

Face Generation

In this project, you'll use generative adversarial networks to generate new images of faces.

Get the Data

You'll be using two datasets in this project:

- MNIST
- CelebA

Since the celebA dataset is complex and you're doing GANs in a project for the first time, we want you to test your neural network on MNIST before CelebA. Running the GANs on MNIST will allow you to see how well your model trains sooner.

If you're using [FloydHub](https://www.floydhub.com/) (<https://www.floydhub.com/>), set `data_dir` to `"/input"` and use the [FloydHub data ID](#) (http://docs.floydhub.com/home/using_datasets/) "R5KrnjAniKVhLWAkpXhNBe".

```
In [1]: data_dir = './data'

# FloydHub - Use with data ID "R5KrnjAniKVhLWAkpXhNBe"
#data_dir = '/input'

"""
DON'T MODIFY ANYTHING IN THIS CELL
"""

import helper

helper.download_extract('mnist', data_dir)
helper.download_extract('celeba', data_dir)
```

Found mnist Data
Found celeba Data

Explore the Data

MNIST

As you're aware, the [MNIST](http://yann.lecun.com/exdb/mnist/) (<http://yann.lecun.com/exdb/mnist/>) dataset contains images of handwritten digits. You can view the first number of examples by changing `show_n_images`.

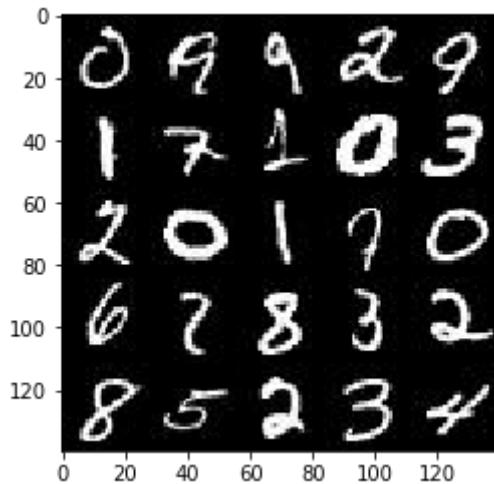
```
In [2]: show_n_images = 25

"""
DON'T MODIFY ANYTHING IN THIS CELL
"""

%matplotlib inline
import os
from glob import glob
from matplotlib import pyplot

mnist_images = helper.get_batch(glob(os.path.join(data_dir, 'mnist/*.jpg'))[:show_n_images], 28, 28, 'L')
pyplot.imshow(helper.images_square_grid(mnist_images, 'L'), cmap='gray')
```

Out[2]: <matplotlib.image.AxesImage at 0x7fc6d7a18908>

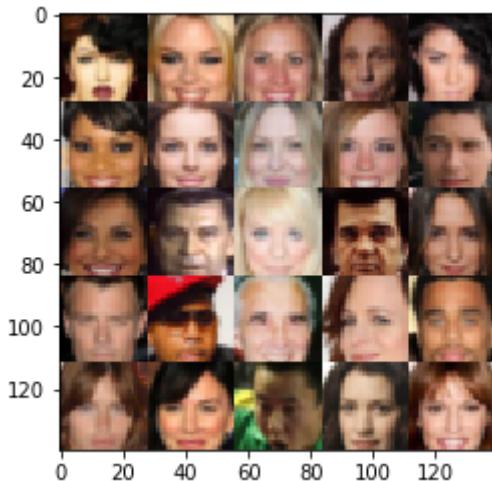


CelebA

The [CelebFaces Attributes Dataset \(CelebA\)](http://mmlab.ie.cuhk.edu.hk/projects/CelebA.html) (<http://mmlab.ie.cuhk.edu.hk/projects/CelebA.html>) dataset contains over 200,000 celebrity images with annotations. Since you're going to be generating faces, you won't need the annotations. You can view the first number of examples by changing `show_n_images`.

```
In [3]: show_n_images = 25
"""
DON'T MODIFY ANYTHING IN THIS CELL
"""
mnist_images = helper.get_batch(glob(os.path.join(data_dir, 'img_align_celeba/*.jpg'))[:show_n_images], 28, 28, 'RGB')
pyplot.imshow(helper.images_square_grid(mnist_images, 'RGB'))
```

Out[3]: <matplotlib.image.AxesImage at 0x7fc6d7947550>



Preprocess the Data

Since the project's main focus is on building the GANs, we'll preprocess the data for you. The values of the MNIST and CelebA dataset will be in the range of -0.5 to 0.5 of 28x28 dimensional images. The CelebA images will be cropped to remove parts of the image that don't include a face, then resized down to 28x28.

The MNIST images are black and white images with a single [color channel](#) ([https://en.wikipedia.org/wiki/Channel_\(digital_image%29](https://en.wikipedia.org/wiki/Channel_(digital_image%29)) while the CelebA images have [3 color channels \(RGB color channel\)](#) ([https://en.wikipedia.org/wiki/Channel_\(digital_image%29#RGB_Images](https://en.wikipedia.org/wiki/Channel_(digital_image%29#RGB_Images)).

Build the Neural Network

You'll build the components necessary to build a GANs by implementing the following functions below:

- model_inputs
- discriminator
- generator
- model_loss
- model_opt
- train

Check the Version of TensorFlow and Access to GPU

This will check to make sure you have the correct version of TensorFlow and access to a GPU

```
In [4]: """
DON'T MODIFY ANYTHING IN THIS CELL
"""

from distutils.version import LooseVersion
import warnings
import tensorflow as tf

# Check TensorFlow Version
assert LooseVersion(tf.__version__) >= LooseVersion('1.0'), 'Please use TensorFlow version 1.0 or newer. You are using {}'.format(tf.__version__)
print('TensorFlow Version: {}'.format(tf.__version__))

# Check for a GPU
if not tf.test.gpu_device_name():
    warnings.warn('No GPU found. Please use a GPU to train your neural network.')
else:
    print('Default GPU Device: {}'.format(tf.test.gpu_device_name()))

TensorFlow Version: 1.3.0
Default GPU Device: /gpu:0
```

Input

Implement the `model_inputs` function to create TF Placeholders for the Neural Network. It should create the following placeholders:

- Real input images placeholder with rank 4 using `image_width`, `image_height`, and `image_channels`.
- Z input placeholder with rank 2 using `z_dim`.
- Learning rate placeholder with rank 0.

Return the placeholders in the following tuple (tensor of real input images, tensor of z data)

```
In [5]: import problem_unittests as tests

def model_inputs(image_width, image_height, image_channels, z_dim):
    """
    Create the model inputs
    :param image_width: The input image width
    :param image_height: The input image height
    :param image_channels: The number of image channels
    :param z_dim: The dimension of Z
    :return: Tuple of (tensor of real input images, tensor of z data, learning rate)
    """

    # TODO: Implement Function
    inputs_real = tf.placeholder(tf.float32, (None, image_width, image_height, image_channels), name='input_real')
    inputs_z = tf.placeholder(tf.float32, (None, z_dim), name='input_z')
    inputs_learning_rate = tf.placeholder(tf.float32, name = 'learning_rate', shape=() )

    return inputs_real, inputs_z, inputs_learning_rate

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

Tests Passed

Discriminator

Implement discriminator to create a discriminator neural network that discriminates on images. This function should be able to reuse the variables in the neural network. Use [tf.variable_scope](#) (https://www.tensorflow.org/api_docs/python/tf/variable_scope) with a scope name of "discriminator" to allow the variables to be reused. The function should return a tuple of (tensor output of the discriminator, tensor logits of the discriminator).

```
In [6]: def discriminator(images, reuse=False):
    """
        Create the discriminator network
        :param images: Tensor of input image(s)
        :param reuse: Boolean if the weights should be reused
        :return: Tuple of (tensor output of the discriminator, tensor logits
        of the discriminator)
    """

    # TODO: Implement Function
    with tf.variable_scope('discriminator', reuse=reuse):

        # leaky ReLu parameter
        alpha = 0.2

        # Input layer is 28x28x3
        y1 = tf.layers.conv2d(images, filters = 64, kernel_size = 5, strides=2, padding='same')
        relu1 = tf.maximum(alpha * y1, y1)
        # 14x14x64

        y2 = tf.layers.conv2d(relu1, filters = 128, kernel_size = 5, strides=2, padding='same')
        bn2 = tf.layers.batch_normalization(y2, training=True)
        relu2 = tf.maximum(alpha * bn2, bn2)
        # 7x7x128

        y3 = tf.layers.conv2d(relu2, filters = 256, kernel_size = 5, strides=2, padding='same')
        bn3 = tf.layers.batch_normalization(y3, training=True)
        relu3 = tf.maximum(alpha * bn3, bn3)
        # 4x4x256

        # Flatten it
        flat = tf.reshape(relu3, (-1, 4*4*256))
        logits = tf.layers.dense(flat, units = 1, kernel_initializer = tf.contrib.layers.xavier_initializer() )
        out = tf.sigmoid(logits)

    return out, logits

"""

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

Tests Passed

Generator

Implement generator to generate an image using `z`. This function should be able to reuse the variables in the neural network. Use `tf.variable_scope` (https://www.tensorflow.org/api_docs/python/tf/variable_scope) with a scope name of "generator" to allow the variables to be reused. The function should return the generated $28 \times 28 \times \text{out_channel_dim}$ images.

```
In [20]: def generator(z, out_channel_dim, is_train=True):
    """
        Create the generator network
    :param z: Input z
    :param out_channel_dim: The number of channels in the output image
    :param is_train: Boolean if generator is being used for training
    :return: The tensor output of the generator
    """
    # TODO: Implement Function
    with tf.variable_scope('generator', reuse= not is_train):

        # ReLu parameter ( alpha = 0: normal ReLU, alpha > 0: leaky ReL
U)
        alpha = 0.2
        #alpha = 0

        # initial fully connected layer
        y1 = tf.layers.dense(z, 7*7*512)

        # Reshape it to start the convolutional stack
        y1 = tf.reshape(y1, (-1, 7, 7, 512))
        y1 = tf.layers.batch_normalization(y1, training=is_train )
        y1 = tf.maximum(alpha * y1, y1)
        # 7x7x512 now

        y2 = tf.layers.conv2d_transpose(y1, filters = 256, kernel_size =
5, strides=1, padding='same')
        y2 = tf.layers.batch_normalization(y2, training=is_train)
        y2 = tf.maximum(alpha * y2, y2)
        # 7x7x256 now

        y3 = tf.layers.conv2d_transpose(y2, filters = 128, kernel_size =
5, strides=2, padding='same')
        y3 = tf.layers.batch_normalization(y3, training=is_train)
        y3 = tf.maximum(alpha * y3, y3)
        # 14x14x128 now

        # Output layer
        logits = tf.layers.conv2d_transpose(y3, filters = out_channel_di
m, kernel_size = 5, strides=2, padding='same')
        # 28x28x3 now

        out = tf.tanh(logits)

    return out

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

Tests Passed

Loss

Implement `model_loss` to build the GANs for training and calculate the loss. The function should return a tuple of (discriminator loss, generator loss). Use the following functions you implemented:

- `discriminator(images, reuse=False)`
- `generator(z, out_channel_dim, is_train=True)`

```
In [8]: def model_loss(input_real, input_z, out_channel_dim):
    """
        Get the loss for the discriminator and generator
        :param input_real: Images from the real dataset
        :param input_z: Z input
        :param out_channel_dim: The number of channels in the output image
        :return: A tuple of (discriminator loss, generator loss)
    """

    # TODO: Implement Function
    g_model_out = generator(input_z, out_channel_dim, is_train = True )
    d_model_real, d_logits_real = discriminator(input_real)
    d_model_fake, d_logits_fake = discriminator(g_model_out, reuse=True)

    smooth = 0.1
    d_loss_real = tf.reduce_mean(
        tf.nn.sigmoid_cross_entropy_with_logits(logits=d_logits_real, labels=tf.ones_like(d_model_real)*(1-smooth) ))
    d_loss_fake = tf.reduce_mean(
        tf.nn.sigmoid_cross_entropy_with_logits(logits=d_logits_fake, labels=tf.zeros_like(d_model_fake)))
    g_loss = tf.reduce_mean(
        tf.nn.sigmoid_cross_entropy_with_logits(logits=d_logits_fake, labels=tf.ones_like(d_model_fake)))

    d_loss = d_loss_real + d_loss_fake

    return d_loss, g_loss

"""

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

Tests Passed

Optimization

Implement `model_opt` to create the optimization operations for the GANs. Use `tf.trainable_variables` (https://www.tensorflow.org/api_docs/python/tf/trainable_variables) to get all the trainable variables. Filter the variables with names that are in the discriminator and generator scope names. The function should return a tuple of (discriminator training operation, generator training operation).

```
In [9]: def model_opt(d_loss, g_loss, learning_rate, beta1):
    """
        Get optimization operations
        :param d_loss: Discriminator loss Tensor
        :param g_loss: Generator loss Tensor
        :param learning_rate: Learning Rate Placeholder
        :param beta1: The exponential decay rate for the 1st moment in the optimizer
        :return: A tuple of (discriminator training operation, generator training operation)
    """
    # TODO: Implement Function

    # get trainable variables from generator and discriminator scopes
    t_vars = tf.trainable_variables()
    d_vars = [var for var in t_vars if var.name.startswith('discriminator')]
    g_vars = [var for var in t_vars if var.name.startswith('generator')]

    # Optimize
    with tf.control_dependencies(tf.get_collection(tf.GraphKeys.UPDATE_OPS)):
        d_train_opt = tf.train.AdamOptimizer(learning_rate, beta1=beta1).minimize(d_loss, var_list=d_vars)
        g_train_opt = tf.train.AdamOptimizer(learning_rate, beta1=beta1).minimize(g_loss, var_list=g_vars)

    return d_train_opt, g_train_opt

"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
tests.test_model_opt(model_opt, tf)
```

Tests Passed

Neural Network Training

Show Output

Use this function to show the current output of the generator during training. It will help you determine how well the GANs is training.

In [10]:

```

"""
DON'T MODIFY ANYTHING IN THIS CELL
"""

import numpy as np

def show_generator_output(sess, n_images, input_z, out_channel_dim, image_mode):
    """
    Show example output for the generator
    :param sess: TensorFlow session
    :param n_images: Number of Images to display
    :param input_z: Input Z Tensor
    :param out_channel_dim: The number of channels in the output image
    :param image_mode: The mode to use for images ("RGB" or "L")
    """

    cmap = None if image_mode == 'RGB' else 'gray'
    z_dim = input_z.get_shape().as_list()[-1]
    example_z = np.random.uniform(-1, 1, size=[n_images, z_dim])

    samples = sess.run(
        generator(input_z, out_channel_dim, False),
        feed_dict={input_z: example_z})

    images_grid = helper.images_square_grid(samples, image_mode)
    pyplot.imshow(images_grid, cmap=cmap)
    pyplot.show()

```

Train

Implement `train` to build and train the GANs. Use the following functions you implemented:

- `model_inputs(image_width, image_height, image_channels, z_dim)`
- `model_loss(input_real, input_z, out_channel_dim)`
- `model_opt(d_loss, g_loss, learning_rate, beta1)`

Use the `show_generator_output` to show generator output while you train. Running `show_generator_output` for every batch will drastically increase training time and increase the size of the notebook. It's recommended to print the generator output every 100 batches.

```
In [26]: def train(epoch_count, batch_size, z_dim, learning_rate, beta1, get_batches, data_shape, data_image_mode):
    """
        Train the GAN
    :param epoch_count: Number of epochs
    :param batch_size: Batch Size
    :param z_dim: Z dimension
    :param learning_rate: Learning Rate
    :param beta1: The exponential decay rate for the 1st moment in the optimizer
    :param get_batches: Function to get batches
    :param data_shape: Shape of the data
    :param data_image_mode: The image mode to use for images ("RGB" or "L")
    """
    # TODO: Build Model

    # extract image shape info
    image_width = data_shape[1]
    image_height = data_shape[2]
    num_channels = data_shape[3]

    # model inputs
    input_real, input_z, input_learning_rate = model_inputs( image_width, image_height, num_channels, z_dim)

    # model loss
    out_channel_dim = num_channels
    d_loss, g_loss = model_loss(input_real, input_z, out_channel_dim)

    # model opt
    d_opt, g_opt = model_opt(d_loss, g_loss, learning_rate, beta1)

    # train
    step = 0
    display_interval = 100
    print_interval = 10
    saver = tf.train.Saver()

    # training loop
    with tf.Session() as sess:
        sess.run(tf.global_variables_initializer())
        for epoch_i in range(epoch_count):
            print( epoch_i)
            for batch_images in get_batches(batch_size):

                # TODO: Train Model
                step += 1

                # noise source for generator
                batch_z = np.random.uniform(-1, 1, size=(batch_size, z_dim))

                # run the discriminator and generator optimizers
                # NOTE: re-scaling batch_images from (-0.5,0.5) --> (-1,
```

```

1) for tanh (i.e. scale by 2*)
    sess.run( d_opt, feed_dict={input_real: 2*batch_images,
input_z: batch_z, input_learning_rate: learning_rate})
    sess.run( g_opt, feed_dict={input_real: 2*batch_images,
input_z: batch_z, input_learning_rate: learning_rate})

    # MODIFIED optimization (run generator 2x)
    train_loss_d = d_loss.eval({input_z: batch_z, input_real
: 2*batch_images})
    train_loss_g = g_loss.eval({input_z: batch_z})
    if( train_loss_g > train_loss_d):
        sess.run( g_opt, feed_dict={input_real: 2*batch_image
s, input_z: batch_z, input_learning_rate: learning_rate})

    # periodically print training losses
    if step % print_interval == 0:
        train_loss_d = d_loss.eval({input_z: batch_z, input_
real: 2*batch_images})
        train_loss_g = g_loss.eval({input_z: batch_z})
        print("Epoch {} / {}...".format(epoch_i+1, epoch_count
),
              "Step: "+str(step),
              "Discriminator Loss: {:.4f}...".format(train_l
oss_d),
              "Generator Loss: {:.4f}".format(train_loss_g))

    # periodically display results during training
    if step % display_interval == 0:
        n_images = 25
        show_generator_output(sess, n_images, input_z, out_c
hannel_dim, data_image_mode)

saver.save(sess, './checkpoints/gan.ckpt')

```

MNIST

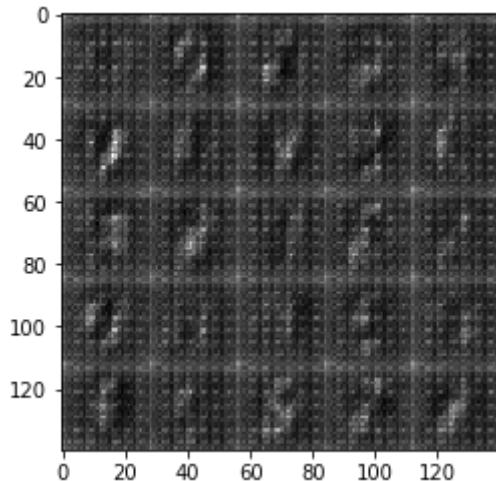
Test your GANs architecture on MNIST. After 2 epochs, the GANs should be able to generate images that look like handwritten digits. Make sure the loss of the generator is lower than the loss of the discriminator or close to 0.

```
In [28]: batch_size = 32
z_dim = 112
learning_rate = 1e-4
beta1 = 0.5

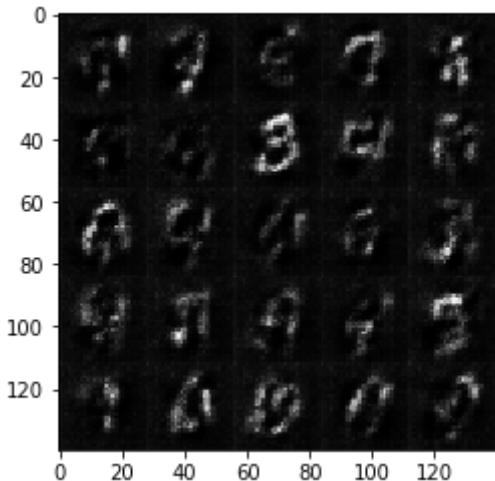
"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
epochs = 2

mnist_dataset = helper.Dataset('mnist', glob(os.path.join(data_dir, 'mnist/*.jpg')))
with tf.Graph().as_default():
    train(epochs, batch_size, z_dim, learning_rate, beta1, mnist_dataset
          .get_batches,
          mnist_dataset.shape, mnist_dataset.image_mode)
```

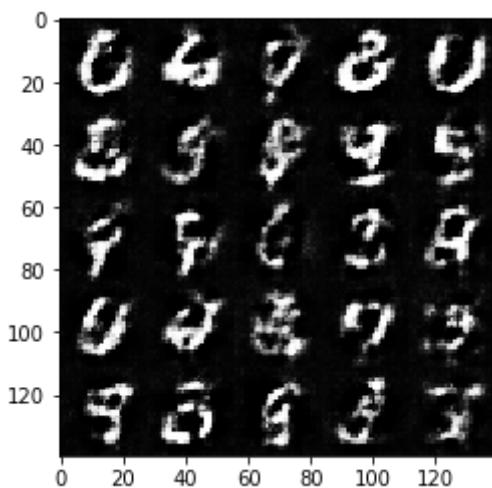
```
0
Epoch 1/2... Step: 10 Discriminator Loss: 1.3471... Generator Loss: 0.5
751
Epoch 1/2... Step: 20 Discriminator Loss: 1.6150... Generator Loss: 0.5
991
Epoch 1/2... Step: 30 Discriminator Loss: 2.8913... Generator Loss: 0.1
043
Epoch 1/2... Step: 40 Discriminator Loss: 1.8628... Generator Loss: 0.5
402
Epoch 1/2... Step: 50 Discriminator Loss: 1.6999... Generator Loss: 0.3
907
Epoch 1/2... Step: 60 Discriminator Loss: 1.9279... Generator Loss: 0.3
386
Epoch 1/2... Step: 70 Discriminator Loss: 2.4051... Generator Loss: 0.2
222
Epoch 1/2... Step: 80 Discriminator Loss: 1.4996... Generator Loss: 0.6
251
Epoch 1/2... Step: 90 Discriminator Loss: 1.8031... Generator Loss: 0.8
947
Epoch 1/2... Step: 100 Discriminator Loss: 1.2664... Generator Loss: 0.
9638
```



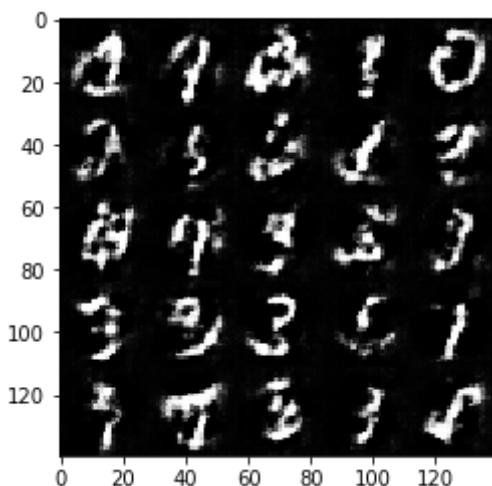
```
Epoch 1/2... Step: 110 Discriminator Loss: 1.8035... Generator Loss: 0.7208
Epoch 1/2... Step: 120 Discriminator Loss: 1.2207... Generator Loss: 0.6922
Epoch 1/2... Step: 130 Discriminator Loss: 1.5624... Generator Loss: 0.7339
Epoch 1/2... Step: 140 Discriminator Loss: 1.5443... Generator Loss: 0.8557
Epoch 1/2... Step: 150 Discriminator Loss: 1.2369... Generator Loss: 0.6752
Epoch 1/2... Step: 160 Discriminator Loss: 1.0901... Generator Loss: 1.0351
Epoch 1/2... Step: 170 Discriminator Loss: 1.4541... Generator Loss: 0.7051
Epoch 1/2... Step: 180 Discriminator Loss: 1.2049... Generator Loss: 0.8110
Epoch 1/2... Step: 190 Discriminator Loss: 1.2911... Generator Loss: 1.1593
Epoch 1/2... Step: 200 Discriminator Loss: 1.1694... Generator Loss: 0.6707
```



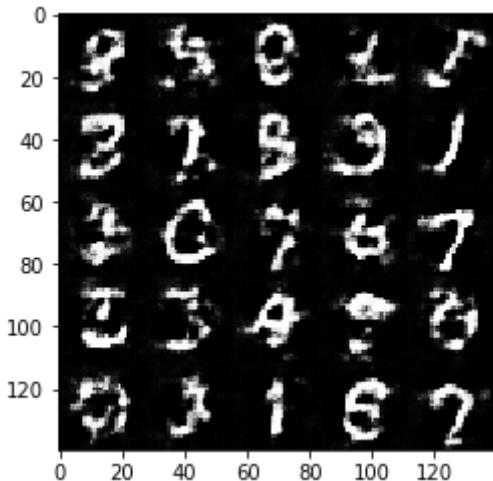
```
Epoch 1/2... Step: 210 Discriminator Loss: 1.2459... Generator Loss: 0.7608
Epoch 1/2... Step: 220 Discriminator Loss: 1.0939... Generator Loss: 1.0039
Epoch 1/2... Step: 230 Discriminator Loss: 1.2824... Generator Loss: 0.6479
Epoch 1/2... Step: 240 Discriminator Loss: 1.3054... Generator Loss: 0.6795
Epoch 1/2... Step: 250 Discriminator Loss: 1.4673... Generator Loss: 1.6111
Epoch 1/2... Step: 260 Discriminator Loss: 1.3084... Generator Loss: 1.0317
Epoch 1/2... Step: 270 Discriminator Loss: 1.2659... Generator Loss: 0.9953
Epoch 1/2... Step: 280 Discriminator Loss: 1.2867... Generator Loss: 1.2183
Epoch 1/2... Step: 290 Discriminator Loss: 1.3091... Generator Loss: 0.8806
Epoch 1/2... Step: 300 Discriminator Loss: 1.0927... Generator Loss: 0.8696
```



