
Epoch [   42/   50] | d_loss: 0.5634 | g_loss: 1.9915
Epoch [   42/   50] | d_loss: 0.3786 | g_loss: 4.2718
Epoch [   42/   50] | d_loss: 0.4098 | g_loss: 3.8668
Epoch [   42/   50] | d_loss: 0.5051 | g_loss: 4.3898
Epoch [   42/   50] | d_loss: 0.3940 | g_loss: 3.0758
Epoch [   42/   50] | d_loss: 0.4542 | g_loss: 3.5314
Epoch [   42/   50] | d_loss: 0.5763 | g_loss: 2.3832
Epoch [   42/   50] | d_loss: 0.3809 | g_loss: 4.3567
Epoch [   42/   50] | d_loss: 0.3703 | g_loss: 4.4926
Epoch [   43/   50] | d_loss: 0.8999 | g_loss: 4.3569
Epoch [   43/   50] | d_loss: 0.3910 | g_loss: 4.0867
Epoch [   43/   50] | d_loss: 0.3992 | g_loss: 3.6903
Epoch [   43/   50] | d_loss: 0.4384 | g_loss: 3.9263
Epoch [   43/   50] | d_loss: 0.3723 | g_loss: 3.0686
Epoch [   43/   50] | d_loss: 0.4435 | g_loss: 3.2850
Epoch [   43/   50] | d_loss: 0.4012 | g_loss: 4.2054
Epoch [   43/   50] | d_loss: 0.5242 | g_loss: 2.8219
Epoch [   43/   50] | d_loss: 0.4292 | g_loss: 3.0953
Epoch [   43/   50] | d_loss: 0.3873 | g_loss: 4.6031
Epoch [   43/   50] | d_loss: 0.4376 | g_loss: 3.6755
Epoch [   43/   50] | d_loss: 0.4017 | g_loss: 3.1504
```

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Epoch [   43/   50] | d_loss: 0.4109 | g_loss: 3.1853
Epoch [   43/   50] | d_loss: 0.4337 | g_loss: 2.6498
Epoch [   43/   50] | d_loss: 0.4009 | g_loss: 3.5495
Epoch [   43/   50] | d_loss: 0.3938 | g_loss: 3.2280
Epoch [   43/   50] | d_loss: 0.4045 | g_loss: 3.7760
Epoch [   43/   50] | d_loss: 0.4338 | g_loss: 3.1251
Epoch [   43/   50] | d_loss: 0.4722 | g_loss: 4.0923
Epoch [   43/   50] | d_loss: 0.4732 | g_loss: 4.5467
Epoch [   43/   50] | d_loss: 0.3815 | g_loss: 4.8673
Epoch [   43/   50] | d_loss: 0.3955 | g_loss: 3.6952
Epoch [   43/   50] | d_loss: 0.3621 | g_loss: 4.2897
Epoch [   43/   50] | d_loss: 0.3655 | g_loss: 4.1517
Epoch [   43/   50] | d_loss: 0.5580 | g_loss: 2.5566
Epoch [   43/   50] | d_loss: 0.3858 | g_loss: 3.7632
Epoch [   43/   50] | d_loss: 0.4347 | g_loss: 4.1238
Epoch [   43/   50] | d_loss: 0.4230 | g_loss: 3.2652
Epoch [   43/   50] | d_loss: 0.3765 | g_loss: 4.2177
Epoch [   43/   50] | d_loss: 0.3795 | g_loss: 4.6824
Epoch [   43/   50] | d_loss: 0.4351 | g_loss: 3.4838
Epoch [   43/   50] | d_loss: 0.4758 | g_loss: 4.2504
Epoch [   43/   50] | d_loss: 0.6568 | g_loss: 4.0966
Epoch [   43/   50] | d_loss: 0.5531 | g_loss: 3.4432
Epoch [   43/   50] | d_loss: 0.5220 | g_loss: 2.7714
Epoch [   43/   50] | d_loss: 0.7506 | g_loss: 0.9798
Epoch [   43/   50] | d_loss: 0.6471 | g_loss: 1.3278
Epoch [   43/   50] | d_loss: 0.4040 | g_loss: 2.5705
Epoch [   43/   50] | d_loss: 0.4530 | g_loss: 4.6552
Epoch [   43/   50] | d_loss: 0.4526 | g_loss: 3.9917
Epoch [   43/   50] | d_loss: 0.7641 | g_loss: 4.3616
Epoch [   43/   50] | d_loss: 0.3924 | g_loss: 3.3674
Epoch [   43/   50] | d_loss: 0.4155 | g_loss: 2.8959
Epoch [   43/   50] | d_loss: 0.4449 | g_loss: 3.5317
Epoch [   43/   50] | d_loss: 0.3569 | g_loss: 4.9740
Epoch [   43/   50] | d_loss: 0.4646 | g_loss: 2.8600
Epoch [   43/   50] | d_loss: 0.3792 | g_loss: 4.7181
Epoch [   43/   50] | d_loss: 0.4078 | g_loss: 3.3304
Epoch [   43/   50] | d_loss: 0.4418 | g_loss: 4.2144
Epoch [   43/   50] | d_loss: 0.3784 | g_loss: 4.3646
Epoch [   43/   50] | d_loss: 0.4360 | g_loss: 3.1510
Epoch [   43/   50] | d_loss: 0.5300 | g_loss: 4.6496
Epoch [   43/   50] | d_loss: 0.3799 | g_loss: 3.1626
Epoch [   43/   50] | d_loss: 0.3758 | g_loss: 3.6684
Epoch [   43/   50] | d_loss: 0.3854 | g_loss: 3.1904
Epoch [   43/   50] | d_loss: 0.3976 | g_loss: 3.8432
Epoch [   43/   50] | d_loss: 0.6406 | g_loss: 3.8957
Epoch [   44/   50] | d_loss: 0.4834 | g_loss: 2.7464
Epoch [   44/   50] | d_loss: 0.3881 | g_loss: 5.6658
Epoch [   44/   50] | d_loss: 0.4058 | g_loss: 4.2573
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Epoch [   44/   50] | d_loss: 0.4506 | g_loss: 3.7899
Epoch [   44/   50] | d_loss: 0.4268 | g_loss: 3.7862
Epoch [   44/   50] | d_loss: 0.6542 | g_loss: 3.4420
Epoch [   44/   50] | d_loss: 0.4074 | g_loss: 3.4060
Epoch [   44/   50] | d_loss: 0.3615 | g_loss: 3.0122
Epoch [   44/   50] | d_loss: 0.4272 | g_loss: 3.2433
Epoch [   44/   50] | d_loss: 0.3757 | g_loss: 3.7111
Epoch [   44/   50] | d_loss: 0.4324 | g_loss: 3.9011
Epoch [   44/   50] | d_loss: 0.4344 | g_loss: 1.9880
Epoch [   44/   50] | d_loss: 0.3766 | g_loss: 3.4149
Epoch [   44/   50] | d_loss: 0.4317 | g_loss: 3.4272
Epoch [   44/   50] | d_loss: 0.4095 | g_loss: 3.4260
Epoch [   44/   50] | d_loss: 0.3813 | g_loss: 3.7466
Epoch [   44/   50] | d_loss: 0.3670 | g_loss: 4.0550
Epoch [   44/   50] | d_loss: 1.1683 | g_loss: 0.4502
Epoch [   44/   50] | d_loss: 0.4287 | g_loss: 4.4166
Epoch [   44/   50] | d_loss: 0.3908 | g_loss: 3.2258
Epoch [   44/   50] | d_loss: 0.8338 | g_loss: 1.2491
Epoch [   44/   50] | d_loss: 0.4855 | g_loss: 4.7177
Epoch [   44/   50] | d_loss: 0.4253 | g_loss: 2.3892
Epoch [   44/   50] | d_loss: 0.4047 | g_loss: 3.3321
Epoch [   44/   50] | d_loss: 0.3812 | g_loss: 4.1635
Epoch [   44/   50] | d_loss: 0.5460 | g_loss: 2.2226
Epoch [   44/   50] | d_loss: 0.3779 | g_loss: 3.6535
Epoch [   44/   50] | d_loss: 0.3704 | g_loss: 2.8382
Epoch [   44/   50] | d_loss: 0.5820 | g_loss: 1.8879
Epoch [   44/   50] | d_loss: 0.4420 | g_loss: 3.5216
Epoch [   44/   50] | d_loss: 0.4111 | g_loss: 3.6006
Epoch [   44/   50] | d_loss: 0.5242 | g_loss: 3.7604
Epoch [   44/   50] | d_loss: 0.3614 | g_loss: 3.7694
Epoch [   44/   50] | d_loss: 0.4599 | g_loss: 3.8214
Epoch [   44/   50] | d_loss: 0.3661 | g_loss: 4.0040
Epoch [   44/   50] | d_loss: 0.4307 | g_loss: 4.4502
Epoch [   44/   50] | d_loss: 0.5133 | g_loss: 3.9308
Epoch [   44/   50] | d_loss: 0.3840 | g_loss: 3.0558
Epoch [   44/   50] | d_loss: 0.4400 | g_loss: 4.8167
Epoch [   44/   50] | d_loss: 0.6134 | g_loss: 3.3528
Epoch [   44/   50] | d_loss: 0.3864 | g_loss: 3.5526
Epoch [   44/   50] | d_loss: 0.3575 | g_loss: 4.3166
Epoch [   44/   50] | d_loss: 0.4700 | g_loss: 3.3339
Epoch [   44/   50] | d_loss: 0.3791 | g_loss: 3.9033
Epoch [   44/   50] | d_loss: 0.4780 | g_loss: 3.0512
Epoch [   44/   50] | d_loss: 0.3910 | g_loss: 3.9264
Epoch [   44/   50] | d_loss: 0.3806 | g_loss: 3.6292
Epoch [   44/   50] | d_loss: 0.4164 | g_loss: 3.6726
Epoch [   44/   50] | d_loss: 0.4079 | g_loss: 4.9334
Epoch [   44/   50] | d_loss: 0.4378 | g_loss: 3.6078
Epoch [   44/   50] | d_loss: 0.3771 | g_loss: 3.5151
```

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Epoch [   44/   50] | d_loss: 0.3983 | g_loss: 3.5332
Epoch [   44/   50] | d_loss: 0.4813 | g_loss: 3.3898
Epoch [   44/   50] | d_loss: 0.4727 | g_loss: 4.1628
Epoch [   44/   50] | d_loss: 0.4210 | g_loss: 4.4999
Epoch [   44/   50] | d_loss: 0.4061 | g_loss: 3.4688
Epoch [   44/   50] | d_loss: 0.4236 | g_loss: 4.0167
Epoch [   45/   50] | d_loss: 0.8329 | g_loss: 5.5062
Epoch [   45/   50] | d_loss: 0.4214 | g_loss: 3.8043
Epoch [   45/   50] | d_loss: 0.5093 | g_loss: 4.1235
Epoch [   45/   50] | d_loss: 0.4483 | g_loss: 3.0087
Epoch [   45/   50] | d_loss: 0.3751 | g_loss: 3.5274