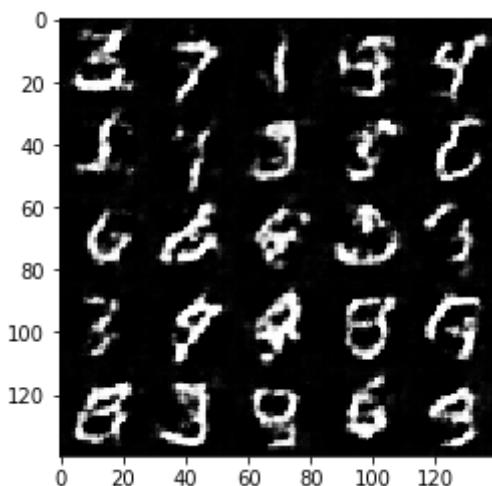
```
Epoch 1/2... Step: 310 Discriminator Loss: 1.1794... Generator Loss: 0.8790
Epoch 1/2... Step: 320 Discriminator Loss: 1.3461... Generator Loss: 0.9231
Epoch 1/2... Step: 330 Discriminator Loss: 1.2940... Generator Loss: 1.2616
Epoch 1/2... Step: 340 Discriminator Loss: 1.2662... Generator Loss: 0.7032
Epoch 1/2... Step: 350 Discriminator Loss: 1.0808... Generator Loss: 0.9440
Epoch 1/2... Step: 360 Discriminator Loss: 1.1207... Generator Loss: 0.8885
Epoch 1/2... Step: 370 Discriminator Loss: 1.0302... Generator Loss: 0.8349
Epoch 1/2... Step: 380 Discriminator Loss: 1.2243... Generator Loss: 0.8846
Epoch 1/2... Step: 390 Discriminator Loss: 1.0907... Generator Loss: 0.9599
Epoch 1/2... Step: 400 Discriminator Loss: 1.3191... Generator Loss: 0.6337
```



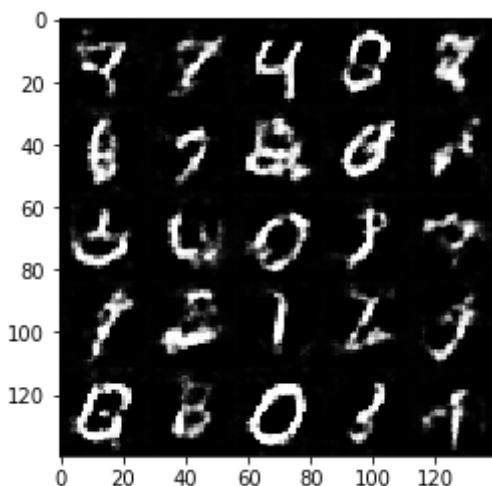
```
Epoch 1/2... Step: 410 Discriminator Loss: 1.5691... Generator Loss: 1.4065
Epoch 1/2... Step: 420 Discriminator Loss: 1.1359... Generator Loss: 0.7385
Epoch 1/2... Step: 430 Discriminator Loss: 1.0833... Generator Loss: 0.7996
Epoch 1/2... Step: 440 Discriminator Loss: 1.2573... Generator Loss: 0.5939
Epoch 1/2... Step: 450 Discriminator Loss: 1.0538... Generator Loss: 0.8231
Epoch 1/2... Step: 460 Discriminator Loss: 1.0716... Generator Loss: 0.9237
Epoch 1/2... Step: 470 Discriminator Loss: 1.2717... Generator Loss: 0.6850
Epoch 1/2... Step: 480 Discriminator Loss: 1.3582... Generator Loss: 0.7008
Epoch 1/2... Step: 490 Discriminator Loss: 1.4100... Generator Loss: 0.9455
Epoch 1/2... Step: 500 Discriminator Loss: 1.0674... Generator Loss: 0.8884
```



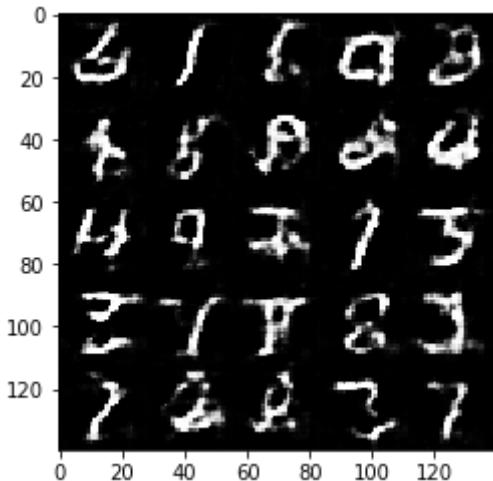
```
Epoch 1/2... Step: 510 Discriminator Loss: 1.2412... Generator Loss: 0.8258
Epoch 1/2... Step: 520 Discriminator Loss: 1.3195... Generator Loss: 0.8388
Epoch 1/2... Step: 530 Discriminator Loss: 1.0235... Generator Loss: 0.9253
Epoch 1/2... Step: 540 Discriminator Loss: 1.2567... Generator Loss: 0.7991
Epoch 1/2... Step: 550 Discriminator Loss: 1.0428... Generator Loss: 0.8573
Epoch 1/2... Step: 560 Discriminator Loss: 1.1337... Generator Loss: 0.7577
Epoch 1/2... Step: 570 Discriminator Loss: 1.0167... Generator Loss: 0.9681
Epoch 1/2... Step: 580 Discriminator Loss: 1.4432... Generator Loss: 0.7538
Epoch 1/2... Step: 590 Discriminator Loss: 1.1960... Generator Loss: 0.8613
Epoch 1/2... Step: 600 Discriminator Loss: 1.2291... Generator Loss: 0.6723
```



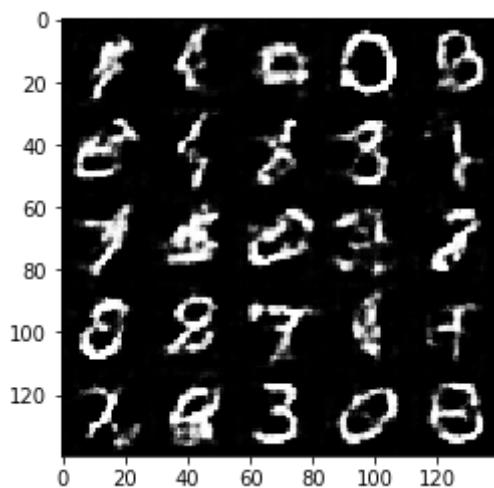
```
Epoch 1/2... Step: 610 Discriminator Loss: 1.1890... Generator Loss: 0.9958
Epoch 1/2... Step: 620 Discriminator Loss: 1.2582... Generator Loss: 0.9191
Epoch 1/2... Step: 630 Discriminator Loss: 1.2197... Generator Loss: 0.7157
Epoch 1/2... Step: 640 Discriminator Loss: 1.0379... Generator Loss: 0.8973
Epoch 1/2... Step: 650 Discriminator Loss: 1.1889... Generator Loss: 0.6207
Epoch 1/2... Step: 660 Discriminator Loss: 1.0920... Generator Loss: 0.8420
Epoch 1/2... Step: 670 Discriminator Loss: 1.1833... Generator Loss: 0.7779
Epoch 1/2... Step: 680 Discriminator Loss: 1.3622... Generator Loss: 0.8099
Epoch 1/2... Step: 690 Discriminator Loss: 1.0307... Generator Loss: 1.0209
Epoch 1/2... Step: 700 Discriminator Loss: 1.2390... Generator Loss: 0.8109
```



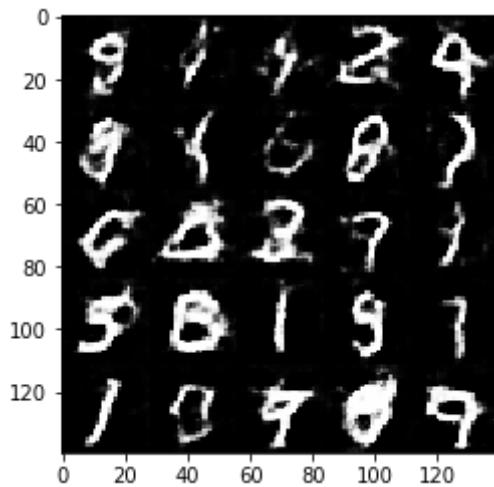
```
Epoch 1/2... Step: 710 Discriminator Loss: 1.3538... Generator Loss: 0.  
7010  
Epoch 1/2... Step: 720 Discriminator Loss: 1.3126... Generator Loss: 0.  
6406  
Epoch 1/2... Step: 730 Discriminator Loss: 1.0676... Generator Loss: 0.  
8655  
Epoch 1/2... Step: 740 Discriminator Loss: 1.2947... Generator Loss: 0.  
9888  
Epoch 1/2... Step: 750 Discriminator Loss: 1.3436... Generator Loss: 0.  
9754  
Epoch 1/2... Step: 760 Discriminator Loss: 1.0682... Generator Loss: 0.  
7854  
Epoch 1/2... Step: 770 Discriminator Loss: 1.1007... Generator Loss: 1.  
0057  
Epoch 1/2... Step: 780 Discriminator Loss: 1.4591... Generator Loss: 0.  
8210  
Epoch 1/2... Step: 790 Discriminator Loss: 1.4292... Generator Loss: 0.  
7356  
Epoch 1/2... Step: 800 Discriminator Loss: 1.1599... Generator Loss: 0.  
8834
```



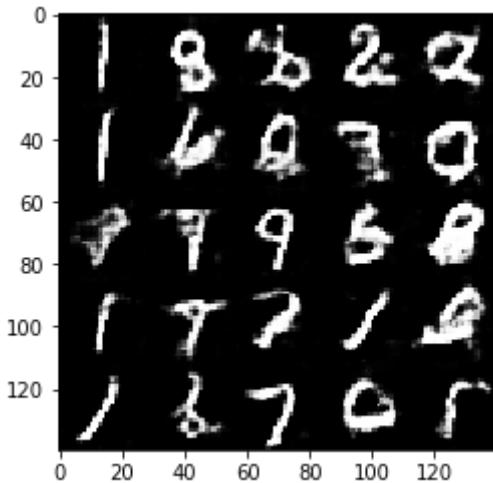
```
Epoch 1/2... Step: 810 Discriminator Loss: 1.1636... Generator Loss: 0.  
7519  
Epoch 1/2... Step: 820 Discriminator Loss: 1.0991... Generator Loss: 1.  
0157  
Epoch 1/2... Step: 830 Discriminator Loss: 1.0723... Generator Loss: 0.  
8673  
Epoch 1/2... Step: 840 Discriminator Loss: 1.3128... Generator Loss: 0.  
7659  
Epoch 1/2... Step: 850 Discriminator Loss: 1.4724... Generator Loss: 0.  
9007  
Epoch 1/2... Step: 860 Discriminator Loss: 1.2708... Generator Loss: 0.  
7323  
Epoch 1/2... Step: 870 Discriminator Loss: 1.3103... Generator Loss: 1.  
0938  
Epoch 1/2... Step: 880 Discriminator Loss: 1.4220... Generator Loss: 0.  
4922  
Epoch 1/2... Step: 890 Discriminator Loss: 1.1909... Generator Loss: 0.  
7764  
Epoch 1/2... Step: 900 Discriminator Loss: 1.4687... Generator Loss: 0.  
4750
```



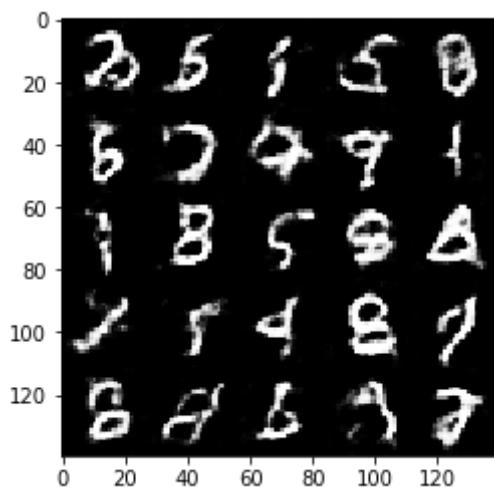
```
Epoch 1/2... Step: 910 Discriminator Loss: 1.0846... Generator Loss: 0.9118
Epoch 1/2... Step: 920 Discriminator Loss: 1.1232... Generator Loss: 0.8205
Epoch 1/2... Step: 930 Discriminator Loss: 1.1624... Generator Loss: 1.0872
Epoch 1/2... Step: 940 Discriminator Loss: 1.1508... Generator Loss: 0.8089
Epoch 1/2... Step: 950 Discriminator Loss: 1.0966... Generator Loss: 0.8277
Epoch 1/2... Step: 960 Discriminator Loss: 1.0549... Generator Loss: 1.0044
Epoch 1/2... Step: 970 Discriminator Loss: 1.1130... Generator Loss: 1.0344
Epoch 1/2... Step: 980 Discriminator Loss: 1.3418... Generator Loss: 0.6999
Epoch 1/2... Step: 990 Discriminator Loss: 1.0350... Generator Loss: 0.9122
Epoch 1/2... Step: 1000 Discriminator Loss: 1.2059... Generator Loss: 0.7037
```



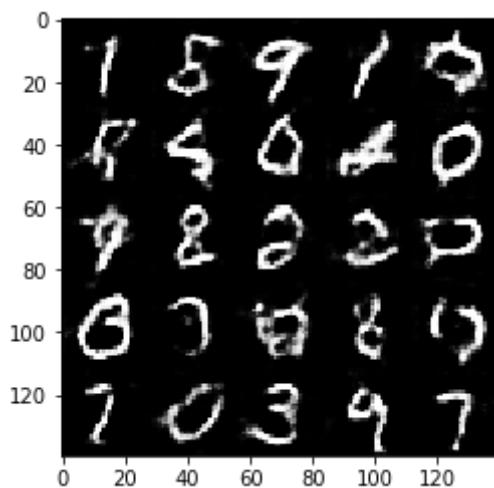
```
Epoch 1/2... Step: 1010 Discriminator Loss: 1.4396... Generator Loss: 0.7713
Epoch 1/2... Step: 1020 Discriminator Loss: 1.4438... Generator Loss: 0.4524
Epoch 1/2... Step: 1030 Discriminator Loss: 1.1904... Generator Loss: 0.7373
Epoch 1/2... Step: 1040 Discriminator Loss: 1.2504... Generator Loss: 0.5832
Epoch 1/2... Step: 1050 Discriminator Loss: 1.0894... Generator Loss: 0.8926
Epoch 1/2... Step: 1060 Discriminator Loss: 1.2408... Generator Loss: 0.6720
Epoch 1/2... Step: 1070 Discriminator Loss: 1.0694... Generator Loss: 1.0280
Epoch 1/2... Step: 1080 Discriminator Loss: 1.1734... Generator Loss: 0.7084
Epoch 1/2... Step: 1090 Discriminator Loss: 1.3284... Generator Loss: 1.1052
Epoch 1/2... Step: 1100 Discriminator Loss: 1.1078... Generator Loss: 0.7979
```



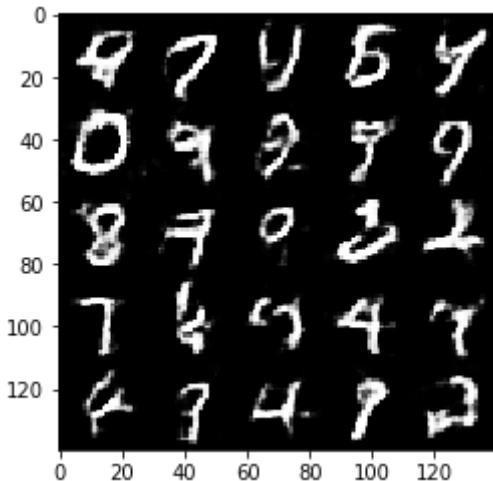
```
Epoch 1/2... Step: 1110 Discriminator Loss: 1.1677... Generator Loss: 0.7441
Epoch 1/2... Step: 1120 Discriminator Loss: 1.3874... Generator Loss: 1.0228
Epoch 1/2... Step: 1130 Discriminator Loss: 1.1478... Generator Loss: 0.9574
Epoch 1/2... Step: 1140 Discriminator Loss: 1.0402... Generator Loss: 0.9816
Epoch 1/2... Step: 1150 Discriminator Loss: 1.3804... Generator Loss: 0.6667
Epoch 1/2... Step: 1160 Discriminator Loss: 1.0444... Generator Loss: 0.9241
Epoch 1/2... Step: 1170 Discriminator Loss: 1.2888... Generator Loss: 0.6657
Epoch 1/2... Step: 1180 Discriminator Loss: 1.2027... Generator Loss: 0.6983
Epoch 1/2... Step: 1190 Discriminator Loss: 1.1306... Generator Loss: 0.7014
Epoch 1/2... Step: 1200 Discriminator Loss: 1.2217... Generator Loss: 0.6479
```



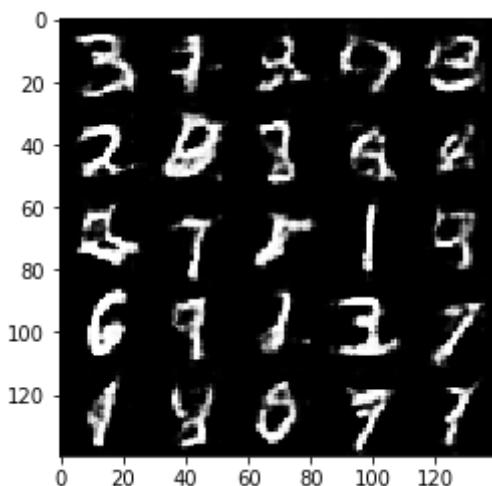
```
Epoch 1/2... Step: 1210 Discriminator Loss: 1.1600... Generator Loss: 0.7812
Epoch 1/2... Step: 1220 Discriminator Loss: 1.3175... Generator Loss: 0.7279
Epoch 1/2... Step: 1230 Discriminator Loss: 1.2441... Generator Loss: 0.7754
Epoch 1/2... Step: 1240 Discriminator Loss: 1.2879... Generator Loss: 0.6821
Epoch 1/2... Step: 1250 Discriminator Loss: 1.1768... Generator Loss: 0.7726
Epoch 1/2... Step: 1260 Discriminator Loss: 1.2634... Generator Loss: 0.5878
Epoch 1/2... Step: 1270 Discriminator Loss: 1.2297... Generator Loss: 0.8875
Epoch 1/2... Step: 1280 Discriminator Loss: 1.2622... Generator Loss: 1.1579
Epoch 1/2... Step: 1290 Discriminator Loss: 1.3286... Generator Loss: 0.6894
Epoch 1/2... Step: 1300 Discriminator Loss: 1.2581... Generator Loss: 0.9663
```



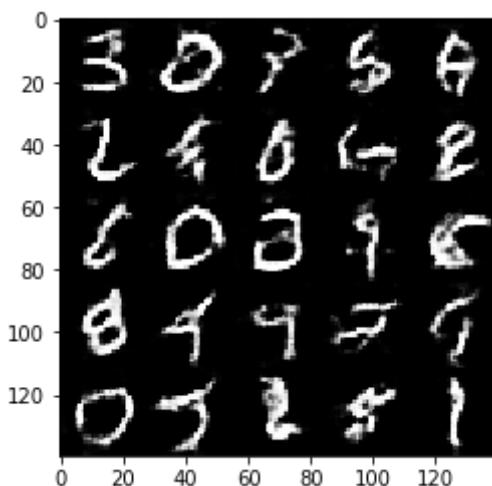
```
Epoch 1/2... Step: 1310 Discriminator Loss: 1.1203... Generator Loss: 0.7642
Epoch 1/2... Step: 1320 Discriminator Loss: 1.2476... Generator Loss: 0.6235
Epoch 1/2... Step: 1330 Discriminator Loss: 1.2732... Generator Loss: 0.7598
Epoch 1/2... Step: 1340 Discriminator Loss: 1.1857... Generator Loss: 0.6415
Epoch 1/2... Step: 1350 Discriminator Loss: 1.2986... Generator Loss: 0.8058
Epoch 1/2... Step: 1360 Discriminator Loss: 1.0605... Generator Loss: 0.8293
Epoch 1/2... Step: 1370 Discriminator Loss: 1.2137... Generator Loss: 0.7134
Epoch 1/2... Step: 1380 Discriminator Loss: 1.1502... Generator Loss: 0.7307
Epoch 1/2... Step: 1390 Discriminator Loss: 0.9697... Generator Loss: 0.9151
Epoch 1/2... Step: 1400 Discriminator Loss: 1.1499... Generator Loss: 0.6937
```



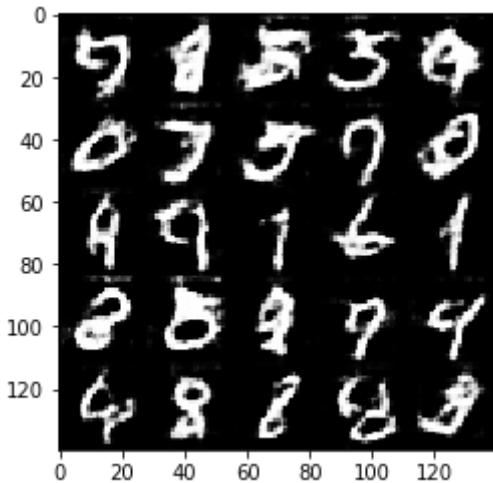
```
Epoch 1/2... Step: 1410 Discriminator Loss: 1.2257... Generator Loss: 0.6091
Epoch 1/2... Step: 1420 Discriminator Loss: 1.2859... Generator Loss: 0.7170
Epoch 1/2... Step: 1430 Discriminator Loss: 1.2501... Generator Loss: 0.6409
Epoch 1/2... Step: 1440 Discriminator Loss: 1.3110... Generator Loss: 0.5965
Epoch 1/2... Step: 1450 Discriminator Loss: 1.3852... Generator Loss: 0.6491
Epoch 1/2... Step: 1460 Discriminator Loss: 1.0939... Generator Loss: 0.9013
Epoch 1/2... Step: 1470 Discriminator Loss: 1.3427... Generator Loss: 0.7467
Epoch 1/2... Step: 1480 Discriminator Loss: 1.1594... Generator Loss: 0.8657
Epoch 1/2... Step: 1490 Discriminator Loss: 1.2347... Generator Loss: 0.7279
Epoch 1/2... Step: 1500 Discriminator Loss: 1.3387... Generator Loss: 0.6347
```



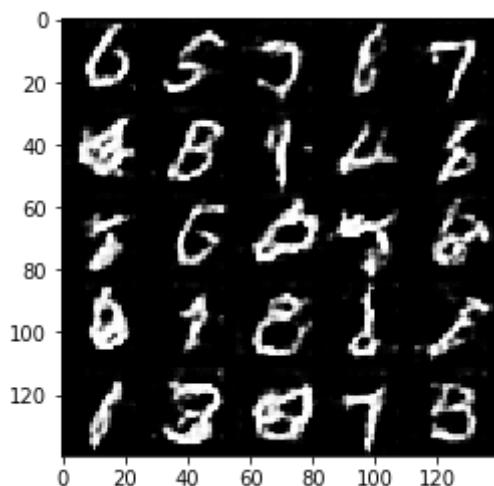
```
Epoch 1/2... Step: 1510 Discriminator Loss: 1.2360... Generator Loss:  
0.6588  
Epoch 1/2... Step: 1520 Discriminator Loss: 1.3325... Generator Loss:  
0.5428  
Epoch 1/2... Step: 1530 Discriminator Loss: 1.2489... Generator Loss:  
0.5922  
Epoch 1/2... Step: 1540 Discriminator Loss: 1.0453... Generator Loss:  
0.8546  
Epoch 1/2... Step: 1550 Discriminator Loss: 1.0736... Generator Loss:  
0.8608  
Epoch 1/2... Step: 1560 Discriminator Loss: 1.3320... Generator Loss:  
1.0842  
Epoch 1/2... Step: 1570 Discriminator Loss: 1.0209... Generator Loss:  
0.8391  
Epoch 1/2... Step: 1580 Discriminator Loss: 1.0301... Generator Loss:  
0.8368  
Epoch 1/2... Step: 1590 Discriminator Loss: 1.1435... Generator Loss:  
0.6630  
Epoch 1/2... Step: 1600 Discriminator Loss: 0.9756... Generator Loss:  
0.9487
```



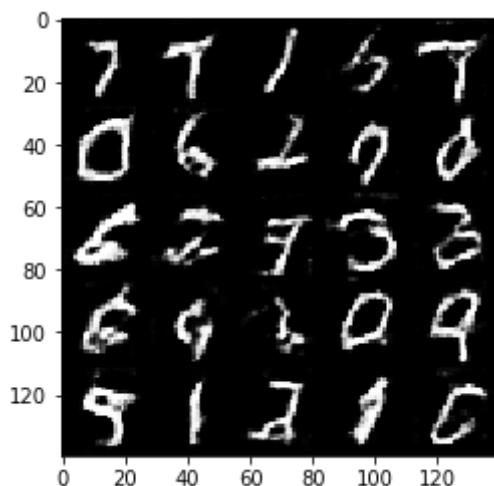
```
Epoch 1/2... Step: 1610 Discriminator Loss: 1.2795... Generator Loss: 0.5672
Epoch 1/2... Step: 1620 Discriminator Loss: 1.0514... Generator Loss: 0.7784
Epoch 1/2... Step: 1630 Discriminator Loss: 1.0439... Generator Loss: 0.9017
Epoch 1/2... Step: 1640 Discriminator Loss: 0.9722... Generator Loss: 0.9436
Epoch 1/2... Step: 1650 Discriminator Loss: 1.1960... Generator Loss: 0.7693
Epoch 1/2... Step: 1660 Discriminator Loss: 1.1875... Generator Loss: 0.6573
Epoch 1/2... Step: 1670 Discriminator Loss: 1.2397... Generator Loss: 0.7179
Epoch 1/2... Step: 1680 Discriminator Loss: 1.1125... Generator Loss: 0.7859
Epoch 1/2... Step: 1690 Discriminator Loss: 1.3492... Generator Loss: 0.6259
Epoch 1/2... Step: 1700 Discriminator Loss: 1.1557... Generator Loss: 0.6571
```