Epoch [   45/   50] | d_loss: 0.4625 | g_loss: 2.2575
Epoch [   45/   50] | d_loss: 0.5222 | g_loss: 4.3550
Epoch [   45/   50] | d_loss: 0.4017 | g_loss: 4.6507
Epoch [   45/   50] | d_loss: 0.3648 | g_loss: 4.3546
Epoch [   45/   50] | d_loss: 0.4012 | g_loss: 3.7300
Epoch [   45/   50] | d_loss: 0.4111 | g_loss: 3.7183
Epoch [   45/   50] | d_loss: 0.4058 | g_loss: 4.2742
Epoch [   45/   50] | d_loss: 0.4039 | g_loss: 3.9733
Epoch [   45/   50] | d_loss: 0.3946 | g_loss: 4.0588
Epoch [   45/   50] | d_loss: 0.5748 | g_loss: 3.7978
Epoch [   45/   50] | d_loss: 0.3830 | g_loss: 4.0004
Epoch [   45/   50] | d_loss: 0.3727 | g_loss: 4.5805
Epoch [   45/   50] | d_loss: 0.3904 | g_loss: 3.6442
Epoch [   45/   50] | d_loss: 0.3792 | g_loss: 5.1197
Epoch [   45/   50] | d_loss: 0.4790 | g_loss: 3.5172
Epoch [   45/   50] | d_loss: 0.4008 | g_loss: 3.8150
Epoch [   45/   50] | d_loss: 0.3691 | g_loss: 3.7914
Epoch [   45/   50] | d_loss: 0.3751 | g_loss: 5.3326
Epoch [   45/   50] | d_loss: 0.5168 | g_loss: 3.6068
Epoch [   45/   50] | d_loss: 0.4077 | g_loss: 3.6483
Epoch [   45/   50] | d_loss: 0.3790 | g_loss: 4.1718
Epoch [   45/   50] | d_loss: 0.3926 | g_loss: 2.9358
Epoch [   45/   50] | d_loss: 0.4453 | g_loss: 3.4053
Epoch [   45/   50] | d_loss: 0.8318 | g_loss: 1.3118
Epoch [   45/   50] | d_loss: 0.3779 | g_loss: 4.1845
Epoch [   45/   50] | d_loss: 0.3803 | g_loss: 2.7435
Epoch [   45/   50] | d_loss: 0.3946 | g_loss: 2.5807
Epoch [   45/   50] | d_loss: 0.3761 | g_loss: 4.4321
Epoch [   45/   50] | d_loss: 0.3818 | g_loss: 3.9240
Epoch [   45/   50] | d_loss: 0.4000 | g_loss: 3.2905
Epoch [   45/   50] | d_loss: 0.4286 | g_loss: 3.7943
Epoch [   45/   50] | d_loss: 0.3674 | g_loss: 3.8424
Epoch [   45/   50] | d_loss: 0.3627 | g_loss: 4.3745
Epoch [   45/   50] | d_loss: 0.4715 | g_loss: 3.3623
Epoch [   45/   50] | d_loss: 0.4248 | g_loss: 3.4693
Epoch [   45/   50] | d_loss: 0.4023 | g_loss: 3.9683
Epoch [   45/   50] | d_loss: 0.3636 | g_loss: 4.4827
```

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Epoch [   45/   50] | d_loss: 0.4327 | g_loss: 4.6551
Epoch [   45/   50] | d_loss: 0.6144 | g_loss: 4.7521
Epoch [   45/   50] | d_loss: 0.4128 | g_loss: 3.0298
Epoch [   45/   50] | d_loss: 0.4756 | g_loss: 3.1005
Epoch [   45/   50] | d_loss: 0.3576 | g_loss: 3.8383
Epoch [   45/   50] | d_loss: 0.5394 | g_loss: 2.8906
Epoch [   45/   50] | d_loss: 0.3997 | g_loss: 4.0794
Epoch [   45/   50] | d_loss: 0.4574 | g_loss: 4.8792
Epoch [   45/   50] | d_loss: 0.3861 | g_loss: 4.4416
Epoch [   45/   50] | d_loss: 0.4587 | g_loss: 4.4048
Epoch [   45/   50] | d_loss: 0.6919 | g_loss: 3.5252
Epoch [   45/   50] | d_loss: 0.4887 | g_loss: 3.5708
Epoch [   45/   50] | d_loss: 0.6953 | g_loss: 1.2876
Epoch [   45/   50] | d_loss: 0.4136 | g_loss: 3.8081
Epoch [   45/   50] | d_loss: 0.3667 | g_loss: 3.5711
Epoch [   46/   50] | d_loss: 0.3897 | g_loss: 2.8188
Epoch [   46/   50] | d_loss: 0.5577 | g_loss: 3.6277
Epoch [   46/   50] | d_loss: 0.3637 | g_loss: 5.2512
Epoch [   46/   50] | d_loss: 0.3812 | g_loss: 5.6575
Epoch [   46/   50] | d_loss: 0.5064 | g_loss: 2.7167
Epoch [   46/   50] | d_loss: 0.5104 | g_loss: 2.9531
Epoch [   46/   50] | d_loss: 0.5566 | g_loss: 1.5941
Epoch [   46/   50] | d_loss: 0.4368 | g_loss: 4.6993
Epoch [   46/   50] | d_loss: 0.4500 | g_loss: 3.1389
Epoch [   46/   50] | d_loss: 0.4459 | g_loss: 3.5696
Epoch [   46/   50] | d_loss: 0.4703 | g_loss: 3.9906
Epoch [   46/   50] | d_loss: 0.4136 | g_loss: 1.9758
Epoch [   46/   50] | d_loss: 0.3804 | g_loss: 5.0103
Epoch [   46/   50] | d_loss: 0.4152 | g_loss: 4.3283
Epoch [   46/   50] | d_loss: 0.3783 | g_loss: 3.9030
Epoch [   46/   50] | d_loss: 0.4189 | g_loss: 4.2811
Epoch [   46/   50] | d_loss: 0.3746 | g_loss: 3.4295
Epoch [   46/   50] | d_loss: 0.3754 | g_loss: 4.9974
Epoch [   46/   50] | d_loss: 0.4606 | g_loss: 2.2529
Epoch [   46/   50] | d_loss: 0.3675 | g_loss: 4.2613
Epoch [   46/   50] | d_loss: 0.4097 | g_loss: 4.0087
Epoch [   46/   50] | d_loss: 0.4746 | g_loss: 3.1676
Epoch [   46/   50] | d_loss: 0.3814 | g_loss: 2.9870
Epoch [   46/   50] | d_loss: 0.3709 | g_loss: 3.2717
Epoch [   46/   50] | d_loss: 0.4281 | g_loss: 2.4536
Epoch [   46/   50] | d_loss: 0.3615 | g_loss: 4.5284
Epoch [   46/   50] | d_loss: 0.5188 | g_loss: 3.2060
Epoch [   46/   50] | d_loss: 0.3763 | g_loss: 3.8248
Epoch [   46/   50] | d_loss: 0.3805 | g_loss: 4.3371
Epoch [   46/   50] | d_loss: 0.3949 | g_loss: 4.2474
Epoch [   46/   50] | d_loss: 0.4001 | g_loss: 3.6114
Epoch [   46/   50] | d_loss: 0.3405 | g_loss: 4.5605
Epoch [   46/   50] | d_loss: 0.3575 | g_loss: 4.3858
```

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Epoch [   46/   50] | d_loss: 0.7132 | g_loss: 1.7582
Epoch [   46/   50] | d_loss: 0.5065 | g_loss: 3.8851
Epoch [   46/   50] | d_loss: 0.3630 | g_loss: 2.6795
Epoch [   46/   50] | d_loss: 0.4357 | g_loss: 4.9385
Epoch [   46/   50] | d_loss: 0.4248 | g_loss: 2.8552
Epoch [   46/   50] | d_loss: 0.3907 | g_loss: 3.4159
Epoch [   46/   50] | d_loss: 0.4651 | g_loss: 3.7230
Epoch [   46/   50] | d_loss: 0.4257 | g_loss: 4.1842
Epoch [   46/   50] | d_loss: 0.4164 | g_loss: 3.9682
Epoch [   46/   50] | d_loss: 0.4033 | g_loss: 2.1413
Epoch [   46/   50] | d_loss: 0.3648 | g_loss: 3.0219
Epoch [   46/   50] | d_loss: 0.3545 | g_loss: 4.1386
Epoch [   46/   50] | d_loss: 0.3906 | g_loss: 3.7578
Epoch [   46/   50] | d_loss: 0.3762 | g_loss: 3.5962
Epoch [   46/   50] | d_loss: 0.4107 | g_loss: 2.7839
Epoch [   46/   50] | d_loss: 0.4676 | g_loss: 2.4923
Epoch [   46/   50] | d_loss: 0.3637 | g_loss: 3.6933
Epoch [   46/   50] | d_loss: 0.4304 | g_loss: 3.5403
Epoch [   46/   50] | d_loss: 0.3676 | g_loss: 3.9877
Epoch [   46/   50] | d_loss: 0.3594 | g_loss: 4.2124
Epoch [   46/   50] | d_loss: 0.3745 | g_loss: 4.0184
Epoch [   46/   50] | d_loss: 0.3665 | g_loss: 5.0173
Epoch [   46/   50] | d_loss: 0.4019 | g_loss: 3.0904
Epoch [   46/   50] | d_loss: 0.3580 | g_loss: 2.8407
Epoch [   47/   50] | d_loss: 0.3748 | g_loss: 3.1471
Epoch [   47/   50] | d_loss: 0.5574 | g_loss: 2.1718
Epoch [   47/   50] | d_loss: 0.3676 | g_loss: 2.4388
Epoch [   47/   50] | d_loss: 0.3578 | g_loss: 4.0435
Epoch [   47/   50] | d_loss: 0.4705 | g_loss: 4.1605
Epoch [   47/   50] | d_loss: 0.3841 | g_loss: 3.1982
Epoch [   47/   50] | d_loss: 0.4389 | g_loss: 2.4259
Epoch [   47/   50] | d_loss: 0.4711 | g_loss: 4.3030
Epoch [   47/   50] | d_loss: 0.4204 | g_loss: 4.0235
Epoch [   47/   50] | d_loss: 0.3596 | g_loss: 4.4793
Epoch [   47/   50] | d_loss: 0.3731 | g_loss: 4.9891
Epoch [   47/   50] | d_loss: 0.4166 | g_loss: 3.6954
Epoch [   47/   50] | d_loss: 0.5440 | g_loss: 3.3147
Epoch [   47/   50] | d_loss: 0.4786 | g_loss: 2.2043
Epoch [   47/   50] | d_loss: 0.3719 | g_loss: 2.9198
Epoch [   47/   50] | d_loss: 0.3827 | g_loss: 3.3703
Epoch [   47/   50] | d_loss: 0.3879 | g_loss: 3.5442
Epoch [   47/   50] | d_loss: 0.5290 | g_loss: 3.9737
Epoch [   47/   50] | d_loss: 0.4715 | g_loss: 1.8657