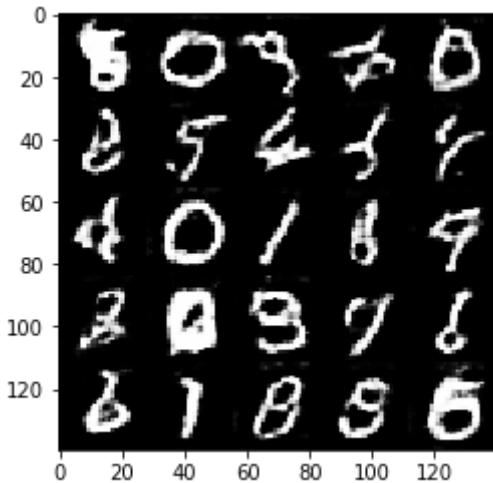
```
Epoch 1/2... Step: 1710 Discriminator Loss: 1.2085... Generator Loss: 0.8079
Epoch 1/2... Step: 1720 Discriminator Loss: 1.0155... Generator Loss: 0.9588
Epoch 1/2... Step: 1730 Discriminator Loss: 1.2141... Generator Loss: 0.6377
Epoch 1/2... Step: 1740 Discriminator Loss: 1.0488... Generator Loss: 0.8178
Epoch 1/2... Step: 1750 Discriminator Loss: 1.3409... Generator Loss: 0.5362
Epoch 1/2... Step: 1760 Discriminator Loss: 1.2116... Generator Loss: 0.6089
Epoch 1/2... Step: 1770 Discriminator Loss: 1.1097... Generator Loss: 0.9219
Epoch 1/2... Step: 1780 Discriminator Loss: 1.2907... Generator Loss: 0.5785
Epoch 1/2... Step: 1790 Discriminator Loss: 1.2446... Generator Loss: 0.6268
Epoch 1/2... Step: 1800 Discriminator Loss: 1.6395... Generator Loss: 0.7987
```



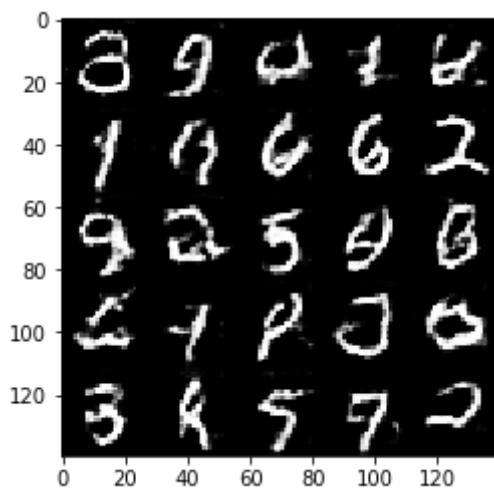
```
Epoch 1/2... Step: 1810 Discriminator Loss: 0.9842... Generator Loss: 0.9589
Epoch 1/2... Step: 1820 Discriminator Loss: 1.3144... Generator Loss: 0.5442
Epoch 1/2... Step: 1830 Discriminator Loss: 1.2294... Generator Loss: 0.6832
Epoch 1/2... Step: 1840 Discriminator Loss: 0.9551... Generator Loss: 0.9011
Epoch 1/2... Step: 1850 Discriminator Loss: 1.2489... Generator Loss: 0.5824
Epoch 1/2... Step: 1860 Discriminator Loss: 1.2053... Generator Loss: 0.7561
Epoch 1/2... Step: 1870 Discriminator Loss: 1.2743... Generator Loss: 0.7036
1
Epoch 2/2... Step: 1880 Discriminator Loss: 1.1110... Generator Loss: 0.9124
Epoch 2/2... Step: 1890 Discriminator Loss: 1.0382... Generator Loss: 0.9130
Epoch 2/2... Step: 1900 Discriminator Loss: 1.3198... Generator Loss: 0.5828
```



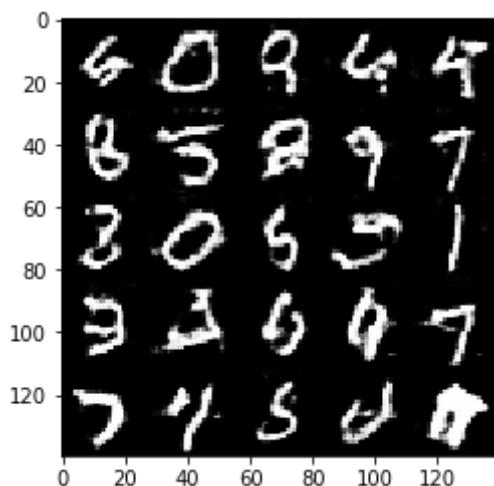
Epoch 2/2... Step: 1910 Discriminator Loss: 1.4265... Generator Loss: 0.4683
 Epoch 2/2... Step: 1920 Discriminator Loss: 1.2884... Generator Loss: 0.6658
 Epoch 2/2... Step: 1930 Discriminator Loss: 1.2567... Generator Loss: 0.8211
 Epoch 2/2... Step: 1940 Discriminator Loss: 1.1588... Generator Loss: 0.6915
 Epoch 2/2... Step: 1950 Discriminator Loss: 1.0867... Generator Loss: 0.7257
 Epoch 2/2... Step: 1960 Discriminator Loss: 1.0311... Generator Loss: 0.9740
 Epoch 2/2... Step: 1970 Discriminator Loss: 1.3421... Generator Loss: 1.5628
 Epoch 2/2... Step: 1980 Discriminator Loss: 1.3526... Generator Loss: 0.5346
 Epoch 2/2... Step: 1990 Discriminator Loss: 1.5050... Generator Loss: 1.1871
 Epoch 2/2... Step: 2000 Discriminator Loss: 1.2356... Generator Loss: 0.6561



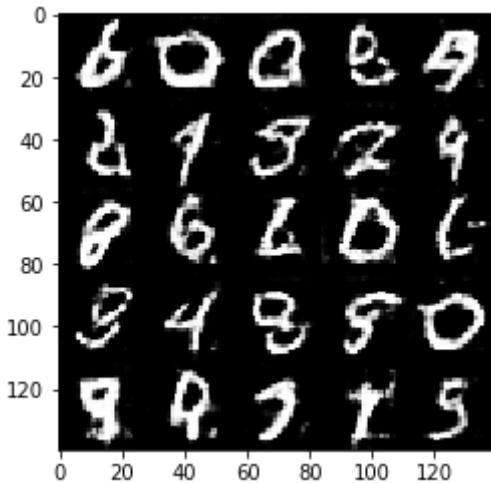
Epoch 2/2... Step: 2010 Discriminator Loss: 1.3323... Generator Loss: 0.5431
 Epoch 2/2... Step: 2020 Discriminator Loss: 1.0216... Generator Loss: 1.0246
 Epoch 2/2... Step: 2030 Discriminator Loss: 1.1526... Generator Loss: 0.7390
 Epoch 2/2... Step: 2040 Discriminator Loss: 1.0244... Generator Loss: 0.8704
 Epoch 2/2... Step: 2050 Discriminator Loss: 1.1417... Generator Loss: 0.7360
 Epoch 2/2... Step: 2060 Discriminator Loss: 1.3588... Generator Loss: 0.5313
 Epoch 2/2... Step: 2070 Discriminator Loss: 1.0584... Generator Loss: 0.8111
 Epoch 2/2... Step: 2080 Discriminator Loss: 1.3009... Generator Loss: 0.6264
 Epoch 2/2... Step: 2090 Discriminator Loss: 1.0224... Generator Loss: 0.9637
 Epoch 2/2... Step: 2100 Discriminator Loss: 1.3431... Generator Loss: 0.6591



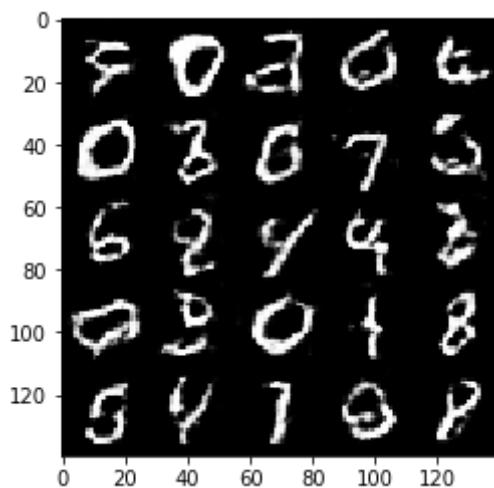
```
Epoch 2/2... Step: 2110 Discriminator Loss: 1.3183... Generator Loss: 0.5470
Epoch 2/2... Step: 2120 Discriminator Loss: 1.0466... Generator Loss: 0.8037
Epoch 2/2... Step: 2130 Discriminator Loss: 1.6394... Generator Loss: 0.9885
Epoch 2/2... Step: 2140 Discriminator Loss: 1.2129... Generator Loss: 0.6477
Epoch 2/2... Step: 2150 Discriminator Loss: 1.0779... Generator Loss: 0.7541
Epoch 2/2... Step: 2160 Discriminator Loss: 1.1642... Generator Loss: 1.1593
Epoch 2/2... Step: 2170 Discriminator Loss: 1.3541... Generator Loss: 0.5276
Epoch 2/2... Step: 2180 Discriminator Loss: 0.9343... Generator Loss: 0.9296
Epoch 2/2... Step: 2190 Discriminator Loss: 1.0095... Generator Loss: 0.8219
Epoch 2/2... Step: 2200 Discriminator Loss: 1.0697... Generator Loss: 0.8399
```



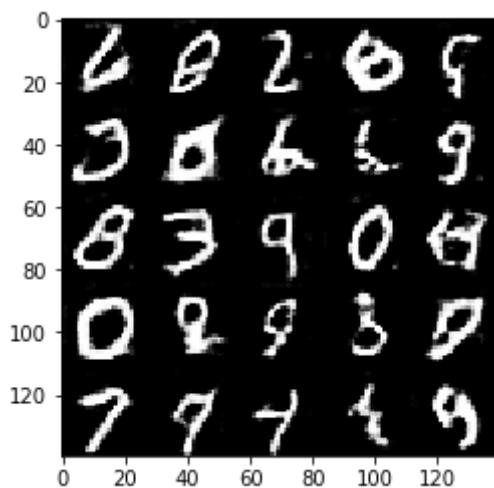
Epoch 2/2... Step: 2210 Discriminator Loss: 1.1076... Generator Loss: 1.0982
 Epoch 2/2... Step: 2220 Discriminator Loss: 1.2370... Generator Loss: 0.6921
 Epoch 2/2... Step: 2230 Discriminator Loss: 1.2233... Generator Loss: 0.6424
 Epoch 2/2... Step: 2240 Discriminator Loss: 1.1620... Generator Loss: 0.8957
 Epoch 2/2... Step: 2250 Discriminator Loss: 1.1206... Generator Loss: 0.9596
 Epoch 2/2... Step: 2260 Discriminator Loss: 1.2783... Generator Loss: 0.6309
 Epoch 2/2... Step: 2270 Discriminator Loss: 1.1186... Generator Loss: 0.7693
 Epoch 2/2... Step: 2280 Discriminator Loss: 1.2466... Generator Loss: 0.8074
 Epoch 2/2... Step: 2290 Discriminator Loss: 1.1792... Generator Loss: 0.7214
 Epoch 2/2... Step: 2300 Discriminator Loss: 1.0482... Generator Loss: 0.7775



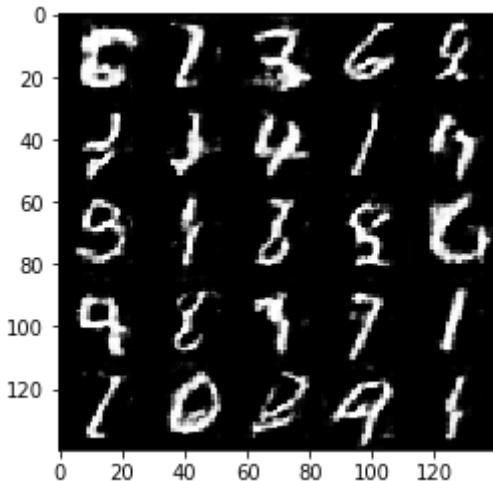
Epoch 2/2... Step: 2310 Discriminator Loss: 1.1494... Generator Loss: 0.7437
 Epoch 2/2... Step: 2320 Discriminator Loss: 1.4819... Generator Loss: 0.5165
 Epoch 2/2... Step: 2330 Discriminator Loss: 0.9952... Generator Loss: 1.2923
 Epoch 2/2... Step: 2340 Discriminator Loss: 1.0776... Generator Loss: 0.7778
 Epoch 2/2... Step: 2350 Discriminator Loss: 1.1708... Generator Loss: 0.6871
 Epoch 2/2... Step: 2360 Discriminator Loss: 1.4186... Generator Loss: 0.4733
 Epoch 2/2... Step: 2370 Discriminator Loss: 1.1700... Generator Loss: 0.6742
 Epoch 2/2... Step: 2380 Discriminator Loss: 1.0638... Generator Loss: 0.7596
 Epoch 2/2... Step: 2390 Discriminator Loss: 1.0937... Generator Loss: 0.8059
 Epoch 2/2... Step: 2400 Discriminator Loss: 1.8067... Generator Loss: 1.5447



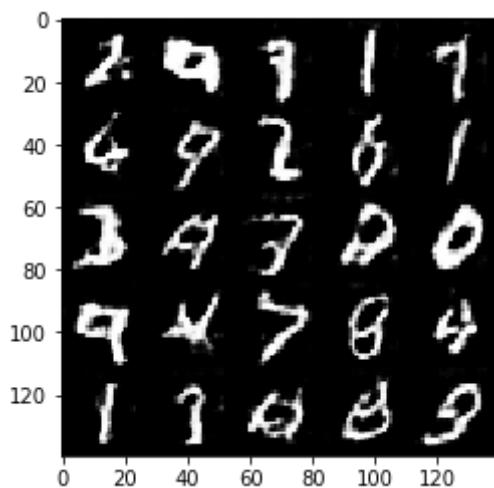
```
Epoch 2/2... Step: 2410 Discriminator Loss: 1.2463... Generator Loss: 0.7016
Epoch 2/2... Step: 2420 Discriminator Loss: 1.0847... Generator Loss: 0.8049
Epoch 2/2... Step: 2430 Discriminator Loss: 1.0171... Generator Loss: 0.8570
Epoch 2/2... Step: 2440 Discriminator Loss: 1.1585... Generator Loss: 0.7740
Epoch 2/2... Step: 2450 Discriminator Loss: 1.1669... Generator Loss: 0.7575
Epoch 2/2... Step: 2460 Discriminator Loss: 0.9924... Generator Loss: 0.9340
Epoch 2/2... Step: 2470 Discriminator Loss: 1.0246... Generator Loss: 0.8302
Epoch 2/2... Step: 2480 Discriminator Loss: 1.1479... Generator Loss: 0.8075
Epoch 2/2... Step: 2490 Discriminator Loss: 0.9396... Generator Loss: 0.9297
Epoch 2/2... Step: 2500 Discriminator Loss: 1.2528... Generator Loss: 0.6132
```



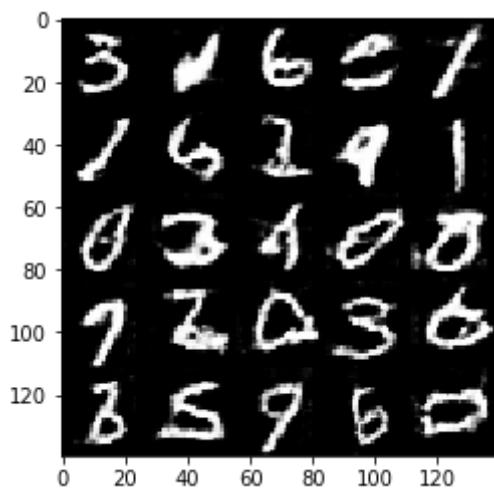
```
Epoch 2/2... Step: 2510 Discriminator Loss: 1.0217... Generator Loss: 0.9116
Epoch 2/2... Step: 2520 Discriminator Loss: 1.0830... Generator Loss: 0.8250
Epoch 2/2... Step: 2530 Discriminator Loss: 1.0871... Generator Loss: 0.8709
Epoch 2/2... Step: 2540 Discriminator Loss: 1.1641... Generator Loss: 0.6555
Epoch 2/2... Step: 2550 Discriminator Loss: 1.0465... Generator Loss: 1.1027
Epoch 2/2... Step: 2560 Discriminator Loss: 1.1650... Generator Loss: 0.8222
Epoch 2/2... Step: 2570 Discriminator Loss: 1.1689... Generator Loss: 0.6797
Epoch 2/2... Step: 2580 Discriminator Loss: 1.0874... Generator Loss: 0.7370
Epoch 2/2... Step: 2590 Discriminator Loss: 1.0611... Generator Loss: 0.8368
Epoch 2/2... Step: 2600 Discriminator Loss: 1.2439... Generator Loss: 0.6279
```



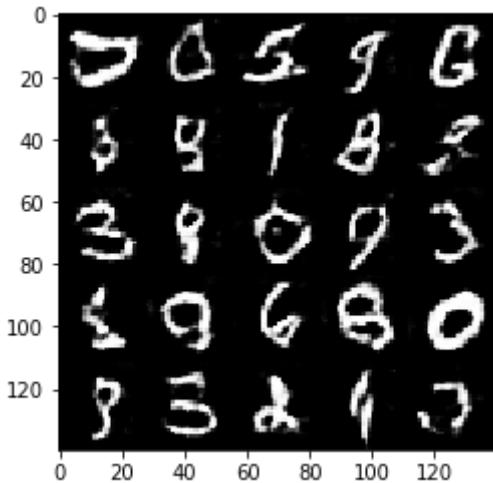
```
Epoch 2/2... Step: 2610 Discriminator Loss: 1.1486... Generator Loss: 0.8045
Epoch 2/2... Step: 2620 Discriminator Loss: 1.1360... Generator Loss: 1.0726
Epoch 2/2... Step: 2630 Discriminator Loss: 1.1390... Generator Loss: 0.9212
Epoch 2/2... Step: 2640 Discriminator Loss: 1.2804... Generator Loss: 0.9935
Epoch 2/2... Step: 2650 Discriminator Loss: 1.1878... Generator Loss: 0.8240
Epoch 2/2... Step: 2660 Discriminator Loss: 1.2332... Generator Loss: 0.7763
Epoch 2/2... Step: 2670 Discriminator Loss: 1.3102... Generator Loss: 0.6119
Epoch 2/2... Step: 2680 Discriminator Loss: 1.1118... Generator Loss: 0.7587
Epoch 2/2... Step: 2690 Discriminator Loss: 1.0921... Generator Loss: 0.7860
Epoch 2/2... Step: 2700 Discriminator Loss: 1.2401... Generator Loss: 0.7285
```



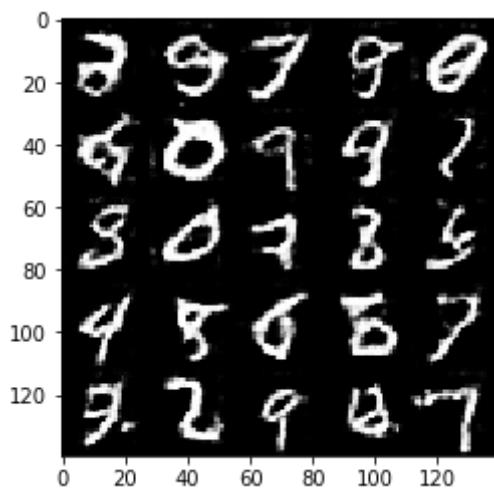
```
Epoch 2/2... Step: 2710 Discriminator Loss: 1.2238... Generator Loss: 0.6266
Epoch 2/2... Step: 2720 Discriminator Loss: 1.1045... Generator Loss: 0.6886
Epoch 2/2... Step: 2730 Discriminator Loss: 1.1185... Generator Loss: 0.7520
Epoch 2/2... Step: 2740 Discriminator Loss: 1.3741... Generator Loss: 0.4949
Epoch 2/2... Step: 2750 Discriminator Loss: 1.2895... Generator Loss: 0.6185
Epoch 2/2... Step: 2760 Discriminator Loss: 1.0388... Generator Loss: 0.8977
Epoch 2/2... Step: 2770 Discriminator Loss: 1.1257... Generator Loss: 0.8615
Epoch 2/2... Step: 2780 Discriminator Loss: 1.3536... Generator Loss: 0.6028
Epoch 2/2... Step: 2790 Discriminator Loss: 1.3233... Generator Loss: 0.5871
Epoch 2/2... Step: 2800 Discriminator Loss: 1.3165... Generator Loss: 0.5991
```



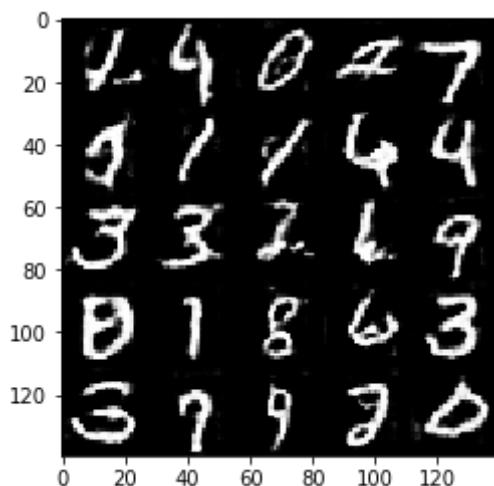
Epoch 2/2... Step: 2810 Discriminator Loss: 1.2664... Generator Loss: 0.6473
 Epoch 2/2... Step: 2820 Discriminator Loss: 1.0374... Generator Loss: 0.8377
 Epoch 2/2... Step: 2830 Discriminator Loss: 1.0447... Generator Loss: 0.7819
 Epoch 2/2... Step: 2840 Discriminator Loss: 1.4121... Generator Loss: 0.5433
 Epoch 2/2... Step: 2850 Discriminator Loss: 1.2215... Generator Loss: 0.7073
 Epoch 2/2... Step: 2860 Discriminator Loss: 1.2616... Generator Loss: 0.7411
 Epoch 2/2... Step: 2870 Discriminator Loss: 1.6194... Generator Loss: 0.4373
 Epoch 2/2... Step: 2880 Discriminator Loss: 1.1589... Generator Loss: 0.7519
 Epoch 2/2... Step: 2890 Discriminator Loss: 1.3201... Generator Loss: 0.6774
 Epoch 2/2... Step: 2900 Discriminator Loss: 1.2521... Generator Loss: 0.6232



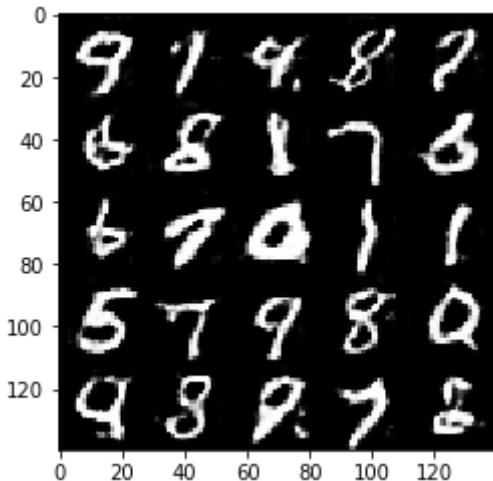
Epoch 2/2... Step: 2910 Discriminator Loss: 1.1308... Generator Loss: 0.7075
 Epoch 2/2... Step: 2920 Discriminator Loss: 1.0621... Generator Loss: 0.8917
 Epoch 2/2... Step: 2930 Discriminator Loss: 1.0910... Generator Loss: 0.8688
 Epoch 2/2... Step: 2940 Discriminator Loss: 1.3518... Generator Loss: 0.5396
 Epoch 2/2... Step: 2950 Discriminator Loss: 1.0731... Generator Loss: 0.7396
 Epoch 2/2... Step: 2960 Discriminator Loss: 0.9362... Generator Loss: 1.0130
 Epoch 2/2... Step: 2970 Discriminator Loss: 1.0141... Generator Loss: 0.8121
 Epoch 2/2... Step: 2980 Discriminator Loss: 1.5087... Generator Loss: 0.4268
 Epoch 2/2... Step: 2990 Discriminator Loss: 1.2273... Generator Loss: 0.6282
 Epoch 2/2... Step: 3000 Discriminator Loss: 1.0146... Generator Loss: 0.8071



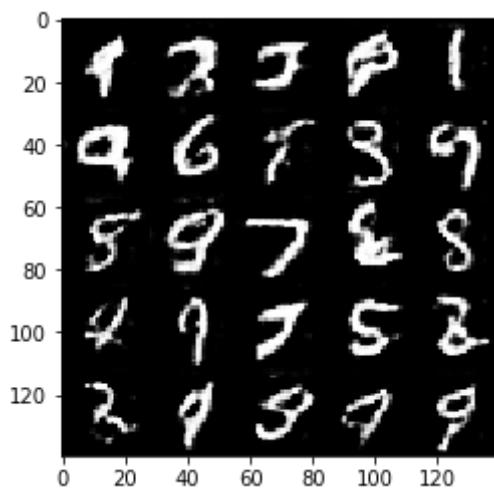
```
Epoch 2/2... Step: 3010 Discriminator Loss: 1.1803... Generator Loss: 1.5201
Epoch 2/2... Step: 3020 Discriminator Loss: 1.2015... Generator Loss: 0.8563
Epoch 2/2... Step: 3030 Discriminator Loss: 1.0856... Generator Loss: 0.7684
Epoch 2/2... Step: 3040 Discriminator Loss: 1.2952... Generator Loss: 0.6288
Epoch 2/2... Step: 3050 Discriminator Loss: 0.9851... Generator Loss: 0.8517
Epoch 2/2... Step: 3060 Discriminator Loss: 1.0027... Generator Loss: 0.9432
Epoch 2/2... Step: 3070 Discriminator Loss: 1.1552... Generator Loss: 0.7082
Epoch 2/2... Step: 3080 Discriminator Loss: 1.0535... Generator Loss: 0.8989
Epoch 2/2... Step: 3090 Discriminator Loss: 1.3401... Generator Loss: 0.5296
Epoch 2/2... Step: 3100 Discriminator Loss: 1.1039... Generator Loss: 0.7528
```