Epoch [   47/   50] | d_loss: 0.4029 | g_loss: 4.4253
Epoch [   47/   50] | d_loss: 0.4104 | g_loss: 2.8479
Epoch [   47/   50] | d_loss: 0.3960 | g_loss: 3.6117
Epoch [   47/   50] | d_loss: 0.5077 | g_loss: 2.6538
Epoch [   47/   50] | d_loss: 0.3772 | g_loss: 4.3497
```

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Epoch [   47/   50] | d_loss: 0.4425 | g_loss: 2.8964
Epoch [   47/   50] | d_loss: 0.5439 | g_loss: 4.5224
Epoch [   47/   50] | d_loss: 0.4706 | g_loss: 4.4200
Epoch [   47/   50] | d_loss: 0.3954 | g_loss: 3.8002
Epoch [   47/   50] | d_loss: 0.5079 | g_loss: 2.3050
Epoch [   47/   50] | d_loss: 0.4342 | g_loss: 3.8363
Epoch [   47/   50] | d_loss: 0.4347 | g_loss: 3.2687
Epoch [   47/   50] | d_loss: 0.4162 | g_loss: 4.6539
Epoch [   47/   50] | d_loss: 0.5262 | g_loss: 2.8727
Epoch [   47/   50] | d_loss: 0.3967 | g_loss: 3.1077
Epoch [   47/   50] | d_loss: 0.3862 | g_loss: 3.5248
Epoch [   47/   50] | d_loss: 0.5478 | g_loss: 2.6390
Epoch [   47/   50] | d_loss: 0.3932 | g_loss: 3.6826
Epoch [   47/   50] | d_loss: 0.6893 | g_loss: 5.1383
Epoch [   47/   50] | d_loss: 0.3970 | g_loss: 4.2682
Epoch [   47/   50] | d_loss: 0.3919 | g_loss: 3.9011
Epoch [   47/   50] | d_loss: 0.4043 | g_loss: 5.3548
Epoch [   47/   50] | d_loss: 0.3920 | g_loss: 3.9281
Epoch [   47/   50] | d_loss: 0.4504 | g_loss: 2.6818
Epoch [   47/   50] | d_loss: 0.3711 | g_loss: 4.0160
Epoch [   47/   50] | d_loss: 0.3836 | g_loss: 3.7046
Epoch [   47/   50] | d_loss: 0.3756 | g_loss: 4.2062
Epoch [   47/   50] | d_loss: 0.5147 | g_loss: 2.7435
Epoch [   47/   50] | d_loss: 0.4016 | g_loss: 2.2204
Epoch [   47/   50] | d_loss: 0.4676 | g_loss: 3.8333
Epoch [   47/   50] | d_loss: 0.4876 | g_loss: 3.9792
Epoch [   47/   50] | d_loss: 0.6492 | g_loss: 3.1244
Epoch [   47/   50] | d_loss: 0.3699 | g_loss: 3.8539
Epoch [   47/   50] | d_loss: 0.4158 | g_loss: 2.7381
Epoch [   47/   50] | d_loss: 0.4962 | g_loss: 3.0174
Epoch [   47/   50] | d_loss: 0.3588 | g_loss: 3.8507
Epoch [   47/   50] | d_loss: 0.3707 | g_loss: 4.3305
Epoch [   47/   50] | d_loss: 0.4915 | g_loss: 2.4127
Epoch [   48/   50] | d_loss: 0.5588 | g_loss: 4.1975
Epoch [   48/   50] | d_loss: 0.6023 | g_loss: 2.2592
Epoch [   48/   50] | d_loss: 0.4086 | g_loss: 3.1284
Epoch [   48/   50] | d_loss: 0.3953 | g_loss: 3.7222
Epoch [   48/   50] | d_loss: 0.5419 | g_loss: 1.7715
Epoch [   48/   50] | d_loss: 0.4459 | g_loss: 4.1326
Epoch [   48/   50] | d_loss: 0.4566 | g_loss: 4.4313
Epoch [   48/   50] | d_loss: 0.4312 | g_loss: 4.0822
Epoch [   48/   50] | d_loss: 0.3856 | g_loss: 2.7540
Epoch [   48/   50] | d_loss: 0.3625 | g_loss: 3.9600
Epoch [   48/   50] | d_loss: 0.5614 | g_loss: 1.5821
Epoch [   48/   50] | d_loss: 0.4700 | g_loss: 1.8801
Epoch [   48/   50] | d_loss: 0.3556 | g_loss: 4.7826
Epoch [   48/   50] | d_loss: 0.4384 | g_loss: 3.3767
Epoch [   48/   50] | d_loss: 0.3909 | g_loss: 3.2668
```

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Epoch [   48/   50] | d_loss: 0.4718 | g_loss: 3.2523
Epoch [   48/   50] | d_loss: 0.3906 | g_loss: 5.2058
Epoch [   48/   50] | d_loss: 1.1771 | g_loss: 1.0468
Epoch [   48/   50] | d_loss: 0.4301 | g_loss: 1.8661
Epoch [   48/   50] | d_loss: 0.4670 | g_loss: 3.5634
Epoch [   48/   50] | d_loss: 0.5237 | g_loss: 3.4964
Epoch [   48/   50] | d_loss: 0.4048 | g_loss: 4.2321
Epoch [   48/   50] | d_loss: 0.8973 | g_loss: 5.6130
Epoch [   48/   50] | d_loss: 0.4116 | g_loss: 5.0350
Epoch [   48/   50] | d_loss: 0.3640 | g_loss: 3.5820
Epoch [   48/   50] | d_loss: 0.4062 | g_loss: 4.5539