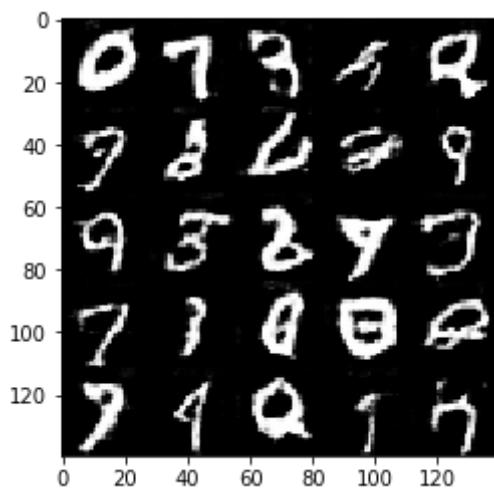
```
Epoch 2/2... Step: 3110 Discriminator Loss: 1.2041... Generator Loss: 0.6612
Epoch 2/2... Step: 3120 Discriminator Loss: 1.2247... Generator Loss: 0.6446
Epoch 2/2... Step: 3130 Discriminator Loss: 1.1806... Generator Loss: 0.7507
Epoch 2/2... Step: 3140 Discriminator Loss: 1.0779... Generator Loss: 0.8072
Epoch 2/2... Step: 3150 Discriminator Loss: 1.0086... Generator Loss: 0.8083
Epoch 2/2... Step: 3160 Discriminator Loss: 1.1527... Generator Loss: 0.6712
Epoch 2/2... Step: 3170 Discriminator Loss: 1.0708... Generator Loss: 0.8052
Epoch 2/2... Step: 3180 Discriminator Loss: 1.1526... Generator Loss: 0.6658
Epoch 2/2... Step: 3190 Discriminator Loss: 1.1718... Generator Loss: 0.6270
Epoch 2/2... Step: 3200 Discriminator Loss: 1.2593... Generator Loss: 0.6231
```



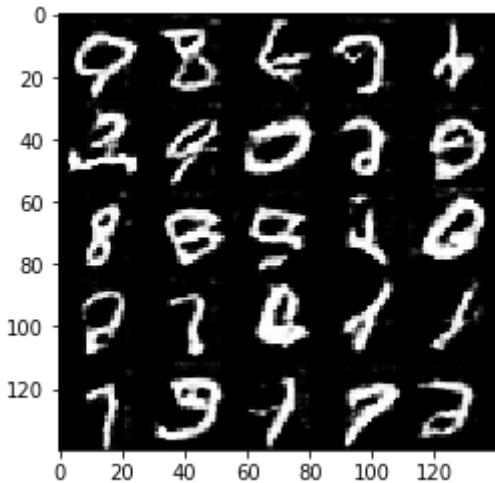
```
Epoch 2/2... Step: 3210 Discriminator Loss: 1.0336... Generator Loss: 0.7835
Epoch 2/2... Step: 3220 Discriminator Loss: 1.2455... Generator Loss: 0.6016
Epoch 2/2... Step: 3230 Discriminator Loss: 1.1608... Generator Loss: 0.9473
Epoch 2/2... Step: 3240 Discriminator Loss: 1.1116... Generator Loss: 0.6987
Epoch 2/2... Step: 3250 Discriminator Loss: 3.4496... Generator Loss: 2.9052
Epoch 2/2... Step: 3260 Discriminator Loss: 1.0311... Generator Loss: 0.8802
Epoch 2/2... Step: 3270 Discriminator Loss: 1.0086... Generator Loss: 0.8400
Epoch 2/2... Step: 3280 Discriminator Loss: 1.1835... Generator Loss: 0.7117
Epoch 2/2... Step: 3290 Discriminator Loss: 1.1931... Generator Loss: 0.6775
Epoch 2/2... Step: 3300 Discriminator Loss: 0.9734... Generator Loss: 0.9276
```



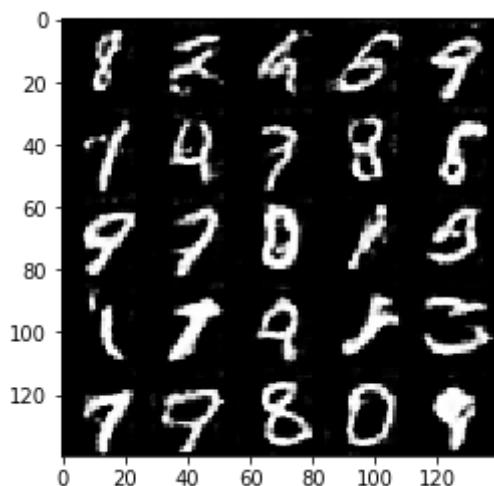
```
Epoch 2/2... Step: 3310 Discriminator Loss: 1.0268... Generator Loss: 0.8826
Epoch 2/2... Step: 3320 Discriminator Loss: 1.3089... Generator Loss: 0.5984
Epoch 2/2... Step: 3330 Discriminator Loss: 1.2529... Generator Loss: 0.6374
Epoch 2/2... Step: 3340 Discriminator Loss: 1.1518... Generator Loss: 0.7833
Epoch 2/2... Step: 3350 Discriminator Loss: 1.2413... Generator Loss: 0.6504
Epoch 2/2... Step: 3360 Discriminator Loss: 1.1644... Generator Loss: 0.7194
Epoch 2/2... Step: 3370 Discriminator Loss: 1.2027... Generator Loss: 0.6157
Epoch 2/2... Step: 3380 Discriminator Loss: 1.9239... Generator Loss: 1.8316
Epoch 2/2... Step: 3390 Discriminator Loss: 1.0724... Generator Loss: 0.8073
Epoch 2/2... Step: 3400 Discriminator Loss: 1.1644... Generator Loss: 0.7533
```



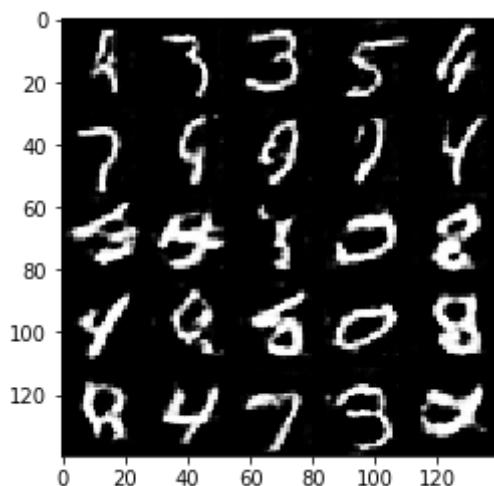
Epoch 2/2... Step: 3410 Discriminator Loss: 1.2109... Generator Loss: 0.6394
Epoch 2/2... Step: 3420 Discriminator Loss: 1.1069... Generator Loss: 0.6928
Epoch 2/2... Step: 3430 Discriminator Loss: 1.2047... Generator Loss: 0.6293
Epoch 2/2... Step: 3440 Discriminator Loss: 1.3639... Generator Loss: 0.5151
Epoch 2/2... Step: 3450 Discriminator Loss: 1.0539... Generator Loss: 0.8488
Epoch 2/2... Step: 3460 Discriminator Loss: 1.1268... Generator Loss: 0.7920
Epoch 2/2... Step: 3470 Discriminator Loss: 1.3648... Generator Loss: 0.5473
Epoch 2/2... Step: 3480 Discriminator Loss: 1.2329... Generator Loss: 0.8166
Epoch 2/2... Step: 3490 Discriminator Loss: 1.0995... Generator Loss: 0.7558
Epoch 2/2... Step: 3500 Discriminator Loss: 1.2393... Generator Loss: 0.6177



Epoch 2/2... Step: 3510 Discriminator Loss: 1.0238... Generator Loss: 1.2022
Epoch 2/2... Step: 3520 Discriminator Loss: 0.9088... Generator Loss: 1.1368
Epoch 2/2... Step: 3530 Discriminator Loss: 1.2223... Generator Loss: 0.7207
Epoch 2/2... Step: 3540 Discriminator Loss: 1.2656... Generator Loss: 0.6967
Epoch 2/2... Step: 3550 Discriminator Loss: 1.1954... Generator Loss: 0.8993
Epoch 2/2... Step: 3560 Discriminator Loss: 1.2551... Generator Loss: 0.8054
Epoch 2/2... Step: 3570 Discriminator Loss: 1.2661... Generator Loss: 0.6012
Epoch 2/2... Step: 3580 Discriminator Loss: 1.1560... Generator Loss: 0.6881
Epoch 2/2... Step: 3590 Discriminator Loss: 1.1706... Generator Loss: 0.6374
Epoch 2/2... Step: 3600 Discriminator Loss: 1.2516... Generator Loss: 0.5660



```
Epoch 2/2... Step: 3610 Discriminator Loss: 1.0790... Generator Loss: 0.7954
Epoch 2/2... Step: 3620 Discriminator Loss: 1.1976... Generator Loss: 0.6513
Epoch 2/2... Step: 3630 Discriminator Loss: 0.9727... Generator Loss: 0.9564
Epoch 2/2... Step: 3640 Discriminator Loss: 1.1512... Generator Loss: 0.6923
Epoch 2/2... Step: 3650 Discriminator Loss: 1.0644... Generator Loss: 0.9218
Epoch 2/2... Step: 3660 Discriminator Loss: 1.1041... Generator Loss: 0.7201
Epoch 2/2... Step: 3670 Discriminator Loss: 1.2637... Generator Loss: 0.6652
Epoch 2/2... Step: 3680 Discriminator Loss: 1.0954... Generator Loss: 0.8302
Epoch 2/2... Step: 3690 Discriminator Loss: 1.2142... Generator Loss: 0.7072
Epoch 2/2... Step: 3700 Discriminator Loss: 2.8141... Generator Loss: 0.1618
```



```
Epoch 2/2... Step: 3710 Discriminator Loss: 1.1981... Generator Loss: 0.6787
Epoch 2/2... Step: 3720 Discriminator Loss: 1.1449... Generator Loss: 0.8060
Epoch 2/2... Step: 3730 Discriminator Loss: 1.0511... Generator Loss: 0.7749
Epoch 2/2... Step: 3740 Discriminator Loss: 1.0003... Generator Loss: 0.8701
Epoch 2/2... Step: 3750 Discriminator Loss: 0.8807... Generator Loss: 1.0227
```

CelebA

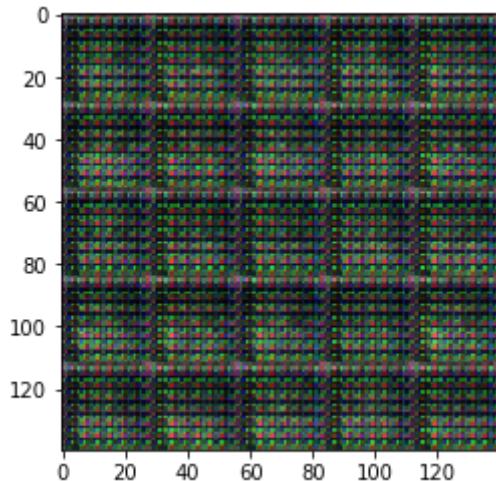
Run your GANs on CelebA. It will take around 20 minutes on the average GPU to run one epoch. You can run the whole epoch or stop when it starts to generate realistic faces.

```
In [27]: batch_size = 32
z_dim = 112
learning_rate = 7e-5
beta1 = 0.5

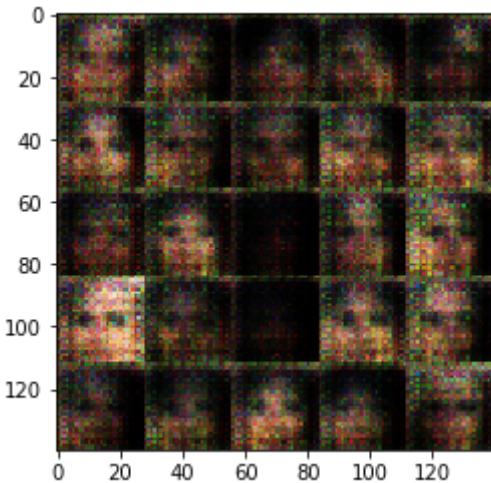
"""
DON'T MODIFY ANYTHING IN THIS CELL THAT IS BELOW THIS LINE
"""
epochs = 1

celeba_dataset = helper.Dataset('celeba', glob(os.path.join(data_dir, 'img_align_celeba/*.jpg')))
with tf.Graph().as_default():
    train(epochs, batch_size, z_dim, learning_rate, beta1, celeba_dataset.get_batches,
          celeba_dataset.shape, celeba_dataset.image_mode)
```

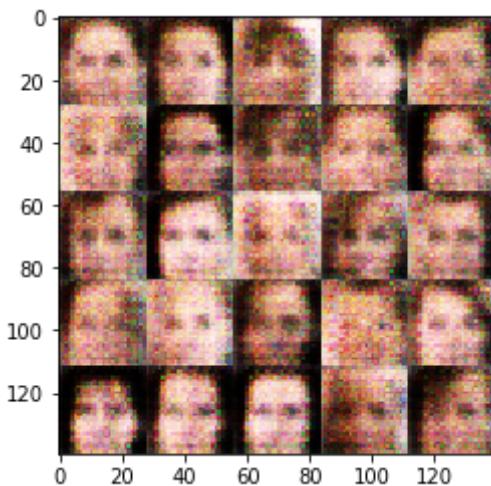
```
0
Epoch 1/1... Step: 10 Discriminator Loss: 1.9476... Generator Loss: 0.3
259
Epoch 1/1... Step: 20 Discriminator Loss: 1.5339... Generator Loss: 0.5
415
Epoch 1/1... Step: 30 Discriminator Loss: 1.6279... Generator Loss: 0.5
421
Epoch 1/1... Step: 40 Discriminator Loss: 2.6547... Generator Loss: 0.1
648
Epoch 1/1... Step: 50 Discriminator Loss: 2.2830... Generator Loss: 0.2
282
Epoch 1/1... Step: 60 Discriminator Loss: 1.9091... Generator Loss: 0.3
528
Epoch 1/1... Step: 70 Discriminator Loss: 2.0952... Generator Loss: 0.2
980
Epoch 1/1... Step: 80 Discriminator Loss: 1.9905... Generator Loss: 0.4
424
Epoch 1/1... Step: 90 Discriminator Loss: 1.0151... Generator Loss: 1.0
180
Epoch 1/1... Step: 100 Discriminator Loss: 1.6253... Generator Loss: 0.
6792
```



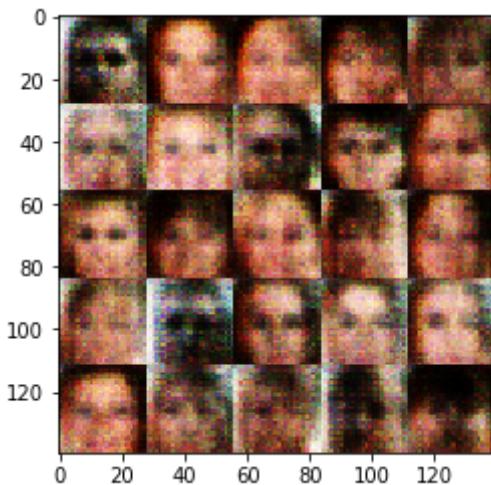
```
Epoch 1/1... Step: 110 Discriminator Loss: 1.1154... Generator Loss: 0.8929
Epoch 1/1... Step: 120 Discriminator Loss: 1.1899... Generator Loss: 0.8563
Epoch 1/1... Step: 130 Discriminator Loss: 1.1637... Generator Loss: 0.9020
Epoch 1/1... Step: 140 Discriminator Loss: 1.3324... Generator Loss: 0.7823
Epoch 1/1... Step: 150 Discriminator Loss: 1.1092... Generator Loss: 1.0144
Epoch 1/1... Step: 160 Discriminator Loss: 1.0995... Generator Loss: 1.0950
Epoch 1/1... Step: 170 Discriminator Loss: 1.2700... Generator Loss: 0.8826
Epoch 1/1... Step: 180 Discriminator Loss: 1.3648... Generator Loss: 0.7626
Epoch 1/1... Step: 190 Discriminator Loss: 1.2537... Generator Loss: 0.9710
Epoch 1/1... Step: 200 Discriminator Loss: 1.2411... Generator Loss: 0.9283
```



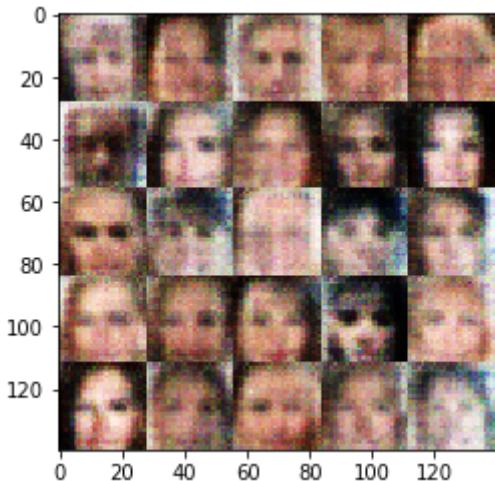
```
Epoch 1/1... Step: 210 Discriminator Loss: 1.1089... Generator Loss: 1.0730
Epoch 1/1... Step: 220 Discriminator Loss: 1.1029... Generator Loss: 0.9649
Epoch 1/1... Step: 230 Discriminator Loss: 1.1749... Generator Loss: 1.0318
Epoch 1/1... Step: 240 Discriminator Loss: 1.1138... Generator Loss: 1.1051
Epoch 1/1... Step: 250 Discriminator Loss: 1.3300... Generator Loss: 0.8406
Epoch 1/1... Step: 260 Discriminator Loss: 1.5645... Generator Loss: 0.5887
Epoch 1/1... Step: 270 Discriminator Loss: 1.1272... Generator Loss: 1.0924
Epoch 1/1... Step: 280 Discriminator Loss: 1.2857... Generator Loss: 0.7507
Epoch 1/1... Step: 290 Discriminator Loss: 1.1994... Generator Loss: 1.0344
Epoch 1/1... Step: 300 Discriminator Loss: 1.1152... Generator Loss: 0.9907
```



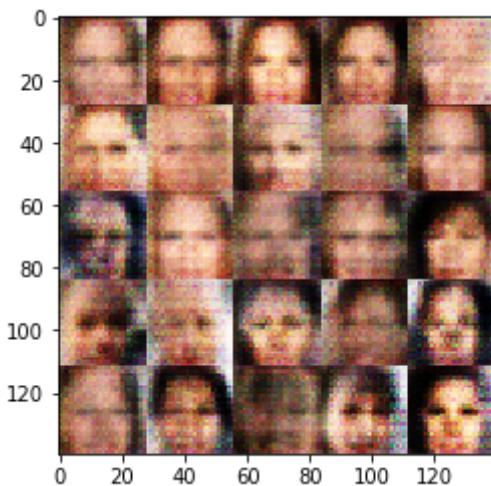
```
Epoch 1/1... Step: 310 Discriminator Loss: 1.0803... Generator Loss: 1.0416
Epoch 1/1... Step: 320 Discriminator Loss: 1.1842... Generator Loss: 0.8316
Epoch 1/1... Step: 330 Discriminator Loss: 1.5204... Generator Loss: 0.8839
Epoch 1/1... Step: 340 Discriminator Loss: 1.1864... Generator Loss: 0.8600
Epoch 1/1... Step: 350 Discriminator Loss: 1.7338... Generator Loss: 0.5404
Epoch 1/1... Step: 360 Discriminator Loss: 1.4588... Generator Loss: 0.6953
Epoch 1/1... Step: 370 Discriminator Loss: 1.1591... Generator Loss: 1.0791
Epoch 1/1... Step: 380 Discriminator Loss: 1.2053... Generator Loss: 1.1357
Epoch 1/1... Step: 390 Discriminator Loss: 1.1147... Generator Loss: 0.9742
Epoch 1/1... Step: 400 Discriminator Loss: 1.2546... Generator Loss: 0.8484
```



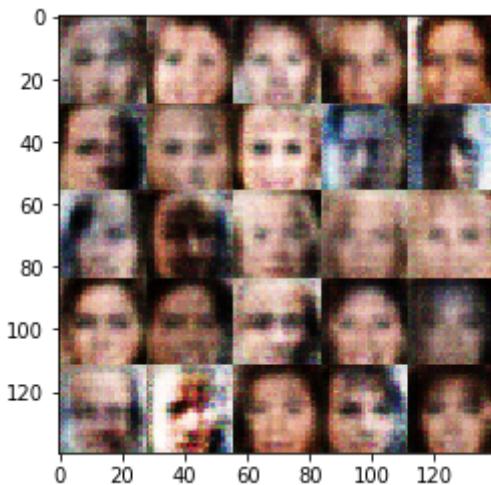
```
Epoch 1/1... Step: 410 Discriminator Loss: 1.1090... Generator Loss: 1.0584
Epoch 1/1... Step: 420 Discriminator Loss: 1.2669... Generator Loss: 0.8634
Epoch 1/1... Step: 430 Discriminator Loss: 1.2631... Generator Loss: 0.6964
Epoch 1/1... Step: 440 Discriminator Loss: 1.2640... Generator Loss: 0.7317
Epoch 1/1... Step: 450 Discriminator Loss: 1.2125... Generator Loss: 0.9689
Epoch 1/1... Step: 460 Discriminator Loss: 1.1399... Generator Loss: 0.9953
Epoch 1/1... Step: 470 Discriminator Loss: 1.0886... Generator Loss: 0.8937
Epoch 1/1... Step: 480 Discriminator Loss: 1.5327... Generator Loss: 0.5760
Epoch 1/1... Step: 490 Discriminator Loss: 1.2996... Generator Loss: 0.7983
Epoch 1/1... Step: 500 Discriminator Loss: 1.3381... Generator Loss: 0.6765
```



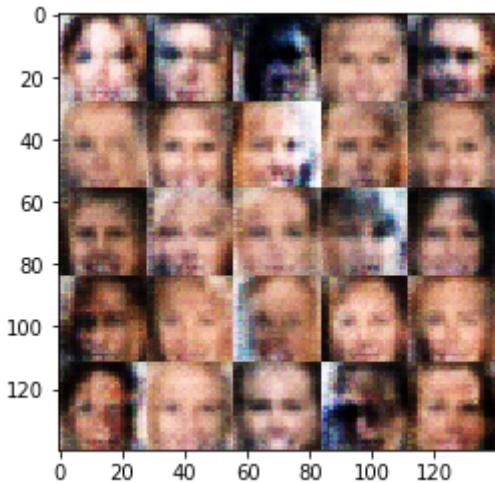
```
Epoch 1/1... Step: 510 Discriminator Loss: 1.3614... Generator Loss: 0.7606
Epoch 1/1... Step: 520 Discriminator Loss: 1.2378... Generator Loss: 0.7783
Epoch 1/1... Step: 530 Discriminator Loss: 1.4432... Generator Loss: 0.6225
Epoch 1/1... Step: 540 Discriminator Loss: 1.2513... Generator Loss: 0.7935
Epoch 1/1... Step: 550 Discriminator Loss: 1.2583... Generator Loss: 0.7566
Epoch 1/1... Step: 560 Discriminator Loss: 1.3651... Generator Loss: 0.6502
Epoch 1/1... Step: 570 Discriminator Loss: 1.4468... Generator Loss: 0.6970
Epoch 1/1... Step: 580 Discriminator Loss: 1.2564... Generator Loss: 1.0343
Epoch 1/1... Step: 590 Discriminator Loss: 1.3865... Generator Loss: 0.7744
Epoch 1/1... Step: 600 Discriminator Loss: 1.5619... Generator Loss: 0.6449
```



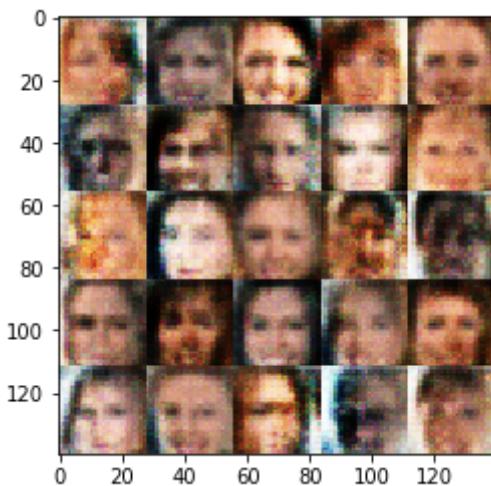
```
Epoch 1/1... Step: 610 Discriminator Loss: 1.2762... Generator Loss: 0.9490
Epoch 1/1... Step: 620 Discriminator Loss: 1.6229... Generator Loss: 0.9444
Epoch 1/1... Step: 630 Discriminator Loss: 1.3213... Generator Loss: 0.7847
Epoch 1/1... Step: 640 Discriminator Loss: 1.5213... Generator Loss: 0.8243
Epoch 1/1... Step: 650 Discriminator Loss: 1.4333... Generator Loss: 0.6543
Epoch 1/1... Step: 660 Discriminator Loss: 1.3996... Generator Loss: 0.7387
Epoch 1/1... Step: 670 Discriminator Loss: 1.2162... Generator Loss: 0.9105
Epoch 1/1... Step: 680 Discriminator Loss: 1.3657... Generator Loss: 0.7870
Epoch 1/1... Step: 690 Discriminator Loss: 1.2648... Generator Loss: 0.8430
Epoch 1/1... Step: 700 Discriminator Loss: 1.3746... Generator Loss: 0.8839
```