Epoch [   48/   50] | d_loss: 0.6343 | g_loss: 4.5518
Epoch [   48/   50] | d_loss: 0.4186 | g_loss: 2.8932
Epoch [   48/   50] | d_loss: 0.4686 | g_loss: 4.0102
Epoch [   48/   50] | d_loss: 0.4362 | g_loss: 3.4302
Epoch [   48/   50] | d_loss: 0.4821 | g_loss: 4.7183
Epoch [   48/   50] | d_loss: 0.6429 | g_loss: 3.1289
Epoch [   48/   50] | d_loss: 0.4969 | g_loss: 2.9570
Epoch [   48/   50] | d_loss: 0.4844 | g_loss: 4.6358
Epoch [   48/   50] | d_loss: 0.3626 | g_loss: 5.4284
Epoch [   48/   50] | d_loss: 0.3664 | g_loss: 4.6280
Epoch [   48/   50] | d_loss: 0.5722 | g_loss: 2.5476
Epoch [   48/   50] | d_loss: 0.4138 | g_loss: 5.7769
Epoch [   48/   50] | d_loss: 0.5345 | g_loss: 3.1547
Epoch [   48/   50] | d_loss: 0.3876 | g_loss: 4.2999
Epoch [   48/   50] | d_loss: 0.4554 | g_loss: 3.1879
Epoch [   48/   50] | d_loss: 0.3744 | g_loss: 4.1112
Epoch [   48/   50] | d_loss: 0.4390 | g_loss: 3.8734
Epoch [   48/   50] | d_loss: 0.4740 | g_loss: 2.2835
Epoch [   48/   50] | d_loss: 0.4019 | g_loss: 4.7516
Epoch [   48/   50] | d_loss: 0.3718 | g_loss: 4.2234
Epoch [   48/   50] | d_loss: 0.4813 | g_loss: 3.0307
Epoch [   48/   50] | d_loss: 0.3643 | g_loss: 4.0939
Epoch [   48/   50] | d_loss: 0.3854 | g_loss: 3.5400
Epoch [   48/   50] | d_loss: 0.5300 | g_loss: 3.3217
Epoch [   48/   50] | d_loss: 0.5012 | g_loss: 3.5414
Epoch [   48/   50] | d_loss: 0.4201 | g_loss: 2.1319
Epoch [   48/   50] | d_loss: 0.4537 | g_loss: 2.6192
Epoch [   48/   50] | d_loss: 0.3688 | g_loss: 4.9134
Epoch [   48/   50] | d_loss: 0.3823 | g_loss: 4.7895
Epoch [   48/   50] | d_loss: 0.4184 | g_loss: 4.3123
Epoch [   48/   50] | d_loss: 0.3818 | g_loss: 2.8741
Epoch [   49/   50] | d_loss: 0.4039 | g_loss: 3.4939
Epoch [   49/   50] | d_loss: 0.4129 | g_loss: 4.9324
Epoch [   49/   50] | d_loss: 0.4086 | g_loss: 3.3031
Epoch [   49/   50] | d_loss: 0.3849 | g_loss: 4.0775
Epoch [   49/   50] | d_loss: 0.6657 | g_loss: 1.7553
Epoch [   49/   50] | d_loss: 0.3704 | g_loss: 3.2991
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Epoch [   49/   50] | d_loss: 0.4465 | g_loss: 3.6559
Epoch [   49/   50] | d_loss: 0.6404 | g_loss: 1.8003
Epoch [   49/   50] | d_loss: 0.4056 | g_loss: 1.8004
Epoch [   49/   50] | d_loss: 0.3765 | g_loss: 4.6802
Epoch [   49/   50] | d_loss: 0.4271 | g_loss: 2.9331
Epoch [   49/   50] | d_loss: 0.4302 | g_loss: 4.7585
Epoch [   49/   50] | d_loss: 0.3573 | g_loss: 4.3837
Epoch [   49/   50] | d_loss: 0.3630 | g_loss: 3.5916
Epoch [   49/   50] | d_loss: 0.4722 | g_loss: 3.4540
Epoch [   49/   50] | d_loss: 0.4048 | g_loss: 3.3909
Epoch [   49/   50] | d_loss: 0.5120 | g_loss: 3.6490
Epoch [   49/   50] | d_loss: 0.4175 | g_loss: 3.1535
Epoch [   49/   50] | d_loss: 0.3761 | g_loss: 4.0173
Epoch [   49/   50] | d_loss: 0.4199 | g_loss: 3.8663
Epoch [   49/   50] | d_loss: 0.4021 | g_loss: 3.8642
Epoch [   49/   50] | d_loss: 0.7924 | g_loss: 3.8661
Epoch [   49/   50] | d_loss: 0.4384 | g_loss: 3.4935
Epoch [   49/   50] | d_loss: 0.5674 | g_loss: 4.3948
Epoch [   49/   50] | d_loss: 0.3982 | g_loss: 4.0138
Epoch [   49/   50] | d_loss: 0.4385 | g_loss: 2.8667
Epoch [   49/   50] | d_loss: 0.9655 | g_loss: 5.8657
Epoch [   49/   50] | d_loss: 0.4253 | g_loss: 2.0647
Epoch [   49/   50] | d_loss: 0.3629 | g_loss: 3.5705
Epoch [   49/   50] | d_loss: 0.3981 | g_loss: 3.1945
Epoch [   49/   50] | d_loss: 0.5181 | g_loss: 2.9937
Epoch [   49/   50] | d_loss: 0.4337 | g_loss: 4.3040
Epoch [   49/   50] | d_loss: 0.3807 | g_loss: 4.3471
Epoch [   49/   50] | d_loss: 0.3950 | g_loss: 4.2013
Epoch [   49/   50] | d_loss: 0.3920 | g_loss: 3.8929
Epoch [   49/   50] | d_loss: 0.3941 | g_loss: 4.3034
Epoch [   49/   50] | d_loss: 0.4484 | g_loss: 3.8881
Epoch [   49/   50] | d_loss: 0.5409 | g_loss: 1.4781
Epoch [   49/   50] | d_loss: 0.4224 | g_loss: 4.0775
Epoch [   49/   50] | d_loss: 0.3562 | g_loss: 3.2354
Epoch [   49/   50] | d_loss: 0.4750 | g_loss: 2.4612
Epoch [   49/   50] | d_loss: 0.4387 | g_loss: 4.6616
Epoch [   49/   50] | d_loss: 0.4260 | g_loss: 3.9357
Epoch [   49/   50] | d_loss: 0.5077 | g_loss: 3.8975
Epoch [   49/   50] | d_loss: 0.4156 | g_loss: 4.3948
Epoch [   49/   50] | d_loss: 0.4259 | g_loss: 3.4931
Epoch [   49/   50] | d_loss: 0.4042 | g_loss: 3.4136
Epoch [   49/   50] | d_loss: 0.4902 | g_loss: 2.8921
Epoch [   49/   50] | d_loss: 0.5072 | g_loss: 3.6078
Epoch [   49/   50] | d_loss: 0.3523 | g_loss: 3.8635
Epoch [   49/   50] | d_loss: 0.4764 | g_loss: 2.5496
Epoch [   49/   50] | d_loss: 0.4926 | g_loss: 2.5454
Epoch [   49/   50] | d_loss: 0.4413 | g_loss: 4.1295
Epoch [   49/   50] | d_loss: 0.3890 | g_loss: 3.5132
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Epoch [   49/   50] | d_loss: 0.3933 | g_loss: 4.3734
Epoch [   49/   50] | d_loss: 0.3489 | g_loss: 4.0165
Epoch [   49/   50] | d_loss: 0.4961 | g_loss: 3.4480
Epoch [   50/   50] | d_loss: 1.0283 | g_loss: 5.1819
Epoch [   50/   50] | d_loss: 0.3695 | g_loss: 5.0487
Epoch [   50/   50] | d_loss: 0.4990 | g_loss: 3.0497
Epoch [   50/   50] | d_loss: 0.4017 | g_loss: 4.1449
Epoch [   50/   50] | d_loss: 0.3926 | g_loss: 4.3916
Epoch [   50/   50] | d_loss: 0.3881 | g_loss: 4.2591
Epoch [   50/   50] | d_loss: 0.4249 | g_loss: 4.7112
Epoch [   50/   50] | d_loss: 0.3663 | g_loss: 4.9079
Epoch [   50/   50] | d_loss: 0.3781 | g_loss: 5.6560
Epoch [   50/   50] | d_loss: 0.6450 | g_loss: 1.2017
Epoch [   50/   50] | d_loss: 0.3790 | g_loss: 4.8968
Epoch [   50/   50] | d_loss: 0.3963 | g_loss: 3.9953
Epoch [   50/   50] | d_loss: 0.4045 | g_loss: 3.0367
Epoch [   50/   50] | d_loss: 0.3600 | g_loss: 4.6096
Epoch [   50/   50] | d_loss: 0.6446 | g_loss: 3.5718
Epoch [   50/   50] | d_loss: 0.5641 | g_loss: 3.1390
Epoch [   50/   50] | d_loss: 0.4200 | g_loss: 3.6371
Epoch [   50/   50] | d_loss: 0.3715 | g_loss: 5.9128
Epoch [   50/   50] | d_loss: 0.4360 | g_loss: 4.6959
Epoch [   50/   50] | d_loss: 0.3710 | g_loss: 4.7698
Epoch [   50/   50] | d_loss: 0.3986 | g_loss: 3.6502
Epoch [   50/   50] | d_loss: 0.4343 | g_loss: 3.7538
Epoch [   50/   50] | d_loss: 0.3934 | g_loss: 3.5658
Epoch [   50/   50] | d_loss: 0.4767 | g_loss: 2.1694
Epoch [   50/   50] | d_loss: 0.9228 | g_loss: 4.7315
Epoch [   50/   50] | d_loss: 0.3666 | g_loss: 3.7798
Epoch [   50/   50] | d_loss: 0.3995 | g_loss: 3.5330
Epoch [   50/   50] | d_loss: 0.4143 | g_loss: 2.8974
Epoch [   50/   50] | d_loss: 0.3751 | g_loss: 3.7622
Epoch [   50/   50] | d_loss: 0.6938 | g_loss: 0.6614
Epoch [   50/   50] | d_loss: 0.4133 | g_loss: 3.6102
Epoch [   50/   50] | d_loss: 0.8395 | g_loss: 1.1693
Epoch [   50/   50] | d_loss: 0.3770 | g_loss: 4.0759
Epoch [   50/   50] | d_loss: 0.3931 | g_loss: 3.1768
Epoch [   50/   50] | d_loss: 0.3771 | g_loss: 5.3877
Epoch [   50/   50] | d_loss: 0.3739 | g_loss: 3.0291
Epoch [   50/   50] | d_loss: 0.5557 | g_loss: 4.4647
Epoch [   50/   50] | d_loss: 0.5678 | g_loss: 3.5511
Epoch [   50/   50] | d_loss: 0.6021 | g_loss: 4.2385
Epoch [   50/   50] | d_loss: 0.4375 | g_loss: 4.7847
Epoch [   50/   50] | d_loss: 0.3848 | g_loss: 3.7333