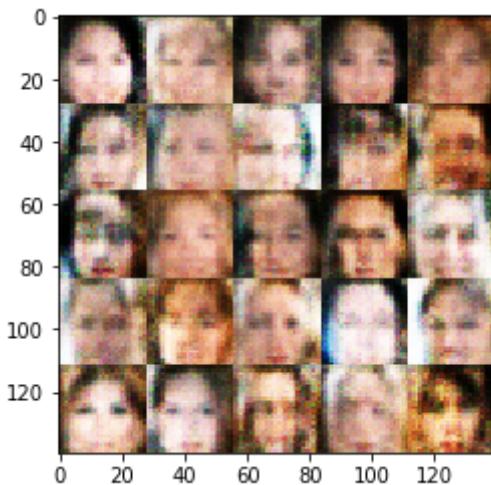
```
Epoch 1/1... Step: 710 Discriminator Loss: 1.2963... Generator Loss: 0.  
8807  
Epoch 1/1... Step: 720 Discriminator Loss: 1.2662... Generator Loss: 0.  
8539  
Epoch 1/1... Step: 730 Discriminator Loss: 1.4319... Generator Loss: 0.  
6801  
Epoch 1/1... Step: 740 Discriminator Loss: 1.2253... Generator Loss: 0.  
8808  
Epoch 1/1... Step: 750 Discriminator Loss: 1.2939... Generator Loss: 0.  
8245  
Epoch 1/1... Step: 760 Discriminator Loss: 1.4281... Generator Loss: 0.  
6683  
Epoch 1/1... Step: 770 Discriminator Loss: 1.2639... Generator Loss: 0.  
7885  
Epoch 1/1... Step: 780 Discriminator Loss: 1.2499... Generator Loss: 0.  
9014  
Epoch 1/1... Step: 790 Discriminator Loss: 1.2941... Generator Loss: 0.  
8000  
Epoch 1/1... Step: 800 Discriminator Loss: 1.3532... Generator Loss: 0.  
8181
```



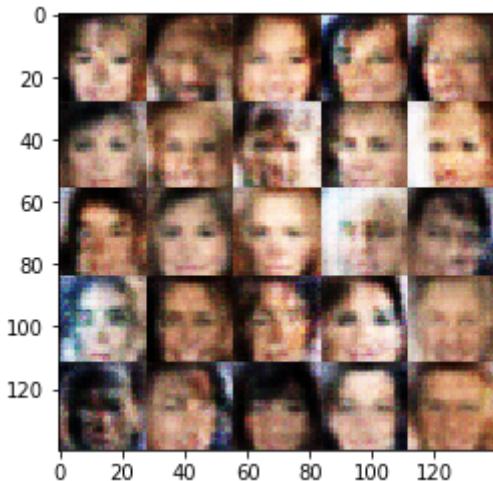
```
Epoch 1/1... Step: 810 Discriminator Loss: 1.3045... Generator Loss: 0.  
8028  
Epoch 1/1... Step: 820 Discriminator Loss: 1.1741... Generator Loss: 0.  
8799  
Epoch 1/1... Step: 830 Discriminator Loss: 1.3034... Generator Loss: 0.  
7808  
Epoch 1/1... Step: 840 Discriminator Loss: 1.2829... Generator Loss: 0.  
8584  
Epoch 1/1... Step: 850 Discriminator Loss: 1.2786... Generator Loss: 0.  
8217  
Epoch 1/1... Step: 860 Discriminator Loss: 1.3119... Generator Loss: 0.  
7919  
Epoch 1/1... Step: 870 Discriminator Loss: 1.4286... Generator Loss: 0.  
8056  
Epoch 1/1... Step: 880 Discriminator Loss: 1.2420... Generator Loss: 0.  
8489  
Epoch 1/1... Step: 890 Discriminator Loss: 1.3263... Generator Loss: 0.  
8501  
Epoch 1/1... Step: 900 Discriminator Loss: 1.4425... Generator Loss: 0.  
6961
```



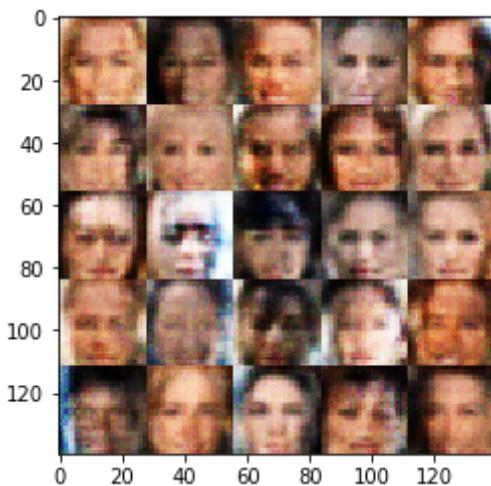
```
Epoch 1/1... Step: 910 Discriminator Loss: 1.3517... Generator Loss: 0.7305
Epoch 1/1... Step: 920 Discriminator Loss: 1.2660... Generator Loss: 1.1627
Epoch 1/1... Step: 930 Discriminator Loss: 1.2369... Generator Loss: 0.8228
Epoch 1/1... Step: 940 Discriminator Loss: 1.3542... Generator Loss: 0.7184
Epoch 1/1... Step: 950 Discriminator Loss: 1.2271... Generator Loss: 0.9153
Epoch 1/1... Step: 960 Discriminator Loss: 1.3221... Generator Loss: 0.7896
Epoch 1/1... Step: 970 Discriminator Loss: 1.2899... Generator Loss: 0.8877
Epoch 1/1... Step: 980 Discriminator Loss: 1.2115... Generator Loss: 0.8341
Epoch 1/1... Step: 990 Discriminator Loss: 1.3104... Generator Loss: 0.8922
Epoch 1/1... Step: 1000 Discriminator Loss: 1.2128... Generator Loss: 1.0753
```



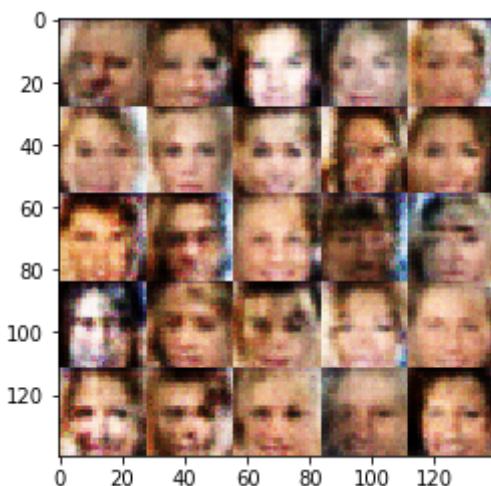
```
Epoch 1/1... Step: 1010 Discriminator Loss: 1.2302... Generator Loss: 0.8983
Epoch 1/1... Step: 1020 Discriminator Loss: 1.2546... Generator Loss: 0.8171
Epoch 1/1... Step: 1030 Discriminator Loss: 1.3432... Generator Loss: 0.7167
Epoch 1/1... Step: 1040 Discriminator Loss: 1.3788... Generator Loss: 0.6840
Epoch 1/1... Step: 1050 Discriminator Loss: 1.3135... Generator Loss: 0.8602
Epoch 1/1... Step: 1060 Discriminator Loss: 1.3931... Generator Loss: 0.7448
Epoch 1/1... Step: 1070 Discriminator Loss: 1.3102... Generator Loss: 0.7899
Epoch 1/1... Step: 1080 Discriminator Loss: 1.3639... Generator Loss: 0.7015
Epoch 1/1... Step: 1090 Discriminator Loss: 1.5460... Generator Loss: 0.5700
Epoch 1/1... Step: 1100 Discriminator Loss: 1.4489... Generator Loss: 0.6992
```



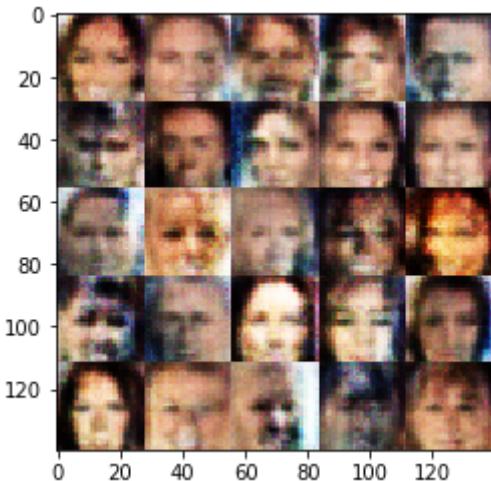
```
Epoch 1/1... Step: 1110 Discriminator Loss: 1.2794... Generator Loss: 0.8172
Epoch 1/1... Step: 1120 Discriminator Loss: 1.3168... Generator Loss: 0.7317
Epoch 1/1... Step: 1130 Discriminator Loss: 1.2386... Generator Loss: 0.8093
Epoch 1/1... Step: 1140 Discriminator Loss: 1.3427... Generator Loss: 0.7367
Epoch 1/1... Step: 1150 Discriminator Loss: 1.2986... Generator Loss: 0.7920
Epoch 1/1... Step: 1160 Discriminator Loss: 1.2975... Generator Loss: 0.6923
Epoch 1/1... Step: 1170 Discriminator Loss: 1.3679... Generator Loss: 0.7413
Epoch 1/1... Step: 1180 Discriminator Loss: 1.3196... Generator Loss: 0.7579
Epoch 1/1... Step: 1190 Discriminator Loss: 1.2926... Generator Loss: 0.8234
Epoch 1/1... Step: 1200 Discriminator Loss: 1.3746... Generator Loss: 0.8747
```



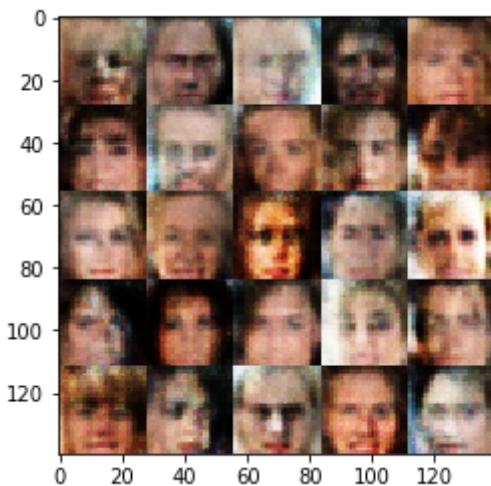
```
Epoch 1/1... Step: 1210 Discriminator Loss: 1.2582... Generator Loss: 0.8819
Epoch 1/1... Step: 1220 Discriminator Loss: 1.2392... Generator Loss: 0.8142
Epoch 1/1... Step: 1230 Discriminator Loss: 1.5403... Generator Loss: 0.7428
Epoch 1/1... Step: 1240 Discriminator Loss: 1.4324... Generator Loss: 0.7381
Epoch 1/1... Step: 1250 Discriminator Loss: 1.4649... Generator Loss: 0.7609
Epoch 1/1... Step: 1260 Discriminator Loss: 1.3650... Generator Loss: 0.6993
Epoch 1/1... Step: 1270 Discriminator Loss: 1.5135... Generator Loss: 0.7462
Epoch 1/1... Step: 1280 Discriminator Loss: 1.1653... Generator Loss: 0.8382
Epoch 1/1... Step: 1290 Discriminator Loss: 1.3351... Generator Loss: 0.7775
Epoch 1/1... Step: 1300 Discriminator Loss: 1.2920... Generator Loss: 0.8837
```



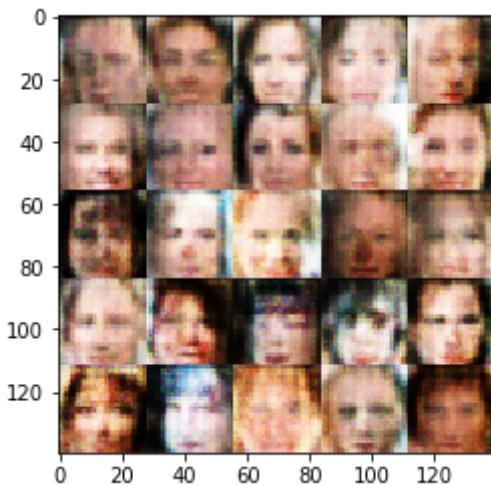
```
Epoch 1/1... Step: 1310 Discriminator Loss: 1.3653... Generator Loss: 0.9162
Epoch 1/1... Step: 1320 Discriminator Loss: 1.2975... Generator Loss: 0.7716
Epoch 1/1... Step: 1330 Discriminator Loss: 1.3427... Generator Loss: 0.8013
Epoch 1/1... Step: 1340 Discriminator Loss: 1.3995... Generator Loss: 0.7964
Epoch 1/1... Step: 1350 Discriminator Loss: 1.3330... Generator Loss: 0.7221
Epoch 1/1... Step: 1360 Discriminator Loss: 1.3117... Generator Loss: 0.9149
Epoch 1/1... Step: 1370 Discriminator Loss: 1.1721... Generator Loss: 0.8886
Epoch 1/1... Step: 1380 Discriminator Loss: 1.3414... Generator Loss: 0.8426
Epoch 1/1... Step: 1390 Discriminator Loss: 1.5012... Generator Loss: 0.6076
Epoch 1/1... Step: 1400 Discriminator Loss: 1.4006... Generator Loss: 0.8122
```



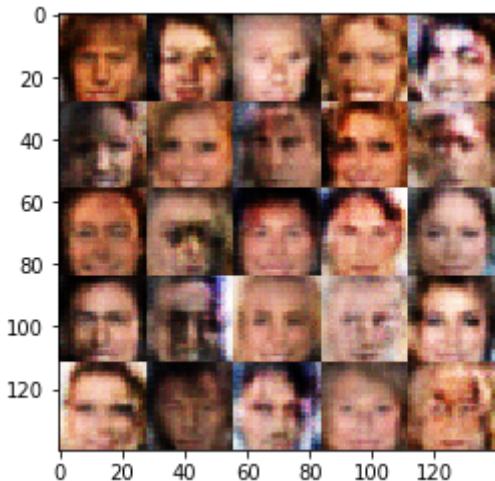
```
Epoch 1/1... Step: 1410 Discriminator Loss: 1.3901... Generator Loss: 0.8139
Epoch 1/1... Step: 1420 Discriminator Loss: 1.5022... Generator Loss: 0.7646
Epoch 1/1... Step: 1430 Discriminator Loss: 1.3129... Generator Loss: 0.7816
Epoch 1/1... Step: 1440 Discriminator Loss: 1.2437... Generator Loss: 0.9014
Epoch 1/1... Step: 1450 Discriminator Loss: 1.3618... Generator Loss: 0.7837
Epoch 1/1... Step: 1460 Discriminator Loss: 1.2511... Generator Loss: 0.7842
Epoch 1/1... Step: 1470 Discriminator Loss: 1.1817... Generator Loss: 0.9072
Epoch 1/1... Step: 1480 Discriminator Loss: 1.3716... Generator Loss: 0.6478
Epoch 1/1... Step: 1490 Discriminator Loss: 1.3431... Generator Loss: 0.7887
Epoch 1/1... Step: 1500 Discriminator Loss: 1.2688... Generator Loss: 0.8633
```



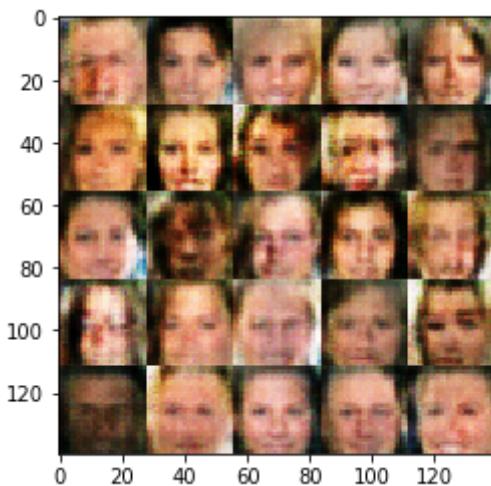
```
Epoch 1/1... Step: 1510 Discriminator Loss: 1.4570... Generator Loss: 0.7094
Epoch 1/1... Step: 1520 Discriminator Loss: 1.2759... Generator Loss: 0.8842
Epoch 1/1... Step: 1530 Discriminator Loss: 1.4156... Generator Loss: 0.6726
Epoch 1/1... Step: 1540 Discriminator Loss: 1.3453... Generator Loss: 0.8056
Epoch 1/1... Step: 1550 Discriminator Loss: 1.1363... Generator Loss: 0.9389
Epoch 1/1... Step: 1560 Discriminator Loss: 1.2862... Generator Loss: 0.9209
Epoch 1/1... Step: 1570 Discriminator Loss: 1.2873... Generator Loss: 0.7073
Epoch 1/1... Step: 1580 Discriminator Loss: 1.1036... Generator Loss: 0.9012
Epoch 1/1... Step: 1590 Discriminator Loss: 1.3051... Generator Loss: 0.8832
Epoch 1/1... Step: 1600 Discriminator Loss: 1.2863... Generator Loss: 0.9401
```



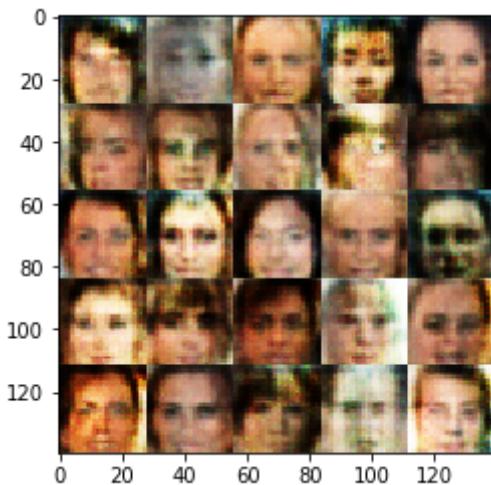
```
Epoch 1/1... Step: 1610 Discriminator Loss: 1.4315... Generator Loss: 0.5964
Epoch 1/1... Step: 1620 Discriminator Loss: 1.4175... Generator Loss: 0.6900
Epoch 1/1... Step: 1630 Discriminator Loss: 1.2021... Generator Loss: 0.9002
Epoch 1/1... Step: 1640 Discriminator Loss: 1.3425... Generator Loss: 0.7682
Epoch 1/1... Step: 1650 Discriminator Loss: 1.2880... Generator Loss: 0.8568
Epoch 1/1... Step: 1660 Discriminator Loss: 1.3660... Generator Loss: 0.6973
Epoch 1/1... Step: 1670 Discriminator Loss: 1.3366... Generator Loss: 0.8109
Epoch 1/1... Step: 1680 Discriminator Loss: 1.2986... Generator Loss: 0.8156
Epoch 1/1... Step: 1690 Discriminator Loss: 1.3535... Generator Loss: 0.7180
Epoch 1/1... Step: 1700 Discriminator Loss: 1.2842... Generator Loss: 0.9141
```



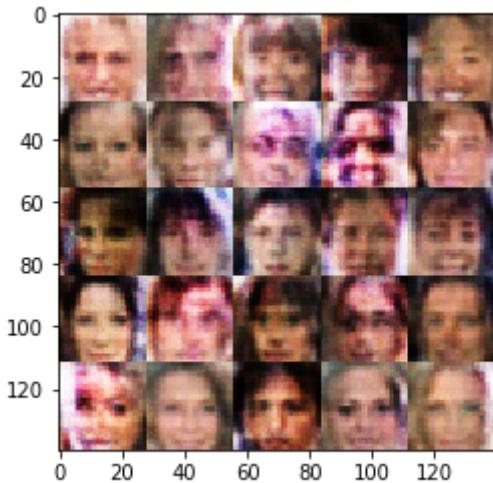
```
Epoch 1/1... Step: 1710 Discriminator Loss: 1.3934... Generator Loss: 0.7928
Epoch 1/1... Step: 1720 Discriminator Loss: 1.3574... Generator Loss: 0.7512
Epoch 1/1... Step: 1730 Discriminator Loss: 1.3188... Generator Loss: 0.9370
Epoch 1/1... Step: 1740 Discriminator Loss: 1.2325... Generator Loss: 0.9309
Epoch 1/1... Step: 1750 Discriminator Loss: 1.3216... Generator Loss: 0.7810
Epoch 1/1... Step: 1760 Discriminator Loss: 1.2711... Generator Loss: 0.8296
Epoch 1/1... Step: 1770 Discriminator Loss: 1.2808... Generator Loss: 0.8675
Epoch 1/1... Step: 1780 Discriminator Loss: 1.2921... Generator Loss: 0.8772
Epoch 1/1... Step: 1790 Discriminator Loss: 1.3063... Generator Loss: 0.9006
Epoch 1/1... Step: 1800 Discriminator Loss: 1.2330... Generator Loss: 0.9995
```



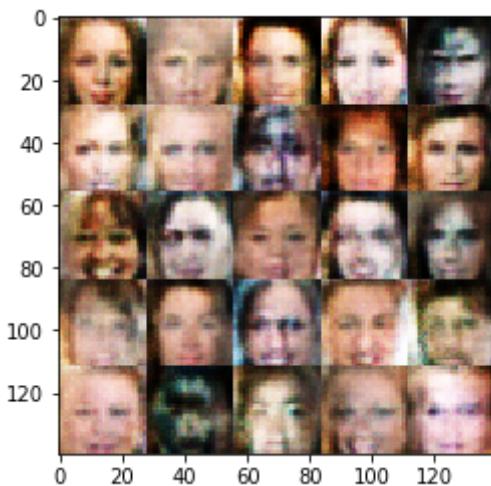
```
Epoch 1/1... Step: 1810 Discriminator Loss: 1.2301... Generator Loss: 0.8360
Epoch 1/1... Step: 1820 Discriminator Loss: 1.2727... Generator Loss: 0.9199
Epoch 1/1... Step: 1830 Discriminator Loss: 1.3125... Generator Loss: 0.9882
Epoch 1/1... Step: 1840 Discriminator Loss: 1.2738... Generator Loss: 0.7994
Epoch 1/1... Step: 1850 Discriminator Loss: 1.2825... Generator Loss: 0.8197
Epoch 1/1... Step: 1860 Discriminator Loss: 1.3537... Generator Loss: 0.7749
Epoch 1/1... Step: 1870 Discriminator Loss: 1.4298... Generator Loss: 0.8621
Epoch 1/1... Step: 1880 Discriminator Loss: 1.2015... Generator Loss: 1.0043
Epoch 1/1... Step: 1890 Discriminator Loss: 1.3305... Generator Loss: 0.8377
Epoch 1/1... Step: 1900 Discriminator Loss: 1.4209... Generator Loss: 0.8328
```



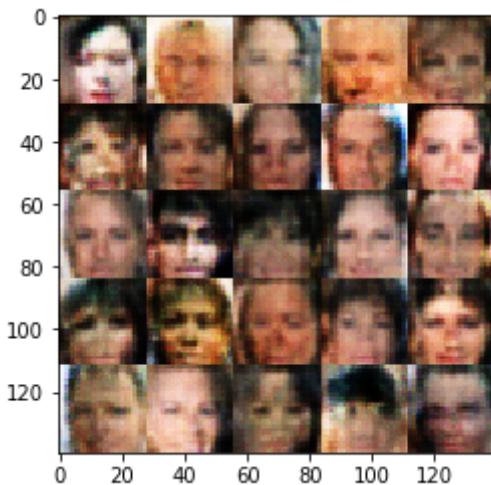
```
Epoch 1/1... Step: 1910 Discriminator Loss: 1.3171... Generator Loss: 0.8395
Epoch 1/1... Step: 1920 Discriminator Loss: 1.1845... Generator Loss: 1.0475
Epoch 1/1... Step: 1930 Discriminator Loss: 1.2556... Generator Loss: 0.8566
Epoch 1/1... Step: 1940 Discriminator Loss: 1.1611... Generator Loss: 0.8710
Epoch 1/1... Step: 1950 Discriminator Loss: 1.2352... Generator Loss: 0.9241
Epoch 1/1... Step: 1960 Discriminator Loss: 1.1641... Generator Loss: 0.9017
Epoch 1/1... Step: 1970 Discriminator Loss: 1.3852... Generator Loss: 0.6941
Epoch 1/1... Step: 1980 Discriminator Loss: 1.3856... Generator Loss: 0.7841
Epoch 1/1... Step: 1990 Discriminator Loss: 1.1931... Generator Loss: 0.8629
Epoch 1/1... Step: 2000 Discriminator Loss: 1.4114... Generator Loss: 0.7358
```



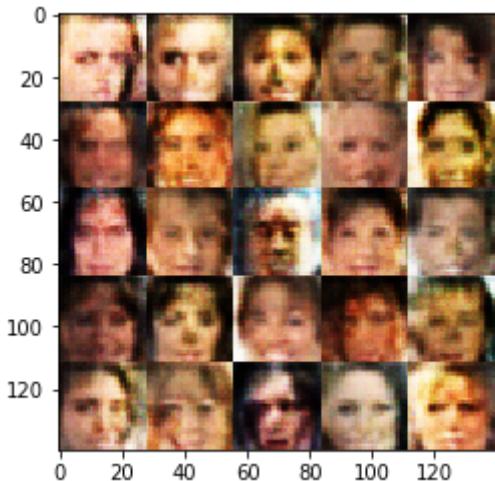
```
Epoch 1/1... Step: 2010 Discriminator Loss: 1.2057... Generator Loss: 0.8815
Epoch 1/1... Step: 2020 Discriminator Loss: 1.3196... Generator Loss: 0.9081
Epoch 1/1... Step: 2030 Discriminator Loss: 1.0809... Generator Loss: 1.0542
Epoch 1/1... Step: 2040 Discriminator Loss: 1.3392... Generator Loss: 0.7870
Epoch 1/1... Step: 2050 Discriminator Loss: 1.2685... Generator Loss: 0.8661
Epoch 1/1... Step: 2060 Discriminator Loss: 1.5797... Generator Loss: 0.5605
Epoch 1/1... Step: 2070 Discriminator Loss: 1.2167... Generator Loss: 0.7456
Epoch 1/1... Step: 2080 Discriminator Loss: 1.4025... Generator Loss: 0.8285
Epoch 1/1... Step: 2090 Discriminator Loss: 1.3709... Generator Loss: 0.8353
Epoch 1/1... Step: 2100 Discriminator Loss: 1.1572... Generator Loss: 0.8975
```



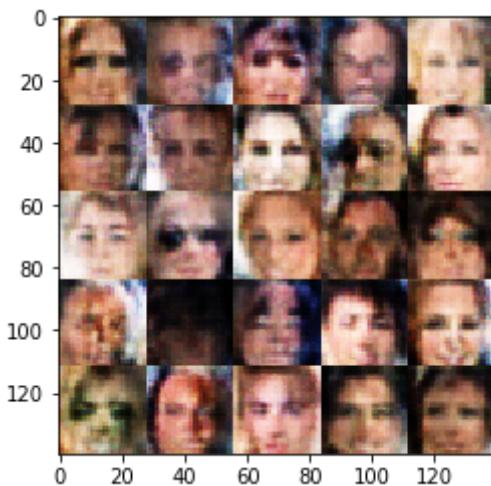
```
Epoch 1/1... Step: 2110 Discriminator Loss: 1.2410... Generator Loss: 0.8364
Epoch 1/1... Step: 2120 Discriminator Loss: 1.2394... Generator Loss: 0.9613
Epoch 1/1... Step: 2130 Discriminator Loss: 1.2906... Generator Loss: 0.8103
Epoch 1/1... Step: 2140 Discriminator Loss: 1.3918... Generator Loss: 0.6891
Epoch 1/1... Step: 2150 Discriminator Loss: 1.2294... Generator Loss: 0.8783
Epoch 1/1... Step: 2160 Discriminator Loss: 1.4632... Generator Loss: 0.6936
Epoch 1/1... Step: 2170 Discriminator Loss: 1.2013... Generator Loss: 0.8811
Epoch 1/1... Step: 2180 Discriminator Loss: 1.4369... Generator Loss: 0.5292
Epoch 1/1... Step: 2190 Discriminator Loss: 1.3630... Generator Loss: 0.7946
Epoch 1/1... Step: 2200 Discriminator Loss: 1.3207... Generator Loss: 0.6971
```



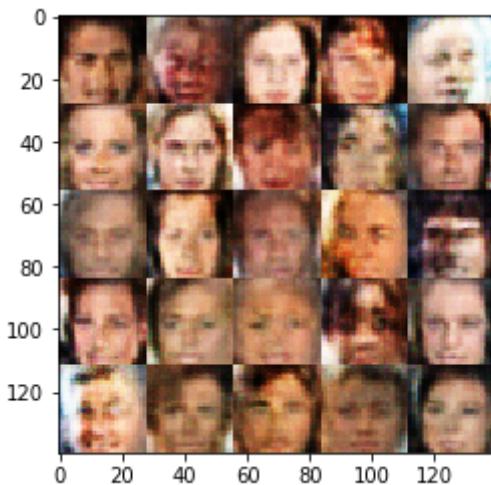
```
Epoch 1/1... Step: 2210 Discriminator Loss: 1.4923... Generator Loss: 0.6923
Epoch 1/1... Step: 2220 Discriminator Loss: 1.2944... Generator Loss: 0.7287
Epoch 1/1... Step: 2230 Discriminator Loss: 1.2169... Generator Loss: 0.9945
Epoch 1/1... Step: 2240 Discriminator Loss: 1.4117... Generator Loss: 0.6020
Epoch 1/1... Step: 2250 Discriminator Loss: 1.2859... Generator Loss: 0.7887
Epoch 1/1... Step: 2260 Discriminator Loss: 1.3079... Generator Loss: 0.8423
Epoch 1/1... Step: 2270 Discriminator Loss: 1.1106... Generator Loss: 1.0373
Epoch 1/1... Step: 2280 Discriminator Loss: 1.5158... Generator Loss: 0.8066
Epoch 1/1... Step: 2290 Discriminator Loss: 1.3456... Generator Loss: 0.8040
Epoch 1/1... Step: 2300 Discriminator Loss: 1.2031... Generator Loss: 0.8597
```



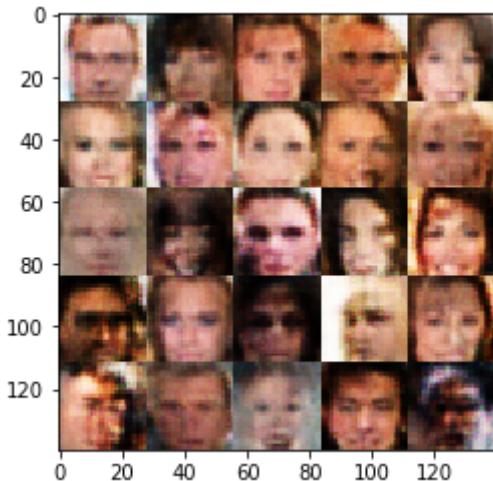
```
Epoch 1/1... Step: 2310 Discriminator Loss: 1.4436... Generator Loss: 0.6062
Epoch 1/1... Step: 2320 Discriminator Loss: 1.3980... Generator Loss: 0.7270
Epoch 1/1... Step: 2330 Discriminator Loss: 1.2609... Generator Loss: 0.7862
Epoch 1/1... Step: 2340 Discriminator Loss: 1.3088... Generator Loss: 0.7564
Epoch 1/1... Step: 2350 Discriminator Loss: 1.2156... Generator Loss: 0.9196
Epoch 1/1... Step: 2360 Discriminator Loss: 1.0828... Generator Loss: 1.0015
Epoch 1/1... Step: 2370 Discriminator Loss: 1.3354... Generator Loss: 0.6816
Epoch 1/1... Step: 2380 Discriminator Loss: 1.2773... Generator Loss: 0.8080
Epoch 1/1... Step: 2390 Discriminator Loss: 1.3689... Generator Loss: 0.6569
Epoch 1/1... Step: 2400 Discriminator Loss: 1.3884... Generator Loss: 0.6467
```



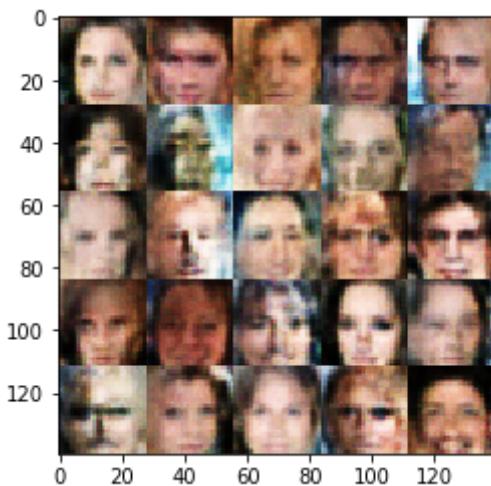
```
Epoch 1/1... Step: 2410 Discriminator Loss: 1.4434... Generator Loss: 0.6712
Epoch 1/1... Step: 2420 Discriminator Loss: 1.4312... Generator Loss: 0.6452
Epoch 1/1... Step: 2430 Discriminator Loss: 1.3375... Generator Loss: 0.7010
Epoch 1/1... Step: 2440 Discriminator Loss: 1.0765... Generator Loss: 1.0449
Epoch 1/1... Step: 2450 Discriminator Loss: 1.3436... Generator Loss: 0.6390
Epoch 1/1... Step: 2460 Discriminator Loss: 1.2589... Generator Loss: 0.7849
Epoch 1/1... Step: 2470 Discriminator Loss: 1.3445... Generator Loss: 0.7528
Epoch 1/1... Step: 2480 Discriminator Loss: 1.4438... Generator Loss: 0.6269
Epoch 1/1... Step: 2490 Discriminator Loss: 1.3061... Generator Loss: 0.7267
Epoch 1/1... Step: 2500 Discriminator Loss: 1.1559... Generator Loss: 1.0111
```



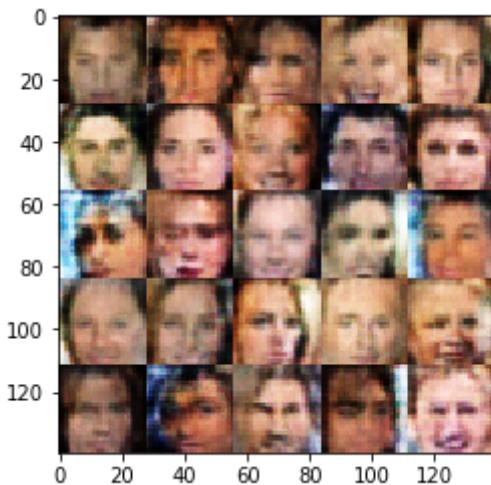
```
Epoch 1/1... Step: 2510 Discriminator Loss: 1.3415... Generator Loss: 0.6573
Epoch 1/1... Step: 2520 Discriminator Loss: 1.4790... Generator Loss: 0.6597
Epoch 1/1... Step: 2530 Discriminator Loss: 1.2855... Generator Loss: 0.8366
Epoch 1/1... Step: 2540 Discriminator Loss: 1.1165... Generator Loss: 0.9359
Epoch 1/1... Step: 2550 Discriminator Loss: 1.2663... Generator Loss: 0.7645
Epoch 1/1... Step: 2560 Discriminator Loss: 1.2888... Generator Loss: 0.7574
Epoch 1/1... Step: 2570 Discriminator Loss: 1.3092... Generator Loss: 0.7079
Epoch 1/1... Step: 2580 Discriminator Loss: 1.3238... Generator Loss: 0.6606
Epoch 1/1... Step: 2590 Discriminator Loss: 1.5165... Generator Loss: 0.6320
Epoch 1/1... Step: 2600 Discriminator Loss: 1.3069... Generator Loss: 0.7947
```



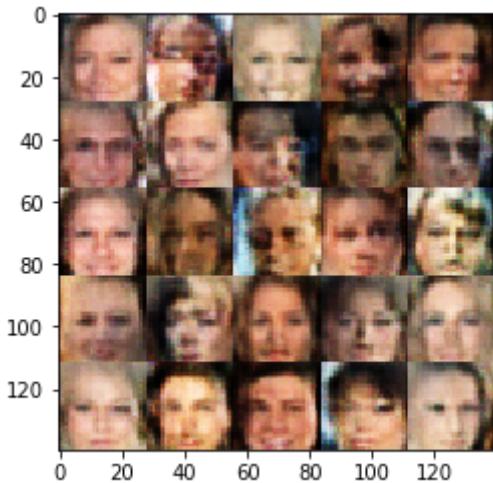
```
Epoch 1/1... Step: 2610 Discriminator Loss: 1.2159... Generator Loss: 0.6922
Epoch 1/1... Step: 2620 Discriminator Loss: 1.3364... Generator Loss: 0.8337
Epoch 1/1... Step: 2630 Discriminator Loss: 1.1977... Generator Loss: 0.7796
Epoch 1/1... Step: 2640 Discriminator Loss: 1.2283... Generator Loss: 0.8929
Epoch 1/1... Step: 2650 Discriminator Loss: 1.1754... Generator Loss: 0.9272
Epoch 1/1... Step: 2660 Discriminator Loss: 1.3867... Generator Loss: 0.6919
Epoch 1/1... Step: 2670 Discriminator Loss: 1.0818... Generator Loss: 0.9902
Epoch 1/1... Step: 2680 Discriminator Loss: 1.3341... Generator Loss: 0.7279
Epoch 1/1... Step: 2690 Discriminator Loss: 1.2695... Generator Loss: 0.8417
Epoch 1/1... Step: 2700 Discriminator Loss: 1.2740... Generator Loss: 0.7666
```



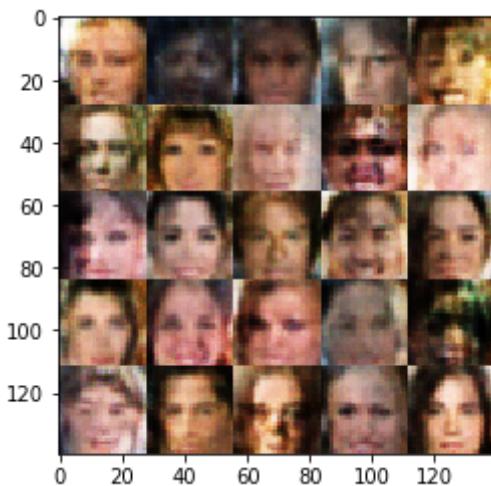
```
Epoch 1/1... Step: 2710 Discriminator Loss: 1.5079... Generator Loss: 0.7374
Epoch 1/1... Step: 2720 Discriminator Loss: 1.1966... Generator Loss: 0.8199
Epoch 1/1... Step: 2730 Discriminator Loss: 1.3633... Generator Loss: 0.6787
Epoch 1/1... Step: 2740 Discriminator Loss: 1.1820... Generator Loss: 0.9651
Epoch 1/1... Step: 2750 Discriminator Loss: 1.4156... Generator Loss: 0.6454
Epoch 1/1... Step: 2760 Discriminator Loss: 1.3565... Generator Loss: 0.6403
Epoch 1/1... Step: 2770 Discriminator Loss: 1.3856... Generator Loss: 0.7001
Epoch 1/1... Step: 2780 Discriminator Loss: 1.3530... Generator Loss: 0.9029
Epoch 1/1... Step: 2790 Discriminator Loss: 1.3267... Generator Loss: 0.6809
Epoch 1/1... Step: 2800 Discriminator Loss: 1.3753... Generator Loss: 0.7653
```



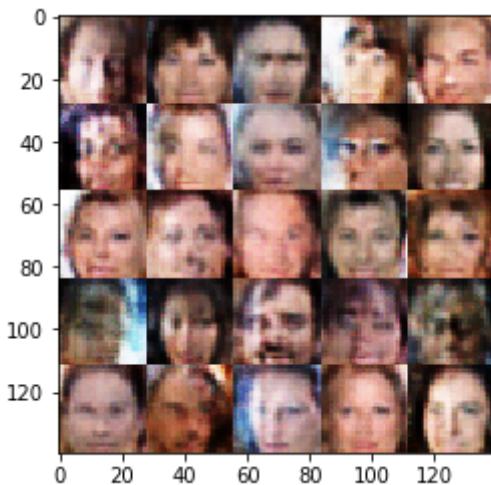
```
Epoch 1/1... Step: 2810 Discriminator Loss: 1.3980... Generator Loss: 0.6728
Epoch 1/1... Step: 2820 Discriminator Loss: 1.1599... Generator Loss: 0.9157
Epoch 1/1... Step: 2830 Discriminator Loss: 1.4166... Generator Loss: 0.7445
Epoch 1/1... Step: 2840 Discriminator Loss: 1.2712... Generator Loss: 0.7744
Epoch 1/1... Step: 2850 Discriminator Loss: 1.2326... Generator Loss: 0.7721
Epoch 1/1... Step: 2860 Discriminator Loss: 1.3780... Generator Loss: 0.7671
Epoch 1/1... Step: 2870 Discriminator Loss: 1.1738... Generator Loss: 0.8471
Epoch 1/1... Step: 2880 Discriminator Loss: 1.4315... Generator Loss: 0.7256
Epoch 1/1... Step: 2890 Discriminator Loss: 1.1686... Generator Loss: 0.9624
Epoch 1/1... Step: 2900 Discriminator Loss: 1.1921... Generator Loss: 0.8973
```



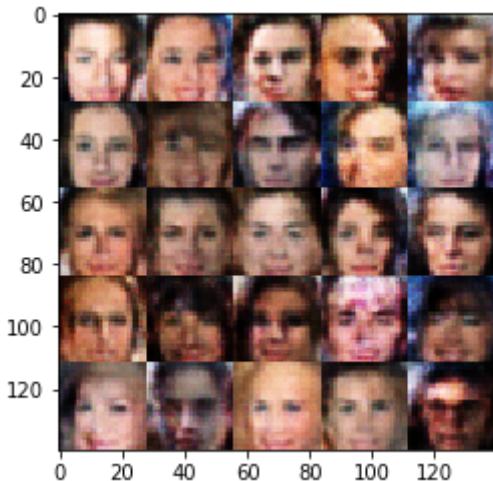
```
Epoch 1/1... Step: 2910 Discriminator Loss: 1.2312... Generator Loss: 0.7355
Epoch 1/1... Step: 2920 Discriminator Loss: 1.3229... Generator Loss: 0.7455
Epoch 1/1... Step: 2930 Discriminator Loss: 1.1981... Generator Loss: 0.8327
Epoch 1/1... Step: 2940 Discriminator Loss: 1.2751... Generator Loss: 0.7768
Epoch 1/1... Step: 2950 Discriminator Loss: 1.4596... Generator Loss: 0.7699
Epoch 1/1... Step: 2960 Discriminator Loss: 1.4914... Generator Loss: 0.7203
Epoch 1/1... Step: 2970 Discriminator Loss: 1.3367... Generator Loss: 0.8101
Epoch 1/1... Step: 2980 Discriminator Loss: 1.0575... Generator Loss: 0.9639
Epoch 1/1... Step: 2990 Discriminator Loss: 1.4197... Generator Loss: 0.6126
Epoch 1/1... Step: 3000 Discriminator Loss: 1.3654... Generator Loss: 0.7186
```



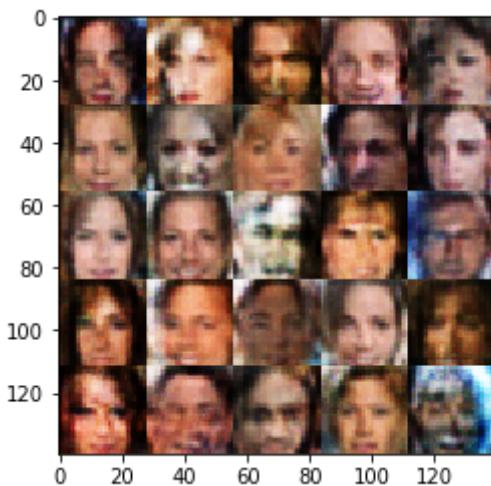
```
Epoch 1/1... Step: 3010 Discriminator Loss: 1.3035... Generator Loss: 0.8782
Epoch 1/1... Step: 3020 Discriminator Loss: 1.2835... Generator Loss: 0.8307
Epoch 1/1... Step: 3030 Discriminator Loss: 1.4675... Generator Loss: 0.6854
Epoch 1/1... Step: 3040 Discriminator Loss: 1.2994... Generator Loss: 0.8712
Epoch 1/1... Step: 3050 Discriminator Loss: 1.2631... Generator Loss: 0.8449
Epoch 1/1... Step: 3060 Discriminator Loss: 1.4254... Generator Loss: 0.5826
Epoch 1/1... Step: 3070 Discriminator Loss: 1.2673... Generator Loss: 0.8782
Epoch 1/1... Step: 3080 Discriminator Loss: 1.4102... Generator Loss: 0.7453
Epoch 1/1... Step: 3090 Discriminator Loss: 1.2247... Generator Loss: 0.8961
Epoch 1/1... Step: 3100 Discriminator Loss: 1.3353... Generator Loss: 0.8061
```



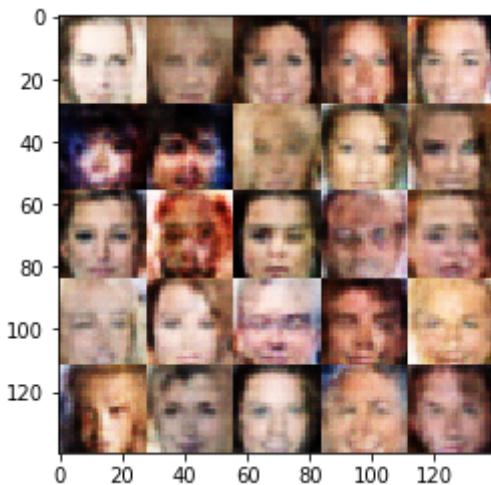
```
Epoch 1/1... Step: 3110 Discriminator Loss: 1.3325... Generator Loss: 0.7344
Epoch 1/1... Step: 3120 Discriminator Loss: 1.3374... Generator Loss: 0.6449
Epoch 1/1... Step: 3130 Discriminator Loss: 1.2090... Generator Loss: 0.8243
Epoch 1/1... Step: 3140 Discriminator Loss: 1.3198... Generator Loss: 0.7956
Epoch 1/1... Step: 3150 Discriminator Loss: 1.2160... Generator Loss: 0.8092
Epoch 1/1... Step: 3160 Discriminator Loss: 1.3946... Generator Loss: 0.5982
Epoch 1/1... Step: 3170 Discriminator Loss: 1.4849... Generator Loss: 0.6890
Epoch 1/1... Step: 3180 Discriminator Loss: 1.5290... Generator Loss: 0.5419
Epoch 1/1... Step: 3190 Discriminator Loss: 1.2190... Generator Loss: 0.7766
Epoch 1/1... Step: 3200 Discriminator Loss: 1.3243... Generator Loss: 0.8364
```



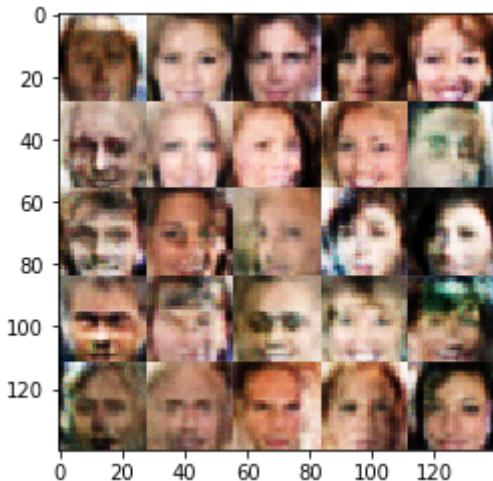
```
Epoch 1/1... Step: 3210 Discriminator Loss: 1.4614... Generator Loss: 0.6635
Epoch 1/1... Step: 3220 Discriminator Loss: 1.3894... Generator Loss: 0.7218
Epoch 1/1... Step: 3230 Discriminator Loss: 1.3949... Generator Loss: 0.6931
Epoch 1/1... Step: 3240 Discriminator Loss: 1.4888... Generator Loss: 0.6391
Epoch 1/1... Step: 3250 Discriminator Loss: 1.4746... Generator Loss: 0.5900
Epoch 1/1... Step: 3260 Discriminator Loss: 1.3298... Generator Loss: 0.7069
Epoch 1/1... Step: 3270 Discriminator Loss: 1.3005... Generator Loss: 0.8472
Epoch 1/1... Step: 3280 Discriminator Loss: 1.3477... Generator Loss: 0.8513
Epoch 1/1... Step: 3290 Discriminator Loss: 1.3517... Generator Loss: 0.6968
Epoch 1/1... Step: 3300 Discriminator Loss: 1.2620... Generator Loss: 0.6677
```



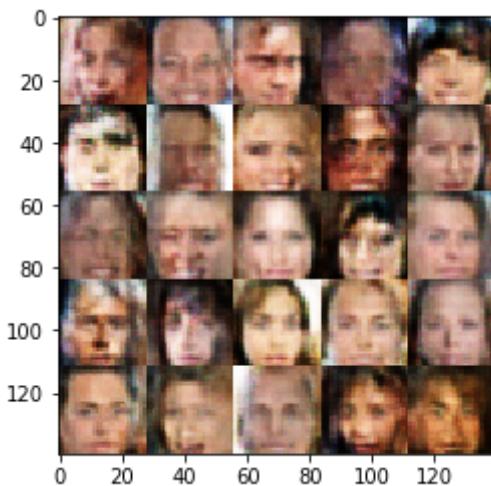
```
Epoch 1/1... Step: 3310 Discriminator Loss: 1.4485... Generator Loss: 0.6171
Epoch 1/1... Step: 3320 Discriminator Loss: 1.2956... Generator Loss: 0.8524
Epoch 1/1... Step: 3330 Discriminator Loss: 1.1669... Generator Loss: 0.8823
Epoch 1/1... Step: 3340 Discriminator Loss: 1.0352... Generator Loss: 0.9624
Epoch 1/1... Step: 3350 Discriminator Loss: 1.3029... Generator Loss: 0.8068
Epoch 1/1... Step: 3360 Discriminator Loss: 1.2600... Generator Loss: 1.0267
Epoch 1/1... Step: 3370 Discriminator Loss: 1.2345... Generator Loss: 1.0117
Epoch 1/1... Step: 3380 Discriminator Loss: 1.1865... Generator Loss: 0.9323
Epoch 1/1... Step: 3390 Discriminator Loss: 1.5039... Generator Loss: 0.6001
Epoch 1/1... Step: 3400 Discriminator Loss: 1.2277... Generator Loss: 0.7223
```



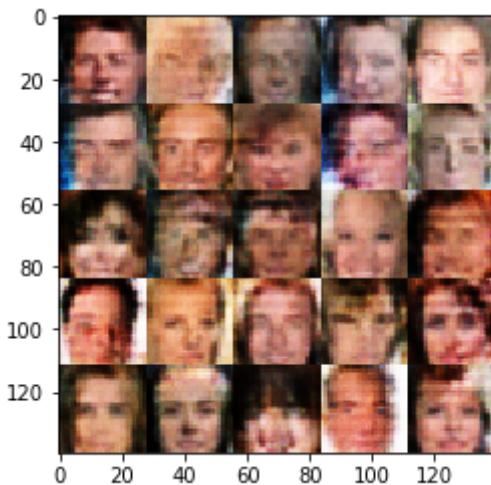
```
Epoch 1/1... Step: 3410 Discriminator Loss: 1.2845... Generator Loss: 0.7988
Epoch 1/1... Step: 3420 Discriminator Loss: 1.2962... Generator Loss: 0.7871
Epoch 1/1... Step: 3430 Discriminator Loss: 1.7205... Generator Loss: 0.4884
Epoch 1/1... Step: 3440 Discriminator Loss: 1.2867... Generator Loss: 0.7586
Epoch 1/1... Step: 3450 Discriminator Loss: 1.2367... Generator Loss: 0.8693
Epoch 1/1... Step: 3460 Discriminator Loss: 1.1341... Generator Loss: 0.8382
Epoch 1/1... Step: 3470 Discriminator Loss: 1.4681... Generator Loss: 0.5823
Epoch 1/1... Step: 3480 Discriminator Loss: 1.2104... Generator Loss: 0.9294
Epoch 1/1... Step: 3490 Discriminator Loss: 1.3477... Generator Loss: 0.7291
Epoch 1/1... Step: 3500 Discriminator Loss: 1.3187... Generator Loss: 0.7080
```



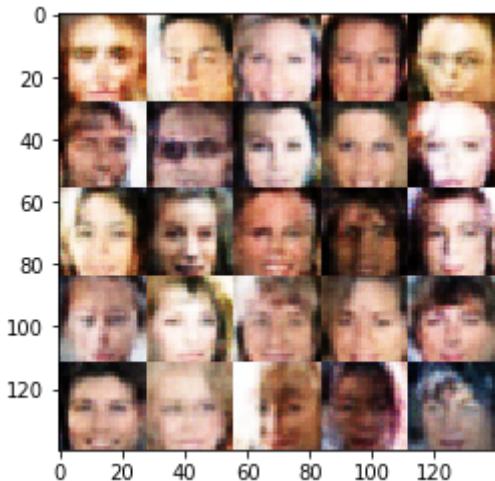
```
Epoch 1/1... Step: 3510 Discriminator Loss: 1.2468... Generator Loss: 0.7635
Epoch 1/1... Step: 3520 Discriminator Loss: 1.3146... Generator Loss: 0.6553
Epoch 1/1... Step: 3530 Discriminator Loss: 1.2054... Generator Loss: 0.9553
Epoch 1/1... Step: 3540 Discriminator Loss: 1.3891... Generator Loss: 0.6410
Epoch 1/1... Step: 3550 Discriminator Loss: 1.3335... Generator Loss: 0.7625
Epoch 1/1... Step: 3560 Discriminator Loss: 1.1440... Generator Loss: 0.9181
Epoch 1/1... Step: 3570 Discriminator Loss: 1.4535... Generator Loss: 0.6895
Epoch 1/1... Step: 3580 Discriminator Loss: 1.4165... Generator Loss: 0.6331
Epoch 1/1... Step: 3590 Discriminator Loss: 1.3030... Generator Loss: 0.8577
Epoch 1/1... Step: 3600 Discriminator Loss: 1.4345... Generator Loss: 0.6745
```



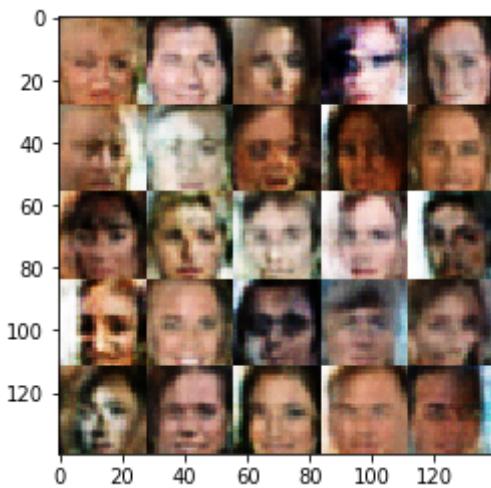
```
Epoch 1/1... Step: 3610 Discriminator Loss: 1.3028... Generator Loss: 0.7979
Epoch 1/1... Step: 3620 Discriminator Loss: 1.5977... Generator Loss: 0.5788
Epoch 1/1... Step: 3630 Discriminator Loss: 1.2314... Generator Loss: 0.8697
Epoch 1/1... Step: 3640 Discriminator Loss: 1.3173... Generator Loss: 0.6937
Epoch 1/1... Step: 3650 Discriminator Loss: 1.3157... Generator Loss: 0.8075
Epoch 1/1... Step: 3660 Discriminator Loss: 1.4333... Generator Loss: 0.6961
Epoch 1/1... Step: 3670 Discriminator Loss: 1.3624... Generator Loss: 0.7284
Epoch 1/1... Step: 3680 Discriminator Loss: 1.4459... Generator Loss: 0.6363
Epoch 1/1... Step: 3690 Discriminator Loss: 1.3007... Generator Loss: 0.7770
Epoch 1/1... Step: 3700 Discriminator Loss: 1.3050... Generator Loss: 0.7151
```



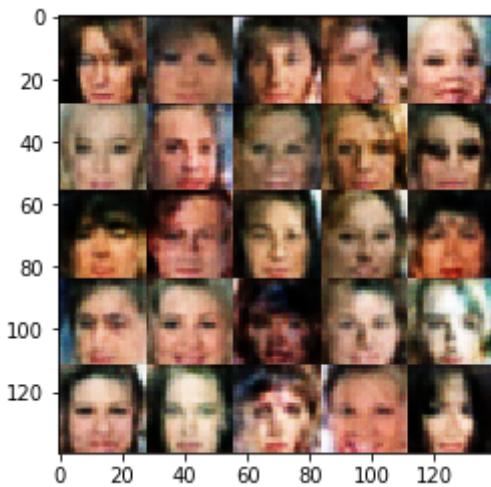
```
Epoch 1/1... Step: 3710 Discriminator Loss: 1.2980... Generator Loss: 0.7803
Epoch 1/1... Step: 3720 Discriminator Loss: 1.3290... Generator Loss: 0.8248
Epoch 1/1... Step: 3730 Discriminator Loss: 1.2635... Generator Loss: 0.8186
Epoch 1/1... Step: 3740 Discriminator Loss: 1.2079... Generator Loss: 0.8738
Epoch 1/1... Step: 3750 Discriminator Loss: 1.2939... Generator Loss: 0.7956
Epoch 1/1... Step: 3760 Discriminator Loss: 1.3205... Generator Loss: 0.7130
Epoch 1/1... Step: 3770 Discriminator Loss: 1.1799... Generator Loss: 1.0027
Epoch 1/1... Step: 3780 Discriminator Loss: 1.2949... Generator Loss: 0.8157
Epoch 1/1... Step: 3790 Discriminator Loss: 1.4059... Generator Loss: 0.7739
Epoch 1/1... Step: 3800 Discriminator Loss: 1.3675... Generator Loss: 0.7607
```



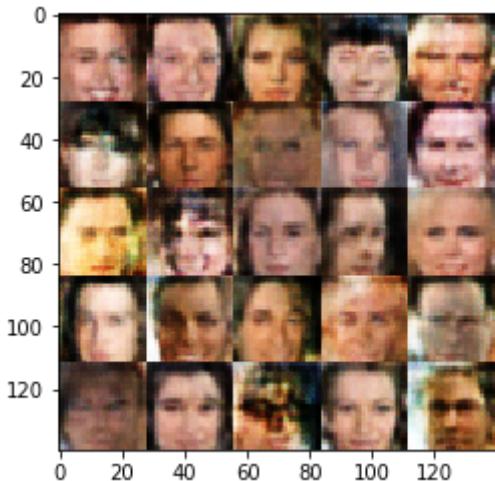
```
Epoch 1/1... Step: 3810 Discriminator Loss: 1.2740... Generator Loss: 0.8660
Epoch 1/1... Step: 3820 Discriminator Loss: 1.2882... Generator Loss: 0.7785
Epoch 1/1... Step: 3830 Discriminator Loss: 1.2088... Generator Loss: 0.8314
Epoch 1/1... Step: 3840 Discriminator Loss: 1.1775... Generator Loss: 0.8368
Epoch 1/1... Step: 3850 Discriminator Loss: 1.3364... Generator Loss: 0.6891
Epoch 1/1... Step: 3860 Discriminator Loss: 1.3849... Generator Loss: 0.6875
Epoch 1/1... Step: 3870 Discriminator Loss: 1.5095... Generator Loss: 0.6325
Epoch 1/1... Step: 3880 Discriminator Loss: 1.4263... Generator Loss: 0.6365
Epoch 1/1... Step: 3890 Discriminator Loss: 1.1618... Generator Loss: 0.8658
Epoch 1/1... Step: 3900 Discriminator Loss: 1.3245... Generator Loss: 0.7659
```



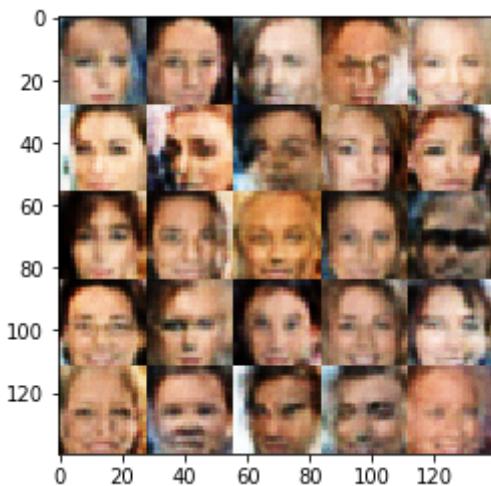
```
Epoch 1/1... Step: 3910 Discriminator Loss: 1.1303... Generator Loss: 0.8601
Epoch 1/1... Step: 3920 Discriminator Loss: 1.3197... Generator Loss: 0.7970
Epoch 1/1... Step: 3930 Discriminator Loss: 1.3226... Generator Loss: 0.6799
Epoch 1/1... Step: 3940 Discriminator Loss: 1.4411... Generator Loss: 0.6532
Epoch 1/1... Step: 3950 Discriminator Loss: 1.3844... Generator Loss: 0.6988
Epoch 1/1... Step: 3960 Discriminator Loss: 1.3372... Generator Loss: 0.6976
Epoch 1/1... Step: 3970 Discriminator Loss: 1.2878... Generator Loss: 0.7667
Epoch 1/1... Step: 3980 Discriminator Loss: 1.5520... Generator Loss: 0.4881
Epoch 1/1... Step: 3990 Discriminator Loss: 1.2040... Generator Loss: 0.9203
Epoch 1/1... Step: 4000 Discriminator Loss: 1.3053... Generator Loss: 0.7240
```



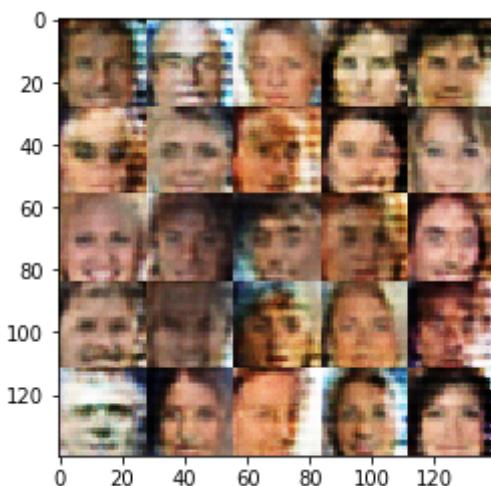
```
Epoch 1/1... Step: 4010 Discriminator Loss: 1.3496... Generator Loss: 0.7393
Epoch 1/1... Step: 4020 Discriminator Loss: 1.3866... Generator Loss: 0.7338
Epoch 1/1... Step: 4030 Discriminator Loss: 1.2683... Generator Loss: 0.7390
Epoch 1/1... Step: 4040 Discriminator Loss: 1.4893... Generator Loss: 0.6534
Epoch 1/1... Step: 4050 Discriminator Loss: 1.2717... Generator Loss: 0.7069
Epoch 1/1... Step: 4060 Discriminator Loss: 1.4575... Generator Loss: 0.6392
Epoch 1/1... Step: 4070 Discriminator Loss: 1.1856... Generator Loss: 0.9629
Epoch 1/1... Step: 4080 Discriminator Loss: 1.4853... Generator Loss: 0.8612
Epoch 1/1... Step: 4090 Discriminator Loss: 1.1232... Generator Loss: 0.9294
Epoch 1/1... Step: 4100 Discriminator Loss: 1.2849... Generator Loss: 0.8286
```



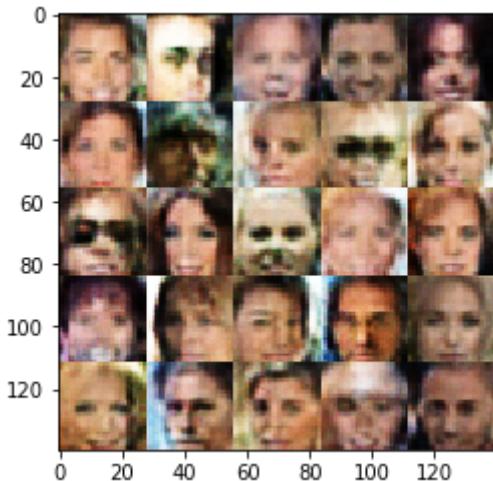
```
Epoch 1/1... Step: 4110 Discriminator Loss: 1.3189... Generator Loss: 0.8392
Epoch 1/1... Step: 4120 Discriminator Loss: 1.2072... Generator Loss: 0.8291
Epoch 1/1... Step: 4130 Discriminator Loss: 1.1343... Generator Loss: 1.0012
Epoch 1/1... Step: 4140 Discriminator Loss: 1.2861... Generator Loss: 0.8254
Epoch 1/1... Step: 4150 Discriminator Loss: 1.4146... Generator Loss: 0.6610
Epoch 1/1... Step: 4160 Discriminator Loss: 1.3551... Generator Loss: 0.6697
Epoch 1/1... Step: 4170 Discriminator Loss: 1.1894... Generator Loss: 0.8795
Epoch 1/1... Step: 4180 Discriminator Loss: 1.3024... Generator Loss: 0.7903
Epoch 1/1... Step: 4190 Discriminator Loss: 1.3527... Generator Loss: 0.6907
Epoch 1/1... Step: 4200 Discriminator Loss: 1.3481... Generator Loss: 0.6954
```



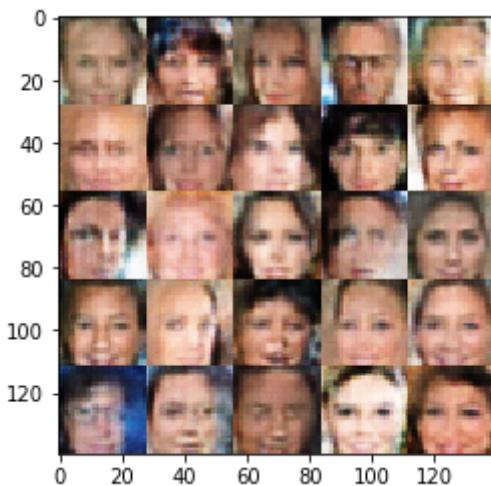
```
Epoch 1/1... Step: 4210 Discriminator Loss: 1.1738... Generator Loss: 0.8253
Epoch 1/1... Step: 4220 Discriminator Loss: 1.2182... Generator Loss: 0.8401
Epoch 1/1... Step: 4230 Discriminator Loss: 1.3242... Generator Loss: 0.7824
Epoch 1/1... Step: 4240 Discriminator Loss: 1.1407... Generator Loss: 0.8905
Epoch 1/1... Step: 4250 Discriminator Loss: 1.1598... Generator Loss: 0.9471
Epoch 1/1... Step: 4260 Discriminator Loss: 1.1904... Generator Loss: 0.8867
Epoch 1/1... Step: 4270 Discriminator Loss: 1.4733... Generator Loss: 0.5882
Epoch 1/1... Step: 4280 Discriminator Loss: 1.4277... Generator Loss: 0.6575
Epoch 1/1... Step: 4290 Discriminator Loss: 1.5001... Generator Loss: 0.5294
Epoch 1/1... Step: 4300 Discriminator Loss: 1.3001... Generator Loss: 0.7021
```



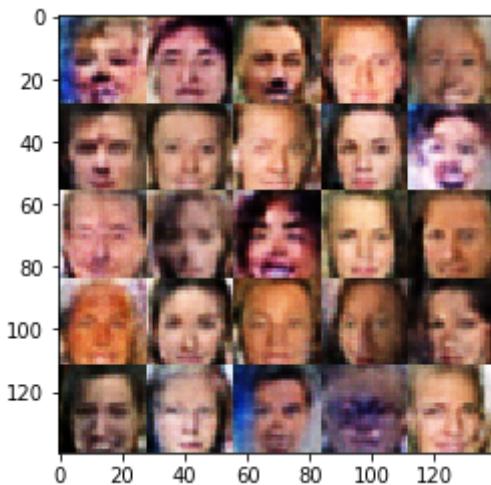
```
Epoch 1/1... Step: 4310 Discriminator Loss: 1.4914... Generator Loss: 0.6356
Epoch 1/1... Step: 4320 Discriminator Loss: 1.3370... Generator Loss: 0.7500
Epoch 1/1... Step: 4330 Discriminator Loss: 1.2395... Generator Loss: 0.8497
Epoch 1/1... Step: 4340 Discriminator Loss: 1.3653... Generator Loss: 0.7561
Epoch 1/1... Step: 4350 Discriminator Loss: 1.3183... Generator Loss: 0.7620
Epoch 1/1... Step: 4360 Discriminator Loss: 1.2853... Generator Loss: 0.7579
Epoch 1/1... Step: 4370 Discriminator Loss: 1.3256... Generator Loss: 0.6240
Epoch 1/1... Step: 4380 Discriminator Loss: 1.2892... Generator Loss: 0.8037
Epoch 1/1... Step: 4390 Discriminator Loss: 1.1748... Generator Loss: 0.9579
Epoch 1/1... Step: 4400 Discriminator Loss: 1.0699... Generator Loss: 1.0336
```



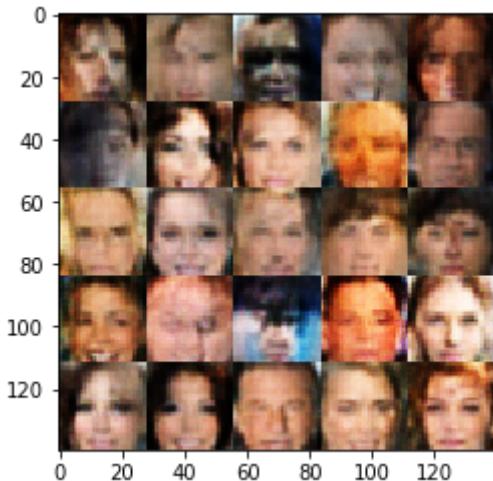
```
Epoch 1/1... Step: 4410 Discriminator Loss: 1.2597... Generator Loss: 0.8701
Epoch 1/1... Step: 4420 Discriminator Loss: 1.3666... Generator Loss: 0.6969
Epoch 1/1... Step: 4430 Discriminator Loss: 1.3561... Generator Loss: 0.7289
Epoch 1/1... Step: 4440 Discriminator Loss: 1.0146... Generator Loss: 0.9722
Epoch 1/1... Step: 4450 Discriminator Loss: 1.2571... Generator Loss: 0.8000
Epoch 1/1... Step: 4460 Discriminator Loss: 1.2957... Generator Loss: 0.7445
Epoch 1/1... Step: 4470 Discriminator Loss: 1.4049... Generator Loss: 0.7989
Epoch 1/1... Step: 4480 Discriminator Loss: 1.5287... Generator Loss: 0.6519
Epoch 1/1... Step: 4490 Discriminator Loss: 1.3380... Generator Loss: 0.6752
Epoch 1/1... Step: 4500 Discriminator Loss: 1.2447... Generator Loss: 0.8575
```



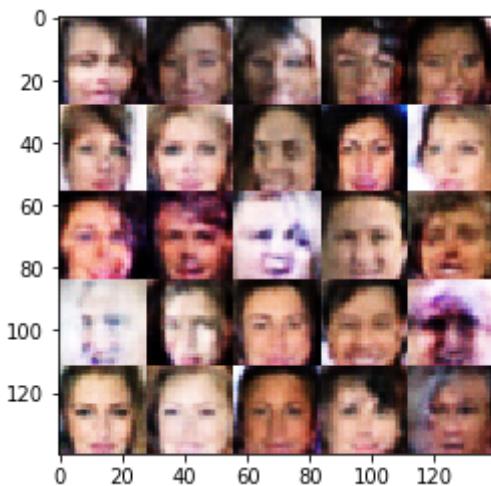
```
Epoch 1/1... Step: 4510 Discriminator Loss: 1.2162... Generator Loss: 0.8522
Epoch 1/1... Step: 4520 Discriminator Loss: 1.3778... Generator Loss: 0.6942
Epoch 1/1... Step: 4530 Discriminator Loss: 1.2572... Generator Loss: 0.7689
Epoch 1/1... Step: 4540 Discriminator Loss: 1.0799... Generator Loss: 0.8811
Epoch 1/1... Step: 4550 Discriminator Loss: 1.2697... Generator Loss: 0.8307
Epoch 1/1... Step: 4560 Discriminator Loss: 1.1842... Generator Loss: 0.7774
Epoch 1/1... Step: 4570 Discriminator Loss: 1.2941... Generator Loss: 0.8117
Epoch 1/1... Step: 4580 Discriminator Loss: 1.3417... Generator Loss: 0.7937
Epoch 1/1... Step: 4590 Discriminator Loss: 1.1849... Generator Loss: 0.8327
Epoch 1/1... Step: 4600 Discriminator Loss: 1.4665... Generator Loss: 0.6572
```



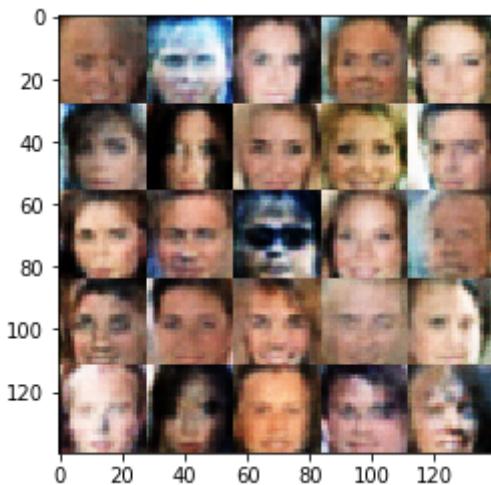
```
Epoch 1/1... Step: 4610 Discriminator Loss: 1.3350... Generator Loss: 0.7650
Epoch 1/1... Step: 4620 Discriminator Loss: 1.2404... Generator Loss: 0.8086
Epoch 1/1... Step: 4630 Discriminator Loss: 1.3009... Generator Loss: 0.7453
Epoch 1/1... Step: 4640 Discriminator Loss: 1.2447... Generator Loss: 0.7824
Epoch 1/1... Step: 4650 Discriminator Loss: 1.3070... Generator Loss: 0.7703
Epoch 1/1... Step: 4660 Discriminator Loss: 1.2745... Generator Loss: 0.7974
Epoch 1/1... Step: 4670 Discriminator Loss: 1.2644... Generator Loss: 0.8931
Epoch 1/1... Step: 4680 Discriminator Loss: 1.3206... Generator Loss: 0.7945
Epoch 1/1... Step: 4690 Discriminator Loss: 1.2911... Generator Loss: 0.7406
Epoch 1/1... Step: 4700 Discriminator Loss: 1.3233... Generator Loss: 0.7489
```



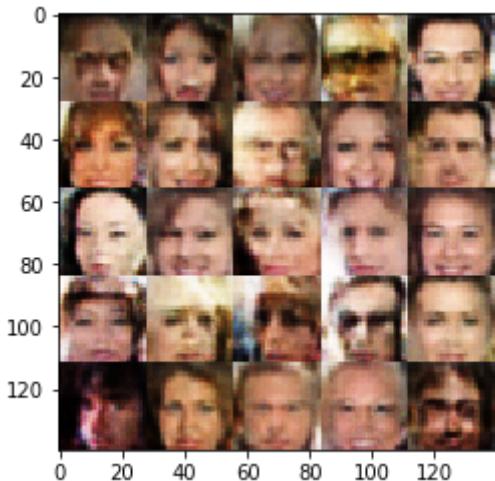
```
Epoch 1/1... Step: 4710 Discriminator Loss: 1.3553... Generator Loss: 0.7699
Epoch 1/1... Step: 4720 Discriminator Loss: 1.2682... Generator Loss: 0.7338
Epoch 1/1... Step: 4730 Discriminator Loss: 1.2442... Generator Loss: 0.7725
Epoch 1/1... Step: 4740 Discriminator Loss: 1.2676... Generator Loss: 0.8178
Epoch 1/1... Step: 4750 Discriminator Loss: 1.2711... Generator Loss: 0.8910
Epoch 1/1... Step: 4760 Discriminator Loss: 1.2741... Generator Loss: 0.7220
Epoch 1/1... Step: 4770 Discriminator Loss: 1.2884... Generator Loss: 0.7554
Epoch 1/1... Step: 4780 Discriminator Loss: 1.1952... Generator Loss: 0.9312
Epoch 1/1... Step: 4790 Discriminator Loss: 1.1870... Generator Loss: 0.9980
Epoch 1/1... Step: 4800 Discriminator Loss: 1.3156... Generator Loss: 0.7272
```



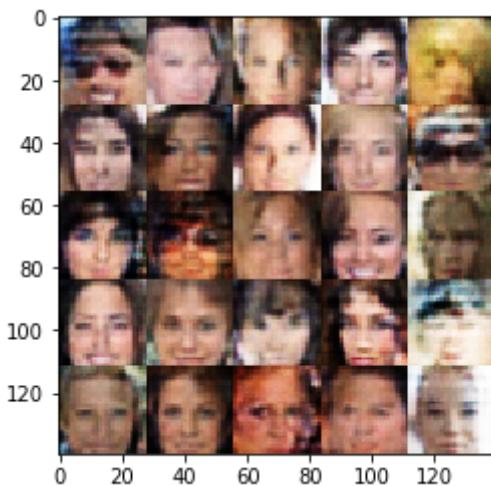
```
Epoch 1/1... Step: 4810 Discriminator Loss: 1.2188... Generator Loss: 0.9462
Epoch 1/1... Step: 4820 Discriminator Loss: 1.3412... Generator Loss: 0.7542
Epoch 1/1... Step: 4830 Discriminator Loss: 1.3586... Generator Loss: 0.7583
Epoch 1/1... Step: 4840 Discriminator Loss: 1.2180... Generator Loss: 0.7324
Epoch 1/1... Step: 4850 Discriminator Loss: 1.2220... Generator Loss: 0.8438
Epoch 1/1... Step: 4860 Discriminator Loss: 1.4742... Generator Loss: 0.6881
Epoch 1/1... Step: 4870 Discriminator Loss: 1.3508... Generator Loss: 0.7624
Epoch 1/1... Step: 4880 Discriminator Loss: 1.2809... Generator Loss: 0.7029
Epoch 1/1... Step: 4890 Discriminator Loss: 1.3347... Generator Loss: 0.6651
Epoch 1/1... Step: 4900 Discriminator Loss: 1.4121... Generator Loss: 0.6296
```



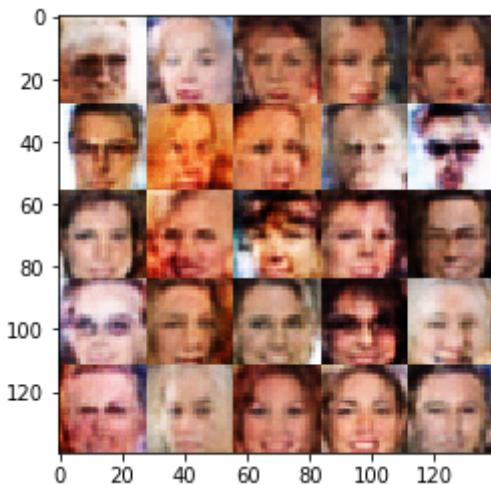
```
Epoch 1/1... Step: 4910 Discriminator Loss: 1.6287... Generator Loss: 0.5354
Epoch 1/1... Step: 4920 Discriminator Loss: 1.3532... Generator Loss: 0.6893
Epoch 1/1... Step: 4930 Discriminator Loss: 1.2551... Generator Loss: 0.8825
Epoch 1/1... Step: 4940 Discriminator Loss: 1.3463... Generator Loss: 0.6981
Epoch 1/1... Step: 4950 Discriminator Loss: 1.2906... Generator Loss: 0.8700
Epoch 1/1... Step: 4960 Discriminator Loss: 1.0977... Generator Loss: 0.9865
Epoch 1/1... Step: 4970 Discriminator Loss: 1.3155... Generator Loss: 0.6439
Epoch 1/1... Step: 4980 Discriminator Loss: 1.4220... Generator Loss: 0.6021
Epoch 1/1... Step: 4990 Discriminator Loss: 1.3261... Generator Loss: 0.7874
Epoch 1/1... Step: 5000 Discriminator Loss: 1.1813... Generator Loss: 0.9133
```



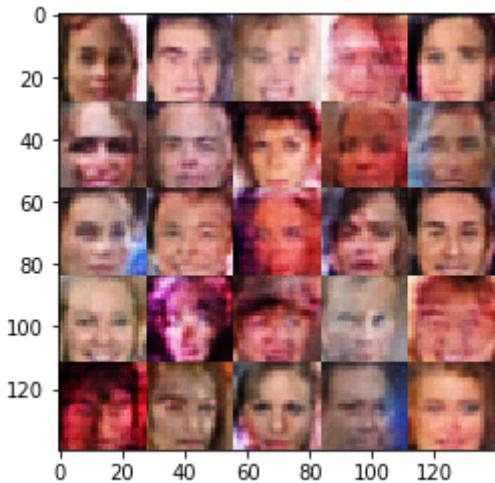
```
Epoch 1/1... Step: 5010 Discriminator Loss: 1.4468... Generator Loss: 0.7515
Epoch 1/1... Step: 5020 Discriminator Loss: 1.3602... Generator Loss: 0.7398
Epoch 1/1... Step: 5030 Discriminator Loss: 1.1428... Generator Loss: 0.8182
Epoch 1/1... Step: 5040 Discriminator Loss: 1.0672... Generator Loss: 0.9587
Epoch 1/1... Step: 5050 Discriminator Loss: 1.2463... Generator Loss: 0.8866
Epoch 1/1... Step: 5060 Discriminator Loss: 1.2715... Generator Loss: 0.7459
Epoch 1/1... Step: 5070 Discriminator Loss: 1.2383... Generator Loss: 0.8829
Epoch 1/1... Step: 5080 Discriminator Loss: 1.2357... Generator Loss: 0.7779
Epoch 1/1... Step: 5090 Discriminator Loss: 1.2357... Generator Loss: 0.8627
Epoch 1/1... Step: 5100 Discriminator Loss: 1.2275... Generator Loss: 0.8881
```



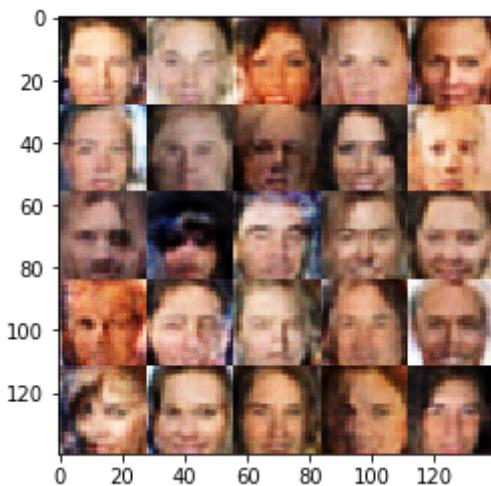
```
Epoch 1/1... Step: 5110 Discriminator Loss: 1.2740... Generator Loss: 0.7278
Epoch 1/1... Step: 5120 Discriminator Loss: 1.1524... Generator Loss: 0.9917
Epoch 1/1... Step: 5130 Discriminator Loss: 1.3044... Generator Loss: 0.7982
Epoch 1/1... Step: 5140 Discriminator Loss: 1.4222... Generator Loss: 0.8008
Epoch 1/1... Step: 5150 Discriminator Loss: 1.2630... Generator Loss: 0.8449
Epoch 1/1... Step: 5160 Discriminator Loss: 1.0858... Generator Loss: 0.9396
Epoch 1/1... Step: 5170 Discriminator Loss: 1.1850... Generator Loss: 0.8892
Epoch 1/1... Step: 5180 Discriminator Loss: 1.3287... Generator Loss: 0.7309
Epoch 1/1... Step: 5190 Discriminator Loss: 1.3138... Generator Loss: 0.7709
Epoch 1/1... Step: 5200 Discriminator Loss: 1.1575... Generator Loss: 0.8805
```



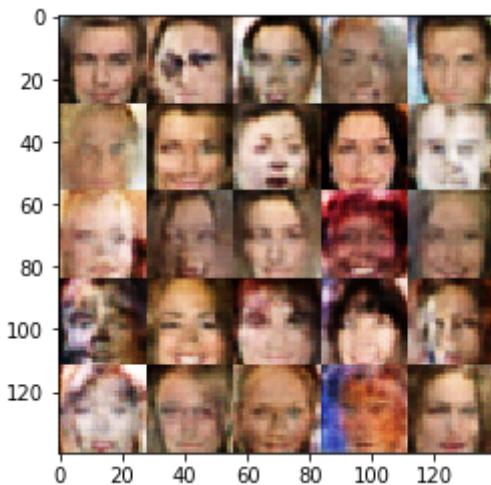
```
Epoch 1/1... Step: 5210 Discriminator Loss: 1.2607... Generator Loss: 0.6483
Epoch 1/1... Step: 5220 Discriminator Loss: 1.2883... Generator Loss: 0.8574
Epoch 1/1... Step: 5230 Discriminator Loss: 1.3937... Generator Loss: 0.6680
Epoch 1/1... Step: 5240 Discriminator Loss: 1.2533... Generator Loss: 0.7950
Epoch 1/1... Step: 5250 Discriminator Loss: 1.4456... Generator Loss: 0.6734
Epoch 1/1... Step: 5260 Discriminator Loss: 1.4338... Generator Loss: 0.6757
Epoch 1/1... Step: 5270 Discriminator Loss: 1.2662... Generator Loss: 0.7815
Epoch 1/1... Step: 5280 Discriminator Loss: 1.2052... Generator Loss: 0.9013
Epoch 1/1... Step: 5290 Discriminator Loss: 1.4217... Generator Loss: 0.5932
Epoch 1/1... Step: 5300 Discriminator Loss: 1.4339... Generator Loss: 0.6758
```



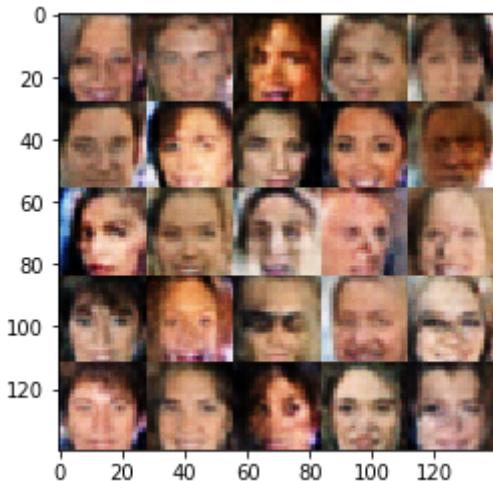
```
Epoch 1/1... Step: 5310 Discriminator Loss: 1.2930... Generator Loss: 0.7070
Epoch 1/1... Step: 5320 Discriminator Loss: 1.1795... Generator Loss: 0.9554
Epoch 1/1... Step: 5330 Discriminator Loss: 1.2133... Generator Loss: 0.8628
Epoch 1/1... Step: 5340 Discriminator Loss: 1.2967... Generator Loss: 0.8986
Epoch 1/1... Step: 5350 Discriminator Loss: 1.3748... Generator Loss: 0.7795
Epoch 1/1... Step: 5360 Discriminator Loss: 1.2519... Generator Loss: 0.8567
Epoch 1/1... Step: 5370 Discriminator Loss: 1.3311... Generator Loss: 0.7244
Epoch 1/1... Step: 5380 Discriminator Loss: 1.3352... Generator Loss: 0.7773
Epoch 1/1... Step: 5390 Discriminator Loss: 1.2377... Generator Loss: 0.8048
Epoch 1/1... Step: 5400 Discriminator Loss: 1.3986... Generator Loss: 0.6638
```



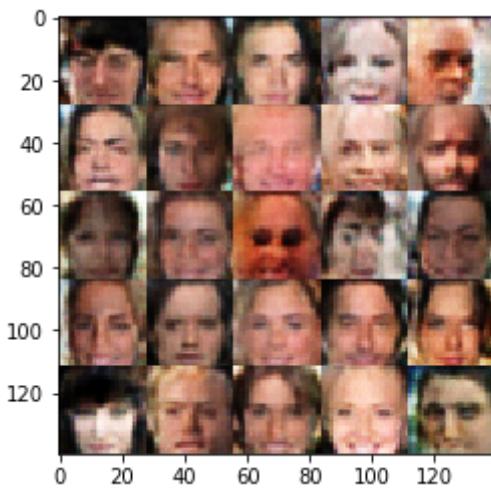
```
Epoch 1/1... Step: 5410 Discriminator Loss: 1.1697... Generator Loss: 0.9136
Epoch 1/1... Step: 5420 Discriminator Loss: 1.2517... Generator Loss: 0.7550
Epoch 1/1... Step: 5430 Discriminator Loss: 1.1331... Generator Loss: 0.9686
Epoch 1/1... Step: 5440 Discriminator Loss: 1.2558... Generator Loss: 0.9231
Epoch 1/1... Step: 5450 Discriminator Loss: 1.2515... Generator Loss: 0.8027
Epoch 1/1... Step: 5460 Discriminator Loss: 1.2341... Generator Loss: 0.9977
Epoch 1/1... Step: 5470 Discriminator Loss: 1.3869... Generator Loss: 0.6936
Epoch 1/1... Step: 5480 Discriminator Loss: 1.3036... Generator Loss: 0.8041
Epoch 1/1... Step: 5490 Discriminator Loss: 1.3316... Generator Loss: 0.7099
Epoch 1/1... Step: 5500 Discriminator Loss: 1.1454... Generator Loss: 0.9102
```



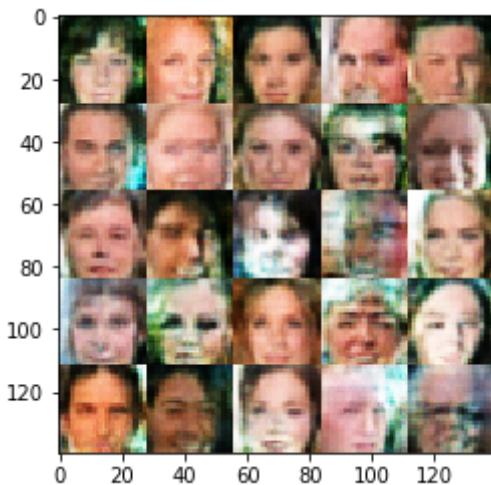
```
Epoch 1/1... Step: 5510 Discriminator Loss: 1.2019... Generator Loss: 0.9388
Epoch 1/1... Step: 5520 Discriminator Loss: 1.3438... Generator Loss: 0.6803
Epoch 1/1... Step: 5530 Discriminator Loss: 1.3338... Generator Loss: 0.7164
Epoch 1/1... Step: 5540 Discriminator Loss: 1.2448... Generator Loss: 0.8381
Epoch 1/1... Step: 5550 Discriminator Loss: 1.1841... Generator Loss: 0.8619
Epoch 1/1... Step: 5560 Discriminator Loss: 1.3609... Generator Loss: 0.7107
Epoch 1/1... Step: 5570 Discriminator Loss: 1.1653... Generator Loss: 0.8116
Epoch 1/1... Step: 5580 Discriminator Loss: 1.1003... Generator Loss: 0.9553
Epoch 1/1... Step: 5590 Discriminator Loss: 1.3020... Generator Loss: 0.7439
Epoch 1/1... Step: 5600 Discriminator Loss: 1.4943... Generator Loss: 0.6147
```



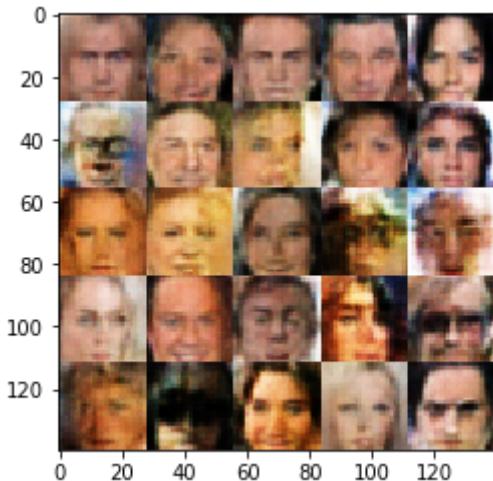
```
Epoch 1/1... Step: 5610 Discriminator Loss: 1.3203... Generator Loss: 0.6833
Epoch 1/1... Step: 5620 Discriminator Loss: 1.4631... Generator Loss: 0.6462
Epoch 1/1... Step: 5630 Discriminator Loss: 1.2282... Generator Loss: 0.9002
Epoch 1/1... Step: 5640 Discriminator Loss: 1.3038... Generator Loss: 0.7793
Epoch 1/1... Step: 5650 Discriminator Loss: 1.2004... Generator Loss: 0.7808
Epoch 1/1... Step: 5660 Discriminator Loss: 1.3289... Generator Loss: 0.6917
Epoch 1/1... Step: 5670 Discriminator Loss: 1.3084... Generator Loss: 0.8255
Epoch 1/1... Step: 5680 Discriminator Loss: 1.5863... Generator Loss: 0.5728
Epoch 1/1... Step: 5690 Discriminator Loss: 1.1988... Generator Loss: 0.7768
Epoch 1/1... Step: 5700 Discriminator Loss: 1.3383... Generator Loss: 0.7361
```



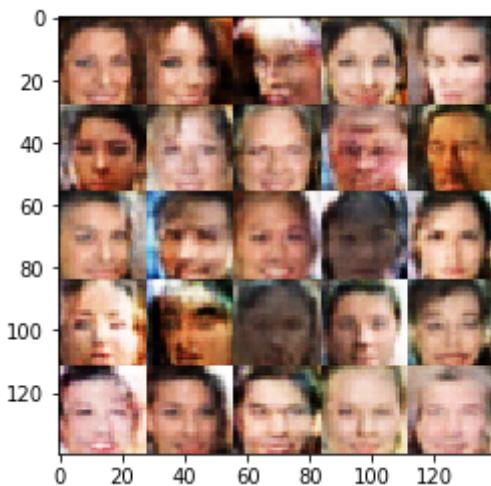
```
Epoch 1/1... Step: 5710 Discriminator Loss: 1.1635... Generator Loss: 0.8544
Epoch 1/1... Step: 5720 Discriminator Loss: 1.5037... Generator Loss: 0.5691
Epoch 1/1... Step: 5730 Discriminator Loss: 1.2830... Generator Loss: 0.8214
Epoch 1/1... Step: 5740 Discriminator Loss: 1.1117... Generator Loss: 1.0290
Epoch 1/1... Step: 5750 Discriminator Loss: 1.2169... Generator Loss: 0.8882
Epoch 1/1... Step: 5760 Discriminator Loss: 1.1288... Generator Loss: 0.8089
Epoch 1/1... Step: 5770 Discriminator Loss: 1.3623... Generator Loss: 0.6150
Epoch 1/1... Step: 5780 Discriminator Loss: 1.2120... Generator Loss: 0.8628
Epoch 1/1... Step: 5790 Discriminator Loss: 1.3675... Generator Loss: 0.6250
Epoch 1/1... Step: 5800 Discriminator Loss: 1.2938... Generator Loss: 0.7697
```



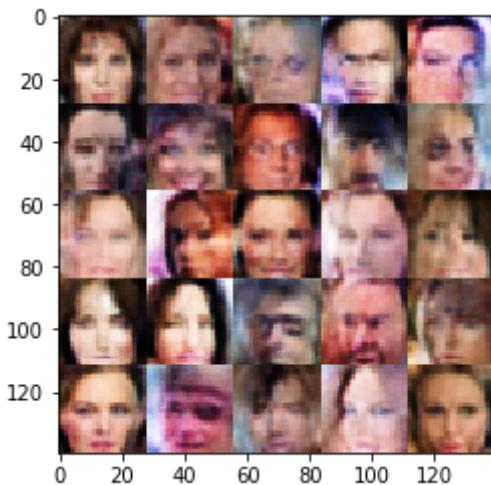
```
Epoch 1/1... Step: 5810 Discriminator Loss: 1.3395... Generator Loss: 0.6704
Epoch 1/1... Step: 5820 Discriminator Loss: 1.2932... Generator Loss: 0.7969
Epoch 1/1... Step: 5830 Discriminator Loss: 1.2629... Generator Loss: 0.7570
Epoch 1/1... Step: 5840 Discriminator Loss: 1.2355... Generator Loss: 0.8256
Epoch 1/1... Step: 5850 Discriminator Loss: 1.4082... Generator Loss: 0.6932
Epoch 1/1... Step: 5860 Discriminator Loss: 1.4659... Generator Loss: 0.6657
Epoch 1/1... Step: 5870 Discriminator Loss: 1.3666... Generator Loss: 0.6384
Epoch 1/1... Step: 5880 Discriminator Loss: 1.2524... Generator Loss: 0.8590
Epoch 1/1... Step: 5890 Discriminator Loss: 1.2336... Generator Loss: 0.7781
Epoch 1/1... Step: 5900 Discriminator Loss: 1.3223... Generator Loss: 0.8127
```



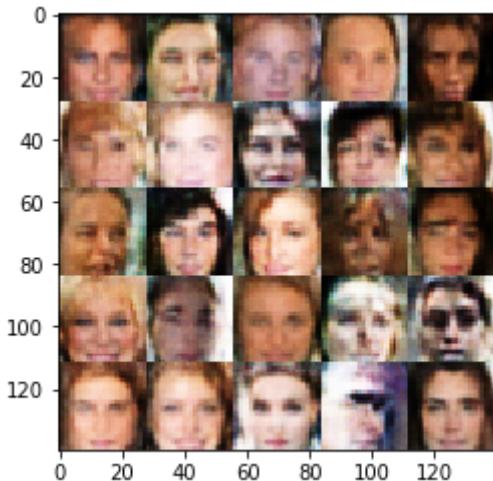
```
Epoch 1/1... Step: 5910 Discriminator Loss: 1.3402... Generator Loss: 0.6653
Epoch 1/1... Step: 5920 Discriminator Loss: 1.2052... Generator Loss: 0.8485
Epoch 1/1... Step: 5930 Discriminator Loss: 1.3451... Generator Loss: 0.6892
Epoch 1/1... Step: 5940 Discriminator Loss: 1.1016... Generator Loss: 0.9579
Epoch 1/1... Step: 5950 Discriminator Loss: 1.3507... Generator Loss: 0.6863
Epoch 1/1... Step: 5960 Discriminator Loss: 1.5247... Generator Loss: 0.5944
Epoch 1/1... Step: 5970 Discriminator Loss: 1.1097... Generator Loss: 0.9477
Epoch 1/1... Step: 5980 Discriminator Loss: 1.1694... Generator Loss: 0.9789
Epoch 1/1... Step: 5990 Discriminator Loss: 1.2599... Generator Loss: 0.8311
Epoch 1/1... Step: 6000 Discriminator Loss: 1.4457... Generator Loss: 0.6914
```



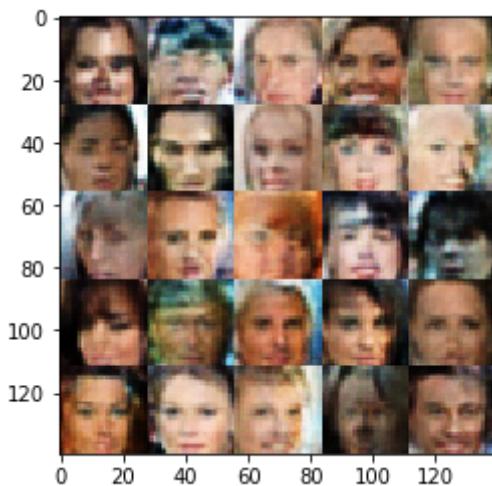
```
Epoch 1/1... Step: 6010 Discriminator Loss: 1.3869... Generator Loss: 0.7466
Epoch 1/1... Step: 6020 Discriminator Loss: 1.3647... Generator Loss: 0.6430
Epoch 1/1... Step: 6030 Discriminator Loss: 1.2825... Generator Loss: 0.8295
Epoch 1/1... Step: 6040 Discriminator Loss: 1.0337... Generator Loss: 0.9992
Epoch 1/1... Step: 6050 Discriminator Loss: 1.0617... Generator Loss: 1.0474
Epoch 1/1... Step: 6060 Discriminator Loss: 1.1668... Generator Loss: 0.8016
Epoch 1/1... Step: 6070 Discriminator Loss: 1.2192... Generator Loss: 0.9611
Epoch 1/1... Step: 6080 Discriminator Loss: 1.2253... Generator Loss: 0.7716
Epoch 1/1... Step: 6090 Discriminator Loss: 1.2478... Generator Loss: 0.7304
Epoch 1/1... Step: 6100 Discriminator Loss: 1.2091... Generator Loss: 0.8587
```



```
Epoch 1/1... Step: 6110 Discriminator Loss: 1.3130... Generator Loss: 0.7321
Epoch 1/1... Step: 6120 Discriminator Loss: 1.2933... Generator Loss: 0.6995
Epoch 1/1... Step: 6130 Discriminator Loss: 1.4441... Generator Loss: 0.6972
Epoch 1/1... Step: 6140 Discriminator Loss: 1.1268... Generator Loss: 1.0777
Epoch 1/1... Step: 6150 Discriminator Loss: 1.3803... Generator Loss: 0.7461
Epoch 1/1... Step: 6160 Discriminator Loss: 1.2310... Generator Loss: 0.8539
Epoch 1/1... Step: 6170 Discriminator Loss: 1.4023... Generator Loss: 0.7582
Epoch 1/1... Step: 6180 Discriminator Loss: 1.3133... Generator Loss: 0.7439
Epoch 1/1... Step: 6190 Discriminator Loss: 1.2332... Generator Loss: 0.8015
Epoch 1/1... Step: 6200 Discriminator Loss: 1.3220... Generator Loss: 0.7323
```



```
Epoch 1/1... Step: 6210 Discriminator Loss: 1.1953... Generator Loss: 0.9632
Epoch 1/1... Step: 6220 Discriminator Loss: 1.2235... Generator Loss: 0.8305
Epoch 1/1... Step: 6230 Discriminator Loss: 1.3747... Generator Loss: 0.6472
Epoch 1/1... Step: 6240 Discriminator Loss: 1.1942... Generator Loss: 0.9989
Epoch 1/1... Step: 6250 Discriminator Loss: 1.3498... Generator Loss: 0.7345
Epoch 1/1... Step: 6260 Discriminator Loss: 1.2771... Generator Loss: 0.7655
Epoch 1/1... Step: 6270 Discriminator Loss: 1.2198... Generator Loss: 0.9917
Epoch 1/1... Step: 6280 Discriminator Loss: 1.2995... Generator Loss: 0.7220
Epoch 1/1... Step: 6290 Discriminator Loss: 1.2988... Generator Loss: 0.7724
Epoch 1/1... Step: 6300 Discriminator Loss: 1.3101... Generator Loss: 0.7771
```



```
Epoch 1/1... Step: 6310 Discriminator Loss: 1.5235... Generator Loss: 0.5983
Epoch 1/1... Step: 6320 Discriminator Loss: 1.2605... Generator Loss: 0.7049
Epoch 1/1... Step: 6330 Discriminator Loss: 1.2219... Generator Loss: 0.8288
```

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 "helper.py" and "problem_unittests.py" files in your submission.