Epoch [   50/   50] | d_loss: 0.4286 | g_loss: 3.6461
Epoch [   50/   50] | d_loss: 0.3863 | g_loss: 3.8938
Epoch [   50/   50] | d_loss: 0.3854 | g_loss: 4.2554
Epoch [   50/   50] | d_loss: 0.4308 | g_loss: 3.3593
```

```
Epoch [   50/   50] | d_loss: 0.3720 | g_loss: 3.6306
Epoch [   50/   50] | d_loss: 0.4486 | g_loss: 3.6524
Epoch [   50/   50] | d_loss: 0.3738 | g_loss: 4.4585
Epoch [   50/   50] | d_loss: 0.3864 | g_loss: 3.6021
Epoch [   50/   50] | d_loss: 0.4851 | g_loss: 2.3101
Epoch [   50/   50] | d_loss: 0.3679 | g_loss: 4.5696
Epoch [   50/   50] | d_loss: 0.3738 | g_loss: 3.3109
Epoch [   50/   50] | d_loss: 0.3801 | g_loss: 3.1624
Epoch [   50/   50] | d_loss: 0.4173 | g_loss: 2.4385
Epoch [   50/   50] | d_loss: 0.3816 | g_loss: 3.4204
Epoch [   50/   50] | d_loss: 0.3709 | g_loss: 4.8543
Epoch [   50/   50] | d_loss: 0.3558 | g_loss: 5.1553
```

2.8 Training loss

Plot the training losses for the generator and discriminator, recorded after each epoch.

```
In [52]: fig, ax = plt.subplots()
         losses = np.array(losses)
         plt.plot(losses.T[0], label='Discriminator', alpha=0.5)
         plt.plot(losses.T[1], label='Generator', alpha=0.5)
         plt.title("Training Losses")
         plt.legend()
```

```
Out[52]: <matplotlib.legend.Legend at 0x7f0a6f7914e0>
```

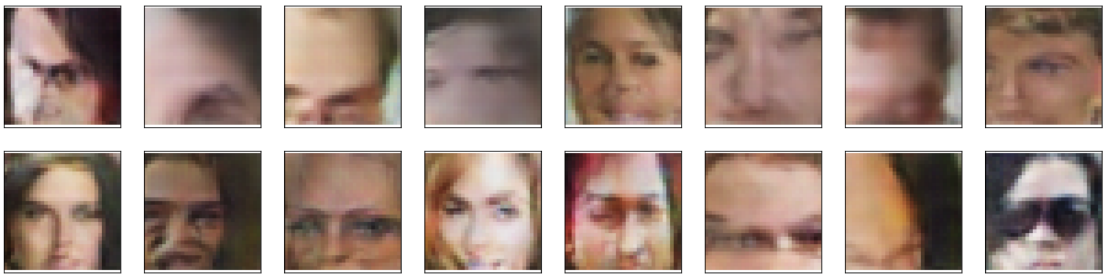
2.9 Generator samples from training

View samples of images from the generator, and answer a question about the strengths and weaknesses of your trained models.

```
In [53]: # helper function for viewing a list of passed in sample images
         def view_samples(epoch, samples):
             fig, axes = plt.subplots(figsize=(16,4), nrows=2, ncols=8, sharey=True, sharex=True
             for ax, img in zip(axes.flatten(), samples[epoch]):
                 img = img.detach().cpu().numpy()
                 img = np.transpose(img, (1, 2, 0))
                 img = ((img + 1)*255 / (2)).astype(np.uint8)
                 ax.xaxis.set_visible(False)
                 ax.yaxis.set_visible(False)
                 im = ax.imshow(img.reshape((32,32,3)))
```

```
In [54]: # Load samples from generator, taken while training
         with open('train_samples.pkl', 'rb') as f:
             samples = pkl.load(f)
```

```
In [55]: _ = view_samples(-1, samples)
```



2.9.1 Question: What do you notice about your generated samples and how might you improve this model?

When you answer this question, consider the following factors: * The dataset is biased; it is made of "celebrity" faces that are mostly white * Model size; larger models have the opportunity to learn more features in a data feature space * Optimization strategy; optimizers and number of epochs affect your final result

Answer: The generated samples look like faces, but they don't look very realistic. I noticed that generator loss increases quite fast. I tried a lot of hyper parameter tuning: different learning rates, different beta values for Adam optimizer, more epochs, adding more layers, adding smoothing in real loss. The results can surely be improved by experimenting even more with hyper parameter settings or researching for GAN improvements in publications.

2.9.2 Submitting This Project

When submitting this project, make sure to run all the cells before saving the notebook. Save the notebook file as "dlnd_face_generation.ipynb" and save it as a HTML file under "File" -> "Download as". Include the "problem_unittests.py" files in your submission.

In [ ]:

In [ ]: