Hi There!

Please create a copy/fork of this colab and happy coding!

1. Training and I/O Optimization

Setup: Installing Required Libraries

Before we begin, let's install the necessary libraries. Run the following cells to install the required packages

In [ ]:

```
!pip install matplotlib==3.8.2
!pip install numpy==1.26.4
!pip install torch==2.2.0
!pip install torchvision==0.17.0
!pip install tqdm==4.66.2
```

```
Requirement already satisfied: matplotlib==3.8.2 in /Users/pavly/Library/Pyt
hon/3.12/lib/python/site-packages (3.8.2)
Requirement already satisfied: contourpy>=1.0.1 in /Users/pavly/Library/Pyth
on/3.12/lib/python/site-packages (from matplotlib==3.8.2) (1.2.1)
Requirement already satisfied: cycler>=0.10 in /Users/pavly/Library/Python/
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Requirement already satisfied: numpy<2,>=1.21 in /Users/pavly/Library/Pytho
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Requirement already satisfied: packaging>=20.0 in /Users/pavly/Library/Pytho
n/3.12/lib/python/site-packages (from matplotlib==3.8.2) (24.1)
Requirement already satisfied: pillow>=8 in /Users/pavly/Library/Python/3.1
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b/python/site-packages (from torch==2.2.0) (1.13.0)
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lib/python/site-packages (from torch==2.2.0->torchvision==0.17.0) (3.15.4)
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ary/Python/3.12/lib/python/site-packages (from torch==2.2.0->torchvision==0.
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ary/Python/3.12/lib/python/site-packages (from requests->torchvision==0.17.
0) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /Users/pavly/Library/Python/
3.12/lib/python/site-packages (from requests->torchvision==0.17.0) (2.10)
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thon/3.12/lib/python/site-packages (from requests->torchvision==0.17.0) (1.2
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Requirement already satisfied: certifi>=2017.4.17 in /Users/pavly/Library/Py
thon/3.12/lib/python/site-packages (from requests->torchvision==0.17.0) (202
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Requirement already satisfied: mpmath<1.4,>=1.1.0 in /Users/pavly/Library/Py
thon/3.12/lib/python/site-packages (from sympy->torch==2.2.0->torchvision==
0.17.0) (1.3.0)
Collecting tqdm==4.66.2
  Using cached tqdm-4.66.2-py3-none-any.whl.metadata (57 kB)
Using cached tqdm-4.66.2-py3-none-any.whl (78 kB)
Installing collected packages: tqdm
  Attempting uninstall: tqdm
    Found existing installation: tqdm 4.66.5
    Uninstalling tqdm-4.66.5:
      Successfully uninstalled tqdm-4.66.5
ERROR: pip's dependency resolver does not currently take into account all th
e packages that are installed. This behaviour is the source of the following
dependency conflicts.
iopaint 1.3.3 requires Pillow==9.5.0, but you have pillow 10.4.0 which is in
compatible.
adapters 0.2.1 requires transformers~=4.39.3, but you have transformers 4.4
5.1 which is incompatible.
Successfully installed tqdm-4.66.2
```

If all libraries are installed correctly, you should see their versions printed without any errors.

Problem 1 (30 points)

We will work with a CNN in PyTorch to classify images. We will use the CIFAR10 dataset, which contains 50K 32×32 color images. The refence code is at pytorch-cifar. We will work with the ResNet-18 model, as described in **Deep Residual Learning for Image Recognition**

Model

Create a ResNet-18 model as defined in above reading. You can rely on existing open-source implementations. However, your code should define the layers and not just import the model using torch.

Specifically, The first convolutional layer should have **3 input channels, 64 output channels, 3 × 3 kernel, with *stride=1* and *padding=1*.**

Followed by 8 basic blocks in 4 sub groups (i.e. 2 basic blocks in each subgroup): \

• The first sub-group contains convolutional layer with 64 output channels, 3×3 kernel, stride=1, padding=1.

• The second sub-group contains convolutional layer with 128 output channels, 3×3 kernel, stride=2, padding=1.

• The third sub-group contains convolutional layer with 256 output channels, 3×3 kernel, stride=2, padding=1.

• The forth sub-group contains convolutional layer with 512 output channels, 3×3 kernel, stride=2, padding=1.

• The final linear layer is of 10 output classes.

For all convolutional layers, use ReLU activation functions, and use batch normal layers to avoid covariant shift. Since batch-norm layers regularize the training, set bias to 0 for all the convolutional layers. Use SGD optimizers with 0.1 as the learning rate, momentum 0.9, weight decay 5e-4. The loss function is cross entropy.

In [1]:

```
# Relevant imports
import torch
import torch.nn as nn
import torch.optim as optim
import torchvision.transforms as transforms
import torchvision.datasets as datasets
from torch.utils.data import DataLoader
import time
import matplotlib.pyplot as plt
import argparse
```

In [2]:

```
# To get started, First create your ResNet Block

# Here's boilerplate code to work with

import torch.nn as nn
```

```python
# ### BasicBlock Definition

class BasicBlock(nn.Module):
    expansion = 1

    def __init__(self, in_channels, out_channels, stride=1, downsample=None)
        super(BasicBlock, self).__init__()
        self.conv1 = nn.Conv2d(
            in_channels, out_channels, kernel_size=3, stride=stride,
            padding=1, bias=False
        )
        self.bn1 = nn.BatchNorm2d(out_channels)
        self.relu = nn.ReLU(inplace=True)
        self.conv2 = nn.Conv2d(
            out_channels, out_channels, kernel_size=3, stride=1,
            padding=1, bias=False
        )
        self.bn2 = nn.BatchNorm2d(out_channels)
        self.downsample = downsample

    def forward(self, x):
        identity = x

        out = self.conv1(x)
        out = self.bn1(out)
        out = self.relu(out)

        out = self.conv2(out)
        out = self.bn2(out)

        if self.downsample is not None:
            identity = self.downsample(x)

        out += identity
        out = self.relu(out)

        return out


# ### ResNet18 Model Definition

class ResNet18(nn.Module):
    def __init__(self, block=BasicBlock, num_classes=10):
        super(ResNet18, self).__init__()
        self.in_channels = 64
        self.conv1 = nn.Conv2d(
            3, 64, kernel_size=3, stride=1, padding=1, bias=False
        )
        self.bn1 = nn.BatchNorm2d(64)
        self.relu = nn.ReLU(inplace=True)
        self.layer1 = self._make_layer(block, 64, blocks=2, stride=1)
        self.layer2 = self._make_layer(block, 128, blocks=2, stride=2)
        self.layer3 = self._make_layer(block, 256, blocks=2, stride=2)
        self.layer4 = self._make_layer(block, 512, blocks=2, stride=2)
        self.avgpool = nn.AdaptiveAvgPool2d((1, 1))
```

```
        self.fc = nn.Linear(512 * block.expansion, num_classes)

    def _make_layer(self, block, out_channels, blocks, stride=1):
        downsample = None
        if stride != 1 or self.in_channels != out_channels * block.expansion
            downsample = nn.Sequential(
                nn.Conv2d(
                    self.in_channels, out_channels * block.expansion,
                    kernel_size=1, stride=stride, bias=False
                ),
                nn.BatchNorm2d(out_channels * block.expansion),
            )

        layers = []
        layers.append(block(self.in_channels, out_channels, stride, downsamp
        self.in_channels = out_channels * block.expansion
        for _ in range(1, blocks):
            layers.append(block(self.in_channels, out_channels))

        return nn.Sequential(*layers)

    def forward(self, x):
        x = self.conv1(x)
        x = self.bn1(x)
        x = self.relu(x)

        x = self.layer1(x)
        x = self.layer2(x)
        x = self.layer3(x)
        x = self.layer4(x)

        x = self.avgpool(x)
        x = torch.flatten(x, 1)
        x = self.fc(x)

        return x
```

DataLoader

Create a PyTorch program with a DataLoader that loads the images and the related labels from the The torchvision CIFAR10 dataset. Import CIFAR10 dataset for the torchvision package, with the following sequence of transformations

```
- Random cropping, with size 32×32 and padding 4

- Random horizontal flipping with a probability 0.5

- Normalize each image’s RGB channel with mean(0.4914,
0.4822, 0.4465) and variance (0.2023, 0.1994, 0.2010)
```

You will only need one data loader to complete this assignment.

For your convenience, here are the default settings for the train loader: minibatch size of 128 and 3 IO processes (i.e., num workers=2)

In [3]:
```
# DataLoader code
def create_dataloader(batch_size=128, shuffle=True, num_workers=2, data_path
    transform = transforms.Compose([
        transforms.RandomCrop(32, padding=4),
        transforms.RandomHorizontalFlip(p=0.5),
        transforms.ToTensor(),
        transforms.Normalize(mean=(0.4914, 0.4822, 0.4465), std=(0.2023, 0.1
    ])

    dataset = datasets.CIFAR10(root=data_path, train=True, download=True, tr

    return DataLoader(dataset, batch_size=batch_size, shuffle=shuffle, num_w

def get_dataset(data_path='./data', num_workers=2, batch_size=128):
    # Create dataloader
    train_loader = create_dataloader(
        batch_size=batch_size,
        shuffle=True,
        num_workers=num_workers,
        data_path=data_path
    )

    return train_loader
```

C1: Training in Pytorch (10 points)

Here the task is to create a main function that creates the **DataLoaders** *using code above* for the training set and the neural network, then you have to run for `5` epochs with a complete training phase on all minibatches of the training set.

Write the code as device-agnostic, use the `ArgumentParser` to be able to read parameters from input, such as the use of cuda, the `data_path`, the number of dataloader workers and the optimizer (as string, eg: `sgd`).

Calculate the per-batch training loss, value and the top-1 training accuracy of the predictions, measured on training data.

> You don't need to submit any outputs for **C1**. Only submit relevant code for this question.

> **C2-C3** will use the code of **C1**

In [4]:
```
import argparse
# import torch
# import torch.nn as nn
# import torch.optim as optim
```

```python
from types import SimpleNamespace
import time
```

In [13]:
```python
def train():
    device = torch.device("cuda" if torch.cuda.is_available() else "cpu")
    model = ResNet18().to(device)
    train_loader = get_dataset()
    criterion = nn.CrossEntropyLoss()
    optimizer = optim.SGD(model.parameters(), lr=0.1, momentum=0.9, weight_d
    epochs = 5
    for epoch in range(epochs):
        model.train()
        for batch_idx, (inputs, targets) in enumerate(train_loader):
            inputs, targets = inputs.to(device), targets.to(device)
            optimizer.zero_grad()
            outputs = model(inputs)
            loss = criterion(outputs, targets)
            loss.backward()
            optimizer.step()

            # Calculate accuracy
            _, predicted = outputs.max(1)
            correct = predicted.eq(targets).sum().item()
            total = targets.size(0)
            accuracy = 100. * correct / total

            # Print per-batch metrics
            print(f'Epoch: {epoch+1}, Batch: {batch_idx+1}, Loss: {loss.item

        print(f'Epoch {epoch+1} completed')
```

In [14]:
```python
def main():
    parser = argparse.ArgumentParser(description="train")
    # Add arguments
    parser.add_argument('--device', type=str, default='cuda' if torch.cuda.i
                        help='Device to use for training (cuda or cpu)')
    parser.add_argument('--data_path', type=str, default='./data',
                        help='Path to the CIFAR10 dataset')
    parser.add_argument('--num_workers', type=int, default=2,
                        help='Number of dataloader workers')
    parser.add_argument('--optimizer', type=str, default='sgd',
                        help='Optimizer to use (sgd or adam)')
    parser.add_argument('--epochs', type=int, default=5,
                        help='Number of epochs to train')
    args = parser.parse_args()
    # Call your dataloader for creation
    my_dataloader = create_dataloader(args.data_path, args.num_workers)
    # Call Training
    train(args.device, my_dataloader, args.optimizer, args.epochs)
    return
```

In [15]:
```python
train()
```

```
Files already downloaded and verified
Epoch: 1, Batch: 1, Loss: 2.531, Acc: 6.25%
Epoch: 1, Batch: 2, Loss: 3.255, Acc: 12.50%
Epoch: 1, Batch: 3, Loss: 4.195, Acc: 7.81%
Epoch: 1, Batch: 4, Loss: 4.325, Acc: 17.97%
Epoch: 1, Batch: 5, Loss: 3.172, Acc: 14.06%
Epoch: 1, Batch: 6, Loss: 2.924, Acc: 15.62%
Epoch: 1, Batch: 7, Loss: 4.504, Acc: 11.72%
Epoch: 1, Batch: 8, Loss: 5.667, Acc: 13.28%
Epoch: 1, Batch: 9, Loss: 5.178, Acc: 10.94%
Epoch: 1, Batch: 10, Loss: 4.184, Acc: 4.69%
Epoch: 1, Batch: 11, Loss: 3.533, Acc: 7.81%
Epoch: 1, Batch: 12, Loss: 4.143, Acc: 10.94%
Epoch: 1, Batch: 13, Loss: 4.729, Acc: 19.53%
Epoch: 1, Batch: 14, Loss: 2.509, Acc: 21.88%
Epoch: 1, Batch: 15, Loss: 2.999, Acc: 15.62%
Epoch: 1, Batch: 16, Loss: 2.422, Acc: 20.31%
Epoch: 1, Batch: 17, Loss: 2.649, Acc: 15.62%
Epoch: 1, Batch: 18, Loss: 2.677, Acc: 18.75%
Epoch: 1, Batch: 19, Loss: 2.550, Acc: 17.97%
Epoch: 1, Batch: 20, Loss: 2.595, Acc: 5.47%
Epoch: 1, Batch: 21, Loss: 2.365, Acc: 21.88%
Epoch: 1, Batch: 22, Loss: 2.629, Acc: 17.19%
Epoch: 1, Batch: 23, Loss: 2.423, Acc: 18.75%
Epoch: 1, Batch: 24, Loss: 2.339, Acc: 18.75%
Epoch: 1, Batch: 25, Loss: 2.281, Acc: 17.97%
Epoch: 1, Batch: 26, Loss: 2.140, Acc: 19.53%
Epoch: 1, Batch: 27, Loss: 2.333, Acc: 25.00%
Epoch: 1, Batch: 28, Loss: 2.107, Acc: 17.97%
Epoch: 1, Batch: 29, Loss: 2.174, Acc: 20.31%
Epoch: 1, Batch: 30, Loss: 3.037, Acc: 14.84%
Epoch: 1, Batch: 31, Loss: 2.211, Acc: 18.75%
Epoch: 1, Batch: 32, Loss: 2.224, Acc: 16.41%
Epoch: 1, Batch: 33, Loss: 2.302, Acc: 14.84%
Epoch: 1, Batch: 34, Loss: 2.510, Acc: 22.66%
Epoch: 1, Batch: 35, Loss: 2.073, Acc: 25.78%
Epoch: 1, Batch: 36, Loss: 2.126, Acc: 21.88%
Epoch: 1, Batch: 37, Loss: 2.037, Acc: 21.88%
Epoch: 1, Batch: 38, Loss: 2.265, Acc: 13.28%
Epoch: 1, Batch: 39, Loss: 2.054, Acc: 25.78%
Epoch: 1, Batch: 40, Loss: 2.393, Acc: 13.28%
Epoch: 1, Batch: 41, Loss: 2.272, Acc: 25.78%
Epoch: 1, Batch: 42, Loss: 2.010, Acc: 19.53%
Epoch: 1, Batch: 43, Loss: 2.222, Acc: 21.88%
Epoch: 1, Batch: 44, Loss: 2.098, Acc: 17.97%
Epoch: 1, Batch: 45, Loss: 2.120, Acc: 22.66%
Epoch: 1, Batch: 46, Loss: 2.109, Acc: 18.75%
Epoch: 1, Batch: 47, Loss: 2.123, Acc: 19.53%
Epoch: 1, Batch: 48, Loss: 2.164, Acc: 22.66%
Epoch: 1, Batch: 49, Loss: 2.261, Acc: 21.88%
Epoch: 1, Batch: 50, Loss: 2.012, Acc: 20.31%
Epoch: 1, Batch: 51, Loss: 1.958, Acc: 19.53%
Epoch: 1, Batch: 52, Loss: 2.363, Acc: 20.31%
Epoch: 1, Batch: 53, Loss: 2.000, Acc: 27.34%
Epoch: 1, Batch: 54, Loss: 2.174, Acc: 14.06%
Epoch: 1, Batch: 55, Loss: 2.142, Acc: 22.66%
```

```
Epoch: 1, Batch: 56, Loss: 2.250, Acc: 21.09%
Epoch: 1, Batch: 57, Loss: 2.048, Acc: 17.97%
Epoch: 1, Batch: 58, Loss: 2.112, Acc: 17.97%
Epoch: 1, Batch: 59, Loss: 2.047, Acc: 21.09%
Epoch: 1, Batch: 60, Loss: 1.966, Acc: 22.66%
Epoch: 1, Batch: 61, Loss: 2.288, Acc: 14.84%
Epoch: 1, Batch: 62, Loss: 2.001, Acc: 18.75%
Epoch: 1, Batch: 63, Loss: 2.147, Acc: 15.62%
Epoch: 1, Batch: 64, Loss: 2.139, Acc: 24.22%
Epoch: 1, Batch: 65, Loss: 2.085, Acc: 21.88%
Epoch: 1, Batch: 66, Loss: 2.011, Acc: 27.34%
Epoch: 1, Batch: 67, Loss: 2.059, Acc: 22.66%
Epoch: 1, Batch: 68, Loss: 2.147, Acc: 24.22%
Epoch: 1, Batch: 69, Loss: 2.023, Acc: 17.97%
Epoch: 1, Batch: 70, Loss: 2.030, Acc: 19.53%
Epoch: 1, Batch: 71, Loss: 1.978, Acc: 23.44%
Epoch: 1, Batch: 72, Loss: 1.984, Acc: 21.88%
Epoch: 1, Batch: 73, Loss: 1.999, Acc: 21.09%
Epoch: 1, Batch: 74, Loss: 2.087, Acc: 17.19%
Epoch: 1, Batch: 75, Loss: 2.069, Acc: 18.75%
Epoch: 1, Batch: 76, Loss: 1.967, Acc: 30.47%
Epoch: 1, Batch: 77, Loss: 1.994, Acc: 21.09%
Epoch: 1, Batch: 78, Loss: 2.009, Acc: 25.00%
Epoch: 1, Batch: 79, Loss: 1.983, Acc: 23.44%
Epoch: 1, Batch: 80, Loss: 1.951, Acc: 24.22%
Epoch: 1, Batch: 81, Loss: 2.027, Acc: 25.00%
Epoch: 1, Batch: 82, Loss: 2.129, Acc: 26.56%
Epoch: 1, Batch: 83, Loss: 1.957, Acc: 15.62%
Epoch: 1, Batch: 84, Loss: 1.952, Acc: 20.31%
Epoch: 1, Batch: 85, Loss: 1.963, Acc: 27.34%
Epoch: 1, Batch: 86, Loss: 2.115, Acc: 25.78%
Epoch: 1, Batch: 87, Loss: 1.990, Acc: 24.22%
Epoch: 1, Batch: 88, Loss: 1.970, Acc: 27.34%
Epoch: 1, Batch: 89, Loss: 1.871, Acc: 25.78%
Epoch: 1, Batch: 90, Loss: 1.932, Acc: 27.34%
Epoch: 1, Batch: 91, Loss: 2.043, Acc: 21.09%
Epoch: 1, Batch: 92, Loss: 1.933, Acc: 30.47%
Epoch: 1, Batch: 93, Loss: 1.997, Acc: 16.41%
Epoch: 1, Batch: 94, Loss: 1.931, Acc: 31.25%
Epoch: 1, Batch: 95, Loss: 1.982, Acc: 21.09%
Epoch: 1, Batch: 96, Loss: 2.029, Acc: 25.78%
Epoch: 1, Batch: 97, Loss: 1.956, Acc: 25.00%
Epoch: 1, Batch: 98, Loss: 1.801, Acc: 35.16%
Epoch: 1, Batch: 99, Loss: 1.860, Acc: 29.69%
Epoch: 1, Batch: 100, Loss: 1.857, Acc: 22.66%
Epoch: 1, Batch: 101, Loss: 1.911, Acc: 27.34%
Epoch: 1, Batch: 102, Loss: 1.848, Acc: 35.16%
Epoch: 1, Batch: 103, Loss: 1.804, Acc: 28.12%
Epoch: 1, Batch: 104, Loss: 1.796, Acc: 34.38%
Epoch: 1, Batch: 105, Loss: 1.840, Acc: 32.81%
Epoch: 1, Batch: 106, Loss: 1.886, Acc: 28.91%
Epoch: 1, Batch: 107, Loss: 1.947, Acc: 20.31%
Epoch: 1, Batch: 108, Loss: 1.851, Acc: 25.78%
Epoch: 1, Batch: 109, Loss: 1.807, Acc: 25.00%
Epoch: 1, Batch: 110, Loss: 2.043, Acc: 21.88%
Epoch: 1, Batch: 111, Loss: 1.892, Acc: 23.44%
```

```
Epoch: 1, Batch: 112, Loss: 1.904, Acc: 25.00%
Epoch: 1, Batch: 113, Loss: 1.821, Acc: 21.09%
Epoch: 1, Batch: 114, Loss: 1.940, Acc: 26.56%
Epoch: 1, Batch: 115, Loss: 1.940, Acc: 24.22%
Epoch: 1, Batch: 116, Loss: 1.768, Acc: 36.72%
Epoch: 1, Batch: 117, Loss: 1.967, Acc: 21.88%
Epoch: 1, Batch: 118, Loss: 1.805, Acc: 29.69%
Epoch: 1, Batch: 119, Loss: 1.833, Acc: 29.69%
Epoch: 1, Batch: 120, Loss: 1.862, Acc: 27.34%
Epoch: 1, Batch: 121, Loss: 1.878, Acc: 30.47%
Epoch: 1, Batch: 122, Loss: 1.845, Acc: 27.34%
Epoch: 1, Batch: 123, Loss: 1.783, Acc: 28.91%
Epoch: 1, Batch: 124, Loss: 1.922, Acc: 25.78%
Epoch: 1, Batch: 125, Loss: 1.885, Acc: 25.78%
Epoch: 1, Batch: 126, Loss: 1.855, Acc: 31.25%
Epoch: 1, Batch: 127, Loss: 2.018, Acc: 26.56%
Epoch: 1, Batch: 128, Loss: 1.745, Acc: 29.69%
Epoch: 1, Batch: 129, Loss: 1.838, Acc: 32.81%
Epoch: 1, Batch: 130, Loss: 1.906, Acc: 29.69%
Epoch: 1, Batch: 131, Loss: 2.038, Acc: 22.66%
Epoch: 1, Batch: 132, Loss: 1.949, Acc: 25.78%
Epoch: 1, Batch: 133, Loss: 1.984, Acc: 28.91%
Epoch: 1, Batch: 134, Loss: 1.854, Acc: 28.91%
Epoch: 1, Batch: 135, Loss: 1.920, Acc: 28.91%
Epoch: 1, Batch: 136, Loss: 1.820, Acc: 29.69%
Epoch: 1, Batch: 137, Loss: 1.770, Acc: 35.94%
Epoch: 1, Batch: 138, Loss: 1.836, Acc: 27.34%
Epoch: 1, Batch: 139, Loss: 1.896, Acc: 27.34%
Epoch: 1, Batch: 140, Loss: 1.929, Acc: 28.91%
Epoch: 1, Batch: 141, Loss: 1.981, Acc: 34.38%
Epoch: 1, Batch: 142, Loss: 1.942, Acc: 26.56%
Epoch: 1, Batch: 143, Loss: 1.860, Acc: 32.03%
Epoch: 1, Batch: 144, Loss: 1.884, Acc: 30.47%
Epoch: 1, Batch: 145, Loss: 1.894, Acc: 27.34%
Epoch: 1, Batch: 146, Loss: 1.730, Acc: 32.81%
Epoch: 1, Batch: 147, Loss: 1.841, Acc: 29.69%
Epoch: 1, Batch: 148, Loss: 1.753, Acc: 31.25%
Epoch: 1, Batch: 149, Loss: 1.764, Acc: 25.78%
Epoch: 1, Batch: 150, Loss: 1.887, Acc: 23.44%
Epoch: 1, Batch: 151, Loss: 1.818, Acc: 23.44%
Epoch: 1, Batch: 152, Loss: 1.773, Acc: 28.91%
Epoch: 1, Batch: 153, Loss: 1.661, Acc: 30.47%
Epoch: 1, Batch: 154, Loss: 1.946, Acc: 35.16%
Epoch: 1, Batch: 155, Loss: 1.933, Acc: 28.91%
Epoch: 1, Batch: 156, Loss: 1.767, Acc: 34.38%
Epoch: 1, Batch: 157, Loss: 2.044, Acc: 23.44%
Epoch: 1, Batch: 158, Loss: 1.697, Acc: 35.16%
Epoch: 1, Batch: 159, Loss: 1.818, Acc: 30.47%
Epoch: 1, Batch: 160, Loss: 1.887, Acc: 21.09%
Epoch: 1, Batch: 161, Loss: 1.784, Acc: 29.69%
Epoch: 1, Batch: 162, Loss: 1.897, Acc: 28.91%
Epoch: 1, Batch: 163, Loss: 1.828, Acc: 35.16%
Epoch: 1, Batch: 164, Loss: 1.762, Acc: 31.25%
Epoch: 1, Batch: 165, Loss: 1.850, Acc: 28.91%
Epoch: 1, Batch: 166, Loss: 1.737, Acc: 38.28%
Epoch: 1, Batch: 167, Loss: 1.936, Acc: 25.00%
```

```
Epoch: 1, Batch: 168, Loss: 1.788, Acc: 34.38%
Epoch: 1, Batch: 169, Loss: 1.729, Acc: 35.16%
Epoch: 1, Batch: 170, Loss: 1.774, Acc: 35.16%
Epoch: 1, Batch: 171, Loss: 1.927, Acc: 30.47%
Epoch: 1, Batch: 172, Loss: 1.964, Acc: 31.25%
Epoch: 1, Batch: 173, Loss: 1.831, Acc: 32.81%
Epoch: 1, Batch: 174, Loss: 1.886, Acc: 29.69%
Epoch: 1, Batch: 175, Loss: 1.777, Acc: 36.72%
Epoch: 1, Batch: 176, Loss: 1.883, Acc: 28.91%
Epoch: 1, Batch: 177, Loss: 1.796, Acc: 32.03%
Epoch: 1, Batch: 178, Loss: 1.903, Acc: 26.56%
Epoch: 1, Batch: 179, Loss: 1.865, Acc: 27.34%
Epoch: 1, Batch: 180, Loss: 1.933, Acc: 21.88%
Epoch: 1, Batch: 181, Loss: 1.871, Acc: 26.56%
Epoch: 1, Batch: 182, Loss: 1.749, Acc: 28.12%
Epoch: 1, Batch: 183, Loss: 1.788, Acc: 37.50%
Epoch: 1, Batch: 184, Loss: 1.856, Acc: 23.44%
Epoch: 1, Batch: 185, Loss: 1.752, Acc: 36.72%
Epoch: 1, Batch: 186, Loss: 1.766, Acc: 33.59%
Epoch: 1, Batch: 187, Loss: 1.799, Acc: 35.94%
Epoch: 1, Batch: 188, Loss: 1.926, Acc: 32.03%
Epoch: 1, Batch: 189, Loss: 1.892, Acc: 34.38%
Epoch: 1, Batch: 190, Loss: 1.672, Acc: 30.47%
Epoch: 1, Batch: 191, Loss: 1.766, Acc: 32.03%
Epoch: 1, Batch: 192, Loss: 1.716, Acc: 28.91%
Epoch: 1, Batch: 193, Loss: 1.809, Acc: 29.69%
Epoch: 1, Batch: 194, Loss: 1.697, Acc: 34.38%
Epoch: 1, Batch: 195, Loss: 1.667, Acc: 36.72%
Epoch: 1, Batch: 196, Loss: 1.827, Acc: 36.72%
Epoch: 1, Batch: 197, Loss: 1.697, Acc: 35.16%
Epoch: 1, Batch: 198, Loss: 1.787, Acc: 28.12%
Epoch: 1, Batch: 199, Loss: 1.777, Acc: 35.16%
Epoch: 1, Batch: 200, Loss: 1.844, Acc: 32.81%
Epoch: 1, Batch: 201, Loss: 1.703, Acc: 39.84%
Epoch: 1, Batch: 202, Loss: 1.845, Acc: 29.69%
Epoch: 1, Batch: 203, Loss: 1.740, Acc: 36.72%
Epoch: 1, Batch: 204, Loss: 1.842, Acc: 26.56%
Epoch: 1, Batch: 205, Loss: 1.666, Acc: 34.38%
Epoch: 1, Batch: 206, Loss: 1.629, Acc: 42.19%
Epoch: 1, Batch: 207, Loss: 1.732, Acc: 31.25%
Epoch: 1, Batch: 208, Loss: 1.703, Acc: 40.62%
Epoch: 1, Batch: 209, Loss: 1.722, Acc: 32.03%
Epoch: 1, Batch: 210, Loss: 1.753, Acc: 35.94%
Epoch: 1, Batch: 211, Loss: 1.679, Acc: 35.16%
Epoch: 1, Batch: 212, Loss: 1.687, Acc: 32.03%
Epoch: 1, Batch: 213, Loss: 1.832, Acc: 30.47%
Epoch: 1, Batch: 214, Loss: 1.804, Acc: 37.50%
Epoch: 1, Batch: 215, Loss: 1.649, Acc: 36.72%
Epoch: 1, Batch: 216, Loss: 1.766, Acc: 39.06%
Epoch: 1, Batch: 217, Loss: 1.736, Acc: 36.72%
Epoch: 1, Batch: 218, Loss: 1.612, Acc: 37.50%
Epoch: 1, Batch: 219, Loss: 1.558, Acc: 46.88%
Epoch: 1, Batch: 220, Loss: 1.726, Acc: 31.25%
Epoch: 1, Batch: 221, Loss: 1.750, Acc: 33.59%
Epoch: 1, Batch: 222, Loss: 1.719, Acc: 34.38%
Epoch: 1, Batch: 223, Loss: 1.692, Acc: 37.50%
```

```
Epoch: 1, Batch: 224, Loss: 1.698, Acc: 32.81%
Epoch: 1, Batch: 225, Loss: 1.684, Acc: 39.84%
Epoch: 1, Batch: 226, Loss: 1.714, Acc: 34.38%
Epoch: 1, Batch: 227, Loss: 1.717, Acc: 35.16%
Epoch: 1, Batch: 228, Loss: 1.725, Acc: 37.50%
Epoch: 1, Batch: 229, Loss: 1.861, Acc: 31.25%
Epoch: 1, Batch: 230, Loss: 1.823, Acc: 31.25%
Epoch: 1, Batch: 231, Loss: 1.715, Acc: 33.59%
Epoch: 1, Batch: 232, Loss: 1.865, Acc: 37.50%
Epoch: 1, Batch: 233, Loss: 1.643, Acc: 37.50%
Epoch: 1, Batch: 234, Loss: 1.799, Acc: 31.25%
Epoch: 1, Batch: 235, Loss: 1.677, Acc: 29.69%
Epoch: 1, Batch: 236, Loss: 1.919, Acc: 27.34%
Epoch: 1, Batch: 237, Loss: 1.651, Acc: 35.94%
Epoch: 1, Batch: 238, Loss: 1.700, Acc: 33.59%
Epoch: 1, Batch: 239, Loss: 1.755, Acc: 34.38%
Epoch: 1, Batch: 240, Loss: 1.595, Acc: 40.62%
Epoch: 1, Batch: 241, Loss: 1.821, Acc: 38.28%
Epoch: 1, Batch: 242, Loss: 1.742, Acc: 35.16%
Epoch: 1, Batch: 243, Loss: 1.677, Acc: 36.72%
Epoch: 1, Batch: 244, Loss: 1.706, Acc: 38.28%
Epoch: 1, Batch: 245, Loss: 1.692, Acc: 38.28%
Epoch: 1, Batch: 246, Loss: 1.638, Acc: 37.50%
Epoch: 1, Batch: 247, Loss: 1.696, Acc: 33.59%
Epoch: 1, Batch: 248, Loss: 1.945, Acc: 28.12%
Epoch: 1, Batch: 249, Loss: 1.710, Acc: 32.81%
Epoch: 1, Batch: 250, Loss: 1.720, Acc: 38.28%
Epoch: 1, Batch: 251, Loss: 1.854, Acc: 24.22%
Epoch: 1, Batch: 252, Loss: 1.727, Acc: 35.16%
Epoch: 1, Batch: 253, Loss: 1.625, Acc: 39.84%
Epoch: 1, Batch: 254, Loss: 1.812, Acc: 28.91%
Epoch: 1, Batch: 255, Loss: 1.625, Acc: 37.50%
Epoch: 1, Batch: 256, Loss: 1.657, Acc: 39.06%
Epoch: 1, Batch: 257, Loss: 1.739, Acc: 31.25%
Epoch: 1, Batch: 258, Loss: 1.707, Acc: 36.72%
Epoch: 1, Batch: 259, Loss: 1.688, Acc: 35.16%
Epoch: 1, Batch: 260, Loss: 1.679, Acc: 31.25%
Epoch: 1, Batch: 261, Loss: 1.656, Acc: 35.94%
Epoch: 1, Batch: 262, Loss: 1.622, Acc: 41.41%
Epoch: 1, Batch: 263, Loss: 1.681, Acc: 35.16%
Epoch: 1, Batch: 264, Loss: 1.776, Acc: 35.16%
Epoch: 1, Batch: 265, Loss: 1.677, Acc: 37.50%
Epoch: 1, Batch: 266, Loss: 1.735, Acc: 39.06%
Epoch: 1, Batch: 267, Loss: 1.721, Acc: 33.59%
Epoch: 1, Batch: 268, Loss: 1.535, Acc: 43.75%
Epoch: 1, Batch: 269, Loss: 1.654, Acc: 35.94%
Epoch: 1, Batch: 270, Loss: 1.631, Acc: 38.28%
Epoch: 1, Batch: 271, Loss: 1.809, Acc: 30.47%
Epoch: 1, Batch: 272, Loss: 1.580, Acc: 39.06%
Epoch: 1, Batch: 273, Loss: 1.611, Acc: 48.44%
Epoch: 1, Batch: 274, Loss: 1.565, Acc: 37.50%
Epoch: 1, Batch: 275, Loss: 1.655, Acc: 35.94%
Epoch: 1, Batch: 276, Loss: 1.624, Acc: 37.50%
Epoch: 1, Batch: 277, Loss: 1.879, Acc: 30.47%
Epoch: 1, Batch: 278, Loss: 1.671, Acc: 32.03%
Epoch: 1, Batch: 279, Loss: 1.632, Acc: 42.97%
```

```
Epoch: 1, Batch: 280, Loss: 1.873, Acc: 35.94%
Epoch: 1, Batch: 281, Loss: 1.696, Acc: 39.06%
Epoch: 1, Batch: 282, Loss: 1.686, Acc: 38.28%
Epoch: 1, Batch: 283, Loss: 1.652, Acc: 42.97%
Epoch: 1, Batch: 284, Loss: 1.747, Acc: 39.06%
Epoch: 1, Batch: 285, Loss: 1.555, Acc: 38.28%
Epoch: 1, Batch: 286, Loss: 1.528, Acc: 38.28%
Epoch: 1, Batch: 287, Loss: 1.766, Acc: 32.81%
Epoch: 1, Batch: 288, Loss: 1.652, Acc: 36.72%
Epoch: 1, Batch: 289, Loss: 1.516, Acc: 42.97%
Epoch: 1, Batch: 290, Loss: 1.689, Acc: 38.28%
Epoch: 1, Batch: 291, Loss: 1.666, Acc: 43.75%
Epoch: 1, Batch: 292, Loss: 1.620, Acc: 41.41%
Epoch: 1, Batch: 293, Loss: 1.676, Acc: 36.72%
Epoch: 1, Batch: 294, Loss: 1.781, Acc: 34.38%
Epoch: 1, Batch: 295, Loss: 1.637, Acc: 39.06%
Epoch: 1, Batch: 296, Loss: 1.780, Acc: 34.38%
Epoch: 1, Batch: 297, Loss: 1.679, Acc: 38.28%
Epoch: 1, Batch: 298, Loss: 1.710, Acc: 35.94%
Epoch: 1, Batch: 299, Loss: 1.697, Acc: 40.62%
Epoch: 1, Batch: 300, Loss: 1.635, Acc: 39.84%
Epoch: 1, Batch: 301, Loss: 1.602, Acc: 36.72%
Epoch: 1, Batch: 302, Loss: 1.555, Acc: 35.94%
Epoch: 1, Batch: 303, Loss: 1.731, Acc: 36.72%
Epoch: 1, Batch: 304, Loss: 1.851, Acc: 32.03%
Epoch: 1, Batch: 305, Loss: 1.789, Acc: 32.81%
Epoch: 1, Batch: 306, Loss: 1.616, Acc: 35.94%
Epoch: 1, Batch: 307, Loss: 1.661, Acc: 38.28%
Epoch: 1, Batch: 308, Loss: 1.575, Acc: 45.31%
Epoch: 1, Batch: 309, Loss: 1.674, Acc: 32.81%
Epoch: 1, Batch: 310, Loss: 1.639, Acc: 33.59%
Epoch: 1, Batch: 311, Loss: 1.736, Acc: 34.38%
Epoch: 1, Batch: 312, Loss: 1.604, Acc: 39.06%
Epoch: 1, Batch: 313, Loss: 1.641, Acc: 34.38%
Epoch: 1, Batch: 314, Loss: 1.772, Acc: 30.47%
Epoch: 1, Batch: 315, Loss: 1.869, Acc: 35.94%
Epoch: 1, Batch: 316, Loss: 1.572, Acc: 35.94%
Epoch: 1, Batch: 317, Loss: 1.710, Acc: 34.38%
Epoch: 1, Batch: 318, Loss: 1.728, Acc: 38.28%
Epoch: 1, Batch: 319, Loss: 1.632, Acc: 39.06%
Epoch: 1, Batch: 320, Loss: 1.525, Acc: 39.06%
Epoch: 1, Batch: 321, Loss: 1.693, Acc: 29.69%
Epoch: 1, Batch: 322, Loss: 1.614, Acc: 37.50%
Epoch: 1, Batch: 323, Loss: 1.640, Acc: 44.53%
Epoch: 1, Batch: 324, Loss: 1.725, Acc: 38.28%
Epoch: 1, Batch: 325, Loss: 1.741, Acc: 30.47%
Epoch: 1, Batch: 326, Loss: 1.687, Acc: 39.84%
Epoch: 1, Batch: 327, Loss: 1.621, Acc: 38.28%
Epoch: 1, Batch: 328, Loss: 1.606, Acc: 40.62%
Epoch: 1, Batch: 329, Loss: 1.656, Acc: 42.19%
Epoch: 1, Batch: 330, Loss: 1.501, Acc: 42.97%
Epoch: 1, Batch: 331, Loss: 1.586, Acc: 34.38%
Epoch: 1, Batch: 332, Loss: 1.516, Acc: 42.97%
Epoch: 1, Batch: 333, Loss: 1.651, Acc: 34.38%
Epoch: 1, Batch: 334, Loss: 1.610, Acc: 48.44%
Epoch: 1, Batch: 335, Loss: 1.648, Acc: 41.41%
```

```
Epoch: 1, Batch: 336, Loss: 1.677, Acc: 38.28%
Epoch: 1, Batch: 337, Loss: 1.681, Acc: 35.16%
Epoch: 1, Batch: 338, Loss: 1.760, Acc: 29.69%
Epoch: 1, Batch: 339, Loss: 1.536, Acc: 43.75%
Epoch: 1, Batch: 340, Loss: 1.590, Acc: 37.50%
Epoch: 1, Batch: 341, Loss: 1.422, Acc: 50.00%
Epoch: 1, Batch: 342, Loss: 1.661, Acc: 34.38%
Epoch: 1, Batch: 343, Loss: 1.727, Acc: 33.59%
Epoch: 1, Batch: 344, Loss: 1.590, Acc: 39.84%
Epoch: 1, Batch: 345, Loss: 1.614, Acc: 39.84%
Epoch: 1, Batch: 346, Loss: 1.707, Acc: 39.06%
Epoch: 1, Batch: 347, Loss: 1.606, Acc: 37.50%
Epoch: 1, Batch: 348, Loss: 1.523, Acc: 44.53%
Epoch: 1, Batch: 349, Loss: 1.828, Acc: 29.69%
Epoch: 1, Batch: 350, Loss: 1.588, Acc: 42.19%
Epoch: 1, Batch: 351, Loss: 1.611, Acc: 39.06%
Epoch: 1, Batch: 352, Loss: 1.822, Acc: 33.59%
Epoch: 1, Batch: 353, Loss: 1.644, Acc: 36.72%
Epoch: 1, Batch: 354, Loss: 1.663, Acc: 39.84%
Epoch: 1, Batch: 355, Loss: 1.699, Acc: 38.28%
Epoch: 1, Batch: 356, Loss: 1.635, Acc: 42.97%
Epoch: 1, Batch: 357, Loss: 1.832, Acc: 32.03%
Epoch: 1, Batch: 358, Loss: 1.558, Acc: 42.97%
Epoch: 1, Batch: 359, Loss: 1.566, Acc: 40.62%
Epoch: 1, Batch: 360, Loss: 1.572, Acc: 39.84%
Epoch: 1, Batch: 361, Loss: 1.656, Acc: 37.50%
Epoch: 1, Batch: 362, Loss: 1.762, Acc: 32.03%
Epoch: 1, Batch: 363, Loss: 1.567, Acc: 39.06%
Epoch: 1, Batch: 364, Loss: 1.548, Acc: 41.41%
Epoch: 1, Batch: 365, Loss: 1.674, Acc: 41.41%
Epoch: 1, Batch: 366, Loss: 1.766, Acc: 32.81%
Epoch: 1, Batch: 367, Loss: 1.558, Acc: 38.28%
Epoch: 1, Batch: 368, Loss: 1.657, Acc: 39.06%
Epoch: 1, Batch: 369, Loss: 1.659, Acc: 42.19%
Epoch: 1, Batch: 370, Loss: 1.503, Acc: 45.31%
Epoch: 1, Batch: 371, Loss: 1.682, Acc: 36.72%
Epoch: 1, Batch: 372, Loss: 1.565, Acc: 40.62%
Epoch: 1, Batch: 373, Loss: 1.612, Acc: 42.19%
Epoch: 1, Batch: 374, Loss: 1.587, Acc: 40.62%
Epoch: 1, Batch: 375, Loss: 1.639, Acc: 34.38%
Epoch: 1, Batch: 376, Loss: 1.621, Acc: 42.19%
Epoch: 1, Batch: 377, Loss: 1.521, Acc: 44.53%
Epoch: 1, Batch: 378, Loss: 1.572, Acc: 46.09%
Epoch: 1, Batch: 379, Loss: 1.594, Acc: 39.84%
Epoch: 1, Batch: 380, Loss: 1.563, Acc: 41.41%
Epoch: 1, Batch: 381, Loss: 1.602, Acc: 42.19%
Epoch: 1, Batch: 382, Loss: 1.587, Acc: 45.31%
Epoch: 1, Batch: 383, Loss: 1.482, Acc: 41.41%
Epoch: 1, Batch: 384, Loss: 1.730, Acc: 32.81%
Epoch: 1, Batch: 385, Loss: 1.671, Acc: 34.38%
Epoch: 1, Batch: 386, Loss: 1.522, Acc: 37.50%
Epoch: 1, Batch: 387, Loss: 1.731, Acc: 35.16%
Epoch: 1, Batch: 388, Loss: 1.587, Acc: 36.72%
Epoch: 1, Batch: 389, Loss: 1.517, Acc: 46.09%
Epoch: 1, Batch: 390, Loss: 1.649, Acc: 39.06%
Epoch: 1, Batch: 391, Loss: 1.389, Acc: 47.50%
```

```
Epoch 1 completed
Epoch: 2, Batch: 1, Loss: 1.536, Acc: 41.41%
Epoch: 2, Batch: 2, Loss: 1.593, Acc: 47.66%
Epoch: 2, Batch: 3, Loss: 1.625, Acc: 39.84%
Epoch: 2, Batch: 4, Loss: 1.664, Acc: 37.50%
Epoch: 2, Batch: 5, Loss: 1.772, Acc: 40.62%
Epoch: 2, Batch: 6, Loss: 1.584, Acc: 39.06%
Epoch: 2, Batch: 7, Loss: 1.667, Acc: 28.91%
Epoch: 2, Batch: 8, Loss: 1.619, Acc: 46.88%
Epoch: 2, Batch: 9, Loss: 1.529, Acc: 39.06%
Epoch: 2, Batch: 10, Loss: 1.649, Acc: 39.84%
Epoch: 2, Batch: 11, Loss: 1.688, Acc: 38.28%
Epoch: 2, Batch: 12, Loss: 1.508, Acc: 42.19%
Epoch: 2, Batch: 13, Loss: 1.631, Acc: 34.38%
Epoch: 2, Batch: 14, Loss: 1.551, Acc: 52.34%
Epoch: 2, Batch: 15, Loss: 1.578, Acc: 36.72%
Epoch: 2, Batch: 16, Loss: 1.546, Acc: 46.09%
Epoch: 2, Batch: 17, Loss: 1.637, Acc: 39.06%
Epoch: 2, Batch: 18, Loss: 1.595, Acc: 42.97%
Epoch: 2, Batch: 19, Loss: 1.571, Acc: 39.06%
Epoch: 2, Batch: 20, Loss: 1.438, Acc: 53.91%
Epoch: 2, Batch: 21, Loss: 1.553, Acc: 47.66%
Epoch: 2, Batch: 22, Loss: 1.461, Acc: 37.50%
Epoch: 2, Batch: 23, Loss: 1.470, Acc: 46.09%
Epoch: 2, Batch: 24, Loss: 1.635, Acc: 39.06%
Epoch: 2, Batch: 25, Loss: 1.460, Acc: 42.97%
Epoch: 2, Batch: 26, Loss: 1.600, Acc: 36.72%
Epoch: 2, Batch: 27, Loss: 1.520, Acc: 43.75%
Epoch: 2, Batch: 28, Loss: 1.554, Acc: 42.19%
Epoch: 2, Batch: 29, Loss: 1.415, Acc: 50.78%
Epoch: 2, Batch: 30, Loss: 1.420, Acc: 46.88%
Epoch: 2, Batch: 31, Loss: 1.497, Acc: 43.75%
Epoch: 2, Batch: 32, Loss: 1.560, Acc: 42.97%
Epoch: 2, Batch: 33, Loss: 1.540, Acc: 35.94%
Epoch: 2, Batch: 34, Loss: 1.774, Acc: 41.41%
Epoch: 2, Batch: 35, Loss: 1.489, Acc: 42.97%
Epoch: 2, Batch: 36, Loss: 1.589, Acc: 50.00%
Epoch: 2, Batch: 37, Loss: 1.517, Acc: 39.84%
Epoch: 2, Batch: 38, Loss: 1.619, Acc: 39.84%
Epoch: 2, Batch: 39, Loss: 1.536, Acc: 48.44%
Epoch: 2, Batch: 40, Loss: 1.690, Acc: 36.72%
Epoch: 2, Batch: 41, Loss: 1.397, Acc: 42.19%
Epoch: 2, Batch: 42, Loss: 1.550, Acc: 43.75%
Epoch: 2, Batch: 43, Loss: 1.579, Acc: 42.19%
Epoch: 2, Batch: 44, Loss: 1.553, Acc: 40.62%
Epoch: 2, Batch: 45, Loss: 1.557, Acc: 43.75%
Epoch: 2, Batch: 46, Loss: 1.451, Acc: 46.88%
Epoch: 2, Batch: 47, Loss: 1.529, Acc: 46.09%
Epoch: 2, Batch: 48, Loss: 1.557, Acc: 39.84%
Epoch: 2, Batch: 49, Loss: 1.462, Acc: 50.00%
Epoch: 2, Batch: 50, Loss: 1.542, Acc: 44.53%
Epoch: 2, Batch: 51, Loss: 1.430, Acc: 46.88%
Epoch: 2, Batch: 52, Loss: 1.590, Acc: 37.50%
Epoch: 2, Batch: 53, Loss: 1.671, Acc: 39.06%
Epoch: 2, Batch: 54, Loss: 1.376, Acc: 49.22%
Epoch: 2, Batch: 55, Loss: 1.567, Acc: 46.09%
```

```
Epoch: 2, Batch: 56, Loss: 1.546, Acc: 49.22%
Epoch: 2, Batch: 57, Loss: 1.557, Acc: 42.19%
Epoch: 2, Batch: 58, Loss: 1.611, Acc: 46.88%
Epoch: 2, Batch: 59, Loss: 1.595, Acc: 38.28%
Epoch: 2, Batch: 60, Loss: 1.547, Acc: 39.06%
Epoch: 2, Batch: 61, Loss: 1.546, Acc: 37.50%
Epoch: 2, Batch: 62, Loss: 1.544, Acc: 42.19%
Epoch: 2, Batch: 63, Loss: 1.624, Acc: 35.94%
Epoch: 2, Batch: 64, Loss: 1.664, Acc: 34.38%
Epoch: 2, Batch: 65, Loss: 1.657, Acc: 39.84%
Epoch: 2, Batch: 66, Loss: 1.575, Acc: 42.19%
Epoch: 2, Batch: 67, Loss: 1.528, Acc: 43.75%
Epoch: 2, Batch: 68, Loss: 1.590, Acc: 41.41%
Epoch: 2, Batch: 69, Loss: 1.368, Acc: 49.22%
Epoch: 2, Batch: 70, Loss: 1.602, Acc: 42.19%
Epoch: 2, Batch: 71, Loss: 1.529, Acc: 44.53%
Epoch: 2, Batch: 72, Loss: 1.529, Acc: 45.31%
Epoch: 2, Batch: 73, Loss: 1.585, Acc: 43.75%
Epoch: 2, Batch: 74, Loss: 1.573, Acc: 40.62%
Epoch: 2, Batch: 75, Loss: 1.508, Acc: 48.44%
Epoch: 2, Batch: 76, Loss: 1.416, Acc: 50.00%
Epoch: 2, Batch: 77, Loss: 1.518, Acc: 40.62%
Epoch: 2, Batch: 78, Loss: 1.552, Acc: 42.97%
Epoch: 2, Batch: 79, Loss: 1.579, Acc: 47.66%
Epoch: 2, Batch: 80, Loss: 1.450, Acc: 47.66%
Epoch: 2, Batch: 81, Loss: 1.634, Acc: 40.62%
Epoch: 2, Batch: 82, Loss: 1.549, Acc: 43.75%
Epoch: 2, Batch: 83, Loss: 1.701, Acc: 39.84%
Epoch: 2, Batch: 84, Loss: 1.415, Acc: 46.88%
Epoch: 2, Batch: 85, Loss: 1.604, Acc: 45.31%
Epoch: 2, Batch: 86, Loss: 1.513, Acc: 43.75%
Epoch: 2, Batch: 87, Loss: 1.725, Acc: 35.16%
Epoch: 2, Batch: 88, Loss: 1.576, Acc: 42.97%
Epoch: 2, Batch: 89, Loss: 1.549, Acc: 41.41%
Epoch: 2, Batch: 90, Loss: 1.579, Acc: 42.19%
Epoch: 2, Batch: 91, Loss: 1.673, Acc: 39.06%
Epoch: 2, Batch: 92, Loss: 1.623, Acc: 43.75%
Epoch: 2, Batch: 93, Loss: 1.592, Acc: 46.09%
Epoch: 2, Batch: 94, Loss: 1.670, Acc: 42.97%
Epoch: 2, Batch: 95, Loss: 1.605, Acc: 40.62%
Epoch: 2, Batch: 96, Loss: 1.383, Acc: 43.75%
Epoch: 2, Batch: 97, Loss: 1.481, Acc: 43.75%
Epoch: 2, Batch: 98, Loss: 1.462, Acc: 50.00%
Epoch: 2, Batch: 99, Loss: 1.546, Acc: 46.09%
Epoch: 2, Batch: 100, Loss: 1.493, Acc: 35.94%
Epoch: 2, Batch: 101, Loss: 1.584, Acc: 45.31%
Epoch: 2, Batch: 102, Loss: 1.338, Acc: 49.22%
Epoch: 2, Batch: 103, Loss: 1.497, Acc: 39.84%
Epoch: 2, Batch: 104, Loss: 1.384, Acc: 45.31%
Epoch: 2, Batch: 105, Loss: 1.383, Acc: 51.56%
Epoch: 2, Batch: 106, Loss: 1.593, Acc: 39.84%
Epoch: 2, Batch: 107, Loss: 1.541, Acc: 37.50%
Epoch: 2, Batch: 108, Loss: 1.520, Acc: 44.53%
Epoch: 2, Batch: 109, Loss: 1.452, Acc: 44.53%
Epoch: 2, Batch: 110, Loss: 1.511, Acc: 51.56%
Epoch: 2, Batch: 111, Loss: 1.462, Acc: 48.44%
```

```
Epoch: 2, Batch: 112, Loss: 1.403, Acc: 50.00%
Epoch: 2, Batch: 113, Loss: 1.479, Acc: 45.31%
Epoch: 2, Batch: 114, Loss: 1.323, Acc: 48.44%
Epoch: 2, Batch: 115, Loss: 1.371, Acc: 50.78%
Epoch: 2, Batch: 116, Loss: 1.484, Acc: 43.75%
Epoch: 2, Batch: 117, Loss: 1.627, Acc: 35.16%
Epoch: 2, Batch: 118, Loss: 1.312, Acc: 52.34%
Epoch: 2, Batch: 119, Loss: 1.485, Acc: 43.75%
Epoch: 2, Batch: 120, Loss: 1.646, Acc: 34.38%
Epoch: 2, Batch: 121, Loss: 1.506, Acc: 39.84%
Epoch: 2, Batch: 122, Loss: 1.515, Acc: 51.56%
Epoch: 2, Batch: 123, Loss: 1.566, Acc: 35.16%
Epoch: 2, Batch: 124, Loss: 1.629, Acc: 40.62%
Epoch: 2, Batch: 125, Loss: 1.631, Acc: 42.97%
Epoch: 2, Batch: 126, Loss: 1.450, Acc: 45.31%
Epoch: 2, Batch: 127, Loss: 1.451, Acc: 46.88%
Epoch: 2, Batch: 128, Loss: 1.552, Acc: 43.75%
Epoch: 2, Batch: 129, Loss: 1.469, Acc: 44.53%
Epoch: 2, Batch: 130, Loss: 1.488, Acc: 37.50%
Epoch: 2, Batch: 131, Loss: 1.398, Acc: 48.44%
Epoch: 2, Batch: 132, Loss: 1.247, Acc: 55.47%
Epoch: 2, Batch: 133, Loss: 1.566, Acc: 39.84%
Epoch: 2, Batch: 134, Loss: 1.469, Acc: 46.09%
Epoch: 2, Batch: 135, Loss: 1.507, Acc: 46.09%
Epoch: 2, Batch: 136, Loss: 1.425, Acc: 46.88%
Epoch: 2, Batch: 137, Loss: 1.651, Acc: 42.97%
Epoch: 2, Batch: 138, Loss: 1.445, Acc: 46.88%
Epoch: 2, Batch: 139, Loss: 1.371, Acc: 53.12%
Epoch: 2, Batch: 140, Loss: 1.289, Acc: 48.44%
Epoch: 2, Batch: 141, Loss: 1.445, Acc: 41.41%
Epoch: 2, Batch: 142, Loss: 1.361, Acc: 46.88%
Epoch: 2, Batch: 143, Loss: 1.512, Acc: 40.62%
Epoch: 2, Batch: 144, Loss: 1.508, Acc: 42.19%
Epoch: 2, Batch: 145, Loss: 1.386, Acc: 50.78%
Epoch: 2, Batch: 146, Loss: 1.521, Acc: 44.53%
Epoch: 2, Batch: 147, Loss: 1.453, Acc: 48.44%
Epoch: 2, Batch: 148, Loss: 1.486, Acc: 47.66%
Epoch: 2, Batch: 149, Loss: 1.510, Acc: 49.22%
Epoch: 2, Batch: 150, Loss: 1.306, Acc: 52.34%
Epoch: 2, Batch: 151, Loss: 1.503, Acc: 42.97%
Epoch: 2, Batch: 152, Loss: 1.539, Acc: 47.66%
Epoch: 2, Batch: 153, Loss: 1.624, Acc: 39.06%
Epoch: 2, Batch: 154, Loss: 1.510, Acc: 42.97%
Epoch: 2, Batch: 155, Loss: 1.544, Acc: 44.53%
Epoch: 2, Batch: 156, Loss: 1.637, Acc: 34.38%
Epoch: 2, Batch: 157, Loss: 1.479, Acc: 50.78%
Epoch: 2, Batch: 158, Loss: 1.717, Acc: 34.38%
Epoch: 2, Batch: 159, Loss: 1.448, Acc: 46.88%
Epoch: 2, Batch: 160, Loss: 1.442, Acc: 46.88%
Epoch: 2, Batch: 161, Loss: 1.457, Acc: 50.00%
Epoch: 2, Batch: 162, Loss: 1.590, Acc: 35.94%
Epoch: 2, Batch: 163, Loss: 1.392, Acc: 46.88%
Epoch: 2, Batch: 164, Loss: 1.670, Acc: 39.06%
Epoch: 2, Batch: 165, Loss: 1.768, Acc: 34.38%
Epoch: 2, Batch: 166, Loss: 1.426, Acc: 48.44%
Epoch: 2, Batch: 167, Loss: 1.536, Acc: 41.41%
```

```
Epoch: 2, Batch: 168, Loss: 1.552, Acc: 35.94%
Epoch: 2, Batch: 169, Loss: 1.665, Acc: 38.28%
Epoch: 2, Batch: 170, Loss: 1.556, Acc: 39.06%
Epoch: 2, Batch: 171, Loss: 1.444, Acc: 46.88%
Epoch: 2, Batch: 172, Loss: 1.514, Acc: 50.00%
Epoch: 2, Batch: 173, Loss: 1.460, Acc: 44.53%
Epoch: 2, Batch: 174, Loss: 1.465, Acc: 50.00%
Epoch: 2, Batch: 175, Loss: 1.368, Acc: 51.56%
Epoch: 2, Batch: 176, Loss: 1.318, Acc: 55.47%
Epoch: 2, Batch: 177, Loss: 1.316, Acc: 50.00%
Epoch: 2, Batch: 178, Loss: 1.421, Acc: 40.62%
Epoch: 2, Batch: 179, Loss: 1.534, Acc: 44.53%
Epoch: 2, Batch: 180, Loss: 1.286, Acc: 55.47%
Epoch: 2, Batch: 181, Loss: 1.454, Acc: 44.53%
Epoch: 2, Batch: 182, Loss: 1.573, Acc: 40.62%
Epoch: 2, Batch: 183, Loss: 1.443, Acc: 46.09%
Epoch: 2, Batch: 184, Loss: 1.325, Acc: 53.12%
Epoch: 2, Batch: 185, Loss: 1.459, Acc: 50.00%
Epoch: 2, Batch: 186, Loss: 1.525, Acc: 43.75%
Epoch: 2, Batch: 187, Loss: 1.434, Acc: 44.53%
Epoch: 2, Batch: 188, Loss: 1.513, Acc: 44.53%
Epoch: 2, Batch: 189, Loss: 1.516, Acc: 43.75%
Epoch: 2, Batch: 190, Loss: 1.520, Acc: 39.06%
Epoch: 2, Batch: 191, Loss: 1.310, Acc: 57.81%
Epoch: 2, Batch: 192, Loss: 1.605, Acc: 44.53%
Epoch: 2, Batch: 193, Loss: 1.437, Acc: 46.09%
Epoch: 2, Batch: 194, Loss: 1.441, Acc: 46.09%
Epoch: 2, Batch: 195, Loss: 1.399, Acc: 45.31%
Epoch: 2, Batch: 196, Loss: 1.503, Acc: 46.09%
Epoch: 2, Batch: 197, Loss: 1.389, Acc: 47.66%
Epoch: 2, Batch: 198, Loss: 1.312, Acc: 51.56%
Epoch: 2, Batch: 199, Loss: 1.559, Acc: 47.66%
Epoch: 2, Batch: 200, Loss: 1.296, Acc: 53.12%
Epoch: 2, Batch: 201, Loss: 1.318, Acc: 53.91%
Epoch: 2, Batch: 202, Loss: 1.380, Acc: 51.56%
Epoch: 2, Batch: 203, Loss: 1.263, Acc: 56.25%
Epoch: 2, Batch: 204, Loss: 1.502, Acc: 42.97%
Epoch: 2, Batch: 205, Loss: 1.505, Acc: 48.44%
Epoch: 2, Batch: 206, Loss: 1.312, Acc: 50.78%
Epoch: 2, Batch: 207, Loss: 1.292, Acc: 54.69%
Epoch: 2, Batch: 208, Loss: 1.386, Acc: 47.66%
Epoch: 2, Batch: 209, Loss: 1.611, Acc: 36.72%
Epoch: 2, Batch: 210, Loss: 1.589, Acc: 48.44%
Epoch: 2, Batch: 211, Loss: 1.303, Acc: 50.78%
Epoch: 2, Batch: 212, Loss: 1.372, Acc: 50.00%
Epoch: 2, Batch: 213, Loss: 1.378, Acc: 50.78%
Epoch: 2, Batch: 214, Loss: 1.438, Acc: 46.88%
Epoch: 2, Batch: 215, Loss: 1.400, Acc: 51.56%
Epoch: 2, Batch: 216, Loss: 1.435, Acc: 47.66%
Epoch: 2, Batch: 217, Loss: 1.372, Acc: 47.66%
Epoch: 2, Batch: 218, Loss: 1.329, Acc: 51.56%
Epoch: 2, Batch: 219, Loss: 1.366, Acc: 55.47%
Epoch: 2, Batch: 220, Loss: 1.443, Acc: 47.66%
Epoch: 2, Batch: 221, Loss: 1.595, Acc: 45.31%
Epoch: 2, Batch: 222, Loss: 1.386, Acc: 50.00%
Epoch: 2, Batch: 223, Loss: 1.349, Acc: 45.31%
```

```
Epoch: 2, Batch: 224, Loss: 1.483, Acc: 39.84%
Epoch: 2, Batch: 225, Loss: 1.404, Acc: 46.09%
Epoch: 2, Batch: 226, Loss: 1.390, Acc: 47.66%
Epoch: 2, Batch: 227, Loss: 1.550, Acc: 48.44%
Epoch: 2, Batch: 228, Loss: 1.498, Acc: 41.41%
Epoch: 2, Batch: 229, Loss: 1.545, Acc: 43.75%
Epoch: 2, Batch: 230, Loss: 1.409, Acc: 52.34%
Epoch: 2, Batch: 231, Loss: 1.405, Acc: 44.53%
Epoch: 2, Batch: 232, Loss: 1.275, Acc: 50.78%
Epoch: 2, Batch: 233, Loss: 1.419, Acc: 47.66%
Epoch: 2, Batch: 234, Loss: 1.375, Acc: 50.78%
Epoch: 2, Batch: 235, Loss: 1.333, Acc: 48.44%
Epoch: 2, Batch: 236, Loss: 1.401, Acc: 42.97%
Epoch: 2, Batch: 237, Loss: 1.416, Acc: 50.00%
Epoch: 2, Batch: 238, Loss: 1.429, Acc: 50.78%
Epoch: 2, Batch: 239, Loss: 1.496, Acc: 45.31%
Epoch: 2, Batch: 240, Loss: 1.280, Acc: 47.66%
Epoch: 2, Batch: 241, Loss: 1.262, Acc: 57.03%
Epoch: 2, Batch: 242, Loss: 1.309, Acc: 51.56%
Epoch: 2, Batch: 243, Loss: 1.427, Acc: 55.47%
Epoch: 2, Batch: 244, Loss: 1.401, Acc: 48.44%
Epoch: 2, Batch: 245, Loss: 1.495, Acc: 45.31%
Epoch: 2, Batch: 246, Loss: 1.358, Acc: 43.75%
Epoch: 2, Batch: 247, Loss: 1.392, Acc: 50.78%
Epoch: 2, Batch: 248, Loss: 1.480, Acc: 43.75%
Epoch: 2, Batch: 249, Loss: 1.389, Acc: 50.78%
Epoch: 2, Batch: 250, Loss: 1.387, Acc: 48.44%
Epoch: 2, Batch: 251, Loss: 1.431, Acc: 50.00%
Epoch: 2, Batch: 252, Loss: 1.333, Acc: 50.00%
Epoch: 2, Batch: 253, Loss: 1.312, Acc: 48.44%
Epoch: 2, Batch: 254, Loss: 1.268, Acc: 51.56%
Epoch: 2, Batch: 255, Loss: 1.305, Acc: 60.16%
Epoch: 2, Batch: 256, Loss: 1.292, Acc: 52.34%
Epoch: 2, Batch: 257, Loss: 1.343, Acc: 53.91%
Epoch: 2, Batch: 258, Loss: 1.458, Acc: 52.34%
Epoch: 2, Batch: 259, Loss: 1.430, Acc: 47.66%
Epoch: 2, Batch: 260, Loss: 1.396, Acc: 51.56%
Epoch: 2, Batch: 261, Loss: 1.180, Acc: 49.22%
Epoch: 2, Batch: 262, Loss: 1.330, Acc: 45.31%
Epoch: 2, Batch: 263, Loss: 1.457, Acc: 42.97%
Epoch: 2, Batch: 264, Loss: 1.254, Acc: 53.91%
Epoch: 2, Batch: 265, Loss: 1.273, Acc: 56.25%
Epoch: 2, Batch: 266, Loss: 1.365, Acc: 49.22%
Epoch: 2, Batch: 267, Loss: 1.280, Acc: 53.91%
Epoch: 2, Batch: 268, Loss: 1.273, Acc: 46.88%
Epoch: 2, Batch: 269, Loss: 1.555, Acc: 41.41%
Epoch: 2, Batch: 270, Loss: 1.388, Acc: 44.53%
Epoch: 2, Batch: 271, Loss: 1.389, Acc: 45.31%
Epoch: 2, Batch: 272, Loss: 1.330, Acc: 46.88%
Epoch: 2, Batch: 273, Loss: 1.395, Acc: 46.88%
Epoch: 2, Batch: 274, Loss: 1.602, Acc: 42.97%
Epoch: 2, Batch: 275, Loss: 1.445, Acc: 42.97%
Epoch: 2, Batch: 276, Loss: 1.250, Acc: 49.22%
Epoch: 2, Batch: 277, Loss: 1.354, Acc: 54.69%
Epoch: 2, Batch: 278, Loss: 1.285, Acc: 53.12%
Epoch: 2, Batch: 279, Loss: 1.553, Acc: 45.31%
```

```
Epoch: 2, Batch: 280, Loss: 1.609, Acc: 41.41%
Epoch: 2, Batch: 281, Loss: 1.345, Acc: 50.00%
Epoch: 2, Batch: 282, Loss: 1.466, Acc: 45.31%
Epoch: 2, Batch: 283, Loss: 1.390, Acc: 46.88%
Epoch: 2, Batch: 284, Loss: 1.430, Acc: 48.44%
Epoch: 2, Batch: 285, Loss: 1.439, Acc: 43.75%
Epoch: 2, Batch: 286, Loss: 1.223, Acc: 53.91%
Epoch: 2, Batch: 287, Loss: 1.516, Acc: 46.88%
Epoch: 2, Batch: 288, Loss: 1.395, Acc: 47.66%
Epoch: 2, Batch: 289, Loss: 1.402, Acc: 50.00%
Epoch: 2, Batch: 290, Loss: 1.353, Acc: 50.78%
Epoch: 2, Batch: 291, Loss: 1.321, Acc: 51.56%
Epoch: 2, Batch: 292, Loss: 1.600, Acc: 46.09%
Epoch: 2, Batch: 293, Loss: 1.348, Acc: 54.69%
Epoch: 2, Batch: 294, Loss: 1.456, Acc: 49.22%
Epoch: 2, Batch: 295, Loss: 1.299, Acc: 53.91%
Epoch: 2, Batch: 296, Loss: 1.340, Acc: 44.53%
Epoch: 2, Batch: 297, Loss: 1.429, Acc: 42.19%
Epoch: 2, Batch: 298, Loss: 1.466, Acc: 42.97%
Epoch: 2, Batch: 299, Loss: 1.371, Acc: 49.22%
Epoch: 2, Batch: 300, Loss: 1.574, Acc: 48.44%
Epoch: 2, Batch: 301, Loss: 1.410, Acc: 47.66%
Epoch: 2, Batch: 302, Loss: 1.290, Acc: 58.59%
Epoch: 2, Batch: 303, Loss: 1.303, Acc: 48.44%
Epoch: 2, Batch: 304, Loss: 1.408, Acc: 45.31%
Epoch: 2, Batch: 305, Loss: 1.423, Acc: 42.19%
Epoch: 2, Batch: 306, Loss: 1.298, Acc: 51.56%
Epoch: 2, Batch: 307, Loss: 1.349, Acc: 53.12%
Epoch: 2, Batch: 308, Loss: 1.347, Acc: 48.44%
Epoch: 2, Batch: 309, Loss: 1.269, Acc: 54.69%
Epoch: 2, Batch: 310, Loss: 1.408, Acc: 48.44%
Epoch: 2, Batch: 311, Loss: 1.354, Acc: 59.38%
Epoch: 2, Batch: 312, Loss: 1.361, Acc: 50.78%
Epoch: 2, Batch: 313, Loss: 1.447, Acc: 49.22%
Epoch: 2, Batch: 314, Loss: 1.512, Acc: 48.44%
Epoch: 2, Batch: 315, Loss: 1.412, Acc: 47.66%
Epoch: 2, Batch: 316, Loss: 1.561, Acc: 41.41%
Epoch: 2, Batch: 317, Loss: 1.371, Acc: 48.44%
Epoch: 2, Batch: 318, Loss: 1.597, Acc: 38.28%
Epoch: 2, Batch: 319, Loss: 1.475, Acc: 42.19%
Epoch: 2, Batch: 320, Loss: 1.316, Acc: 52.34%
Epoch: 2, Batch: 321, Loss: 1.499, Acc: 42.97%
Epoch: 2, Batch: 322, Loss: 1.399, Acc: 51.56%
Epoch: 2, Batch: 323, Loss: 1.397, Acc: 46.88%
Epoch: 2, Batch: 324, Loss: 1.563, Acc: 46.88%
Epoch: 2, Batch: 325, Loss: 1.416, Acc: 50.00%
Epoch: 2, Batch: 326, Loss: 1.393, Acc: 51.56%
Epoch: 2, Batch: 327, Loss: 1.443, Acc: 43.75%
Epoch: 2, Batch: 328, Loss: 1.252, Acc: 60.16%
Epoch: 2, Batch: 329, Loss: 1.401, Acc: 48.44%
Epoch: 2, Batch: 330, Loss: 1.299, Acc: 53.91%
Epoch: 2, Batch: 331, Loss: 1.336, Acc: 50.00%
Epoch: 2, Batch: 332, Loss: 1.291, Acc: 53.12%
Epoch: 2, Batch: 333, Loss: 1.362, Acc: 56.25%
Epoch: 2, Batch: 334, Loss: 1.332, Acc: 49.22%
Epoch: 2, Batch: 335, Loss: 1.420, Acc: 48.44%
```

```
Epoch: 2, Batch: 336, Loss: 1.379, Acc: 46.09%
Epoch: 2, Batch: 337, Loss: 1.272, Acc: 51.56%
Epoch: 2, Batch: 338, Loss: 1.431, Acc: 47.66%
Epoch: 2, Batch: 339, Loss: 1.292, Acc: 50.00%
Epoch: 2, Batch: 340, Loss: 1.353, Acc: 45.31%
Epoch: 2, Batch: 341, Loss: 1.256, Acc: 57.81%
Epoch: 2, Batch: 342, Loss: 1.294, Acc: 54.69%
Epoch: 2, Batch: 343, Loss: 1.439, Acc: 52.34%
Epoch: 2, Batch: 344, Loss: 1.362, Acc: 53.12%
Epoch: 2, Batch: 345, Loss: 1.369, Acc: 51.56%
Epoch: 2, Batch: 346, Loss: 1.275, Acc: 58.59%
Epoch: 2, Batch: 347, Loss: 1.334, Acc: 49.22%
Epoch: 2, Batch: 348, Loss: 1.287, Acc: 50.78%
Epoch: 2, Batch: 349, Loss: 1.284, Acc: 54.69%
Epoch: 2, Batch: 350, Loss: 1.428, Acc: 48.44%
Epoch: 2, Batch: 351, Loss: 1.201, Acc: 57.03%
Epoch: 2, Batch: 352, Loss: 1.239, Acc: 53.12%
Epoch: 2, Batch: 353, Loss: 1.396, Acc: 47.66%
Epoch: 2, Batch: 354, Loss: 1.295, Acc: 53.91%
Epoch: 2, Batch: 355, Loss: 1.237, Acc: 51.56%
Epoch: 2, Batch: 356, Loss: 1.400, Acc: 48.44%
Epoch: 2, Batch: 357, Loss: 1.302, Acc: 53.91%
Epoch: 2, Batch: 358, Loss: 1.281, Acc: 51.56%
Epoch: 2, Batch: 359, Loss: 1.357, Acc: 44.53%
Epoch: 2, Batch: 360, Loss: 1.170, Acc: 60.16%
Epoch: 2, Batch: 361, Loss: 1.400, Acc: 51.56%
Epoch: 2, Batch: 362, Loss: 1.266, Acc: 53.91%
Epoch: 2, Batch: 363, Loss: 1.257, Acc: 53.12%
Epoch: 2, Batch: 364, Loss: 1.405, Acc: 47.66%
Epoch: 2, Batch: 365, Loss: 1.554, Acc: 45.31%
Epoch: 2, Batch: 366, Loss: 1.304, Acc: 51.56%
Epoch: 2, Batch: 367, Loss: 1.258, Acc: 47.66%
Epoch: 2, Batch: 368, Loss: 1.323, Acc: 44.53%
Epoch: 2, Batch: 369, Loss: 1.254, Acc: 56.25%
Epoch: 2, Batch: 370, Loss: 1.440, Acc: 44.53%
Epoch: 2, Batch: 371, Loss: 1.229, Acc: 57.03%
Epoch: 2, Batch: 372, Loss: 1.394, Acc: 50.78%
Epoch: 2, Batch: 373, Loss: 1.379, Acc: 48.44%
Epoch: 2, Batch: 374, Loss: 1.281, Acc: 53.12%
Epoch: 2, Batch: 375, Loss: 1.245, Acc: 50.00%
Epoch: 2, Batch: 376, Loss: 1.484, Acc: 48.44%
Epoch: 2, Batch: 377, Loss: 1.281, Acc: 54.69%
Epoch: 2, Batch: 378, Loss: 1.298, Acc: 50.00%
Epoch: 2, Batch: 379, Loss: 1.288, Acc: 54.69%
Epoch: 2, Batch: 380, Loss: 1.400, Acc: 50.78%
Epoch: 2, Batch: 381, Loss: 1.382, Acc: 48.44%
Epoch: 2, Batch: 382, Loss: 1.355, Acc: 52.34%
Epoch: 2, Batch: 383, Loss: 1.358, Acc: 50.00%
Epoch: 2, Batch: 384, Loss: 1.506, Acc: 48.44%
Epoch: 2, Batch: 385, Loss: 1.225, Acc: 58.59%
Epoch: 2, Batch: 386, Loss: 1.164, Acc: 62.50%
Epoch: 2, Batch: 387, Loss: 1.432, Acc: 48.44%
Epoch: 2, Batch: 388, Loss: 1.342, Acc: 49.22%
Epoch: 2, Batch: 389, Loss: 1.389, Acc: 51.56%
Epoch: 2, Batch: 390, Loss: 1.275, Acc: 53.12%
Epoch: 2, Batch: 391, Loss: 1.354, Acc: 47.50%
```

```
Epoch 2 completed
Epoch: 3, Batch: 1, Loss: 1.252, Acc: 54.69%
Epoch: 3, Batch: 2, Loss: 1.175, Acc: 60.94%
Epoch: 3, Batch: 3, Loss: 1.244, Acc: 52.34%
Epoch: 3, Batch: 4, Loss: 1.205, Acc: 57.03%
Epoch: 3, Batch: 5, Loss: 1.455, Acc: 51.56%
Epoch: 3, Batch: 6, Loss: 1.318, Acc: 53.91%
Epoch: 3, Batch: 7, Loss: 1.389, Acc: 53.91%
Epoch: 3, Batch: 8, Loss: 1.455, Acc: 45.31%
Epoch: 3, Batch: 9, Loss: 1.127, Acc: 58.59%
Epoch: 3, Batch: 10, Loss: 1.215, Acc: 55.47%
Epoch: 3, Batch: 11, Loss: 1.401, Acc: 50.00%
Epoch: 3, Batch: 12, Loss: 1.455, Acc: 50.00%
Epoch: 3, Batch: 13, Loss: 1.200, Acc: 56.25%
Epoch: 3, Batch: 14, Loss: 1.238, Acc: 57.03%
Epoch: 3, Batch: 15, Loss: 1.331, Acc: 48.44%
Epoch: 3, Batch: 16, Loss: 1.260, Acc: 59.38%
Epoch: 3, Batch: 17, Loss: 1.373, Acc: 50.78%
Epoch: 3, Batch: 18, Loss: 1.276, Acc: 50.00%
Epoch: 3, Batch: 19, Loss: 1.380, Acc: 50.00%
Epoch: 3, Batch: 20, Loss: 1.290, Acc: 53.12%
Epoch: 3, Batch: 21, Loss: 1.110, Acc: 60.94%
Epoch: 3, Batch: 22, Loss: 1.299, Acc: 57.81%
Epoch: 3, Batch: 23, Loss: 1.189, Acc: 54.69%
Epoch: 3, Batch: 24, Loss: 1.247, Acc: 57.81%
Epoch: 3, Batch: 25, Loss: 1.576, Acc: 43.75%
Epoch: 3, Batch: 26, Loss: 1.271, Acc: 45.31%
Epoch: 3, Batch: 27, Loss: 1.263, Acc: 53.12%
Epoch: 3, Batch: 28, Loss: 1.407, Acc: 51.56%
Epoch: 3, Batch: 29, Loss: 1.224, Acc: 53.12%
Epoch: 3, Batch: 30, Loss: 1.203, Acc: 53.91%
Epoch: 3, Batch: 31, Loss: 1.353, Acc: 56.25%
Epoch: 3, Batch: 32, Loss: 1.344, Acc: 53.91%
Epoch: 3, Batch: 33, Loss: 1.331, Acc: 54.69%
Epoch: 3, Batch: 34, Loss: 1.090, Acc: 57.03%
Epoch: 3, Batch: 35, Loss: 1.214, Acc: 60.94%
Epoch: 3, Batch: 36, Loss: 1.291, Acc: 57.03%
Epoch: 3, Batch: 37, Loss: 1.300, Acc: 47.66%
Epoch: 3, Batch: 38, Loss: 1.408, Acc: 43.75%
Epoch: 3, Batch: 39, Loss: 1.112, Acc: 57.81%
Epoch: 3, Batch: 40, Loss: 1.269, Acc: 54.69%
Epoch: 3, Batch: 41, Loss: 1.457, Acc: 44.53%
Epoch: 3, Batch: 42, Loss: 1.550, Acc: 46.88%
Epoch: 3, Batch: 43, Loss: 1.278, Acc: 52.34%
Epoch: 3, Batch: 44, Loss: 1.277, Acc: 53.12%
Epoch: 3, Batch: 45, Loss: 1.349, Acc: 52.34%
Epoch: 3, Batch: 46, Loss: 1.408, Acc: 47.66%
Epoch: 3, Batch: 47, Loss: 1.512, Acc: 49.22%
Epoch: 3, Batch: 48, Loss: 1.192, Acc: 55.47%
Epoch: 3, Batch: 49, Loss: 1.291, Acc: 51.56%
Epoch: 3, Batch: 50, Loss: 1.223, Acc: 59.38%
Epoch: 3, Batch: 51, Loss: 1.271, Acc: 53.91%
Epoch: 3, Batch: 52, Loss: 1.262, Acc: 51.56%
Epoch: 3, Batch: 53, Loss: 1.278, Acc: 55.47%
Epoch: 3, Batch: 54, Loss: 1.245, Acc: 57.81%
Epoch: 3, Batch: 55, Loss: 1.309, Acc: 51.56%
```

```
Epoch: 3, Batch: 56, Loss: 1.381, Acc: 50.78%
Epoch: 3, Batch: 57, Loss: 1.417, Acc: 48.44%
Epoch: 3, Batch: 58, Loss: 1.208, Acc: 54.69%
Epoch: 3, Batch: 59, Loss: 1.284, Acc: 53.91%
Epoch: 3, Batch: 60, Loss: 1.211, Acc: 63.28%
Epoch: 3, Batch: 61, Loss: 1.248, Acc: 59.38%
Epoch: 3, Batch: 62, Loss: 1.153, Acc: 60.94%
Epoch: 3, Batch: 63, Loss: 1.211, Acc: 59.38%
Epoch: 3, Batch: 64, Loss: 1.223, Acc: 52.34%
Epoch: 3, Batch: 65, Loss: 1.416, Acc: 53.91%
Epoch: 3, Batch: 66, Loss: 1.418, Acc: 47.66%
Epoch: 3, Batch: 67, Loss: 1.539, Acc: 50.78%
Epoch: 3, Batch: 68, Loss: 1.182, Acc: 61.72%
Epoch: 3, Batch: 69, Loss: 1.212, Acc: 50.00%
Epoch: 3, Batch: 70, Loss: 1.230, Acc: 53.12%
Epoch: 3, Batch: 71, Loss: 1.154, Acc: 55.47%
Epoch: 3, Batch: 72, Loss: 1.213, Acc: 57.03%
Epoch: 3, Batch: 73, Loss: 1.237, Acc: 60.94%
Epoch: 3, Batch: 74, Loss: 1.439, Acc: 42.19%
Epoch: 3, Batch: 75, Loss: 1.358, Acc: 52.34%
Epoch: 3, Batch: 76, Loss: 1.445, Acc: 46.09%
Epoch: 3, Batch: 77, Loss: 1.133, Acc: 63.28%
Epoch: 3, Batch: 78, Loss: 1.353, Acc: 52.34%
Epoch: 3, Batch: 79, Loss: 1.355, Acc: 50.78%
Epoch: 3, Batch: 80, Loss: 1.235, Acc: 56.25%
Epoch: 3, Batch: 81, Loss: 1.358, Acc: 53.91%
Epoch: 3, Batch: 82, Loss: 1.310, Acc: 57.81%
Epoch: 3, Batch: 83, Loss: 1.417, Acc: 50.78%
Epoch: 3, Batch: 84, Loss: 1.240, Acc: 60.16%
Epoch: 3, Batch: 85, Loss: 1.233, Acc: 58.59%
Epoch: 3, Batch: 86, Loss: 1.130, Acc: 56.25%
Epoch: 3, Batch: 87, Loss: 1.271, Acc: 53.12%
Epoch: 3, Batch: 88, Loss: 1.243, Acc: 57.03%
Epoch: 3, Batch: 89, Loss: 1.291, Acc: 56.25%
Epoch: 3, Batch: 90, Loss: 1.164, Acc: 60.94%
Epoch: 3, Batch: 91, Loss: 1.236, Acc: 49.22%
Epoch: 3, Batch: 92, Loss: 1.165, Acc: 60.16%
Epoch: 3, Batch: 93, Loss: 1.224, Acc: 54.69%
Epoch: 3, Batch: 94, Loss: 1.299, Acc: 48.44%
Epoch: 3, Batch: 95, Loss: 1.137, Acc: 56.25%
Epoch: 3, Batch: 96, Loss: 1.271, Acc: 51.56%
Epoch: 3, Batch: 97, Loss: 1.287, Acc: 54.69%
Epoch: 3, Batch: 98, Loss: 1.210, Acc: 54.69%
Epoch: 3, Batch: 99, Loss: 1.228, Acc: 57.03%
Epoch: 3, Batch: 100, Loss: 1.244, Acc: 57.81%
Epoch: 3, Batch: 101, Loss: 1.285, Acc: 50.00%
Epoch: 3, Batch: 102, Loss: 1.328, Acc: 56.25%
Epoch: 3, Batch: 103, Loss: 1.372, Acc: 50.00%
Epoch: 3, Batch: 104, Loss: 1.197, Acc: 58.59%
Epoch: 3, Batch: 105, Loss: 1.164, Acc: 60.16%
Epoch: 3, Batch: 106, Loss: 1.425, Acc: 50.00%
Epoch: 3, Batch: 107, Loss: 1.382, Acc: 51.56%
Epoch: 3, Batch: 108, Loss: 1.282, Acc: 46.88%
Epoch: 3, Batch: 109, Loss: 1.277, Acc: 53.12%
Epoch: 3, Batch: 110, Loss: 1.339, Acc: 53.91%
Epoch: 3, Batch: 111, Loss: 1.107, Acc: 60.94%
```

```
Epoch: 3, Batch: 112, Loss: 1.060, Acc: 59.38%
Epoch: 3, Batch: 113, Loss: 1.192, Acc: 51.56%
Epoch: 3, Batch: 114, Loss: 1.136, Acc: 57.03%
Epoch: 3, Batch: 115, Loss: 1.220, Acc: 60.16%
Epoch: 3, Batch: 116, Loss: 1.222, Acc: 58.59%
Epoch: 3, Batch: 117, Loss: 1.321, Acc: 49.22%
Epoch: 3, Batch: 118, Loss: 1.140, Acc: 61.72%
Epoch: 3, Batch: 119, Loss: 1.438, Acc: 46.88%
Epoch: 3, Batch: 120, Loss: 0.939, Acc: 70.31%
Epoch: 3, Batch: 121, Loss: 1.179, Acc: 59.38%
Epoch: 3, Batch: 122, Loss: 1.001, Acc: 63.28%
Epoch: 3, Batch: 123, Loss: 1.558, Acc: 46.09%
Epoch: 3, Batch: 124, Loss: 1.154, Acc: 59.38%
Epoch: 3, Batch: 125, Loss: 1.209, Acc: 53.12%
Epoch: 3, Batch: 126, Loss: 1.276, Acc: 53.91%
Epoch: 3, Batch: 127, Loss: 1.312, Acc: 57.81%
Epoch: 3, Batch: 128, Loss: 1.305, Acc: 55.47%
Epoch: 3, Batch: 129, Loss: 1.408, Acc: 50.78%
Epoch: 3, Batch: 130, Loss: 1.192, Acc: 60.16%
Epoch: 3, Batch: 131, Loss: 1.275, Acc: 53.12%
Epoch: 3, Batch: 132, Loss: 1.167, Acc: 57.03%
Epoch: 3, Batch: 133, Loss: 1.073, Acc: 59.38%
Epoch: 3, Batch: 134, Loss: 1.241, Acc: 54.69%
Epoch: 3, Batch: 135, Loss: 1.220, Acc: 55.47%
Epoch: 3, Batch: 136, Loss: 1.281, Acc: 48.44%
Epoch: 3, Batch: 137, Loss: 1.172, Acc: 56.25%
Epoch: 3, Batch: 138, Loss: 1.266, Acc: 52.34%
Epoch: 3, Batch: 139, Loss: 1.329, Acc: 49.22%
Epoch: 3, Batch: 140, Loss: 1.248, Acc: 57.81%
Epoch: 3, Batch: 141, Loss: 1.152, Acc: 64.06%
Epoch: 3, Batch: 142, Loss: 1.078, Acc: 62.50%
Epoch: 3, Batch: 143, Loss: 1.151, Acc: 54.69%
Epoch: 3, Batch: 144, Loss: 1.228, Acc: 55.47%
Epoch: 3, Batch: 145, Loss: 1.345, Acc: 53.12%
Epoch: 3, Batch: 146, Loss: 1.203, Acc: 55.47%
Epoch: 3, Batch: 147, Loss: 1.145, Acc: 60.94%
Epoch: 3, Batch: 148, Loss: 1.265, Acc: 56.25%
Epoch: 3, Batch: 149, Loss: 1.111, Acc: 66.41%
Epoch: 3, Batch: 150, Loss: 1.202, Acc: 58.59%
Epoch: 3, Batch: 151, Loss: 1.150, Acc: 61.72%
Epoch: 3, Batch: 152, Loss: 1.450, Acc: 49.22%
Epoch: 3, Batch: 153, Loss: 1.416, Acc: 48.44%
Epoch: 3, Batch: 154, Loss: 1.289, Acc: 52.34%
Epoch: 3, Batch: 155, Loss: 1.073, Acc: 62.50%
Epoch: 3, Batch: 156, Loss: 1.130, Acc: 60.16%
Epoch: 3, Batch: 157, Loss: 1.167, Acc: 55.47%
Epoch: 3, Batch: 158, Loss: 1.222, Acc: 57.81%
Epoch: 3, Batch: 159, Loss: 1.133, Acc: 61.72%
Epoch: 3, Batch: 160, Loss: 1.142, Acc: 61.72%
Epoch: 3, Batch: 161, Loss: 1.297, Acc: 52.34%
Epoch: 3, Batch: 162, Loss: 1.185, Acc: 56.25%
Epoch: 3, Batch: 163, Loss: 1.047, Acc: 62.50%
Epoch: 3, Batch: 164, Loss: 1.288, Acc: 48.44%
Epoch: 3, Batch: 165, Loss: 1.394, Acc: 48.44%
Epoch: 3, Batch: 166, Loss: 1.481, Acc: 56.25%
Epoch: 3, Batch: 167, Loss: 1.117, Acc: 60.16%
```

```
Epoch: 3, Batch: 168, Loss: 1.168, Acc: 58.59%
Epoch: 3, Batch: 169, Loss: 1.232, Acc: 58.59%
Epoch: 3, Batch: 170, Loss: 1.201, Acc: 57.81%
Epoch: 3, Batch: 171, Loss: 1.398, Acc: 53.12%
Epoch: 3, Batch: 172, Loss: 1.153, Acc: 59.38%
Epoch: 3, Batch: 173, Loss: 1.301, Acc: 50.00%
Epoch: 3, Batch: 174, Loss: 1.280, Acc: 53.12%
Epoch: 3, Batch: 175, Loss: 1.221, Acc: 59.38%
Epoch: 3, Batch: 176, Loss: 1.290, Acc: 50.00%
Epoch: 3, Batch: 177, Loss: 1.209, Acc: 61.72%
Epoch: 3, Batch: 178, Loss: 1.115, Acc: 57.03%
Epoch: 3, Batch: 179, Loss: 1.338, Acc: 53.12%
Epoch: 3, Batch: 180, Loss: 1.304, Acc: 51.56%
Epoch: 3, Batch: 181, Loss: 1.168, Acc: 57.81%
Epoch: 3, Batch: 182, Loss: 1.045, Acc: 58.59%
Epoch: 3, Batch: 183, Loss: 1.058, Acc: 56.25%
Epoch: 3, Batch: 184, Loss: 1.056, Acc: 62.50%
Epoch: 3, Batch: 185, Loss: 1.022, Acc: 68.75%
Epoch: 3, Batch: 186, Loss: 1.261, Acc: 55.47%
Epoch: 3, Batch: 187, Loss: 1.213, Acc: 60.94%
Epoch: 3, Batch: 188, Loss: 1.164, Acc: 58.59%
Epoch: 3, Batch: 189, Loss: 1.218, Acc: 56.25%
Epoch: 3, Batch: 190, Loss: 1.306, Acc: 54.69%
Epoch: 3, Batch: 191, Loss: 1.142, Acc: 60.94%
Epoch: 3, Batch: 192, Loss: 1.113, Acc: 59.38%
Epoch: 3, Batch: 193, Loss: 1.132, Acc: 59.38%
Epoch: 3, Batch: 194, Loss: 1.103, Acc: 60.16%
Epoch: 3, Batch: 195, Loss: 1.141, Acc: 59.38%
Epoch: 3, Batch: 196, Loss: 1.256, Acc: 53.91%
Epoch: 3, Batch: 197, Loss: 1.351, Acc: 53.91%
Epoch: 3, Batch: 198, Loss: 1.131, Acc: 57.81%
Epoch: 3, Batch: 199, Loss: 1.298, Acc: 54.69%
Epoch: 3, Batch: 200, Loss: 1.118, Acc: 60.16%
Epoch: 3, Batch: 201, Loss: 1.228, Acc: 54.69%
Epoch: 3, Batch: 202, Loss: 1.282, Acc: 55.47%
Epoch: 3, Batch: 203, Loss: 1.384, Acc: 49.22%
Epoch: 3, Batch: 204, Loss: 1.141, Acc: 59.38%
Epoch: 3, Batch: 205, Loss: 1.143, Acc: 60.16%
Epoch: 3, Batch: 206, Loss: 1.180, Acc: 60.16%
Epoch: 3, Batch: 207, Loss: 1.203, Acc: 55.47%
Epoch: 3, Batch: 208, Loss: 1.222, Acc: 55.47%
Epoch: 3, Batch: 209, Loss: 1.379, Acc: 50.00%
Epoch: 3, Batch: 210, Loss: 1.049, Acc: 61.72%
Epoch: 3, Batch: 211, Loss: 1.202, Acc: 56.25%
Epoch: 3, Batch: 212, Loss: 1.352, Acc: 53.12%
Epoch: 3, Batch: 213, Loss: 1.190, Acc: 60.16%
Epoch: 3, Batch: 214, Loss: 1.014, Acc: 62.50%
Epoch: 3, Batch: 215, Loss: 1.385, Acc: 45.31%
Epoch: 3, Batch: 216, Loss: 1.123, Acc: 60.16%
Epoch: 3, Batch: 217, Loss: 1.133, Acc: 60.16%
Epoch: 3, Batch: 218, Loss: 1.064, Acc: 60.94%
Epoch: 3, Batch: 219, Loss: 1.224, Acc: 53.12%
Epoch: 3, Batch: 220, Loss: 1.189, Acc: 55.47%
Epoch: 3, Batch: 221, Loss: 1.237, Acc: 58.59%
Epoch: 3, Batch: 222, Loss: 0.971, Acc: 67.97%
Epoch: 3, Batch: 223, Loss: 1.022, Acc: 67.97%
```

```
Epoch: 3, Batch: 224, Loss: 1.092, Acc: 58.59%
Epoch: 3, Batch: 225, Loss: 1.002, Acc: 65.62%
Epoch: 3, Batch: 226, Loss: 1.090, Acc: 60.16%
Epoch: 3, Batch: 227, Loss: 1.047, Acc: 64.06%
Epoch: 3, Batch: 228, Loss: 1.275, Acc: 54.69%
Epoch: 3, Batch: 229, Loss: 1.131, Acc: 60.94%
Epoch: 3, Batch: 230, Loss: 1.224, Acc: 60.16%
Epoch: 3, Batch: 231, Loss: 1.126, Acc: 61.72%
Epoch: 3, Batch: 232, Loss: 1.217, Acc: 56.25%
Epoch: 3, Batch: 233, Loss: 1.138, Acc: 60.94%
Epoch: 3, Batch: 234, Loss: 1.036, Acc: 64.84%
Epoch: 3, Batch: 235, Loss: 1.227, Acc: 57.81%
Epoch: 3, Batch: 236, Loss: 1.223, Acc: 56.25%
Epoch: 3, Batch: 237, Loss: 1.097, Acc: 61.72%
Epoch: 3, Batch: 238, Loss: 1.125, Acc: 54.69%
Epoch: 3, Batch: 239, Loss: 1.171, Acc: 59.38%
Epoch: 3, Batch: 240, Loss: 1.097, Acc: 64.06%
Epoch: 3, Batch: 241, Loss: 1.218, Acc: 59.38%
Epoch: 3, Batch: 242, Loss: 1.215, Acc: 58.59%
Epoch: 3, Batch: 243, Loss: 1.125, Acc: 59.38%
Epoch: 3, Batch: 244, Loss: 0.995, Acc: 66.41%
Epoch: 3, Batch: 245, Loss: 1.410, Acc: 50.00%
Epoch: 3, Batch: 246, Loss: 1.101, Acc: 55.47%
Epoch: 3, Batch: 247, Loss: 0.907, Acc: 69.53%
Epoch: 3, Batch: 248, Loss: 1.176, Acc: 57.81%
Epoch: 3, Batch: 249, Loss: 1.195, Acc: 55.47%
Epoch: 3, Batch: 250, Loss: 1.078, Acc: 58.59%
Epoch: 3, Batch: 251, Loss: 1.018, Acc: 66.41%
Epoch: 3, Batch: 252, Loss: 1.305, Acc: 53.12%
Epoch: 3, Batch: 253, Loss: 1.248, Acc: 56.25%
Epoch: 3, Batch: 254, Loss: 1.079, Acc: 59.38%
Epoch: 3, Batch: 255, Loss: 1.182, Acc: 58.59%
Epoch: 3, Batch: 256, Loss: 1.395, Acc: 52.34%
Epoch: 3, Batch: 257, Loss: 1.207, Acc: 59.38%
Epoch: 3, Batch: 258, Loss: 1.283, Acc: 55.47%
Epoch: 3, Batch: 259, Loss: 1.197, Acc: 57.81%
Epoch: 3, Batch: 260, Loss: 1.213, Acc: 55.47%
Epoch: 3, Batch: 261, Loss: 1.388, Acc: 54.69%
Epoch: 3, Batch: 262, Loss: 1.367, Acc: 51.56%
Epoch: 3, Batch: 263, Loss: 1.137, Acc: 58.59%
Epoch: 3, Batch: 264, Loss: 1.221, Acc: 57.81%
Epoch: 3, Batch: 265, Loss: 1.187, Acc: 57.03%
Epoch: 3, Batch: 266, Loss: 1.135, Acc: 58.59%
Epoch: 3, Batch: 267, Loss: 1.361, Acc: 53.91%
Epoch: 3, Batch: 268, Loss: 1.155, Acc: 59.38%
Epoch: 3, Batch: 269, Loss: 1.466, Acc: 50.00%
Epoch: 3, Batch: 270, Loss: 1.372, Acc: 51.56%
Epoch: 3, Batch: 271, Loss: 1.041, Acc: 60.94%
Epoch: 3, Batch: 272, Loss: 1.049, Acc: 60.16%
Epoch: 3, Batch: 273, Loss: 1.197, Acc: 58.59%
Epoch: 3, Batch: 274, Loss: 1.112, Acc: 57.81%
Epoch: 3, Batch: 275, Loss: 1.229, Acc: 58.59%
Epoch: 3, Batch: 276, Loss: 1.227, Acc: 55.47%
Epoch: 3, Batch: 277, Loss: 1.138, Acc: 57.81%
Epoch: 3, Batch: 278, Loss: 1.335, Acc: 43.75%
Epoch: 3, Batch: 279, Loss: 1.018, Acc: 57.81%
```

```
Epoch: 3, Batch: 280, Loss: 1.126, Acc: 64.06%
Epoch: 3, Batch: 281, Loss: 1.070, Acc: 63.28%
Epoch: 3, Batch: 282, Loss: 1.206, Acc: 52.34%
Epoch: 3, Batch: 283, Loss: 1.354, Acc: 49.22%
Epoch: 3, Batch: 284, Loss: 1.017, Acc: 64.06%
Epoch: 3, Batch: 285, Loss: 1.301, Acc: 46.88%
Epoch: 3, Batch: 286, Loss: 1.006, Acc: 63.28%
Epoch: 3, Batch: 287, Loss: 1.346, Acc: 46.09%
Epoch: 3, Batch: 288, Loss: 1.242, Acc: 60.16%
Epoch: 3, Batch: 289, Loss: 1.315, Acc: 52.34%
Epoch: 3, Batch: 290, Loss: 1.087, Acc: 58.59%
Epoch: 3, Batch: 291, Loss: 1.092, Acc: 59.38%
Epoch: 3, Batch: 292, Loss: 1.103, Acc: 67.19%
Epoch: 3, Batch: 293, Loss: 1.057, Acc: 59.38%
Epoch: 3, Batch: 294, Loss: 0.991, Acc: 64.84%
Epoch: 3, Batch: 295, Loss: 1.143, Acc: 58.59%
Epoch: 3, Batch: 296, Loss: 1.097, Acc: 59.38%
Epoch: 3, Batch: 297, Loss: 1.274, Acc: 53.91%
Epoch: 3, Batch: 298, Loss: 1.122, Acc: 60.16%
Epoch: 3, Batch: 299, Loss: 1.061, Acc: 62.50%
Epoch: 3, Batch: 300, Loss: 1.373, Acc: 52.34%
Epoch: 3, Batch: 301, Loss: 1.011, Acc: 63.28%
Epoch: 3, Batch: 302, Loss: 1.126, Acc: 60.94%
Epoch: 3, Batch: 303, Loss: 1.042, Acc: 63.28%
Epoch: 3, Batch: 304, Loss: 1.150, Acc: 58.59%
Epoch: 3, Batch: 305, Loss: 1.061, Acc: 63.28%
Epoch: 3, Batch: 306, Loss: 1.137, Acc: 57.81%
Epoch: 3, Batch: 307, Loss: 1.075, Acc: 61.72%
Epoch: 3, Batch: 308, Loss: 1.082, Acc: 60.16%
Epoch: 3, Batch: 309, Loss: 0.974, Acc: 60.94%
Epoch: 3, Batch: 310, Loss: 1.004, Acc: 64.06%
Epoch: 3, Batch: 311, Loss: 1.227, Acc: 54.69%
Epoch: 3, Batch: 312, Loss: 1.239, Acc: 55.47%
Epoch: 3, Batch: 313, Loss: 1.098, Acc: 66.41%
Epoch: 3, Batch: 314, Loss: 1.167, Acc: 60.94%
Epoch: 3, Batch: 315, Loss: 1.224, Acc: 59.38%
Epoch: 3, Batch: 316, Loss: 1.203, Acc: 53.91%
Epoch: 3, Batch: 317, Loss: 1.157, Acc: 62.50%
Epoch: 3, Batch: 318, Loss: 1.115, Acc: 56.25%
Epoch: 3, Batch: 319, Loss: 1.144, Acc: 60.94%
Epoch: 3, Batch: 320, Loss: 1.201, Acc: 60.94%
Epoch: 3, Batch: 321, Loss: 1.072, Acc: 60.94%
Epoch: 3, Batch: 322, Loss: 0.998, Acc: 65.62%
Epoch: 3, Batch: 323, Loss: 1.023, Acc: 63.28%
Epoch: 3, Batch: 324, Loss: 1.369, Acc: 47.66%
Epoch: 3, Batch: 325, Loss: 1.030, Acc: 60.94%
Epoch: 3, Batch: 326, Loss: 1.088, Acc: 55.47%
Epoch: 3, Batch: 327, Loss: 1.152, Acc: 55.47%
Epoch: 3, Batch: 328, Loss: 1.169, Acc: 57.81%
Epoch: 3, Batch: 329, Loss: 1.258, Acc: 53.91%
Epoch: 3, Batch: 330, Loss: 1.039, Acc: 65.62%
Epoch: 3, Batch: 331, Loss: 1.109, Acc: 60.94%
Epoch: 3, Batch: 332, Loss: 1.025, Acc: 60.94%
Epoch: 3, Batch: 333, Loss: 1.097, Acc: 60.94%
Epoch: 3, Batch: 334, Loss: 1.361, Acc: 52.34%
Epoch: 3, Batch: 335, Loss: 1.393, Acc: 53.91%
```

```
Epoch: 3, Batch: 336, Loss: 1.219, Acc: 60.94%
Epoch: 3, Batch: 337, Loss: 1.119, Acc: 58.59%
Epoch: 3, Batch: 338, Loss: 1.019, Acc: 64.06%
Epoch: 3, Batch: 339, Loss: 1.134, Acc: 59.38%
Epoch: 3, Batch: 340, Loss: 1.000, Acc: 64.84%
Epoch: 3, Batch: 341, Loss: 1.085, Acc: 63.28%
Epoch: 3, Batch: 342, Loss: 0.948, Acc: 66.41%
Epoch: 3, Batch: 343, Loss: 1.178, Acc: 61.72%
Epoch: 3, Batch: 344, Loss: 1.062, Acc: 60.94%
Epoch: 3, Batch: 345, Loss: 1.185, Acc: 51.56%
Epoch: 3, Batch: 346, Loss: 1.275, Acc: 50.00%
Epoch: 3, Batch: 347, Loss: 1.100, Acc: 60.16%
Epoch: 3, Batch: 348, Loss: 1.101, Acc: 60.94%
Epoch: 3, Batch: 349, Loss: 0.988, Acc: 66.41%
Epoch: 3, Batch: 350, Loss: 1.172, Acc: 57.81%
Epoch: 3, Batch: 351, Loss: 1.157, Acc: 60.94%
Epoch: 3, Batch: 352, Loss: 0.941, Acc: 68.75%
Epoch: 3, Batch: 353, Loss: 0.998, Acc: 64.06%
Epoch: 3, Batch: 354, Loss: 1.173, Acc: 60.16%
Epoch: 3, Batch: 355, Loss: 1.220, Acc: 53.12%
Epoch: 3, Batch: 356, Loss: 1.095, Acc: 58.59%
Epoch: 3, Batch: 357, Loss: 1.071, Acc: 60.94%
Epoch: 3, Batch: 358, Loss: 1.091, Acc: 63.28%
Epoch: 3, Batch: 359, Loss: 1.027, Acc: 63.28%
Epoch: 3, Batch: 360, Loss: 1.251, Acc: 54.69%
Epoch: 3, Batch: 361, Loss: 1.223, Acc: 53.12%
Epoch: 3, Batch: 362, Loss: 0.937, Acc: 69.53%
Epoch: 3, Batch: 363, Loss: 1.161, Acc: 58.59%
Epoch: 3, Batch: 364, Loss: 1.037, Acc: 65.62%
Epoch: 3, Batch: 365, Loss: 1.159, Acc: 58.59%
Epoch: 3, Batch: 366, Loss: 1.114, Acc: 65.62%
Epoch: 3, Batch: 367, Loss: 1.253, Acc: 60.94%
Epoch: 3, Batch: 368, Loss: 1.164, Acc: 53.12%
Epoch: 3, Batch: 369, Loss: 1.060, Acc: 59.38%
Epoch: 3, Batch: 370, Loss: 1.190, Acc: 56.25%
Epoch: 3, Batch: 371, Loss: 1.079, Acc: 60.94%
Epoch: 3, Batch: 372, Loss: 1.011, Acc: 61.72%
Epoch: 3, Batch: 373, Loss: 1.017, Acc: 64.84%
Epoch: 3, Batch: 374, Loss: 1.135, Acc: 60.94%
Epoch: 3, Batch: 375, Loss: 1.163, Acc: 60.16%
Epoch: 3, Batch: 376, Loss: 1.078, Acc: 60.94%
Epoch: 3, Batch: 377, Loss: 1.103, Acc: 60.94%
Epoch: 3, Batch: 378, Loss: 1.159, Acc: 59.38%
Epoch: 3, Batch: 379, Loss: 1.196, Acc: 56.25%
Epoch: 3, Batch: 380, Loss: 1.112, Acc: 60.94%
Epoch: 3, Batch: 381, Loss: 1.223, Acc: 57.81%
Epoch: 3, Batch: 382, Loss: 1.120, Acc: 65.62%
Epoch: 3, Batch: 383, Loss: 0.918, Acc: 67.97%
Epoch: 3, Batch: 384, Loss: 1.164, Acc: 60.16%
Epoch: 3, Batch: 385, Loss: 1.036, Acc: 67.19%
Epoch: 3, Batch: 386, Loss: 1.160, Acc: 54.69%
Epoch: 3, Batch: 387, Loss: 0.980, Acc: 67.19%
Epoch: 3, Batch: 388, Loss: 1.047, Acc: 60.94%
Epoch: 3, Batch: 389, Loss: 1.075, Acc: 64.06%
Epoch: 3, Batch: 390, Loss: 1.056, Acc: 59.38%
Epoch: 3, Batch: 391, Loss: 1.041, Acc: 67.50%
```

```
Epoch 3 completed
Epoch: 4, Batch: 1, Loss: 1.230, Acc: 56.25%
Epoch: 4, Batch: 2, Loss: 1.081, Acc: 60.16%
Epoch: 4, Batch: 3, Loss: 1.148, Acc: 57.03%
Epoch: 4, Batch: 4, Loss: 1.151, Acc: 57.03%
Epoch: 4, Batch: 5, Loss: 0.791, Acc: 75.00%
Epoch: 4, Batch: 6, Loss: 1.161, Acc: 60.16%
Epoch: 4, Batch: 7, Loss: 1.054, Acc: 62.50%
Epoch: 4, Batch: 8, Loss: 1.041, Acc: 61.72%
Epoch: 4, Batch: 9, Loss: 1.199, Acc: 53.12%
Epoch: 4, Batch: 10, Loss: 1.150, Acc: 60.16%
Epoch: 4, Batch: 11, Loss: 1.093, Acc: 63.28%
Epoch: 4, Batch: 12, Loss: 1.061, Acc: 59.38%
Epoch: 4, Batch: 13, Loss: 1.237, Acc: 58.59%
Epoch: 4, Batch: 14, Loss: 1.230, Acc: 52.34%
Epoch: 4, Batch: 15, Loss: 1.248, Acc: 53.12%
Epoch: 4, Batch: 16, Loss: 1.140, Acc: 63.28%
Epoch: 4, Batch: 17, Loss: 1.027, Acc: 63.28%
Epoch: 4, Batch: 18, Loss: 1.130, Acc: 56.25%
Epoch: 4, Batch: 19, Loss: 1.054, Acc: 64.06%
Epoch: 4, Batch: 20, Loss: 1.112, Acc: 61.72%
Epoch: 4, Batch: 21, Loss: 1.000, Acc: 66.41%
Epoch: 4, Batch: 22, Loss: 1.108, Acc: 61.72%
Epoch: 4, Batch: 23, Loss: 0.989, Acc: 62.50%
Epoch: 4, Batch: 24, Loss: 1.103, Acc: 60.94%
Epoch: 4, Batch: 25, Loss: 1.009, Acc: 65.62%
Epoch: 4, Batch: 26, Loss: 1.152, Acc: 55.47%
Epoch: 4, Batch: 27, Loss: 1.063, Acc: 64.06%
Epoch: 4, Batch: 28, Loss: 1.215, Acc: 53.12%
Epoch: 4, Batch: 29, Loss: 1.118, Acc: 63.28%
Epoch: 4, Batch: 30, Loss: 0.898, Acc: 66.41%
Epoch: 4, Batch: 31, Loss: 1.070, Acc: 63.28%
Epoch: 4, Batch: 32, Loss: 0.953, Acc: 65.62%
Epoch: 4, Batch: 33, Loss: 1.004, Acc: 63.28%
Epoch: 4, Batch: 34, Loss: 1.086, Acc: 60.94%
Epoch: 4, Batch: 35, Loss: 1.025, Acc: 64.84%
Epoch: 4, Batch: 36, Loss: 1.131, Acc: 62.50%
Epoch: 4, Batch: 37, Loss: 1.015, Acc: 64.06%
Epoch: 4, Batch: 38, Loss: 1.068, Acc: 62.50%
Epoch: 4, Batch: 39, Loss: 0.969, Acc: 62.50%
Epoch: 4, Batch: 40, Loss: 1.087, Acc: 64.84%
Epoch: 4, Batch: 41, Loss: 1.014, Acc: 63.28%
Epoch: 4, Batch: 42, Loss: 0.996, Acc: 67.19%
Epoch: 4, Batch: 43, Loss: 0.957, Acc: 64.84%
Epoch: 4, Batch: 44, Loss: 1.055, Acc: 69.53%
Epoch: 4, Batch: 45, Loss: 1.084, Acc: 64.06%
Epoch: 4, Batch: 46, Loss: 1.037, Acc: 67.19%
Epoch: 4, Batch: 47, Loss: 1.191, Acc: 59.38%
Epoch: 4, Batch: 48, Loss: 1.146, Acc: 60.94%
Epoch: 4, Batch: 49, Loss: 1.134, Acc: 57.81%
Epoch: 4, Batch: 50, Loss: 0.933, Acc: 63.28%
Epoch: 4, Batch: 51, Loss: 1.152, Acc: 59.38%
Epoch: 4, Batch: 52, Loss: 0.902, Acc: 68.75%
Epoch: 4, Batch: 53, Loss: 0.930, Acc: 64.84%
Epoch: 4, Batch: 54, Loss: 1.247, Acc: 53.12%
Epoch: 4, Batch: 55, Loss: 1.199, Acc: 57.03%
```

```
Epoch: 4, Batch: 56, Loss: 1.070, Acc: 67.19%
Epoch: 4, Batch: 57, Loss: 1.014, Acc: 61.72%
Epoch: 4, Batch: 58, Loss: 1.082, Acc: 59.38%
Epoch: 4, Batch: 59, Loss: 1.164, Acc: 57.81%
Epoch: 4, Batch: 60, Loss: 0.993, Acc: 64.06%
Epoch: 4, Batch: 61, Loss: 1.048, Acc: 63.28%
Epoch: 4, Batch: 62, Loss: 0.947, Acc: 64.06%
Epoch: 4, Batch: 63, Loss: 0.874, Acc: 69.53%
Epoch: 4, Batch: 64, Loss: 1.046, Acc: 60.16%
Epoch: 4, Batch: 65, Loss: 1.009, Acc: 65.62%
Epoch: 4, Batch: 66, Loss: 0.947, Acc: 63.28%
Epoch: 4, Batch: 67, Loss: 0.972, Acc: 64.06%
Epoch: 4, Batch: 68, Loss: 0.955, Acc: 67.97%
Epoch: 4, Batch: 69, Loss: 1.073, Acc: 58.59%
Epoch: 4, Batch: 70, Loss: 1.092, Acc: 60.16%
Epoch: 4, Batch: 71, Loss: 1.090, Acc: 57.81%
Epoch: 4, Batch: 72, Loss: 1.247, Acc: 56.25%
Epoch: 4, Batch: 73, Loss: 1.081, Acc: 67.97%
Epoch: 4, Batch: 74, Loss: 1.062, Acc: 63.28%
Epoch: 4, Batch: 75, Loss: 1.063, Acc: 64.84%
Epoch: 4, Batch: 76, Loss: 1.204, Acc: 64.06%
Epoch: 4, Batch: 77, Loss: 0.969, Acc: 62.50%
Epoch: 4, Batch: 78, Loss: 1.202, Acc: 57.81%
Epoch: 4, Batch: 79, Loss: 1.108, Acc: 60.94%
Epoch: 4, Batch: 80, Loss: 1.235, Acc: 59.38%
Epoch: 4, Batch: 81, Loss: 1.143, Acc: 62.50%
Epoch: 4, Batch: 82, Loss: 1.131, Acc: 60.94%
Epoch: 4, Batch: 83, Loss: 1.040, Acc: 60.16%
Epoch: 4, Batch: 84, Loss: 1.181, Acc: 53.12%
Epoch: 4, Batch: 85, Loss: 0.934, Acc: 71.88%
Epoch: 4, Batch: 86, Loss: 1.190, Acc: 65.62%
Epoch: 4, Batch: 87, Loss: 1.064, Acc: 58.59%
Epoch: 4, Batch: 88, Loss: 1.134, Acc: 62.50%
Epoch: 4, Batch: 89, Loss: 1.056, Acc: 64.06%
Epoch: 4, Batch: 90, Loss: 1.092, Acc: 57.81%
Epoch: 4, Batch: 91, Loss: 1.073, Acc: 61.72%
Epoch: 4, Batch: 92, Loss: 1.064, Acc: 60.94%
Epoch: 4, Batch: 93, Loss: 1.181, Acc: 56.25%
Epoch: 4, Batch: 94, Loss: 1.006, Acc: 62.50%
Epoch: 4, Batch: 95, Loss: 0.930, Acc: 66.41%
Epoch: 4, Batch: 96, Loss: 1.022, Acc: 67.97%
Epoch: 4, Batch: 97, Loss: 0.893, Acc: 73.44%
Epoch: 4, Batch: 98, Loss: 0.986, Acc: 64.84%
Epoch: 4, Batch: 99, Loss: 1.059, Acc: 65.62%
Epoch: 4, Batch: 100, Loss: 1.391, Acc: 46.09%
Epoch: 4, Batch: 101, Loss: 1.007, Acc: 64.84%
Epoch: 4, Batch: 102, Loss: 0.902, Acc: 70.31%
Epoch: 4, Batch: 103, Loss: 1.049, Acc: 64.06%
Epoch: 4, Batch: 104, Loss: 1.066, Acc: 59.38%
Epoch: 4, Batch: 105, Loss: 0.882, Acc: 67.97%
Epoch: 4, Batch: 106, Loss: 1.072, Acc: 60.94%
Epoch: 4, Batch: 107, Loss: 1.082, Acc: 64.06%
Epoch: 4, Batch: 108, Loss: 0.979, Acc: 64.84%
Epoch: 4, Batch: 109, Loss: 1.017, Acc: 65.62%
Epoch: 4, Batch: 110, Loss: 1.032, Acc: 58.59%
Epoch: 4, Batch: 111, Loss: 1.053, Acc: 64.84%
```

```
Epoch: 4, Batch: 112, Loss: 1.037, Acc: 60.94%
Epoch: 4, Batch: 113, Loss: 1.177, Acc: 53.91%
Epoch: 4, Batch: 114, Loss: 1.049, Acc: 63.28%
Epoch: 4, Batch: 115, Loss: 0.867, Acc: 71.09%
Epoch: 4, Batch: 116, Loss: 0.968, Acc: 64.06%
Epoch: 4, Batch: 117, Loss: 1.136, Acc: 60.94%
Epoch: 4, Batch: 118, Loss: 1.003, Acc: 60.94%
Epoch: 4, Batch: 119, Loss: 0.952, Acc: 65.62%
Epoch: 4, Batch: 120, Loss: 1.005, Acc: 64.06%
Epoch: 4, Batch: 121, Loss: 1.013, Acc: 63.28%
Epoch: 4, Batch: 122, Loss: 1.040, Acc: 64.06%
Epoch: 4, Batch: 123, Loss: 1.130, Acc: 59.38%
Epoch: 4, Batch: 124, Loss: 1.032, Acc: 64.06%
Epoch: 4, Batch: 125, Loss: 1.080, Acc: 62.50%
Epoch: 4, Batch: 126, Loss: 1.135, Acc: 60.16%
Epoch: 4, Batch: 127, Loss: 1.001, Acc: 66.41%
Epoch: 4, Batch: 128, Loss: 1.060, Acc: 59.38%
Epoch: 4, Batch: 129, Loss: 0.954, Acc: 66.41%
Epoch: 4, Batch: 130, Loss: 1.015, Acc: 62.50%
Epoch: 4, Batch: 131, Loss: 0.985, Acc: 64.06%
Epoch: 4, Batch: 132, Loss: 0.890, Acc: 68.75%
Epoch: 4, Batch: 133, Loss: 1.215, Acc: 60.16%
Epoch: 4, Batch: 134, Loss: 0.999, Acc: 64.06%
Epoch: 4, Batch: 135, Loss: 0.985, Acc: 61.72%
Epoch: 4, Batch: 136, Loss: 0.980, Acc: 62.50%
Epoch: 4, Batch: 137, Loss: 0.921, Acc: 63.28%
Epoch: 4, Batch: 138, Loss: 1.185, Acc: 62.50%
Epoch: 4, Batch: 139, Loss: 0.935, Acc: 70.31%
Epoch: 4, Batch: 140, Loss: 1.237, Acc: 57.81%
Epoch: 4, Batch: 141, Loss: 1.050, Acc: 64.84%
Epoch: 4, Batch: 142, Loss: 1.149, Acc: 60.16%
Epoch: 4, Batch: 143, Loss: 1.125, Acc: 64.06%
Epoch: 4, Batch: 144, Loss: 0.919, Acc: 64.84%
Epoch: 4, Batch: 145, Loss: 1.038, Acc: 67.97%
Epoch: 4, Batch: 146, Loss: 1.161, Acc: 58.59%
Epoch: 4, Batch: 147, Loss: 1.018, Acc: 68.75%
Epoch: 4, Batch: 148, Loss: 1.052, Acc: 61.72%
Epoch: 4, Batch: 149, Loss: 1.174, Acc: 60.94%
Epoch: 4, Batch: 150, Loss: 1.051, Acc: 61.72%
Epoch: 4, Batch: 151, Loss: 1.285, Acc: 48.44%
Epoch: 4, Batch: 152, Loss: 1.009, Acc: 60.94%
Epoch: 4, Batch: 153, Loss: 1.121, Acc: 58.59%
Epoch: 4, Batch: 154, Loss: 0.986, Acc: 71.09%
Epoch: 4, Batch: 155, Loss: 1.028, Acc: 57.81%
Epoch: 4, Batch: 156, Loss: 1.222, Acc: 58.59%
Epoch: 4, Batch: 157, Loss: 1.029, Acc: 60.16%
Epoch: 4, Batch: 158, Loss: 0.805, Acc: 70.31%
Epoch: 4, Batch: 159, Loss: 1.117, Acc: 60.16%
Epoch: 4, Batch: 160, Loss: 1.093, Acc: 57.81%
Epoch: 4, Batch: 161, Loss: 1.012, Acc: 67.19%
Epoch: 4, Batch: 162, Loss: 1.021, Acc: 67.97%
Epoch: 4, Batch: 163, Loss: 1.124, Acc: 63.28%
Epoch: 4, Batch: 164, Loss: 1.045, Acc: 61.72%
Epoch: 4, Batch: 165, Loss: 1.094, Acc: 61.72%
Epoch: 4, Batch: 166, Loss: 0.960, Acc: 62.50%
Epoch: 4, Batch: 167, Loss: 0.973, Acc: 67.97%
```

```
Epoch: 4, Batch: 168, Loss: 0.895, Acc: 69.53%
Epoch: 4, Batch: 169, Loss: 1.026, Acc: 63.28%
Epoch: 4, Batch: 170, Loss: 1.189, Acc: 58.59%
Epoch: 4, Batch: 171, Loss: 0.824, Acc: 68.75%
Epoch: 4, Batch: 172, Loss: 1.326, Acc: 56.25%
Epoch: 4, Batch: 173, Loss: 1.023, Acc: 66.41%
Epoch: 4, Batch: 174, Loss: 1.025, Acc: 62.50%
Epoch: 4, Batch: 175, Loss: 1.107, Acc: 59.38%
Epoch: 4, Batch: 176, Loss: 1.044, Acc: 63.28%
Epoch: 4, Batch: 177, Loss: 1.106, Acc: 62.50%
Epoch: 4, Batch: 178, Loss: 1.064, Acc: 60.16%
Epoch: 4, Batch: 179, Loss: 1.198, Acc: 55.47%
Epoch: 4, Batch: 180, Loss: 0.966, Acc: 67.19%
Epoch: 4, Batch: 181, Loss: 1.061, Acc: 64.06%
Epoch: 4, Batch: 182, Loss: 0.946, Acc: 64.84%
Epoch: 4, Batch: 183, Loss: 1.028, Acc: 61.72%
Epoch: 4, Batch: 184, Loss: 1.095, Acc: 60.16%
Epoch: 4, Batch: 185, Loss: 0.963, Acc: 65.62%
Epoch: 4, Batch: 186, Loss: 1.003, Acc: 70.31%
Epoch: 4, Batch: 187, Loss: 1.124, Acc: 58.59%
Epoch: 4, Batch: 188, Loss: 0.971, Acc: 67.97%
Epoch: 4, Batch: 189, Loss: 0.898, Acc: 71.88%
Epoch: 4, Batch: 190, Loss: 1.048, Acc: 66.41%
Epoch: 4, Batch: 191, Loss: 1.110, Acc: 60.16%
Epoch: 4, Batch: 192, Loss: 1.077, Acc: 60.94%
Epoch: 4, Batch: 193, Loss: 0.983, Acc: 65.62%
Epoch: 4, Batch: 194, Loss: 1.090, Acc: 60.16%
Epoch: 4, Batch: 195, Loss: 1.117, Acc: 55.47%
Epoch: 4, Batch: 196, Loss: 1.016, Acc: 64.06%
Epoch: 4, Batch: 197, Loss: 1.150, Acc: 59.38%
Epoch: 4, Batch: 198, Loss: 1.017, Acc: 63.28%
Epoch: 4, Batch: 199, Loss: 1.059, Acc: 64.06%
Epoch: 4, Batch: 200, Loss: 1.089, Acc: 60.16%
Epoch: 4, Batch: 201, Loss: 0.910, Acc: 71.09%
Epoch: 4, Batch: 202, Loss: 0.857, Acc: 68.75%
Epoch: 4, Batch: 203, Loss: 0.954, Acc: 64.84%
Epoch: 4, Batch: 204, Loss: 1.138, Acc: 57.81%
Epoch: 4, Batch: 205, Loss: 1.107, Acc: 59.38%
Epoch: 4, Batch: 206, Loss: 1.123, Acc: 54.69%
Epoch: 4, Batch: 207, Loss: 0.939, Acc: 67.19%
Epoch: 4, Batch: 208, Loss: 0.963, Acc: 64.06%
Epoch: 4, Batch: 209, Loss: 1.017, Acc: 60.94%
Epoch: 4, Batch: 210, Loss: 0.939, Acc: 66.41%
Epoch: 4, Batch: 211, Loss: 0.951, Acc: 64.06%
Epoch: 4, Batch: 212, Loss: 1.189, Acc: 57.03%
Epoch: 4, Batch: 213, Loss: 1.052, Acc: 60.16%
Epoch: 4, Batch: 214, Loss: 0.991, Acc: 64.84%
Epoch: 4, Batch: 215, Loss: 1.200, Acc: 54.69%
Epoch: 4, Batch: 216, Loss: 0.891, Acc: 71.88%
Epoch: 4, Batch: 217, Loss: 1.103, Acc: 59.38%
Epoch: 4, Batch: 218, Loss: 0.925, Acc: 64.06%
Epoch: 4, Batch: 219, Loss: 0.859, Acc: 71.88%
Epoch: 4, Batch: 220, Loss: 0.986, Acc: 67.97%
Epoch: 4, Batch: 221, Loss: 1.019, Acc: 67.19%
Epoch: 4, Batch: 222, Loss: 0.972, Acc: 64.84%
Epoch: 4, Batch: 223, Loss: 0.958, Acc: 65.62%
```

```
Epoch: 4, Batch: 224, Loss: 0.878, Acc: 69.53%
Epoch: 4, Batch: 225, Loss: 0.939, Acc: 67.97%
Epoch: 4, Batch: 226, Loss: 1.143, Acc: 53.91%
Epoch: 4, Batch: 227, Loss: 1.037, Acc: 66.41%
Epoch: 4, Batch: 228, Loss: 0.988, Acc: 67.19%
Epoch: 4, Batch: 229, Loss: 1.008, Acc: 63.28%
Epoch: 4, Batch: 230, Loss: 0.766, Acc: 69.53%
Epoch: 4, Batch: 231, Loss: 0.929, Acc: 64.84%
Epoch: 4, Batch: 232, Loss: 1.120, Acc: 59.38%
Epoch: 4, Batch: 233, Loss: 0.877, Acc: 69.53%
Epoch: 4, Batch: 234, Loss: 1.045, Acc: 61.72%
Epoch: 4, Batch: 235, Loss: 1.043, Acc: 62.50%
Epoch: 4, Batch: 236, Loss: 0.977, Acc: 66.41%
Epoch: 4, Batch: 237, Loss: 1.180, Acc: 63.28%
Epoch: 4, Batch: 238, Loss: 1.048, Acc: 64.84%
Epoch: 4, Batch: 239, Loss: 1.051, Acc: 65.62%
Epoch: 4, Batch: 240, Loss: 0.921, Acc: 66.41%
Epoch: 4, Batch: 241, Loss: 0.916, Acc: 67.19%
Epoch: 4, Batch: 242, Loss: 0.893, Acc: 70.31%
Epoch: 4, Batch: 243, Loss: 0.918, Acc: 68.75%
Epoch: 4, Batch: 244, Loss: 1.055, Acc: 61.72%
Epoch: 4, Batch: 245, Loss: 1.060, Acc: 63.28%
Epoch: 4, Batch: 246, Loss: 1.129, Acc: 54.69%
Epoch: 4, Batch: 247, Loss: 1.011, Acc: 69.53%
Epoch: 4, Batch: 248, Loss: 0.911, Acc: 71.09%
Epoch: 4, Batch: 249, Loss: 1.066, Acc: 60.16%
Epoch: 4, Batch: 250, Loss: 1.188, Acc: 60.94%
Epoch: 4, Batch: 251, Loss: 1.019, Acc: 61.72%
Epoch: 4, Batch: 252, Loss: 1.207, Acc: 53.91%
Epoch: 4, Batch: 253, Loss: 1.050, Acc: 62.50%
Epoch: 4, Batch: 254, Loss: 0.993, Acc: 67.19%
Epoch: 4, Batch: 255, Loss: 0.891, Acc: 66.41%
Epoch: 4, Batch: 256, Loss: 0.947, Acc: 67.19%
Epoch: 4, Batch: 257, Loss: 1.070, Acc: 67.19%
Epoch: 4, Batch: 258, Loss: 1.125, Acc: 59.38%
Epoch: 4, Batch: 259, Loss: 0.831, Acc: 69.53%
Epoch: 4, Batch: 260, Loss: 0.922, Acc: 68.75%
Epoch: 4, Batch: 261, Loss: 0.902, Acc: 72.66%
Epoch: 4, Batch: 262, Loss: 1.109, Acc: 60.16%
Epoch: 4, Batch: 263, Loss: 1.051, Acc: 70.31%
Epoch: 4, Batch: 264, Loss: 1.058, Acc: 64.84%
Epoch: 4, Batch: 265, Loss: 0.966, Acc: 65.62%
Epoch: 4, Batch: 266, Loss: 0.984, Acc: 69.53%
Epoch: 4, Batch: 267, Loss: 0.986, Acc: 67.19%
Epoch: 4, Batch: 268, Loss: 1.021, Acc: 64.06%
Epoch: 4, Batch: 269, Loss: 0.966, Acc: 67.97%
Epoch: 4, Batch: 270, Loss: 0.956, Acc: 60.94%
Epoch: 4, Batch: 271, Loss: 0.827, Acc: 70.31%
Epoch: 4, Batch: 272, Loss: 1.149, Acc: 64.06%
Epoch: 4, Batch: 273, Loss: 0.928, Acc: 65.62%
Epoch: 4, Batch: 274, Loss: 0.921, Acc: 66.41%
Epoch: 4, Batch: 275, Loss: 1.152, Acc: 50.78%
Epoch: 4, Batch: 276, Loss: 0.947, Acc: 62.50%
Epoch: 4, Batch: 277, Loss: 1.139, Acc: 62.50%
Epoch: 4, Batch: 278, Loss: 1.029, Acc: 60.16%
Epoch: 4, Batch: 279, Loss: 0.948, Acc: 67.19%
```

```
Epoch: 4, Batch: 280, Loss: 0.980, Acc: 64.84%
Epoch: 4, Batch: 281, Loss: 1.020, Acc: 66.41%
Epoch: 4, Batch: 282, Loss: 0.906, Acc: 65.62%
Epoch: 4, Batch: 283, Loss: 0.938, Acc: 60.16%
Epoch: 4, Batch: 284, Loss: 0.939, Acc: 64.06%
Epoch: 4, Batch: 285, Loss: 1.001, Acc: 64.06%
Epoch: 4, Batch: 286, Loss: 0.989, Acc: 65.62%
Epoch: 4, Batch: 287, Loss: 1.048, Acc: 66.41%
Epoch: 4, Batch: 288, Loss: 1.063, Acc: 63.28%
Epoch: 4, Batch: 289, Loss: 0.999, Acc: 60.16%
Epoch: 4, Batch: 290, Loss: 0.878, Acc: 67.19%
Epoch: 4, Batch: 291, Loss: 0.944, Acc: 65.62%
Epoch: 4, Batch: 292, Loss: 1.064, Acc: 59.38%
Epoch: 4, Batch: 293, Loss: 1.077, Acc: 62.50%
Epoch: 4, Batch: 294, Loss: 0.902, Acc: 67.19%
Epoch: 4, Batch: 295, Loss: 0.924, Acc: 68.75%
Epoch: 4, Batch: 296, Loss: 1.021, Acc: 62.50%
Epoch: 4, Batch: 297, Loss: 0.905, Acc: 71.88%
Epoch: 4, Batch: 298, Loss: 1.006, Acc: 67.97%
Epoch: 4, Batch: 299, Loss: 1.260, Acc: 51.56%
Epoch: 4, Batch: 300, Loss: 1.125, Acc: 60.16%
Epoch: 4, Batch: 301, Loss: 1.113, Acc: 60.16%
Epoch: 4, Batch: 302, Loss: 1.045, Acc: 60.94%
Epoch: 4, Batch: 303, Loss: 0.965, Acc: 64.06%
Epoch: 4, Batch: 304, Loss: 1.069, Acc: 60.94%
Epoch: 4, Batch: 305, Loss: 0.932, Acc: 65.62%
Epoch: 4, Batch: 306, Loss: 0.912, Acc: 66.41%
Epoch: 4, Batch: 307, Loss: 0.807, Acc: 70.31%
Epoch: 4, Batch: 308, Loss: 1.000, Acc: 64.06%
Epoch: 4, Batch: 309, Loss: 0.957, Acc: 67.19%
Epoch: 4, Batch: 310, Loss: 1.164, Acc: 59.38%
Epoch: 4, Batch: 311, Loss: 1.017, Acc: 66.41%
Epoch: 4, Batch: 312, Loss: 1.062, Acc: 56.25%
Epoch: 4, Batch: 313, Loss: 0.956, Acc: 63.28%
Epoch: 4, Batch: 314, Loss: 0.900, Acc: 67.19%
Epoch: 4, Batch: 315, Loss: 1.336, Acc: 57.03%
Epoch: 4, Batch: 316, Loss: 1.063, Acc: 66.41%
Epoch: 4, Batch: 317, Loss: 0.997, Acc: 64.84%
Epoch: 4, Batch: 318, Loss: 1.003, Acc: 64.06%
Epoch: 4, Batch: 319, Loss: 0.862, Acc: 68.75%
Epoch: 4, Batch: 320, Loss: 1.151, Acc: 60.16%
Epoch: 4, Batch: 321, Loss: 0.876, Acc: 67.97%
Epoch: 4, Batch: 322, Loss: 0.951, Acc: 64.84%
Epoch: 4, Batch: 323, Loss: 1.258, Acc: 55.47%
Epoch: 4, Batch: 324, Loss: 1.058, Acc: 64.06%
Epoch: 4, Batch: 325, Loss: 0.910, Acc: 69.53%
Epoch: 4, Batch: 326, Loss: 1.130, Acc: 60.94%
Epoch: 4, Batch: 327, Loss: 1.125, Acc: 56.25%
Epoch: 4, Batch: 328, Loss: 0.973, Acc: 63.28%
Epoch: 4, Batch: 329, Loss: 1.027, Acc: 63.28%
Epoch: 4, Batch: 330, Loss: 1.006, Acc: 64.84%
Epoch: 4, Batch: 331, Loss: 0.957, Acc: 70.31%
Epoch: 4, Batch: 332, Loss: 0.949, Acc: 67.19%
Epoch: 4, Batch: 333, Loss: 1.042, Acc: 65.62%
Epoch: 4, Batch: 334, Loss: 1.026, Acc: 62.50%
Epoch: 4, Batch: 335, Loss: 1.087, Acc: 64.84%
```

```
Epoch: 4, Batch: 336, Loss: 0.979, Acc: 64.84%
Epoch: 4, Batch: 337, Loss: 0.974, Acc: 64.06%
Epoch: 4, Batch: 338, Loss: 1.005, Acc: 63.28%
Epoch: 4, Batch: 339, Loss: 0.943, Acc: 67.97%
Epoch: 4, Batch: 340, Loss: 0.942, Acc: 64.84%
Epoch: 4, Batch: 341, Loss: 1.060, Acc: 62.50%
Epoch: 4, Batch: 342, Loss: 0.966, Acc: 67.97%
Epoch: 4, Batch: 343, Loss: 1.026, Acc: 57.81%
Epoch: 4, Batch: 344, Loss: 1.132, Acc: 57.81%
Epoch: 4, Batch: 345, Loss: 0.913, Acc: 67.97%
Epoch: 4, Batch: 346, Loss: 0.993, Acc: 66.41%
Epoch: 4, Batch: 347, Loss: 1.088, Acc: 59.38%
Epoch: 4, Batch: 348, Loss: 0.920, Acc: 67.97%
Epoch: 4, Batch: 349, Loss: 1.265, Acc: 57.03%
Epoch: 4, Batch: 350, Loss: 0.981, Acc: 65.62%
Epoch: 4, Batch: 351, Loss: 0.826, Acc: 69.53%
Epoch: 4, Batch: 352, Loss: 0.934, Acc: 65.62%
Epoch: 4, Batch: 353, Loss: 1.108, Acc: 63.28%
Epoch: 4, Batch: 354, Loss: 0.994, Acc: 62.50%
Epoch: 4, Batch: 355, Loss: 0.989, Acc: 64.84%
Epoch: 4, Batch: 356, Loss: 1.061, Acc: 60.16%
Epoch: 4, Batch: 357, Loss: 0.912, Acc: 68.75%
Epoch: 4, Batch: 358, Loss: 1.012, Acc: 60.94%
Epoch: 4, Batch: 359, Loss: 0.879, Acc: 70.31%
Epoch: 4, Batch: 360, Loss: 0.903, Acc: 68.75%
Epoch: 4, Batch: 361, Loss: 1.125, Acc: 60.94%
Epoch: 4, Batch: 362, Loss: 0.876, Acc: 71.09%
Epoch: 4, Batch: 363, Loss: 0.987, Acc: 65.62%
Epoch: 4, Batch: 364, Loss: 0.826, Acc: 70.31%
Epoch: 4, Batch: 365, Loss: 0.963, Acc: 69.53%
Epoch: 4, Batch: 366, Loss: 0.979, Acc: 60.94%
Epoch: 4, Batch: 367, Loss: 1.099, Acc: 62.50%
Epoch: 4, Batch: 368, Loss: 0.886, Acc: 65.62%
Epoch: 4, Batch: 369, Loss: 0.958, Acc: 64.84%
Epoch: 4, Batch: 370, Loss: 0.961, Acc: 64.06%
Epoch: 4, Batch: 371, Loss: 0.935, Acc: 68.75%
Epoch: 4, Batch: 372, Loss: 0.924, Acc: 60.94%
Epoch: 4, Batch: 373, Loss: 0.891, Acc: 71.09%
Epoch: 4, Batch: 374, Loss: 0.940, Acc: 67.19%
Epoch: 4, Batch: 375, Loss: 1.083, Acc: 56.25%
Epoch: 4, Batch: 376, Loss: 0.990, Acc: 67.19%
Epoch: 4, Batch: 377, Loss: 1.006, Acc: 62.50%
Epoch: 4, Batch: 378, Loss: 0.979, Acc: 68.75%
Epoch: 4, Batch: 379, Loss: 0.971, Acc: 66.41%
Epoch: 4, Batch: 380, Loss: 1.039, Acc: 60.94%
Epoch: 4, Batch: 381, Loss: 0.893, Acc: 70.31%
Epoch: 4, Batch: 382, Loss: 0.875, Acc: 70.31%
Epoch: 4, Batch: 383, Loss: 0.912, Acc: 65.62%
Epoch: 4, Batch: 384, Loss: 1.171, Acc: 59.38%
Epoch: 4, Batch: 385, Loss: 0.878, Acc: 71.09%
Epoch: 4, Batch: 386, Loss: 0.948, Acc: 64.84%
Epoch: 4, Batch: 387, Loss: 0.829, Acc: 71.88%
Epoch: 4, Batch: 388, Loss: 0.941, Acc: 66.41%
Epoch: 4, Batch: 389, Loss: 0.889, Acc: 69.53%
Epoch: 4, Batch: 390, Loss: 0.875, Acc: 67.19%
Epoch: 4, Batch: 391, Loss: 0.949, Acc: 71.25%
```

```
Epoch 4 completed
Epoch: 5, Batch: 1, Loss: 0.984, Acc: 67.19%
Epoch: 5, Batch: 2, Loss: 0.882, Acc: 71.09%
Epoch: 5, Batch: 3, Loss: 0.746, Acc: 72.66%
Epoch: 5, Batch: 4, Loss: 0.888, Acc: 67.19%
Epoch: 5, Batch: 5, Loss: 0.832, Acc: 69.53%
Epoch: 5, Batch: 6, Loss: 0.814, Acc: 71.88%
Epoch: 5, Batch: 7, Loss: 0.832, Acc: 75.00%
Epoch: 5, Batch: 8, Loss: 0.889, Acc: 71.88%
Epoch: 5, Batch: 9, Loss: 1.017, Acc: 64.84%
Epoch: 5, Batch: 10, Loss: 0.890, Acc: 71.09%
Epoch: 5, Batch: 11, Loss: 1.059, Acc: 64.84%
Epoch: 5, Batch: 12, Loss: 0.861, Acc: 71.09%
Epoch: 5, Batch: 13, Loss: 0.913, Acc: 68.75%
Epoch: 5, Batch: 14, Loss: 0.811, Acc: 67.19%
Epoch: 5, Batch: 15, Loss: 0.821, Acc: 62.50%
Epoch: 5, Batch: 16, Loss: 0.893, Acc: 67.19%
Epoch: 5, Batch: 17, Loss: 0.920, Acc: 68.75%
Epoch: 5, Batch: 18, Loss: 0.790, Acc: 73.44%
Epoch: 5, Batch: 19, Loss: 0.956, Acc: 63.28%
Epoch: 5, Batch: 20, Loss: 0.773, Acc: 78.91%
Epoch: 5, Batch: 21, Loss: 1.085, Acc: 62.50%
Epoch: 5, Batch: 22, Loss: 0.840, Acc: 72.66%
Epoch: 5, Batch: 23, Loss: 0.820, Acc: 67.97%
Epoch: 5, Batch: 24, Loss: 1.219, Acc: 55.47%
Epoch: 5, Batch: 25, Loss: 0.914, Acc: 67.19%
Epoch: 5, Batch: 26, Loss: 1.001, Acc: 60.16%
Epoch: 5, Batch: 27, Loss: 0.944, Acc: 64.06%
Epoch: 5, Batch: 28, Loss: 1.095, Acc: 63.28%
Epoch: 5, Batch: 29, Loss: 0.945, Acc: 68.75%
Epoch: 5, Batch: 30, Loss: 0.979, Acc: 66.41%
Epoch: 5, Batch: 31, Loss: 0.862, Acc: 66.41%
Epoch: 5, Batch: 32, Loss: 0.897, Acc: 67.19%
Epoch: 5, Batch: 33, Loss: 0.971, Acc: 65.62%
Epoch: 5, Batch: 34, Loss: 0.851, Acc: 69.53%
Epoch: 5, Batch: 35, Loss: 0.983, Acc: 67.19%
Epoch: 5, Batch: 36, Loss: 0.879, Acc: 75.00%
Epoch: 5, Batch: 37, Loss: 1.113, Acc: 63.28%
Epoch: 5, Batch: 38, Loss: 0.794, Acc: 70.31%
Epoch: 5, Batch: 39, Loss: 0.819, Acc: 71.88%
Epoch: 5, Batch: 40, Loss: 0.876, Acc: 67.97%
Epoch: 5, Batch: 41, Loss: 0.953, Acc: 68.75%
Epoch: 5, Batch: 42, Loss: 0.725, Acc: 72.66%
Epoch: 5, Batch: 43, Loss: 0.958, Acc: 66.41%
Epoch: 5, Batch: 44, Loss: 1.054, Acc: 62.50%
Epoch: 5, Batch: 45, Loss: 0.866, Acc: 67.97%
Epoch: 5, Batch: 46, Loss: 0.840, Acc: 74.22%
Epoch: 5, Batch: 47, Loss: 1.074, Acc: 68.75%
Epoch: 5, Batch: 48, Loss: 0.970, Acc: 67.19%
Epoch: 5, Batch: 49, Loss: 0.803, Acc: 71.09%
Epoch: 5, Batch: 50, Loss: 0.833, Acc: 71.88%
Epoch: 5, Batch: 51, Loss: 0.771, Acc: 71.09%
Epoch: 5, Batch: 52, Loss: 0.999, Acc: 67.97%
Epoch: 5, Batch: 53, Loss: 0.986, Acc: 67.19%
Epoch: 5, Batch: 54, Loss: 0.852, Acc: 67.19%
Epoch: 5, Batch: 55, Loss: 1.056, Acc: 66.41%
```

```
Epoch: 5, Batch: 56, Loss: 0.891, Acc: 73.44%
Epoch: 5, Batch: 57, Loss: 0.941, Acc: 67.19%
Epoch: 5, Batch: 58, Loss: 0.844, Acc: 71.09%
Epoch: 5, Batch: 59, Loss: 0.841, Acc: 65.62%
Epoch: 5, Batch: 60, Loss: 0.812, Acc: 72.66%
Epoch: 5, Batch: 61, Loss: 0.892, Acc: 67.97%
Epoch: 5, Batch: 62, Loss: 0.892, Acc: 67.19%
Epoch: 5, Batch: 63, Loss: 0.786, Acc: 69.53%
Epoch: 5, Batch: 64, Loss: 0.945, Acc: 63.28%
Epoch: 5, Batch: 65, Loss: 0.927, Acc: 65.62%
Epoch: 5, Batch: 66, Loss: 0.888, Acc: 66.41%
Epoch: 5, Batch: 67, Loss: 0.905, Acc: 67.19%
Epoch: 5, Batch: 68, Loss: 0.807, Acc: 71.88%
Epoch: 5, Batch: 69, Loss: 0.752, Acc: 72.66%
Epoch: 5, Batch: 70, Loss: 0.826, Acc: 71.09%
Epoch: 5, Batch: 71, Loss: 0.895, Acc: 69.53%
Epoch: 5, Batch: 72, Loss: 0.868, Acc: 67.97%
Epoch: 5, Batch: 73, Loss: 0.897, Acc: 70.31%
Epoch: 5, Batch: 74, Loss: 0.893, Acc: 68.75%
Epoch: 5, Batch: 75, Loss: 0.893, Acc: 72.66%
Epoch: 5, Batch: 76, Loss: 1.029, Acc: 65.62%
Epoch: 5, Batch: 77, Loss: 1.052, Acc: 64.84%
Epoch: 5, Batch: 78, Loss: 0.962, Acc: 61.72%
Epoch: 5, Batch: 79, Loss: 1.054, Acc: 63.28%
Epoch: 5, Batch: 80, Loss: 0.956, Acc: 63.28%
Epoch: 5, Batch: 81, Loss: 0.875, Acc: 71.88%
Epoch: 5, Batch: 82, Loss: 0.845, Acc: 70.31%
Epoch: 5, Batch: 83, Loss: 1.046, Acc: 64.84%
Epoch: 5, Batch: 84, Loss: 0.753, Acc: 76.56%
Epoch: 5, Batch: 85, Loss: 1.021, Acc: 63.28%
Epoch: 5, Batch: 86, Loss: 1.093, Acc: 61.72%
Epoch: 5, Batch: 87, Loss: 1.095, Acc: 60.16%
Epoch: 5, Batch: 88, Loss: 0.812, Acc: 68.75%
Epoch: 5, Batch: 89, Loss: 1.000, Acc: 64.06%
Epoch: 5, Batch: 90, Loss: 0.836, Acc: 70.31%
Epoch: 5, Batch: 91, Loss: 1.124, Acc: 60.94%
Epoch: 5, Batch: 92, Loss: 1.022, Acc: 66.41%
Epoch: 5, Batch: 93, Loss: 0.981, Acc: 60.94%
Epoch: 5, Batch: 94, Loss: 0.824, Acc: 68.75%
Epoch: 5, Batch: 95, Loss: 0.884, Acc: 66.41%
Epoch: 5, Batch: 96, Loss: 0.885, Acc: 69.53%
Epoch: 5, Batch: 97, Loss: 0.890, Acc: 66.41%
Epoch: 5, Batch: 98, Loss: 1.077, Acc: 57.03%
Epoch: 5, Batch: 99, Loss: 0.948, Acc: 69.53%
Epoch: 5, Batch: 100, Loss: 0.913, Acc: 64.84%
Epoch: 5, Batch: 101, Loss: 0.710, Acc: 71.88%
Epoch: 5, Batch: 102, Loss: 0.831, Acc: 70.31%
Epoch: 5, Batch: 103, Loss: 0.825, Acc: 64.84%
Epoch: 5, Batch: 104, Loss: 0.785, Acc: 73.44%
Epoch: 5, Batch: 105, Loss: 0.820, Acc: 74.22%
Epoch: 5, Batch: 106, Loss: 0.936, Acc: 61.72%
Epoch: 5, Batch: 107, Loss: 0.820, Acc: 69.53%
Epoch: 5, Batch: 108, Loss: 1.086, Acc: 57.03%
Epoch: 5, Batch: 109, Loss: 0.908, Acc: 67.19%
Epoch: 5, Batch: 110, Loss: 0.929, Acc: 69.53%
Epoch: 5, Batch: 111, Loss: 0.902, Acc: 66.41%
```

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Epoch: 5, Batch: 112, Loss: 0.971, Acc: 67.19%
Epoch: 5, Batch: 113, Loss: 1.009, Acc: 64.06%
Epoch: 5, Batch: 114, Loss: 0.855, Acc: 67.19%
Epoch: 5, Batch: 115, Loss: 1.000, Acc: 64.06%
Epoch: 5, Batch: 116, Loss: 0.868, Acc: 71.09%
Epoch: 5, Batch: 117, Loss: 0.893, Acc: 68.75%
Epoch: 5, Batch: 118, Loss: 0.809, Acc: 71.09%
Epoch: 5, Batch: 119, Loss: 0.728, Acc: 75.00%
Epoch: 5, Batch: 120, Loss: 0.829, Acc: 74.22%
Epoch: 5, Batch: 121, Loss: 0.802, Acc: 71.88%
Epoch: 5, Batch: 122, Loss: 0.916, Acc: 67.97%
Epoch: 5, Batch: 123, Loss: 0.808, Acc: 69.53%
Epoch: 5, Batch: 124, Loss: 0.785, Acc: 67.97%
Epoch: 5, Batch: 125, Loss: 0.810, Acc: 68.75%
Epoch: 5, Batch: 126, Loss: 0.705, Acc: 75.78%
Epoch: 5, Batch: 127, Loss: 1.102, Acc: 64.84%
Epoch: 5, Batch: 128, Loss: 0.908, Acc: 67.19%
Epoch: 5, Batch: 129, Loss: 1.086, Acc: 57.03%
Epoch: 5, Batch: 130, Loss: 0.860, Acc: 65.62%
Epoch: 5, Batch: 131, Loss: 0.843, Acc: 71.88%
Epoch: 5, Batch: 132, Loss: 0.777, Acc: 74.22%
Epoch: 5, Batch: 133, Loss: 0.959, Acc: 67.19%
Epoch: 5, Batch: 134, Loss: 1.002, Acc: 68.75%
Epoch: 5, Batch: 135, Loss: 0.972, Acc: 68.75%
Epoch: 5, Batch: 136, Loss: 1.046, Acc: 59.38%
Epoch: 5, Batch: 137, Loss: 0.924, Acc: 68.75%
Epoch: 5, Batch: 138, Loss: 0.962, Acc: 70.31%
Epoch: 5, Batch: 139, Loss: 0.904, Acc: 69.53%
Epoch: 5, Batch: 140, Loss: 0.940, Acc: 65.62%
Epoch: 5, Batch: 141, Loss: 0.806, Acc: 73.44%
Epoch: 5, Batch: 142, Loss: 0.812, Acc: 71.88%
Epoch: 5, Batch: 143, Loss: 0.807, Acc: 71.09%
Epoch: 5, Batch: 144, Loss: 0.745, Acc: 72.66%
Epoch: 5, Batch: 145, Loss: 0.901, Acc: 66.41%
Epoch: 5, Batch: 146, Loss: 0.842, Acc: 67.97%
Epoch: 5, Batch: 147, Loss: 0.952, Acc: 67.97%
Epoch: 5, Batch: 148, Loss: 1.001, Acc: 64.84%
Epoch: 5, Batch: 149, Loss: 0.917, Acc: 69.53%
Epoch: 5, Batch: 150, Loss: 0.930, Acc: 68.75%
Epoch: 5, Batch: 151, Loss: 0.762, Acc: 71.88%
Epoch: 5, Batch: 152, Loss: 0.941, Acc: 64.84%
Epoch: 5, Batch: 153, Loss: 0.857, Acc: 65.62%
Epoch: 5, Batch: 154, Loss: 0.750, Acc: 73.44%
Epoch: 5, Batch: 155, Loss: 1.090, Acc: 60.94%
Epoch: 5, Batch: 156, Loss: 0.971, Acc: 64.84%
Epoch: 5, Batch: 157, Loss: 1.031, Acc: 57.03%
Epoch: 5, Batch: 158, Loss: 0.969, Acc: 68.75%
Epoch: 5, Batch: 159, Loss: 0.885, Acc: 71.09%
Epoch: 5, Batch: 160, Loss: 1.027, Acc: 67.19%
Epoch: 5, Batch: 161, Loss: 0.858, Acc: 68.75%
Epoch: 5, Batch: 162, Loss: 0.747, Acc: 72.66%
Epoch: 5, Batch: 163, Loss: 0.907, Acc: 68.75%
Epoch: 5, Batch: 164, Loss: 0.925, Acc: 67.97%
Epoch: 5, Batch: 165, Loss: 0.869, Acc: 69.53%
Epoch: 5, Batch: 166, Loss: 1.002, Acc: 69.53%
Epoch: 5, Batch: 167, Loss: 0.820, Acc: 70.31%
```

```
Epoch: 5, Batch: 168, Loss: 0.872, Acc: 71.88%
Epoch: 5, Batch: 169, Loss: 0.900, Acc: 73.44%
Epoch: 5, Batch: 170, Loss: 0.963, Acc: 67.97%
Epoch: 5, Batch: 171, Loss: 1.018, Acc: 63.28%
Epoch: 5, Batch: 172, Loss: 0.920, Acc: 65.62%
Epoch: 5, Batch: 173, Loss: 0.918, Acc: 67.19%
Epoch: 5, Batch: 174, Loss: 0.962, Acc: 65.62%
Epoch: 5, Batch: 175, Loss: 0.983, Acc: 64.84%
Epoch: 5, Batch: 176, Loss: 1.046, Acc: 61.72%
Epoch: 5, Batch: 177, Loss: 0.919, Acc: 64.84%
Epoch: 5, Batch: 178, Loss: 1.114, Acc: 57.03%
Epoch: 5, Batch: 179, Loss: 1.009, Acc: 64.84%
Epoch: 5, Batch: 180, Loss: 0.959, Acc: 66.41%
Epoch: 5, Batch: 181, Loss: 0.946, Acc: 64.84%
Epoch: 5, Batch: 182, Loss: 0.903, Acc: 64.84%
Epoch: 5, Batch: 183, Loss: 0.790, Acc: 75.78%
Epoch: 5, Batch: 184, Loss: 0.956, Acc: 65.62%
Epoch: 5, Batch: 185, Loss: 0.913, Acc: 69.53%
Epoch: 5, Batch: 186, Loss: 0.950, Acc: 66.41%
Epoch: 5, Batch: 187, Loss: 0.814, Acc: 75.00%
Epoch: 5, Batch: 188, Loss: 0.933, Acc: 64.06%
Epoch: 5, Batch: 189, Loss: 0.773, Acc: 71.09%
Epoch: 5, Batch: 190, Loss: 1.041, Acc: 63.28%
Epoch: 5, Batch: 191, Loss: 0.855, Acc: 68.75%
Epoch: 5, Batch: 192, Loss: 0.921, Acc: 63.28%
Epoch: 5, Batch: 193, Loss: 1.072, Acc: 63.28%
Epoch: 5, Batch: 194, Loss: 0.819, Acc: 70.31%
Epoch: 5, Batch: 195, Loss: 0.749, Acc: 75.78%
Epoch: 5, Batch: 196, Loss: 0.918, Acc: 71.09%
Epoch: 5, Batch: 197, Loss: 1.102, Acc: 60.94%
Epoch: 5, Batch: 198, Loss: 0.934, Acc: 70.31%
Epoch: 5, Batch: 199, Loss: 0.948, Acc: 70.31%
Epoch: 5, Batch: 200, Loss: 0.950, Acc: 64.84%
Epoch: 5, Batch: 201, Loss: 0.932, Acc: 71.09%
Epoch: 5, Batch: 202, Loss: 0.923, Acc: 67.97%
Epoch: 5, Batch: 203, Loss: 0.737, Acc: 75.78%
Epoch: 5, Batch: 204, Loss: 1.160, Acc: 57.03%
Epoch: 5, Batch: 205, Loss: 0.926, Acc: 68.75%
Epoch: 5, Batch: 206, Loss: 1.072, Acc: 62.50%
Epoch: 5, Batch: 207, Loss: 0.918, Acc: 67.97%
Epoch: 5, Batch: 208, Loss: 0.852, Acc: 67.19%
Epoch: 5, Batch: 209, Loss: 0.896, Acc: 67.97%
Epoch: 5, Batch: 210, Loss: 0.932, Acc: 60.94%
Epoch: 5, Batch: 211, Loss: 0.886, Acc: 71.09%
Epoch: 5, Batch: 212, Loss: 0.915, Acc: 69.53%
Epoch: 5, Batch: 213, Loss: 0.888, Acc: 64.06%
Epoch: 5, Batch: 214, Loss: 0.907, Acc: 69.53%
Epoch: 5, Batch: 215, Loss: 0.910, Acc: 68.75%
Epoch: 5, Batch: 216, Loss: 0.800, Acc: 71.09%
Epoch: 5, Batch: 217, Loss: 0.783, Acc: 69.53%
Epoch: 5, Batch: 218, Loss: 0.845, Acc: 67.97%
Epoch: 5, Batch: 219, Loss: 0.743, Acc: 73.44%
Epoch: 5, Batch: 220, Loss: 0.850, Acc: 68.75%
Epoch: 5, Batch: 221, Loss: 0.750, Acc: 69.53%
Epoch: 5, Batch: 222, Loss: 0.846, Acc: 71.09%
Epoch: 5, Batch: 223, Loss: 0.876, Acc: 67.19%
```

```
Epoch: 5, Batch: 224, Loss: 0.796, Acc: 71.09%
Epoch: 5, Batch: 225, Loss: 0.841, Acc: 74.22%
Epoch: 5, Batch: 226, Loss: 0.895, Acc: 72.66%
Epoch: 5, Batch: 227, Loss: 0.820, Acc: 70.31%
Epoch: 5, Batch: 228, Loss: 1.146, Acc: 60.16%
Epoch: 5, Batch: 229, Loss: 0.924, Acc: 68.75%
Epoch: 5, Batch: 230, Loss: 0.982, Acc: 64.06%
Epoch: 5, Batch: 231, Loss: 0.820, Acc: 66.41%
Epoch: 5, Batch: 232, Loss: 0.864, Acc: 66.41%
Epoch: 5, Batch: 233, Loss: 0.872, Acc: 73.44%
Epoch: 5, Batch: 234, Loss: 0.699, Acc: 73.44%
Epoch: 5, Batch: 235, Loss: 1.005, Acc: 64.84%
Epoch: 5, Batch: 236, Loss: 1.000, Acc: 63.28%
Epoch: 5, Batch: 237, Loss: 0.734, Acc: 70.31%
Epoch: 5, Batch: 238, Loss: 0.890, Acc: 68.75%
Epoch: 5, Batch: 239, Loss: 0.898, Acc: 68.75%
Epoch: 5, Batch: 240, Loss: 0.797, Acc: 68.75%
Epoch: 5, Batch: 241, Loss: 0.729, Acc: 73.44%
Epoch: 5, Batch: 242, Loss: 0.919, Acc: 68.75%
Epoch: 5, Batch: 243, Loss: 0.911, Acc: 68.75%
Epoch: 5, Batch: 244, Loss: 0.906, Acc: 64.84%
Epoch: 5, Batch: 245, Loss: 0.936, Acc: 63.28%
Epoch: 5, Batch: 246, Loss: 1.074, Acc: 66.41%
Epoch: 5, Batch: 247, Loss: 0.946, Acc: 68.75%
Epoch: 5, Batch: 248, Loss: 0.993, Acc: 63.28%
Epoch: 5, Batch: 249, Loss: 0.864, Acc: 71.09%
Epoch: 5, Batch: 250, Loss: 0.888, Acc: 71.09%
Epoch: 5, Batch: 251, Loss: 1.117, Acc: 55.47%
Epoch: 5, Batch: 252, Loss: 0.883, Acc: 69.53%
Epoch: 5, Batch: 253, Loss: 0.940, Acc: 66.41%
Epoch: 5, Batch: 254, Loss: 0.904, Acc: 71.09%
Epoch: 5, Batch: 255, Loss: 0.898, Acc: 70.31%
Epoch: 5, Batch: 256, Loss: 0.902, Acc: 67.97%
Epoch: 5, Batch: 257, Loss: 0.793, Acc: 72.66%
Epoch: 5, Batch: 258, Loss: 1.082, Acc: 60.94%
Epoch: 5, Batch: 259, Loss: 0.949, Acc: 66.41%
Epoch: 5, Batch: 260, Loss: 0.918, Acc: 68.75%
Epoch: 5, Batch: 261, Loss: 0.856, Acc: 71.09%
Epoch: 5, Batch: 262, Loss: 1.008, Acc: 64.84%
Epoch: 5, Batch: 263, Loss: 0.780, Acc: 72.66%
Epoch: 5, Batch: 264, Loss: 0.858, Acc: 65.62%
Epoch: 5, Batch: 265, Loss: 0.922, Acc: 66.41%
Epoch: 5, Batch: 266, Loss: 0.955, Acc: 66.41%
Epoch: 5, Batch: 267, Loss: 0.834, Acc: 71.09%
Epoch: 5, Batch: 268, Loss: 0.926, Acc: 66.41%
Epoch: 5, Batch: 269, Loss: 0.964, Acc: 65.62%
Epoch: 5, Batch: 270, Loss: 0.730, Acc: 72.66%
Epoch: 5, Batch: 271, Loss: 0.920, Acc: 71.09%
Epoch: 5, Batch: 272, Loss: 0.825, Acc: 69.53%
Epoch: 5, Batch: 273, Loss: 0.892, Acc: 64.06%
Epoch: 5, Batch: 274, Loss: 0.910, Acc: 67.97%
Epoch: 5, Batch: 275, Loss: 0.740, Acc: 71.09%
Epoch: 5, Batch: 276, Loss: 0.767, Acc: 74.22%
Epoch: 5, Batch: 277, Loss: 0.900, Acc: 67.97%
Epoch: 5, Batch: 278, Loss: 0.694, Acc: 75.78%
Epoch: 5, Batch: 279, Loss: 0.995, Acc: 64.06%
```

```
Epoch: 5, Batch: 280, Loss: 0.864, Acc: 71.09%
Epoch: 5, Batch: 281, Loss: 0.761, Acc: 73.44%
Epoch: 5, Batch: 282, Loss: 0.851, Acc: 69.53%
Epoch: 5, Batch: 283, Loss: 0.967, Acc: 64.06%
Epoch: 5, Batch: 284, Loss: 1.029, Acc: 59.38%
Epoch: 5, Batch: 285, Loss: 0.897, Acc: 71.88%
Epoch: 5, Batch: 286, Loss: 0.752, Acc: 76.56%
Epoch: 5, Batch: 287, Loss: 0.718, Acc: 77.34%
Epoch: 5, Batch: 288, Loss: 0.658, Acc: 75.78%
Epoch: 5, Batch: 289, Loss: 0.729, Acc: 78.12%
Epoch: 5, Batch: 290, Loss: 0.895, Acc: 69.53%
Epoch: 5, Batch: 291, Loss: 0.978, Acc: 64.06%
Epoch: 5, Batch: 292, Loss: 0.947, Acc: 68.75%
Epoch: 5, Batch: 293, Loss: 0.987, Acc: 65.62%
Epoch: 5, Batch: 294, Loss: 0.795, Acc: 74.22%
Epoch: 5, Batch: 295, Loss: 0.906, Acc: 69.53%
Epoch: 5, Batch: 296, Loss: 0.723, Acc: 75.00%
Epoch: 5, Batch: 297, Loss: 1.006, Acc: 63.28%
Epoch: 5, Batch: 298, Loss: 0.812, Acc: 70.31%
Epoch: 5, Batch: 299, Loss: 0.767, Acc: 71.09%
Epoch: 5, Batch: 300, Loss: 0.817, Acc: 73.44%
Epoch: 5, Batch: 301, Loss: 1.023, Acc: 65.62%
Epoch: 5, Batch: 302, Loss: 0.780, Acc: 73.44%
Epoch: 5, Batch: 303, Loss: 0.908, Acc: 67.19%
Epoch: 5, Batch: 304, Loss: 0.935, Acc: 64.84%
Epoch: 5, Batch: 305, Loss: 1.028, Acc: 62.50%
Epoch: 5, Batch: 306, Loss: 0.996, Acc: 58.59%
Epoch: 5, Batch: 307, Loss: 0.816, Acc: 67.97%
Epoch: 5, Batch: 308, Loss: 0.866, Acc: 65.62%
Epoch: 5, Batch: 309, Loss: 0.986, Acc: 66.41%
Epoch: 5, Batch: 310, Loss: 0.734, Acc: 74.22%
Epoch: 5, Batch: 311, Loss: 0.691, Acc: 78.91%
Epoch: 5, Batch: 312, Loss: 0.865, Acc: 71.88%
Epoch: 5, Batch: 313, Loss: 0.832, Acc: 71.88%
Epoch: 5, Batch: 314, Loss: 0.927, Acc: 64.84%
Epoch: 5, Batch: 315, Loss: 0.872, Acc: 68.75%
Epoch: 5, Batch: 316, Loss: 0.973, Acc: 66.41%
Epoch: 5, Batch: 317, Loss: 0.903, Acc: 69.53%
Epoch: 5, Batch: 318, Loss: 0.872, Acc: 69.53%
Epoch: 5, Batch: 319, Loss: 0.772, Acc: 75.00%
Epoch: 5, Batch: 320, Loss: 0.659, Acc: 78.12%
Epoch: 5, Batch: 321, Loss: 0.852, Acc: 70.31%
Epoch: 5, Batch: 322, Loss: 0.774, Acc: 73.44%
Epoch: 5, Batch: 323, Loss: 0.920, Acc: 66.41%
Epoch: 5, Batch: 324, Loss: 0.869, Acc: 71.88%
Epoch: 5, Batch: 325, Loss: 0.792, Acc: 70.31%
Epoch: 5, Batch: 326, Loss: 0.702, Acc: 71.88%
Epoch: 5, Batch: 327, Loss: 0.925, Acc: 66.41%
Epoch: 5, Batch: 328, Loss: 0.809, Acc: 71.88%
Epoch: 5, Batch: 329, Loss: 0.781, Acc: 75.78%
Epoch: 5, Batch: 330, Loss: 0.735, Acc: 73.44%
Epoch: 5, Batch: 331, Loss: 0.965, Acc: 63.28%
Epoch: 5, Batch: 332, Loss: 0.800, Acc: 71.88%
Epoch: 5, Batch: 333, Loss: 0.996, Acc: 66.41%
Epoch: 5, Batch: 334, Loss: 0.852, Acc: 73.44%
Epoch: 5, Batch: 335, Loss: 0.783, Acc: 74.22%
```

```
Epoch: 5, Batch: 336, Loss: 0.893, Acc: 66.41%
Epoch: 5, Batch: 337, Loss: 0.850, Acc: 67.97%
Epoch: 5, Batch: 338, Loss: 0.793, Acc: 72.66%
Epoch: 5, Batch: 339, Loss: 0.805, Acc: 72.66%
Epoch: 5, Batch: 340, Loss: 0.890, Acc: 68.75%
Epoch: 5, Batch: 341, Loss: 0.912, Acc: 67.97%
Epoch: 5, Batch: 342, Loss: 0.694, Acc: 77.34%
Epoch: 5, Batch: 343, Loss: 0.717, Acc: 73.44%
Epoch: 5, Batch: 344, Loss: 0.820, Acc: 69.53%
Epoch: 5, Batch: 345, Loss: 0.915, Acc: 68.75%
Epoch: 5, Batch: 346, Loss: 0.662, Acc: 76.56%
Epoch: 5, Batch: 347, Loss: 0.868, Acc: 74.22%
Epoch: 5, Batch: 348, Loss: 0.896, Acc: 67.19%
Epoch: 5, Batch: 349, Loss: 0.965, Acc: 60.16%
Epoch: 5, Batch: 350, Loss: 0.901, Acc: 68.75%
Epoch: 5, Batch: 351, Loss: 0.822, Acc: 77.34%
Epoch: 5, Batch: 352, Loss: 0.968, Acc: 71.09%
Epoch: 5, Batch: 353, Loss: 0.811, Acc: 71.09%
Epoch: 5, Batch: 354, Loss: 0.954, Acc: 68.75%
Epoch: 5, Batch: 355, Loss: 0.716, Acc: 76.56%
Epoch: 5, Batch: 356, Loss: 0.791, Acc: 68.75%
Epoch: 5, Batch: 357, Loss: 0.777, Acc: 72.66%
Epoch: 5, Batch: 358, Loss: 0.844, Acc: 69.53%
Epoch: 5, Batch: 359, Loss: 0.992, Acc: 67.19%
Epoch: 5, Batch: 360, Loss: 0.810, Acc: 71.88%
Epoch: 5, Batch: 361, Loss: 0.812, Acc: 67.97%
Epoch: 5, Batch: 362, Loss: 0.617, Acc: 81.25%
Epoch: 5, Batch: 363, Loss: 0.785, Acc: 76.56%
Epoch: 5, Batch: 364, Loss: 0.934, Acc: 62.50%
Epoch: 5, Batch: 365, Loss: 0.718, Acc: 75.78%
Epoch: 5, Batch: 366, Loss: 0.955, Acc: 64.84%
Epoch: 5, Batch: 367, Loss: 0.752, Acc: 74.22%
Epoch: 5, Batch: 368, Loss: 0.738, Acc: 76.56%
Epoch: 5, Batch: 369, Loss: 0.832, Acc: 69.53%
Epoch: 5, Batch: 370, Loss: 0.782, Acc: 70.31%
Epoch: 5, Batch: 371, Loss: 0.808, Acc: 72.66%
Epoch: 5, Batch: 372, Loss: 0.894, Acc: 67.19%
Epoch: 5, Batch: 373, Loss: 0.757, Acc: 72.66%
Epoch: 5, Batch: 374, Loss: 0.808, Acc: 68.75%
Epoch: 5, Batch: 375, Loss: 0.787, Acc: 71.88%
Epoch: 5, Batch: 376, Loss: 0.839, Acc: 68.75%
Epoch: 5, Batch: 377, Loss: 0.869, Acc: 71.88%
Epoch: 5, Batch: 378, Loss: 1.045, Acc: 67.97%
Epoch: 5, Batch: 379, Loss: 0.802, Acc: 70.31%
Epoch: 5, Batch: 380, Loss: 0.862, Acc: 72.66%
Epoch: 5, Batch: 381, Loss: 0.965, Acc: 65.62%
Epoch: 5, Batch: 382, Loss: 0.958, Acc: 62.50%
Epoch: 5, Batch: 383, Loss: 0.691, Acc: 75.00%
Epoch: 5, Batch: 384, Loss: 1.008, Acc: 64.84%
Epoch: 5, Batch: 385, Loss: 0.647, Acc: 74.22%
Epoch: 5, Batch: 386, Loss: 0.807, Acc: 69.53%
Epoch: 5, Batch: 387, Loss: 0.963, Acc: 63.28%
Epoch: 5, Batch: 388, Loss: 0.845, Acc: 67.97%
Epoch: 5, Batch: 389, Loss: 0.890, Acc: 69.53%
Epoch: 5, Batch: 390, Loss: 0.770, Acc: 71.09%
```

```
Epoch: 5, Batch: 391, Loss: 0.837, Acc: 70.00%
Epoch 5 completed
```

Note: To score full points (10) for this section, ensure that:

-- The train() function correctly creates the DataLoader for the CIFAR10 dataset.

-- The training loop runs for 5 epochs and processes all minibatches.

-- The model training is device-agnostic and runs on both CPU and GPU.

-- The per-batch training loss and top-1 accuracy are calculated and printed for each minibatch.

-- Proper usage of argparse to handle parameters like CUDA usage, data path,number of workers, and optimizer.

-- The code is efficient and does not produce any errors during training

C2: Time Measurement of code in C1 (10 points)

Report the running time (by using `time.perf_counter()` or other timers you are comfortable with) for the following sections of the code:

(C2.1) Data-loading time for each epoch

(C2.2) Training (i.e., mini-batch calculation) time for each epoch

(C2.3) Total running time for each epoch.

> **Note**: Data-loading time here is the time it takes to load batches from the generator (exclusive of the time it takes to move those batches to the device)

In [18]:
```
def train_c2(args=None):
    if args is None:
        parser = argparse.ArgumentParser(description='PyTorch CIFAR10 Traini
        parser.add_argument('--device', default='cuda', help='device to use
        parser.add_argument('--data_path', default='./data', help='path to C
        parser.add_argument('--num_workers', type=int, default=3, help='numb
        parser.add_argument('--optimizer', default='sgd', help='optimizer to
        parser.add_argument('--epochs', type=int, default=5, help='number of
        args = parser.parse_args([])  # Parse empty list to use defaults in

    device = torch.device(args.device if torch.cuda.is_available() else 'cpu

    # Instantiate model
    model = ResNet18(num_classes=10).to(device)
```

```
    # Load data
    train_loader = get_dataset(data_path=args.data_path, num_workers=args.nu


    # Define loss and optimizer
    criterion = nn.CrossEntropyLoss()
    if args.optimizer.lower() == 'sgd':
        optimizer = optim.SGD(model.parameters(), lr=0.1, momentum=0.9, weig
    elif args.optimizer.lower() == 'adam':
        optimizer = optim.Adam(model.parameters(), lr=0.01, weight_decay=5e-
    else:
        raise ValueError("Unsupported optimizer. Choose 'sgd' or 'adam'.")

    # Training loop with time measurement
    for epoch in range(args.epochs):
        start_epoch = time.perf_counter()
        model.train()
        data_load_start = time.perf_counter()
        running_loss = 0.0
        correct = 0
        total = 0
        for batch_idx, (inputs, targets) in enumerate(train_loader):
            data_load_end = time.perf_counter()
            training_start = time.perf_counter()

            inputs, targets = inputs.to(device), targets.to(device)

            optimizer.zero_grad()

            outputs = model(inputs)
            loss = criterion(outputs, targets)
            loss.backward()
            optimizer.step()

            training_end = time.perf_counter()

            running_loss += loss.item()
            _, predicted = outputs.max(1)
            total += targets.size(0)
            correct += predicted.eq(targets).sum().item()

        end_epoch = time.perf_counter()
        total_epoch_time = end_epoch - start_epoch
        training_time = training_end - training_start
        data_loading_time = data_load_end - data_load_start

        print(f'Epoch [{epoch+1}/{args.epochs}] '
              f'Data Loading Time: {data_loading_time:.4f}s | '
              f'Training Time: {training_time:.4f}s | '
              f'Total Epoch Time: {total_epoch_time:.4f}s | '
              f'Loss: {running_loss / len(train_loader):.4f} | '
              f'Acc: {100. * correct / total:.2f}%')
```

In [21]:

```
# Call training for C2 here
custom_args = SimpleNamespace(
    device='cuda',
```

```
    data_path='./data',
    num_workers=4,
    optimizer='sgd',
    epochs=10
)
train_c2(custom_args)
```

```
Files already downloaded and verified
Epoch [1/10] Data Loading Time: 16.9597s | Training Time: 0.0073s | Total Ep
och Time: 17.0200s | Loss: 1.9562 | Acc: 32.20%
Epoch [2/10] Data Loading Time: 16.9055s | Training Time: 0.0075s | Total Ep
och Time: 16.9700s | Loss: 1.4126 | Acc: 48.31%
Epoch [3/10] Data Loading Time: 16.9762s | Training Time: 0.0072s | Total Ep
och Time: 17.0486s | Loss: 1.1359 | Acc: 58.97%
Epoch [4/10] Data Loading Time: 16.9148s | Training Time: 0.0072s | Total Ep
och Time: 16.9794s | Loss: 0.9468 | Acc: 66.47%
Epoch [5/10] Data Loading Time: 16.9034s | Training Time: 0.0072s | Total Ep
och Time: 16.9677s | Loss: 0.8078 | Acc: 71.68%
Epoch [6/10] Data Loading Time: 16.8495s | Training Time: 0.0075s | Total Ep
och Time: 16.9152s | Loss: 0.6873 | Acc: 76.10%
Epoch [7/10] Data Loading Time: 16.9463s | Training Time: 0.0077s | Total Ep
och Time: 17.0146s | Loss: 0.6079 | Acc: 79.00%
Epoch [8/10] Data Loading Time: 16.9727s | Training Time: 0.0075s | Total Ep
och Time: 17.0389s | Loss: 0.5628 | Acc: 80.65%
Epoch [9/10] Data Loading Time: 16.9018s | Training Time: 0.0069s | Total Ep
och Time: 16.9779s | Loss: 0.5302 | Acc: 81.64%
Epoch [10/10] Data Loading Time: 16.8459s | Training Time: 0.0068s | Total E
poch Time: 16.9108s | Loss: 0.5110 | Acc: 82.42%
```

Note: To score full points (10) for this section, ensure that:

The time.perf_counter() (or equivalent) is correctly used to measure the following:

```
(C2.1) Data-loading time for each epoch.

(C2.2) Training (mini-batch computation) time for each epoch.

(C2.3) Total running time for each epoch.
```

-- The times are accurately measured and printed for each epoch.

-- Clear separation of data-loading and training times is maintained.

-- Output of each timing section should be well-formatted and easy to read.

C3: I/O optimization for Code in C2 (10 points)

(C3.1) Report the total time spent for the Dataloader varying the number of workers starting from zero and increment the number of workers by 4 (0,4,8,12,16...) until the I/O time does not decrease anymore.

Draw the results in a graph to illustrate the performance you are getting as you increase the number of workers

(C3.2) Report how many workers are needed for the best runtime performance.

In [12]:
```
def train_c3(args=None):
    if args is None:
        parser = argparse.ArgumentParser(description='PyTorch CIFAR10 Traini
        parser.add_argument('--device', default='cuda', help='device to use 
        parser.add_argument('--data_path', default='./data', help='path to C
        parser.add_argument('--optimizer', default='sgd', help='optimizer to
        parser.add_argument('--epochs', type=int, default=5, help='number of
        parser.add_argument('--batch_size', type=int, default=128, help='bat
        parser.add_argument('--max_workers', type=int, default=16, help='max
        args = parser.parse_args([])  # Parse empty list to use defaults in 

    device = torch.device(args.device if torch.cuda.is_available() else 'cpu

    # Initialize lists to store results
    worker_counts = list(range(0, args.max_workers + 1, 4))  # 0,4,8,12,16
    io_times = []

    for num_workers in worker_counts:
        print(f'\nTraining with num_workers={num_workers}')

        # Create DataLoader with current num_workers
        transform = transforms.Compose([
            transforms.RandomCrop(32, padding=4),
            transforms.RandomHorizontalFlip(p=0.5),
            transforms.ToTensor(),
            transforms.Normalize(
                mean=(0.4914, 0.4822, 0.4465),
                std=(0.2023, 0.1994, 0.2010)
            )
        ])
        train_dataset = datasets.CIFAR10(
            root=args.data_path, train=True,
            download=True, transform=transform
        )
        train_loader = DataLoader(
            train_dataset, batch_size=args.batch_size,
            shuffle=True, num_workers=num_workers
        )

        # Instantiate model
        model = ResNet18(num_classes=10).to(device)

        # Define loss and optimizer
        criterion = nn.CrossEntropyLoss()
        if args.optimizer.lower() == 'sgd':
            optimizer = optim.SGD(
                model.parameters(), lr=0.1,
                momentum=0.9, weight_decay=5e-4
            )
        elif args.optimizer.lower() == 'adam':
```

```
            optimizer = optim.Adam(
                model.parameters(), lr=0.01, weight_decay=5e-4
            )
        else:
            raise ValueError("Unsupported optimizer. Choose 'sgd' or 'adam'.

        # Training loop with time measurement
        epoch_io_times = []
        for epoch in range(args.epochs):
            model.train()
            start_epoch = time.perf_counter()

            data_load_start = time.perf_counter()
            running_loss = 0.0
            correct = 0
            total = 0
            for batch_idx, (inputs, targets) in enumerate(train_loader):
                data_load_end = time.perf_counter()
                training_start = time.perf_counter()

                inputs, targets = inputs.to(device), targets.to(device)

                optimizer.zero_grad()

                outputs = model(inputs)
                loss = criterion(outputs, targets)
                loss.backward()
                optimizer.step()

                training_end = time.perf_counter()

                running_loss += loss.item()
                _, predicted = outputs.max(1)
                total += targets.size(0)
                correct += predicted.eq(targets).sum().item()

            end_epoch = time.perf_counter()
            total_epoch_time = end_epoch - start_epoch
            training_time = training_end - training_start
            data_loading_time = data_load_end - data_load_start

            print(f'Epoch [{epoch+1}/{args.epochs}] '
                  f'Num Workers: {num_workers} | '
                  f'Data Loading Time: {data_loading_time:.4f}s | '
                  f'Training Time: {training_time:.4f}s | '
                  f'Total Epoch Time: {total_epoch_time:.4f}s | '
                  f'Loss: {running_loss / len(train_loader):.4f} | '
                  f'Acc: {100. * correct / total:.2f}%')

            epoch_io_times.append(data_loading_time)

        average_io_time = sum(epoch_io_times) / len(epoch_io_times)
        io_times.append(average_io_time)
        print(f'Average I/O time for num_workers={num_workers}: {average_io_

    return worker_counts, io_times
```

In [13]:
```python
worker_counts, io_times = train_c3()
```

```
Training with num_workers=0
Files already downloaded and verified
Epoch [1/5] Num Workers: 0 | Data Loading Time: 30.9425s | Training Time: 0.
0066s | Total Epoch Time: 30.9719s | Loss: 1.9090 | Acc: 31.58%
Epoch [2/5] Num Workers: 0 | Data Loading Time: 30.8918s | Training Time: 0.
0063s | Total Epoch Time: 30.9210s | Loss: 1.4177 | Acc: 48.08%
Epoch [3/5] Num Workers: 0 | Data Loading Time: 30.8910s | Training Time: 0.
0077s | Total Epoch Time: 30.9208s | Loss: 1.1337 | Acc: 59.22%
Epoch [4/5] Num Workers: 0 | Data Loading Time: 30.8906s | Training Time: 0.
0063s | Total Epoch Time: 30.9199s | Loss: 0.9736 | Acc: 65.29%
Epoch [5/5] Num Workers: 0 | Data Loading Time: 30.8720s | Training Time: 0.
0077s | Total Epoch Time: 30.9018s | Loss: 0.8688 | Acc: 69.38%
Average I/O time for num_workers=0: 30.8976s

Training with num_workers=4
Files already downloaded and verified
Epoch [1/5] Num Workers: 4 | Data Loading Time: 17.7258s | Training Time: 0.
0067s | Total Epoch Time: 17.7980s | Loss: 1.9569 | Acc: 29.74%
Epoch [2/5] Num Workers: 4 | Data Loading Time: 17.6919s | Training Time: 0.
0066s | Total Epoch Time: 17.7645s | Loss: 1.4920 | Acc: 44.94%
Epoch [3/5] Num Workers: 4 | Data Loading Time: 17.6443s | Training Time: 0.
0080s | Total Epoch Time: 17.7277s | Loss: 1.2508 | Acc: 54.67%
Epoch [4/5] Num Workers: 4 | Data Loading Time: 17.6024s | Training Time: 0.
0065s | Total Epoch Time: 17.6725s | Loss: 1.0433 | Acc: 62.89%
Epoch [5/5] Num Workers: 4 | Data Loading Time: 17.7008s | Training Time: 0.
0065s | Total Epoch Time: 17.7751s | Loss: 0.8881 | Acc: 68.52%
Average I/O time for num_workers=4: 17.6730s

Training with num_workers=8
Files already downloaded and verified
/ext3/miniforge3/lib/python3.12/site-packages/torch/utils/data/dataloader.p
y:557: UserWarning: This DataLoader will create 8 worker processes in total.
Our suggested max number of worker in current system is 4, which is smaller
than what this DataLoader is going to create. Please be aware that excessive
worker creation might get DataLoader running slow or even freeze, lower the
worker number to avoid potential slowness/freeze if necessary.
  warnings.warn(_create_warning_msg(
Epoch [1/5] Num Workers: 8 | Data Loading Time: 18.1270s | Training Time: 0.
0074s | Total Epoch Time: 18.1942s | Loss: 1.9662 | Acc: 29.62%
Epoch [2/5] Num Workers: 8 | Data Loading Time: 18.2251s | Training Time: 0.
0067s | Total Epoch Time: 18.2964s | Loss: 1.4513 | Acc: 46.36%
Epoch [3/5] Num Workers: 8 | Data Loading Time: 18.1741s | Training Time: 0.
0066s | Total Epoch Time: 18.2426s | Loss: 1.1730 | Acc: 57.70%
Epoch [4/5] Num Workers: 8 | Data Loading Time: 18.1156s | Training Time: 0.
0081s | Total Epoch Time: 18.1940s | Loss: 0.9605 | Acc: 65.97%
Epoch [5/5] Num Workers: 8 | Data Loading Time: 18.1493s | Training Time: 0.
0069s | Total Epoch Time: 18.2262s | Loss: 0.8149 | Acc: 71.10%
Average I/O time for num_workers=8: 18.1582s

Training with num_workers=12
Files already downloaded and verified
```

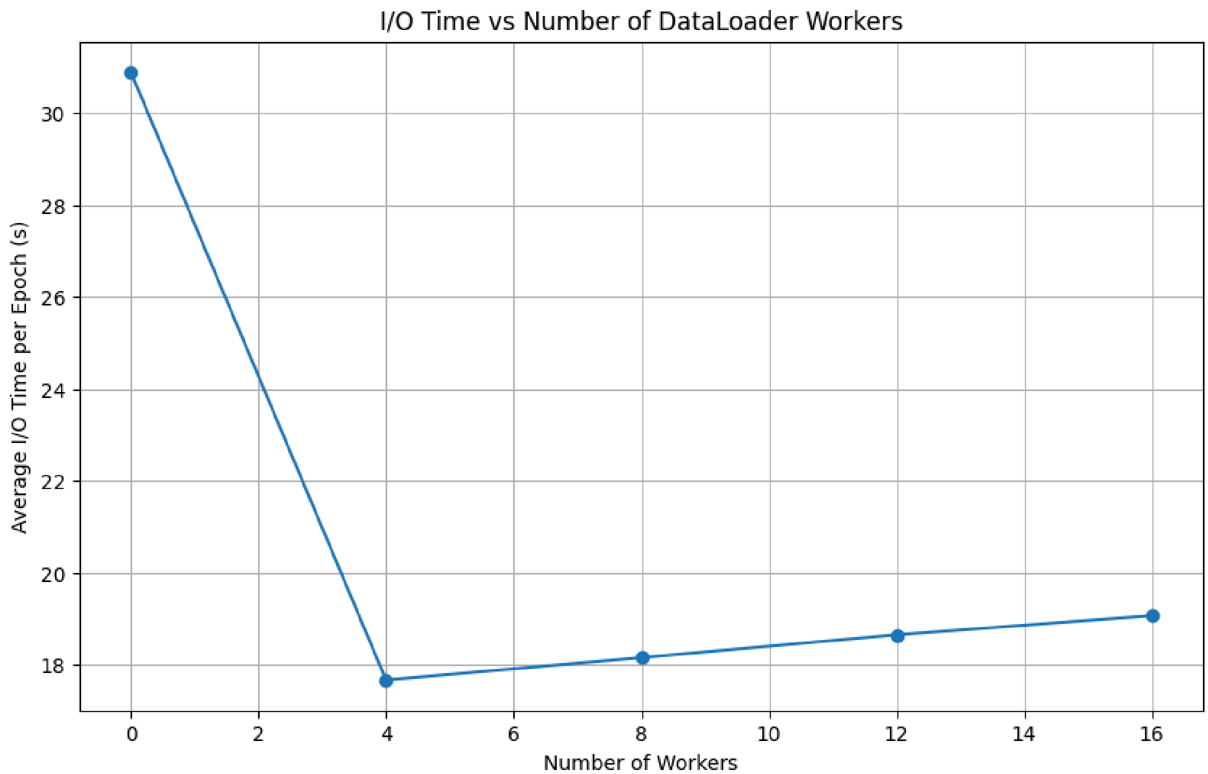
```
/ext3/miniforge3/lib/python3.12/site-packages/torch/utils/data/dataloader.p
y:557: UserWarning: This DataLoader will create 12 worker processes in tota
l. Our suggested max number of worker in current system is 4, which is small
er than what this DataLoader is going to create. Please be aware that excess
ive worker creation might get DataLoader running slow or even freeze, lower
the worker number to avoid potential slowness/freeze if necessary.
  warnings.warn(_create_warning_msg(
Epoch [1/5] Num Workers: 12 | Data Loading Time: 18.6007s | Training Time:
0.0069s | Total Epoch Time: 18.6927s | Loss: 1.7723 | Acc: 35.14%
Epoch [2/5] Num Workers: 12 | Data Loading Time: 18.7614s | Training Time:
0.0066s | Total Epoch Time: 18.8375s | Loss: 1.3117 | Acc: 52.08%
Epoch [3/5] Num Workers: 12 | Data Loading Time: 18.6785s | Training Time:
0.0065s | Total Epoch Time: 18.7562s | Loss: 1.0528 | Acc: 62.39%
Epoch [4/5] Num Workers: 12 | Data Loading Time: 18.6883s | Training Time:
0.0072s | Total Epoch Time: 18.7654s | Loss: 0.8879 | Acc: 68.71%
Epoch [5/5] Num Workers: 12 | Data Loading Time: 18.5507s | Training Time:
0.0065s | Total Epoch Time: 18.6279s | Loss: 0.7428 | Acc: 74.26%
Average I/O time for num_workers=12: 18.6560s

Training with num_workers=16
Files already downloaded and verified
/ext3/miniforge3/lib/python3.12/site-packages/torch/utils/data/dataloader.p
y:557: UserWarning: This DataLoader will create 16 worker processes in tota
l. Our suggested max number of worker in current system is 4, which is small
er than what this DataLoader is going to create. Please be aware that excess
ive worker creation might get DataLoader running slow or even freeze, lower
the worker number to avoid potential slowness/freeze if necessary.
  warnings.warn(_create_warning_msg(
Epoch [1/5] Num Workers: 16 | Data Loading Time: 19.0707s | Training Time:
0.0065s | Total Epoch Time: 19.1604s | Loss: 2.2460 | Acc: 23.61%
Epoch [2/5] Num Workers: 16 | Data Loading Time: 19.0008s | Training Time:
0.0065s | Total Epoch Time: 19.0886s | Loss: 1.6552 | Acc: 38.26%
Epoch [3/5] Num Workers: 16 | Data Loading Time: 19.1407s | Training Time:
0.0065s | Total Epoch Time: 19.2292s | Loss: 1.4485 | Acc: 46.46%
Epoch [4/5] Num Workers: 16 | Data Loading Time: 19.1641s | Training Time:
0.0065s | Total Epoch Time: 19.2593s | Loss: 1.2557 | Acc: 54.10%
Epoch [5/5] Num Workers: 16 | Data Loading Time: 18.9711s | Training Time:
0.0066s | Total Epoch Time: 19.0626s | Loss: 1.0780 | Acc: 61.45%
Average I/O time for num_workers=16: 19.0695s
```

In [14]:

```python
 # Plot num_workers vs io_times
plt.figure(figsize=(10,6))
plt.plot(worker_counts, io_times, marker='o')
plt.xlabel('Number of Workers')
plt.ylabel('Average I/O Time per Epoch (s)')
plt.title('I/O Time vs Number of DataLoader Workers')
plt.grid(True)
plt.show()

    # Find the number of workers with minimum I/O time
min_io_time = min(io_times)
best_num_workers = worker_counts[io_times.index(min_io_time)]
print(f'Best runtime performance achieved with num_workers={best_num_workers
```




```
Best runtime performance achieved with num_workers=4, Average I/O Time=17.67
30s
```

Note: To score full points (10) for this section, ensure that:

-- The train() function is modified to measure I/O time based on the number of workers.

-- The number of workers is incremented by 4 (0, 4, 8, 12, 16, etc.) until no further I/O time reduction is observed.

-- DataLoader times for each worker configuration are recorded and stored.

-- A graph is plotted showing the number of workers vs. I/O times.

--The number of workers that gives the best runtime performance is correctly identified and reported.

-- Ensure that the code runs efficiently with varying numbers of workers and provides accurate performance insights.

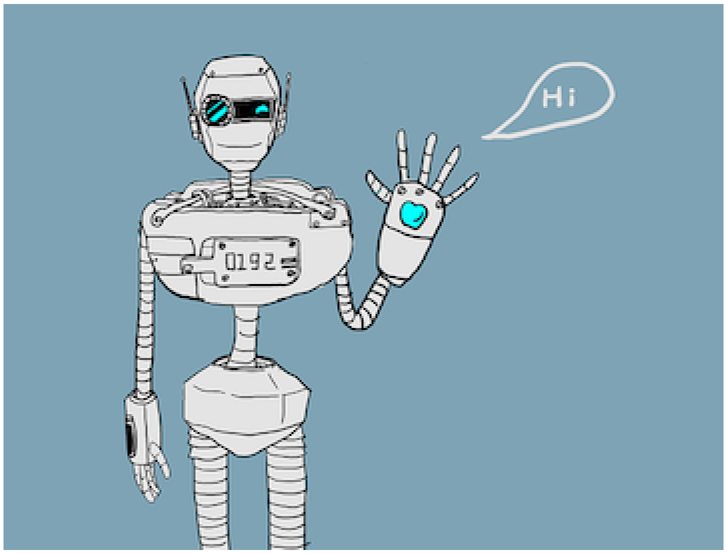
Problem 2 - Training a simple chatbot using a seq-to-seq model (25 points)

1. Train and evaluate the chatbot model (5 points)

Author: Matthew Inkawhich

In this tutorial, we explore a fun and interesting use-case of recurrent sequence-to-sequence models. We will train a simple chatbot using movie scripts from the Cornell Movie-Dialogs Corpus.

Conversational models are a hot topic in artificial intelligence research. Chatbots can be found in a variety of settings, including customer service applications and online helpdesks. These bots are often powered by retrieval-based models, which output predefined responses to questions of certain forms. In a highly restricted domain like a company's IT helpdesk, these models may be sufficient, however, they are not robust enough for more general use-cases. Teaching a machine to carry out a meaningful conversation with a human in multiple domains is a research question that is far from solved. Recently, the deep learning boom has allowed for powerful generative models like Google's Neural Conversational Model, which marks a large step towards multi-domain generative conversational models. In this tutorial, we will implement this kind of model in PyTorch.




```
{.sourceCode
> hello?
Bot: hello .
> where am I?
Bot: you re in a hospital .
> who are you?
Bot: i m a lawyer .
> how are you doing?
Bot: i m fine .
> are you my friend?
Bot: no .
> you're under arrest
Bot: i m trying to help you !
```

```
> i'm just kidding
Bot: i m sorry .
> where are you from?
Bot: san francisco .
> it's time for me to leave
Bot: i know .
> goodbye
Bot: goodbye .
```

Tutorial Highlights

- Handle loading and preprocessing of Cornell Movie-Dialogs Corpus dataset
- Implement a sequence-to-sequence model with Luong attention mechanism(s)
- Jointly train encoder and decoder models using mini-batches
- Implement greedy-search decoding module
- Interact with trained chatbot

Acknowledgments

This tutorial borrows code from the following sources:

1. Yuan-Kuei Wu's pytorch-chatbot implementation: https://github.com/ywk991112/pytorch-chatbot

2. Sean Robertson's practical-pytorch seq2seq-translation example: https://github.com/spro/practical-pytorch/tree/master/seq2seq-translation

3. FloydHub Cornell Movie Corpus preprocessing code: https://github.com/floydhub/textutil-preprocess-cornell-movie-corpus

Preparations

To get started, download the Movie-Dialogs Corpus zip file.

In [21]:

```python
# and put in a ``data/`` directory under the current directory.
#
# After that, let’s import some necessities.
#

import torch
from torch.jit import script, trace
import torch.nn as nn
from torch import optim
import torch.nn.functional as F
import csv
import random
import re
```

```
import os
import unicodedata
import codecs
from io import open
import itertools
import math
import json


USE_CUDA = torch.cuda.is_available()
device = torch.device("cuda" if USE_CUDA else "cpu")
```

Load & Preprocess Data

The next step is to reformat our data file and load the data into structures that we can work with.

The Cornell Movie-Dialogs Corpus is a rich dataset of movie character dialog:

- 220,579 conversational exchanges between 10,292 pairs of movie characters
- 9,035 characters from 617 movies
- 304,713 total utterances

This dataset is large and diverse, and there is a great variation of language formality, time periods, sentiment, etc. Our hope is that this diversity makes our model robust to many forms of inputs and queries.

First, we'll take a look at some lines of our datafile to see the original format.

In [22]:
```
corpus_name = "movie-corpus"
corpus = os.path.join("data", corpus_name)

def printLines(file, n=10):
    with open(file, 'rb') as datafile:
        lines = datafile.readlines()
    for line in lines[:n]:
        print(line)

printLines(os.path.join(corpus, "utterances.jsonl"))
```

b'{"id": "L1045", "conversation_id": "L1044", "text": "They do not!", "speak
er": "u0", "meta": {"movie_id": "m0", "parsed": [{"rt": 1, "toks": [{"tok":
"They", "tag": "PRP", "dep": "nsubj", "up": 1, "dn": []}, {"tok": "do", "ta
g": "VBP", "dep": "ROOT", "dn": [0, 2, 3]}, {"tok": "not", "tag": "RB", "de
p": "neg", "up": 1, "dn": []}, {"tok": "!", "tag": ".", "dep": "punct", "u
p": 1, "dn": []}]}]}, "reply-to": "L1044", "timestamp": null, "vectors": []}
\n'
b'{"id": "L1044", "conversation_id": "L1044", "text": "They do to!", "speake
r": "u2", "meta": {"movie_id": "m0", "parsed": [{"rt": 1, "toks": [{"tok":
"They", "tag": "PRP", "dep": "nsubj", "up": 1, "dn": []}, {"tok": "do", "ta
g": "VBP", "dep": "ROOT", "dn": [0, 2, 3]}, {"tok": "to", "tag": "TO", "de
p": "dobj", "up": 1, "dn": []}, {"tok": "!", "tag": ".", "dep": "punct", "u
p": 1, "dn": []}]}]}, "reply-to": null, "timestamp": null, "vectors": []}\n'
b'{"id": "L985", "conversation_id": "L984", "text": "I hope so.", "speaker":
"u0", "meta": {"movie_id": "m0", "parsed": [{"rt": 1, "toks": [{"tok": "I",
"tag": "PRP", "dep": "nsubj", "up": 1, "dn": []}, {"tok": "hope", "tag": "VB
P", "dep": "ROOT", "dn": [0, 2, 3]}, {"tok": "so", "tag": "RB", "dep": "advm
od", "up": 1, "dn": []}, {"tok": ".", "tag": ".", "dep": "punct", "up": 1,
"dn": []}]}]}, "reply-to": "L984", "timestamp": null, "vectors": []}\n'
b'{"id": "L984", "conversation_id": "L984", "text": "She okay?", "speaker":
"u2", "meta": {"movie_id": "m0", "parsed": [{"rt": 1, "toks": [{"tok": "Sh
e", "tag": "PRP", "dep": "nsubj", "up": 1, "dn": []}, {"tok": "okay", "tag":
"RB", "dep": "ROOT", "dn": [0, 2]}, {"tok": "?", "tag": ".", "dep": "punct",
"up": 1, "dn": []}]}]}, "reply-to": null, "timestamp": null, "vectors": []}
\n'
b'{"id": "L925", "conversation_id": "L924", "text": "Let\'s go.", "speaker":
"u0", "meta": {"movie_id": "m0", "parsed": [{"rt": 0, "toks": [{"tok": "Le
t", "tag": "VB", "dep": "ROOT", "dn": [2, 3]}, {"tok": "\'s", "tag": "PRP",
"dep": "nsubj", "up": 2, "dn": []}, {"tok": "go", "tag": "VB", "dep": "ccom
p", "up": 0, "dn": [1]}, {"tok": ".", "tag": ".", "dep": "punct", "up": 0,
"dn": []}]}]}, "reply-to": "L924", "timestamp": null, "vectors": []}\n'
b'{"id": "L924", "conversation_id": "L924", "text": "Wow", "speaker": "u2",
"meta": {"movie_id": "m0", "parsed": [{"rt": 0, "toks": [{"tok": "Wow", "ta
g": "UH", "dep": "ROOT", "dn": []}]}]}, "reply-to": null, "timestamp": null,
"vectors": []}\n'
b'{"id": "L872", "conversation_id": "L870", "text": "Okay -- you\'re gonna n
eed to learn how to lie.", "speaker": "u0", "meta": {"movie_id": "m0", "pars
ed": [{"rt": 4, "toks": [{"tok": "Okay", "tag": "UH", "dep": "intj", "up":
4, "dn": []}, {"tok": "--", "tag": ":", "dep": "punct", "up": 4, "dn": []},
{"tok": "you", "tag": "PRP", "dep": "nsubj", "up": 4, "dn": []}, {"tok":
"\'re", "tag": "VBP", "dep": "aux", "up": 4, "dn": []}, {"tok": "gon", "ta
g": "VBG", "dep": "ROOT", "dn": [0, 1, 2, 3, 6, 12]}, {"tok": "na", "tag":
"TO", "dep": "aux", "up": 6, "dn": []}, {"tok": "need", "tag": "VB", "dep":
"xcomp", "up": 4, "dn": [5, 8]}, {"tok": "to", "tag": "TO", "dep": "aux", "u
p": 8, "dn": []}, {"tok": "learn", "tag": "VB", "dep": "xcomp", "up": 6, "d
n": [7, 11]}, {"tok": "how", "tag": "WRB", "dep": "advmod", "up": 11, "dn":
[]}, {"tok": "to", "tag": "TO", "dep": "aux", "up": 11, "dn": []}, {"tok":
"lie", "tag": "VB", "dep": "xcomp", "up": 8, "dn": [9, 10]}, {"tok": ".", "t
ag": ".", "dep": "punct", "up": 4, "dn": []}]}]}, "reply-to": "L871", "times
tamp": null, "vectors": []}\n'
b'{"id": "L871", "conversation_id": "L870", "text": "No", "speaker": "u2",
"meta": {"movie_id": "m0", "parsed": [{"rt": 0, "toks": [{"tok": "No", "ta
g": "UH", "dep": "ROOT", "dn": []}]}]}, "reply-to": "L870", "timestamp": nul
l, "vectors": []}\n'
b'{"id": "L870", "conversation_id": "L870", "text": "I\'m kidding. You know
how sometimes you just become this \\"persona\\"? And you don\'t know how t

o quit?", "speaker": "u0", "meta": {"movie_id": "m0", "parsed": [{"rt": 2, "toks": [{"tok": "I", "tag": "PRP", "dep": "nsubj", "up": 2, "dn": []}, {"tok": "\'m", "tag": "VBP", "dep": "aux", "up": 2, "dn": []}, {"tok": "kidding", "tag": "VBG", "dep": "ROOT", "dn": [0, 1, 3]}, {"tok": ".", "tag": ".", "dep": "punct", "up": 2, "dn": [4]}, {"tok": " ", "tag": "_SP", "dep": "", "up": 3, "dn": []}]}, {"rt": 1, "toks": [{"tok": "You", "tag": "PRP", "dep": "nsubj", "up": 1, "dn": []}, {"tok": "know", "tag": "VBP", "dep": "ROOT", "dn": [0, 6, 11]}, {"tok": "how", "tag": "WRB", "dep": "advmod", "up": 3, "dn": []}, {"tok": "sometimes", "tag": "RB", "dep": "advmod", "up": 6, "dn": [2]}, {"tok": "you", "tag": "PRP", "dep": "nsubj", "up": 6, "dn": []}, {"tok": "just", "tag": "RB", "dep": "advmod", "up": 6, "dn": []}, {"tok": "become", "tag": "VBP", "dep": "ccomp", "up": 1, "dn": [3, 4, 5, 9]}, {"tok": "this", "tag": "DT", "dep": "det", "up": 9, "dn": []}, {"tok": "\\"", "tag": "``", "dep": "punct", "up": 9, "dn": []}, {"tok": "persona", "tag": "NN", "dep": "attr", "up": 6, "dn": [7, 8, 10]}, {"tok": "\\"", "tag": "\'\'", "dep": "punct", "up": 9, "dn": []}, {"tok": "?", "tag": ".", "dep": "punct", "up": 1, "dn": [12]}, {"tok": " ", "tag": "_SP", "dep": "", "up": 11, "dn": []}]}, {"rt": 4, "toks": [{"tok": "And", "tag": "CC", "dep": "cc", "up": 4, "dn": []}, {"tok": "you", "tag": "PRP", "dep": "nsubj", "up": 4, "dn": []}, {"tok": "do", "tag": "VBP", "dep": "aux", "up": 4, "dn": []}, {"tok": "n\'t", "tag": "RB", "dep": "neg", "up": 4, "dn": []}, {"tok": "know", "tag": "VB", "dep": "ROOT", "dn": [0, 1, 2, 3, 7, 8]}, {"tok": "how", "tag": "WRB", "dep": "advmod", "up": 7, "dn": []}, {"tok": "to", "tag": "TO", "dep": "aux", "up": 7, "dn": []}, {"tok": "quit", "tag": "VB", "dep": "xcomp", "up": 4, "dn": [5, 6]}, {"tok": "?", "tag": ".", "dep": "punct", "up": 4, "dn": []}]}]}, "reply-to": null, "timestamp": null, "vectors": []}\n'
b'{"id": "L869", "conversation_id": "L866", "text": "Like my fear of wearing pastels?", "speaker": "u0", "meta": {"movie_id": "m0", "parsed": [{"rt": 0, "toks": [{"tok": "Like", "tag": "IN", "dep": "ROOT", "dn": [2, 6]}, {"tok": "my", "tag": "PRP$", "dep": "poss", "up": 2, "dn": []}, {"tok": "fear", "tag": "NN", "dep": "pobj", "up": 0, "dn": [1, 3]}, {"tok": "of", "tag": "IN", "dep": "prep", "up": 2, "dn": [4]}, {"tok": "wearing", "tag": "VBG", "dep": "pcomp", "up": 3, "dn": [5]}, {"tok": "pastels", "tag": "NNS", "dep": "dobj", "up": 4, "dn": []}, {"tok": "?", "tag": ".", "dep": "punct", "up": 0, "dn": []}]}]}, "reply-to": "L868", "timestamp": null, "vectors": []}\n'

Create formatted data file

For convenience, we'll create a nicely formatted data file in which each line contains a tab-separated *query sentence* and a *response sentence* pair.

The following functions facilitate the parsing of the raw `utterances.jsonl` data file.

- `loadLinesAndConversations` splits each line of the file into a dictionary of lines with fields: `lineID`, `characterID`, and text and then groups them into conversations with fields: `conversationID`, `movieID`, and lines.
- `extractSentencePairs` extracts pairs of sentences from conversations

In [23]:
```
# Splits each line of the file to create lines and conversations
def loadLinesAndConversations(fileName):
    lines = {}
```

```
    conversations = {}
    with open(fileName, 'r', encoding='iso-8859-1') as f:
        for line in f:
            lineJson = json.loads(line)
            # Extract fields for line object
            lineObj = {}
            lineObj["lineID"] = lineJson["id"]
            lineObj["characterID"] = lineJson["speaker"]
            lineObj["text"] = lineJson["text"]
            lines[lineObj['lineID']] = lineObj

            # Extract fields for conversation object
            if lineJson["conversation_id"] not in conversations:
                convObj = {}
                convObj["conversationID"] = lineJson["conversation_id"]
                convObj["movieID"] = lineJson["meta"]["movie_id"]
                convObj["lines"] = [lineObj]
            else:
                convObj = conversations[lineJson["conversation_id"]]
                convObj["lines"].insert(0, lineObj)
            conversations[convObj["conversationID"]] = convObj

    return lines, conversations


# Extracts pairs of sentences from conversations
def extractSentencePairs(conversations):
    qa_pairs = []
    for conversation in conversations.values():
        # Iterate over all the lines of the conversation
        for i in range(len(conversation["lines"]) - 1):  # We ignore the las
            inputLine = conversation["lines"][i]["text"].strip()
            targetLine = conversation["lines"][i+1]["text"].strip()
            # Filter wrong samples (if one of the lists is empty)
            if inputLine and targetLine:
                qa_pairs.append([inputLine, targetLine])
    return qa_pairs
```

Now we'll call these functions and create the file. We'll call it `formatted_movie_lines.txt`.

In [4]:

```
# Define path to new file
datafile = os.path.join(corpus, "formatted_movie_lines.txt")

delimiter = '\t'
# Unescape the delimiter
delimiter = str(codecs.decode(delimiter, "unicode_escape"))

# Initialize lines dict and conversations dict
lines = {}
conversations = {}
# Load lines and conversations
print("\nProcessing corpus into lines and conversations...")
lines, conversations = loadLinesAndConversations(os.path.join(corpus, "utter
```

```
# Write new csv file
print("\nWriting newly formatted file...")
with open(datafile, 'w', encoding='utf-8') as outputfile:
    writer = csv.writer(outputfile, delimiter=delimiter, lineterminator='\n'
    for pair in extractSentencePairs(conversations):
        writer.writerow(pair)

# Print a sample of lines
print("\nSample lines from file:")
printLines(datafile)
```

```
Processing corpus into lines and conversations...

Writing newly formatted file...

Sample lines from file:
b'They do to!\tThey do not!\n'
b'She okay?\tI hope so.\n'
b"Wow\tLet's go.\n"
b'"I\'m kidding.  You know how sometimes you just become this ""persona""?
And you don\'t know how to quit?"\tNo\n'
b"No\tOkay -- you're gonna need to learn how to lie.\n"
b"I figured you'd get to the good stuff eventually.\tWhat good stuff?\n"
b'What good stuff?\t"The ""real you""."\n'
b'"The ""real you""."\tLike my fear of wearing pastels?\n'
b'do you listen to this crap?\tWhat crap?\n'
b"What crap?\tMe.  This endless ...blonde babble. I'm like, boring mysel
f.\n"
```

Load and trim data

Our next order of business is to create a vocabulary and load query/response sentence pairs into memory.

Note that we are dealing with sequences of **words**, which do not have an implicit mapping to a discrete numerical space. Thus, we must create one by mapping each unique word that we encounter in our dataset to an index value.

For this we define a `Voc` class, which keeps a mapping from words to indexes, a reverse mapping of indexes to words, a count of each word and a total word count. The class provides methods for adding a word to the vocabulary (`addWord`), adding all words in a sentence (`addSentence`) and trimming infrequently seen words (`trim`). More on trimming later.

In [24]:
```
# Default word tokens
PAD_token = 0  # Used for padding short sentences
SOS_token = 1  # Start-of-sentence token
EOS_token = 2  # End-of-sentence token

class Voc:
    def __init__(self, name):
```

```
        self.name = name
        self.trimmed = False
        self.word2index = {}
        self.word2count = {}
        self.index2word = {PAD_token: "PAD", SOS_token: "SOS", EOS_token: "E
        self.num_words = 3  # Count SOS, EOS, PAD

    def addSentence(self, sentence):
        for word in sentence.split(' '):
            self.addWord(word)

    def addWord(self, word):
        if word not in self.word2index:
            self.word2index[word] = self.num_words
            self.word2count[word] = 1
            self.index2word[self.num_words] = word
            self.num_words += 1
        else:
            self.word2count[word] += 1

    # Remove words below a certain count threshold
    def trim(self, min_count):
        if self.trimmed:
            return
        self.trimmed = True

        keep_words = []

        for k, v in self.word2count.items():
            if v >= min_count:
                keep_words.append(k)

        print('keep_words {} / {} = {:.4f}'.format(
            len(keep_words), len(self.word2index), len(keep_words) / len(sel
        ))

        # Reinitialize dictionaries
        self.word2index = {}
        self.word2count = {}
        self.index2word = {PAD_token: "PAD", SOS_token: "SOS", EOS_token: "E
        self.num_words = 3 # Count default tokens

        for word in keep_words:
            self.addWord(word)
```

Now we can assemble our vocabulary and query/response sentence pairs. Before we are ready to use this data, we must perform some preprocessing.

First, we must convert the Unicode strings to ASCII using `unicodeToAscii`. Next, we should convert all letters to lowercase and trim all non-letter characters except for basic punctuation (`normalizeString`). Finally, to aid in training convergence, we will filter out sentences with length greater than the `MAX_LENGTH` threshold (`filterPairs`).

In [25]:

```
MAX_LENGTH = 10  # Maximum sentence length to consider

# Turn a Unicode string to plain ASCII, thanks to
# https://stackoverflow.com/a/518232/2809427
def unicodeToAscii(s):
    return ''.join(
        c for c in unicodedata.normalize('NFD', s)
        if unicodedata.category(c) != 'Mn'
    )

# Lowercase, trim, and remove non-letter characters
def normalizeString(s):
    s = unicodeToAscii(s.lower().strip())
    s = re.sub(r"([.!?])", r" \1", s)
    s = re.sub(r"[^a-zA-Z.!?]+", r" ", s)
    s = re.sub(r"\s+", r" ", s).strip()
    return s

# Read query/response pairs and return a voc object
def readVocs(datafile, corpus_name):
    print("Reading lines...")
    # Read the file and split into lines
    lines = open(datafile, encoding='utf-8').\
        read().strip().split('\n')
    # Split every line into pairs and normalize
    pairs = [[normalizeString(s) for s in l.split('\t')] for l in lines]
    voc = Voc(corpus_name)
    return voc, pairs

# Returns True if both sentences in a pair 'p' are under the MAX_LENGTH thre
def filterPair(p):
    # Input sequences need to preserve the last word for EOS token
    return len(p[0].split(' ')) < MAX_LENGTH and len(p[1].split(' ')) < MAX_

# Filter pairs using the ``filterPair`` condition
def filterPairs(pairs):
    return [pair for pair in pairs if filterPair(pair)]

# Using the functions defined above, return a populated voc object and pairs
def loadPrepareData(corpus, corpus_name, datafile, save_dir):
    print("Start preparing training data ...")
    voc, pairs = readVocs(datafile, corpus_name)
    print("Read {!s} sentence pairs".format(len(pairs)))
    pairs = filterPairs(pairs)
    print("Trimmed to {!s} sentence pairs".format(len(pairs)))
    print("Counting words...")
    for pair in pairs:
        voc.addSentence(pair[0])
        voc.addSentence(pair[1])
    print("Counted words:", voc.num_words)
    return voc, pairs


# Load/Assemble voc and pairs
save_dir = os.path.join("data", "save")
```

```python
voc, pairs = loadPrepareData(corpus, corpus_name, datafile, save_dir)
# Print some pairs to validate
print("\npairs:")
for pair in pairs[:10]:
    print(pair)
```

```
Start preparing training data ...
Reading lines...
Read 221282 sentence pairs
Trimmed to 64313 sentence pairs
Counting words...
Counted words: 18082

pairs:
['they do to !', 'they do not !']
['she okay ?', 'i hope so .']
['wow', 'let s go .']
['what good stuff ?', 'the real you .']
['the real you .', 'like my fear of wearing pastels ?']
['do you listen to this crap ?', 'what crap ?']
['well no . . .', 'then that s all you had to say .']
['then that s all you had to say .', 'but']
['but', 'you always been this selfish ?']
['have fun tonight ?', 'tons']
```

Another tactic that is beneficial to achieving faster convergence during training is trimming rarely used words out of our vocabulary. Decreasing the feature space will also soften the difficulty of the function that the model must learn to approximate. We will do this as a two-step process:

1. Trim words used under `MIN_COUNT` threshold using the `voc.trim` function.
2. Filter out pairs with trimmed words.

In [26]:
```python
MIN_COUNT = 3    # Minimum word count threshold for trimming

def trimRareWords(voc, pairs, MIN_COUNT):
    # Trim words used under the MIN_COUNT from the voc
    voc.trim(MIN_COUNT)
    # Filter out pairs with trimmed words
    keep_pairs = []
    for pair in pairs:
        input_sentence = pair[0]
        output_sentence = pair[1]
        keep_input = True
        keep_output = True
        # Check input sentence
        for word in input_sentence.split(' '):
            if word not in voc.word2index:
                keep_input = False
                break
        # Check output sentence
        for word in output_sentence.split(' '):
            if word not in voc.word2index:
                keep_output = False
                break
```

```
        # Only keep pairs that do not contain trimmed word(s) in their input
        if keep_input and keep_output:
            keep_pairs.append(pair)

    print("Trimmed from {} pairs to {}, {:.4f} of total".format(len(pairs),
    return keep_pairs


# Trim voc and pairs
pairs = trimRareWords(voc, pairs, MIN_COUNT)
```

```
keep_words 7833 / 18079 = 0.4333
Trimmed from 64313 pairs to 53131, 0.8261 of total
```

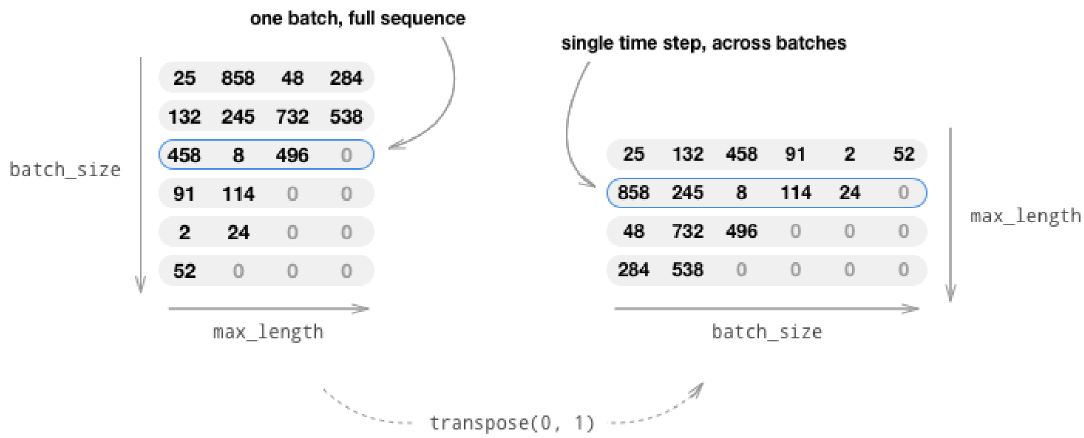
Prepare Data for Models

Although we have put a great deal of effort into preparing and massaging our data into a nice vocabulary object and list of sentence pairs, our models will ultimately expect numerical torch tensors as inputs. One way to prepare the processed data for the models can be found in the seq2seq translation tutorial. In that tutorial, we use a batch size of 1, meaning that all we have to do is convert the words in our sentence pairs to their corresponding indexes from the vocabulary and feed this to the models.

However, if you're interested in speeding up training and/or would like to leverage GPU parallelization capabilities, you will need to train with mini-batches.

Using mini-batches also means that we must be mindful of the variation of sentence length in our batches. To accommodate sentences of different sizes in the same batch, we will make our batched input tensor of shape *(max_length, batch_size)*, where sentences shorter than the *max_length* are zero padded after an *EOS_token*.

If we simply convert our English sentences to tensors by converting words to their indexes(`indexesFromSentence`) and zero-pad, our tensor would have shape *(batch_size, max_length)* and indexing the first dimension would return a full sequence across all time-steps. However, we need to be able to index our batch along time, and across all sequences in the batch. Therefore, we transpose our input batch shape to *(max_length, batch_size)*, so that indexing across the first dimension returns a time step across all sentences in the batch. We handle this transpose implicitly in the `zeroPadding` function.



The `inputVar` function handles the process of converting sentences to tensor, ultimately creating a correctly shaped zero-padded tensor. It also returns a tensor of `lengths` for each of the sequences in the batch which will be passed to our decoder later.

The `outputVar` function performs a similar function to `inputVar`, but instead of returning a `lengths` tensor, it returns a binary mask tensor and a maximum target sentence length. The binary mask tensor has the same shape as the output target tensor, but every element that is a *PAD_token* is 0 and all others are 1.

`batch2TrainData` simply takes a bunch of pairs and returns the input and target tensors using the aforementioned functions.

In [27]:
```
def indexesFromSentence(voc, sentence):
    return [voc.word2index[word] for word in sentence.split(' ')] + [EOS_tok


def zeroPadding(l, fillvalue=PAD_token):
    return list(itertools.zip_longest(*l, fillvalue=fillvalue))

def binaryMatrix(l, value=PAD_token):
    m = []
    for i, seq in enumerate(l):
        m.append([])
        for token in seq:
            if token == PAD_token:
                m[i].append(0)
            else:
                m[i].append(1)
    return m

# Returns padded input sequence tensor and lengths
def inputVar(l, voc):
    indexes_batch = [indexesFromSentence(voc, sentence) for sentence in l]
    lengths = torch.tensor([len(indexes) for indexes in indexes_batch])
    padList = zeroPadding(indexes_batch)
    padVar = torch.LongTensor(padList)
```

```
    return padVar, lengths

# Returns padded target sequence tensor, padding mask, and max target length
def outputVar(l, voc):
    indexes_batch = [indexesFromSentence(voc, sentence) for sentence in l]
    max_target_len = max([len(indexes) for indexes in indexes_batch])
    padList = zeroPadding(indexes_batch)
    mask = binaryMatrix(padList)
    mask = torch.BoolTensor(mask)
    padVar = torch.LongTensor(padList)
    return padVar, mask, max_target_len

# Returns all items for a given batch of pairs
def batch2TrainData(voc, pair_batch):
    pair_batch.sort(key=lambda x: len(x[0].split(" ")), reverse=True)
    input_batch, output_batch = [], []
    for pair in pair_batch:
        input_batch.append(pair[0])
        output_batch.append(pair[1])
    inp, lengths = inputVar(input_batch, voc)
    output, mask, max_target_len = outputVar(output_batch, voc)
    return inp, lengths, output, mask, max_target_len


# Example for validation
small_batch_size = 5
batches = batch2TrainData(voc, [random.choice(pairs) for _ in range(small_ba
input_variable, lengths, target_variable, mask, max_target_len = batches

print("input_variable:", input_variable)
print("lengths:", lengths)
print("target_variable:", target_variable)
print("mask:", mask)
print("max_target_len:", max_target_len)
```

```
input_variable: tensor([[  11,  257, 4070,   85,   24],
        [ 449,  154,   24,   17, 3187],
        [  39,   37, 2279,  261,   56],
        [  24,   36,   72,   14,   14],
        [ 257, 1012,   14,    2,    2],
        [  87, 4493,    2,    0,    0],
        [  79, 1012,    0,    0,    0],
        [ 182,    6,    0,    0,    0],
        [1943,    2,    0,    0,    0],
        [   2,    0,    0,    0,    0]])
lengths: tensor([10,  9,  6,  5,  5])
target_variable: tensor([[  24,  409,   85,   24,   11],
        [ 265,  158,   17,  350,  349],
        [  26,   14,   36,  208,   24],
        [ 294,  211, 1970,  135,  385],
        [1943,  937,   10,   49,   39],
        [  14,   21,    2,   99,   36],
        [  14,  212,    0,  129,   14],
        [  14,   14,    0,   10,    2],
        [   2,    2,    0,    2,    0]])
mask: tensor([[ True,  True,  True,  True,  True],
        [ True,  True,  True,  True,  True],
        [ True,  True,  True,  True,  True],
        [ True,  True,  True,  True,  True],
        [ True,  True,  True,  True,  True],
        [ True,  True,  True,  True,  True],
        [ True,  True, False,  True,  True],
        [ True,  True, False,  True,  True],
        [ True,  True, False,  True, False]])
max_target_len: 9
```

Define Models

Seq2Seq Model

The brains of our chatbot is a sequence-to-sequence (seq2seq) model. The goal of a seq2seq model is to take a variable-length sequence as an input, and return a variable-length sequence as an output using a fixed-sized model.

Sutskever et al. discovered that by using two separate recurrent neural nets together, we can accomplish this task. One RNN acts as an **encoder**, which encodes a variable length input sequence to a fixed-length context vector. In theory, this context vector (the final hidden layer of the RNN) will contain semantic information about the query sentence that is input to the bot. The second RNN is a **decoder**, which takes an input word and the context vector, and returns a guess for the next word in the sequence and a hidden state to use in the next iteration.

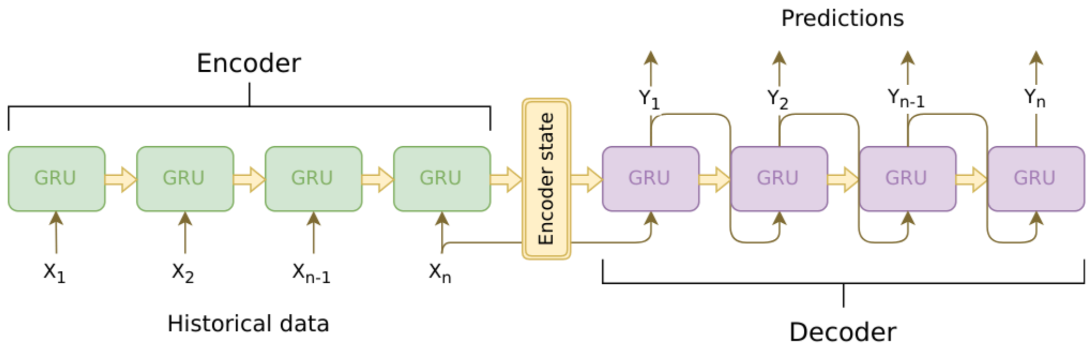


Image source: https://jeddy92.github.io/JEddy92.github.io/ts_seq2seq_intro/

Encoder

The encoder RNN iterates through the input sentence one token (e.g. word) at a time, at each time step outputting an "output" vector and a "hidden state" vector. The hidden state vector is then passed to the next time step, while the output vector is recorded. The encoder transforms the context it saw at each point in the sequence into a set of points in a high-dimensional space, which the decoder will use to generate a meaningful output for the given task.

At the heart of our encoder is a multi-layered Gated Recurrent Unit, invented by Cho et al. in 2014. We will use a bidirectional variant of the GRU, meaning that there are essentially two independent RNNs: one that is fed the input sequence in normal sequential order, and one that is fed the input sequence in reverse order. The outputs of each network are summed at each time step. Using a bidirectional GRU will give us the advantage of encoding both past and future contexts.

Bidirectional RNN:

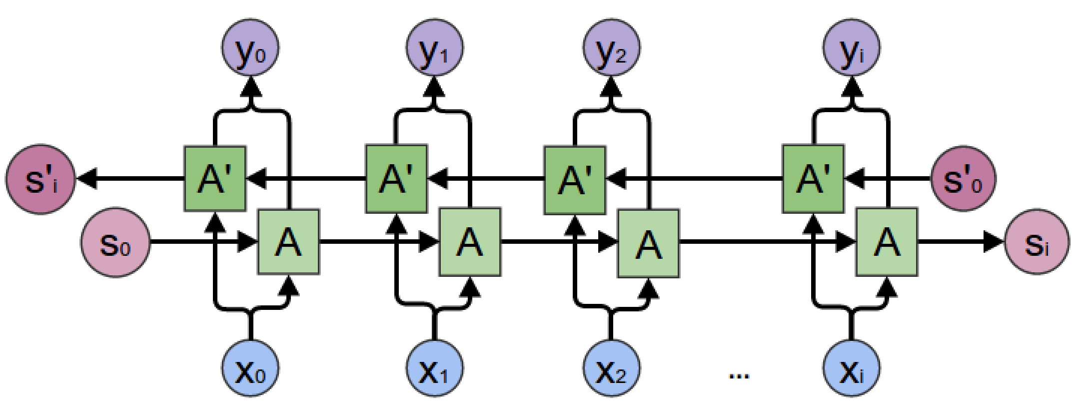


Image source: https://colah.github.io/posts/2015-09-NN-Types-FP/

Note that an `embedding` layer is used to encode our word indices in an arbitrarily sized feature space. For our models, this layer will map each word to a feature space of size *hidden_size*. When trained, these values should encode semantic similarity between similar meaning words.

Finally, if passing a padded batch of sequences to an RNN module, we must pack and unpack padding around the RNN pass using `nn.utils.rnn.pack_padded_sequence` and `nn.utils.rnn.pad_packed_sequence` respectively.

Computation Graph:

> 1. Convert word indexes to embeddings.
> 2. Pack padded batch of sequences for RNN module.
> 3. Forward pass through GRU.
> 4. Unpack padding.
> 5. Sum bidirectional GRU outputs.
> 6. Return output and final hidden state.

Inputs:

- `input_seq`: batch of input sentences; shape=*(max_length, batch_size)*
- `input_lengths`: list of sentence lengths corresponding to each sentence in the batch; shape=*(batch_size)*
- `hidden`: hidden state; shape=*(n_layers x num_directions, batch_size, hidden_size)*

Outputs:

- `outputs`: output features from the last hidden layer of the GRU (sum of bidirectional outputs); shape=*(max_length, batch_size, hidden_size)*
- `hidden`: updated hidden state from GRU; shape=*(n_layers x num_directions, batch_size, hidden_size)*

In [28]:

```
class EncoderRNN(nn.Module):
    def __init__(self, hidden_size, embedding, n_layers=1, dropout=0):
        super(EncoderRNN, self).__init__()
        self.n_layers = n_layers
        self.hidden_size = hidden_size
        self.embedding = embedding

        # Initialize GRU; the input_size and hidden_size parameters are both
        #   because our input size is a word embedding with number of featur
        self.gru = nn.GRU(hidden_size, hidden_size, n_layers,
                          dropout=(0 if n_layers == 1 else dropout), bidirec

    def forward(self, input_seq, input_lengths, hidden=None):
        # Convert word indexes to embeddings
        embedded = self.embedding(input_seq)
```

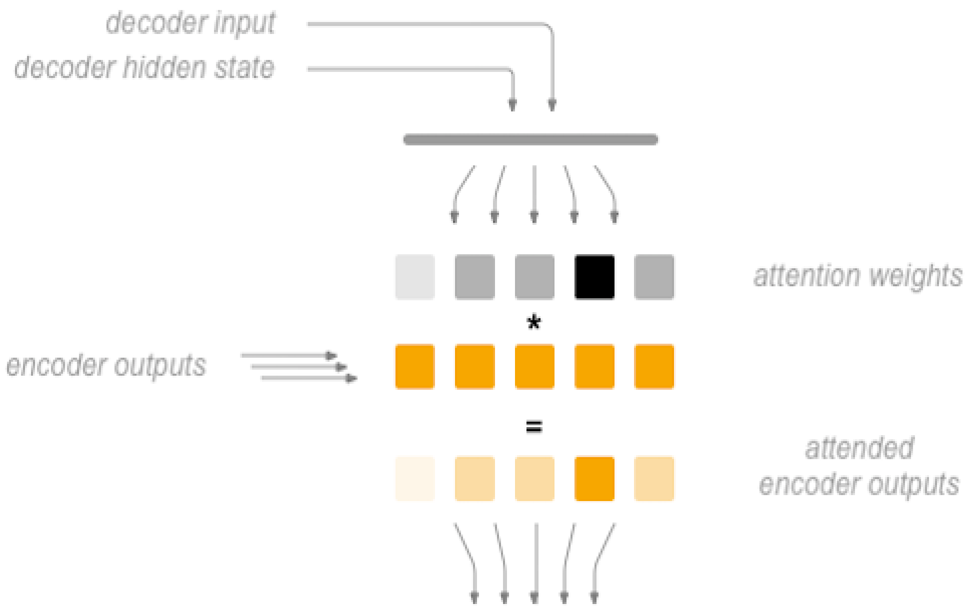
```
        # Pack padded batch of sequences for RNN module
        packed = nn.utils.rnn.pack_padded_sequence(embedded, input_lengths)
        # Forward pass through GRU
        outputs, hidden = self.gru(packed, hidden)
        # Unpack padding
        outputs, _ = nn.utils.rnn.pad_packed_sequence(outputs)
        # Sum bidirectional GRU outputs
        outputs = outputs[:, :, :self.hidden_size] + outputs[:, : ,self.hidd
        # Return output and final hidden state
        return outputs, hidden
```

Decoder

The decoder RNN generates the response sentence in a token-by-token fashion. It uses the encoder's context vectors, and internal hidden states to generate the next word in the sequence. It continues generating words until it outputs an *EOS_token*, representing the end of the sentence. A common problem with a vanilla seq2seq decoder is that if we rely solely on the context vector to encode the entire input sequence's meaning, it is likely that we will have information loss. This is especially the case when dealing with long input sequences, greatly limiting the capability of our decoder.

To combat this, Bahdanau et al. created an "attention mechanism" that allows the decoder to pay attention to certain parts of the input sequence, rather than using the entire fixed context at every step.

At a high level, attention is calculated using the decoder's current hidden state and the encoder's outputs. The output attention weights have the same shape as the input sequence, allowing us to multiply them by the encoder outputs, giving us a weighted sum which indicates the parts of encoder output to pay attention to. Sean Robertson's figure describes this very well:

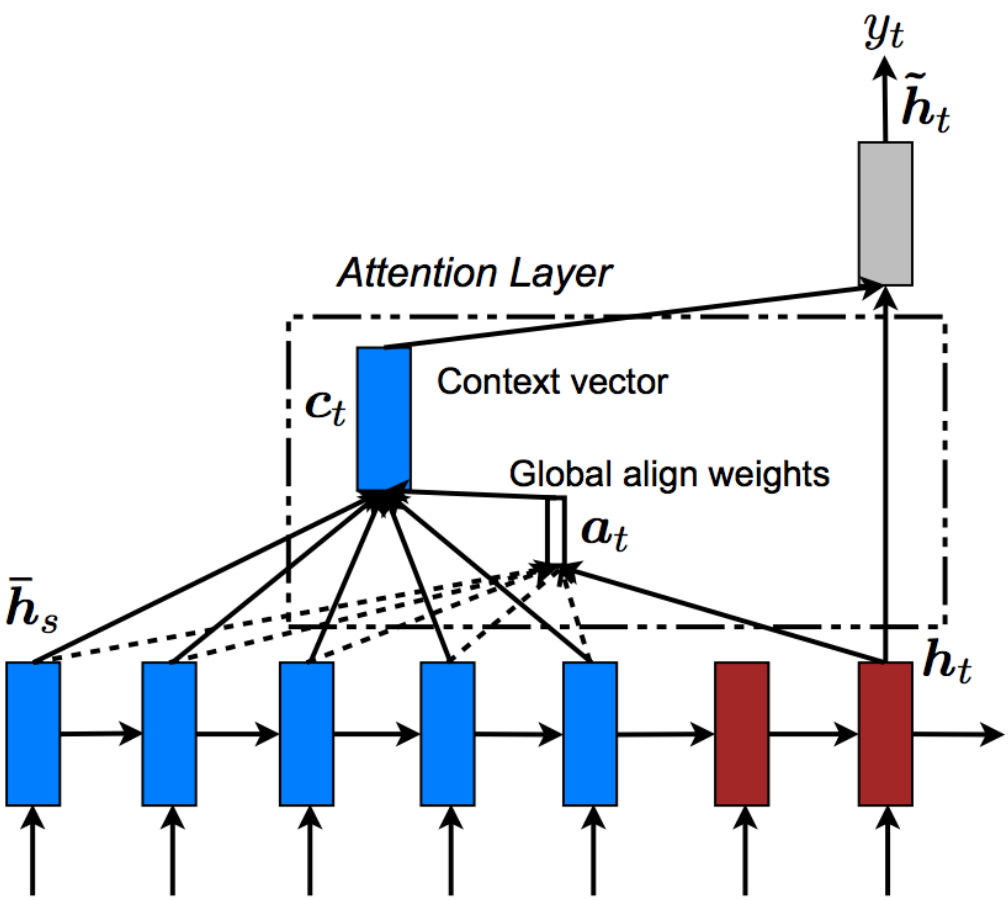


Luong et al. improved upon Bahdanau et al.'s groundwork by creating "Global attention". The key difference is that with "Global attention", we consider all of the encoder's hidden states, as opposed to Bahdanau et al.'s "Local attention", which only considers the encoder's hidden state from the current time step. Another difference is that with "Global attention", we calculate attention weights, or energies, using the hidden state of the decoder from the current time step only. Bahdanau et al.'s attention calculation requires knowledge of the decoder's state from the previous time step. Also, Luong et al. provides various methods to calculate the attention energies between the encoder output and decoder output which are called "score functions":

$$\mathrm{score}(\boldsymbol{h}_t, \bar{\boldsymbol{h}}_s) = \begin{cases} \boldsymbol{h}_t^\top \bar{\boldsymbol{h}}_s & \textit{dot} \\ \boldsymbol{h}_t^\top \boldsymbol{W}_{\boldsymbol{a}} \bar{\boldsymbol{h}}_s & \textit{general} \\ \boldsymbol{v}_a^\top \tanh\left(\boldsymbol{W}_{\boldsymbol{a}}[\boldsymbol{h}_t; \bar{\boldsymbol{h}}_s]\right) & \textit{concat} \end{cases}$$

where h_t = current target decoder state and $\bar{h}_s$ = all encoder states.

Overall, the Global attention mechanism can be summarized by the following figure. Note that we will implement the "Attention Layer" as a separate `nn.Module` called `Attn`. The output of this module is a softmax normalized weights tensor of shape *(batch_size, 1, max_length)*.



In [29]:
```
# Luong attention layer
class Attn(nn.Module):
    def __init__(self, method, hidden_size):
        super(Attn, self).__init__()
        self.method = method
        if self.method not in ['dot', 'general', 'concat']:
            raise ValueError(self.method, "is not an appropriate attention m
        self.hidden_size = hidden_size
        if self.method == 'general':
            self.attn = nn.Linear(self.hidden_size, hidden_size)
        elif self.method == 'concat':
            self.attn = nn.Linear(self.hidden_size * 2, hidden_size)
            self.v = nn.Parameter(torch.FloatTensor(hidden_size))

    def dot_score(self, hidden, encoder_output):
        return torch.sum(hidden * encoder_output, dim=2)

    def general_score(self, hidden, encoder_output):
        energy = self.attn(encoder_output)
        return torch.sum(hidden * energy, dim=2)

    def concat_score(self, hidden, encoder_output):
        energy = self.attn(torch.cat((hidden.expand(encoder_output.size(0),
        return torch.sum(self.v * energy, dim=2)
```

```
    def forward(self, hidden, encoder_outputs):
        # Calculate the attention weights (energies) based on the given meth
        if self.method == 'general':
            attn_energies = self.general_score(hidden, encoder_outputs)
        elif self.method == 'concat':
            attn_energies = self.concat_score(hidden, encoder_outputs)
        elif self.method == 'dot':
            attn_energies = self.dot_score(hidden, encoder_outputs)

        # Transpose max_length and batch_size dimensions
        attn_energies = attn_energies.t()

        # Return the softmax normalized probability scores (with added dimer
        return F.softmax(attn_energies, dim=1).unsqueeze(1)
```

Now that we have defined our attention submodule, we can implement the actual decoder model. For the decoder, we will manually feed our batch one time step at a time. This means that our embedded word tensor and GRU output will both have shape *(1, batch_size, hidden_size)*.

Computation Graph:

> 1. Get embedding of current input word.
> 2. Forward through unidirectional GRU.
> 3. Calculate attention weights from the current GRU output from (2).
> 4. Multiply attention weights to encoder outputs to get new "weighted sum" context vector.
> 5. Concatenate weighted context vector and GRU output using Luong eq. 5.
> 6. Predict next word using Luong eq. 6 (without softmax).
> 7. Return output and final hidden state.

Inputs:

- `input_step`: one time step (one word) of input sequence batch; shape=*(1, batch_size)*
- `last_hidden`: final hidden layer of GRU; shape=*(n_layers x num_directions, batch_size, hidden_size)*
- `encoder_outputs`: encoder model's output; shape=*(max_length, batch_size, hidden_size)*

Outputs:

- `output`: softmax normalized tensor giving probabilities of each word being the correct next word in the decoded sequence; shape=*(batch_size, voc.num_words)*

- `hidden`: final hidden state of GRU; shape=*(n_layers x num_directions, batch_size, hidden_size)*

In [30]:
```
class LuongAttnDecoderRNN(nn.Module):
    def __init__(self, attn_model, embedding, hidden_size, output_size, n_la
        super(LuongAttnDecoderRNN, self).__init__()

        # Keep for reference
        self.attn_model = attn_model
        self.hidden_size = hidden_size
        self.output_size = output_size
        self.n_layers = n_layers
        self.dropout = dropout

        # Define layers
        self.embedding = embedding
        self.embedding_dropout = nn.Dropout(dropout)
        self.gru = nn.GRU(hidden_size, hidden_size, n_layers, dropout=(0 if
        self.concat = nn.Linear(hidden_size * 2, hidden_size)
        self.out = nn.Linear(hidden_size, output_size)

        self.attn = Attn(attn_model, hidden_size)

    def forward(self, input_step, last_hidden, encoder_outputs):
        # Note: we run this one step (word) at a time
        # Get embedding of current input word
        embedded = self.embedding(input_step)
        embedded = self.embedding_dropout(embedded)
        # Forward through unidirectional GRU
        rnn_output, hidden = self.gru(embedded, last_hidden)
        # Calculate attention weights from the current GRU output
        attn_weights = self.attn(rnn_output, encoder_outputs)
        # Multiply attention weights to encoder outputs to get new "weighted
        context = attn_weights.bmm(encoder_outputs.transpose(0, 1))
        # Concatenate weighted context vector and GRU output using Luong eq.
        rnn_output = rnn_output.squeeze(0)
        context = context.squeeze(1)
        concat_input = torch.cat((rnn_output, context), 1)
        concat_output = torch.tanh(self.concat(concat_input))
        # Predict next word using Luong eq. 6
        output = self.out(concat_output)
        output = F.softmax(output, dim=1)
        # Return output and final hidden state
        return output, hidden
```

Define Training Procedure

Masked loss

Since we are dealing with batches of padded sequences, we cannot simply consider all elements of the tensor when calculating loss. We define `maskNLLLoss` to calculate our loss based on our decoder's output tensor, the target tensor, and a binary mask tensor describing the padding of the target tensor. This loss function calculates the average negative log likelihood of the elements that correspond to a *1* in the mask tensor.

In [13]:
```
def maskNLLLoss(inp, target, mask):
    nTotal = mask.sum()
    crossEntropy = -torch.log(torch.gather(inp, 1, target.view(-1, 1)).squee
    loss = crossEntropy.masked_select(mask).mean()
    loss = loss.to(device)
    return loss, nTotal.item()
```

Single training iteration

The `train` function contains the algorithm for a single training iteration (a single batch of inputs).

We will use a couple of clever tricks to aid in convergence:

- The first trick is using **teacher forcing**. This means that at some probability, set by `teacher_forcing_ratio`, we use the current target word as the decoder's next input rather than using the decoder's current guess. This technique acts as training wheels for the decoder, aiding in more efficient training. However, teacher forcing can lead to model instability during inference, as the decoder may not have a sufficient chance to truly craft its own output sequences during training. Thus, we must be mindful of how we are setting the `teacher_forcing_ratio`, and not be fooled by fast convergence.
- The second trick that we implement is **gradient clipping**. This is a commonly used technique for countering the "exploding gradient" problem. In essence, by clipping or thresholding gradients to a maximum value, we prevent the gradients from growing exponentially and either overflow (NaN), or overshoot steep cliffs in the cost function.

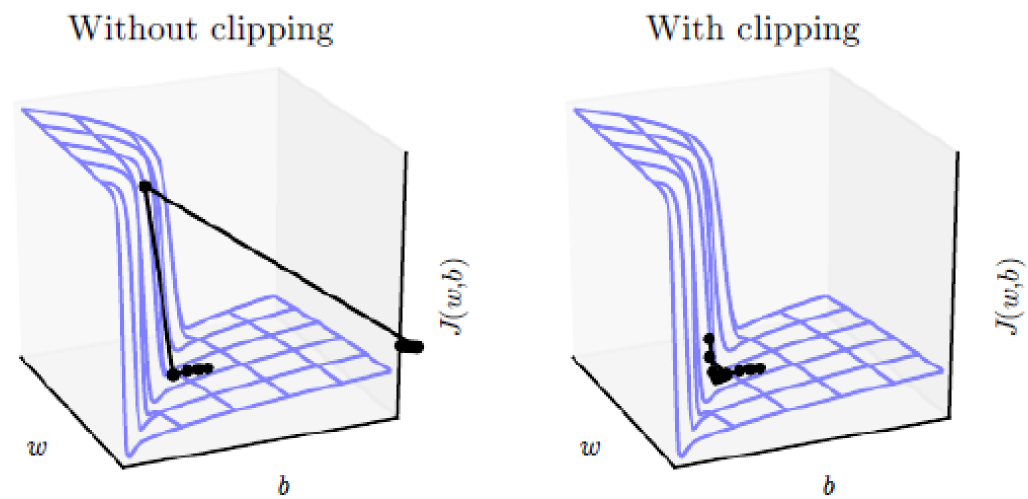


Image source: Goodfellow et al. *Deep Learning*. 2016.
https://www.deeplearningbook.org/

Sequence of Operations:

> 1. Forward pass entire input batch through encoder.
> 2. Initialize decoder inputs as SOS_token, and hidden state as the encoder's final hidden state.
> 3. Forward input batch sequence through decoder one time step at a time.
> 4. If teacher forcing: set next decoder input as the current target; else: set next decoder input as current decoder output.
> 5. Calculate and accumulate loss.
> 6. Perform backpropagation.
> 7. Clip gradients.
> 8. Update encoder and decoder model parameters.

In [31]:
```
def train(input_variable, lengths, target_variable, mask, max_target_len, en
          encoder_optimizer, decoder_optimizer, batch_size, clip, teacher_fo
    # Zero gradients
    encoder_optimizer.zero_grad()
    decoder_optimizer.zero_grad()

    # Set device options
    input_variable = input_variable.to(device)
    target_variable = target_variable.to(device)
    mask = mask.to(device)
    lengths = lengths.to("cpu")

    # Initialize variables
    loss = 0
    print_losses = []
    n_totals = 0
```

```
    # Forward pass through encoder
    encoder_outputs, encoder_hidden = encoder(input_variable, lengths)

    # Create initial decoder input (start with SOS tokens for each sentence)
    decoder_input = torch.LongTensor([[SOS_token for _ in range(batch_size)]
    decoder_input = decoder_input.to(device)

    # Set initial decoder hidden state to the encoder's final hidden state
    decoder_hidden = encoder_hidden[:decoder.n_layers]

    # Determine if we are using teacher forcing this iteration
    use_teacher_forcing = True if random.random() < teacher_forcing_ratio el

    # Forward batch of sequences through decoder one time step at a time
    if use_teacher_forcing:
        for t in range(max_target_len):
            decoder_output, decoder_hidden = decoder(
                decoder_input, decoder_hidden, encoder_outputs
            )
            # Teacher forcing: next input is current target
            decoder_input = target_variable[t].view(1, -1)
            # Calculate and accumulate loss
            mask_loss, nTotal = maskNLLLoss(decoder_output, target_variable[
            loss += mask_loss
            print_losses.append(mask_loss.item() * nTotal)
            n_totals += nTotal
    else:
        for t in range(max_target_len):
            decoder_output, decoder_hidden = decoder(
                decoder_input, decoder_hidden, encoder_outputs
            )
            # No teacher forcing: next input is decoder's own current output
            _, topi = decoder_output.topk(1)
            decoder_input = torch.LongTensor([[topi[i][0] for i in range(bat
            decoder_input = decoder_input.to(device)
            # Calculate and accumulate loss
            mask_loss, nTotal = maskNLLLoss(decoder_output, target_variable[
            loss += mask_loss
            print_losses.append(mask_loss.item() * nTotal)
            n_totals += nTotal

    # Perform backpropagation
    loss.backward()

    # Clip gradients: gradients are modified in place
    _ = nn.utils.clip_grad_norm_(encoder.parameters(), clip)
    _ = nn.utils.clip_grad_norm_(decoder.parameters(), clip)

    # Adjust model weights
    encoder_optimizer.step()
    decoder_optimizer.step()

    return sum(print_losses) / n_totals
```

Training iterations

It is finally time to tie the full training procedure together with the data. The `trainIters` function is responsible for running `n_iterations` of training given the passed models, optimizers, data, etc. This function is quite self explanatory, as we have done the heavy lifting with the `train` function.

One thing to note is that when we save our model, we save a tarball containing the encoder and decoder `state_dicts` (parameters), the optimizers' `state_dicts`, the loss, the iteration, etc. Saving the model in this way will give us the ultimate flexibility with the checkpoint. After loading a checkpoint, we will be able to use the model parameters to run inference, or we can continue training right where we left off.

In [32]:

```
def trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimizer,
              encoder_n_layers, decoder_n_layers, save_dir, n_iteration, bat
    # Load batches for each iteration
    training_batches = [batch2TrainData(voc, [random.choice(pairs) for _ in
                        for _ in range(n_iteration)]

    # Initializations
    print('Initializing ...')
    start_iteration = 1
    print_loss = 0

    if loadFilename:
        start_iteration = checkpoint['iteration'] + 1

    # Training loop
    print("Training...")
    for iteration in range(start_iteration, n_iteration + 1):
        training_batch = training_batches[iteration - 1]
        # Extract fields from batch
        input_variable, lengths, target_variable, mask, max_target_len = tra
        # Run a training iteration with batch
        loss = train(
            input_variable, lengths, target_variable, mask, max_target_len,
            encoder, decoder, embedding, encoder_optimizer, decoder_optimize
            batch_size, clip
        )
        print_loss += loss

        # Print progress
        if iteration % print_every == 0:
            print_loss_avg = print_loss / print_every
            print("Iteration: {}; Percent complete: {:.1f}%; Average loss: {
                iteration, iteration / n_iteration * 100, print_loss_avg
            ))
            print_loss = 0
```

```
        # Save checkpoint
        if (iteration % save_every == 0):
            directory = os.path.join(
                save_dir, model_name, corpus_name,
                '{}-{}_{}'.format(encoder_n_layers, decoder_n_layers, hidden
            )
            if not os.path.exists(directory):
                os.makedirs(directory)

            torch.save({
                'iteration': iteration,
                'en': encoder.state_dict(),
                'de': decoder.state_dict(),
                'en_opt': encoder_optimizer.state_dict(),
                'de_opt': decoder_optimizer.state_dict(),
                'loss': loss,
                'voc_dict': voc.__dict__,
                'embedding': embedding.state_dict()
            }, os.path.join(directory, '{}_{}.tar'.format(iteration, 'checkp
```

Define Evaluation

After training a model, we want to be able to talk to the bot ourselves. First, we must define how we want the model to decode the encoded input.

Greedy decoding

Greedy decoding is the decoding method that we use during training when we are **NOT** using teacher forcing. In other words, for each time step, we simply choose the word from `decoder_output` with the highest softmax value. This decoding method is optimal on a single time-step level.

To facilitate the greedy decoding operation, we define a `GreedySearchDecoder` class. When run, an object of this class takes an input sequence (`input_seq`) of shape *(input_seq length, 1)*, a scalar input length (`input_length`) tensor, and a `max_length` to bound the response sentence length. The input sentence is evaluated using the following computational graph:

Computation Graph:

> 1. Forward input through encoder model.
> 2. Prepare encoder's final hidden layer to be first hidden input to the decoder.
> 3. Initialize decoder's first input as SOS_token.
> 4. Initialize tensors to append decoded words to.

5.

```
Iteratively decode one word token at a time:

:    a)  Forward pass through decoder.
     b)  Obtain most likely word token and its softmax
score.
     c)  Record token and score.
     d)  Prepare current token to be next decoder input.
```

6. Return collections of word tokens and scores.

In [34]:
```python
# Define Greedy Search Decoder

class GreedySearchDecoder(nn.Module):
    def __init__(self, encoder, decoder):
        super(GreedySearchDecoder, self).__init__()
        self.encoder = encoder
        self.decoder = decoder

    def forward(self, input_seq, input_length, max_length):
        # Forward input through encoder model
        encoder_outputs, encoder_hidden = self.encoder(input_seq, input_leng

        # Prepare encoder's final hidden layer to be first hidden input to t
        decoder_hidden = encoder_hidden[:decoder.n_layers]

        # Initialize decoder input with SOS_token
        decoder_input = torch.ones(1, 1, device=device, dtype=torch.long) *

        # Initialize tensors to append decoded words to
        all_tokens = torch.zeros([0], device=device, dtype=torch.long)
        all_scores = torch.zeros([0], device=device)

        # Iteratively decode one word token at a time
        for _ in range(max_length):
            # Forward pass through decoder
            decoder_output, decoder_hidden = self.decoder(decoder_input, dec

            # Obtain most likely word token and its softmax score
            decoder_scores, decoder_input = torch.max(decoder_output, dim=1)

            # Record token and score
            all_tokens = torch.cat((all_tokens, decoder_input), dim=0)
            all_scores = torch.cat((all_scores, decoder_scores), dim=0)

            # Prepare current token to be next decoder input (add a dimensic
            decoder_input = torch.unsqueeze(decoder_input, 0)

        # Return collections of word tokens and scores
        return all_tokens, all_scores
```

Evaluate my text

Now that we have our decoding method defined, we can write functions for evaluating a string input sentence. The `evaluate` function manages the low-level process of handling the input sentence. We first format the sentence as an input batch of word indexes with *batch_size==1*. We do this by converting the words of the sentence to their corresponding indexes, and transposing the dimensions to prepare the tensor for our models. We also create a `lengths` tensor which contains the length of our input sentence. In this case, `lengths` is scalar because we are only evaluating one sentence at a time (batch_size==1). Next, we obtain the decoded response sentence tensor using our `GreedySearchDecoder` object (`searcher`). Finally, we convert the response's indexes to words and return the list of decoded words.

`evaluateInput` acts as the user interface for our chatbot. When called, an input text field will spawn in which we can enter our query sentence. After typing our input sentence and pressing *Enter*, our text is normalized in the same way as our training data, and is ultimately fed to the `evaluate` function to obtain a decoded output sentence. We loop this process, so we can keep chatting with our bot until we enter either "q" or "quit".

Finally, if a sentence is entered that contains a word that is not in the vocabulary, we handle this gracefully by printing an error message and prompting the user to enter another sentence.

In [35]:
```python
def evaluate(encoder, decoder, searcher, voc, sentence, max_length=MAX_LENGT
    ### Format input sentence as a batch
    # words -> indexes
    indexes_batch = [indexesFromSentence(voc, sentence)]
    # Create lengths tensor
    lengths = torch.tensor([len(indexes) for indexes in indexes_batch])
    # Transpose dimensions of batch to match models' expectations
    input_batch = torch.LongTensor(indexes_batch).transpose(0, 1)
    # Use appropriate device
    input_batch = input_batch.to(device)
    lengths = lengths.to("cpu")
    # Decode sentence with searcher
    tokens, scores = searcher(input_batch, lengths, max_length)
    # indexes -> words
    decoded_words = [voc.index2word[token.item()] for token in tokens]
    return decoded_words


def evaluateInput(encoder, decoder, searcher, voc):
    input_sentence = ''
    while(1):
        try:
            # Get input sentence
            input_sentence = input('> ')
            # Check if it is quit case
```

```
            if input_sentence == 'q' or input_sentence == 'quit': break
            # Normalize sentence
            input_sentence = normalizeString(input_sentence)
            # Evaluate sentence
            output_words = evaluate(encoder, decoder, searcher, voc, input_s
            # Format and print response sentence
            output_words[:] = [x for x in output_words if not (x == 'EOS' or
            print('Bot:', ' '.join(output_words))

        except KeyError:
            print("Error: Encountered unknown word.")
```

Run Model

Finally, it is time to run our model!

Regardless of whether we want to train or test the chatbot model, we must initialize the individual encoder and decoder models. In the following block, we set our desired configurations, choose to start from scratch or set a checkpoint to load from, and build and initialize the models. Feel free to play with different model configurations to optimize performance.

In [36]:
```
# Configure models
model_name = 'cb_model'
attn_model = 'dot'
#``attn_model = 'general'``
#``attn_model = 'concat'``
hidden_size = 500
encoder_n_layers = 2
decoder_n_layers = 2
dropout = 0.1
batch_size = 64

# Set checkpoint to load from; set to None if starting from scratch
loadFilename = None
checkpoint_iter = 4000
```

Sample code to load from a checkpoint:

```
{.sourceCode
loadFilename = os.path.join(save_dir, model_name,
corpus_name,
                    '{}-{}_{}'.format(encoder_n_layers,
decoder_n_layers, hidden_size),

'{}_checkpoint.tar'.format(checkpoint_iter))
```

In [37]:
```
# Load model if a ``loadFilename`` is provided
if loadFilename:
    # If loading on same machine the model was trained on
```

```
    checkpoint = torch.load(loadFilename)
    # If loading a model trained on GPU to CPU
    #checkpoint = torch.load(loadFilename, map_location=torch.device('cpu'))
    encoder_sd = checkpoint['en']
    decoder_sd = checkpoint['de']
    encoder_optimizer_sd = checkpoint['en_opt']
    decoder_optimizer_sd = checkpoint['de_opt']
    embedding_sd = checkpoint['embedding']
    voc.__dict__ = checkpoint['voc_dict']


print('Building encoder and decoder ...')
# Initialize word embeddings
embedding = nn.Embedding(voc.num_words, hidden_size)
if loadFilename:
    embedding.load_state_dict(embedding_sd)
# Initialize encoder & decoder models
encoder = EncoderRNN(hidden_size, embedding, encoder_n_layers, dropout)
decoder = LuongAttnDecoderRNN(attn_model, embedding, hidden_size, voc.num_wo
if loadFilename:
    encoder.load_state_dict(encoder_sd)
    decoder.load_state_dict(decoder_sd)
# Use appropriate device
encoder = encoder.to(device)
decoder = decoder.to(device)
print('Models built and ready to go!')
```

```
Building encoder and decoder ...
Models built and ready to go!
```

Run Training

Run the following block if you want to train the model.

First we set training parameters, then we initialize our optimizers, and finally we call the `trainIters` function to run our training iterations.

In [32]:
```
# Configure training/optimization
clip = 50.0
teacher_forcing_ratio = 1.0
learning_rate = 0.0001
decoder_learning_ratio = 5.0
n_iteration = 4000
print_every = 1
save_every = 500

# Ensure dropout layers are in train mode
encoder.train()
decoder.train()

# Initialize optimizers
print('Building optimizers ...')
encoder_optimizer = optim.Adam(encoder.parameters(), lr=learning_rate)
decoder_optimizer = optim.Adam(decoder.parameters(), lr=learning_rate * deco
```

```
if loadFilename:
    encoder_optimizer.load_state_dict(encoder_optimizer_sd)
    decoder_optimizer.load_state_dict(decoder_optimizer_sd)

# If you have CUDA, configure CUDA to call
for state in encoder_optimizer.state.values():
    for k, v in state.items():
        if isinstance(v, torch.Tensor):
            state[k] = v.cuda()

for state in decoder_optimizer.state.values():
    for k, v in state.items():
        if isinstance(v, torch.Tensor):
            state[k] = v.cuda()

# Run training iterations
print("Starting Training!")
trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimizer, decc
           embedding, encoder_n_layers, decoder_n_layers, save_dir, n_iterat
           print_every, save_every, clip, corpus_name, loadFilename)
```

```
Building optimizers ...
Starting Training!
Initializing ...
Training...
Iteration: 1; Percent complete: 0.0%; Average loss: 8.9779
Iteration: 2; Percent complete: 0.1%; Average loss: 8.8636
Iteration: 3; Percent complete: 0.1%; Average loss: 8.7171
Iteration: 4; Percent complete: 0.1%; Average loss: 8.4434
Iteration: 5; Percent complete: 0.1%; Average loss: 8.0452
Iteration: 6; Percent complete: 0.1%; Average loss: 7.5064
Iteration: 7; Percent complete: 0.2%; Average loss: 6.9707
Iteration: 8; Percent complete: 0.2%; Average loss: 6.8415
Iteration: 9; Percent complete: 0.2%; Average loss: 6.7010
Iteration: 10; Percent complete: 0.2%; Average loss: 6.4787
Iteration: 11; Percent complete: 0.3%; Average loss: 6.2128
Iteration: 12; Percent complete: 0.3%; Average loss: 5.8220
Iteration: 13; Percent complete: 0.3%; Average loss: 5.5936
Iteration: 14; Percent complete: 0.4%; Average loss: 5.7433
Iteration: 15; Percent complete: 0.4%; Average loss: 5.5563
Iteration: 16; Percent complete: 0.4%; Average loss: 5.3295
Iteration: 17; Percent complete: 0.4%; Average loss: 5.1837
Iteration: 18; Percent complete: 0.4%; Average loss: 5.0061
Iteration: 19; Percent complete: 0.5%; Average loss: 4.9077
Iteration: 20; Percent complete: 0.5%; Average loss: 5.0454
Iteration: 21; Percent complete: 0.5%; Average loss: 4.8226
Iteration: 22; Percent complete: 0.5%; Average loss: 5.0956
Iteration: 23; Percent complete: 0.6%; Average loss: 4.7682
Iteration: 24; Percent complete: 0.6%; Average loss: 4.8957
Iteration: 25; Percent complete: 0.6%; Average loss: 4.8968
Iteration: 26; Percent complete: 0.7%; Average loss: 4.9094
Iteration: 27; Percent complete: 0.7%; Average loss: 4.8100
Iteration: 28; Percent complete: 0.7%; Average loss: 4.8560
Iteration: 29; Percent complete: 0.7%; Average loss: 4.6125
Iteration: 30; Percent complete: 0.8%; Average loss: 4.8452
Iteration: 31; Percent complete: 0.8%; Average loss: 4.7248
Iteration: 32; Percent complete: 0.8%; Average loss: 4.6369
Iteration: 33; Percent complete: 0.8%; Average loss: 4.6463
Iteration: 34; Percent complete: 0.9%; Average loss: 4.8028
Iteration: 35; Percent complete: 0.9%; Average loss: 4.7680
Iteration: 36; Percent complete: 0.9%; Average loss: 4.8739
Iteration: 37; Percent complete: 0.9%; Average loss: 4.7554
Iteration: 38; Percent complete: 0.9%; Average loss: 4.6467
Iteration: 39; Percent complete: 1.0%; Average loss: 4.9013
Iteration: 40; Percent complete: 1.0%; Average loss: 4.7047
Iteration: 41; Percent complete: 1.0%; Average loss: 4.6365
Iteration: 42; Percent complete: 1.1%; Average loss: 4.5204
Iteration: 43; Percent complete: 1.1%; Average loss: 4.7030
Iteration: 44; Percent complete: 1.1%; Average loss: 4.6150
Iteration: 45; Percent complete: 1.1%; Average loss: 4.8913
Iteration: 46; Percent complete: 1.1%; Average loss: 4.6889
Iteration: 47; Percent complete: 1.2%; Average loss: 4.4821
Iteration: 48; Percent complete: 1.2%; Average loss: 4.6198
Iteration: 49; Percent complete: 1.2%; Average loss: 4.6793
Iteration: 50; Percent complete: 1.2%; Average loss: 4.5125
Iteration: 51; Percent complete: 1.3%; Average loss: 4.4979
Iteration: 52; Percent complete: 1.3%; Average loss: 4.4964
```

```
Iteration: 53; Percent complete: 1.3%; Average loss: 4.7269
Iteration: 54; Percent complete: 1.4%; Average loss: 4.6386
Iteration: 55; Percent complete: 1.4%; Average loss: 4.7695
Iteration: 56; Percent complete: 1.4%; Average loss: 4.4413
Iteration: 57; Percent complete: 1.4%; Average loss: 4.6847
Iteration: 58; Percent complete: 1.5%; Average loss: 4.6809
Iteration: 59; Percent complete: 1.5%; Average loss: 4.4677
Iteration: 60; Percent complete: 1.5%; Average loss: 4.7764
Iteration: 61; Percent complete: 1.5%; Average loss: 4.5791
Iteration: 62; Percent complete: 1.6%; Average loss: 4.5915
Iteration: 63; Percent complete: 1.6%; Average loss: 4.5991
Iteration: 64; Percent complete: 1.6%; Average loss: 4.5708
Iteration: 65; Percent complete: 1.6%; Average loss: 4.6030
Iteration: 66; Percent complete: 1.7%; Average loss: 4.4116
Iteration: 67; Percent complete: 1.7%; Average loss: 4.5402
Iteration: 68; Percent complete: 1.7%; Average loss: 4.5709
Iteration: 69; Percent complete: 1.7%; Average loss: 4.3680
Iteration: 70; Percent complete: 1.8%; Average loss: 4.5406
Iteration: 71; Percent complete: 1.8%; Average loss: 4.3892
Iteration: 72; Percent complete: 1.8%; Average loss: 4.3816
Iteration: 73; Percent complete: 1.8%; Average loss: 4.6547
Iteration: 74; Percent complete: 1.8%; Average loss: 4.6009
Iteration: 75; Percent complete: 1.9%; Average loss: 4.5161
Iteration: 76; Percent complete: 1.9%; Average loss: 4.6808
Iteration: 77; Percent complete: 1.9%; Average loss: 4.3882
Iteration: 78; Percent complete: 1.9%; Average loss: 4.1360
Iteration: 79; Percent complete: 2.0%; Average loss: 4.3602
Iteration: 80; Percent complete: 2.0%; Average loss: 4.7200
Iteration: 81; Percent complete: 2.0%; Average loss: 4.4099
Iteration: 82; Percent complete: 2.1%; Average loss: 4.4563
Iteration: 83; Percent complete: 2.1%; Average loss: 4.3207
Iteration: 84; Percent complete: 2.1%; Average loss: 4.3322
Iteration: 85; Percent complete: 2.1%; Average loss: 4.6487
Iteration: 86; Percent complete: 2.1%; Average loss: 4.5009
Iteration: 87; Percent complete: 2.2%; Average loss: 4.5765
Iteration: 88; Percent complete: 2.2%; Average loss: 4.3707
Iteration: 89; Percent complete: 2.2%; Average loss: 4.6000
Iteration: 90; Percent complete: 2.2%; Average loss: 4.4366
Iteration: 91; Percent complete: 2.3%; Average loss: 4.7094
Iteration: 92; Percent complete: 2.3%; Average loss: 4.3459
Iteration: 93; Percent complete: 2.3%; Average loss: 4.3537
Iteration: 94; Percent complete: 2.4%; Average loss: 4.2919
Iteration: 95; Percent complete: 2.4%; Average loss: 4.4282
Iteration: 96; Percent complete: 2.4%; Average loss: 4.7242
Iteration: 97; Percent complete: 2.4%; Average loss: 4.4002
Iteration: 98; Percent complete: 2.5%; Average loss: 4.5341
Iteration: 99; Percent complete: 2.5%; Average loss: 4.1952
Iteration: 100; Percent complete: 2.5%; Average loss: 4.5633
Iteration: 101; Percent complete: 2.5%; Average loss: 4.5907
Iteration: 102; Percent complete: 2.5%; Average loss: 4.3397
Iteration: 103; Percent complete: 2.6%; Average loss: 4.3196
Iteration: 104; Percent complete: 2.6%; Average loss: 4.5759
Iteration: 105; Percent complete: 2.6%; Average loss: 4.1130
Iteration: 106; Percent complete: 2.6%; Average loss: 4.4332
Iteration: 107; Percent complete: 2.7%; Average loss: 4.2656
Iteration: 108; Percent complete: 2.7%; Average loss: 4.6066
```

```
Iteration: 109; Percent complete: 2.7%; Average loss: 4.4598
Iteration: 110; Percent complete: 2.8%; Average loss: 4.3689
Iteration: 111; Percent complete: 2.8%; Average loss: 4.5032
Iteration: 112; Percent complete: 2.8%; Average loss: 4.4657
Iteration: 113; Percent complete: 2.8%; Average loss: 4.1650
Iteration: 114; Percent complete: 2.9%; Average loss: 4.2967
Iteration: 115; Percent complete: 2.9%; Average loss: 4.6004
Iteration: 116; Percent complete: 2.9%; Average loss: 4.5307
Iteration: 117; Percent complete: 2.9%; Average loss: 4.2130
Iteration: 118; Percent complete: 2.9%; Average loss: 4.1783
Iteration: 119; Percent complete: 3.0%; Average loss: 4.6249
Iteration: 120; Percent complete: 3.0%; Average loss: 4.3529
Iteration: 121; Percent complete: 3.0%; Average loss: 4.3695
Iteration: 122; Percent complete: 3.0%; Average loss: 4.2880
Iteration: 123; Percent complete: 3.1%; Average loss: 4.3094
Iteration: 124; Percent complete: 3.1%; Average loss: 4.3985
Iteration: 125; Percent complete: 3.1%; Average loss: 4.4197
Iteration: 126; Percent complete: 3.1%; Average loss: 4.2779
Iteration: 127; Percent complete: 3.2%; Average loss: 4.3872
Iteration: 128; Percent complete: 3.2%; Average loss: 4.3411
Iteration: 129; Percent complete: 3.2%; Average loss: 4.2881
Iteration: 130; Percent complete: 3.2%; Average loss: 4.5605
Iteration: 131; Percent complete: 3.3%; Average loss: 4.3595
Iteration: 132; Percent complete: 3.3%; Average loss: 4.1239
Iteration: 133; Percent complete: 3.3%; Average loss: 4.3614
Iteration: 134; Percent complete: 3.4%; Average loss: 4.2351
Iteration: 135; Percent complete: 3.4%; Average loss: 4.0455
Iteration: 136; Percent complete: 3.4%; Average loss: 4.3629
Iteration: 137; Percent complete: 3.4%; Average loss: 4.2632
Iteration: 138; Percent complete: 3.5%; Average loss: 4.2006
Iteration: 139; Percent complete: 3.5%; Average loss: 4.3915
Iteration: 140; Percent complete: 3.5%; Average loss: 4.4674
Iteration: 141; Percent complete: 3.5%; Average loss: 4.5379
Iteration: 142; Percent complete: 3.5%; Average loss: 4.3676
Iteration: 143; Percent complete: 3.6%; Average loss: 4.4278
Iteration: 144; Percent complete: 3.6%; Average loss: 4.1728
Iteration: 145; Percent complete: 3.6%; Average loss: 4.5020
Iteration: 146; Percent complete: 3.6%; Average loss: 4.3079
Iteration: 147; Percent complete: 3.7%; Average loss: 4.4117
Iteration: 148; Percent complete: 3.7%; Average loss: 4.4292
Iteration: 149; Percent complete: 3.7%; Average loss: 4.4340
Iteration: 150; Percent complete: 3.8%; Average loss: 4.3300
Iteration: 151; Percent complete: 3.8%; Average loss: 4.2499
Iteration: 152; Percent complete: 3.8%; Average loss: 3.9813
Iteration: 153; Percent complete: 3.8%; Average loss: 4.2845
Iteration: 154; Percent complete: 3.9%; Average loss: 4.3376
Iteration: 155; Percent complete: 3.9%; Average loss: 4.4011
Iteration: 156; Percent complete: 3.9%; Average loss: 4.3571
Iteration: 157; Percent complete: 3.9%; Average loss: 4.1243
Iteration: 158; Percent complete: 4.0%; Average loss: 4.1856
Iteration: 159; Percent complete: 4.0%; Average loss: 4.1810
Iteration: 160; Percent complete: 4.0%; Average loss: 4.3472
Iteration: 161; Percent complete: 4.0%; Average loss: 4.2978
Iteration: 162; Percent complete: 4.0%; Average loss: 4.3241
Iteration: 163; Percent complete: 4.1%; Average loss: 4.2710
Iteration: 164; Percent complete: 4.1%; Average loss: 4.1334
```

```
Iteration: 165; Percent complete: 4.1%; Average loss: 4.2837
Iteration: 166; Percent complete: 4.2%; Average loss: 4.2860
Iteration: 167; Percent complete: 4.2%; Average loss: 4.3175
Iteration: 168; Percent complete: 4.2%; Average loss: 4.4107
Iteration: 169; Percent complete: 4.2%; Average loss: 4.2201
Iteration: 170; Percent complete: 4.2%; Average loss: 4.0623
Iteration: 171; Percent complete: 4.3%; Average loss: 4.1695
Iteration: 172; Percent complete: 4.3%; Average loss: 3.8427
Iteration: 173; Percent complete: 4.3%; Average loss: 4.3355
Iteration: 174; Percent complete: 4.3%; Average loss: 4.3871
Iteration: 175; Percent complete: 4.4%; Average loss: 4.1998
Iteration: 176; Percent complete: 4.4%; Average loss: 4.1505
Iteration: 177; Percent complete: 4.4%; Average loss: 4.0650
Iteration: 178; Percent complete: 4.5%; Average loss: 4.0383
Iteration: 179; Percent complete: 4.5%; Average loss: 4.4612
Iteration: 180; Percent complete: 4.5%; Average loss: 4.3828
Iteration: 181; Percent complete: 4.5%; Average loss: 4.1362
Iteration: 182; Percent complete: 4.5%; Average loss: 4.1991
Iteration: 183; Percent complete: 4.6%; Average loss: 4.4592
Iteration: 184; Percent complete: 4.6%; Average loss: 3.8625
Iteration: 185; Percent complete: 4.6%; Average loss: 3.7987
Iteration: 186; Percent complete: 4.7%; Average loss: 4.2496
Iteration: 187; Percent complete: 4.7%; Average loss: 4.0912
Iteration: 188; Percent complete: 4.7%; Average loss: 4.1796
Iteration: 189; Percent complete: 4.7%; Average loss: 4.0230
Iteration: 190; Percent complete: 4.8%; Average loss: 4.1580
Iteration: 191; Percent complete: 4.8%; Average loss: 4.0245
Iteration: 192; Percent complete: 4.8%; Average loss: 4.2634
Iteration: 193; Percent complete: 4.8%; Average loss: 4.0420
Iteration: 194; Percent complete: 4.9%; Average loss: 4.3606
Iteration: 195; Percent complete: 4.9%; Average loss: 4.1871
Iteration: 196; Percent complete: 4.9%; Average loss: 4.1481
Iteration: 197; Percent complete: 4.9%; Average loss: 4.1778
Iteration: 198; Percent complete: 5.0%; Average loss: 4.2975
Iteration: 199; Percent complete: 5.0%; Average loss: 3.9745
Iteration: 200; Percent complete: 5.0%; Average loss: 4.1808
Iteration: 201; Percent complete: 5.0%; Average loss: 4.3319
Iteration: 202; Percent complete: 5.1%; Average loss: 3.9709
Iteration: 203; Percent complete: 5.1%; Average loss: 4.0057
Iteration: 204; Percent complete: 5.1%; Average loss: 4.0769
Iteration: 205; Percent complete: 5.1%; Average loss: 4.3715
Iteration: 206; Percent complete: 5.1%; Average loss: 4.3148
Iteration: 207; Percent complete: 5.2%; Average loss: 3.7397
Iteration: 208; Percent complete: 5.2%; Average loss: 4.1413
Iteration: 209; Percent complete: 5.2%; Average loss: 4.1017
Iteration: 210; Percent complete: 5.2%; Average loss: 3.9787
Iteration: 211; Percent complete: 5.3%; Average loss: 4.2862
Iteration: 212; Percent complete: 5.3%; Average loss: 4.3387
Iteration: 213; Percent complete: 5.3%; Average loss: 4.2149
Iteration: 214; Percent complete: 5.3%; Average loss: 3.8671
Iteration: 215; Percent complete: 5.4%; Average loss: 3.9367
Iteration: 216; Percent complete: 5.4%; Average loss: 3.9045
Iteration: 217; Percent complete: 5.4%; Average loss: 4.2531
Iteration: 218; Percent complete: 5.5%; Average loss: 3.8280
Iteration: 219; Percent complete: 5.5%; Average loss: 3.9131
Iteration: 220; Percent complete: 5.5%; Average loss: 4.2888
```

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Iteration: 221; Percent complete: 5.5%; Average loss: 4.0539
Iteration: 222; Percent complete: 5.5%; Average loss: 4.0627
Iteration: 223; Percent complete: 5.6%; Average loss: 3.8538
Iteration: 224; Percent complete: 5.6%; Average loss: 3.7609
Iteration: 225; Percent complete: 5.6%; Average loss: 3.7974
Iteration: 226; Percent complete: 5.7%; Average loss: 4.0458
Iteration: 227; Percent complete: 5.7%; Average loss: 4.0505
Iteration: 228; Percent complete: 5.7%; Average loss: 3.9569
Iteration: 229; Percent complete: 5.7%; Average loss: 4.0693
Iteration: 230; Percent complete: 5.8%; Average loss: 3.8223
Iteration: 231; Percent complete: 5.8%; Average loss: 4.0173
Iteration: 232; Percent complete: 5.8%; Average loss: 4.0707
Iteration: 233; Percent complete: 5.8%; Average loss: 4.0612
Iteration: 234; Percent complete: 5.9%; Average loss: 4.1020
Iteration: 235; Percent complete: 5.9%; Average loss: 3.9088
Iteration: 236; Percent complete: 5.9%; Average loss: 3.9670
Iteration: 237; Percent complete: 5.9%; Average loss: 3.7911
Iteration: 238; Percent complete: 5.9%; Average loss: 4.0037
Iteration: 239; Percent complete: 6.0%; Average loss: 4.1531
Iteration: 240; Percent complete: 6.0%; Average loss: 4.2458
Iteration: 241; Percent complete: 6.0%; Average loss: 4.0349
Iteration: 242; Percent complete: 6.0%; Average loss: 4.0965
Iteration: 243; Percent complete: 6.1%; Average loss: 4.0988
Iteration: 244; Percent complete: 6.1%; Average loss: 3.8974
Iteration: 245; Percent complete: 6.1%; Average loss: 3.9490
Iteration: 246; Percent complete: 6.2%; Average loss: 3.8511
Iteration: 247; Percent complete: 6.2%; Average loss: 3.7422
Iteration: 248; Percent complete: 6.2%; Average loss: 3.8952
Iteration: 249; Percent complete: 6.2%; Average loss: 4.2200
Iteration: 250; Percent complete: 6.2%; Average loss: 4.1124
Iteration: 251; Percent complete: 6.3%; Average loss: 3.6698
Iteration: 252; Percent complete: 6.3%; Average loss: 3.8778
Iteration: 253; Percent complete: 6.3%; Average loss: 3.8794
Iteration: 254; Percent complete: 6.3%; Average loss: 4.0803
Iteration: 255; Percent complete: 6.4%; Average loss: 3.6847
Iteration: 256; Percent complete: 6.4%; Average loss: 4.0172
Iteration: 257; Percent complete: 6.4%; Average loss: 3.8540
Iteration: 258; Percent complete: 6.5%; Average loss: 4.0363
Iteration: 259; Percent complete: 6.5%; Average loss: 4.0582
Iteration: 260; Percent complete: 6.5%; Average loss: 3.9543
Iteration: 261; Percent complete: 6.5%; Average loss: 3.9854
Iteration: 262; Percent complete: 6.6%; Average loss: 3.8036
Iteration: 263; Percent complete: 6.6%; Average loss: 3.9021
Iteration: 264; Percent complete: 6.6%; Average loss: 4.2582
Iteration: 265; Percent complete: 6.6%; Average loss: 3.7918
Iteration: 266; Percent complete: 6.7%; Average loss: 4.0557
Iteration: 267; Percent complete: 6.7%; Average loss: 3.9063
Iteration: 268; Percent complete: 6.7%; Average loss: 3.9257
Iteration: 269; Percent complete: 6.7%; Average loss: 3.9549
Iteration: 270; Percent complete: 6.8%; Average loss: 4.0577
Iteration: 271; Percent complete: 6.8%; Average loss: 4.0172
Iteration: 272; Percent complete: 6.8%; Average loss: 4.2167
Iteration: 273; Percent complete: 6.8%; Average loss: 4.0407
Iteration: 274; Percent complete: 6.9%; Average loss: 3.9379
Iteration: 275; Percent complete: 6.9%; Average loss: 3.9714
Iteration: 276; Percent complete: 6.9%; Average loss: 3.7994
```

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Iteration: 277; Percent complete: 6.9%; Average loss: 3.9444
Iteration: 278; Percent complete: 7.0%; Average loss: 4.1271
Iteration: 279; Percent complete: 7.0%; Average loss: 4.0600
Iteration: 280; Percent complete: 7.0%; Average loss: 4.1195
Iteration: 281; Percent complete: 7.0%; Average loss: 3.9025
Iteration: 282; Percent complete: 7.0%; Average loss: 3.6605
Iteration: 283; Percent complete: 7.1%; Average loss: 3.9119
Iteration: 284; Percent complete: 7.1%; Average loss: 4.0215
Iteration: 285; Percent complete: 7.1%; Average loss: 3.9271
Iteration: 286; Percent complete: 7.1%; Average loss: 3.8314
Iteration: 287; Percent complete: 7.2%; Average loss: 4.0520
Iteration: 288; Percent complete: 7.2%; Average loss: 3.8602
Iteration: 289; Percent complete: 7.2%; Average loss: 3.7075
Iteration: 290; Percent complete: 7.2%; Average loss: 3.7915
Iteration: 291; Percent complete: 7.3%; Average loss: 3.6723
Iteration: 292; Percent complete: 7.3%; Average loss: 3.7985
Iteration: 293; Percent complete: 7.3%; Average loss: 4.2392
Iteration: 294; Percent complete: 7.3%; Average loss: 4.0184
Iteration: 295; Percent complete: 7.4%; Average loss: 3.8063
Iteration: 296; Percent complete: 7.4%; Average loss: 4.1743
Iteration: 297; Percent complete: 7.4%; Average loss: 4.0270
Iteration: 298; Percent complete: 7.4%; Average loss: 3.7913
Iteration: 299; Percent complete: 7.5%; Average loss: 3.8858
Iteration: 300; Percent complete: 7.5%; Average loss: 4.1393
Iteration: 301; Percent complete: 7.5%; Average loss: 3.8775
Iteration: 302; Percent complete: 7.5%; Average loss: 4.2448
Iteration: 303; Percent complete: 7.6%; Average loss: 3.9830
Iteration: 304; Percent complete: 7.6%; Average loss: 4.0261
Iteration: 305; Percent complete: 7.6%; Average loss: 3.8374
Iteration: 306; Percent complete: 7.6%; Average loss: 4.0766
Iteration: 307; Percent complete: 7.7%; Average loss: 4.0006
Iteration: 308; Percent complete: 7.7%; Average loss: 4.2748
Iteration: 309; Percent complete: 7.7%; Average loss: 4.1771
Iteration: 310; Percent complete: 7.8%; Average loss: 3.7220
Iteration: 311; Percent complete: 7.8%; Average loss: 3.6377
Iteration: 312; Percent complete: 7.8%; Average loss: 4.2049
Iteration: 313; Percent complete: 7.8%; Average loss: 4.0266
Iteration: 314; Percent complete: 7.8%; Average loss: 3.8966
Iteration: 315; Percent complete: 7.9%; Average loss: 3.8973
Iteration: 316; Percent complete: 7.9%; Average loss: 3.9241
Iteration: 317; Percent complete: 7.9%; Average loss: 3.5709
Iteration: 318; Percent complete: 8.0%; Average loss: 3.8563
Iteration: 319; Percent complete: 8.0%; Average loss: 3.6233
Iteration: 320; Percent complete: 8.0%; Average loss: 3.7126
Iteration: 321; Percent complete: 8.0%; Average loss: 3.9384
Iteration: 322; Percent complete: 8.1%; Average loss: 3.8333
Iteration: 323; Percent complete: 8.1%; Average loss: 4.0780
Iteration: 324; Percent complete: 8.1%; Average loss: 3.6734
Iteration: 325; Percent complete: 8.1%; Average loss: 3.8617
Iteration: 326; Percent complete: 8.2%; Average loss: 3.8211
Iteration: 327; Percent complete: 8.2%; Average loss: 3.8953
Iteration: 328; Percent complete: 8.2%; Average loss: 4.0360
Iteration: 329; Percent complete: 8.2%; Average loss: 3.9001
Iteration: 330; Percent complete: 8.2%; Average loss: 3.8795
Iteration: 331; Percent complete: 8.3%; Average loss: 3.8208
Iteration: 332; Percent complete: 8.3%; Average loss: 3.9057
```

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Iteration: 333; Percent complete: 8.3%; Average loss: 3.7570
Iteration: 334; Percent complete: 8.3%; Average loss: 4.0855
Iteration: 335; Percent complete: 8.4%; Average loss: 3.6631
Iteration: 336; Percent complete: 8.4%; Average loss: 3.8306
Iteration: 337; Percent complete: 8.4%; Average loss: 4.0620
Iteration: 338; Percent complete: 8.5%; Average loss: 4.0090
Iteration: 339; Percent complete: 8.5%; Average loss: 3.9729
Iteration: 340; Percent complete: 8.5%; Average loss: 3.8164
Iteration: 341; Percent complete: 8.5%; Average loss: 3.6855
Iteration: 342; Percent complete: 8.6%; Average loss: 3.8916
Iteration: 343; Percent complete: 8.6%; Average loss: 3.9107
Iteration: 344; Percent complete: 8.6%; Average loss: 3.8827
Iteration: 345; Percent complete: 8.6%; Average loss: 3.5631
Iteration: 346; Percent complete: 8.6%; Average loss: 3.7737
Iteration: 347; Percent complete: 8.7%; Average loss: 3.9173
Iteration: 348; Percent complete: 8.7%; Average loss: 3.9993
Iteration: 349; Percent complete: 8.7%; Average loss: 3.9264
Iteration: 350; Percent complete: 8.8%; Average loss: 3.9478
Iteration: 351; Percent complete: 8.8%; Average loss: 3.8275
Iteration: 352; Percent complete: 8.8%; Average loss: 3.9478
Iteration: 353; Percent complete: 8.8%; Average loss: 4.0580
Iteration: 354; Percent complete: 8.8%; Average loss: 3.9624
Iteration: 355; Percent complete: 8.9%; Average loss: 3.8834
Iteration: 356; Percent complete: 8.9%; Average loss: 4.0920
Iteration: 357; Percent complete: 8.9%; Average loss: 3.9377
Iteration: 358; Percent complete: 8.9%; Average loss: 3.7284
Iteration: 359; Percent complete: 9.0%; Average loss: 3.6519
Iteration: 360; Percent complete: 9.0%; Average loss: 3.8627
Iteration: 361; Percent complete: 9.0%; Average loss: 3.4965
Iteration: 362; Percent complete: 9.0%; Average loss: 3.7220
Iteration: 363; Percent complete: 9.1%; Average loss: 4.1507
Iteration: 364; Percent complete: 9.1%; Average loss: 3.7080
Iteration: 365; Percent complete: 9.1%; Average loss: 3.6979
Iteration: 366; Percent complete: 9.2%; Average loss: 3.7742
Iteration: 367; Percent complete: 9.2%; Average loss: 4.0794
Iteration: 368; Percent complete: 9.2%; Average loss: 3.6073
Iteration: 369; Percent complete: 9.2%; Average loss: 3.8603
Iteration: 370; Percent complete: 9.2%; Average loss: 3.6701
Iteration: 371; Percent complete: 9.3%; Average loss: 3.6493
Iteration: 372; Percent complete: 9.3%; Average loss: 3.8048
Iteration: 373; Percent complete: 9.3%; Average loss: 3.9449
Iteration: 374; Percent complete: 9.3%; Average loss: 3.8466
Iteration: 375; Percent complete: 9.4%; Average loss: 3.9866
Iteration: 376; Percent complete: 9.4%; Average loss: 3.8721
Iteration: 377; Percent complete: 9.4%; Average loss: 3.7794
Iteration: 378; Percent complete: 9.4%; Average loss: 3.8234
Iteration: 379; Percent complete: 9.5%; Average loss: 3.9531
Iteration: 380; Percent complete: 9.5%; Average loss: 3.7588
Iteration: 381; Percent complete: 9.5%; Average loss: 3.9249
Iteration: 382; Percent complete: 9.6%; Average loss: 3.9328
Iteration: 383; Percent complete: 9.6%; Average loss: 3.6431
Iteration: 384; Percent complete: 9.6%; Average loss: 3.4595
Iteration: 385; Percent complete: 9.6%; Average loss: 4.1320
Iteration: 386; Percent complete: 9.7%; Average loss: 3.6350
Iteration: 387; Percent complete: 9.7%; Average loss: 4.1225
Iteration: 388; Percent complete: 9.7%; Average loss: 3.7559
```

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Iteration: 389; Percent complete: 9.7%; Average loss: 3.6869
Iteration: 390; Percent complete: 9.8%; Average loss: 3.9140
Iteration: 391; Percent complete: 9.8%; Average loss: 3.8957
Iteration: 392; Percent complete: 9.8%; Average loss: 3.8131
Iteration: 393; Percent complete: 9.8%; Average loss: 4.0482
Iteration: 394; Percent complete: 9.8%; Average loss: 3.7481
Iteration: 395; Percent complete: 9.9%; Average loss: 3.6181
Iteration: 396; Percent complete: 9.9%; Average loss: 3.7186
Iteration: 397; Percent complete: 9.9%; Average loss: 3.9158
Iteration: 398; Percent complete: 10.0%; Average loss: 3.7976
Iteration: 399; Percent complete: 10.0%; Average loss: 3.9306
Iteration: 400; Percent complete: 10.0%; Average loss: 3.9759
Iteration: 401; Percent complete: 10.0%; Average loss: 3.7863
Iteration: 402; Percent complete: 10.1%; Average loss: 4.0639
Iteration: 403; Percent complete: 10.1%; Average loss: 3.7536
Iteration: 404; Percent complete: 10.1%; Average loss: 3.8568
Iteration: 405; Percent complete: 10.1%; Average loss: 3.6388
Iteration: 406; Percent complete: 10.2%; Average loss: 3.8357
Iteration: 407; Percent complete: 10.2%; Average loss: 3.6545
Iteration: 408; Percent complete: 10.2%; Average loss: 3.8155
Iteration: 409; Percent complete: 10.2%; Average loss: 3.8448
Iteration: 410; Percent complete: 10.2%; Average loss: 3.8226
Iteration: 411; Percent complete: 10.3%; Average loss: 3.7500
Iteration: 412; Percent complete: 10.3%; Average loss: 3.7341
Iteration: 413; Percent complete: 10.3%; Average loss: 4.0438
Iteration: 414; Percent complete: 10.3%; Average loss: 3.5176
Iteration: 415; Percent complete: 10.4%; Average loss: 3.8729
Iteration: 416; Percent complete: 10.4%; Average loss: 3.6799
Iteration: 417; Percent complete: 10.4%; Average loss: 3.7919
Iteration: 418; Percent complete: 10.4%; Average loss: 3.9254
Iteration: 419; Percent complete: 10.5%; Average loss: 4.2411
Iteration: 420; Percent complete: 10.5%; Average loss: 3.7797
Iteration: 421; Percent complete: 10.5%; Average loss: 3.9706
Iteration: 422; Percent complete: 10.5%; Average loss: 3.7845
Iteration: 423; Percent complete: 10.6%; Average loss: 3.8924
Iteration: 424; Percent complete: 10.6%; Average loss: 3.6433
Iteration: 425; Percent complete: 10.6%; Average loss: 3.8742
Iteration: 426; Percent complete: 10.7%; Average loss: 3.9872
Iteration: 427; Percent complete: 10.7%; Average loss: 3.9547
Iteration: 428; Percent complete: 10.7%; Average loss: 3.4663
Iteration: 429; Percent complete: 10.7%; Average loss: 3.7513
Iteration: 430; Percent complete: 10.8%; Average loss: 4.0049
Iteration: 431; Percent complete: 10.8%; Average loss: 3.7849
Iteration: 432; Percent complete: 10.8%; Average loss: 3.9062
Iteration: 433; Percent complete: 10.8%; Average loss: 3.6706
Iteration: 434; Percent complete: 10.8%; Average loss: 3.8421
Iteration: 435; Percent complete: 10.9%; Average loss: 3.5108
Iteration: 436; Percent complete: 10.9%; Average loss: 3.8622
Iteration: 437; Percent complete: 10.9%; Average loss: 3.7913
Iteration: 438; Percent complete: 10.9%; Average loss: 3.8807
Iteration: 439; Percent complete: 11.0%; Average loss: 3.5227
Iteration: 440; Percent complete: 11.0%; Average loss: 4.0509
Iteration: 441; Percent complete: 11.0%; Average loss: 3.9079
Iteration: 442; Percent complete: 11.1%; Average loss: 3.6919
Iteration: 443; Percent complete: 11.1%; Average loss: 3.7095
Iteration: 444; Percent complete: 11.1%; Average loss: 3.8750
```

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Iteration: 445; Percent complete: 11.1%; Average loss: 3.7409
Iteration: 446; Percent complete: 11.2%; Average loss: 3.4730
Iteration: 447; Percent complete: 11.2%; Average loss: 3.9807
Iteration: 448; Percent complete: 11.2%; Average loss: 3.5329
Iteration: 449; Percent complete: 11.2%; Average loss: 3.7076
Iteration: 450; Percent complete: 11.2%; Average loss: 3.8317
Iteration: 451; Percent complete: 11.3%; Average loss: 3.8900
Iteration: 452; Percent complete: 11.3%; Average loss: 3.7459
Iteration: 453; Percent complete: 11.3%; Average loss: 3.5291
Iteration: 454; Percent complete: 11.3%; Average loss: 3.8260
Iteration: 455; Percent complete: 11.4%; Average loss: 3.8156
Iteration: 456; Percent complete: 11.4%; Average loss: 3.7152
Iteration: 457; Percent complete: 11.4%; Average loss: 3.8466
Iteration: 458; Percent complete: 11.5%; Average loss: 3.8967
Iteration: 459; Percent complete: 11.5%; Average loss: 3.5509
Iteration: 460; Percent complete: 11.5%; Average loss: 3.6322
Iteration: 461; Percent complete: 11.5%; Average loss: 3.7876
Iteration: 462; Percent complete: 11.6%; Average loss: 3.5569
Iteration: 463; Percent complete: 11.6%; Average loss: 3.7300
Iteration: 464; Percent complete: 11.6%; Average loss: 3.7770
Iteration: 465; Percent complete: 11.6%; Average loss: 3.7234
Iteration: 466; Percent complete: 11.7%; Average loss: 3.7286
Iteration: 467; Percent complete: 11.7%; Average loss: 3.9737
Iteration: 468; Percent complete: 11.7%; Average loss: 3.8007
Iteration: 469; Percent complete: 11.7%; Average loss: 3.8749
Iteration: 470; Percent complete: 11.8%; Average loss: 3.9503
Iteration: 471; Percent complete: 11.8%; Average loss: 3.8522
Iteration: 472; Percent complete: 11.8%; Average loss: 3.8032
Iteration: 473; Percent complete: 11.8%; Average loss: 3.6986
Iteration: 474; Percent complete: 11.8%; Average loss: 3.7809
Iteration: 475; Percent complete: 11.9%; Average loss: 4.1001
Iteration: 476; Percent complete: 11.9%; Average loss: 3.5548
Iteration: 477; Percent complete: 11.9%; Average loss: 3.9905
Iteration: 478; Percent complete: 11.9%; Average loss: 3.9354
Iteration: 479; Percent complete: 12.0%; Average loss: 3.4223
Iteration: 480; Percent complete: 12.0%; Average loss: 3.7504
Iteration: 481; Percent complete: 12.0%; Average loss: 3.8250
Iteration: 482; Percent complete: 12.0%; Average loss: 3.8111
Iteration: 483; Percent complete: 12.1%; Average loss: 3.7669
Iteration: 484; Percent complete: 12.1%; Average loss: 3.7932
Iteration: 485; Percent complete: 12.1%; Average loss: 3.6637
Iteration: 486; Percent complete: 12.2%; Average loss: 3.5052
Iteration: 487; Percent complete: 12.2%; Average loss: 3.7207
Iteration: 488; Percent complete: 12.2%; Average loss: 3.7749
Iteration: 489; Percent complete: 12.2%; Average loss: 3.5890
Iteration: 490; Percent complete: 12.2%; Average loss: 3.6315
Iteration: 491; Percent complete: 12.3%; Average loss: 3.8711
Iteration: 492; Percent complete: 12.3%; Average loss: 4.0306
Iteration: 493; Percent complete: 12.3%; Average loss: 3.6355
Iteration: 494; Percent complete: 12.3%; Average loss: 3.7293
Iteration: 495; Percent complete: 12.4%; Average loss: 3.9215
Iteration: 496; Percent complete: 12.4%; Average loss: 3.7144
Iteration: 497; Percent complete: 12.4%; Average loss: 3.7058
Iteration: 498; Percent complete: 12.4%; Average loss: 3.5073
Iteration: 499; Percent complete: 12.5%; Average loss: 3.8411
Iteration: 500; Percent complete: 12.5%; Average loss: 3.8104
```

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Iteration: 501; Percent complete: 12.5%; Average loss: 3.7668
Iteration: 502; Percent complete: 12.6%; Average loss: 3.9353
Iteration: 503; Percent complete: 12.6%; Average loss: 3.7184
Iteration: 504; Percent complete: 12.6%; Average loss: 3.6175
Iteration: 505; Percent complete: 12.6%; Average loss: 3.8427
Iteration: 506; Percent complete: 12.7%; Average loss: 3.8260
Iteration: 507; Percent complete: 12.7%; Average loss: 3.6180
Iteration: 508; Percent complete: 12.7%; Average loss: 3.8517
Iteration: 509; Percent complete: 12.7%; Average loss: 3.6805
Iteration: 510; Percent complete: 12.8%; Average loss: 3.6039
Iteration: 511; Percent complete: 12.8%; Average loss: 3.9429
Iteration: 512; Percent complete: 12.8%; Average loss: 3.7721
Iteration: 513; Percent complete: 12.8%; Average loss: 3.6059
Iteration: 514; Percent complete: 12.8%; Average loss: 3.8688
Iteration: 515; Percent complete: 12.9%; Average loss: 3.5946
Iteration: 516; Percent complete: 12.9%; Average loss: 3.5220
Iteration: 517; Percent complete: 12.9%; Average loss: 3.5972
Iteration: 518; Percent complete: 13.0%; Average loss: 3.5650
Iteration: 519; Percent complete: 13.0%; Average loss: 3.4026
Iteration: 520; Percent complete: 13.0%; Average loss: 3.7750
Iteration: 521; Percent complete: 13.0%; Average loss: 3.7759
Iteration: 522; Percent complete: 13.1%; Average loss: 3.7179
Iteration: 523; Percent complete: 13.1%; Average loss: 3.9768
Iteration: 524; Percent complete: 13.1%; Average loss: 3.4783
Iteration: 525; Percent complete: 13.1%; Average loss: 4.0087
Iteration: 526; Percent complete: 13.2%; Average loss: 3.9454
Iteration: 527; Percent complete: 13.2%; Average loss: 3.6756
Iteration: 528; Percent complete: 13.2%; Average loss: 3.5854
Iteration: 529; Percent complete: 13.2%; Average loss: 3.5061
Iteration: 530; Percent complete: 13.2%; Average loss: 3.9070
Iteration: 531; Percent complete: 13.3%; Average loss: 3.7766
Iteration: 532; Percent complete: 13.3%; Average loss: 3.6379
Iteration: 533; Percent complete: 13.3%; Average loss: 4.0354
Iteration: 534; Percent complete: 13.4%; Average loss: 3.8026
Iteration: 535; Percent complete: 13.4%; Average loss: 3.6694
Iteration: 536; Percent complete: 13.4%; Average loss: 3.8107
Iteration: 537; Percent complete: 13.4%; Average loss: 3.5752
Iteration: 538; Percent complete: 13.5%; Average loss: 3.8899
Iteration: 539; Percent complete: 13.5%; Average loss: 3.8009
Iteration: 540; Percent complete: 13.5%; Average loss: 3.8885
Iteration: 541; Percent complete: 13.5%; Average loss: 3.7746
Iteration: 542; Percent complete: 13.6%; Average loss: 3.5420
Iteration: 543; Percent complete: 13.6%; Average loss: 3.7516
Iteration: 544; Percent complete: 13.6%; Average loss: 3.7890
Iteration: 545; Percent complete: 13.6%; Average loss: 3.6121
Iteration: 546; Percent complete: 13.7%; Average loss: 4.0713
Iteration: 547; Percent complete: 13.7%; Average loss: 3.7376
Iteration: 548; Percent complete: 13.7%; Average loss: 3.7355
Iteration: 549; Percent complete: 13.7%; Average loss: 3.7433
Iteration: 550; Percent complete: 13.8%; Average loss: 3.6548
Iteration: 551; Percent complete: 13.8%; Average loss: 3.5824
Iteration: 552; Percent complete: 13.8%; Average loss: 3.5110
Iteration: 553; Percent complete: 13.8%; Average loss: 3.9546
Iteration: 554; Percent complete: 13.9%; Average loss: 3.5266
Iteration: 555; Percent complete: 13.9%; Average loss: 3.6668
Iteration: 556; Percent complete: 13.9%; Average loss: 3.8656
```

```
Iteration: 557; Percent complete: 13.9%; Average loss: 3.4993
Iteration: 558; Percent complete: 14.0%; Average loss: 3.6533
Iteration: 559; Percent complete: 14.0%; Average loss: 3.6729
Iteration: 560; Percent complete: 14.0%; Average loss: 3.9811
Iteration: 561; Percent complete: 14.0%; Average loss: 3.6767
Iteration: 562; Percent complete: 14.1%; Average loss: 3.4188
Iteration: 563; Percent complete: 14.1%; Average loss: 3.6467
Iteration: 564; Percent complete: 14.1%; Average loss: 3.7493
Iteration: 565; Percent complete: 14.1%; Average loss: 3.8573
Iteration: 566; Percent complete: 14.1%; Average loss: 3.8732
Iteration: 567; Percent complete: 14.2%; Average loss: 3.5730
Iteration: 568; Percent complete: 14.2%; Average loss: 3.6537
Iteration: 569; Percent complete: 14.2%; Average loss: 3.4340
Iteration: 570; Percent complete: 14.2%; Average loss: 3.7009
Iteration: 571; Percent complete: 14.3%; Average loss: 3.7688
Iteration: 572; Percent complete: 14.3%; Average loss: 3.6922
Iteration: 573; Percent complete: 14.3%; Average loss: 3.7849
Iteration: 574; Percent complete: 14.3%; Average loss: 3.8960
Iteration: 575; Percent complete: 14.4%; Average loss: 3.7030
Iteration: 576; Percent complete: 14.4%; Average loss: 3.6559
Iteration: 577; Percent complete: 14.4%; Average loss: 3.8657
Iteration: 578; Percent complete: 14.4%; Average loss: 3.8763
Iteration: 579; Percent complete: 14.5%; Average loss: 3.8154
Iteration: 580; Percent complete: 14.5%; Average loss: 3.8647
Iteration: 581; Percent complete: 14.5%; Average loss: 3.5771
Iteration: 582; Percent complete: 14.5%; Average loss: 3.5256
Iteration: 583; Percent complete: 14.6%; Average loss: 3.6717
Iteration: 584; Percent complete: 14.6%; Average loss: 4.0483
Iteration: 585; Percent complete: 14.6%; Average loss: 3.8157
Iteration: 586; Percent complete: 14.6%; Average loss: 3.5450
Iteration: 587; Percent complete: 14.7%; Average loss: 3.7057
Iteration: 588; Percent complete: 14.7%; Average loss: 3.1864
Iteration: 589; Percent complete: 14.7%; Average loss: 3.7165
Iteration: 590; Percent complete: 14.8%; Average loss: 3.5898
Iteration: 591; Percent complete: 14.8%; Average loss: 3.7944
Iteration: 592; Percent complete: 14.8%; Average loss: 3.5029
Iteration: 593; Percent complete: 14.8%; Average loss: 3.7257
Iteration: 594; Percent complete: 14.8%; Average loss: 3.6483
Iteration: 595; Percent complete: 14.9%; Average loss: 3.7146
Iteration: 596; Percent complete: 14.9%; Average loss: 3.7154
Iteration: 597; Percent complete: 14.9%; Average loss: 3.7507
Iteration: 598; Percent complete: 14.9%; Average loss: 3.7932
Iteration: 599; Percent complete: 15.0%; Average loss: 3.6910
Iteration: 600; Percent complete: 15.0%; Average loss: 3.6793
Iteration: 601; Percent complete: 15.0%; Average loss: 3.4442
Iteration: 602; Percent complete: 15.0%; Average loss: 3.6666
Iteration: 603; Percent complete: 15.1%; Average loss: 3.5742
Iteration: 604; Percent complete: 15.1%; Average loss: 3.3992
Iteration: 605; Percent complete: 15.1%; Average loss: 3.5382
Iteration: 606; Percent complete: 15.2%; Average loss: 3.7874
Iteration: 607; Percent complete: 15.2%; Average loss: 3.5313
Iteration: 608; Percent complete: 15.2%; Average loss: 3.6929
Iteration: 609; Percent complete: 15.2%; Average loss: 3.2834
Iteration: 610; Percent complete: 15.2%; Average loss: 3.5747
Iteration: 611; Percent complete: 15.3%; Average loss: 3.5109
Iteration: 612; Percent complete: 15.3%; Average loss: 3.8679
```

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Iteration: 613; Percent complete: 15.3%; Average loss: 3.7061
Iteration: 614; Percent complete: 15.3%; Average loss: 3.7408
Iteration: 615; Percent complete: 15.4%; Average loss: 3.6371
Iteration: 616; Percent complete: 15.4%; Average loss: 3.4887
Iteration: 617; Percent complete: 15.4%; Average loss: 3.8455
Iteration: 618; Percent complete: 15.4%; Average loss: 3.4310
Iteration: 619; Percent complete: 15.5%; Average loss: 3.8220
Iteration: 620; Percent complete: 15.5%; Average loss: 3.6951
Iteration: 621; Percent complete: 15.5%; Average loss: 3.7136
Iteration: 622; Percent complete: 15.6%; Average loss: 3.6691
Iteration: 623; Percent complete: 15.6%; Average loss: 3.4291
Iteration: 624; Percent complete: 15.6%; Average loss: 3.7512
Iteration: 625; Percent complete: 15.6%; Average loss: 3.5961
Iteration: 626; Percent complete: 15.7%; Average loss: 3.5721
Iteration: 627; Percent complete: 15.7%; Average loss: 3.8430
Iteration: 628; Percent complete: 15.7%; Average loss: 3.6029
Iteration: 629; Percent complete: 15.7%; Average loss: 3.7641
Iteration: 630; Percent complete: 15.8%; Average loss: 3.2372
Iteration: 631; Percent complete: 15.8%; Average loss: 3.5192
Iteration: 632; Percent complete: 15.8%; Average loss: 3.8290
Iteration: 633; Percent complete: 15.8%; Average loss: 3.6219
Iteration: 634; Percent complete: 15.8%; Average loss: 3.4613
Iteration: 635; Percent complete: 15.9%; Average loss: 3.6688
Iteration: 636; Percent complete: 15.9%; Average loss: 3.6823
Iteration: 637; Percent complete: 15.9%; Average loss: 3.6393
Iteration: 638; Percent complete: 16.0%; Average loss: 3.8143
Iteration: 639; Percent complete: 16.0%; Average loss: 3.6000
Iteration: 640; Percent complete: 16.0%; Average loss: 3.7558
Iteration: 641; Percent complete: 16.0%; Average loss: 3.7235
Iteration: 642; Percent complete: 16.1%; Average loss: 3.6281
Iteration: 643; Percent complete: 16.1%; Average loss: 3.5181
Iteration: 644; Percent complete: 16.1%; Average loss: 3.5811
Iteration: 645; Percent complete: 16.1%; Average loss: 3.7254
Iteration: 646; Percent complete: 16.2%; Average loss: 3.3510
Iteration: 647; Percent complete: 16.2%; Average loss: 3.6559
Iteration: 648; Percent complete: 16.2%; Average loss: 3.5043
Iteration: 649; Percent complete: 16.2%; Average loss: 3.7999
Iteration: 650; Percent complete: 16.2%; Average loss: 3.5422
Iteration: 651; Percent complete: 16.3%; Average loss: 3.6390
Iteration: 652; Percent complete: 16.3%; Average loss: 3.4878
Iteration: 653; Percent complete: 16.3%; Average loss: 3.4879
Iteration: 654; Percent complete: 16.4%; Average loss: 3.6648
Iteration: 655; Percent complete: 16.4%; Average loss: 3.6952
Iteration: 656; Percent complete: 16.4%; Average loss: 3.6209
Iteration: 657; Percent complete: 16.4%; Average loss: 3.6659
Iteration: 658; Percent complete: 16.4%; Average loss: 3.6078
Iteration: 659; Percent complete: 16.5%; Average loss: 3.7225
Iteration: 660; Percent complete: 16.5%; Average loss: 3.4115
Iteration: 661; Percent complete: 16.5%; Average loss: 3.4650
Iteration: 662; Percent complete: 16.6%; Average loss: 3.6040
Iteration: 663; Percent complete: 16.6%; Average loss: 3.4668
Iteration: 664; Percent complete: 16.6%; Average loss: 3.7315
Iteration: 665; Percent complete: 16.6%; Average loss: 3.7377
Iteration: 666; Percent complete: 16.7%; Average loss: 3.5029
Iteration: 667; Percent complete: 16.7%; Average loss: 3.5710
Iteration: 668; Percent complete: 16.7%; Average loss: 3.7175
```

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Iteration: 669; Percent complete: 16.7%; Average loss: 3.5214
Iteration: 670; Percent complete: 16.8%; Average loss: 3.6996
Iteration: 671; Percent complete: 16.8%; Average loss: 3.8173
Iteration: 672; Percent complete: 16.8%; Average loss: 3.7108
Iteration: 673; Percent complete: 16.8%; Average loss: 3.5594
Iteration: 674; Percent complete: 16.9%; Average loss: 3.6559
Iteration: 675; Percent complete: 16.9%; Average loss: 3.6230
Iteration: 676; Percent complete: 16.9%; Average loss: 3.6191
Iteration: 677; Percent complete: 16.9%; Average loss: 3.6026
Iteration: 678; Percent complete: 17.0%; Average loss: 3.4914
Iteration: 679; Percent complete: 17.0%; Average loss: 3.7309
Iteration: 680; Percent complete: 17.0%; Average loss: 3.5295
Iteration: 681; Percent complete: 17.0%; Average loss: 3.8187
Iteration: 682; Percent complete: 17.1%; Average loss: 3.6262
Iteration: 683; Percent complete: 17.1%; Average loss: 3.4322
Iteration: 684; Percent complete: 17.1%; Average loss: 3.5595
Iteration: 685; Percent complete: 17.1%; Average loss: 3.4433
Iteration: 686; Percent complete: 17.2%; Average loss: 3.4528
Iteration: 687; Percent complete: 17.2%; Average loss: 3.5646
Iteration: 688; Percent complete: 17.2%; Average loss: 3.5689
Iteration: 689; Percent complete: 17.2%; Average loss: 3.5169
Iteration: 690; Percent complete: 17.2%; Average loss: 3.4445
Iteration: 691; Percent complete: 17.3%; Average loss: 3.7705
Iteration: 692; Percent complete: 17.3%; Average loss: 3.7915
Iteration: 693; Percent complete: 17.3%; Average loss: 3.6718
Iteration: 694; Percent complete: 17.3%; Average loss: 3.6360
Iteration: 695; Percent complete: 17.4%; Average loss: 3.5172
Iteration: 696; Percent complete: 17.4%; Average loss: 3.8499
Iteration: 697; Percent complete: 17.4%; Average loss: 3.7500
Iteration: 698; Percent complete: 17.4%; Average loss: 3.6606
Iteration: 699; Percent complete: 17.5%; Average loss: 3.4106
Iteration: 700; Percent complete: 17.5%; Average loss: 3.6848
Iteration: 701; Percent complete: 17.5%; Average loss: 3.7791
Iteration: 702; Percent complete: 17.5%; Average loss: 3.8841
Iteration: 703; Percent complete: 17.6%; Average loss: 3.5776
Iteration: 704; Percent complete: 17.6%; Average loss: 3.6102
Iteration: 705; Percent complete: 17.6%; Average loss: 3.4051
Iteration: 706; Percent complete: 17.6%; Average loss: 3.8882
Iteration: 707; Percent complete: 17.7%; Average loss: 3.6997
Iteration: 708; Percent complete: 17.7%; Average loss: 3.6652
Iteration: 709; Percent complete: 17.7%; Average loss: 4.0095
Iteration: 710; Percent complete: 17.8%; Average loss: 3.6766
Iteration: 711; Percent complete: 17.8%; Average loss: 3.5097
Iteration: 712; Percent complete: 17.8%; Average loss: 3.5992
Iteration: 713; Percent complete: 17.8%; Average loss: 3.5785
Iteration: 714; Percent complete: 17.8%; Average loss: 3.6165
Iteration: 715; Percent complete: 17.9%; Average loss: 3.4566
Iteration: 716; Percent complete: 17.9%; Average loss: 3.8164
Iteration: 717; Percent complete: 17.9%; Average loss: 3.5505
Iteration: 718; Percent complete: 17.9%; Average loss: 3.5821
Iteration: 719; Percent complete: 18.0%; Average loss: 3.9136
Iteration: 720; Percent complete: 18.0%; Average loss: 3.6536
Iteration: 721; Percent complete: 18.0%; Average loss: 3.7456
Iteration: 722; Percent complete: 18.1%; Average loss: 3.7589
Iteration: 723; Percent complete: 18.1%; Average loss: 3.7177
Iteration: 724; Percent complete: 18.1%; Average loss: 3.6708
```

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Iteration: 725; Percent complete: 18.1%; Average loss: 3.5586
Iteration: 726; Percent complete: 18.1%; Average loss: 3.4930
Iteration: 727; Percent complete: 18.2%; Average loss: 3.4797
Iteration: 728; Percent complete: 18.2%; Average loss: 3.6404
Iteration: 729; Percent complete: 18.2%; Average loss: 3.7703
Iteration: 730; Percent complete: 18.2%; Average loss: 3.7397
Iteration: 731; Percent complete: 18.3%; Average loss: 3.5067
Iteration: 732; Percent complete: 18.3%; Average loss: 3.5919
Iteration: 733; Percent complete: 18.3%; Average loss: 3.6790
Iteration: 734; Percent complete: 18.4%; Average loss: 3.9384
Iteration: 735; Percent complete: 18.4%; Average loss: 3.5546
Iteration: 736; Percent complete: 18.4%; Average loss: 3.2610
Iteration: 737; Percent complete: 18.4%; Average loss: 3.6593
Iteration: 738; Percent complete: 18.4%; Average loss: 3.5916
Iteration: 739; Percent complete: 18.5%; Average loss: 3.7138
Iteration: 740; Percent complete: 18.5%; Average loss: 3.4554
Iteration: 741; Percent complete: 18.5%; Average loss: 3.6186
Iteration: 742; Percent complete: 18.6%; Average loss: 3.4995
Iteration: 743; Percent complete: 18.6%; Average loss: 3.7038
Iteration: 744; Percent complete: 18.6%; Average loss: 3.5277
Iteration: 745; Percent complete: 18.6%; Average loss: 3.5797
Iteration: 746; Percent complete: 18.6%; Average loss: 3.5122
Iteration: 747; Percent complete: 18.7%; Average loss: 3.6835
Iteration: 748; Percent complete: 18.7%; Average loss: 3.5242
Iteration: 749; Percent complete: 18.7%; Average loss: 3.6624
Iteration: 750; Percent complete: 18.8%; Average loss: 3.6534
Iteration: 751; Percent complete: 18.8%; Average loss: 3.4672
Iteration: 752; Percent complete: 18.8%; Average loss: 3.7264
Iteration: 753; Percent complete: 18.8%; Average loss: 3.3540
Iteration: 754; Percent complete: 18.9%; Average loss: 3.4972
Iteration: 755; Percent complete: 18.9%; Average loss: 3.6955
Iteration: 756; Percent complete: 18.9%; Average loss: 3.4907
Iteration: 757; Percent complete: 18.9%; Average loss: 3.5350
Iteration: 758; Percent complete: 18.9%; Average loss: 3.5258
Iteration: 759; Percent complete: 19.0%; Average loss: 3.3067
Iteration: 760; Percent complete: 19.0%; Average loss: 3.6812
Iteration: 761; Percent complete: 19.0%; Average loss: 3.5515
Iteration: 762; Percent complete: 19.1%; Average loss: 3.6165
Iteration: 763; Percent complete: 19.1%; Average loss: 3.5853
Iteration: 764; Percent complete: 19.1%; Average loss: 3.4671
Iteration: 765; Percent complete: 19.1%; Average loss: 3.6308
Iteration: 766; Percent complete: 19.1%; Average loss: 3.4508
Iteration: 767; Percent complete: 19.2%; Average loss: 3.5738
Iteration: 768; Percent complete: 19.2%; Average loss: 3.6514
Iteration: 769; Percent complete: 19.2%; Average loss: 3.6126
Iteration: 770; Percent complete: 19.2%; Average loss: 3.6454
Iteration: 771; Percent complete: 19.3%; Average loss: 3.4783
Iteration: 772; Percent complete: 19.3%; Average loss: 3.6517
Iteration: 773; Percent complete: 19.3%; Average loss: 3.4092
Iteration: 774; Percent complete: 19.4%; Average loss: 3.3751
Iteration: 775; Percent complete: 19.4%; Average loss: 3.7201
Iteration: 776; Percent complete: 19.4%; Average loss: 3.8460
Iteration: 777; Percent complete: 19.4%; Average loss: 3.5982
Iteration: 778; Percent complete: 19.4%; Average loss: 3.2986
Iteration: 779; Percent complete: 19.5%; Average loss: 3.6050
Iteration: 780; Percent complete: 19.5%; Average loss: 3.2878
```

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Iteration: 781; Percent complete: 19.5%; Average loss: 3.3221
Iteration: 782; Percent complete: 19.6%; Average loss: 3.3934
Iteration: 783; Percent complete: 19.6%; Average loss: 3.7334
Iteration: 784; Percent complete: 19.6%; Average loss: 3.6223
Iteration: 785; Percent complete: 19.6%; Average loss: 3.6276
Iteration: 786; Percent complete: 19.7%; Average loss: 3.6471
Iteration: 787; Percent complete: 19.7%; Average loss: 3.5914
Iteration: 788; Percent complete: 19.7%; Average loss: 3.7427
Iteration: 789; Percent complete: 19.7%; Average loss: 3.7601
Iteration: 790; Percent complete: 19.8%; Average loss: 3.5619
Iteration: 791; Percent complete: 19.8%; Average loss: 3.6651
Iteration: 792; Percent complete: 19.8%; Average loss: 3.3462
Iteration: 793; Percent complete: 19.8%; Average loss: 3.5539
Iteration: 794; Percent complete: 19.9%; Average loss: 3.4464
Iteration: 795; Percent complete: 19.9%; Average loss: 3.8111
Iteration: 796; Percent complete: 19.9%; Average loss: 3.6805
Iteration: 797; Percent complete: 19.9%; Average loss: 3.8586
Iteration: 798; Percent complete: 20.0%; Average loss: 3.5317
Iteration: 799; Percent complete: 20.0%; Average loss: 3.5520
Iteration: 800; Percent complete: 20.0%; Average loss: 3.6132
Iteration: 801; Percent complete: 20.0%; Average loss: 3.6246
Iteration: 802; Percent complete: 20.1%; Average loss: 3.4665
Iteration: 803; Percent complete: 20.1%; Average loss: 3.6247
Iteration: 804; Percent complete: 20.1%; Average loss: 3.6376
Iteration: 805; Percent complete: 20.1%; Average loss: 3.6967
Iteration: 806; Percent complete: 20.2%; Average loss: 3.7242
Iteration: 807; Percent complete: 20.2%; Average loss: 3.6263
Iteration: 808; Percent complete: 20.2%; Average loss: 3.7195
Iteration: 809; Percent complete: 20.2%; Average loss: 3.3963
Iteration: 810; Percent complete: 20.2%; Average loss: 3.8253
Iteration: 811; Percent complete: 20.3%; Average loss: 3.3512
Iteration: 812; Percent complete: 20.3%; Average loss: 3.4337
Iteration: 813; Percent complete: 20.3%; Average loss: 3.3912
Iteration: 814; Percent complete: 20.3%; Average loss: 3.5743
Iteration: 815; Percent complete: 20.4%; Average loss: 3.5104
Iteration: 816; Percent complete: 20.4%; Average loss: 3.8296
Iteration: 817; Percent complete: 20.4%; Average loss: 3.4783
Iteration: 818; Percent complete: 20.4%; Average loss: 3.6931
Iteration: 819; Percent complete: 20.5%; Average loss: 3.8491
Iteration: 820; Percent complete: 20.5%; Average loss: 3.4901
Iteration: 821; Percent complete: 20.5%; Average loss: 3.3814
Iteration: 822; Percent complete: 20.5%; Average loss: 3.4251
Iteration: 823; Percent complete: 20.6%; Average loss: 3.4700
Iteration: 824; Percent complete: 20.6%; Average loss: 3.4905
Iteration: 825; Percent complete: 20.6%; Average loss: 3.5025
Iteration: 826; Percent complete: 20.6%; Average loss: 3.8400
Iteration: 827; Percent complete: 20.7%; Average loss: 3.7276
Iteration: 828; Percent complete: 20.7%; Average loss: 3.8314
Iteration: 829; Percent complete: 20.7%; Average loss: 3.3244
Iteration: 830; Percent complete: 20.8%; Average loss: 3.6394
Iteration: 831; Percent complete: 20.8%; Average loss: 3.6427
Iteration: 832; Percent complete: 20.8%; Average loss: 3.7381
Iteration: 833; Percent complete: 20.8%; Average loss: 3.4398
Iteration: 834; Percent complete: 20.8%; Average loss: 3.5335
Iteration: 835; Percent complete: 20.9%; Average loss: 3.5380
Iteration: 836; Percent complete: 20.9%; Average loss: 3.4960
```

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Iteration: 837; Percent complete: 20.9%; Average loss: 3.5204
Iteration: 838; Percent complete: 20.9%; Average loss: 3.2243
Iteration: 839; Percent complete: 21.0%; Average loss: 3.4970
Iteration: 840; Percent complete: 21.0%; Average loss: 3.4881
Iteration: 841; Percent complete: 21.0%; Average loss: 3.7517
Iteration: 842; Percent complete: 21.1%; Average loss: 3.3544
Iteration: 843; Percent complete: 21.1%; Average loss: 3.7616
Iteration: 844; Percent complete: 21.1%; Average loss: 3.4321
Iteration: 845; Percent complete: 21.1%; Average loss: 3.5911
Iteration: 846; Percent complete: 21.1%; Average loss: 3.4995
Iteration: 847; Percent complete: 21.2%; Average loss: 3.6003
Iteration: 848; Percent complete: 21.2%; Average loss: 3.4775
Iteration: 849; Percent complete: 21.2%; Average loss: 3.4856
Iteration: 850; Percent complete: 21.2%; Average loss: 3.8072
Iteration: 851; Percent complete: 21.3%; Average loss: 3.4521
Iteration: 852; Percent complete: 21.3%; Average loss: 3.2813
Iteration: 853; Percent complete: 21.3%; Average loss: 3.5428
Iteration: 854; Percent complete: 21.3%; Average loss: 3.5195
Iteration: 855; Percent complete: 21.4%; Average loss: 3.6561
Iteration: 856; Percent complete: 21.4%; Average loss: 3.6343
Iteration: 857; Percent complete: 21.4%; Average loss: 3.3454
Iteration: 858; Percent complete: 21.4%; Average loss: 3.3493
Iteration: 859; Percent complete: 21.5%; Average loss: 3.4662
Iteration: 860; Percent complete: 21.5%; Average loss: 3.9655
Iteration: 861; Percent complete: 21.5%; Average loss: 3.4996
Iteration: 862; Percent complete: 21.6%; Average loss: 3.4226
Iteration: 863; Percent complete: 21.6%; Average loss: 3.4699
Iteration: 864; Percent complete: 21.6%; Average loss: 3.3861
Iteration: 865; Percent complete: 21.6%; Average loss: 3.7973
Iteration: 866; Percent complete: 21.6%; Average loss: 3.4507
Iteration: 867; Percent complete: 21.7%; Average loss: 3.5219
Iteration: 868; Percent complete: 21.7%; Average loss: 3.6747
Iteration: 869; Percent complete: 21.7%; Average loss: 3.3691
Iteration: 870; Percent complete: 21.8%; Average loss: 3.4189
Iteration: 871; Percent complete: 21.8%; Average loss: 3.3988
Iteration: 872; Percent complete: 21.8%; Average loss: 3.6554
Iteration: 873; Percent complete: 21.8%; Average loss: 3.4635
Iteration: 874; Percent complete: 21.9%; Average loss: 3.3594
Iteration: 875; Percent complete: 21.9%; Average loss: 3.8752
Iteration: 876; Percent complete: 21.9%; Average loss: 3.5482
Iteration: 877; Percent complete: 21.9%; Average loss: 3.6240
Iteration: 878; Percent complete: 21.9%; Average loss: 3.6583
Iteration: 879; Percent complete: 22.0%; Average loss: 3.6263
Iteration: 880; Percent complete: 22.0%; Average loss: 3.5432
Iteration: 881; Percent complete: 22.0%; Average loss: 3.5853
Iteration: 882; Percent complete: 22.1%; Average loss: 3.5413
Iteration: 883; Percent complete: 22.1%; Average loss: 3.5692
Iteration: 884; Percent complete: 22.1%; Average loss: 3.4545
Iteration: 885; Percent complete: 22.1%; Average loss: 3.6701
Iteration: 886; Percent complete: 22.1%; Average loss: 3.5614
Iteration: 887; Percent complete: 22.2%; Average loss: 3.4621
Iteration: 888; Percent complete: 22.2%; Average loss: 3.5601
Iteration: 889; Percent complete: 22.2%; Average loss: 3.3871
Iteration: 890; Percent complete: 22.2%; Average loss: 3.3307
Iteration: 891; Percent complete: 22.3%; Average loss: 3.5228
Iteration: 892; Percent complete: 22.3%; Average loss: 3.7762
```

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Iteration: 893; Percent complete: 22.3%; Average loss: 3.4524
Iteration: 894; Percent complete: 22.4%; Average loss: 3.5730
Iteration: 895; Percent complete: 22.4%; Average loss: 3.3745
Iteration: 896; Percent complete: 22.4%; Average loss: 3.6038
Iteration: 897; Percent complete: 22.4%; Average loss: 3.3457
Iteration: 898; Percent complete: 22.4%; Average loss: 3.3873
Iteration: 899; Percent complete: 22.5%; Average loss: 3.7594
Iteration: 900; Percent complete: 22.5%; Average loss: 3.4148
Iteration: 901; Percent complete: 22.5%; Average loss: 3.3998
Iteration: 902; Percent complete: 22.6%; Average loss: 3.6115
Iteration: 903; Percent complete: 22.6%; Average loss: 3.5331
Iteration: 904; Percent complete: 22.6%; Average loss: 3.4974
Iteration: 905; Percent complete: 22.6%; Average loss: 3.2123
Iteration: 906; Percent complete: 22.7%; Average loss: 3.5894
Iteration: 907; Percent complete: 22.7%; Average loss: 3.6507
Iteration: 908; Percent complete: 22.7%; Average loss: 3.5641
Iteration: 909; Percent complete: 22.7%; Average loss: 3.3377
Iteration: 910; Percent complete: 22.8%; Average loss: 3.4556
Iteration: 911; Percent complete: 22.8%; Average loss: 3.3081
Iteration: 912; Percent complete: 22.8%; Average loss: 3.7996
Iteration: 913; Percent complete: 22.8%; Average loss: 3.6194
Iteration: 914; Percent complete: 22.9%; Average loss: 3.5531
Iteration: 915; Percent complete: 22.9%; Average loss: 3.6509
Iteration: 916; Percent complete: 22.9%; Average loss: 3.3674
Iteration: 917; Percent complete: 22.9%; Average loss: 3.5288
Iteration: 918; Percent complete: 22.9%; Average loss: 3.8390
Iteration: 919; Percent complete: 23.0%; Average loss: 3.6584
Iteration: 920; Percent complete: 23.0%; Average loss: 3.7960
Iteration: 921; Percent complete: 23.0%; Average loss: 3.7191
Iteration: 922; Percent complete: 23.1%; Average loss: 3.6939
Iteration: 923; Percent complete: 23.1%; Average loss: 3.5167
Iteration: 924; Percent complete: 23.1%; Average loss: 3.6593
Iteration: 925; Percent complete: 23.1%; Average loss: 3.5057
Iteration: 926; Percent complete: 23.2%; Average loss: 3.5185
Iteration: 927; Percent complete: 23.2%; Average loss: 3.7915
Iteration: 928; Percent complete: 23.2%; Average loss: 3.7669
Iteration: 929; Percent complete: 23.2%; Average loss: 3.5393
Iteration: 930; Percent complete: 23.2%; Average loss: 3.6969
Iteration: 931; Percent complete: 23.3%; Average loss: 3.4408
Iteration: 932; Percent complete: 23.3%; Average loss: 3.4202
Iteration: 933; Percent complete: 23.3%; Average loss: 3.7681
Iteration: 934; Percent complete: 23.4%; Average loss: 3.6222
Iteration: 935; Percent complete: 23.4%; Average loss: 3.4490
Iteration: 936; Percent complete: 23.4%; Average loss: 3.6140
Iteration: 937; Percent complete: 23.4%; Average loss: 3.4649
Iteration: 938; Percent complete: 23.4%; Average loss: 3.4608
Iteration: 939; Percent complete: 23.5%; Average loss: 3.3798
Iteration: 940; Percent complete: 23.5%; Average loss: 3.5227
Iteration: 941; Percent complete: 23.5%; Average loss: 3.5372
Iteration: 942; Percent complete: 23.5%; Average loss: 3.2100
Iteration: 943; Percent complete: 23.6%; Average loss: 3.7144
Iteration: 944; Percent complete: 23.6%; Average loss: 3.5331
Iteration: 945; Percent complete: 23.6%; Average loss: 3.5396
Iteration: 946; Percent complete: 23.6%; Average loss: 3.4367
Iteration: 947; Percent complete: 23.7%; Average loss: 3.4081
Iteration: 948; Percent complete: 23.7%; Average loss: 3.4952
```

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Iteration: 949; Percent complete: 23.7%; Average loss: 3.3530
Iteration: 950; Percent complete: 23.8%; Average loss: 3.3833
Iteration: 951; Percent complete: 23.8%; Average loss: 3.4017
Iteration: 952; Percent complete: 23.8%; Average loss: 3.4576
Iteration: 953; Percent complete: 23.8%; Average loss: 3.5193
Iteration: 954; Percent complete: 23.8%; Average loss: 3.4294
Iteration: 955; Percent complete: 23.9%; Average loss: 3.5054
Iteration: 956; Percent complete: 23.9%; Average loss: 3.5559
Iteration: 957; Percent complete: 23.9%; Average loss: 3.3793
Iteration: 958; Percent complete: 23.9%; Average loss: 3.4600
Iteration: 959; Percent complete: 24.0%; Average loss: 3.4956
Iteration: 960; Percent complete: 24.0%; Average loss: 3.2819
Iteration: 961; Percent complete: 24.0%; Average loss: 3.6241
Iteration: 962; Percent complete: 24.1%; Average loss: 3.6077
Iteration: 963; Percent complete: 24.1%; Average loss: 3.6782
Iteration: 964; Percent complete: 24.1%; Average loss: 3.5232
Iteration: 965; Percent complete: 24.1%; Average loss: 3.7256
Iteration: 966; Percent complete: 24.1%; Average loss: 3.2685
Iteration: 967; Percent complete: 24.2%; Average loss: 3.1936
Iteration: 968; Percent complete: 24.2%; Average loss: 3.6144
Iteration: 969; Percent complete: 24.2%; Average loss: 3.5450
Iteration: 970; Percent complete: 24.2%; Average loss: 3.6180
Iteration: 971; Percent complete: 24.3%; Average loss: 3.3029
Iteration: 972; Percent complete: 24.3%; Average loss: 3.4845
Iteration: 973; Percent complete: 24.3%; Average loss: 3.6121
Iteration: 974; Percent complete: 24.3%; Average loss: 3.3984
Iteration: 975; Percent complete: 24.4%; Average loss: 3.4803
Iteration: 976; Percent complete: 24.4%; Average loss: 3.4194
Iteration: 977; Percent complete: 24.4%; Average loss: 3.5026
Iteration: 978; Percent complete: 24.4%; Average loss: 3.3277
Iteration: 979; Percent complete: 24.5%; Average loss: 3.7106
Iteration: 980; Percent complete: 24.5%; Average loss: 3.3658
Iteration: 981; Percent complete: 24.5%; Average loss: 3.5654
Iteration: 982; Percent complete: 24.6%; Average loss: 3.3756
Iteration: 983; Percent complete: 24.6%; Average loss: 3.5154
Iteration: 984; Percent complete: 24.6%; Average loss: 3.6527
Iteration: 985; Percent complete: 24.6%; Average loss: 3.1851
Iteration: 986; Percent complete: 24.6%; Average loss: 3.3715
Iteration: 987; Percent complete: 24.7%; Average loss: 3.3805
Iteration: 988; Percent complete: 24.7%; Average loss: 3.6548
Iteration: 989; Percent complete: 24.7%; Average loss: 3.3708
Iteration: 990; Percent complete: 24.8%; Average loss: 3.5528
Iteration: 991; Percent complete: 24.8%; Average loss: 3.5792
Iteration: 992; Percent complete: 24.8%; Average loss: 3.4899
Iteration: 993; Percent complete: 24.8%; Average loss: 3.4273
Iteration: 994; Percent complete: 24.9%; Average loss: 3.4734
Iteration: 995; Percent complete: 24.9%; Average loss: 3.4196
Iteration: 996; Percent complete: 24.9%; Average loss: 3.2748
Iteration: 997; Percent complete: 24.9%; Average loss: 3.3754
Iteration: 998; Percent complete: 24.9%; Average loss: 3.2926
Iteration: 999; Percent complete: 25.0%; Average loss: 3.4377
Iteration: 1000; Percent complete: 25.0%; Average loss: 3.5042
Iteration: 1001; Percent complete: 25.0%; Average loss: 3.4236
Iteration: 1002; Percent complete: 25.1%; Average loss: 3.3802
Iteration: 1003; Percent complete: 25.1%; Average loss: 3.3329
Iteration: 1004; Percent complete: 25.1%; Average loss: 3.7169
```

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Iteration: 1005; Percent complete: 25.1%; Average loss: 3.4276
Iteration: 1006; Percent complete: 25.1%; Average loss: 3.6944
Iteration: 1007; Percent complete: 25.2%; Average loss: 3.4442
Iteration: 1008; Percent complete: 25.2%; Average loss: 3.5756
Iteration: 1009; Percent complete: 25.2%; Average loss: 3.5788
Iteration: 1010; Percent complete: 25.2%; Average loss: 3.7120
Iteration: 1011; Percent complete: 25.3%; Average loss: 3.5488
Iteration: 1012; Percent complete: 25.3%; Average loss: 3.4122
Iteration: 1013; Percent complete: 25.3%; Average loss: 3.5525
Iteration: 1014; Percent complete: 25.4%; Average loss: 3.4178
Iteration: 1015; Percent complete: 25.4%; Average loss: 3.5130
Iteration: 1016; Percent complete: 25.4%; Average loss: 3.6073
Iteration: 1017; Percent complete: 25.4%; Average loss: 3.4690
Iteration: 1018; Percent complete: 25.4%; Average loss: 3.4314
Iteration: 1019; Percent complete: 25.5%; Average loss: 3.4005
Iteration: 1020; Percent complete: 25.5%; Average loss: 3.2507
Iteration: 1021; Percent complete: 25.5%; Average loss: 3.5926
Iteration: 1022; Percent complete: 25.6%; Average loss: 3.2720
Iteration: 1023; Percent complete: 25.6%; Average loss: 3.2848
Iteration: 1024; Percent complete: 25.6%; Average loss: 3.3294
Iteration: 1025; Percent complete: 25.6%; Average loss: 3.2586
Iteration: 1026; Percent complete: 25.7%; Average loss: 3.3258
Iteration: 1027; Percent complete: 25.7%; Average loss: 3.6947
Iteration: 1028; Percent complete: 25.7%; Average loss: 3.5493
Iteration: 1029; Percent complete: 25.7%; Average loss: 3.3423
Iteration: 1030; Percent complete: 25.8%; Average loss: 3.5191
Iteration: 1031; Percent complete: 25.8%; Average loss: 3.6847
Iteration: 1032; Percent complete: 25.8%; Average loss: 3.5508
Iteration: 1033; Percent complete: 25.8%; Average loss: 3.5365
Iteration: 1034; Percent complete: 25.9%; Average loss: 3.5387
Iteration: 1035; Percent complete: 25.9%; Average loss: 3.6755
Iteration: 1036; Percent complete: 25.9%; Average loss: 3.5474
Iteration: 1037; Percent complete: 25.9%; Average loss: 3.4075
Iteration: 1038; Percent complete: 25.9%; Average loss: 3.6349
Iteration: 1039; Percent complete: 26.0%; Average loss: 3.3149
Iteration: 1040; Percent complete: 26.0%; Average loss: 3.5478
Iteration: 1041; Percent complete: 26.0%; Average loss: 3.3828
Iteration: 1042; Percent complete: 26.1%; Average loss: 3.3634
Iteration: 1043; Percent complete: 26.1%; Average loss: 3.6032
Iteration: 1044; Percent complete: 26.1%; Average loss: 3.4821
Iteration: 1045; Percent complete: 26.1%; Average loss: 3.6048
Iteration: 1046; Percent complete: 26.2%; Average loss: 3.5594
Iteration: 1047; Percent complete: 26.2%; Average loss: 3.5721
Iteration: 1048; Percent complete: 26.2%; Average loss: 3.6631
Iteration: 1049; Percent complete: 26.2%; Average loss: 3.3671
Iteration: 1050; Percent complete: 26.2%; Average loss: 3.4338
Iteration: 1051; Percent complete: 26.3%; Average loss: 3.3657
Iteration: 1052; Percent complete: 26.3%; Average loss: 3.6119
Iteration: 1053; Percent complete: 26.3%; Average loss: 3.4723
Iteration: 1054; Percent complete: 26.4%; Average loss: 3.4003
Iteration: 1055; Percent complete: 26.4%; Average loss: 3.2327
Iteration: 1056; Percent complete: 26.4%; Average loss: 3.7158
Iteration: 1057; Percent complete: 26.4%; Average loss: 3.3830
Iteration: 1058; Percent complete: 26.5%; Average loss: 3.5718
Iteration: 1059; Percent complete: 26.5%; Average loss: 3.5293
Iteration: 1060; Percent complete: 26.5%; Average loss: 3.4848
```

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Iteration: 1061; Percent complete: 26.5%; Average loss: 3.4065
Iteration: 1062; Percent complete: 26.6%; Average loss: 3.5091
Iteration: 1063; Percent complete: 26.6%; Average loss: 3.3154
Iteration: 1064; Percent complete: 26.6%; Average loss: 3.5642
Iteration: 1065; Percent complete: 26.6%; Average loss: 3.5154
Iteration: 1066; Percent complete: 26.7%; Average loss: 3.5254
Iteration: 1067; Percent complete: 26.7%; Average loss: 3.3179
Iteration: 1068; Percent complete: 26.7%; Average loss: 3.5138
Iteration: 1069; Percent complete: 26.7%; Average loss: 3.5910
Iteration: 1070; Percent complete: 26.8%; Average loss: 3.5794
Iteration: 1071; Percent complete: 26.8%; Average loss: 3.3665
Iteration: 1072; Percent complete: 26.8%; Average loss: 3.5952
Iteration: 1073; Percent complete: 26.8%; Average loss: 3.3296
Iteration: 1074; Percent complete: 26.9%; Average loss: 3.2927
Iteration: 1075; Percent complete: 26.9%; Average loss: 3.9268
Iteration: 1076; Percent complete: 26.9%; Average loss: 3.2629
Iteration: 1077; Percent complete: 26.9%; Average loss: 3.2235
Iteration: 1078; Percent complete: 27.0%; Average loss: 3.1151
Iteration: 1079; Percent complete: 27.0%; Average loss: 3.5171
Iteration: 1080; Percent complete: 27.0%; Average loss: 3.3545
Iteration: 1081; Percent complete: 27.0%; Average loss: 3.4213
Iteration: 1082; Percent complete: 27.1%; Average loss: 3.5356
Iteration: 1083; Percent complete: 27.1%; Average loss: 3.7777
Iteration: 1084; Percent complete: 27.1%; Average loss: 3.1861
Iteration: 1085; Percent complete: 27.1%; Average loss: 3.3620
Iteration: 1086; Percent complete: 27.2%; Average loss: 3.3214
Iteration: 1087; Percent complete: 27.2%; Average loss: 3.4453
Iteration: 1088; Percent complete: 27.2%; Average loss: 3.6600
Iteration: 1089; Percent complete: 27.2%; Average loss: 3.4272
Iteration: 1090; Percent complete: 27.3%; Average loss: 3.4613
Iteration: 1091; Percent complete: 27.3%; Average loss: 3.6286
Iteration: 1092; Percent complete: 27.3%; Average loss: 3.7079
Iteration: 1093; Percent complete: 27.3%; Average loss: 3.6402
Iteration: 1094; Percent complete: 27.4%; Average loss: 3.3857
Iteration: 1095; Percent complete: 27.4%; Average loss: 3.4563
Iteration: 1096; Percent complete: 27.4%; Average loss: 3.3505
Iteration: 1097; Percent complete: 27.4%; Average loss: 3.4908
Iteration: 1098; Percent complete: 27.5%; Average loss: 3.6179
Iteration: 1099; Percent complete: 27.5%; Average loss: 3.3364
Iteration: 1100; Percent complete: 27.5%; Average loss: 3.6127
Iteration: 1101; Percent complete: 27.5%; Average loss: 3.7508
Iteration: 1102; Percent complete: 27.6%; Average loss: 3.5313
Iteration: 1103; Percent complete: 27.6%; Average loss: 3.3617
Iteration: 1104; Percent complete: 27.6%; Average loss: 3.7512
Iteration: 1105; Percent complete: 27.6%; Average loss: 3.3807
Iteration: 1106; Percent complete: 27.7%; Average loss: 3.3851
Iteration: 1107; Percent complete: 27.7%; Average loss: 3.7459
Iteration: 1108; Percent complete: 27.7%; Average loss: 3.3875
Iteration: 1109; Percent complete: 27.7%; Average loss: 3.4259
Iteration: 1110; Percent complete: 27.8%; Average loss: 3.5064
Iteration: 1111; Percent complete: 27.8%; Average loss: 3.5022
Iteration: 1112; Percent complete: 27.8%; Average loss: 3.5078
Iteration: 1113; Percent complete: 27.8%; Average loss: 3.0766
Iteration: 1114; Percent complete: 27.9%; Average loss: 3.6008
Iteration: 1115; Percent complete: 27.9%; Average loss: 3.4339
Iteration: 1116; Percent complete: 27.9%; Average loss: 3.2816
```

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Iteration: 1117; Percent complete: 27.9%; Average loss: 3.3497
Iteration: 1118; Percent complete: 28.0%; Average loss: 3.3030
Iteration: 1119; Percent complete: 28.0%; Average loss: 3.1065
Iteration: 1120; Percent complete: 28.0%; Average loss: 3.3792
Iteration: 1121; Percent complete: 28.0%; Average loss: 3.4018
Iteration: 1122; Percent complete: 28.1%; Average loss: 3.6245
Iteration: 1123; Percent complete: 28.1%; Average loss: 3.4762
Iteration: 1124; Percent complete: 28.1%; Average loss: 3.2831
Iteration: 1125; Percent complete: 28.1%; Average loss: 3.4187
Iteration: 1126; Percent complete: 28.1%; Average loss: 3.5128
Iteration: 1127; Percent complete: 28.2%; Average loss: 3.2408
Iteration: 1128; Percent complete: 28.2%; Average loss: 3.4901
Iteration: 1129; Percent complete: 28.2%; Average loss: 3.4693
Iteration: 1130; Percent complete: 28.2%; Average loss: 3.5423
Iteration: 1131; Percent complete: 28.3%; Average loss: 3.3806
Iteration: 1132; Percent complete: 28.3%; Average loss: 3.5262
Iteration: 1133; Percent complete: 28.3%; Average loss: 3.5278
Iteration: 1134; Percent complete: 28.3%; Average loss: 3.4449
Iteration: 1135; Percent complete: 28.4%; Average loss: 3.4020
Iteration: 1136; Percent complete: 28.4%; Average loss: 3.5755
Iteration: 1137; Percent complete: 28.4%; Average loss: 3.2779
Iteration: 1138; Percent complete: 28.4%; Average loss: 3.4692
Iteration: 1139; Percent complete: 28.5%; Average loss: 3.6372
Iteration: 1140; Percent complete: 28.5%; Average loss: 3.6066
Iteration: 1141; Percent complete: 28.5%; Average loss: 3.2942
Iteration: 1142; Percent complete: 28.5%; Average loss: 3.4303
Iteration: 1143; Percent complete: 28.6%; Average loss: 3.4298
Iteration: 1144; Percent complete: 28.6%; Average loss: 3.3712
Iteration: 1145; Percent complete: 28.6%; Average loss: 3.2806
Iteration: 1146; Percent complete: 28.6%; Average loss: 3.5076
Iteration: 1147; Percent complete: 28.7%; Average loss: 3.5378
Iteration: 1148; Percent complete: 28.7%; Average loss: 3.7023
Iteration: 1149; Percent complete: 28.7%; Average loss: 3.5472
Iteration: 1150; Percent complete: 28.7%; Average loss: 3.3662
Iteration: 1151; Percent complete: 28.8%; Average loss: 3.2183
Iteration: 1152; Percent complete: 28.8%; Average loss: 3.4128
Iteration: 1153; Percent complete: 28.8%; Average loss: 3.5738
Iteration: 1154; Percent complete: 28.8%; Average loss: 3.7369
Iteration: 1155; Percent complete: 28.9%; Average loss: 3.3800
Iteration: 1156; Percent complete: 28.9%; Average loss: 3.3510
Iteration: 1157; Percent complete: 28.9%; Average loss: 3.4837
Iteration: 1158; Percent complete: 28.9%; Average loss: 3.2587
Iteration: 1159; Percent complete: 29.0%; Average loss: 3.4588
Iteration: 1160; Percent complete: 29.0%; Average loss: 3.3706
Iteration: 1161; Percent complete: 29.0%; Average loss: 3.3490
Iteration: 1162; Percent complete: 29.0%; Average loss: 3.3465
Iteration: 1163; Percent complete: 29.1%; Average loss: 3.5459
Iteration: 1164; Percent complete: 29.1%; Average loss: 3.4724
Iteration: 1165; Percent complete: 29.1%; Average loss: 3.4668
Iteration: 1166; Percent complete: 29.1%; Average loss: 3.4471
Iteration: 1167; Percent complete: 29.2%; Average loss: 3.5389
Iteration: 1168; Percent complete: 29.2%; Average loss: 3.3102
Iteration: 1169; Percent complete: 29.2%; Average loss: 3.3243
Iteration: 1170; Percent complete: 29.2%; Average loss: 3.2796
Iteration: 1171; Percent complete: 29.3%; Average loss: 3.0999
Iteration: 1172; Percent complete: 29.3%; Average loss: 3.0603
```

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Iteration: 1173; Percent complete: 29.3%; Average loss: 3.6136
Iteration: 1174; Percent complete: 29.3%; Average loss: 3.3508
Iteration: 1175; Percent complete: 29.4%; Average loss: 3.2596
Iteration: 1176; Percent complete: 29.4%; Average loss: 3.3401
Iteration: 1177; Percent complete: 29.4%; Average loss: 3.3227
Iteration: 1178; Percent complete: 29.4%; Average loss: 3.3176
Iteration: 1179; Percent complete: 29.5%; Average loss: 3.5613
Iteration: 1180; Percent complete: 29.5%; Average loss: 3.3099
Iteration: 1181; Percent complete: 29.5%; Average loss: 3.3984
Iteration: 1182; Percent complete: 29.5%; Average loss: 3.4104
Iteration: 1183; Percent complete: 29.6%; Average loss: 3.6408
Iteration: 1184; Percent complete: 29.6%; Average loss: 3.3935
Iteration: 1185; Percent complete: 29.6%; Average loss: 3.3795
Iteration: 1186; Percent complete: 29.6%; Average loss: 3.3980
Iteration: 1187; Percent complete: 29.7%; Average loss: 3.5267
Iteration: 1188; Percent complete: 29.7%; Average loss: 3.5982
Iteration: 1189; Percent complete: 29.7%; Average loss: 3.2503
Iteration: 1190; Percent complete: 29.8%; Average loss: 3.5257
Iteration: 1191; Percent complete: 29.8%; Average loss: 3.5225
Iteration: 1192; Percent complete: 29.8%; Average loss: 3.4235
Iteration: 1193; Percent complete: 29.8%; Average loss: 3.3280
Iteration: 1194; Percent complete: 29.8%; Average loss: 3.4827
Iteration: 1195; Percent complete: 29.9%; Average loss: 3.2708
Iteration: 1196; Percent complete: 29.9%; Average loss: 3.3618
Iteration: 1197; Percent complete: 29.9%; Average loss: 3.4900
Iteration: 1198; Percent complete: 29.9%; Average loss: 3.6200
Iteration: 1199; Percent complete: 30.0%; Average loss: 3.3429
Iteration: 1200; Percent complete: 30.0%; Average loss: 3.5870
Iteration: 1201; Percent complete: 30.0%; Average loss: 3.4534
Iteration: 1202; Percent complete: 30.0%; Average loss: 3.3839
Iteration: 1203; Percent complete: 30.1%; Average loss: 3.2457
Iteration: 1204; Percent complete: 30.1%; Average loss: 3.5645
Iteration: 1205; Percent complete: 30.1%; Average loss: 3.4738
Iteration: 1206; Percent complete: 30.1%; Average loss: 3.4568
Iteration: 1207; Percent complete: 30.2%; Average loss: 3.2996
Iteration: 1208; Percent complete: 30.2%; Average loss: 3.3325
Iteration: 1209; Percent complete: 30.2%; Average loss: 3.1793
Iteration: 1210; Percent complete: 30.2%; Average loss: 3.3153
Iteration: 1211; Percent complete: 30.3%; Average loss: 3.6409
Iteration: 1212; Percent complete: 30.3%; Average loss: 3.2311
Iteration: 1213; Percent complete: 30.3%; Average loss: 2.9979
Iteration: 1214; Percent complete: 30.3%; Average loss: 3.3131
Iteration: 1215; Percent complete: 30.4%; Average loss: 3.6765
Iteration: 1216; Percent complete: 30.4%; Average loss: 3.2800
Iteration: 1217; Percent complete: 30.4%; Average loss: 3.6646
Iteration: 1218; Percent complete: 30.4%; Average loss: 3.1981
Iteration: 1219; Percent complete: 30.5%; Average loss: 3.5098
Iteration: 1220; Percent complete: 30.5%; Average loss: 3.7286
Iteration: 1221; Percent complete: 30.5%; Average loss: 3.0941
Iteration: 1222; Percent complete: 30.6%; Average loss: 3.4194
Iteration: 1223; Percent complete: 30.6%; Average loss: 3.7685
Iteration: 1224; Percent complete: 30.6%; Average loss: 3.2608
Iteration: 1225; Percent complete: 30.6%; Average loss: 3.4899
Iteration: 1226; Percent complete: 30.6%; Average loss: 3.2878
Iteration: 1227; Percent complete: 30.7%; Average loss: 3.4659
Iteration: 1228; Percent complete: 30.7%; Average loss: 3.6100
```

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Iteration: 1229; Percent complete: 30.7%; Average loss: 3.4475
Iteration: 1230; Percent complete: 30.8%; Average loss: 3.3258
Iteration: 1231; Percent complete: 30.8%; Average loss: 3.2883
Iteration: 1232; Percent complete: 30.8%; Average loss: 3.7030
Iteration: 1233; Percent complete: 30.8%; Average loss: 3.2611
Iteration: 1234; Percent complete: 30.9%; Average loss: 3.1894
Iteration: 1235; Percent complete: 30.9%; Average loss: 3.3941
Iteration: 1236; Percent complete: 30.9%; Average loss: 3.3772
Iteration: 1237; Percent complete: 30.9%; Average loss: 3.8874
Iteration: 1238; Percent complete: 30.9%; Average loss: 3.3729
Iteration: 1239; Percent complete: 31.0%; Average loss: 3.4218
Iteration: 1240; Percent complete: 31.0%; Average loss: 3.3528
Iteration: 1241; Percent complete: 31.0%; Average loss: 3.4820
Iteration: 1242; Percent complete: 31.1%; Average loss: 3.4976
Iteration: 1243; Percent complete: 31.1%; Average loss: 3.2940
Iteration: 1244; Percent complete: 31.1%; Average loss: 3.3032
Iteration: 1245; Percent complete: 31.1%; Average loss: 3.2771
Iteration: 1246; Percent complete: 31.1%; Average loss: 3.4408
Iteration: 1247; Percent complete: 31.2%; Average loss: 3.5974
Iteration: 1248; Percent complete: 31.2%; Average loss: 3.3399
Iteration: 1249; Percent complete: 31.2%; Average loss: 3.3637
Iteration: 1250; Percent complete: 31.2%; Average loss: 3.3343
Iteration: 1251; Percent complete: 31.3%; Average loss: 3.1144
Iteration: 1252; Percent complete: 31.3%; Average loss: 3.3578
Iteration: 1253; Percent complete: 31.3%; Average loss: 3.3937
Iteration: 1254; Percent complete: 31.4%; Average loss: 3.4390
Iteration: 1255; Percent complete: 31.4%; Average loss: 3.2881
Iteration: 1256; Percent complete: 31.4%; Average loss: 3.4897
Iteration: 1257; Percent complete: 31.4%; Average loss: 3.6698
Iteration: 1258; Percent complete: 31.4%; Average loss: 3.4732
Iteration: 1259; Percent complete: 31.5%; Average loss: 3.3307
Iteration: 1260; Percent complete: 31.5%; Average loss: 3.2120
Iteration: 1261; Percent complete: 31.5%; Average loss: 3.5006
Iteration: 1262; Percent complete: 31.6%; Average loss: 3.4898
Iteration: 1263; Percent complete: 31.6%; Average loss: 3.1377
Iteration: 1264; Percent complete: 31.6%; Average loss: 3.5161
Iteration: 1265; Percent complete: 31.6%; Average loss: 3.4000
Iteration: 1266; Percent complete: 31.6%; Average loss: 3.2787
Iteration: 1267; Percent complete: 31.7%; Average loss: 3.4382
Iteration: 1268; Percent complete: 31.7%; Average loss: 3.0839
Iteration: 1269; Percent complete: 31.7%; Average loss: 3.8098
Iteration: 1270; Percent complete: 31.8%; Average loss: 3.4022
Iteration: 1271; Percent complete: 31.8%; Average loss: 3.4767
Iteration: 1272; Percent complete: 31.8%; Average loss: 3.4857
Iteration: 1273; Percent complete: 31.8%; Average loss: 3.4329
Iteration: 1274; Percent complete: 31.9%; Average loss: 3.5497
Iteration: 1275; Percent complete: 31.9%; Average loss: 3.4729
Iteration: 1276; Percent complete: 31.9%; Average loss: 3.4102
Iteration: 1277; Percent complete: 31.9%; Average loss: 3.2139
Iteration: 1278; Percent complete: 31.9%; Average loss: 3.3807
Iteration: 1279; Percent complete: 32.0%; Average loss: 3.0803
Iteration: 1280; Percent complete: 32.0%; Average loss: 3.2499
Iteration: 1281; Percent complete: 32.0%; Average loss: 3.4713
Iteration: 1282; Percent complete: 32.0%; Average loss: 3.3111
Iteration: 1283; Percent complete: 32.1%; Average loss: 3.3637
Iteration: 1284; Percent complete: 32.1%; Average loss: 3.4564
```

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Iteration: 1285; Percent complete: 32.1%; Average loss: 3.2582
Iteration: 1286; Percent complete: 32.1%; Average loss: 3.3918
Iteration: 1287; Percent complete: 32.2%; Average loss: 3.3961
Iteration: 1288; Percent complete: 32.2%; Average loss: 3.2114
Iteration: 1289; Percent complete: 32.2%; Average loss: 3.3100
Iteration: 1290; Percent complete: 32.2%; Average loss: 3.2972
Iteration: 1291; Percent complete: 32.3%; Average loss: 3.2196
Iteration: 1292; Percent complete: 32.3%; Average loss: 3.4135
Iteration: 1293; Percent complete: 32.3%; Average loss: 3.5684
Iteration: 1294; Percent complete: 32.4%; Average loss: 3.3338
Iteration: 1295; Percent complete: 32.4%; Average loss: 3.4770
Iteration: 1296; Percent complete: 32.4%; Average loss: 3.2653
Iteration: 1297; Percent complete: 32.4%; Average loss: 3.4146
Iteration: 1298; Percent complete: 32.5%; Average loss: 3.2364
Iteration: 1299; Percent complete: 32.5%; Average loss: 3.6346
Iteration: 1300; Percent complete: 32.5%; Average loss: 3.4823
Iteration: 1301; Percent complete: 32.5%; Average loss: 3.5359
Iteration: 1302; Percent complete: 32.6%; Average loss: 3.4444
Iteration: 1303; Percent complete: 32.6%; Average loss: 3.2442
Iteration: 1304; Percent complete: 32.6%; Average loss: 3.4976
Iteration: 1305; Percent complete: 32.6%; Average loss: 3.3434
Iteration: 1306; Percent complete: 32.6%; Average loss: 3.2236
Iteration: 1307; Percent complete: 32.7%; Average loss: 3.4911
Iteration: 1308; Percent complete: 32.7%; Average loss: 3.3985
Iteration: 1309; Percent complete: 32.7%; Average loss: 3.3332
Iteration: 1310; Percent complete: 32.8%; Average loss: 3.5454
Iteration: 1311; Percent complete: 32.8%; Average loss: 2.9939
Iteration: 1312; Percent complete: 32.8%; Average loss: 3.6151
Iteration: 1313; Percent complete: 32.8%; Average loss: 3.5873
Iteration: 1314; Percent complete: 32.9%; Average loss: 3.2230
Iteration: 1315; Percent complete: 32.9%; Average loss: 3.3892
Iteration: 1316; Percent complete: 32.9%; Average loss: 3.3907
Iteration: 1317; Percent complete: 32.9%; Average loss: 3.4296
Iteration: 1318; Percent complete: 33.0%; Average loss: 3.3691
Iteration: 1319; Percent complete: 33.0%; Average loss: 3.4683
Iteration: 1320; Percent complete: 33.0%; Average loss: 3.6105
Iteration: 1321; Percent complete: 33.0%; Average loss: 3.2977
Iteration: 1322; Percent complete: 33.1%; Average loss: 3.3816
Iteration: 1323; Percent complete: 33.1%; Average loss: 3.3758
Iteration: 1324; Percent complete: 33.1%; Average loss: 3.5150
Iteration: 1325; Percent complete: 33.1%; Average loss: 3.3197
Iteration: 1326; Percent complete: 33.1%; Average loss: 3.3663
Iteration: 1327; Percent complete: 33.2%; Average loss: 3.3881
Iteration: 1328; Percent complete: 33.2%; Average loss: 3.6163
Iteration: 1329; Percent complete: 33.2%; Average loss: 3.4006
Iteration: 1330; Percent complete: 33.2%; Average loss: 3.4562
Iteration: 1331; Percent complete: 33.3%; Average loss: 3.2606
Iteration: 1332; Percent complete: 33.3%; Average loss: 3.1526
Iteration: 1333; Percent complete: 33.3%; Average loss: 3.2227
Iteration: 1334; Percent complete: 33.4%; Average loss: 3.4859
Iteration: 1335; Percent complete: 33.4%; Average loss: 3.3015
Iteration: 1336; Percent complete: 33.4%; Average loss: 3.4475
Iteration: 1337; Percent complete: 33.4%; Average loss: 3.2070
Iteration: 1338; Percent complete: 33.5%; Average loss: 3.1447
Iteration: 1339; Percent complete: 33.5%; Average loss: 3.1539
Iteration: 1340; Percent complete: 33.5%; Average loss: 3.3840
```

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Iteration: 1341; Percent complete: 33.5%; Average loss: 3.4412
Iteration: 1342; Percent complete: 33.6%; Average loss: 3.5309
Iteration: 1343; Percent complete: 33.6%; Average loss: 3.3857
Iteration: 1344; Percent complete: 33.6%; Average loss: 3.4406
Iteration: 1345; Percent complete: 33.6%; Average loss: 3.2950
Iteration: 1346; Percent complete: 33.7%; Average loss: 3.2904
Iteration: 1347; Percent complete: 33.7%; Average loss: 3.2941
Iteration: 1348; Percent complete: 33.7%; Average loss: 3.3003
Iteration: 1349; Percent complete: 33.7%; Average loss: 3.4761
Iteration: 1350; Percent complete: 33.8%; Average loss: 3.1910
Iteration: 1351; Percent complete: 33.8%; Average loss: 3.3896
Iteration: 1352; Percent complete: 33.8%; Average loss: 3.2626
Iteration: 1353; Percent complete: 33.8%; Average loss: 3.3865
Iteration: 1354; Percent complete: 33.9%; Average loss: 3.1229
Iteration: 1355; Percent complete: 33.9%; Average loss: 3.2426
Iteration: 1356; Percent complete: 33.9%; Average loss: 3.4575
Iteration: 1357; Percent complete: 33.9%; Average loss: 3.3523
Iteration: 1358; Percent complete: 34.0%; Average loss: 3.3682
Iteration: 1359; Percent complete: 34.0%; Average loss: 3.2949
Iteration: 1360; Percent complete: 34.0%; Average loss: 3.2003
Iteration: 1361; Percent complete: 34.0%; Average loss: 3.5545
Iteration: 1362; Percent complete: 34.1%; Average loss: 3.4105
Iteration: 1363; Percent complete: 34.1%; Average loss: 3.2263
Iteration: 1364; Percent complete: 34.1%; Average loss: 3.1137
Iteration: 1365; Percent complete: 34.1%; Average loss: 3.3123
Iteration: 1366; Percent complete: 34.2%; Average loss: 3.3284
Iteration: 1367; Percent complete: 34.2%; Average loss: 3.5023
Iteration: 1368; Percent complete: 34.2%; Average loss: 3.2304
Iteration: 1369; Percent complete: 34.2%; Average loss: 3.1704
Iteration: 1370; Percent complete: 34.2%; Average loss: 3.2635
Iteration: 1371; Percent complete: 34.3%; Average loss: 3.2666
Iteration: 1372; Percent complete: 34.3%; Average loss: 3.4679
Iteration: 1373; Percent complete: 34.3%; Average loss: 3.0134
Iteration: 1374; Percent complete: 34.4%; Average loss: 3.3622
Iteration: 1375; Percent complete: 34.4%; Average loss: 3.3565
Iteration: 1376; Percent complete: 34.4%; Average loss: 3.2386
Iteration: 1377; Percent complete: 34.4%; Average loss: 3.2895
Iteration: 1378; Percent complete: 34.4%; Average loss: 3.4687
Iteration: 1379; Percent complete: 34.5%; Average loss: 3.2960
Iteration: 1380; Percent complete: 34.5%; Average loss: 3.6121
Iteration: 1381; Percent complete: 34.5%; Average loss: 3.6104
Iteration: 1382; Percent complete: 34.5%; Average loss: 3.3425
Iteration: 1383; Percent complete: 34.6%; Average loss: 3.0251
Iteration: 1384; Percent complete: 34.6%; Average loss: 3.4344
Iteration: 1385; Percent complete: 34.6%; Average loss: 3.3926
Iteration: 1386; Percent complete: 34.6%; Average loss: 3.6331
Iteration: 1387; Percent complete: 34.7%; Average loss: 3.4228
Iteration: 1388; Percent complete: 34.7%; Average loss: 3.5032
Iteration: 1389; Percent complete: 34.7%; Average loss: 3.4246
Iteration: 1390; Percent complete: 34.8%; Average loss: 3.4856
Iteration: 1391; Percent complete: 34.8%; Average loss: 3.3551
Iteration: 1392; Percent complete: 34.8%; Average loss: 3.4283
Iteration: 1393; Percent complete: 34.8%; Average loss: 3.5626
Iteration: 1394; Percent complete: 34.8%; Average loss: 3.4940
Iteration: 1395; Percent complete: 34.9%; Average loss: 3.5539
Iteration: 1396; Percent complete: 34.9%; Average loss: 3.5291
```

```
Iteration: 1397; Percent complete: 34.9%; Average loss: 3.3656
Iteration: 1398; Percent complete: 34.9%; Average loss: 3.2280
Iteration: 1399; Percent complete: 35.0%; Average loss: 3.1792
Iteration: 1400; Percent complete: 35.0%; Average loss: 3.0775
Iteration: 1401; Percent complete: 35.0%; Average loss: 3.2775
Iteration: 1402; Percent complete: 35.0%; Average loss: 3.3990
Iteration: 1403; Percent complete: 35.1%; Average loss: 3.4478
Iteration: 1404; Percent complete: 35.1%; Average loss: 3.2552
Iteration: 1405; Percent complete: 35.1%; Average loss: 3.5985
Iteration: 1406; Percent complete: 35.1%; Average loss: 3.4225
Iteration: 1407; Percent complete: 35.2%; Average loss: 3.3374
Iteration: 1408; Percent complete: 35.2%; Average loss: 3.2145
Iteration: 1409; Percent complete: 35.2%; Average loss: 3.1374
Iteration: 1410; Percent complete: 35.2%; Average loss: 3.2676
Iteration: 1411; Percent complete: 35.3%; Average loss: 3.3902
Iteration: 1412; Percent complete: 35.3%; Average loss: 3.3124
Iteration: 1413; Percent complete: 35.3%; Average loss: 3.1644
Iteration: 1414; Percent complete: 35.4%; Average loss: 2.9724
Iteration: 1415; Percent complete: 35.4%; Average loss: 3.2248
Iteration: 1416; Percent complete: 35.4%; Average loss: 3.4986
Iteration: 1417; Percent complete: 35.4%; Average loss: 3.3580
Iteration: 1418; Percent complete: 35.4%; Average loss: 3.1548
Iteration: 1419; Percent complete: 35.5%; Average loss: 3.2570
Iteration: 1420; Percent complete: 35.5%; Average loss: 3.3282
Iteration: 1421; Percent complete: 35.5%; Average loss: 3.3089
Iteration: 1422; Percent complete: 35.5%; Average loss: 3.4616
Iteration: 1423; Percent complete: 35.6%; Average loss: 3.1474
Iteration: 1424; Percent complete: 35.6%; Average loss: 3.4212
Iteration: 1425; Percent complete: 35.6%; Average loss: 3.2979
Iteration: 1426; Percent complete: 35.6%; Average loss: 3.1327
Iteration: 1427; Percent complete: 35.7%; Average loss: 3.4350
Iteration: 1428; Percent complete: 35.7%; Average loss: 3.1835
Iteration: 1429; Percent complete: 35.7%; Average loss: 3.2010
Iteration: 1430; Percent complete: 35.8%; Average loss: 3.0938
Iteration: 1431; Percent complete: 35.8%; Average loss: 3.1711
Iteration: 1432; Percent complete: 35.8%; Average loss: 3.5390
Iteration: 1433; Percent complete: 35.8%; Average loss: 3.2232
Iteration: 1434; Percent complete: 35.9%; Average loss: 3.4046
Iteration: 1435; Percent complete: 35.9%; Average loss: 3.2993
Iteration: 1436; Percent complete: 35.9%; Average loss: 3.4652
Iteration: 1437; Percent complete: 35.9%; Average loss: 3.4274
Iteration: 1438; Percent complete: 35.9%; Average loss: 2.9939
Iteration: 1439; Percent complete: 36.0%; Average loss: 3.2314
Iteration: 1440; Percent complete: 36.0%; Average loss: 3.2023
Iteration: 1441; Percent complete: 36.0%; Average loss: 3.4226
Iteration: 1442; Percent complete: 36.0%; Average loss: 3.6476
Iteration: 1443; Percent complete: 36.1%; Average loss: 3.3521
Iteration: 1444; Percent complete: 36.1%; Average loss: 3.3212
Iteration: 1445; Percent complete: 36.1%; Average loss: 3.1420
Iteration: 1446; Percent complete: 36.1%; Average loss: 3.1056
Iteration: 1447; Percent complete: 36.2%; Average loss: 3.5822
Iteration: 1448; Percent complete: 36.2%; Average loss: 3.4234
Iteration: 1449; Percent complete: 36.2%; Average loss: 3.3691
Iteration: 1450; Percent complete: 36.2%; Average loss: 3.1978
Iteration: 1451; Percent complete: 36.3%; Average loss: 2.9960
Iteration: 1452; Percent complete: 36.3%; Average loss: 3.2890
```

```
Iteration: 1453; Percent complete: 36.3%; Average loss: 3.5983
Iteration: 1454; Percent complete: 36.4%; Average loss: 3.2769
Iteration: 1455; Percent complete: 36.4%; Average loss: 3.4699
Iteration: 1456; Percent complete: 36.4%; Average loss: 3.4099
Iteration: 1457; Percent complete: 36.4%; Average loss: 3.4292
Iteration: 1458; Percent complete: 36.4%; Average loss: 3.5740
Iteration: 1459; Percent complete: 36.5%; Average loss: 3.3277
Iteration: 1460; Percent complete: 36.5%; Average loss: 3.2208
Iteration: 1461; Percent complete: 36.5%; Average loss: 3.4236
Iteration: 1462; Percent complete: 36.5%; Average loss: 3.2038
Iteration: 1463; Percent complete: 36.6%; Average loss: 3.2085
Iteration: 1464; Percent complete: 36.6%; Average loss: 3.3217
Iteration: 1465; Percent complete: 36.6%; Average loss: 3.1829
Iteration: 1466; Percent complete: 36.6%; Average loss: 3.0557
Iteration: 1467; Percent complete: 36.7%; Average loss: 3.4846
Iteration: 1468; Percent complete: 36.7%; Average loss: 3.2977
Iteration: 1469; Percent complete: 36.7%; Average loss: 3.5959
Iteration: 1470; Percent complete: 36.8%; Average loss: 3.2050
Iteration: 1471; Percent complete: 36.8%; Average loss: 3.3681
Iteration: 1472; Percent complete: 36.8%; Average loss: 3.1494
Iteration: 1473; Percent complete: 36.8%; Average loss: 3.2591
Iteration: 1474; Percent complete: 36.9%; Average loss: 3.3779
Iteration: 1475; Percent complete: 36.9%; Average loss: 3.1885
Iteration: 1476; Percent complete: 36.9%; Average loss: 3.4409
Iteration: 1477; Percent complete: 36.9%; Average loss: 3.5166
Iteration: 1478; Percent complete: 37.0%; Average loss: 3.2253
Iteration: 1479; Percent complete: 37.0%; Average loss: 3.0754
Iteration: 1480; Percent complete: 37.0%; Average loss: 3.4000
Iteration: 1481; Percent complete: 37.0%; Average loss: 3.5344
Iteration: 1482; Percent complete: 37.0%; Average loss: 3.0422
Iteration: 1483; Percent complete: 37.1%; Average loss: 3.3937
Iteration: 1484; Percent complete: 37.1%; Average loss: 3.1950
Iteration: 1485; Percent complete: 37.1%; Average loss: 3.3916
Iteration: 1486; Percent complete: 37.1%; Average loss: 3.4871
Iteration: 1487; Percent complete: 37.2%; Average loss: 3.4602
Iteration: 1488; Percent complete: 37.2%; Average loss: 3.6239
Iteration: 1489; Percent complete: 37.2%; Average loss: 3.2255
Iteration: 1490; Percent complete: 37.2%; Average loss: 3.2593
Iteration: 1491; Percent complete: 37.3%; Average loss: 3.2139
Iteration: 1492; Percent complete: 37.3%; Average loss: 3.5581
Iteration: 1493; Percent complete: 37.3%; Average loss: 3.0945
Iteration: 1494; Percent complete: 37.4%; Average loss: 3.4439
Iteration: 1495; Percent complete: 37.4%; Average loss: 3.1434
Iteration: 1496; Percent complete: 37.4%; Average loss: 3.5438
Iteration: 1497; Percent complete: 37.4%; Average loss: 3.4720
Iteration: 1498; Percent complete: 37.5%; Average loss: 3.2671
Iteration: 1499; Percent complete: 37.5%; Average loss: 3.1897
Iteration: 1500; Percent complete: 37.5%; Average loss: 3.4761
Iteration: 1501; Percent complete: 37.5%; Average loss: 3.5154
Iteration: 1502; Percent complete: 37.5%; Average loss: 3.1864
Iteration: 1503; Percent complete: 37.6%; Average loss: 3.3760
Iteration: 1504; Percent complete: 37.6%; Average loss: 3.4569
Iteration: 1505; Percent complete: 37.6%; Average loss: 3.1082
Iteration: 1506; Percent complete: 37.6%; Average loss: 3.1102
Iteration: 1507; Percent complete: 37.7%; Average loss: 2.9098
Iteration: 1508; Percent complete: 37.7%; Average loss: 3.1967
```

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Iteration: 1509; Percent complete: 37.7%; Average loss: 3.1103
Iteration: 1510; Percent complete: 37.8%; Average loss: 3.1179
Iteration: 1511; Percent complete: 37.8%; Average loss: 3.2584
Iteration: 1512; Percent complete: 37.8%; Average loss: 3.3195
Iteration: 1513; Percent complete: 37.8%; Average loss: 3.5257
Iteration: 1514; Percent complete: 37.9%; Average loss: 3.3137
Iteration: 1515; Percent complete: 37.9%; Average loss: 3.4533
Iteration: 1516; Percent complete: 37.9%; Average loss: 3.5049
Iteration: 1517; Percent complete: 37.9%; Average loss: 3.4367
Iteration: 1518; Percent complete: 38.0%; Average loss: 3.1094
Iteration: 1519; Percent complete: 38.0%; Average loss: 3.3259
Iteration: 1520; Percent complete: 38.0%; Average loss: 3.4440
Iteration: 1521; Percent complete: 38.0%; Average loss: 3.1792
Iteration: 1522; Percent complete: 38.0%; Average loss: 3.1322
Iteration: 1523; Percent complete: 38.1%; Average loss: 3.2925
Iteration: 1524; Percent complete: 38.1%; Average loss: 3.4321
Iteration: 1525; Percent complete: 38.1%; Average loss: 3.0627
Iteration: 1526; Percent complete: 38.1%; Average loss: 3.2618
Iteration: 1527; Percent complete: 38.2%; Average loss: 3.2472
Iteration: 1528; Percent complete: 38.2%; Average loss: 2.9387
Iteration: 1529; Percent complete: 38.2%; Average loss: 3.2741
Iteration: 1530; Percent complete: 38.2%; Average loss: 3.2351
Iteration: 1531; Percent complete: 38.3%; Average loss: 3.5500
Iteration: 1532; Percent complete: 38.3%; Average loss: 3.2735
Iteration: 1533; Percent complete: 38.3%; Average loss: 3.3705
Iteration: 1534; Percent complete: 38.4%; Average loss: 3.3376
Iteration: 1535; Percent complete: 38.4%; Average loss: 3.3067
Iteration: 1536; Percent complete: 38.4%; Average loss: 3.2410
Iteration: 1537; Percent complete: 38.4%; Average loss: 3.4502
Iteration: 1538; Percent complete: 38.5%; Average loss: 3.2866
Iteration: 1539; Percent complete: 38.5%; Average loss: 3.4812
Iteration: 1540; Percent complete: 38.5%; Average loss: 3.4427
Iteration: 1541; Percent complete: 38.5%; Average loss: 3.6912
Iteration: 1542; Percent complete: 38.6%; Average loss: 3.3273
Iteration: 1543; Percent complete: 38.6%; Average loss: 3.2919
Iteration: 1544; Percent complete: 38.6%; Average loss: 3.1875
Iteration: 1545; Percent complete: 38.6%; Average loss: 3.3934
Iteration: 1546; Percent complete: 38.6%; Average loss: 3.6321
Iteration: 1547; Percent complete: 38.7%; Average loss: 3.6723
Iteration: 1548; Percent complete: 38.7%; Average loss: 3.5841
Iteration: 1549; Percent complete: 38.7%; Average loss: 3.3746
Iteration: 1550; Percent complete: 38.8%; Average loss: 3.2729
Iteration: 1551; Percent complete: 38.8%; Average loss: 3.6355
Iteration: 1552; Percent complete: 38.8%; Average loss: 3.5245
Iteration: 1553; Percent complete: 38.8%; Average loss: 3.2546
Iteration: 1554; Percent complete: 38.9%; Average loss: 3.3100
Iteration: 1555; Percent complete: 38.9%; Average loss: 3.6202
Iteration: 1556; Percent complete: 38.9%; Average loss: 3.0257
Iteration: 1557; Percent complete: 38.9%; Average loss: 3.3100
Iteration: 1558; Percent complete: 39.0%; Average loss: 3.5182
Iteration: 1559; Percent complete: 39.0%; Average loss: 3.4446
Iteration: 1560; Percent complete: 39.0%; Average loss: 3.3438
Iteration: 1561; Percent complete: 39.0%; Average loss: 3.2623
Iteration: 1562; Percent complete: 39.1%; Average loss: 3.2909
Iteration: 1563; Percent complete: 39.1%; Average loss: 3.2246
Iteration: 1564; Percent complete: 39.1%; Average loss: 3.2308
```

```
Iteration: 1565; Percent complete: 39.1%; Average loss: 3.2078
Iteration: 1566; Percent complete: 39.1%; Average loss: 3.3311
Iteration: 1567; Percent complete: 39.2%; Average loss: 3.1948
Iteration: 1568; Percent complete: 39.2%; Average loss: 3.4080
Iteration: 1569; Percent complete: 39.2%; Average loss: 3.2324
Iteration: 1570; Percent complete: 39.2%; Average loss: 3.2877
Iteration: 1571; Percent complete: 39.3%; Average loss: 3.1579
Iteration: 1572; Percent complete: 39.3%; Average loss: 3.1701
Iteration: 1573; Percent complete: 39.3%; Average loss: 3.3607
Iteration: 1574; Percent complete: 39.4%; Average loss: 3.1444
Iteration: 1575; Percent complete: 39.4%; Average loss: 3.3668
Iteration: 1576; Percent complete: 39.4%; Average loss: 3.0277
Iteration: 1577; Percent complete: 39.4%; Average loss: 3.5271
Iteration: 1578; Percent complete: 39.5%; Average loss: 3.4620
Iteration: 1579; Percent complete: 39.5%; Average loss: 3.1748
Iteration: 1580; Percent complete: 39.5%; Average loss: 3.2631
Iteration: 1581; Percent complete: 39.5%; Average loss: 3.1603
Iteration: 1582; Percent complete: 39.6%; Average loss: 3.4038
Iteration: 1583; Percent complete: 39.6%; Average loss: 3.1024
Iteration: 1584; Percent complete: 39.6%; Average loss: 3.3058
Iteration: 1585; Percent complete: 39.6%; Average loss: 3.2623
Iteration: 1586; Percent complete: 39.6%; Average loss: 3.4928
Iteration: 1587; Percent complete: 39.7%; Average loss: 3.2983
Iteration: 1588; Percent complete: 39.7%; Average loss: 3.2018
Iteration: 1589; Percent complete: 39.7%; Average loss: 3.3355
Iteration: 1590; Percent complete: 39.8%; Average loss: 3.1950
Iteration: 1591; Percent complete: 39.8%; Average loss: 3.3958
Iteration: 1592; Percent complete: 39.8%; Average loss: 2.9734
Iteration: 1593; Percent complete: 39.8%; Average loss: 3.3161
Iteration: 1594; Percent complete: 39.9%; Average loss: 3.2887
Iteration: 1595; Percent complete: 39.9%; Average loss: 3.4492
Iteration: 1596; Percent complete: 39.9%; Average loss: 3.2180
Iteration: 1597; Percent complete: 39.9%; Average loss: 2.8932
Iteration: 1598; Percent complete: 40.0%; Average loss: 3.3586
Iteration: 1599; Percent complete: 40.0%; Average loss: 3.2070
Iteration: 1600; Percent complete: 40.0%; Average loss: 3.3896
Iteration: 1601; Percent complete: 40.0%; Average loss: 3.0474
Iteration: 1602; Percent complete: 40.1%; Average loss: 3.2393
Iteration: 1603; Percent complete: 40.1%; Average loss: 3.2519
Iteration: 1604; Percent complete: 40.1%; Average loss: 3.2928
Iteration: 1605; Percent complete: 40.1%; Average loss: 3.3535
Iteration: 1606; Percent complete: 40.2%; Average loss: 3.2517
Iteration: 1607; Percent complete: 40.2%; Average loss: 3.3483
Iteration: 1608; Percent complete: 40.2%; Average loss: 3.0854
Iteration: 1609; Percent complete: 40.2%; Average loss: 3.1812
Iteration: 1610; Percent complete: 40.2%; Average loss: 3.2077
Iteration: 1611; Percent complete: 40.3%; Average loss: 3.2856
Iteration: 1612; Percent complete: 40.3%; Average loss: 3.0975
Iteration: 1613; Percent complete: 40.3%; Average loss: 3.5109
Iteration: 1614; Percent complete: 40.4%; Average loss: 3.2503
Iteration: 1615; Percent complete: 40.4%; Average loss: 3.1612
Iteration: 1616; Percent complete: 40.4%; Average loss: 3.4900
Iteration: 1617; Percent complete: 40.4%; Average loss: 3.1644
Iteration: 1618; Percent complete: 40.5%; Average loss: 3.2512
Iteration: 1619; Percent complete: 40.5%; Average loss: 3.1994
Iteration: 1620; Percent complete: 40.5%; Average loss: 3.3450
```

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Iteration: 1621; Percent complete: 40.5%; Average loss: 3.1016
Iteration: 1622; Percent complete: 40.6%; Average loss: 3.0559
Iteration: 1623; Percent complete: 40.6%; Average loss: 3.2106
Iteration: 1624; Percent complete: 40.6%; Average loss: 3.4770
Iteration: 1625; Percent complete: 40.6%; Average loss: 3.1725
Iteration: 1626; Percent complete: 40.6%; Average loss: 3.2650
Iteration: 1627; Percent complete: 40.7%; Average loss: 3.2689
Iteration: 1628; Percent complete: 40.7%; Average loss: 3.3818
Iteration: 1629; Percent complete: 40.7%; Average loss: 3.1541
Iteration: 1630; Percent complete: 40.8%; Average loss: 3.2263
Iteration: 1631; Percent complete: 40.8%; Average loss: 3.1852
Iteration: 1632; Percent complete: 40.8%; Average loss: 3.5428
Iteration: 1633; Percent complete: 40.8%; Average loss: 3.1052
Iteration: 1634; Percent complete: 40.8%; Average loss: 3.0709
Iteration: 1635; Percent complete: 40.9%; Average loss: 3.0285
Iteration: 1636; Percent complete: 40.9%; Average loss: 3.1473
Iteration: 1637; Percent complete: 40.9%; Average loss: 3.5164
Iteration: 1638; Percent complete: 40.9%; Average loss: 3.2278
Iteration: 1639; Percent complete: 41.0%; Average loss: 3.2564
Iteration: 1640; Percent complete: 41.0%; Average loss: 3.4647
Iteration: 1641; Percent complete: 41.0%; Average loss: 3.3198
Iteration: 1642; Percent complete: 41.0%; Average loss: 3.3623
Iteration: 1643; Percent complete: 41.1%; Average loss: 3.3053
Iteration: 1644; Percent complete: 41.1%; Average loss: 3.3293
Iteration: 1645; Percent complete: 41.1%; Average loss: 3.3400
Iteration: 1646; Percent complete: 41.1%; Average loss: 3.2354
Iteration: 1647; Percent complete: 41.2%; Average loss: 3.4395
Iteration: 1648; Percent complete: 41.2%; Average loss: 3.3033
Iteration: 1649; Percent complete: 41.2%; Average loss: 3.1899
Iteration: 1650; Percent complete: 41.2%; Average loss: 3.3243
Iteration: 1651; Percent complete: 41.3%; Average loss: 3.3201
Iteration: 1652; Percent complete: 41.3%; Average loss: 3.2213
Iteration: 1653; Percent complete: 41.3%; Average loss: 3.3605
Iteration: 1654; Percent complete: 41.3%; Average loss: 3.2816
Iteration: 1655; Percent complete: 41.4%; Average loss: 3.5178
Iteration: 1656; Percent complete: 41.4%; Average loss: 3.2482
Iteration: 1657; Percent complete: 41.4%; Average loss: 3.4305
Iteration: 1658; Percent complete: 41.4%; Average loss: 3.7059
Iteration: 1659; Percent complete: 41.5%; Average loss: 2.9294
Iteration: 1660; Percent complete: 41.5%; Average loss: 3.2215
Iteration: 1661; Percent complete: 41.5%; Average loss: 3.2473
Iteration: 1662; Percent complete: 41.5%; Average loss: 3.2099
Iteration: 1663; Percent complete: 41.6%; Average loss: 3.0479
Iteration: 1664; Percent complete: 41.6%; Average loss: 3.5398
Iteration: 1665; Percent complete: 41.6%; Average loss: 3.2585
Iteration: 1666; Percent complete: 41.6%; Average loss: 3.2520
Iteration: 1667; Percent complete: 41.7%; Average loss: 3.0611
Iteration: 1668; Percent complete: 41.7%; Average loss: 3.5506
Iteration: 1669; Percent complete: 41.7%; Average loss: 3.1001
Iteration: 1670; Percent complete: 41.8%; Average loss: 3.1345
Iteration: 1671; Percent complete: 41.8%; Average loss: 3.3300
Iteration: 1672; Percent complete: 41.8%; Average loss: 3.4504
Iteration: 1673; Percent complete: 41.8%; Average loss: 3.5002
Iteration: 1674; Percent complete: 41.9%; Average loss: 3.4138
Iteration: 1675; Percent complete: 41.9%; Average loss: 3.1809
Iteration: 1676; Percent complete: 41.9%; Average loss: 3.2075
```

```
Iteration: 1677; Percent complete: 41.9%; Average loss: 3.1268
Iteration: 1678; Percent complete: 41.9%; Average loss: 3.1800
Iteration: 1679; Percent complete: 42.0%; Average loss: 3.0558
Iteration: 1680; Percent complete: 42.0%; Average loss: 3.1592
Iteration: 1681; Percent complete: 42.0%; Average loss: 3.1497
Iteration: 1682; Percent complete: 42.0%; Average loss: 2.9193
Iteration: 1683; Percent complete: 42.1%; Average loss: 3.2623
Iteration: 1684; Percent complete: 42.1%; Average loss: 3.3033
Iteration: 1685; Percent complete: 42.1%; Average loss: 3.4513
Iteration: 1686; Percent complete: 42.1%; Average loss: 3.2859
Iteration: 1687; Percent complete: 42.2%; Average loss: 3.1531
Iteration: 1688; Percent complete: 42.2%; Average loss: 3.4183
Iteration: 1689; Percent complete: 42.2%; Average loss: 3.3002
Iteration: 1690; Percent complete: 42.2%; Average loss: 3.4419
Iteration: 1691; Percent complete: 42.3%; Average loss: 3.3596
Iteration: 1692; Percent complete: 42.3%; Average loss: 3.2421
Iteration: 1693; Percent complete: 42.3%; Average loss: 3.2780
Iteration: 1694; Percent complete: 42.4%; Average loss: 3.2421
Iteration: 1695; Percent complete: 42.4%; Average loss: 3.1677
Iteration: 1696; Percent complete: 42.4%; Average loss: 3.1585
Iteration: 1697; Percent complete: 42.4%; Average loss: 3.1828
Iteration: 1698; Percent complete: 42.4%; Average loss: 3.1598
Iteration: 1699; Percent complete: 42.5%; Average loss: 3.2338
Iteration: 1700; Percent complete: 42.5%; Average loss: 3.3399
Iteration: 1701; Percent complete: 42.5%; Average loss: 3.5496
Iteration: 1702; Percent complete: 42.5%; Average loss: 3.2997
Iteration: 1703; Percent complete: 42.6%; Average loss: 3.0838
Iteration: 1704; Percent complete: 42.6%; Average loss: 3.1131
Iteration: 1705; Percent complete: 42.6%; Average loss: 3.1982
Iteration: 1706; Percent complete: 42.6%; Average loss: 3.2474
Iteration: 1707; Percent complete: 42.7%; Average loss: 3.4818
Iteration: 1708; Percent complete: 42.7%; Average loss: 3.3709
Iteration: 1709; Percent complete: 42.7%; Average loss: 3.0715
Iteration: 1710; Percent complete: 42.8%; Average loss: 3.3971
Iteration: 1711; Percent complete: 42.8%; Average loss: 3.2613
Iteration: 1712; Percent complete: 42.8%; Average loss: 3.1716
Iteration: 1713; Percent complete: 42.8%; Average loss: 3.5308
Iteration: 1714; Percent complete: 42.9%; Average loss: 2.9688
Iteration: 1715; Percent complete: 42.9%; Average loss: 3.2339
Iteration: 1716; Percent complete: 42.9%; Average loss: 3.2019
Iteration: 1717; Percent complete: 42.9%; Average loss: 2.9860
Iteration: 1718; Percent complete: 43.0%; Average loss: 2.9817
Iteration: 1719; Percent complete: 43.0%; Average loss: 3.1548
Iteration: 1720; Percent complete: 43.0%; Average loss: 3.0085
Iteration: 1721; Percent complete: 43.0%; Average loss: 3.2137
Iteration: 1722; Percent complete: 43.0%; Average loss: 3.2823
Iteration: 1723; Percent complete: 43.1%; Average loss: 3.2305
Iteration: 1724; Percent complete: 43.1%; Average loss: 3.3210
Iteration: 1725; Percent complete: 43.1%; Average loss: 3.2998
Iteration: 1726; Percent complete: 43.1%; Average loss: 3.0721
Iteration: 1727; Percent complete: 43.2%; Average loss: 3.0678
Iteration: 1728; Percent complete: 43.2%; Average loss: 3.0116
Iteration: 1729; Percent complete: 43.2%; Average loss: 3.1890
Iteration: 1730; Percent complete: 43.2%; Average loss: 3.0422
Iteration: 1731; Percent complete: 43.3%; Average loss: 3.3120
Iteration: 1732; Percent complete: 43.3%; Average loss: 3.6081
```

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Iteration: 1733; Percent complete: 43.3%; Average loss: 3.4934
Iteration: 1734; Percent complete: 43.4%; Average loss: 3.2075
Iteration: 1735; Percent complete: 43.4%; Average loss: 3.4453
Iteration: 1736; Percent complete: 43.4%; Average loss: 3.1731
Iteration: 1737; Percent complete: 43.4%; Average loss: 3.2674
Iteration: 1738; Percent complete: 43.5%; Average loss: 3.1534
Iteration: 1739; Percent complete: 43.5%; Average loss: 3.3609
Iteration: 1740; Percent complete: 43.5%; Average loss: 3.2924
Iteration: 1741; Percent complete: 43.5%; Average loss: 3.3202
Iteration: 1742; Percent complete: 43.5%; Average loss: 3.0706
Iteration: 1743; Percent complete: 43.6%; Average loss: 3.1597
Iteration: 1744; Percent complete: 43.6%; Average loss: 3.0236
Iteration: 1745; Percent complete: 43.6%; Average loss: 3.2446
Iteration: 1746; Percent complete: 43.6%; Average loss: 3.3654
Iteration: 1747; Percent complete: 43.7%; Average loss: 3.2746
Iteration: 1748; Percent complete: 43.7%; Average loss: 2.9665
Iteration: 1749; Percent complete: 43.7%; Average loss: 3.1993
Iteration: 1750; Percent complete: 43.8%; Average loss: 3.3040
Iteration: 1751; Percent complete: 43.8%; Average loss: 3.1099
Iteration: 1752; Percent complete: 43.8%; Average loss: 3.0964
Iteration: 1753; Percent complete: 43.8%; Average loss: 3.0586
Iteration: 1754; Percent complete: 43.9%; Average loss: 3.1832
Iteration: 1755; Percent complete: 43.9%; Average loss: 3.1624
Iteration: 1756; Percent complete: 43.9%; Average loss: 3.1652
Iteration: 1757; Percent complete: 43.9%; Average loss: 3.4987
Iteration: 1758; Percent complete: 44.0%; Average loss: 3.6457
Iteration: 1759; Percent complete: 44.0%; Average loss: 3.2584
Iteration: 1760; Percent complete: 44.0%; Average loss: 3.0306
Iteration: 1761; Percent complete: 44.0%; Average loss: 3.0290
Iteration: 1762; Percent complete: 44.0%; Average loss: 3.1865
Iteration: 1763; Percent complete: 44.1%; Average loss: 3.2936
Iteration: 1764; Percent complete: 44.1%; Average loss: 3.0170
Iteration: 1765; Percent complete: 44.1%; Average loss: 3.3230
Iteration: 1766; Percent complete: 44.1%; Average loss: 3.2290
Iteration: 1767; Percent complete: 44.2%; Average loss: 3.0536
Iteration: 1768; Percent complete: 44.2%; Average loss: 3.0542
Iteration: 1769; Percent complete: 44.2%; Average loss: 3.1883
Iteration: 1770; Percent complete: 44.2%; Average loss: 3.1863
Iteration: 1771; Percent complete: 44.3%; Average loss: 3.2287
Iteration: 1772; Percent complete: 44.3%; Average loss: 3.0394
Iteration: 1773; Percent complete: 44.3%; Average loss: 2.9993
Iteration: 1774; Percent complete: 44.4%; Average loss: 3.4893
Iteration: 1775; Percent complete: 44.4%; Average loss: 3.5028
Iteration: 1776; Percent complete: 44.4%; Average loss: 3.1699
Iteration: 1777; Percent complete: 44.4%; Average loss: 3.6046
Iteration: 1778; Percent complete: 44.5%; Average loss: 3.4310
Iteration: 1779; Percent complete: 44.5%; Average loss: 3.2418
Iteration: 1780; Percent complete: 44.5%; Average loss: 3.2133
Iteration: 1781; Percent complete: 44.5%; Average loss: 3.3498
Iteration: 1782; Percent complete: 44.5%; Average loss: 3.1514
Iteration: 1783; Percent complete: 44.6%; Average loss: 3.0641
Iteration: 1784; Percent complete: 44.6%; Average loss: 3.2732
Iteration: 1785; Percent complete: 44.6%; Average loss: 3.1859
Iteration: 1786; Percent complete: 44.6%; Average loss: 3.3874
Iteration: 1787; Percent complete: 44.7%; Average loss: 3.1244
Iteration: 1788; Percent complete: 44.7%; Average loss: 3.3203
```

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Iteration: 1789; Percent complete: 44.7%; Average loss: 3.4753
Iteration: 1790; Percent complete: 44.8%; Average loss: 3.3914
Iteration: 1791; Percent complete: 44.8%; Average loss: 3.2768
Iteration: 1792; Percent complete: 44.8%; Average loss: 3.0753
Iteration: 1793; Percent complete: 44.8%; Average loss: 3.1700
Iteration: 1794; Percent complete: 44.9%; Average loss: 3.3108
Iteration: 1795; Percent complete: 44.9%; Average loss: 3.2732
Iteration: 1796; Percent complete: 44.9%; Average loss: 2.9351
Iteration: 1797; Percent complete: 44.9%; Average loss: 3.1263
Iteration: 1798; Percent complete: 45.0%; Average loss: 3.0773
Iteration: 1799; Percent complete: 45.0%; Average loss: 3.2822
Iteration: 1800; Percent complete: 45.0%; Average loss: 3.1756
Iteration: 1801; Percent complete: 45.0%; Average loss: 3.2820
Iteration: 1802; Percent complete: 45.1%; Average loss: 2.9153
Iteration: 1803; Percent complete: 45.1%; Average loss: 3.3594
Iteration: 1804; Percent complete: 45.1%; Average loss: 3.1207
Iteration: 1805; Percent complete: 45.1%; Average loss: 3.5491
Iteration: 1806; Percent complete: 45.1%; Average loss: 3.2833
Iteration: 1807; Percent complete: 45.2%; Average loss: 3.1968
Iteration: 1808; Percent complete: 45.2%; Average loss: 3.1902
Iteration: 1809; Percent complete: 45.2%; Average loss: 3.1041
Iteration: 1810; Percent complete: 45.2%; Average loss: 3.4601
Iteration: 1811; Percent complete: 45.3%; Average loss: 3.4151
Iteration: 1812; Percent complete: 45.3%; Average loss: 3.2860
Iteration: 1813; Percent complete: 45.3%; Average loss: 3.3795
Iteration: 1814; Percent complete: 45.4%; Average loss: 3.2010
Iteration: 1815; Percent complete: 45.4%; Average loss: 3.1811
Iteration: 1816; Percent complete: 45.4%; Average loss: 3.4682
Iteration: 1817; Percent complete: 45.4%; Average loss: 3.2231
Iteration: 1818; Percent complete: 45.5%; Average loss: 3.4323
Iteration: 1819; Percent complete: 45.5%; Average loss: 3.3805
Iteration: 1820; Percent complete: 45.5%; Average loss: 3.3547
Iteration: 1821; Percent complete: 45.5%; Average loss: 3.2003
Iteration: 1822; Percent complete: 45.6%; Average loss: 3.3470
Iteration: 1823; Percent complete: 45.6%; Average loss: 3.1342
Iteration: 1824; Percent complete: 45.6%; Average loss: 3.0914
Iteration: 1825; Percent complete: 45.6%; Average loss: 3.2359
Iteration: 1826; Percent complete: 45.6%; Average loss: 3.0775
Iteration: 1827; Percent complete: 45.7%; Average loss: 3.5943
Iteration: 1828; Percent complete: 45.7%; Average loss: 3.0139
Iteration: 1829; Percent complete: 45.7%; Average loss: 3.0483
Iteration: 1830; Percent complete: 45.8%; Average loss: 2.9656
Iteration: 1831; Percent complete: 45.8%; Average loss: 3.1486
Iteration: 1832; Percent complete: 45.8%; Average loss: 3.0716
Iteration: 1833; Percent complete: 45.8%; Average loss: 3.1609
Iteration: 1834; Percent complete: 45.9%; Average loss: 3.2896
Iteration: 1835; Percent complete: 45.9%; Average loss: 3.2839
Iteration: 1836; Percent complete: 45.9%; Average loss: 3.4129
Iteration: 1837; Percent complete: 45.9%; Average loss: 3.3219
Iteration: 1838; Percent complete: 46.0%; Average loss: 2.9581
Iteration: 1839; Percent complete: 46.0%; Average loss: 3.4017
Iteration: 1840; Percent complete: 46.0%; Average loss: 3.1996
Iteration: 1841; Percent complete: 46.0%; Average loss: 3.0314
Iteration: 1842; Percent complete: 46.1%; Average loss: 2.9038
Iteration: 1843; Percent complete: 46.1%; Average loss: 3.0522
Iteration: 1844; Percent complete: 46.1%; Average loss: 3.1908
```

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Iteration: 1845; Percent complete: 46.1%; Average loss: 3.1243
Iteration: 1846; Percent complete: 46.2%; Average loss: 3.1004
Iteration: 1847; Percent complete: 46.2%; Average loss: 3.3240
Iteration: 1848; Percent complete: 46.2%; Average loss: 2.9479
Iteration: 1849; Percent complete: 46.2%; Average loss: 3.1287
Iteration: 1850; Percent complete: 46.2%; Average loss: 3.3881
Iteration: 1851; Percent complete: 46.3%; Average loss: 3.0294
Iteration: 1852; Percent complete: 46.3%; Average loss: 3.4111
Iteration: 1853; Percent complete: 46.3%; Average loss: 3.1600
Iteration: 1854; Percent complete: 46.4%; Average loss: 3.2866
Iteration: 1855; Percent complete: 46.4%; Average loss: 3.1521
Iteration: 1856; Percent complete: 46.4%; Average loss: 3.1345
Iteration: 1857; Percent complete: 46.4%; Average loss: 3.2279
Iteration: 1858; Percent complete: 46.5%; Average loss: 3.3018
Iteration: 1859; Percent complete: 46.5%; Average loss: 3.3068
Iteration: 1860; Percent complete: 46.5%; Average loss: 3.0187
Iteration: 1861; Percent complete: 46.5%; Average loss: 3.3485
Iteration: 1862; Percent complete: 46.6%; Average loss: 3.3198
Iteration: 1863; Percent complete: 46.6%; Average loss: 3.2996
Iteration: 1864; Percent complete: 46.6%; Average loss: 3.4113
Iteration: 1865; Percent complete: 46.6%; Average loss: 3.0663
Iteration: 1866; Percent complete: 46.7%; Average loss: 3.2381
Iteration: 1867; Percent complete: 46.7%; Average loss: 3.1556
Iteration: 1868; Percent complete: 46.7%; Average loss: 3.1820
Iteration: 1869; Percent complete: 46.7%; Average loss: 3.1322
Iteration: 1870; Percent complete: 46.8%; Average loss: 3.0288
Iteration: 1871; Percent complete: 46.8%; Average loss: 3.3895
Iteration: 1872; Percent complete: 46.8%; Average loss: 2.9273
Iteration: 1873; Percent complete: 46.8%; Average loss: 3.0979
Iteration: 1874; Percent complete: 46.9%; Average loss: 3.1239
Iteration: 1875; Percent complete: 46.9%; Average loss: 3.0614
Iteration: 1876; Percent complete: 46.9%; Average loss: 3.1401
Iteration: 1877; Percent complete: 46.9%; Average loss: 3.2059
Iteration: 1878; Percent complete: 46.9%; Average loss: 3.0202
Iteration: 1879; Percent complete: 47.0%; Average loss: 3.1624
Iteration: 1880; Percent complete: 47.0%; Average loss: 3.3612
Iteration: 1881; Percent complete: 47.0%; Average loss: 3.3595
Iteration: 1882; Percent complete: 47.0%; Average loss: 3.3179
Iteration: 1883; Percent complete: 47.1%; Average loss: 3.1688
Iteration: 1884; Percent complete: 47.1%; Average loss: 3.0277
Iteration: 1885; Percent complete: 47.1%; Average loss: 3.0409
Iteration: 1886; Percent complete: 47.1%; Average loss: 3.1945
Iteration: 1887; Percent complete: 47.2%; Average loss: 3.2524
Iteration: 1888; Percent complete: 47.2%; Average loss: 3.2354
Iteration: 1889; Percent complete: 47.2%; Average loss: 3.2638
Iteration: 1890; Percent complete: 47.2%; Average loss: 3.1212
Iteration: 1891; Percent complete: 47.3%; Average loss: 3.5129
Iteration: 1892; Percent complete: 47.3%; Average loss: 3.1713
Iteration: 1893; Percent complete: 47.3%; Average loss: 3.2949
Iteration: 1894; Percent complete: 47.3%; Average loss: 3.3821
Iteration: 1895; Percent complete: 47.4%; Average loss: 3.3958
Iteration: 1896; Percent complete: 47.4%; Average loss: 3.2452
Iteration: 1897; Percent complete: 47.4%; Average loss: 3.1730
Iteration: 1898; Percent complete: 47.4%; Average loss: 3.1954
Iteration: 1899; Percent complete: 47.5%; Average loss: 3.1436
Iteration: 1900; Percent complete: 47.5%; Average loss: 3.4660
```

```
Iteration: 1901; Percent complete: 47.5%; Average loss: 3.2931
Iteration: 1902; Percent complete: 47.5%; Average loss: 3.2623
Iteration: 1903; Percent complete: 47.6%; Average loss: 3.0093
Iteration: 1904; Percent complete: 47.6%; Average loss: 3.4757
Iteration: 1905; Percent complete: 47.6%; Average loss: 3.3517
Iteration: 1906; Percent complete: 47.6%; Average loss: 3.2630
Iteration: 1907; Percent complete: 47.7%; Average loss: 3.3523
Iteration: 1908; Percent complete: 47.7%; Average loss: 2.9952
Iteration: 1909; Percent complete: 47.7%; Average loss: 3.5637
Iteration: 1910; Percent complete: 47.8%; Average loss: 3.2890
Iteration: 1911; Percent complete: 47.8%; Average loss: 3.0072
Iteration: 1912; Percent complete: 47.8%; Average loss: 3.1599
Iteration: 1913; Percent complete: 47.8%; Average loss: 3.2275
Iteration: 1914; Percent complete: 47.9%; Average loss: 3.2548
Iteration: 1915; Percent complete: 47.9%; Average loss: 3.0475
Iteration: 1916; Percent complete: 47.9%; Average loss: 3.1406
Iteration: 1917; Percent complete: 47.9%; Average loss: 3.3559
Iteration: 1918; Percent complete: 47.9%; Average loss: 3.3625
Iteration: 1919; Percent complete: 48.0%; Average loss: 3.3584
Iteration: 1920; Percent complete: 48.0%; Average loss: 3.0614
Iteration: 1921; Percent complete: 48.0%; Average loss: 3.1957
Iteration: 1922; Percent complete: 48.0%; Average loss: 3.2516
Iteration: 1923; Percent complete: 48.1%; Average loss: 3.2674
Iteration: 1924; Percent complete: 48.1%; Average loss: 3.1682
Iteration: 1925; Percent complete: 48.1%; Average loss: 3.3081
Iteration: 1926; Percent complete: 48.1%; Average loss: 3.1780
Iteration: 1927; Percent complete: 48.2%; Average loss: 3.0990
Iteration: 1928; Percent complete: 48.2%; Average loss: 3.3487
Iteration: 1929; Percent complete: 48.2%; Average loss: 3.0166
Iteration: 1930; Percent complete: 48.2%; Average loss: 3.2721
Iteration: 1931; Percent complete: 48.3%; Average loss: 3.0310
Iteration: 1932; Percent complete: 48.3%; Average loss: 3.1548
Iteration: 1933; Percent complete: 48.3%; Average loss: 3.1705
Iteration: 1934; Percent complete: 48.4%; Average loss: 3.1904
Iteration: 1935; Percent complete: 48.4%; Average loss: 3.3797
Iteration: 1936; Percent complete: 48.4%; Average loss: 3.1272
Iteration: 1937; Percent complete: 48.4%; Average loss: 3.1229
Iteration: 1938; Percent complete: 48.4%; Average loss: 3.4501
Iteration: 1939; Percent complete: 48.5%; Average loss: 3.3934
Iteration: 1940; Percent complete: 48.5%; Average loss: 3.1007
Iteration: 1941; Percent complete: 48.5%; Average loss: 2.8976
Iteration: 1942; Percent complete: 48.5%; Average loss: 3.1259
Iteration: 1943; Percent complete: 48.6%; Average loss: 3.1600
Iteration: 1944; Percent complete: 48.6%; Average loss: 2.9441
Iteration: 1945; Percent complete: 48.6%; Average loss: 3.4279
Iteration: 1946; Percent complete: 48.6%; Average loss: 3.1715
Iteration: 1947; Percent complete: 48.7%; Average loss: 3.2170
Iteration: 1948; Percent complete: 48.7%; Average loss: 3.3322
Iteration: 1949; Percent complete: 48.7%; Average loss: 3.2897
Iteration: 1950; Percent complete: 48.8%; Average loss: 3.1314
Iteration: 1951; Percent complete: 48.8%; Average loss: 3.2520
Iteration: 1952; Percent complete: 48.8%; Average loss: 3.3171
Iteration: 1953; Percent complete: 48.8%; Average loss: 3.2332
Iteration: 1954; Percent complete: 48.9%; Average loss: 3.0683
Iteration: 1955; Percent complete: 48.9%; Average loss: 3.1568
Iteration: 1956; Percent complete: 48.9%; Average loss: 3.0055
```

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Iteration: 1957; Percent complete: 48.9%; Average loss: 2.8823
Iteration: 1958; Percent complete: 48.9%; Average loss: 3.2252
Iteration: 1959; Percent complete: 49.0%; Average loss: 3.1404
Iteration: 1960; Percent complete: 49.0%; Average loss: 2.9736
Iteration: 1961; Percent complete: 49.0%; Average loss: 2.9993
Iteration: 1962; Percent complete: 49.0%; Average loss: 3.2188
Iteration: 1963; Percent complete: 49.1%; Average loss: 3.1835
Iteration: 1964; Percent complete: 49.1%; Average loss: 3.2679
Iteration: 1965; Percent complete: 49.1%; Average loss: 3.1826
Iteration: 1966; Percent complete: 49.1%; Average loss: 3.1492
Iteration: 1967; Percent complete: 49.2%; Average loss: 3.1835
Iteration: 1968; Percent complete: 49.2%; Average loss: 3.1554
Iteration: 1969; Percent complete: 49.2%; Average loss: 3.1248
Iteration: 1970; Percent complete: 49.2%; Average loss: 3.2036
Iteration: 1971; Percent complete: 49.3%; Average loss: 3.5237
Iteration: 1972; Percent complete: 49.3%; Average loss: 3.2115
Iteration: 1973; Percent complete: 49.3%; Average loss: 3.1532
Iteration: 1974; Percent complete: 49.4%; Average loss: 2.9328
Iteration: 1975; Percent complete: 49.4%; Average loss: 3.2360
Iteration: 1976; Percent complete: 49.4%; Average loss: 3.0836
Iteration: 1977; Percent complete: 49.4%; Average loss: 3.3383
Iteration: 1978; Percent complete: 49.5%; Average loss: 3.4152
Iteration: 1979; Percent complete: 49.5%; Average loss: 3.1939
Iteration: 1980; Percent complete: 49.5%; Average loss: 3.2822
Iteration: 1981; Percent complete: 49.5%; Average loss: 3.0789
Iteration: 1982; Percent complete: 49.5%; Average loss: 2.9628
Iteration: 1983; Percent complete: 49.6%; Average loss: 3.2782
Iteration: 1984; Percent complete: 49.6%; Average loss: 3.1840
Iteration: 1985; Percent complete: 49.6%; Average loss: 3.2519
Iteration: 1986; Percent complete: 49.6%; Average loss: 2.9509
Iteration: 1987; Percent complete: 49.7%; Average loss: 3.0896
Iteration: 1988; Percent complete: 49.7%; Average loss: 3.3185
Iteration: 1989; Percent complete: 49.7%; Average loss: 3.1416
Iteration: 1990; Percent complete: 49.8%; Average loss: 3.1906
Iteration: 1991; Percent complete: 49.8%; Average loss: 3.1313
Iteration: 1992; Percent complete: 49.8%; Average loss: 3.2840
Iteration: 1993; Percent complete: 49.8%; Average loss: 3.5293
Iteration: 1994; Percent complete: 49.9%; Average loss: 2.9946
Iteration: 1995; Percent complete: 49.9%; Average loss: 3.1971
Iteration: 1996; Percent complete: 49.9%; Average loss: 3.1491
Iteration: 1997; Percent complete: 49.9%; Average loss: 3.1172
Iteration: 1998; Percent complete: 50.0%; Average loss: 3.2306
Iteration: 1999; Percent complete: 50.0%; Average loss: 3.1669
Iteration: 2000; Percent complete: 50.0%; Average loss: 2.8569
Iteration: 2001; Percent complete: 50.0%; Average loss: 3.0634
Iteration: 2002; Percent complete: 50.0%; Average loss: 3.1063
Iteration: 2003; Percent complete: 50.1%; Average loss: 3.1473
Iteration: 2004; Percent complete: 50.1%; Average loss: 3.2662
Iteration: 2005; Percent complete: 50.1%; Average loss: 3.2959
Iteration: 2006; Percent complete: 50.1%; Average loss: 3.3549
Iteration: 2007; Percent complete: 50.2%; Average loss: 3.2729
Iteration: 2008; Percent complete: 50.2%; Average loss: 3.0144
Iteration: 2009; Percent complete: 50.2%; Average loss: 3.2095
Iteration: 2010; Percent complete: 50.2%; Average loss: 3.2916
Iteration: 2011; Percent complete: 50.3%; Average loss: 3.3132
Iteration: 2012; Percent complete: 50.3%; Average loss: 3.3387
```

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Iteration: 2013; Percent complete: 50.3%; Average loss: 3.0526
Iteration: 2014; Percent complete: 50.3%; Average loss: 3.0275
Iteration: 2015; Percent complete: 50.4%; Average loss: 3.1138
Iteration: 2016; Percent complete: 50.4%; Average loss: 3.1397
Iteration: 2017; Percent complete: 50.4%; Average loss: 3.4721
Iteration: 2018; Percent complete: 50.4%; Average loss: 3.2819
Iteration: 2019; Percent complete: 50.5%; Average loss: 3.3764
Iteration: 2020; Percent complete: 50.5%; Average loss: 3.2927
Iteration: 2021; Percent complete: 50.5%; Average loss: 3.3108
Iteration: 2022; Percent complete: 50.5%; Average loss: 3.2013
Iteration: 2023; Percent complete: 50.6%; Average loss: 3.0773
Iteration: 2024; Percent complete: 50.6%; Average loss: 2.8553
Iteration: 2025; Percent complete: 50.6%; Average loss: 3.1234
Iteration: 2026; Percent complete: 50.6%; Average loss: 3.4092
Iteration: 2027; Percent complete: 50.7%; Average loss: 2.7695
Iteration: 2028; Percent complete: 50.7%; Average loss: 3.1656
Iteration: 2029; Percent complete: 50.7%; Average loss: 3.1439
Iteration: 2030; Percent complete: 50.7%; Average loss: 3.1420
Iteration: 2031; Percent complete: 50.8%; Average loss: 2.9492
Iteration: 2032; Percent complete: 50.8%; Average loss: 3.1882
Iteration: 2033; Percent complete: 50.8%; Average loss: 3.0810
Iteration: 2034; Percent complete: 50.8%; Average loss: 3.2234
Iteration: 2035; Percent complete: 50.9%; Average loss: 2.9819
Iteration: 2036; Percent complete: 50.9%; Average loss: 3.3276
Iteration: 2037; Percent complete: 50.9%; Average loss: 3.2600
Iteration: 2038; Percent complete: 50.9%; Average loss: 3.1656
Iteration: 2039; Percent complete: 51.0%; Average loss: 3.2513
Iteration: 2040; Percent complete: 51.0%; Average loss: 3.2575
Iteration: 2041; Percent complete: 51.0%; Average loss: 3.3174
Iteration: 2042; Percent complete: 51.0%; Average loss: 3.0131
Iteration: 2043; Percent complete: 51.1%; Average loss: 3.1493
Iteration: 2044; Percent complete: 51.1%; Average loss: 3.1612
Iteration: 2045; Percent complete: 51.1%; Average loss: 3.3163
Iteration: 2046; Percent complete: 51.1%; Average loss: 2.9317
Iteration: 2047; Percent complete: 51.2%; Average loss: 3.1603
Iteration: 2048; Percent complete: 51.2%; Average loss: 3.0422
Iteration: 2049; Percent complete: 51.2%; Average loss: 3.3362
Iteration: 2050; Percent complete: 51.2%; Average loss: 3.2842
Iteration: 2051; Percent complete: 51.3%; Average loss: 3.0748
Iteration: 2052; Percent complete: 51.3%; Average loss: 3.2985
Iteration: 2053; Percent complete: 51.3%; Average loss: 3.1130
Iteration: 2054; Percent complete: 51.3%; Average loss: 3.2731
Iteration: 2055; Percent complete: 51.4%; Average loss: 3.2904
Iteration: 2056; Percent complete: 51.4%; Average loss: 3.3348
Iteration: 2057; Percent complete: 51.4%; Average loss: 3.1937
Iteration: 2058; Percent complete: 51.4%; Average loss: 2.9644
Iteration: 2059; Percent complete: 51.5%; Average loss: 3.2264
Iteration: 2060; Percent complete: 51.5%; Average loss: 3.3270
Iteration: 2061; Percent complete: 51.5%; Average loss: 3.2448
Iteration: 2062; Percent complete: 51.5%; Average loss: 3.1032
Iteration: 2063; Percent complete: 51.6%; Average loss: 3.1411
Iteration: 2064; Percent complete: 51.6%; Average loss: 3.1136
Iteration: 2065; Percent complete: 51.6%; Average loss: 3.0577
Iteration: 2066; Percent complete: 51.6%; Average loss: 3.0053
Iteration: 2067; Percent complete: 51.7%; Average loss: 3.2236
Iteration: 2068; Percent complete: 51.7%; Average loss: 3.2990
```

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Iteration: 2069; Percent complete: 51.7%; Average loss: 2.9809
Iteration: 2070; Percent complete: 51.7%; Average loss: 3.2983
Iteration: 2071; Percent complete: 51.8%; Average loss: 3.0462
Iteration: 2072; Percent complete: 51.8%; Average loss: 3.0346
Iteration: 2073; Percent complete: 51.8%; Average loss: 3.1703
Iteration: 2074; Percent complete: 51.8%; Average loss: 2.8552
Iteration: 2075; Percent complete: 51.9%; Average loss: 2.9776
Iteration: 2076; Percent complete: 51.9%; Average loss: 3.2855
Iteration: 2077; Percent complete: 51.9%; Average loss: 3.1334
Iteration: 2078; Percent complete: 51.9%; Average loss: 3.1847
Iteration: 2079; Percent complete: 52.0%; Average loss: 2.8616
Iteration: 2080; Percent complete: 52.0%; Average loss: 3.1280
Iteration: 2081; Percent complete: 52.0%; Average loss: 3.1920
Iteration: 2082; Percent complete: 52.0%; Average loss: 2.9896
Iteration: 2083; Percent complete: 52.1%; Average loss: 3.2095
Iteration: 2084; Percent complete: 52.1%; Average loss: 3.0756
Iteration: 2085; Percent complete: 52.1%; Average loss: 2.8986
Iteration: 2086; Percent complete: 52.1%; Average loss: 2.9618
Iteration: 2087; Percent complete: 52.2%; Average loss: 3.2127
Iteration: 2088; Percent complete: 52.2%; Average loss: 2.7192
Iteration: 2089; Percent complete: 52.2%; Average loss: 3.2257
Iteration: 2090; Percent complete: 52.2%; Average loss: 3.3890
Iteration: 2091; Percent complete: 52.3%; Average loss: 3.1165
Iteration: 2092; Percent complete: 52.3%; Average loss: 3.0651
Iteration: 2093; Percent complete: 52.3%; Average loss: 3.1473
Iteration: 2094; Percent complete: 52.3%; Average loss: 3.2331
Iteration: 2095; Percent complete: 52.4%; Average loss: 2.9990
Iteration: 2096; Percent complete: 52.4%; Average loss: 3.3850
Iteration: 2097; Percent complete: 52.4%; Average loss: 3.3056
Iteration: 2098; Percent complete: 52.4%; Average loss: 3.1608
Iteration: 2099; Percent complete: 52.5%; Average loss: 3.2539
Iteration: 2100; Percent complete: 52.5%; Average loss: 3.1531
Iteration: 2101; Percent complete: 52.5%; Average loss: 3.1425
Iteration: 2102; Percent complete: 52.5%; Average loss: 3.2226
Iteration: 2103; Percent complete: 52.6%; Average loss: 3.1621
Iteration: 2104; Percent complete: 52.6%; Average loss: 3.1088
Iteration: 2105; Percent complete: 52.6%; Average loss: 3.1605
Iteration: 2106; Percent complete: 52.6%; Average loss: 3.4604
Iteration: 2107; Percent complete: 52.7%; Average loss: 3.4101
Iteration: 2108; Percent complete: 52.7%; Average loss: 3.2038
Iteration: 2109; Percent complete: 52.7%; Average loss: 3.0643
Iteration: 2110; Percent complete: 52.8%; Average loss: 3.2007
Iteration: 2111; Percent complete: 52.8%; Average loss: 3.1223
Iteration: 2112; Percent complete: 52.8%; Average loss: 3.4116
Iteration: 2113; Percent complete: 52.8%; Average loss: 3.1268
Iteration: 2114; Percent complete: 52.8%; Average loss: 3.2445
Iteration: 2115; Percent complete: 52.9%; Average loss: 3.0290
Iteration: 2116; Percent complete: 52.9%; Average loss: 3.0666
Iteration: 2117; Percent complete: 52.9%; Average loss: 3.1535
Iteration: 2118; Percent complete: 52.9%; Average loss: 3.1123
Iteration: 2119; Percent complete: 53.0%; Average loss: 3.1060
Iteration: 2120; Percent complete: 53.0%; Average loss: 2.9364
Iteration: 2121; Percent complete: 53.0%; Average loss: 3.0938
Iteration: 2122; Percent complete: 53.0%; Average loss: 3.2651
Iteration: 2123; Percent complete: 53.1%; Average loss: 3.4308
Iteration: 2124; Percent complete: 53.1%; Average loss: 2.8875
```

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Iteration: 2125; Percent complete: 53.1%; Average loss: 3.2563
Iteration: 2126; Percent complete: 53.1%; Average loss: 2.9860
Iteration: 2127; Percent complete: 53.2%; Average loss: 3.2087
Iteration: 2128; Percent complete: 53.2%; Average loss: 3.3315
Iteration: 2129; Percent complete: 53.2%; Average loss: 3.4156
Iteration: 2130; Percent complete: 53.2%; Average loss: 3.2343
Iteration: 2131; Percent complete: 53.3%; Average loss: 3.0084
Iteration: 2132; Percent complete: 53.3%; Average loss: 3.0898
Iteration: 2133; Percent complete: 53.3%; Average loss: 3.1694
Iteration: 2134; Percent complete: 53.3%; Average loss: 2.8466
Iteration: 2135; Percent complete: 53.4%; Average loss: 3.1760
Iteration: 2136; Percent complete: 53.4%; Average loss: 2.9380
Iteration: 2137; Percent complete: 53.4%; Average loss: 3.1816
Iteration: 2138; Percent complete: 53.4%; Average loss: 3.0784
Iteration: 2139; Percent complete: 53.5%; Average loss: 3.2004
Iteration: 2140; Percent complete: 53.5%; Average loss: 3.2229
Iteration: 2141; Percent complete: 53.5%; Average loss: 2.9794
Iteration: 2142; Percent complete: 53.5%; Average loss: 3.0505
Iteration: 2143; Percent complete: 53.6%; Average loss: 3.2380
Iteration: 2144; Percent complete: 53.6%; Average loss: 2.9076
Iteration: 2145; Percent complete: 53.6%; Average loss: 3.1099
Iteration: 2146; Percent complete: 53.6%; Average loss: 3.3340
Iteration: 2147; Percent complete: 53.7%; Average loss: 3.0812
Iteration: 2148; Percent complete: 53.7%; Average loss: 3.2538
Iteration: 2149; Percent complete: 53.7%; Average loss: 3.0269
Iteration: 2150; Percent complete: 53.8%; Average loss: 3.1376
Iteration: 2151; Percent complete: 53.8%; Average loss: 3.1633
Iteration: 2152; Percent complete: 53.8%; Average loss: 3.0473
Iteration: 2153; Percent complete: 53.8%; Average loss: 2.9812
Iteration: 2154; Percent complete: 53.8%; Average loss: 3.2491
Iteration: 2155; Percent complete: 53.9%; Average loss: 3.1716
Iteration: 2156; Percent complete: 53.9%; Average loss: 2.9237
Iteration: 2157; Percent complete: 53.9%; Average loss: 3.1860
Iteration: 2158; Percent complete: 53.9%; Average loss: 3.0843
Iteration: 2159; Percent complete: 54.0%; Average loss: 2.9680
Iteration: 2160; Percent complete: 54.0%; Average loss: 2.9722
Iteration: 2161; Percent complete: 54.0%; Average loss: 2.9240
Iteration: 2162; Percent complete: 54.0%; Average loss: 3.1805
Iteration: 2163; Percent complete: 54.1%; Average loss: 3.0899
Iteration: 2164; Percent complete: 54.1%; Average loss: 3.0456
Iteration: 2165; Percent complete: 54.1%; Average loss: 3.1073
Iteration: 2166; Percent complete: 54.1%; Average loss: 2.9455
Iteration: 2167; Percent complete: 54.2%; Average loss: 3.2052
Iteration: 2168; Percent complete: 54.2%; Average loss: 3.3264
Iteration: 2169; Percent complete: 54.2%; Average loss: 3.0948
Iteration: 2170; Percent complete: 54.2%; Average loss: 2.9930
Iteration: 2171; Percent complete: 54.3%; Average loss: 2.8584
Iteration: 2172; Percent complete: 54.3%; Average loss: 3.1218
Iteration: 2173; Percent complete: 54.3%; Average loss: 3.2998
Iteration: 2174; Percent complete: 54.4%; Average loss: 3.0015
Iteration: 2175; Percent complete: 54.4%; Average loss: 3.0734
Iteration: 2176; Percent complete: 54.4%; Average loss: 3.2507
Iteration: 2177; Percent complete: 54.4%; Average loss: 3.2683
Iteration: 2178; Percent complete: 54.4%; Average loss: 3.1269
Iteration: 2179; Percent complete: 54.5%; Average loss: 3.2572
Iteration: 2180; Percent complete: 54.5%; Average loss: 3.0755
```

```
Iteration: 2181; Percent complete: 54.5%; Average loss: 2.9208
Iteration: 2182; Percent complete: 54.5%; Average loss: 3.0831
Iteration: 2183; Percent complete: 54.6%; Average loss: 3.2257
Iteration: 2184; Percent complete: 54.6%; Average loss: 3.2439
Iteration: 2185; Percent complete: 54.6%; Average loss: 3.0642
Iteration: 2186; Percent complete: 54.6%; Average loss: 3.1610
Iteration: 2187; Percent complete: 54.7%; Average loss: 3.0649
Iteration: 2188; Percent complete: 54.7%; Average loss: 2.9243
Iteration: 2189; Percent complete: 54.7%; Average loss: 3.0993
Iteration: 2190; Percent complete: 54.8%; Average loss: 3.0527
Iteration: 2191; Percent complete: 54.8%; Average loss: 2.9882
Iteration: 2192; Percent complete: 54.8%; Average loss: 2.9719
Iteration: 2193; Percent complete: 54.8%; Average loss: 3.1295
Iteration: 2194; Percent complete: 54.9%; Average loss: 3.0558
Iteration: 2195; Percent complete: 54.9%; Average loss: 3.2768
Iteration: 2196; Percent complete: 54.9%; Average loss: 2.9762
Iteration: 2197; Percent complete: 54.9%; Average loss: 3.1341
Iteration: 2198; Percent complete: 54.9%; Average loss: 3.2753
Iteration: 2199; Percent complete: 55.0%; Average loss: 3.2426
Iteration: 2200; Percent complete: 55.0%; Average loss: 3.2599
Iteration: 2201; Percent complete: 55.0%; Average loss: 2.9449
Iteration: 2202; Percent complete: 55.0%; Average loss: 2.8728
Iteration: 2203; Percent complete: 55.1%; Average loss: 3.1145
Iteration: 2204; Percent complete: 55.1%; Average loss: 3.0520
Iteration: 2205; Percent complete: 55.1%; Average loss: 3.2002
Iteration: 2206; Percent complete: 55.1%; Average loss: 3.0261
Iteration: 2207; Percent complete: 55.2%; Average loss: 3.1079
Iteration: 2208; Percent complete: 55.2%; Average loss: 3.0230
Iteration: 2209; Percent complete: 55.2%; Average loss: 3.1380
Iteration: 2210; Percent complete: 55.2%; Average loss: 3.2162
Iteration: 2211; Percent complete: 55.3%; Average loss: 2.9199
Iteration: 2212; Percent complete: 55.3%; Average loss: 3.1142
Iteration: 2213; Percent complete: 55.3%; Average loss: 3.2637
Iteration: 2214; Percent complete: 55.4%; Average loss: 3.1620
Iteration: 2215; Percent complete: 55.4%; Average loss: 3.0803
Iteration: 2216; Percent complete: 55.4%; Average loss: 3.0443
Iteration: 2217; Percent complete: 55.4%; Average loss: 3.0694
Iteration: 2218; Percent complete: 55.5%; Average loss: 3.3436
Iteration: 2219; Percent complete: 55.5%; Average loss: 3.0813
Iteration: 2220; Percent complete: 55.5%; Average loss: 3.1561
Iteration: 2221; Percent complete: 55.5%; Average loss: 2.9858
Iteration: 2222; Percent complete: 55.5%; Average loss: 3.2571
Iteration: 2223; Percent complete: 55.6%; Average loss: 3.1310
Iteration: 2224; Percent complete: 55.6%; Average loss: 3.1065
Iteration: 2225; Percent complete: 55.6%; Average loss: 3.0711
Iteration: 2226; Percent complete: 55.6%; Average loss: 2.7272
Iteration: 2227; Percent complete: 55.7%; Average loss: 2.8581
Iteration: 2228; Percent complete: 55.7%; Average loss: 2.6857
Iteration: 2229; Percent complete: 55.7%; Average loss: 3.0851
Iteration: 2230; Percent complete: 55.8%; Average loss: 3.1900
Iteration: 2231; Percent complete: 55.8%; Average loss: 3.2351
Iteration: 2232; Percent complete: 55.8%; Average loss: 3.1103
Iteration: 2233; Percent complete: 55.8%; Average loss: 3.1018
Iteration: 2234; Percent complete: 55.9%; Average loss: 3.4804
Iteration: 2235; Percent complete: 55.9%; Average loss: 3.0638
Iteration: 2236; Percent complete: 55.9%; Average loss: 3.1930
```

```
Iteration: 2237; Percent complete: 55.9%; Average loss: 3.3149
Iteration: 2238; Percent complete: 56.0%; Average loss: 3.3190
Iteration: 2239; Percent complete: 56.0%; Average loss: 2.9791
Iteration: 2240; Percent complete: 56.0%; Average loss: 3.1719
Iteration: 2241; Percent complete: 56.0%; Average loss: 3.1184
Iteration: 2242; Percent complete: 56.0%; Average loss: 3.1920
Iteration: 2243; Percent complete: 56.1%; Average loss: 3.3499
Iteration: 2244; Percent complete: 56.1%; Average loss: 3.1555
Iteration: 2245; Percent complete: 56.1%; Average loss: 3.2997
Iteration: 2246; Percent complete: 56.1%; Average loss: 3.1535
Iteration: 2247; Percent complete: 56.2%; Average loss: 3.1483
Iteration: 2248; Percent complete: 56.2%; Average loss: 3.2096
Iteration: 2249; Percent complete: 56.2%; Average loss: 3.0424
Iteration: 2250; Percent complete: 56.2%; Average loss: 3.1369
Iteration: 2251; Percent complete: 56.3%; Average loss: 3.1158
Iteration: 2252; Percent complete: 56.3%; Average loss: 3.0918
Iteration: 2253; Percent complete: 56.3%; Average loss: 2.9164
Iteration: 2254; Percent complete: 56.4%; Average loss: 2.9471
Iteration: 2255; Percent complete: 56.4%; Average loss: 3.1730
Iteration: 2256; Percent complete: 56.4%; Average loss: 3.0911
Iteration: 2257; Percent complete: 56.4%; Average loss: 3.2856
Iteration: 2258; Percent complete: 56.5%; Average loss: 3.1349
Iteration: 2259; Percent complete: 56.5%; Average loss: 2.9535
Iteration: 2260; Percent complete: 56.5%; Average loss: 3.1911
Iteration: 2261; Percent complete: 56.5%; Average loss: 2.9404
Iteration: 2262; Percent complete: 56.5%; Average loss: 3.1252
Iteration: 2263; Percent complete: 56.6%; Average loss: 3.2727
Iteration: 2264; Percent complete: 56.6%; Average loss: 2.9703
Iteration: 2265; Percent complete: 56.6%; Average loss: 3.1075
Iteration: 2266; Percent complete: 56.6%; Average loss: 3.1209
Iteration: 2267; Percent complete: 56.7%; Average loss: 2.9970
Iteration: 2268; Percent complete: 56.7%; Average loss: 2.9608
Iteration: 2269; Percent complete: 56.7%; Average loss: 2.9108
Iteration: 2270; Percent complete: 56.8%; Average loss: 3.0434
Iteration: 2271; Percent complete: 56.8%; Average loss: 3.2102
Iteration: 2272; Percent complete: 56.8%; Average loss: 3.3494
Iteration: 2273; Percent complete: 56.8%; Average loss: 3.0472
Iteration: 2274; Percent complete: 56.9%; Average loss: 3.0512
Iteration: 2275; Percent complete: 56.9%; Average loss: 3.0563
Iteration: 2276; Percent complete: 56.9%; Average loss: 3.2490
Iteration: 2277; Percent complete: 56.9%; Average loss: 3.1128
Iteration: 2278; Percent complete: 57.0%; Average loss: 2.9331
Iteration: 2279; Percent complete: 57.0%; Average loss: 3.0563
Iteration: 2280; Percent complete: 57.0%; Average loss: 3.1199
Iteration: 2281; Percent complete: 57.0%; Average loss: 3.0675
Iteration: 2282; Percent complete: 57.0%; Average loss: 3.0243
Iteration: 2283; Percent complete: 57.1%; Average loss: 3.1061
Iteration: 2284; Percent complete: 57.1%; Average loss: 3.0394
Iteration: 2285; Percent complete: 57.1%; Average loss: 3.0420
Iteration: 2286; Percent complete: 57.1%; Average loss: 3.0256
Iteration: 2287; Percent complete: 57.2%; Average loss: 3.1685
Iteration: 2288; Percent complete: 57.2%; Average loss: 3.1207
Iteration: 2289; Percent complete: 57.2%; Average loss: 3.1349
Iteration: 2290; Percent complete: 57.2%; Average loss: 3.1049
Iteration: 2291; Percent complete: 57.3%; Average loss: 3.2982
Iteration: 2292; Percent complete: 57.3%; Average loss: 3.0025
```

```
Iteration: 2293; Percent complete: 57.3%; Average loss: 3.2528
Iteration: 2294; Percent complete: 57.4%; Average loss: 3.0531
Iteration: 2295; Percent complete: 57.4%; Average loss: 3.2174
Iteration: 2296; Percent complete: 57.4%; Average loss: 3.0289
Iteration: 2297; Percent complete: 57.4%; Average loss: 2.8059
Iteration: 2298; Percent complete: 57.5%; Average loss: 3.1328
Iteration: 2299; Percent complete: 57.5%; Average loss: 2.9340
Iteration: 2300; Percent complete: 57.5%; Average loss: 2.8686
Iteration: 2301; Percent complete: 57.5%; Average loss: 2.9430
Iteration: 2302; Percent complete: 57.6%; Average loss: 3.0106
Iteration: 2303; Percent complete: 57.6%; Average loss: 3.0279
Iteration: 2304; Percent complete: 57.6%; Average loss: 3.1124
Iteration: 2305; Percent complete: 57.6%; Average loss: 2.8452
Iteration: 2306; Percent complete: 57.6%; Average loss: 2.8553
Iteration: 2307; Percent complete: 57.7%; Average loss: 3.0596
Iteration: 2308; Percent complete: 57.7%; Average loss: 3.1567
Iteration: 2309; Percent complete: 57.7%; Average loss: 2.9877
Iteration: 2310; Percent complete: 57.8%; Average loss: 2.9303
Iteration: 2311; Percent complete: 57.8%; Average loss: 3.2108
Iteration: 2312; Percent complete: 57.8%; Average loss: 3.0511
Iteration: 2313; Percent complete: 57.8%; Average loss: 3.1521
Iteration: 2314; Percent complete: 57.9%; Average loss: 3.3712
Iteration: 2315; Percent complete: 57.9%; Average loss: 3.1376
Iteration: 2316; Percent complete: 57.9%; Average loss: 2.9633
Iteration: 2317; Percent complete: 57.9%; Average loss: 3.2413
Iteration: 2318; Percent complete: 58.0%; Average loss: 3.3706
Iteration: 2319; Percent complete: 58.0%; Average loss: 2.9001
Iteration: 2320; Percent complete: 58.0%; Average loss: 2.9876
Iteration: 2321; Percent complete: 58.0%; Average loss: 3.1210
Iteration: 2322; Percent complete: 58.1%; Average loss: 3.2405
Iteration: 2323; Percent complete: 58.1%; Average loss: 2.9397
Iteration: 2324; Percent complete: 58.1%; Average loss: 3.1906
Iteration: 2325; Percent complete: 58.1%; Average loss: 2.9266
Iteration: 2326; Percent complete: 58.1%; Average loss: 3.5223
Iteration: 2327; Percent complete: 58.2%; Average loss: 2.9177
Iteration: 2328; Percent complete: 58.2%; Average loss: 3.5184
Iteration: 2329; Percent complete: 58.2%; Average loss: 2.9428
Iteration: 2330; Percent complete: 58.2%; Average loss: 3.1468
Iteration: 2331; Percent complete: 58.3%; Average loss: 2.9536
Iteration: 2332; Percent complete: 58.3%; Average loss: 3.2664
Iteration: 2333; Percent complete: 58.3%; Average loss: 3.0529
Iteration: 2334; Percent complete: 58.4%; Average loss: 3.0207
Iteration: 2335; Percent complete: 58.4%; Average loss: 3.2706
Iteration: 2336; Percent complete: 58.4%; Average loss: 3.0956
Iteration: 2337; Percent complete: 58.4%; Average loss: 2.9265
Iteration: 2338; Percent complete: 58.5%; Average loss: 3.1763
Iteration: 2339; Percent complete: 58.5%; Average loss: 2.8621
Iteration: 2340; Percent complete: 58.5%; Average loss: 3.1253
Iteration: 2341; Percent complete: 58.5%; Average loss: 3.1191
Iteration: 2342; Percent complete: 58.6%; Average loss: 3.0464
Iteration: 2343; Percent complete: 58.6%; Average loss: 3.3041
Iteration: 2344; Percent complete: 58.6%; Average loss: 3.2957
Iteration: 2345; Percent complete: 58.6%; Average loss: 2.9957
Iteration: 2346; Percent complete: 58.7%; Average loss: 2.9787
Iteration: 2347; Percent complete: 58.7%; Average loss: 2.9513
Iteration: 2348; Percent complete: 58.7%; Average loss: 3.0106
```

```
Iteration: 2349; Percent complete: 58.7%; Average loss: 2.9882
Iteration: 2350; Percent complete: 58.8%; Average loss: 3.1758
Iteration: 2351; Percent complete: 58.8%; Average loss: 2.9723
Iteration: 2352; Percent complete: 58.8%; Average loss: 3.1570
Iteration: 2353; Percent complete: 58.8%; Average loss: 3.0133
Iteration: 2354; Percent complete: 58.9%; Average loss: 3.0301
Iteration: 2355; Percent complete: 58.9%; Average loss: 2.9297
Iteration: 2356; Percent complete: 58.9%; Average loss: 2.9165
Iteration: 2357; Percent complete: 58.9%; Average loss: 3.0107
Iteration: 2358; Percent complete: 59.0%; Average loss: 2.9757
Iteration: 2359; Percent complete: 59.0%; Average loss: 3.0497
Iteration: 2360; Percent complete: 59.0%; Average loss: 2.9078
Iteration: 2361; Percent complete: 59.0%; Average loss: 2.8486
Iteration: 2362; Percent complete: 59.1%; Average loss: 3.0494
Iteration: 2363; Percent complete: 59.1%; Average loss: 2.8355
Iteration: 2364; Percent complete: 59.1%; Average loss: 3.0828
Iteration: 2365; Percent complete: 59.1%; Average loss: 3.1576
Iteration: 2366; Percent complete: 59.2%; Average loss: 3.0866
Iteration: 2367; Percent complete: 59.2%; Average loss: 3.1562
Iteration: 2368; Percent complete: 59.2%; Average loss: 2.6761
Iteration: 2369; Percent complete: 59.2%; Average loss: 3.1611
Iteration: 2370; Percent complete: 59.2%; Average loss: 3.3491
Iteration: 2371; Percent complete: 59.3%; Average loss: 2.9811
Iteration: 2372; Percent complete: 59.3%; Average loss: 3.3684
Iteration: 2373; Percent complete: 59.3%; Average loss: 3.0639
Iteration: 2374; Percent complete: 59.4%; Average loss: 3.0613
Iteration: 2375; Percent complete: 59.4%; Average loss: 2.9815
Iteration: 2376; Percent complete: 59.4%; Average loss: 2.9467
Iteration: 2377; Percent complete: 59.4%; Average loss: 2.8249
Iteration: 2378; Percent complete: 59.5%; Average loss: 3.2596
Iteration: 2379; Percent complete: 59.5%; Average loss: 3.1085
Iteration: 2380; Percent complete: 59.5%; Average loss: 2.9349
Iteration: 2381; Percent complete: 59.5%; Average loss: 2.9456
Iteration: 2382; Percent complete: 59.6%; Average loss: 3.1064
Iteration: 2383; Percent complete: 59.6%; Average loss: 2.9483
Iteration: 2384; Percent complete: 59.6%; Average loss: 2.7616
Iteration: 2385; Percent complete: 59.6%; Average loss: 3.0660
Iteration: 2386; Percent complete: 59.7%; Average loss: 2.7365
Iteration: 2387; Percent complete: 59.7%; Average loss: 2.9785
Iteration: 2388; Percent complete: 59.7%; Average loss: 3.1322
Iteration: 2389; Percent complete: 59.7%; Average loss: 2.9033
Iteration: 2390; Percent complete: 59.8%; Average loss: 3.0088
Iteration: 2391; Percent complete: 59.8%; Average loss: 3.1328
Iteration: 2392; Percent complete: 59.8%; Average loss: 3.2288
Iteration: 2393; Percent complete: 59.8%; Average loss: 3.2647
Iteration: 2394; Percent complete: 59.9%; Average loss: 2.7729
Iteration: 2395; Percent complete: 59.9%; Average loss: 3.0808
Iteration: 2396; Percent complete: 59.9%; Average loss: 3.2072
Iteration: 2397; Percent complete: 59.9%; Average loss: 3.1925
Iteration: 2398; Percent complete: 60.0%; Average loss: 2.8514
Iteration: 2399; Percent complete: 60.0%; Average loss: 3.0771
Iteration: 2400; Percent complete: 60.0%; Average loss: 3.1384
Iteration: 2401; Percent complete: 60.0%; Average loss: 3.0700
Iteration: 2402; Percent complete: 60.1%; Average loss: 2.8338
Iteration: 2403; Percent complete: 60.1%; Average loss: 3.0595
Iteration: 2404; Percent complete: 60.1%; Average loss: 2.8558
```

```
Iteration: 2405; Percent complete: 60.1%; Average loss: 3.1291
Iteration: 2406; Percent complete: 60.2%; Average loss: 2.9681
Iteration: 2407; Percent complete: 60.2%; Average loss: 3.0486
Iteration: 2408; Percent complete: 60.2%; Average loss: 3.2379
Iteration: 2409; Percent complete: 60.2%; Average loss: 3.0776
Iteration: 2410; Percent complete: 60.2%; Average loss: 2.9315
Iteration: 2411; Percent complete: 60.3%; Average loss: 3.0111
Iteration: 2412; Percent complete: 60.3%; Average loss: 3.0312
Iteration: 2413; Percent complete: 60.3%; Average loss: 2.9446
Iteration: 2414; Percent complete: 60.4%; Average loss: 3.0967
Iteration: 2415; Percent complete: 60.4%; Average loss: 2.9793
Iteration: 2416; Percent complete: 60.4%; Average loss: 2.9077
Iteration: 2417; Percent complete: 60.4%; Average loss: 3.0004
Iteration: 2418; Percent complete: 60.5%; Average loss: 3.0925
Iteration: 2419; Percent complete: 60.5%; Average loss: 3.0892
Iteration: 2420; Percent complete: 60.5%; Average loss: 3.4093
Iteration: 2421; Percent complete: 60.5%; Average loss: 3.2046
Iteration: 2422; Percent complete: 60.6%; Average loss: 2.9717
Iteration: 2423; Percent complete: 60.6%; Average loss: 2.7969
Iteration: 2424; Percent complete: 60.6%; Average loss: 3.3237
Iteration: 2425; Percent complete: 60.6%; Average loss: 3.0676
Iteration: 2426; Percent complete: 60.7%; Average loss: 2.9902
Iteration: 2427; Percent complete: 60.7%; Average loss: 2.8584
Iteration: 2428; Percent complete: 60.7%; Average loss: 2.9102
Iteration: 2429; Percent complete: 60.7%; Average loss: 3.0416
Iteration: 2430; Percent complete: 60.8%; Average loss: 3.0277
Iteration: 2431; Percent complete: 60.8%; Average loss: 3.1403
Iteration: 2432; Percent complete: 60.8%; Average loss: 3.0050
Iteration: 2433; Percent complete: 60.8%; Average loss: 3.1585
Iteration: 2434; Percent complete: 60.9%; Average loss: 3.0839
Iteration: 2435; Percent complete: 60.9%; Average loss: 3.2562
Iteration: 2436; Percent complete: 60.9%; Average loss: 3.1770
Iteration: 2437; Percent complete: 60.9%; Average loss: 3.0737
Iteration: 2438; Percent complete: 61.0%; Average loss: 2.8042
Iteration: 2439; Percent complete: 61.0%; Average loss: 2.8552
Iteration: 2440; Percent complete: 61.0%; Average loss: 3.1721
Iteration: 2441; Percent complete: 61.0%; Average loss: 2.8568
Iteration: 2442; Percent complete: 61.1%; Average loss: 2.8834
Iteration: 2443; Percent complete: 61.1%; Average loss: 3.1085
Iteration: 2444; Percent complete: 61.1%; Average loss: 3.0739
Iteration: 2445; Percent complete: 61.1%; Average loss: 3.1292
Iteration: 2446; Percent complete: 61.2%; Average loss: 3.1113
Iteration: 2447; Percent complete: 61.2%; Average loss: 3.1708
Iteration: 2448; Percent complete: 61.2%; Average loss: 3.0147
Iteration: 2449; Percent complete: 61.2%; Average loss: 3.2480
Iteration: 2450; Percent complete: 61.3%; Average loss: 3.0822
Iteration: 2451; Percent complete: 61.3%; Average loss: 2.9497
Iteration: 2452; Percent complete: 61.3%; Average loss: 2.9183
Iteration: 2453; Percent complete: 61.3%; Average loss: 3.3142
Iteration: 2454; Percent complete: 61.4%; Average loss: 3.0832
Iteration: 2455; Percent complete: 61.4%; Average loss: 3.0739
Iteration: 2456; Percent complete: 61.4%; Average loss: 3.1756
Iteration: 2457; Percent complete: 61.4%; Average loss: 3.0043
Iteration: 2458; Percent complete: 61.5%; Average loss: 3.1329
Iteration: 2459; Percent complete: 61.5%; Average loss: 3.1134
Iteration: 2460; Percent complete: 61.5%; Average loss: 3.3605
```

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Iteration: 2461; Percent complete: 61.5%; Average loss: 2.9386
Iteration: 2462; Percent complete: 61.6%; Average loss: 3.0378
Iteration: 2463; Percent complete: 61.6%; Average loss: 2.9337
Iteration: 2464; Percent complete: 61.6%; Average loss: 2.9520
Iteration: 2465; Percent complete: 61.6%; Average loss: 2.7831
Iteration: 2466; Percent complete: 61.7%; Average loss: 2.8815
Iteration: 2467; Percent complete: 61.7%; Average loss: 3.2019
Iteration: 2468; Percent complete: 61.7%; Average loss: 2.9972
Iteration: 2469; Percent complete: 61.7%; Average loss: 3.0772
Iteration: 2470; Percent complete: 61.8%; Average loss: 3.1340
Iteration: 2471; Percent complete: 61.8%; Average loss: 2.9980
Iteration: 2472; Percent complete: 61.8%; Average loss: 2.8209
Iteration: 2473; Percent complete: 61.8%; Average loss: 3.0774
Iteration: 2474; Percent complete: 61.9%; Average loss: 2.8679
Iteration: 2475; Percent complete: 61.9%; Average loss: 3.2324
Iteration: 2476; Percent complete: 61.9%; Average loss: 3.0983
Iteration: 2477; Percent complete: 61.9%; Average loss: 3.1999
Iteration: 2478; Percent complete: 62.0%; Average loss: 3.1174
Iteration: 2479; Percent complete: 62.0%; Average loss: 2.8526
Iteration: 2480; Percent complete: 62.0%; Average loss: 2.8753
Iteration: 2481; Percent complete: 62.0%; Average loss: 3.0384
Iteration: 2482; Percent complete: 62.1%; Average loss: 2.8733
Iteration: 2483; Percent complete: 62.1%; Average loss: 3.3109
Iteration: 2484; Percent complete: 62.1%; Average loss: 3.0423
Iteration: 2485; Percent complete: 62.1%; Average loss: 3.2510
Iteration: 2486; Percent complete: 62.2%; Average loss: 2.9655
Iteration: 2487; Percent complete: 62.2%; Average loss: 3.1663
Iteration: 2488; Percent complete: 62.2%; Average loss: 2.6619
Iteration: 2489; Percent complete: 62.2%; Average loss: 3.0888
Iteration: 2490; Percent complete: 62.3%; Average loss: 3.1177
Iteration: 2491; Percent complete: 62.3%; Average loss: 2.8633
Iteration: 2492; Percent complete: 62.3%; Average loss: 3.0524
Iteration: 2493; Percent complete: 62.3%; Average loss: 3.1785
Iteration: 2494; Percent complete: 62.4%; Average loss: 3.1150
Iteration: 2495; Percent complete: 62.4%; Average loss: 3.1601
Iteration: 2496; Percent complete: 62.4%; Average loss: 2.9384
Iteration: 2497; Percent complete: 62.4%; Average loss: 3.0116
Iteration: 2498; Percent complete: 62.5%; Average loss: 3.1560
Iteration: 2499; Percent complete: 62.5%; Average loss: 3.0087
Iteration: 2500; Percent complete: 62.5%; Average loss: 3.0906
Iteration: 2501; Percent complete: 62.5%; Average loss: 3.1786
Iteration: 2502; Percent complete: 62.5%; Average loss: 2.9735
Iteration: 2503; Percent complete: 62.6%; Average loss: 2.8874
Iteration: 2504; Percent complete: 62.6%; Average loss: 3.0606
Iteration: 2505; Percent complete: 62.6%; Average loss: 3.2409
Iteration: 2506; Percent complete: 62.6%; Average loss: 3.2043
Iteration: 2507; Percent complete: 62.7%; Average loss: 2.8554
Iteration: 2508; Percent complete: 62.7%; Average loss: 3.0244
Iteration: 2509; Percent complete: 62.7%; Average loss: 2.9670
Iteration: 2510; Percent complete: 62.7%; Average loss: 3.0324
Iteration: 2511; Percent complete: 62.8%; Average loss: 2.9732
Iteration: 2512; Percent complete: 62.8%; Average loss: 2.8486
Iteration: 2513; Percent complete: 62.8%; Average loss: 2.9615
Iteration: 2514; Percent complete: 62.8%; Average loss: 2.8450
Iteration: 2515; Percent complete: 62.9%; Average loss: 2.8769
Iteration: 2516; Percent complete: 62.9%; Average loss: 3.1128
```

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Iteration: 2517; Percent complete: 62.9%; Average loss: 3.3501
Iteration: 2518; Percent complete: 62.9%; Average loss: 3.1104
Iteration: 2519; Percent complete: 63.0%; Average loss: 2.9370
Iteration: 2520; Percent complete: 63.0%; Average loss: 3.1907
Iteration: 2521; Percent complete: 63.0%; Average loss: 2.8267
Iteration: 2522; Percent complete: 63.0%; Average loss: 2.9821
Iteration: 2523; Percent complete: 63.1%; Average loss: 2.8626
Iteration: 2524; Percent complete: 63.1%; Average loss: 2.7552
Iteration: 2525; Percent complete: 63.1%; Average loss: 2.9008
Iteration: 2526; Percent complete: 63.1%; Average loss: 2.9465
Iteration: 2527; Percent complete: 63.2%; Average loss: 2.8975
Iteration: 2528; Percent complete: 63.2%; Average loss: 3.0620
Iteration: 2529; Percent complete: 63.2%; Average loss: 3.0648
Iteration: 2530; Percent complete: 63.2%; Average loss: 2.9314
Iteration: 2531; Percent complete: 63.3%; Average loss: 2.9900
Iteration: 2532; Percent complete: 63.3%; Average loss: 3.2415
Iteration: 2533; Percent complete: 63.3%; Average loss: 3.0596
Iteration: 2534; Percent complete: 63.3%; Average loss: 3.3842
Iteration: 2535; Percent complete: 63.4%; Average loss: 3.0828
Iteration: 2536; Percent complete: 63.4%; Average loss: 3.0117
Iteration: 2537; Percent complete: 63.4%; Average loss: 3.1196
Iteration: 2538; Percent complete: 63.4%; Average loss: 2.9993
Iteration: 2539; Percent complete: 63.5%; Average loss: 2.7826
Iteration: 2540; Percent complete: 63.5%; Average loss: 3.1127
Iteration: 2541; Percent complete: 63.5%; Average loss: 3.0719
Iteration: 2542; Percent complete: 63.5%; Average loss: 2.9202
Iteration: 2543; Percent complete: 63.6%; Average loss: 2.8988
Iteration: 2544; Percent complete: 63.6%; Average loss: 2.9910
Iteration: 2545; Percent complete: 63.6%; Average loss: 3.0997
Iteration: 2546; Percent complete: 63.6%; Average loss: 2.9861
Iteration: 2547; Percent complete: 63.7%; Average loss: 2.9945
Iteration: 2548; Percent complete: 63.7%; Average loss: 3.2325
Iteration: 2549; Percent complete: 63.7%; Average loss: 3.0725
Iteration: 2550; Percent complete: 63.7%; Average loss: 3.0674
Iteration: 2551; Percent complete: 63.8%; Average loss: 3.3556
Iteration: 2552; Percent complete: 63.8%; Average loss: 2.8323
Iteration: 2553; Percent complete: 63.8%; Average loss: 3.1700
Iteration: 2554; Percent complete: 63.8%; Average loss: 2.8632
Iteration: 2555; Percent complete: 63.9%; Average loss: 2.9164
Iteration: 2556; Percent complete: 63.9%; Average loss: 3.0273
Iteration: 2557; Percent complete: 63.9%; Average loss: 2.9382
Iteration: 2558; Percent complete: 63.9%; Average loss: 2.9944
Iteration: 2559; Percent complete: 64.0%; Average loss: 2.9714
Iteration: 2560; Percent complete: 64.0%; Average loss: 3.0552
Iteration: 2561; Percent complete: 64.0%; Average loss: 3.1167
Iteration: 2562; Percent complete: 64.0%; Average loss: 2.9839
Iteration: 2563; Percent complete: 64.1%; Average loss: 3.0657
Iteration: 2564; Percent complete: 64.1%; Average loss: 2.9893
Iteration: 2565; Percent complete: 64.1%; Average loss: 2.9127
Iteration: 2566; Percent complete: 64.1%; Average loss: 3.0331
Iteration: 2567; Percent complete: 64.2%; Average loss: 3.1120
Iteration: 2568; Percent complete: 64.2%; Average loss: 3.0091
Iteration: 2569; Percent complete: 64.2%; Average loss: 3.0430
Iteration: 2570; Percent complete: 64.2%; Average loss: 2.9309
Iteration: 2571; Percent complete: 64.3%; Average loss: 2.7947
Iteration: 2572; Percent complete: 64.3%; Average loss: 3.2218
```

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Iteration: 2573; Percent complete: 64.3%; Average loss: 3.0373
Iteration: 2574; Percent complete: 64.3%; Average loss: 2.9450
Iteration: 2575; Percent complete: 64.4%; Average loss: 3.2867
Iteration: 2576; Percent complete: 64.4%; Average loss: 2.9635
Iteration: 2577; Percent complete: 64.4%; Average loss: 2.9221
Iteration: 2578; Percent complete: 64.5%; Average loss: 2.8157
Iteration: 2579; Percent complete: 64.5%; Average loss: 3.3970
Iteration: 2580; Percent complete: 64.5%; Average loss: 3.0276
Iteration: 2581; Percent complete: 64.5%; Average loss: 3.2693
Iteration: 2582; Percent complete: 64.5%; Average loss: 3.1579
Iteration: 2583; Percent complete: 64.6%; Average loss: 3.1831
Iteration: 2584; Percent complete: 64.6%; Average loss: 3.1999
Iteration: 2585; Percent complete: 64.6%; Average loss: 2.7234
Iteration: 2586; Percent complete: 64.6%; Average loss: 2.9467
Iteration: 2587; Percent complete: 64.7%; Average loss: 2.9025
Iteration: 2588; Percent complete: 64.7%; Average loss: 2.9546
Iteration: 2589; Percent complete: 64.7%; Average loss: 2.9565
Iteration: 2590; Percent complete: 64.8%; Average loss: 3.1651
Iteration: 2591; Percent complete: 64.8%; Average loss: 2.9765
Iteration: 2592; Percent complete: 64.8%; Average loss: 3.1066
Iteration: 2593; Percent complete: 64.8%; Average loss: 3.1942
Iteration: 2594; Percent complete: 64.8%; Average loss: 3.0520
Iteration: 2595; Percent complete: 64.9%; Average loss: 3.0258
Iteration: 2596; Percent complete: 64.9%; Average loss: 2.8392
Iteration: 2597; Percent complete: 64.9%; Average loss: 3.0453
Iteration: 2598; Percent complete: 65.0%; Average loss: 2.9269
Iteration: 2599; Percent complete: 65.0%; Average loss: 3.0906
Iteration: 2600; Percent complete: 65.0%; Average loss: 3.0022
Iteration: 2601; Percent complete: 65.0%; Average loss: 3.0242
Iteration: 2602; Percent complete: 65.0%; Average loss: 3.0173
Iteration: 2603; Percent complete: 65.1%; Average loss: 3.1067
Iteration: 2604; Percent complete: 65.1%; Average loss: 3.1824
Iteration: 2605; Percent complete: 65.1%; Average loss: 2.9131
Iteration: 2606; Percent complete: 65.1%; Average loss: 3.0709
Iteration: 2607; Percent complete: 65.2%; Average loss: 2.9743
Iteration: 2608; Percent complete: 65.2%; Average loss: 3.0134
Iteration: 2609; Percent complete: 65.2%; Average loss: 2.9447
Iteration: 2610; Percent complete: 65.2%; Average loss: 2.9645
Iteration: 2611; Percent complete: 65.3%; Average loss: 3.0161
Iteration: 2612; Percent complete: 65.3%; Average loss: 3.0449
Iteration: 2613; Percent complete: 65.3%; Average loss: 2.9413
Iteration: 2614; Percent complete: 65.3%; Average loss: 3.0258
Iteration: 2615; Percent complete: 65.4%; Average loss: 2.9377
Iteration: 2616; Percent complete: 65.4%; Average loss: 2.9726
Iteration: 2617; Percent complete: 65.4%; Average loss: 3.0691
Iteration: 2618; Percent complete: 65.5%; Average loss: 3.1010
Iteration: 2619; Percent complete: 65.5%; Average loss: 3.0431
Iteration: 2620; Percent complete: 65.5%; Average loss: 3.0420
Iteration: 2621; Percent complete: 65.5%; Average loss: 2.7975
Iteration: 2622; Percent complete: 65.5%; Average loss: 2.6943
Iteration: 2623; Percent complete: 65.6%; Average loss: 2.6824
Iteration: 2624; Percent complete: 65.6%; Average loss: 2.9137
Iteration: 2625; Percent complete: 65.6%; Average loss: 3.0936
Iteration: 2626; Percent complete: 65.6%; Average loss: 3.0582
Iteration: 2627; Percent complete: 65.7%; Average loss: 2.8782
Iteration: 2628; Percent complete: 65.7%; Average loss: 2.9736
```

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Iteration: 2629; Percent complete: 65.7%; Average loss: 2.9792
Iteration: 2630; Percent complete: 65.8%; Average loss: 2.7651
Iteration: 2631; Percent complete: 65.8%; Average loss: 2.8914
Iteration: 2632; Percent complete: 65.8%; Average loss: 3.0748
Iteration: 2633; Percent complete: 65.8%; Average loss: 3.0992
Iteration: 2634; Percent complete: 65.8%; Average loss: 2.7952
Iteration: 2635; Percent complete: 65.9%; Average loss: 2.9986
Iteration: 2636; Percent complete: 65.9%; Average loss: 2.9542
Iteration: 2637; Percent complete: 65.9%; Average loss: 2.8077
Iteration: 2638; Percent complete: 66.0%; Average loss: 3.0190
Iteration: 2639; Percent complete: 66.0%; Average loss: 2.7949
Iteration: 2640; Percent complete: 66.0%; Average loss: 2.7956
Iteration: 2641; Percent complete: 66.0%; Average loss: 2.9326
Iteration: 2642; Percent complete: 66.0%; Average loss: 3.0280
Iteration: 2643; Percent complete: 66.1%; Average loss: 2.8255
Iteration: 2644; Percent complete: 66.1%; Average loss: 3.3314
Iteration: 2645; Percent complete: 66.1%; Average loss: 2.9465
Iteration: 2646; Percent complete: 66.1%; Average loss: 3.0131
Iteration: 2647; Percent complete: 66.2%; Average loss: 2.9221
Iteration: 2648; Percent complete: 66.2%; Average loss: 3.0244
Iteration: 2649; Percent complete: 66.2%; Average loss: 2.7959
Iteration: 2650; Percent complete: 66.2%; Average loss: 3.0237
Iteration: 2651; Percent complete: 66.3%; Average loss: 3.1237
Iteration: 2652; Percent complete: 66.3%; Average loss: 2.7936
Iteration: 2653; Percent complete: 66.3%; Average loss: 3.2391
Iteration: 2654; Percent complete: 66.3%; Average loss: 3.0664
Iteration: 2655; Percent complete: 66.4%; Average loss: 2.8682
Iteration: 2656; Percent complete: 66.4%; Average loss: 2.9970
Iteration: 2657; Percent complete: 66.4%; Average loss: 3.0715
Iteration: 2658; Percent complete: 66.5%; Average loss: 2.9748
Iteration: 2659; Percent complete: 66.5%; Average loss: 2.8981
Iteration: 2660; Percent complete: 66.5%; Average loss: 3.2275
Iteration: 2661; Percent complete: 66.5%; Average loss: 2.9547
Iteration: 2662; Percent complete: 66.5%; Average loss: 2.5916
Iteration: 2663; Percent complete: 66.6%; Average loss: 3.3121
Iteration: 2664; Percent complete: 66.6%; Average loss: 3.0029
Iteration: 2665; Percent complete: 66.6%; Average loss: 2.9261
Iteration: 2666; Percent complete: 66.6%; Average loss: 3.0023
Iteration: 2667; Percent complete: 66.7%; Average loss: 3.1872
Iteration: 2668; Percent complete: 66.7%; Average loss: 3.0398
Iteration: 2669; Percent complete: 66.7%; Average loss: 3.0299
Iteration: 2670; Percent complete: 66.8%; Average loss: 2.9362
Iteration: 2671; Percent complete: 66.8%; Average loss: 2.8705
Iteration: 2672; Percent complete: 66.8%; Average loss: 2.8909
Iteration: 2673; Percent complete: 66.8%; Average loss: 2.8794
Iteration: 2674; Percent complete: 66.8%; Average loss: 3.0007
Iteration: 2675; Percent complete: 66.9%; Average loss: 3.2131
Iteration: 2676; Percent complete: 66.9%; Average loss: 3.1528
Iteration: 2677; Percent complete: 66.9%; Average loss: 2.8321
Iteration: 2678; Percent complete: 67.0%; Average loss: 3.1053
Iteration: 2679; Percent complete: 67.0%; Average loss: 2.7343
Iteration: 2680; Percent complete: 67.0%; Average loss: 2.9421
Iteration: 2681; Percent complete: 67.0%; Average loss: 2.8561
Iteration: 2682; Percent complete: 67.0%; Average loss: 3.0089
Iteration: 2683; Percent complete: 67.1%; Average loss: 2.8796
Iteration: 2684; Percent complete: 67.1%; Average loss: 2.8845
```

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Iteration: 2685; Percent complete: 67.1%; Average loss: 2.9565
Iteration: 2686; Percent complete: 67.2%; Average loss: 2.8677
Iteration: 2687; Percent complete: 67.2%; Average loss: 2.9753
Iteration: 2688; Percent complete: 67.2%; Average loss: 2.9526
Iteration: 2689; Percent complete: 67.2%; Average loss: 3.1175
Iteration: 2690; Percent complete: 67.2%; Average loss: 3.0246
Iteration: 2691; Percent complete: 67.3%; Average loss: 3.0910
Iteration: 2692; Percent complete: 67.3%; Average loss: 2.9445
Iteration: 2693; Percent complete: 67.3%; Average loss: 3.1127
Iteration: 2694; Percent complete: 67.3%; Average loss: 2.9302
Iteration: 2695; Percent complete: 67.4%; Average loss: 3.3676
Iteration: 2696; Percent complete: 67.4%; Average loss: 2.7181
Iteration: 2697; Percent complete: 67.4%; Average loss: 3.0825
Iteration: 2698; Percent complete: 67.5%; Average loss: 2.9082
Iteration: 2699; Percent complete: 67.5%; Average loss: 2.9729
Iteration: 2700; Percent complete: 67.5%; Average loss: 2.7903
Iteration: 2701; Percent complete: 67.5%; Average loss: 3.0605
Iteration: 2702; Percent complete: 67.5%; Average loss: 3.1736
Iteration: 2703; Percent complete: 67.6%; Average loss: 2.9226
Iteration: 2704; Percent complete: 67.6%; Average loss: 2.8877
Iteration: 2705; Percent complete: 67.6%; Average loss: 3.0722
Iteration: 2706; Percent complete: 67.7%; Average loss: 2.7814
Iteration: 2707; Percent complete: 67.7%; Average loss: 2.8910
Iteration: 2708; Percent complete: 67.7%; Average loss: 2.8269
Iteration: 2709; Percent complete: 67.7%; Average loss: 3.0666
Iteration: 2710; Percent complete: 67.8%; Average loss: 3.1261
Iteration: 2711; Percent complete: 67.8%; Average loss: 3.1880
Iteration: 2712; Percent complete: 67.8%; Average loss: 2.9279
Iteration: 2713; Percent complete: 67.8%; Average loss: 2.9515
Iteration: 2714; Percent complete: 67.8%; Average loss: 3.0287
Iteration: 2715; Percent complete: 67.9%; Average loss: 3.1980
Iteration: 2716; Percent complete: 67.9%; Average loss: 3.0632
Iteration: 2717; Percent complete: 67.9%; Average loss: 2.6828
Iteration: 2718; Percent complete: 68.0%; Average loss: 3.1656
Iteration: 2719; Percent complete: 68.0%; Average loss: 2.8780
Iteration: 2720; Percent complete: 68.0%; Average loss: 2.9645
Iteration: 2721; Percent complete: 68.0%; Average loss: 2.8454
Iteration: 2722; Percent complete: 68.0%; Average loss: 2.6595
Iteration: 2723; Percent complete: 68.1%; Average loss: 2.9053
Iteration: 2724; Percent complete: 68.1%; Average loss: 3.0123
Iteration: 2725; Percent complete: 68.1%; Average loss: 2.8927
Iteration: 2726; Percent complete: 68.2%; Average loss: 3.0381
Iteration: 2727; Percent complete: 68.2%; Average loss: 2.8724
Iteration: 2728; Percent complete: 68.2%; Average loss: 3.0566
Iteration: 2729; Percent complete: 68.2%; Average loss: 3.0855
Iteration: 2730; Percent complete: 68.2%; Average loss: 3.0697
Iteration: 2731; Percent complete: 68.3%; Average loss: 2.7915
Iteration: 2732; Percent complete: 68.3%; Average loss: 2.9869
Iteration: 2733; Percent complete: 68.3%; Average loss: 3.0737
Iteration: 2734; Percent complete: 68.3%; Average loss: 3.2260
Iteration: 2735; Percent complete: 68.4%; Average loss: 3.0244
Iteration: 2736; Percent complete: 68.4%; Average loss: 3.3592
Iteration: 2737; Percent complete: 68.4%; Average loss: 3.0214
Iteration: 2738; Percent complete: 68.5%; Average loss: 3.2033
Iteration: 2739; Percent complete: 68.5%; Average loss: 2.8575
Iteration: 2740; Percent complete: 68.5%; Average loss: 3.0858
```

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Iteration: 2741; Percent complete: 68.5%; Average loss: 2.8643
Iteration: 2742; Percent complete: 68.5%; Average loss: 3.1168
Iteration: 2743; Percent complete: 68.6%; Average loss: 2.7929
Iteration: 2744; Percent complete: 68.6%; Average loss: 2.9722
Iteration: 2745; Percent complete: 68.6%; Average loss: 3.0435
Iteration: 2746; Percent complete: 68.7%; Average loss: 2.7821
Iteration: 2747; Percent complete: 68.7%; Average loss: 3.1735
Iteration: 2748; Percent complete: 68.7%; Average loss: 2.8549
Iteration: 2749; Percent complete: 68.7%; Average loss: 3.0237
Iteration: 2750; Percent complete: 68.8%; Average loss: 2.7717
Iteration: 2751; Percent complete: 68.8%; Average loss: 3.0129
Iteration: 2752; Percent complete: 68.8%; Average loss: 2.9018
Iteration: 2753; Percent complete: 68.8%; Average loss: 2.9373
Iteration: 2754; Percent complete: 68.8%; Average loss: 3.3509
Iteration: 2755; Percent complete: 68.9%; Average loss: 2.8366
Iteration: 2756; Percent complete: 68.9%; Average loss: 3.1523
Iteration: 2757; Percent complete: 68.9%; Average loss: 3.1931
Iteration: 2758; Percent complete: 69.0%; Average loss: 3.0859
Iteration: 2759; Percent complete: 69.0%; Average loss: 2.7661
Iteration: 2760; Percent complete: 69.0%; Average loss: 3.0068
Iteration: 2761; Percent complete: 69.0%; Average loss: 2.9121
Iteration: 2762; Percent complete: 69.0%; Average loss: 2.9138
Iteration: 2763; Percent complete: 69.1%; Average loss: 3.1689
Iteration: 2764; Percent complete: 69.1%; Average loss: 3.0050
Iteration: 2765; Percent complete: 69.1%; Average loss: 2.7181
Iteration: 2766; Percent complete: 69.2%; Average loss: 2.9921
Iteration: 2767; Percent complete: 69.2%; Average loss: 2.8461
Iteration: 2768; Percent complete: 69.2%; Average loss: 2.6804
Iteration: 2769; Percent complete: 69.2%; Average loss: 2.8902
Iteration: 2770; Percent complete: 69.2%; Average loss: 2.8842
Iteration: 2771; Percent complete: 69.3%; Average loss: 2.8877
Iteration: 2772; Percent complete: 69.3%; Average loss: 2.9869
Iteration: 2773; Percent complete: 69.3%; Average loss: 2.9936
Iteration: 2774; Percent complete: 69.3%; Average loss: 2.8911
Iteration: 2775; Percent complete: 69.4%; Average loss: 2.8754
Iteration: 2776; Percent complete: 69.4%; Average loss: 2.9525
Iteration: 2777; Percent complete: 69.4%; Average loss: 3.0408
Iteration: 2778; Percent complete: 69.5%; Average loss: 2.7919
Iteration: 2779; Percent complete: 69.5%; Average loss: 2.7923
Iteration: 2780; Percent complete: 69.5%; Average loss: 2.9336
Iteration: 2781; Percent complete: 69.5%; Average loss: 3.1638
Iteration: 2782; Percent complete: 69.5%; Average loss: 3.2322
Iteration: 2783; Percent complete: 69.6%; Average loss: 2.9007
Iteration: 2784; Percent complete: 69.6%; Average loss: 3.2032
Iteration: 2785; Percent complete: 69.6%; Average loss: 2.9604
Iteration: 2786; Percent complete: 69.7%; Average loss: 2.8839
Iteration: 2787; Percent complete: 69.7%; Average loss: 2.8179
Iteration: 2788; Percent complete: 69.7%; Average loss: 2.7910
Iteration: 2789; Percent complete: 69.7%; Average loss: 2.8528
Iteration: 2790; Percent complete: 69.8%; Average loss: 3.0028
Iteration: 2791; Percent complete: 69.8%; Average loss: 3.0173
Iteration: 2792; Percent complete: 69.8%; Average loss: 3.0105
Iteration: 2793; Percent complete: 69.8%; Average loss: 3.0058
Iteration: 2794; Percent complete: 69.8%; Average loss: 2.8774
Iteration: 2795; Percent complete: 69.9%; Average loss: 2.9479
Iteration: 2796; Percent complete: 69.9%; Average loss: 2.9133
```

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Iteration: 2797; Percent complete: 69.9%; Average loss: 3.1644
Iteration: 2798; Percent complete: 70.0%; Average loss: 3.0326
Iteration: 2799; Percent complete: 70.0%; Average loss: 2.9843
Iteration: 2800; Percent complete: 70.0%; Average loss: 2.8650
Iteration: 2801; Percent complete: 70.0%; Average loss: 3.1609
Iteration: 2802; Percent complete: 70.0%; Average loss: 3.0004
Iteration: 2803; Percent complete: 70.1%; Average loss: 3.0583
Iteration: 2804; Percent complete: 70.1%; Average loss: 3.1924
Iteration: 2805; Percent complete: 70.1%; Average loss: 2.8866
Iteration: 2806; Percent complete: 70.2%; Average loss: 3.1005
Iteration: 2807; Percent complete: 70.2%; Average loss: 2.8007
Iteration: 2808; Percent complete: 70.2%; Average loss: 2.9180
Iteration: 2809; Percent complete: 70.2%; Average loss: 3.0115
Iteration: 2810; Percent complete: 70.2%; Average loss: 2.6165
Iteration: 2811; Percent complete: 70.3%; Average loss: 2.6769
Iteration: 2812; Percent complete: 70.3%; Average loss: 2.8869
Iteration: 2813; Percent complete: 70.3%; Average loss: 3.0337
Iteration: 2814; Percent complete: 70.3%; Average loss: 2.9936
Iteration: 2815; Percent complete: 70.4%; Average loss: 3.1911
Iteration: 2816; Percent complete: 70.4%; Average loss: 2.9250
Iteration: 2817; Percent complete: 70.4%; Average loss: 2.7614
Iteration: 2818; Percent complete: 70.5%; Average loss: 2.8245
Iteration: 2819; Percent complete: 70.5%; Average loss: 2.9177
Iteration: 2820; Percent complete: 70.5%; Average loss: 2.6468
Iteration: 2821; Percent complete: 70.5%; Average loss: 2.6870
Iteration: 2822; Percent complete: 70.5%; Average loss: 2.8492
Iteration: 2823; Percent complete: 70.6%; Average loss: 3.0111
Iteration: 2824; Percent complete: 70.6%; Average loss: 2.8979
Iteration: 2825; Percent complete: 70.6%; Average loss: 2.9957
Iteration: 2826; Percent complete: 70.7%; Average loss: 2.9290
Iteration: 2827; Percent complete: 70.7%; Average loss: 3.1240
Iteration: 2828; Percent complete: 70.7%; Average loss: 2.9389
Iteration: 2829; Percent complete: 70.7%; Average loss: 2.9163
Iteration: 2830; Percent complete: 70.8%; Average loss: 2.8906
Iteration: 2831; Percent complete: 70.8%; Average loss: 2.7513
Iteration: 2832; Percent complete: 70.8%; Average loss: 3.0862
Iteration: 2833; Percent complete: 70.8%; Average loss: 3.0329
Iteration: 2834; Percent complete: 70.9%; Average loss: 2.7810
Iteration: 2835; Percent complete: 70.9%; Average loss: 2.8495
Iteration: 2836; Percent complete: 70.9%; Average loss: 2.8618
Iteration: 2837; Percent complete: 70.9%; Average loss: 3.0885
Iteration: 2838; Percent complete: 71.0%; Average loss: 3.0008
Iteration: 2839; Percent complete: 71.0%; Average loss: 2.8870
Iteration: 2840; Percent complete: 71.0%; Average loss: 2.9615
Iteration: 2841; Percent complete: 71.0%; Average loss: 2.9938
Iteration: 2842; Percent complete: 71.0%; Average loss: 2.6943
Iteration: 2843; Percent complete: 71.1%; Average loss: 2.8999
Iteration: 2844; Percent complete: 71.1%; Average loss: 3.0166
Iteration: 2845; Percent complete: 71.1%; Average loss: 3.0564
Iteration: 2846; Percent complete: 71.2%; Average loss: 2.9523
Iteration: 2847; Percent complete: 71.2%; Average loss: 2.6854
Iteration: 2848; Percent complete: 71.2%; Average loss: 2.8336
Iteration: 2849; Percent complete: 71.2%; Average loss: 2.8786
Iteration: 2850; Percent complete: 71.2%; Average loss: 3.1257
Iteration: 2851; Percent complete: 71.3%; Average loss: 2.8509
Iteration: 2852; Percent complete: 71.3%; Average loss: 2.8884
```

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Iteration: 2853; Percent complete: 71.3%; Average loss: 3.0076
Iteration: 2854; Percent complete: 71.4%; Average loss: 2.9320
Iteration: 2855; Percent complete: 71.4%; Average loss: 3.0215
Iteration: 2856; Percent complete: 71.4%; Average loss: 3.0707
Iteration: 2857; Percent complete: 71.4%; Average loss: 2.7743
Iteration: 2858; Percent complete: 71.5%; Average loss: 3.0737
Iteration: 2859; Percent complete: 71.5%; Average loss: 2.9211
Iteration: 2860; Percent complete: 71.5%; Average loss: 2.8759
Iteration: 2861; Percent complete: 71.5%; Average loss: 3.1342
Iteration: 2862; Percent complete: 71.5%; Average loss: 3.0258
Iteration: 2863; Percent complete: 71.6%; Average loss: 2.7910
Iteration: 2864; Percent complete: 71.6%; Average loss: 2.8543
Iteration: 2865; Percent complete: 71.6%; Average loss: 2.9953
Iteration: 2866; Percent complete: 71.7%; Average loss: 2.8457
Iteration: 2867; Percent complete: 71.7%; Average loss: 3.0935
Iteration: 2868; Percent complete: 71.7%; Average loss: 2.8397
Iteration: 2869; Percent complete: 71.7%; Average loss: 2.8265
Iteration: 2870; Percent complete: 71.8%; Average loss: 3.3171
Iteration: 2871; Percent complete: 71.8%; Average loss: 2.9251
Iteration: 2872; Percent complete: 71.8%; Average loss: 2.9760
Iteration: 2873; Percent complete: 71.8%; Average loss: 3.1808
Iteration: 2874; Percent complete: 71.9%; Average loss: 2.9236
Iteration: 2875; Percent complete: 71.9%; Average loss: 2.9635
Iteration: 2876; Percent complete: 71.9%; Average loss: 2.7789
Iteration: 2877; Percent complete: 71.9%; Average loss: 2.8166
Iteration: 2878; Percent complete: 72.0%; Average loss: 2.7759
Iteration: 2879; Percent complete: 72.0%; Average loss: 2.8862
Iteration: 2880; Percent complete: 72.0%; Average loss: 2.9417
Iteration: 2881; Percent complete: 72.0%; Average loss: 2.7048
Iteration: 2882; Percent complete: 72.0%; Average loss: 3.0602
Iteration: 2883; Percent complete: 72.1%; Average loss: 2.7546
Iteration: 2884; Percent complete: 72.1%; Average loss: 2.8024
Iteration: 2885; Percent complete: 72.1%; Average loss: 2.8566
Iteration: 2886; Percent complete: 72.2%; Average loss: 3.0219
Iteration: 2887; Percent complete: 72.2%; Average loss: 3.0305
Iteration: 2888; Percent complete: 72.2%; Average loss: 2.7764
Iteration: 2889; Percent complete: 72.2%; Average loss: 2.9527
Iteration: 2890; Percent complete: 72.2%; Average loss: 2.7809
Iteration: 2891; Percent complete: 72.3%; Average loss: 2.8283
Iteration: 2892; Percent complete: 72.3%; Average loss: 3.1788
Iteration: 2893; Percent complete: 72.3%; Average loss: 2.9715
Iteration: 2894; Percent complete: 72.4%; Average loss: 2.8660
Iteration: 2895; Percent complete: 72.4%; Average loss: 2.9491
Iteration: 2896; Percent complete: 72.4%; Average loss: 2.9652
Iteration: 2897; Percent complete: 72.4%; Average loss: 2.6445
Iteration: 2898; Percent complete: 72.5%; Average loss: 2.7202
Iteration: 2899; Percent complete: 72.5%; Average loss: 2.8505
Iteration: 2900; Percent complete: 72.5%; Average loss: 2.8745
Iteration: 2901; Percent complete: 72.5%; Average loss: 3.0115
Iteration: 2902; Percent complete: 72.5%; Average loss: 2.7571
Iteration: 2903; Percent complete: 72.6%; Average loss: 2.7363
Iteration: 2904; Percent complete: 72.6%; Average loss: 2.7987
Iteration: 2905; Percent complete: 72.6%; Average loss: 2.7480
Iteration: 2906; Percent complete: 72.7%; Average loss: 3.0129
Iteration: 2907; Percent complete: 72.7%; Average loss: 2.9453
Iteration: 2908; Percent complete: 72.7%; Average loss: 2.8973
```

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Iteration: 2909; Percent complete: 72.7%; Average loss: 2.8253
Iteration: 2910; Percent complete: 72.8%; Average loss: 2.7507
Iteration: 2911; Percent complete: 72.8%; Average loss: 3.0485
Iteration: 2912; Percent complete: 72.8%; Average loss: 3.0617
Iteration: 2913; Percent complete: 72.8%; Average loss: 3.0509
Iteration: 2914; Percent complete: 72.9%; Average loss: 2.6639
Iteration: 2915; Percent complete: 72.9%; Average loss: 2.9066
Iteration: 2916; Percent complete: 72.9%; Average loss: 3.0398
Iteration: 2917; Percent complete: 72.9%; Average loss: 2.7311
Iteration: 2918; Percent complete: 73.0%; Average loss: 2.7600
Iteration: 2919; Percent complete: 73.0%; Average loss: 2.7672
Iteration: 2920; Percent complete: 73.0%; Average loss: 2.9810
Iteration: 2921; Percent complete: 73.0%; Average loss: 2.9133
Iteration: 2922; Percent complete: 73.0%; Average loss: 3.0456
Iteration: 2923; Percent complete: 73.1%; Average loss: 3.1284
Iteration: 2924; Percent complete: 73.1%; Average loss: 2.7113
Iteration: 2925; Percent complete: 73.1%; Average loss: 2.8467
Iteration: 2926; Percent complete: 73.2%; Average loss: 3.0033
Iteration: 2927; Percent complete: 73.2%; Average loss: 2.9298
Iteration: 2928; Percent complete: 73.2%; Average loss: 2.9128
Iteration: 2929; Percent complete: 73.2%; Average loss: 2.7400
Iteration: 2930; Percent complete: 73.2%; Average loss: 2.8276
Iteration: 2931; Percent complete: 73.3%; Average loss: 2.7589
Iteration: 2932; Percent complete: 73.3%; Average loss: 3.0560
Iteration: 2933; Percent complete: 73.3%; Average loss: 2.7001
Iteration: 2934; Percent complete: 73.4%; Average loss: 3.0079
Iteration: 2935; Percent complete: 73.4%; Average loss: 2.9640
Iteration: 2936; Percent complete: 73.4%; Average loss: 2.8862
Iteration: 2937; Percent complete: 73.4%; Average loss: 3.1262
Iteration: 2938; Percent complete: 73.5%; Average loss: 3.0445
Iteration: 2939; Percent complete: 73.5%; Average loss: 2.7011
Iteration: 2940; Percent complete: 73.5%; Average loss: 3.0579
Iteration: 2941; Percent complete: 73.5%; Average loss: 2.9072
Iteration: 2942; Percent complete: 73.6%; Average loss: 3.0975
Iteration: 2943; Percent complete: 73.6%; Average loss: 2.8802
Iteration: 2944; Percent complete: 73.6%; Average loss: 2.9929
Iteration: 2945; Percent complete: 73.6%; Average loss: 2.7806
Iteration: 2946; Percent complete: 73.7%; Average loss: 3.0439
Iteration: 2947; Percent complete: 73.7%; Average loss: 3.0244
Iteration: 2948; Percent complete: 73.7%; Average loss: 3.1637
Iteration: 2949; Percent complete: 73.7%; Average loss: 2.8319
Iteration: 2950; Percent complete: 73.8%; Average loss: 2.8033
Iteration: 2951; Percent complete: 73.8%; Average loss: 2.7012
Iteration: 2952; Percent complete: 73.8%; Average loss: 2.7664
Iteration: 2953; Percent complete: 73.8%; Average loss: 2.8744
Iteration: 2954; Percent complete: 73.9%; Average loss: 2.9807
Iteration: 2955; Percent complete: 73.9%; Average loss: 2.7148
Iteration: 2956; Percent complete: 73.9%; Average loss: 2.6301
Iteration: 2957; Percent complete: 73.9%; Average loss: 2.9950
Iteration: 2958; Percent complete: 74.0%; Average loss: 2.9681
Iteration: 2959; Percent complete: 74.0%; Average loss: 3.0633
Iteration: 2960; Percent complete: 74.0%; Average loss: 2.7459
Iteration: 2961; Percent complete: 74.0%; Average loss: 2.9970
Iteration: 2962; Percent complete: 74.1%; Average loss: 2.9405
Iteration: 2963; Percent complete: 74.1%; Average loss: 2.9477
Iteration: 2964; Percent complete: 74.1%; Average loss: 3.0305
```

```
Iteration: 2965; Percent complete: 74.1%; Average loss: 3.1834
Iteration: 2966; Percent complete: 74.2%; Average loss: 2.9825
Iteration: 2967; Percent complete: 74.2%; Average loss: 2.9776
Iteration: 2968; Percent complete: 74.2%; Average loss: 2.8853
Iteration: 2969; Percent complete: 74.2%; Average loss: 2.9129
Iteration: 2970; Percent complete: 74.2%; Average loss: 3.1946
Iteration: 2971; Percent complete: 74.3%; Average loss: 2.9570
Iteration: 2972; Percent complete: 74.3%; Average loss: 3.1968
Iteration: 2973; Percent complete: 74.3%; Average loss: 2.6967
Iteration: 2974; Percent complete: 74.4%; Average loss: 2.9413
Iteration: 2975; Percent complete: 74.4%; Average loss: 3.1910
Iteration: 2976; Percent complete: 74.4%; Average loss: 2.8721
Iteration: 2977; Percent complete: 74.4%; Average loss: 2.9640
Iteration: 2978; Percent complete: 74.5%; Average loss: 2.8865
Iteration: 2979; Percent complete: 74.5%; Average loss: 2.8251
Iteration: 2980; Percent complete: 74.5%; Average loss: 2.7647
Iteration: 2981; Percent complete: 74.5%; Average loss: 2.8348
Iteration: 2982; Percent complete: 74.6%; Average loss: 3.1642
Iteration: 2983; Percent complete: 74.6%; Average loss: 2.7288
Iteration: 2984; Percent complete: 74.6%; Average loss: 2.9950
Iteration: 2985; Percent complete: 74.6%; Average loss: 2.9365
Iteration: 2986; Percent complete: 74.7%; Average loss: 2.9088
Iteration: 2987; Percent complete: 74.7%; Average loss: 3.0932
Iteration: 2988; Percent complete: 74.7%; Average loss: 2.7718
Iteration: 2989; Percent complete: 74.7%; Average loss: 2.7436
Iteration: 2990; Percent complete: 74.8%; Average loss: 2.7557
Iteration: 2991; Percent complete: 74.8%; Average loss: 2.9952
Iteration: 2992; Percent complete: 74.8%; Average loss: 2.9889
Iteration: 2993; Percent complete: 74.8%; Average loss: 2.8218
Iteration: 2994; Percent complete: 74.9%; Average loss: 2.4437
Iteration: 2995; Percent complete: 74.9%; Average loss: 2.7653
Iteration: 2996; Percent complete: 74.9%; Average loss: 2.8668
Iteration: 2997; Percent complete: 74.9%; Average loss: 2.8831
Iteration: 2998; Percent complete: 75.0%; Average loss: 2.7426
Iteration: 2999; Percent complete: 75.0%; Average loss: 2.8289
Iteration: 3000; Percent complete: 75.0%; Average loss: 2.7617
Iteration: 3001; Percent complete: 75.0%; Average loss: 3.0203
Iteration: 3002; Percent complete: 75.0%; Average loss: 2.7582
Iteration: 3003; Percent complete: 75.1%; Average loss: 3.0528
Iteration: 3004; Percent complete: 75.1%; Average loss: 2.8226
Iteration: 3005; Percent complete: 75.1%; Average loss: 2.8730
Iteration: 3006; Percent complete: 75.1%; Average loss: 3.0254
Iteration: 3007; Percent complete: 75.2%; Average loss: 2.7591
Iteration: 3008; Percent complete: 75.2%; Average loss: 2.9707
Iteration: 3009; Percent complete: 75.2%; Average loss: 3.0964
Iteration: 3010; Percent complete: 75.2%; Average loss: 2.9816
Iteration: 3011; Percent complete: 75.3%; Average loss: 3.0399
Iteration: 3012; Percent complete: 75.3%; Average loss: 3.1439
Iteration: 3013; Percent complete: 75.3%; Average loss: 2.5741
Iteration: 3014; Percent complete: 75.3%; Average loss: 2.6741
Iteration: 3015; Percent complete: 75.4%; Average loss: 3.0256
Iteration: 3016; Percent complete: 75.4%; Average loss: 2.8242
Iteration: 3017; Percent complete: 75.4%; Average loss: 3.0502
Iteration: 3018; Percent complete: 75.4%; Average loss: 2.8180
Iteration: 3019; Percent complete: 75.5%; Average loss: 2.7039
Iteration: 3020; Percent complete: 75.5%; Average loss: 2.9409
```

```
Iteration: 3021; Percent complete: 75.5%; Average loss: 2.9120
Iteration: 3022; Percent complete: 75.5%; Average loss: 2.6856
Iteration: 3023; Percent complete: 75.6%; Average loss: 2.8558
Iteration: 3024; Percent complete: 75.6%; Average loss: 3.0569
Iteration: 3025; Percent complete: 75.6%; Average loss: 2.7512
Iteration: 3026; Percent complete: 75.6%; Average loss: 2.9801
Iteration: 3027; Percent complete: 75.7%; Average loss: 3.1299
Iteration: 3028; Percent complete: 75.7%; Average loss: 2.6467
Iteration: 3029; Percent complete: 75.7%; Average loss: 2.7024
Iteration: 3030; Percent complete: 75.8%; Average loss: 3.0263
Iteration: 3031; Percent complete: 75.8%; Average loss: 2.9435
Iteration: 3032; Percent complete: 75.8%; Average loss: 2.8491
Iteration: 3033; Percent complete: 75.8%; Average loss: 3.0188
Iteration: 3034; Percent complete: 75.8%; Average loss: 2.8862
Iteration: 3035; Percent complete: 75.9%; Average loss: 2.7856
Iteration: 3036; Percent complete: 75.9%; Average loss: 2.7998
Iteration: 3037; Percent complete: 75.9%; Average loss: 2.6351
Iteration: 3038; Percent complete: 75.9%; Average loss: 2.7866
Iteration: 3039; Percent complete: 76.0%; Average loss: 2.9667
Iteration: 3040; Percent complete: 76.0%; Average loss: 3.0051
Iteration: 3041; Percent complete: 76.0%; Average loss: 2.9018
Iteration: 3042; Percent complete: 76.0%; Average loss: 2.5261
Iteration: 3043; Percent complete: 76.1%; Average loss: 3.0425
Iteration: 3044; Percent complete: 76.1%; Average loss: 2.7020
Iteration: 3045; Percent complete: 76.1%; Average loss: 3.0177
Iteration: 3046; Percent complete: 76.1%; Average loss: 2.8166
Iteration: 3047; Percent complete: 76.2%; Average loss: 2.6573
Iteration: 3048; Percent complete: 76.2%; Average loss: 2.9002
Iteration: 3049; Percent complete: 76.2%; Average loss: 3.0345
Iteration: 3050; Percent complete: 76.2%; Average loss: 2.8558
Iteration: 3051; Percent complete: 76.3%; Average loss: 3.1212
Iteration: 3052; Percent complete: 76.3%; Average loss: 2.8516
Iteration: 3053; Percent complete: 76.3%; Average loss: 2.9250
Iteration: 3054; Percent complete: 76.3%; Average loss: 2.9640
Iteration: 3055; Percent complete: 76.4%; Average loss: 2.8584
Iteration: 3056; Percent complete: 76.4%; Average loss: 2.7088
Iteration: 3057; Percent complete: 76.4%; Average loss: 3.0460
Iteration: 3058; Percent complete: 76.4%; Average loss: 2.8067
Iteration: 3059; Percent complete: 76.5%; Average loss: 2.8364
Iteration: 3060; Percent complete: 76.5%; Average loss: 3.0608
Iteration: 3061; Percent complete: 76.5%; Average loss: 2.5565
Iteration: 3062; Percent complete: 76.5%; Average loss: 2.9868
Iteration: 3063; Percent complete: 76.6%; Average loss: 2.7288
Iteration: 3064; Percent complete: 76.6%; Average loss: 2.6947
Iteration: 3065; Percent complete: 76.6%; Average loss: 2.7426
Iteration: 3066; Percent complete: 76.6%; Average loss: 2.8329
Iteration: 3067; Percent complete: 76.7%; Average loss: 2.8790
Iteration: 3068; Percent complete: 76.7%; Average loss: 2.9150
Iteration: 3069; Percent complete: 76.7%; Average loss: 2.8079
Iteration: 3070; Percent complete: 76.8%; Average loss: 2.8462
Iteration: 3071; Percent complete: 76.8%; Average loss: 2.7433
Iteration: 3072; Percent complete: 76.8%; Average loss: 3.0372
Iteration: 3073; Percent complete: 76.8%; Average loss: 2.6769
Iteration: 3074; Percent complete: 76.8%; Average loss: 2.7437
Iteration: 3075; Percent complete: 76.9%; Average loss: 2.9568
Iteration: 3076; Percent complete: 76.9%; Average loss: 2.8425
```

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Iteration: 3077; Percent complete: 76.9%; Average loss: 2.9657
Iteration: 3078; Percent complete: 77.0%; Average loss: 2.8225
Iteration: 3079; Percent complete: 77.0%; Average loss: 2.7080
Iteration: 3080; Percent complete: 77.0%; Average loss: 3.0069
Iteration: 3081; Percent complete: 77.0%; Average loss: 2.8833
Iteration: 3082; Percent complete: 77.0%; Average loss: 2.8356
Iteration: 3083; Percent complete: 77.1%; Average loss: 2.9711
Iteration: 3084; Percent complete: 77.1%; Average loss: 2.7564
Iteration: 3085; Percent complete: 77.1%; Average loss: 2.8654
Iteration: 3086; Percent complete: 77.1%; Average loss: 2.9452
Iteration: 3087; Percent complete: 77.2%; Average loss: 2.8823
Iteration: 3088; Percent complete: 77.2%; Average loss: 2.7574
Iteration: 3089; Percent complete: 77.2%; Average loss: 3.0062
Iteration: 3090; Percent complete: 77.2%; Average loss: 2.7115
Iteration: 3091; Percent complete: 77.3%; Average loss: 2.9900
Iteration: 3092; Percent complete: 77.3%; Average loss: 2.8688
Iteration: 3093; Percent complete: 77.3%; Average loss: 2.7666
Iteration: 3094; Percent complete: 77.3%; Average loss: 2.8130
Iteration: 3095; Percent complete: 77.4%; Average loss: 2.8280
Iteration: 3096; Percent complete: 77.4%; Average loss: 2.8989
Iteration: 3097; Percent complete: 77.4%; Average loss: 2.9346
Iteration: 3098; Percent complete: 77.5%; Average loss: 2.8312
Iteration: 3099; Percent complete: 77.5%; Average loss: 2.9110
Iteration: 3100; Percent complete: 77.5%; Average loss: 2.7326
Iteration: 3101; Percent complete: 77.5%; Average loss: 2.7252
Iteration: 3102; Percent complete: 77.5%; Average loss: 2.9007
Iteration: 3103; Percent complete: 77.6%; Average loss: 2.6975
Iteration: 3104; Percent complete: 77.6%; Average loss: 2.8888
Iteration: 3105; Percent complete: 77.6%; Average loss: 2.7471
Iteration: 3106; Percent complete: 77.6%; Average loss: 2.9312
Iteration: 3107; Percent complete: 77.7%; Average loss: 2.6186
Iteration: 3108; Percent complete: 77.7%; Average loss: 2.9476
Iteration: 3109; Percent complete: 77.7%; Average loss: 2.9227
Iteration: 3110; Percent complete: 77.8%; Average loss: 2.9223
Iteration: 3111; Percent complete: 77.8%; Average loss: 3.1126
Iteration: 3112; Percent complete: 77.8%; Average loss: 2.6973
Iteration: 3113; Percent complete: 77.8%; Average loss: 2.9105
Iteration: 3114; Percent complete: 77.8%; Average loss: 2.8975
Iteration: 3115; Percent complete: 77.9%; Average loss: 2.8385
Iteration: 3116; Percent complete: 77.9%; Average loss: 2.9252
Iteration: 3117; Percent complete: 77.9%; Average loss: 2.7550
Iteration: 3118; Percent complete: 78.0%; Average loss: 3.0758
Iteration: 3119; Percent complete: 78.0%; Average loss: 2.6491
Iteration: 3120; Percent complete: 78.0%; Average loss: 2.7020
Iteration: 3121; Percent complete: 78.0%; Average loss: 2.7974
Iteration: 3122; Percent complete: 78.0%; Average loss: 2.6657
Iteration: 3123; Percent complete: 78.1%; Average loss: 3.1108
Iteration: 3124; Percent complete: 78.1%; Average loss: 2.9202
Iteration: 3125; Percent complete: 78.1%; Average loss: 2.8408
Iteration: 3126; Percent complete: 78.1%; Average loss: 2.6694
Iteration: 3127; Percent complete: 78.2%; Average loss: 2.7746
Iteration: 3128; Percent complete: 78.2%; Average loss: 2.8486
Iteration: 3129; Percent complete: 78.2%; Average loss: 2.9271
Iteration: 3130; Percent complete: 78.2%; Average loss: 2.6937
Iteration: 3131; Percent complete: 78.3%; Average loss: 2.8126
Iteration: 3132; Percent complete: 78.3%; Average loss: 2.7981
```

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Iteration: 3133; Percent complete: 78.3%; Average loss: 2.9777
Iteration: 3134; Percent complete: 78.3%; Average loss: 2.6795
Iteration: 3135; Percent complete: 78.4%; Average loss: 2.7322
Iteration: 3136; Percent complete: 78.4%; Average loss: 2.8537
Iteration: 3137; Percent complete: 78.4%; Average loss: 2.8696
Iteration: 3138; Percent complete: 78.5%; Average loss: 2.8022
Iteration: 3139; Percent complete: 78.5%; Average loss: 2.6998
Iteration: 3140; Percent complete: 78.5%; Average loss: 3.0747
Iteration: 3141; Percent complete: 78.5%; Average loss: 3.0360
Iteration: 3142; Percent complete: 78.5%; Average loss: 2.8356
Iteration: 3143; Percent complete: 78.6%; Average loss: 3.0092
Iteration: 3144; Percent complete: 78.6%; Average loss: 2.7673
Iteration: 3145; Percent complete: 78.6%; Average loss: 2.9497
Iteration: 3146; Percent complete: 78.6%; Average loss: 2.6153
Iteration: 3147; Percent complete: 78.7%; Average loss: 2.7409
Iteration: 3148; Percent complete: 78.7%; Average loss: 2.7635
Iteration: 3149; Percent complete: 78.7%; Average loss: 2.6210
Iteration: 3150; Percent complete: 78.8%; Average loss: 2.9037
Iteration: 3151; Percent complete: 78.8%; Average loss: 2.8965
Iteration: 3152; Percent complete: 78.8%; Average loss: 2.7262
Iteration: 3153; Percent complete: 78.8%; Average loss: 2.8440
Iteration: 3154; Percent complete: 78.8%; Average loss: 2.8044
Iteration: 3155; Percent complete: 78.9%; Average loss: 2.7707
Iteration: 3156; Percent complete: 78.9%; Average loss: 2.9373
Iteration: 3157; Percent complete: 78.9%; Average loss: 2.6384
Iteration: 3158; Percent complete: 79.0%; Average loss: 2.9645
Iteration: 3159; Percent complete: 79.0%; Average loss: 3.0404
Iteration: 3160; Percent complete: 79.0%; Average loss: 2.8890
Iteration: 3161; Percent complete: 79.0%; Average loss: 2.7509
Iteration: 3162; Percent complete: 79.0%; Average loss: 2.7199
Iteration: 3163; Percent complete: 79.1%; Average loss: 2.8585
Iteration: 3164; Percent complete: 79.1%; Average loss: 2.7893
Iteration: 3165; Percent complete: 79.1%; Average loss: 2.9206
Iteration: 3166; Percent complete: 79.1%; Average loss: 3.0218
Iteration: 3167; Percent complete: 79.2%; Average loss: 2.9801
Iteration: 3168; Percent complete: 79.2%; Average loss: 2.9619
Iteration: 3169; Percent complete: 79.2%; Average loss: 2.9882
Iteration: 3170; Percent complete: 79.2%; Average loss: 2.7992
Iteration: 3171; Percent complete: 79.3%; Average loss: 2.6764
Iteration: 3172; Percent complete: 79.3%; Average loss: 2.9299
Iteration: 3173; Percent complete: 79.3%; Average loss: 2.7986
Iteration: 3174; Percent complete: 79.3%; Average loss: 3.2527
Iteration: 3175; Percent complete: 79.4%; Average loss: 2.7826
Iteration: 3176; Percent complete: 79.4%; Average loss: 2.7806
Iteration: 3177; Percent complete: 79.4%; Average loss: 2.8872
Iteration: 3178; Percent complete: 79.5%; Average loss: 2.9091
Iteration: 3179; Percent complete: 79.5%; Average loss: 2.6797
Iteration: 3180; Percent complete: 79.5%; Average loss: 2.8004
Iteration: 3181; Percent complete: 79.5%; Average loss: 2.8254
Iteration: 3182; Percent complete: 79.5%; Average loss: 2.7667
Iteration: 3183; Percent complete: 79.6%; Average loss: 2.7814
Iteration: 3184; Percent complete: 79.6%; Average loss: 2.8705
Iteration: 3185; Percent complete: 79.6%; Average loss: 2.8325
Iteration: 3186; Percent complete: 79.7%; Average loss: 2.9544
Iteration: 3187; Percent complete: 79.7%; Average loss: 2.9483
Iteration: 3188; Percent complete: 79.7%; Average loss: 2.7369
```

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Iteration: 3189; Percent complete: 79.7%; Average loss: 2.9885
Iteration: 3190; Percent complete: 79.8%; Average loss: 2.7392
Iteration: 3191; Percent complete: 79.8%; Average loss: 2.8649
Iteration: 3192; Percent complete: 79.8%; Average loss: 2.9198
Iteration: 3193; Percent complete: 79.8%; Average loss: 2.8162
Iteration: 3194; Percent complete: 79.8%; Average loss: 2.8170
Iteration: 3195; Percent complete: 79.9%; Average loss: 2.7749
Iteration: 3196; Percent complete: 79.9%; Average loss: 2.9203
Iteration: 3197; Percent complete: 79.9%; Average loss: 2.8028
Iteration: 3198; Percent complete: 80.0%; Average loss: 2.9581
Iteration: 3199; Percent complete: 80.0%; Average loss: 2.7498
Iteration: 3200; Percent complete: 80.0%; Average loss: 3.0706
Iteration: 3201; Percent complete: 80.0%; Average loss: 2.8541
Iteration: 3202; Percent complete: 80.0%; Average loss: 2.9813
Iteration: 3203; Percent complete: 80.1%; Average loss: 2.8049
Iteration: 3204; Percent complete: 80.1%; Average loss: 2.8280
Iteration: 3205; Percent complete: 80.1%; Average loss: 2.7962
Iteration: 3206; Percent complete: 80.2%; Average loss: 2.8986
Iteration: 3207; Percent complete: 80.2%; Average loss: 2.7821
Iteration: 3208; Percent complete: 80.2%; Average loss: 2.6143
Iteration: 3209; Percent complete: 80.2%; Average loss: 2.8243
Iteration: 3210; Percent complete: 80.2%; Average loss: 2.8868
Iteration: 3211; Percent complete: 80.3%; Average loss: 2.7145
Iteration: 3212; Percent complete: 80.3%; Average loss: 2.8004
Iteration: 3213; Percent complete: 80.3%; Average loss: 2.9943
Iteration: 3214; Percent complete: 80.3%; Average loss: 2.9598
Iteration: 3215; Percent complete: 80.4%; Average loss: 2.7641
Iteration: 3216; Percent complete: 80.4%; Average loss: 2.9134
Iteration: 3217; Percent complete: 80.4%; Average loss: 2.8693
Iteration: 3218; Percent complete: 80.5%; Average loss: 2.9222
Iteration: 3219; Percent complete: 80.5%; Average loss: 2.9479
Iteration: 3220; Percent complete: 80.5%; Average loss: 2.7613
Iteration: 3221; Percent complete: 80.5%; Average loss: 2.7925
Iteration: 3222; Percent complete: 80.5%; Average loss: 3.0319
Iteration: 3223; Percent complete: 80.6%; Average loss: 2.6633
Iteration: 3224; Percent complete: 80.6%; Average loss: 2.7383
Iteration: 3225; Percent complete: 80.6%; Average loss: 2.9006
Iteration: 3226; Percent complete: 80.7%; Average loss: 2.7996
Iteration: 3227; Percent complete: 80.7%; Average loss: 2.5001
Iteration: 3228; Percent complete: 80.7%; Average loss: 2.8477
Iteration: 3229; Percent complete: 80.7%; Average loss: 2.8876
Iteration: 3230; Percent complete: 80.8%; Average loss: 2.9307
Iteration: 3231; Percent complete: 80.8%; Average loss: 2.9499
Iteration: 3232; Percent complete: 80.8%; Average loss: 3.0490
Iteration: 3233; Percent complete: 80.8%; Average loss: 2.9382
Iteration: 3234; Percent complete: 80.8%; Average loss: 2.8998
Iteration: 3235; Percent complete: 80.9%; Average loss: 2.8887
Iteration: 3236; Percent complete: 80.9%; Average loss: 2.7027
Iteration: 3237; Percent complete: 80.9%; Average loss: 2.8462
Iteration: 3238; Percent complete: 81.0%; Average loss: 2.7766
Iteration: 3239; Percent complete: 81.0%; Average loss: 3.0329
Iteration: 3240; Percent complete: 81.0%; Average loss: 2.7148
Iteration: 3241; Percent complete: 81.0%; Average loss: 2.6549
Iteration: 3242; Percent complete: 81.0%; Average loss: 3.0224
Iteration: 3243; Percent complete: 81.1%; Average loss: 2.7894
Iteration: 3244; Percent complete: 81.1%; Average loss: 2.6825
```

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Iteration: 3245; Percent complete: 81.1%; Average loss: 2.7128
Iteration: 3246; Percent complete: 81.2%; Average loss: 2.9486
Iteration: 3247; Percent complete: 81.2%; Average loss: 2.7900
Iteration: 3248; Percent complete: 81.2%; Average loss: 2.9032
Iteration: 3249; Percent complete: 81.2%; Average loss: 2.9687
Iteration: 3250; Percent complete: 81.2%; Average loss: 2.9408
Iteration: 3251; Percent complete: 81.3%; Average loss: 2.7808
Iteration: 3252; Percent complete: 81.3%; Average loss: 2.8986
Iteration: 3253; Percent complete: 81.3%; Average loss: 2.7421
Iteration: 3254; Percent complete: 81.3%; Average loss: 3.0583
Iteration: 3255; Percent complete: 81.4%; Average loss: 2.5925
Iteration: 3256; Percent complete: 81.4%; Average loss: 3.0039
Iteration: 3257; Percent complete: 81.4%; Average loss: 2.9397
Iteration: 3258; Percent complete: 81.5%; Average loss: 2.7740
Iteration: 3259; Percent complete: 81.5%; Average loss: 2.8956
Iteration: 3260; Percent complete: 81.5%; Average loss: 2.7738
Iteration: 3261; Percent complete: 81.5%; Average loss: 2.7615
Iteration: 3262; Percent complete: 81.5%; Average loss: 2.9072
Iteration: 3263; Percent complete: 81.6%; Average loss: 2.8553
Iteration: 3264; Percent complete: 81.6%; Average loss: 2.8164
Iteration: 3265; Percent complete: 81.6%; Average loss: 2.8285
Iteration: 3266; Percent complete: 81.7%; Average loss: 3.0520
Iteration: 3267; Percent complete: 81.7%; Average loss: 2.8776
Iteration: 3268; Percent complete: 81.7%; Average loss: 2.7353
Iteration: 3269; Percent complete: 81.7%; Average loss: 2.7693
Iteration: 3270; Percent complete: 81.8%; Average loss: 2.9704
Iteration: 3271; Percent complete: 81.8%; Average loss: 2.8371
Iteration: 3272; Percent complete: 81.8%; Average loss: 2.7987
Iteration: 3273; Percent complete: 81.8%; Average loss: 2.7418
Iteration: 3274; Percent complete: 81.8%; Average loss: 2.7944
Iteration: 3275; Percent complete: 81.9%; Average loss: 2.7907
Iteration: 3276; Percent complete: 81.9%; Average loss: 2.9122
Iteration: 3277; Percent complete: 81.9%; Average loss: 2.7645
Iteration: 3278; Percent complete: 82.0%; Average loss: 2.8350
Iteration: 3279; Percent complete: 82.0%; Average loss: 2.7301
Iteration: 3280; Percent complete: 82.0%; Average loss: 2.7928
Iteration: 3281; Percent complete: 82.0%; Average loss: 2.7460
Iteration: 3282; Percent complete: 82.0%; Average loss: 2.8913
Iteration: 3283; Percent complete: 82.1%; Average loss: 2.8247
Iteration: 3284; Percent complete: 82.1%; Average loss: 2.9194
Iteration: 3285; Percent complete: 82.1%; Average loss: 2.9748
Iteration: 3286; Percent complete: 82.2%; Average loss: 3.0657
Iteration: 3287; Percent complete: 82.2%; Average loss: 2.6764
Iteration: 3288; Percent complete: 82.2%; Average loss: 2.7215
Iteration: 3289; Percent complete: 82.2%; Average loss: 2.7912
Iteration: 3290; Percent complete: 82.2%; Average loss: 2.8283
Iteration: 3291; Percent complete: 82.3%; Average loss: 3.0085
Iteration: 3292; Percent complete: 82.3%; Average loss: 2.7036
Iteration: 3293; Percent complete: 82.3%; Average loss: 3.1093
Iteration: 3294; Percent complete: 82.3%; Average loss: 3.1178
Iteration: 3295; Percent complete: 82.4%; Average loss: 2.9058
Iteration: 3296; Percent complete: 82.4%; Average loss: 3.1099
Iteration: 3297; Percent complete: 82.4%; Average loss: 2.7305
Iteration: 3298; Percent complete: 82.5%; Average loss: 2.9674
Iteration: 3299; Percent complete: 82.5%; Average loss: 3.0570
Iteration: 3300; Percent complete: 82.5%; Average loss: 3.0412
```

```
Iteration: 3301; Percent complete: 82.5%; Average loss: 2.9266
Iteration: 3302; Percent complete: 82.5%; Average loss: 2.7087
Iteration: 3303; Percent complete: 82.6%; Average loss: 2.9472
Iteration: 3304; Percent complete: 82.6%; Average loss: 2.7462
Iteration: 3305; Percent complete: 82.6%; Average loss: 2.6049
Iteration: 3306; Percent complete: 82.7%; Average loss: 2.8384
Iteration: 3307; Percent complete: 82.7%; Average loss: 2.7400
Iteration: 3308; Percent complete: 82.7%; Average loss: 2.7789
Iteration: 3309; Percent complete: 82.7%; Average loss: 2.7657
Iteration: 3310; Percent complete: 82.8%; Average loss: 2.5141
Iteration: 3311; Percent complete: 82.8%; Average loss: 2.8693
Iteration: 3312; Percent complete: 82.8%; Average loss: 2.8692
Iteration: 3313; Percent complete: 82.8%; Average loss: 2.6432
Iteration: 3314; Percent complete: 82.8%; Average loss: 2.7744
Iteration: 3315; Percent complete: 82.9%; Average loss: 2.9020
Iteration: 3316; Percent complete: 82.9%; Average loss: 2.7925
Iteration: 3317; Percent complete: 82.9%; Average loss: 2.8280
Iteration: 3318; Percent complete: 83.0%; Average loss: 3.0250
Iteration: 3319; Percent complete: 83.0%; Average loss: 2.7859
Iteration: 3320; Percent complete: 83.0%; Average loss: 2.6714
Iteration: 3321; Percent complete: 83.0%; Average loss: 2.8525
Iteration: 3322; Percent complete: 83.0%; Average loss: 2.6100
Iteration: 3323; Percent complete: 83.1%; Average loss: 2.8385
Iteration: 3324; Percent complete: 83.1%; Average loss: 2.7580
Iteration: 3325; Percent complete: 83.1%; Average loss: 2.6200
Iteration: 3326; Percent complete: 83.2%; Average loss: 2.9416
Iteration: 3327; Percent complete: 83.2%; Average loss: 2.9076
Iteration: 3328; Percent complete: 83.2%; Average loss: 3.0953
Iteration: 3329; Percent complete: 83.2%; Average loss: 3.0314
Iteration: 3330; Percent complete: 83.2%; Average loss: 2.8995
Iteration: 3331; Percent complete: 83.3%; Average loss: 2.8745
Iteration: 3332; Percent complete: 83.3%; Average loss: 2.9241
Iteration: 3333; Percent complete: 83.3%; Average loss: 2.8494
Iteration: 3334; Percent complete: 83.4%; Average loss: 2.8161
Iteration: 3335; Percent complete: 83.4%; Average loss: 2.8258
Iteration: 3336; Percent complete: 83.4%; Average loss: 2.8515
Iteration: 3337; Percent complete: 83.4%; Average loss: 2.6509
Iteration: 3338; Percent complete: 83.5%; Average loss: 2.8498
Iteration: 3339; Percent complete: 83.5%; Average loss: 2.9958
Iteration: 3340; Percent complete: 83.5%; Average loss: 2.7995
Iteration: 3341; Percent complete: 83.5%; Average loss: 2.8463
Iteration: 3342; Percent complete: 83.5%; Average loss: 2.7651
Iteration: 3343; Percent complete: 83.6%; Average loss: 2.6890
Iteration: 3344; Percent complete: 83.6%; Average loss: 2.8643
Iteration: 3345; Percent complete: 83.6%; Average loss: 2.7927
Iteration: 3346; Percent complete: 83.7%; Average loss: 2.7399
Iteration: 3347; Percent complete: 83.7%; Average loss: 2.6731
Iteration: 3348; Percent complete: 83.7%; Average loss: 2.7930
Iteration: 3349; Percent complete: 83.7%; Average loss: 2.7909
Iteration: 3350; Percent complete: 83.8%; Average loss: 2.8109
Iteration: 3351; Percent complete: 83.8%; Average loss: 2.8303
Iteration: 3352; Percent complete: 83.8%; Average loss: 2.6573
Iteration: 3353; Percent complete: 83.8%; Average loss: 2.7885
Iteration: 3354; Percent complete: 83.9%; Average loss: 2.8744
Iteration: 3355; Percent complete: 83.9%; Average loss: 2.8325
Iteration: 3356; Percent complete: 83.9%; Average loss: 2.7340
```

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Iteration: 3357; Percent complete: 83.9%; Average loss: 2.6373
Iteration: 3358; Percent complete: 84.0%; Average loss: 2.6627
Iteration: 3359; Percent complete: 84.0%; Average loss: 2.6467
Iteration: 3360; Percent complete: 84.0%; Average loss: 2.6242
Iteration: 3361; Percent complete: 84.0%; Average loss: 2.8317
Iteration: 3362; Percent complete: 84.0%; Average loss: 2.8547
Iteration: 3363; Percent complete: 84.1%; Average loss: 2.5806
Iteration: 3364; Percent complete: 84.1%; Average loss: 2.7897
Iteration: 3365; Percent complete: 84.1%; Average loss: 2.7306
Iteration: 3366; Percent complete: 84.2%; Average loss: 2.9776
Iteration: 3367; Percent complete: 84.2%; Average loss: 2.9204
Iteration: 3368; Percent complete: 84.2%; Average loss: 2.7738
Iteration: 3369; Percent complete: 84.2%; Average loss: 2.8991
Iteration: 3370; Percent complete: 84.2%; Average loss: 2.8866
Iteration: 3371; Percent complete: 84.3%; Average loss: 2.6367
Iteration: 3372; Percent complete: 84.3%; Average loss: 2.8191
Iteration: 3373; Percent complete: 84.3%; Average loss: 2.9237
Iteration: 3374; Percent complete: 84.4%; Average loss: 2.9109
Iteration: 3375; Percent complete: 84.4%; Average loss: 2.8532
Iteration: 3376; Percent complete: 84.4%; Average loss: 2.8394
Iteration: 3377; Percent complete: 84.4%; Average loss: 2.7496
Iteration: 3378; Percent complete: 84.5%; Average loss: 2.7772
Iteration: 3379; Percent complete: 84.5%; Average loss: 2.6289
Iteration: 3380; Percent complete: 84.5%; Average loss: 2.7789
Iteration: 3381; Percent complete: 84.5%; Average loss: 2.7704
Iteration: 3382; Percent complete: 84.5%; Average loss: 2.9854
Iteration: 3383; Percent complete: 84.6%; Average loss: 2.7724
Iteration: 3384; Percent complete: 84.6%; Average loss: 2.9206
Iteration: 3385; Percent complete: 84.6%; Average loss: 2.9358
Iteration: 3386; Percent complete: 84.7%; Average loss: 2.9767
Iteration: 3387; Percent complete: 84.7%; Average loss: 2.8611
Iteration: 3388; Percent complete: 84.7%; Average loss: 2.8516
Iteration: 3389; Percent complete: 84.7%; Average loss: 2.7765
Iteration: 3390; Percent complete: 84.8%; Average loss: 2.6263
Iteration: 3391; Percent complete: 84.8%; Average loss: 3.0763
Iteration: 3392; Percent complete: 84.8%; Average loss: 3.0187
Iteration: 3393; Percent complete: 84.8%; Average loss: 2.8384
Iteration: 3394; Percent complete: 84.9%; Average loss: 2.8369
Iteration: 3395; Percent complete: 84.9%; Average loss: 2.7563
Iteration: 3396; Percent complete: 84.9%; Average loss: 2.6707
Iteration: 3397; Percent complete: 84.9%; Average loss: 2.5641
Iteration: 3398; Percent complete: 85.0%; Average loss: 2.7564
Iteration: 3399; Percent complete: 85.0%; Average loss: 2.7518
Iteration: 3400; Percent complete: 85.0%; Average loss: 2.8335
Iteration: 3401; Percent complete: 85.0%; Average loss: 2.7705
Iteration: 3402; Percent complete: 85.0%; Average loss: 2.9294
Iteration: 3403; Percent complete: 85.1%; Average loss: 2.7670
Iteration: 3404; Percent complete: 85.1%; Average loss: 2.6952
Iteration: 3405; Percent complete: 85.1%; Average loss: 2.8053
Iteration: 3406; Percent complete: 85.2%; Average loss: 2.8812
Iteration: 3407; Percent complete: 85.2%; Average loss: 2.8724
Iteration: 3408; Percent complete: 85.2%; Average loss: 2.5839
Iteration: 3409; Percent complete: 85.2%; Average loss: 2.8309
Iteration: 3410; Percent complete: 85.2%; Average loss: 2.9079
Iteration: 3411; Percent complete: 85.3%; Average loss: 2.7983
Iteration: 3412; Percent complete: 85.3%; Average loss: 2.7869
```

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Iteration: 3413; Percent complete: 85.3%; Average loss: 2.6472
Iteration: 3414; Percent complete: 85.4%; Average loss: 2.7143
Iteration: 3415; Percent complete: 85.4%; Average loss: 2.6372
Iteration: 3416; Percent complete: 85.4%; Average loss: 2.6309
Iteration: 3417; Percent complete: 85.4%; Average loss: 2.8556
Iteration: 3418; Percent complete: 85.5%; Average loss: 2.8192
Iteration: 3419; Percent complete: 85.5%; Average loss: 2.6799
Iteration: 3420; Percent complete: 85.5%; Average loss: 2.6957
Iteration: 3421; Percent complete: 85.5%; Average loss: 2.8206
Iteration: 3422; Percent complete: 85.5%; Average loss: 2.9087
Iteration: 3423; Percent complete: 85.6%; Average loss: 2.7071
Iteration: 3424; Percent complete: 85.6%; Average loss: 2.8658
Iteration: 3425; Percent complete: 85.6%; Average loss: 2.8668
Iteration: 3426; Percent complete: 85.7%; Average loss: 2.8710
Iteration: 3427; Percent complete: 85.7%; Average loss: 2.6908
Iteration: 3428; Percent complete: 85.7%; Average loss: 2.6283
Iteration: 3429; Percent complete: 85.7%; Average loss: 2.8480
Iteration: 3430; Percent complete: 85.8%; Average loss: 2.7623
Iteration: 3431; Percent complete: 85.8%; Average loss: 2.6692
Iteration: 3432; Percent complete: 85.8%; Average loss: 2.8297
Iteration: 3433; Percent complete: 85.8%; Average loss: 2.7619
Iteration: 3434; Percent complete: 85.9%; Average loss: 2.6077
Iteration: 3435; Percent complete: 85.9%; Average loss: 2.6465
Iteration: 3436; Percent complete: 85.9%; Average loss: 2.4829
Iteration: 3437; Percent complete: 85.9%; Average loss: 2.7582
Iteration: 3438; Percent complete: 86.0%; Average loss: 2.9154
Iteration: 3439; Percent complete: 86.0%; Average loss: 2.5526
Iteration: 3440; Percent complete: 86.0%; Average loss: 2.8409
Iteration: 3441; Percent complete: 86.0%; Average loss: 2.9080
Iteration: 3442; Percent complete: 86.1%; Average loss: 2.8332
Iteration: 3443; Percent complete: 86.1%; Average loss: 2.7491
Iteration: 3444; Percent complete: 86.1%; Average loss: 2.8072
Iteration: 3445; Percent complete: 86.1%; Average loss: 2.7511
Iteration: 3446; Percent complete: 86.2%; Average loss: 2.8389
Iteration: 3447; Percent complete: 86.2%; Average loss: 2.7078
Iteration: 3448; Percent complete: 86.2%; Average loss: 2.8517
Iteration: 3449; Percent complete: 86.2%; Average loss: 2.7698
Iteration: 3450; Percent complete: 86.2%; Average loss: 2.9256
Iteration: 3451; Percent complete: 86.3%; Average loss: 2.7753
Iteration: 3452; Percent complete: 86.3%; Average loss: 2.7662
Iteration: 3453; Percent complete: 86.3%; Average loss: 2.7763
Iteration: 3454; Percent complete: 86.4%; Average loss: 2.6507
Iteration: 3455; Percent complete: 86.4%; Average loss: 2.6444
Iteration: 3456; Percent complete: 86.4%; Average loss: 2.7614
Iteration: 3457; Percent complete: 86.4%; Average loss: 2.8089
Iteration: 3458; Percent complete: 86.5%; Average loss: 2.7688
Iteration: 3459; Percent complete: 86.5%; Average loss: 2.9069
Iteration: 3460; Percent complete: 86.5%; Average loss: 3.0188
Iteration: 3461; Percent complete: 86.5%; Average loss: 2.6324
Iteration: 3462; Percent complete: 86.6%; Average loss: 2.9674
Iteration: 3463; Percent complete: 86.6%; Average loss: 2.6477
Iteration: 3464; Percent complete: 86.6%; Average loss: 2.8727
Iteration: 3465; Percent complete: 86.6%; Average loss: 2.6938
Iteration: 3466; Percent complete: 86.7%; Average loss: 2.8247
Iteration: 3467; Percent complete: 86.7%; Average loss: 2.6958
Iteration: 3468; Percent complete: 86.7%; Average loss: 2.8231
```

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Iteration: 3469; Percent complete: 86.7%; Average loss: 2.7585
Iteration: 3470; Percent complete: 86.8%; Average loss: 2.8697
Iteration: 3471; Percent complete: 86.8%; Average loss: 2.9481
Iteration: 3472; Percent complete: 86.8%; Average loss: 2.7114
Iteration: 3473; Percent complete: 86.8%; Average loss: 2.6928
Iteration: 3474; Percent complete: 86.9%; Average loss: 2.6144
Iteration: 3475; Percent complete: 86.9%; Average loss: 2.5999
Iteration: 3476; Percent complete: 86.9%; Average loss: 2.9872
Iteration: 3477; Percent complete: 86.9%; Average loss: 2.7485
Iteration: 3478; Percent complete: 87.0%; Average loss: 2.5792
Iteration: 3479; Percent complete: 87.0%; Average loss: 2.8517
Iteration: 3480; Percent complete: 87.0%; Average loss: 2.9264
Iteration: 3481; Percent complete: 87.0%; Average loss: 2.6529
Iteration: 3482; Percent complete: 87.1%; Average loss: 2.6094
Iteration: 3483; Percent complete: 87.1%; Average loss: 2.8054
Iteration: 3484; Percent complete: 87.1%; Average loss: 2.9437
Iteration: 3485; Percent complete: 87.1%; Average loss: 2.6580
Iteration: 3486; Percent complete: 87.2%; Average loss: 2.5119
Iteration: 3487; Percent complete: 87.2%; Average loss: 2.8785
Iteration: 3488; Percent complete: 87.2%; Average loss: 3.0450
Iteration: 3489; Percent complete: 87.2%; Average loss: 2.6580
Iteration: 3490; Percent complete: 87.2%; Average loss: 2.7364
Iteration: 3491; Percent complete: 87.3%; Average loss: 2.6591
Iteration: 3492; Percent complete: 87.3%; Average loss: 2.7657
Iteration: 3493; Percent complete: 87.3%; Average loss: 2.8030
Iteration: 3494; Percent complete: 87.4%; Average loss: 2.6377
Iteration: 3495; Percent complete: 87.4%; Average loss: 2.8196
Iteration: 3496; Percent complete: 87.4%; Average loss: 2.5846
Iteration: 3497; Percent complete: 87.4%; Average loss: 2.4910
Iteration: 3498; Percent complete: 87.5%; Average loss: 2.6892
Iteration: 3499; Percent complete: 87.5%; Average loss: 2.8207
Iteration: 3500; Percent complete: 87.5%; Average loss: 3.1003
Iteration: 3501; Percent complete: 87.5%; Average loss: 2.5164
Iteration: 3502; Percent complete: 87.5%; Average loss: 2.7398
Iteration: 3503; Percent complete: 87.6%; Average loss: 2.5813
Iteration: 3504; Percent complete: 87.6%; Average loss: 2.8002
Iteration: 3505; Percent complete: 87.6%; Average loss: 2.6836
Iteration: 3506; Percent complete: 87.6%; Average loss: 2.6293
Iteration: 3507; Percent complete: 87.7%; Average loss: 2.9350
Iteration: 3508; Percent complete: 87.7%; Average loss: 2.7762
Iteration: 3509; Percent complete: 87.7%; Average loss: 2.7229
Iteration: 3510; Percent complete: 87.8%; Average loss: 2.6834
Iteration: 3511; Percent complete: 87.8%; Average loss: 2.8905
Iteration: 3512; Percent complete: 87.8%; Average loss: 2.6496
Iteration: 3513; Percent complete: 87.8%; Average loss: 2.8143
Iteration: 3514; Percent complete: 87.8%; Average loss: 2.9690
Iteration: 3515; Percent complete: 87.9%; Average loss: 2.6815
Iteration: 3516; Percent complete: 87.9%; Average loss: 2.8346
Iteration: 3517; Percent complete: 87.9%; Average loss: 2.8283
Iteration: 3518; Percent complete: 87.9%; Average loss: 2.7677
Iteration: 3519; Percent complete: 88.0%; Average loss: 2.6890
Iteration: 3520; Percent complete: 88.0%; Average loss: 2.7966
Iteration: 3521; Percent complete: 88.0%; Average loss: 2.8170
Iteration: 3522; Percent complete: 88.0%; Average loss: 2.8761
Iteration: 3523; Percent complete: 88.1%; Average loss: 2.6524
Iteration: 3524; Percent complete: 88.1%; Average loss: 2.9434
```

```
Iteration: 3525; Percent complete: 88.1%; Average loss: 2.8887
Iteration: 3526; Percent complete: 88.1%; Average loss: 2.6698
Iteration: 3527; Percent complete: 88.2%; Average loss: 2.8626
Iteration: 3528; Percent complete: 88.2%; Average loss: 2.6336
Iteration: 3529; Percent complete: 88.2%; Average loss: 2.9054
Iteration: 3530; Percent complete: 88.2%; Average loss: 2.7613
Iteration: 3531; Percent complete: 88.3%; Average loss: 2.7711
Iteration: 3532; Percent complete: 88.3%; Average loss: 2.9493
Iteration: 3533; Percent complete: 88.3%; Average loss: 2.7246
Iteration: 3534; Percent complete: 88.3%; Average loss: 2.7286
Iteration: 3535; Percent complete: 88.4%; Average loss: 2.7054
Iteration: 3536; Percent complete: 88.4%; Average loss: 2.8178
Iteration: 3537; Percent complete: 88.4%; Average loss: 2.7620
Iteration: 3538; Percent complete: 88.4%; Average loss: 2.7558
Iteration: 3539; Percent complete: 88.5%; Average loss: 2.8990
Iteration: 3540; Percent complete: 88.5%; Average loss: 2.7127
Iteration: 3541; Percent complete: 88.5%; Average loss: 2.6700
Iteration: 3542; Percent complete: 88.5%; Average loss: 2.3860
Iteration: 3543; Percent complete: 88.6%; Average loss: 2.8065
Iteration: 3544; Percent complete: 88.6%; Average loss: 2.4844
Iteration: 3545; Percent complete: 88.6%; Average loss: 2.7649
Iteration: 3546; Percent complete: 88.6%; Average loss: 2.8638
Iteration: 3547; Percent complete: 88.7%; Average loss: 2.7148
Iteration: 3548; Percent complete: 88.7%; Average loss: 2.7130
Iteration: 3549; Percent complete: 88.7%; Average loss: 2.6972
Iteration: 3550; Percent complete: 88.8%; Average loss: 2.8746
Iteration: 3551; Percent complete: 88.8%; Average loss: 2.8465
Iteration: 3552; Percent complete: 88.8%; Average loss: 2.6438
Iteration: 3553; Percent complete: 88.8%; Average loss: 2.5903
Iteration: 3554; Percent complete: 88.8%; Average loss: 2.7668
Iteration: 3555; Percent complete: 88.9%; Average loss: 2.9063
Iteration: 3556; Percent complete: 88.9%; Average loss: 2.4832
Iteration: 3557; Percent complete: 88.9%; Average loss: 2.7379
Iteration: 3558; Percent complete: 88.9%; Average loss: 2.9471
Iteration: 3559; Percent complete: 89.0%; Average loss: 2.4321
Iteration: 3560; Percent complete: 89.0%; Average loss: 2.7671
Iteration: 3561; Percent complete: 89.0%; Average loss: 2.8128
Iteration: 3562; Percent complete: 89.0%; Average loss: 2.5228
Iteration: 3563; Percent complete: 89.1%; Average loss: 2.8728
Iteration: 3564; Percent complete: 89.1%; Average loss: 2.8364
Iteration: 3565; Percent complete: 89.1%; Average loss: 2.5180
Iteration: 3566; Percent complete: 89.1%; Average loss: 2.7989
Iteration: 3567; Percent complete: 89.2%; Average loss: 2.7402
Iteration: 3568; Percent complete: 89.2%; Average loss: 2.5821
Iteration: 3569; Percent complete: 89.2%; Average loss: 2.8304
Iteration: 3570; Percent complete: 89.2%; Average loss: 2.6825
Iteration: 3571; Percent complete: 89.3%; Average loss: 2.8384
Iteration: 3572; Percent complete: 89.3%; Average loss: 2.6244
Iteration: 3573; Percent complete: 89.3%; Average loss: 2.6665
Iteration: 3574; Percent complete: 89.3%; Average loss: 3.1454
Iteration: 3575; Percent complete: 89.4%; Average loss: 2.6875
Iteration: 3576; Percent complete: 89.4%; Average loss: 2.6805
Iteration: 3577; Percent complete: 89.4%; Average loss: 2.6679
Iteration: 3578; Percent complete: 89.5%; Average loss: 2.7223
Iteration: 3579; Percent complete: 89.5%; Average loss: 2.7038
Iteration: 3580; Percent complete: 89.5%; Average loss: 2.7823
```

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Iteration: 3581; Percent complete: 89.5%; Average loss: 2.6449
Iteration: 3582; Percent complete: 89.5%; Average loss: 2.7160
Iteration: 3583; Percent complete: 89.6%; Average loss: 2.7087
Iteration: 3584; Percent complete: 89.6%; Average loss: 2.7824
Iteration: 3585; Percent complete: 89.6%; Average loss: 2.7493
Iteration: 3586; Percent complete: 89.6%; Average loss: 2.7450
Iteration: 3587; Percent complete: 89.7%; Average loss: 2.9604
Iteration: 3588; Percent complete: 89.7%; Average loss: 2.6163
Iteration: 3589; Percent complete: 89.7%; Average loss: 2.6697
Iteration: 3590; Percent complete: 89.8%; Average loss: 2.7681
Iteration: 3591; Percent complete: 89.8%; Average loss: 2.7653
Iteration: 3592; Percent complete: 89.8%; Average loss: 2.6533
Iteration: 3593; Percent complete: 89.8%; Average loss: 2.6906
Iteration: 3594; Percent complete: 89.8%; Average loss: 2.7068
Iteration: 3595; Percent complete: 89.9%; Average loss: 2.8208
Iteration: 3596; Percent complete: 89.9%; Average loss: 2.9205
Iteration: 3597; Percent complete: 89.9%; Average loss: 2.4616
Iteration: 3598; Percent complete: 90.0%; Average loss: 2.7143
Iteration: 3599; Percent complete: 90.0%; Average loss: 2.5858
Iteration: 3600; Percent complete: 90.0%; Average loss: 2.6969
Iteration: 3601; Percent complete: 90.0%; Average loss: 2.7704
Iteration: 3602; Percent complete: 90.0%; Average loss: 2.8197
Iteration: 3603; Percent complete: 90.1%; Average loss: 2.6518
Iteration: 3604; Percent complete: 90.1%; Average loss: 2.5148
Iteration: 3605; Percent complete: 90.1%; Average loss: 2.9247
Iteration: 3606; Percent complete: 90.1%; Average loss: 2.6742
Iteration: 3607; Percent complete: 90.2%; Average loss: 2.7064
Iteration: 3608; Percent complete: 90.2%; Average loss: 2.6614
Iteration: 3609; Percent complete: 90.2%; Average loss: 2.6181
Iteration: 3610; Percent complete: 90.2%; Average loss: 2.8055
Iteration: 3611; Percent complete: 90.3%; Average loss: 2.7691
Iteration: 3612; Percent complete: 90.3%; Average loss: 2.8294
Iteration: 3613; Percent complete: 90.3%; Average loss: 2.7006
Iteration: 3614; Percent complete: 90.3%; Average loss: 2.6327
Iteration: 3615; Percent complete: 90.4%; Average loss: 2.7116
Iteration: 3616; Percent complete: 90.4%; Average loss: 2.7610
Iteration: 3617; Percent complete: 90.4%; Average loss: 2.6818
Iteration: 3618; Percent complete: 90.5%; Average loss: 2.6680
Iteration: 3619; Percent complete: 90.5%; Average loss: 2.6972
Iteration: 3620; Percent complete: 90.5%; Average loss: 2.6383
Iteration: 3621; Percent complete: 90.5%; Average loss: 2.6819
Iteration: 3622; Percent complete: 90.5%; Average loss: 2.7105
Iteration: 3623; Percent complete: 90.6%; Average loss: 2.6698
Iteration: 3624; Percent complete: 90.6%; Average loss: 2.6859
Iteration: 3625; Percent complete: 90.6%; Average loss: 2.7576
Iteration: 3626; Percent complete: 90.6%; Average loss: 2.9001
Iteration: 3627; Percent complete: 90.7%; Average loss: 2.7337
Iteration: 3628; Percent complete: 90.7%; Average loss: 2.7789
Iteration: 3629; Percent complete: 90.7%; Average loss: 2.8174
Iteration: 3630; Percent complete: 90.8%; Average loss: 2.9056
Iteration: 3631; Percent complete: 90.8%; Average loss: 2.5591
Iteration: 3632; Percent complete: 90.8%; Average loss: 2.5783
Iteration: 3633; Percent complete: 90.8%; Average loss: 2.6351
Iteration: 3634; Percent complete: 90.8%; Average loss: 2.7111
Iteration: 3635; Percent complete: 90.9%; Average loss: 2.5362
Iteration: 3636; Percent complete: 90.9%; Average loss: 2.7619
```

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Iteration: 3637; Percent complete: 90.9%; Average loss: 2.6703
Iteration: 3638; Percent complete: 91.0%; Average loss: 2.6974
Iteration: 3639; Percent complete: 91.0%; Average loss: 2.9962
Iteration: 3640; Percent complete: 91.0%; Average loss: 2.7764
Iteration: 3641; Percent complete: 91.0%; Average loss: 2.7243
Iteration: 3642; Percent complete: 91.0%; Average loss: 2.8472
Iteration: 3643; Percent complete: 91.1%; Average loss: 2.7433
Iteration: 3644; Percent complete: 91.1%; Average loss: 2.6396
Iteration: 3645; Percent complete: 91.1%; Average loss: 2.4156
Iteration: 3646; Percent complete: 91.1%; Average loss: 2.8442
Iteration: 3647; Percent complete: 91.2%; Average loss: 2.5267
Iteration: 3648; Percent complete: 91.2%; Average loss: 2.6579
Iteration: 3649; Percent complete: 91.2%; Average loss: 2.6294
Iteration: 3650; Percent complete: 91.2%; Average loss: 2.8381
Iteration: 3651; Percent complete: 91.3%; Average loss: 2.6750
Iteration: 3652; Percent complete: 91.3%; Average loss: 2.8584
Iteration: 3653; Percent complete: 91.3%; Average loss: 2.8159
Iteration: 3654; Percent complete: 91.3%; Average loss: 2.4656
Iteration: 3655; Percent complete: 91.4%; Average loss: 2.8061
Iteration: 3656; Percent complete: 91.4%; Average loss: 2.6808
Iteration: 3657; Percent complete: 91.4%; Average loss: 2.7434
Iteration: 3658; Percent complete: 91.5%; Average loss: 2.5731
Iteration: 3659; Percent complete: 91.5%; Average loss: 2.5551
Iteration: 3660; Percent complete: 91.5%; Average loss: 2.6950
Iteration: 3661; Percent complete: 91.5%; Average loss: 2.5979
Iteration: 3662; Percent complete: 91.5%; Average loss: 2.5446
Iteration: 3663; Percent complete: 91.6%; Average loss: 2.8389
Iteration: 3664; Percent complete: 91.6%; Average loss: 2.5060
Iteration: 3665; Percent complete: 91.6%; Average loss: 2.8098
Iteration: 3666; Percent complete: 91.6%; Average loss: 2.7098
Iteration: 3667; Percent complete: 91.7%; Average loss: 2.6870
Iteration: 3668; Percent complete: 91.7%; Average loss: 2.4016
Iteration: 3669; Percent complete: 91.7%; Average loss: 2.6206
Iteration: 3670; Percent complete: 91.8%; Average loss: 2.8236
Iteration: 3671; Percent complete: 91.8%; Average loss: 2.6713
Iteration: 3672; Percent complete: 91.8%; Average loss: 2.7588
Iteration: 3673; Percent complete: 91.8%; Average loss: 2.6332
Iteration: 3674; Percent complete: 91.8%; Average loss: 2.9835
Iteration: 3675; Percent complete: 91.9%; Average loss: 2.7774
Iteration: 3676; Percent complete: 91.9%; Average loss: 2.7871
Iteration: 3677; Percent complete: 91.9%; Average loss: 2.6641
Iteration: 3678; Percent complete: 92.0%; Average loss: 2.7252
Iteration: 3679; Percent complete: 92.0%; Average loss: 2.9445
Iteration: 3680; Percent complete: 92.0%; Average loss: 2.6648
Iteration: 3681; Percent complete: 92.0%; Average loss: 2.6844
Iteration: 3682; Percent complete: 92.0%; Average loss: 2.4928
Iteration: 3683; Percent complete: 92.1%; Average loss: 2.7604
Iteration: 3684; Percent complete: 92.1%; Average loss: 2.8825
Iteration: 3685; Percent complete: 92.1%; Average loss: 2.7827
Iteration: 3686; Percent complete: 92.2%; Average loss: 2.5744
Iteration: 3687; Percent complete: 92.2%; Average loss: 2.6958
Iteration: 3688; Percent complete: 92.2%; Average loss: 2.6096
Iteration: 3689; Percent complete: 92.2%; Average loss: 2.8053
Iteration: 3690; Percent complete: 92.2%; Average loss: 2.6571
Iteration: 3691; Percent complete: 92.3%; Average loss: 2.7187
Iteration: 3692; Percent complete: 92.3%; Average loss: 2.4750
```

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Iteration: 3693; Percent complete: 92.3%; Average loss: 2.6900
Iteration: 3694; Percent complete: 92.3%; Average loss: 2.6274
Iteration: 3695; Percent complete: 92.4%; Average loss: 2.9515
Iteration: 3696; Percent complete: 92.4%; Average loss: 2.8120
Iteration: 3697; Percent complete: 92.4%; Average loss: 2.7445
Iteration: 3698; Percent complete: 92.5%; Average loss: 2.5725
Iteration: 3699; Percent complete: 92.5%; Average loss: 2.8026
Iteration: 3700; Percent complete: 92.5%; Average loss: 2.7021
Iteration: 3701; Percent complete: 92.5%; Average loss: 2.5441
Iteration: 3702; Percent complete: 92.5%; Average loss: 2.5783
Iteration: 3703; Percent complete: 92.6%; Average loss: 2.7323
Iteration: 3704; Percent complete: 92.6%; Average loss: 2.7330
Iteration: 3705; Percent complete: 92.6%; Average loss: 2.3713
Iteration: 3706; Percent complete: 92.7%; Average loss: 2.4764
Iteration: 3707; Percent complete: 92.7%; Average loss: 2.8116
Iteration: 3708; Percent complete: 92.7%; Average loss: 2.6327
Iteration: 3709; Percent complete: 92.7%; Average loss: 2.7491
Iteration: 3710; Percent complete: 92.8%; Average loss: 2.7006
Iteration: 3711; Percent complete: 92.8%; Average loss: 2.6598
Iteration: 3712; Percent complete: 92.8%; Average loss: 2.6363
Iteration: 3713; Percent complete: 92.8%; Average loss: 2.5088
Iteration: 3714; Percent complete: 92.8%; Average loss: 2.5258
Iteration: 3715; Percent complete: 92.9%; Average loss: 2.7672
Iteration: 3716; Percent complete: 92.9%; Average loss: 2.6119
Iteration: 3717; Percent complete: 92.9%; Average loss: 2.8441
Iteration: 3718; Percent complete: 93.0%; Average loss: 2.6713
Iteration: 3719; Percent complete: 93.0%; Average loss: 2.5537
Iteration: 3720; Percent complete: 93.0%; Average loss: 2.5360
Iteration: 3721; Percent complete: 93.0%; Average loss: 2.6176
Iteration: 3722; Percent complete: 93.0%; Average loss: 2.5879
Iteration: 3723; Percent complete: 93.1%; Average loss: 2.8478
Iteration: 3724; Percent complete: 93.1%; Average loss: 2.7866
Iteration: 3725; Percent complete: 93.1%; Average loss: 2.9078
Iteration: 3726; Percent complete: 93.2%; Average loss: 2.4983
Iteration: 3727; Percent complete: 93.2%; Average loss: 2.7060
Iteration: 3728; Percent complete: 93.2%; Average loss: 2.8856
Iteration: 3729; Percent complete: 93.2%; Average loss: 2.7746
Iteration: 3730; Percent complete: 93.2%; Average loss: 2.5293
Iteration: 3731; Percent complete: 93.3%; Average loss: 2.9352
Iteration: 3732; Percent complete: 93.3%; Average loss: 2.6806
Iteration: 3733; Percent complete: 93.3%; Average loss: 2.6598
Iteration: 3734; Percent complete: 93.3%; Average loss: 2.7702
Iteration: 3735; Percent complete: 93.4%; Average loss: 2.6882
Iteration: 3736; Percent complete: 93.4%; Average loss: 2.5428
Iteration: 3737; Percent complete: 93.4%; Average loss: 2.5653
Iteration: 3738; Percent complete: 93.5%; Average loss: 2.6728
Iteration: 3739; Percent complete: 93.5%; Average loss: 2.5640
Iteration: 3740; Percent complete: 93.5%; Average loss: 2.7825
Iteration: 3741; Percent complete: 93.5%; Average loss: 2.7264
Iteration: 3742; Percent complete: 93.5%; Average loss: 2.6162
Iteration: 3743; Percent complete: 93.6%; Average loss: 2.7814
Iteration: 3744; Percent complete: 93.6%; Average loss: 2.7032
Iteration: 3745; Percent complete: 93.6%; Average loss: 2.7236
Iteration: 3746; Percent complete: 93.7%; Average loss: 2.6169
Iteration: 3747; Percent complete: 93.7%; Average loss: 2.6155
Iteration: 3748; Percent complete: 93.7%; Average loss: 2.8889
```

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Iteration: 3749; Percent complete: 93.7%; Average loss: 2.6287
Iteration: 3750; Percent complete: 93.8%; Average loss: 2.7587
Iteration: 3751; Percent complete: 93.8%; Average loss: 2.6668
Iteration: 3752; Percent complete: 93.8%; Average loss: 2.7064
Iteration: 3753; Percent complete: 93.8%; Average loss: 2.7587
Iteration: 3754; Percent complete: 93.8%; Average loss: 2.5731
Iteration: 3755; Percent complete: 93.9%; Average loss: 2.5474
Iteration: 3756; Percent complete: 93.9%; Average loss: 2.4539
Iteration: 3757; Percent complete: 93.9%; Average loss: 2.5410
Iteration: 3758; Percent complete: 94.0%; Average loss: 2.6682
Iteration: 3759; Percent complete: 94.0%; Average loss: 2.7720
Iteration: 3760; Percent complete: 94.0%; Average loss: 2.9093
Iteration: 3761; Percent complete: 94.0%; Average loss: 2.5750
Iteration: 3762; Percent complete: 94.0%; Average loss: 2.8143
Iteration: 3763; Percent complete: 94.1%; Average loss: 2.7761
Iteration: 3764; Percent complete: 94.1%; Average loss: 2.8630
Iteration: 3765; Percent complete: 94.1%; Average loss: 2.6535
Iteration: 3766; Percent complete: 94.2%; Average loss: 2.3748
Iteration: 3767; Percent complete: 94.2%; Average loss: 2.9199
Iteration: 3768; Percent complete: 94.2%; Average loss: 2.5261
Iteration: 3769; Percent complete: 94.2%; Average loss: 2.8229
Iteration: 3770; Percent complete: 94.2%; Average loss: 2.6963
Iteration: 3771; Percent complete: 94.3%; Average loss: 2.6695
Iteration: 3772; Percent complete: 94.3%; Average loss: 2.5474
Iteration: 3773; Percent complete: 94.3%; Average loss: 2.6680
Iteration: 3774; Percent complete: 94.3%; Average loss: 2.8973
Iteration: 3775; Percent complete: 94.4%; Average loss: 2.8983
Iteration: 3776; Percent complete: 94.4%; Average loss: 2.5481
Iteration: 3777; Percent complete: 94.4%; Average loss: 2.6616
Iteration: 3778; Percent complete: 94.5%; Average loss: 2.8050
Iteration: 3779; Percent complete: 94.5%; Average loss: 2.8189
Iteration: 3780; Percent complete: 94.5%; Average loss: 2.7359
Iteration: 3781; Percent complete: 94.5%; Average loss: 2.5655
Iteration: 3782; Percent complete: 94.5%; Average loss: 2.5920
Iteration: 3783; Percent complete: 94.6%; Average loss: 2.6504
Iteration: 3784; Percent complete: 94.6%; Average loss: 2.7961
Iteration: 3785; Percent complete: 94.6%; Average loss: 2.8532
Iteration: 3786; Percent complete: 94.7%; Average loss: 2.7453
Iteration: 3787; Percent complete: 94.7%; Average loss: 2.7850
Iteration: 3788; Percent complete: 94.7%; Average loss: 2.6767
Iteration: 3789; Percent complete: 94.7%; Average loss: 2.7612
Iteration: 3790; Percent complete: 94.8%; Average loss: 2.6988
Iteration: 3791; Percent complete: 94.8%; Average loss: 2.6140
Iteration: 3792; Percent complete: 94.8%; Average loss: 2.7435
Iteration: 3793; Percent complete: 94.8%; Average loss: 2.6556
Iteration: 3794; Percent complete: 94.8%; Average loss: 2.6747
Iteration: 3795; Percent complete: 94.9%; Average loss: 2.4844
Iteration: 3796; Percent complete: 94.9%; Average loss: 2.7978
Iteration: 3797; Percent complete: 94.9%; Average loss: 2.5849
Iteration: 3798; Percent complete: 95.0%; Average loss: 2.9069
Iteration: 3799; Percent complete: 95.0%; Average loss: 2.7319
Iteration: 3800; Percent complete: 95.0%; Average loss: 2.6821
Iteration: 3801; Percent complete: 95.0%; Average loss: 2.7289
Iteration: 3802; Percent complete: 95.0%; Average loss: 2.7832
Iteration: 3803; Percent complete: 95.1%; Average loss: 2.7387
Iteration: 3804; Percent complete: 95.1%; Average loss: 2.5144
```

```
Iteration: 3805; Percent complete: 95.1%; Average loss: 2.6877
Iteration: 3806; Percent complete: 95.2%; Average loss: 2.5571
Iteration: 3807; Percent complete: 95.2%; Average loss: 2.7892
Iteration: 3808; Percent complete: 95.2%; Average loss: 2.7581
Iteration: 3809; Percent complete: 95.2%; Average loss: 2.7933
Iteration: 3810; Percent complete: 95.2%; Average loss: 2.7592
Iteration: 3811; Percent complete: 95.3%; Average loss: 2.5670
Iteration: 3812; Percent complete: 95.3%; Average loss: 2.8723
Iteration: 3813; Percent complete: 95.3%; Average loss: 2.5581
Iteration: 3814; Percent complete: 95.3%; Average loss: 2.5653
Iteration: 3815; Percent complete: 95.4%; Average loss: 2.7539
Iteration: 3816; Percent complete: 95.4%; Average loss: 2.6926
Iteration: 3817; Percent complete: 95.4%; Average loss: 2.3545
Iteration: 3818; Percent complete: 95.5%; Average loss: 2.6974
Iteration: 3819; Percent complete: 95.5%; Average loss: 2.6224
Iteration: 3820; Percent complete: 95.5%; Average loss: 2.7189
Iteration: 3821; Percent complete: 95.5%; Average loss: 2.8496
Iteration: 3822; Percent complete: 95.5%; Average loss: 2.8156
Iteration: 3823; Percent complete: 95.6%; Average loss: 2.7736
Iteration: 3824; Percent complete: 95.6%; Average loss: 2.4745
Iteration: 3825; Percent complete: 95.6%; Average loss: 2.7081
Iteration: 3826; Percent complete: 95.7%; Average loss: 2.6233
Iteration: 3827; Percent complete: 95.7%; Average loss: 2.9519
Iteration: 3828; Percent complete: 95.7%; Average loss: 2.6850
Iteration: 3829; Percent complete: 95.7%; Average loss: 2.6199
Iteration: 3830; Percent complete: 95.8%; Average loss: 2.7261
Iteration: 3831; Percent complete: 95.8%; Average loss: 2.6546
Iteration: 3832; Percent complete: 95.8%; Average loss: 2.7054
Iteration: 3833; Percent complete: 95.8%; Average loss: 2.8343
Iteration: 3834; Percent complete: 95.9%; Average loss: 2.7222
Iteration: 3835; Percent complete: 95.9%; Average loss: 2.6380
Iteration: 3836; Percent complete: 95.9%; Average loss: 2.6219
Iteration: 3837; Percent complete: 95.9%; Average loss: 2.5333
Iteration: 3838; Percent complete: 96.0%; Average loss: 2.7534
Iteration: 3839; Percent complete: 96.0%; Average loss: 2.4636
Iteration: 3840; Percent complete: 96.0%; Average loss: 2.8140
Iteration: 3841; Percent complete: 96.0%; Average loss: 2.3672
Iteration: 3842; Percent complete: 96.0%; Average loss: 2.5917
Iteration: 3843; Percent complete: 96.1%; Average loss: 2.7334
Iteration: 3844; Percent complete: 96.1%; Average loss: 2.7516
Iteration: 3845; Percent complete: 96.1%; Average loss: 2.5033
Iteration: 3846; Percent complete: 96.2%; Average loss: 2.5675
Iteration: 3847; Percent complete: 96.2%; Average loss: 2.7729
Iteration: 3848; Percent complete: 96.2%; Average loss: 2.5170
Iteration: 3849; Percent complete: 96.2%; Average loss: 2.6563
Iteration: 3850; Percent complete: 96.2%; Average loss: 2.5571
Iteration: 3851; Percent complete: 96.3%; Average loss: 2.4242
Iteration: 3852; Percent complete: 96.3%; Average loss: 2.7829
Iteration: 3853; Percent complete: 96.3%; Average loss: 2.4563
Iteration: 3854; Percent complete: 96.4%; Average loss: 2.7387
Iteration: 3855; Percent complete: 96.4%; Average loss: 2.6062
Iteration: 3856; Percent complete: 96.4%; Average loss: 2.6993
Iteration: 3857; Percent complete: 96.4%; Average loss: 2.7458
Iteration: 3858; Percent complete: 96.5%; Average loss: 2.3067
Iteration: 3859; Percent complete: 96.5%; Average loss: 2.5822
Iteration: 3860; Percent complete: 96.5%; Average loss: 2.5840
```

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Iteration: 3861; Percent complete: 96.5%; Average loss: 2.6798
Iteration: 3862; Percent complete: 96.5%; Average loss: 2.7340
Iteration: 3863; Percent complete: 96.6%; Average loss: 2.5778
Iteration: 3864; Percent complete: 96.6%; Average loss: 2.5505
Iteration: 3865; Percent complete: 96.6%; Average loss: 2.4675
Iteration: 3866; Percent complete: 96.7%; Average loss: 2.6805
Iteration: 3867; Percent complete: 96.7%; Average loss: 2.6985
Iteration: 3868; Percent complete: 96.7%; Average loss: 2.8461
Iteration: 3869; Percent complete: 96.7%; Average loss: 2.7027
Iteration: 3870; Percent complete: 96.8%; Average loss: 2.5434
Iteration: 3871; Percent complete: 96.8%; Average loss: 2.6291
Iteration: 3872; Percent complete: 96.8%; Average loss: 2.4909
Iteration: 3873; Percent complete: 96.8%; Average loss: 2.6655
Iteration: 3874; Percent complete: 96.9%; Average loss: 2.5119
Iteration: 3875; Percent complete: 96.9%; Average loss: 2.7950
Iteration: 3876; Percent complete: 96.9%; Average loss: 2.6877
Iteration: 3877; Percent complete: 96.9%; Average loss: 2.6445
Iteration: 3878; Percent complete: 97.0%; Average loss: 2.7948
Iteration: 3879; Percent complete: 97.0%; Average loss: 2.7460
Iteration: 3880; Percent complete: 97.0%; Average loss: 2.4167
Iteration: 3881; Percent complete: 97.0%; Average loss: 2.9297
Iteration: 3882; Percent complete: 97.0%; Average loss: 2.6308
Iteration: 3883; Percent complete: 97.1%; Average loss: 2.7179
Iteration: 3884; Percent complete: 97.1%; Average loss: 2.4995
Iteration: 3885; Percent complete: 97.1%; Average loss: 2.6277
Iteration: 3886; Percent complete: 97.2%; Average loss: 2.5980
Iteration: 3887; Percent complete: 97.2%; Average loss: 2.6197
Iteration: 3888; Percent complete: 97.2%; Average loss: 2.4778
Iteration: 3889; Percent complete: 97.2%; Average loss: 2.5790
Iteration: 3890; Percent complete: 97.2%; Average loss: 2.8432
Iteration: 3891; Percent complete: 97.3%; Average loss: 2.7392
Iteration: 3892; Percent complete: 97.3%; Average loss: 2.7093
Iteration: 3893; Percent complete: 97.3%; Average loss: 2.5967
Iteration: 3894; Percent complete: 97.4%; Average loss: 2.6524
Iteration: 3895; Percent complete: 97.4%; Average loss: 2.6842
Iteration: 3896; Percent complete: 97.4%; Average loss: 2.6370
Iteration: 3897; Percent complete: 97.4%; Average loss: 2.6897
Iteration: 3898; Percent complete: 97.5%; Average loss: 3.0078
Iteration: 3899; Percent complete: 97.5%; Average loss: 2.7109
Iteration: 3900; Percent complete: 97.5%; Average loss: 2.5785
Iteration: 3901; Percent complete: 97.5%; Average loss: 2.8231
Iteration: 3902; Percent complete: 97.5%; Average loss: 2.6900
Iteration: 3903; Percent complete: 97.6%; Average loss: 2.8941
Iteration: 3904; Percent complete: 97.6%; Average loss: 2.8476
Iteration: 3905; Percent complete: 97.6%; Average loss: 2.7071
Iteration: 3906; Percent complete: 97.7%; Average loss: 2.7248
Iteration: 3907; Percent complete: 97.7%; Average loss: 2.7805
Iteration: 3908; Percent complete: 97.7%; Average loss: 2.6772
Iteration: 3909; Percent complete: 97.7%; Average loss: 2.5753
Iteration: 3910; Percent complete: 97.8%; Average loss: 2.6698
Iteration: 3911; Percent complete: 97.8%; Average loss: 2.3097
Iteration: 3912; Percent complete: 97.8%; Average loss: 3.0499
Iteration: 3913; Percent complete: 97.8%; Average loss: 2.6689
Iteration: 3914; Percent complete: 97.9%; Average loss: 2.7570
Iteration: 3915; Percent complete: 97.9%; Average loss: 2.5025
Iteration: 3916; Percent complete: 97.9%; Average loss: 2.7349
```

```
Iteration: 3917; Percent complete: 97.9%; Average loss: 2.4142
Iteration: 3918; Percent complete: 98.0%; Average loss: 2.5410
Iteration: 3919; Percent complete: 98.0%; Average loss: 2.6538
Iteration: 3920; Percent complete: 98.0%; Average loss: 2.5548
Iteration: 3921; Percent complete: 98.0%; Average loss: 2.8024
Iteration: 3922; Percent complete: 98.0%; Average loss: 2.7261
Iteration: 3923; Percent complete: 98.1%; Average loss: 2.6143
Iteration: 3924; Percent complete: 98.1%; Average loss: 2.7258
Iteration: 3925; Percent complete: 98.1%; Average loss: 2.9098
Iteration: 3926; Percent complete: 98.2%; Average loss: 2.4826
Iteration: 3927; Percent complete: 98.2%; Average loss: 2.4940
Iteration: 3928; Percent complete: 98.2%; Average loss: 2.5619
Iteration: 3929; Percent complete: 98.2%; Average loss: 2.5180
Iteration: 3930; Percent complete: 98.2%; Average loss: 2.5714
Iteration: 3931; Percent complete: 98.3%; Average loss: 2.9740
Iteration: 3932; Percent complete: 98.3%; Average loss: 2.5768
Iteration: 3933; Percent complete: 98.3%; Average loss: 2.4226
Iteration: 3934; Percent complete: 98.4%; Average loss: 2.6509
Iteration: 3935; Percent complete: 98.4%; Average loss: 2.6361
Iteration: 3936; Percent complete: 98.4%; Average loss: 2.5905
Iteration: 3937; Percent complete: 98.4%; Average loss: 2.4840
Iteration: 3938; Percent complete: 98.5%; Average loss: 2.5777
Iteration: 3939; Percent complete: 98.5%; Average loss: 2.6856
Iteration: 3940; Percent complete: 98.5%; Average loss: 2.7513
Iteration: 3941; Percent complete: 98.5%; Average loss: 2.6435
Iteration: 3942; Percent complete: 98.6%; Average loss: 2.7688
Iteration: 3943; Percent complete: 98.6%; Average loss: 2.8785
Iteration: 3944; Percent complete: 98.6%; Average loss: 2.5454
Iteration: 3945; Percent complete: 98.6%; Average loss: 2.5653
Iteration: 3946; Percent complete: 98.7%; Average loss: 2.7333
Iteration: 3947; Percent complete: 98.7%; Average loss: 2.5469
Iteration: 3948; Percent complete: 98.7%; Average loss: 2.6858
Iteration: 3949; Percent complete: 98.7%; Average loss: 2.7588
Iteration: 3950; Percent complete: 98.8%; Average loss: 2.7771
Iteration: 3951; Percent complete: 98.8%; Average loss: 2.6462
Iteration: 3952; Percent complete: 98.8%; Average loss: 2.5465
Iteration: 3953; Percent complete: 98.8%; Average loss: 2.5350
Iteration: 3954; Percent complete: 98.9%; Average loss: 2.8722
Iteration: 3955; Percent complete: 98.9%; Average loss: 2.5027
Iteration: 3956; Percent complete: 98.9%; Average loss: 2.7692
Iteration: 3957; Percent complete: 98.9%; Average loss: 2.5357
Iteration: 3958; Percent complete: 99.0%; Average loss: 2.5293
Iteration: 3959; Percent complete: 99.0%; Average loss: 2.5907
Iteration: 3960; Percent complete: 99.0%; Average loss: 2.5931
Iteration: 3961; Percent complete: 99.0%; Average loss: 2.5423
Iteration: 3962; Percent complete: 99.1%; Average loss: 2.6331
Iteration: 3963; Percent complete: 99.1%; Average loss: 2.9287
Iteration: 3964; Percent complete: 99.1%; Average loss: 2.8915
Iteration: 3965; Percent complete: 99.1%; Average loss: 2.6541
Iteration: 3966; Percent complete: 99.2%; Average loss: 2.4206
Iteration: 3967; Percent complete: 99.2%; Average loss: 2.4674
Iteration: 3968; Percent complete: 99.2%; Average loss: 2.6953
Iteration: 3969; Percent complete: 99.2%; Average loss: 2.5919
Iteration: 3970; Percent complete: 99.2%; Average loss: 2.8395
Iteration: 3971; Percent complete: 99.3%; Average loss: 2.6935
Iteration: 3972; Percent complete: 99.3%; Average loss: 2.4184
```

```
Iteration: 3973; Percent complete: 99.3%; Average loss: 2.7610
Iteration: 3974; Percent complete: 99.4%; Average loss: 2.5408
Iteration: 3975; Percent complete: 99.4%; Average loss: 2.6662
Iteration: 3976; Percent complete: 99.4%; Average loss: 2.8671
Iteration: 3977; Percent complete: 99.4%; Average loss: 2.7497
Iteration: 3978; Percent complete: 99.5%; Average loss: 2.3977
Iteration: 3979; Percent complete: 99.5%; Average loss: 2.4636
Iteration: 3980; Percent complete: 99.5%; Average loss: 2.5368
Iteration: 3981; Percent complete: 99.5%; Average loss: 2.6058
Iteration: 3982; Percent complete: 99.6%; Average loss: 2.5604
Iteration: 3983; Percent complete: 99.6%; Average loss: 2.7177
Iteration: 3984; Percent complete: 99.6%; Average loss: 2.5928
Iteration: 3985; Percent complete: 99.6%; Average loss: 2.5979
Iteration: 3986; Percent complete: 99.7%; Average loss: 2.8605
Iteration: 3987; Percent complete: 99.7%; Average loss: 2.3724
Iteration: 3988; Percent complete: 99.7%; Average loss: 2.8118
Iteration: 3989; Percent complete: 99.7%; Average loss: 2.6859
Iteration: 3990; Percent complete: 99.8%; Average loss: 2.8238
Iteration: 3991; Percent complete: 99.8%; Average loss: 2.6168
Iteration: 3992; Percent complete: 99.8%; Average loss: 2.4810
Iteration: 3993; Percent complete: 99.8%; Average loss: 2.8484
Iteration: 3994; Percent complete: 99.9%; Average loss: 2.5484
Iteration: 3995; Percent complete: 99.9%; Average loss: 2.6485
Iteration: 3996; Percent complete: 99.9%; Average loss: 2.5632
Iteration: 3997; Percent complete: 99.9%; Average loss: 2.2697
Iteration: 3998; Percent complete: 100.0%; Average loss: 2.6121
Iteration: 3999; Percent complete: 100.0%; Average loss: 2.6433
Iteration: 4000; Percent complete: 100.0%; Average loss: 2.5277
```

In [38]:

```python
import wandb

def train_with_wandb(config=None):
    with wandb.init(config=config):
        # Access hyperparameters from wandb.config
        config = wandb.config

        # Configure training/optimization
        clip = config.clip
        teacher_forcing_ratio = config.teacher_forcing_ratio
        learning_rate = config.learning_rate
        decoder_learning_ratio = config.decoder_learning_ratio
        n_iteration = config.n_iteration
        print_every = config.print_every
        save_every = config.save_every
        batch_size = config.batch_size

        # Initialize models (assuming these are defined elsewhere)
        encoder = EncoderRNN(config.hidden_size, embedding, config.encoder_r
        decoder = LuongAttnDecoderRNN(attn_model, embedding, config.hidden_s

        # Ensure dropout layers are in train mode
        encoder.train()
        decoder.train()

        # Initialize optimizers
        print('Building optimizers ...')
```

```python
        encoder_optimizer = optim.Adam(encoder.parameters(), lr=learning_rat
        decoder_optimizer = optim.Adam(decoder.parameters(), lr=learning_rat

        # If you have CUDA, configure CUDA to call
        if torch.cuda.is_available():
            encoder = encoder.cuda()
            decoder = decoder.cuda()
            for state in encoder_optimizer.state.values():
                for k, v in state.items():
                    if isinstance(v, torch.Tensor):
                        state[k] = v.cuda()
            for state in decoder_optimizer.state.values():
                for k, v in state.items():
                    if isinstance(v, torch.Tensor):
                        state[k] = v.cuda()

        # Run training iterations
        print("Starting Training!")
        trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimiz
                   embedding, config.encoder_n_layers, config.decoder_n_laye
                   print_every, save_every, clip, corpus_name, loadFilename,

def trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimizer,
               encoder_n_layers, decoder_n_layers, save_dir, n_iteration, ba
               print_every, save_every, clip, corpus_name, loadFilename, cor

    # Load batches for each iteration
    training_batches = [batch2TrainData(voc, [random.choice(pairs) for _ in
                        for _ in range(n_iteration)]

    # Initializations
    print('Initializing ...')
    start_iteration = 1
    print_loss = 0
    if loadFilename:
        start_iteration = checkpoint['iteration'] + 1

    # Training loop
    print("Training...")
    for iteration in range(start_iteration, n_iteration + 1):
        training_batch = training_batches[iteration - 1]
        # Extract fields from batch
        input_variable, lengths, target_variable, mask, max_target_len = tra

        # Run a training iteration with batch
        loss = train(input_variable, lengths, target_variable, mask, max_tar
                     decoder, embedding, encoder_optimizer, decoder_optimize
        print_loss += loss

        # Print progress
        if iteration % print_every == 0:
            print_loss_avg = print_loss / print_every
            print("Iteration: {}; Percent complete: {:.1f}%; Average loss: {
            wandb.log({"loss": print_loss_avg, "iteration": iteration})
            print_loss = 0
```

```python
        # Save checkpoint
        if (iteration % save_every == 0):
            directory = os.path.join(save_dir, model_name, corpus_name, '{}-
            if not os.path.exists(directory):
                os.makedirs(directory)
            torch.save({
                'iteration': iteration,
                'en': encoder.state_dict(),
                'de': decoder.state_dict(),
                'en_opt': encoder_optimizer.state_dict(),
                'de_opt': decoder_optimizer.state_dict(),
                'loss': loss,
                'voc_dict': voc.__dict__,
                'embedding': embedding.state_dict()
            }, os.path.join(directory, '{}_{}.tar'.format(iteration, 'checkp

def train(input_variable, lengths, target_variable, mask, max_target_len, en
          encoder_optimizer, decoder_optimizer, batch_size, clip, config):
    # Zero gradients
    encoder_optimizer.zero_grad()
    decoder_optimizer.zero_grad()

    # Set device options
    input_variable = input_variable.to(device)
    target_variable = target_variable.to(device)
    mask = mask.to(device)

    # Ensure lengths is on CPU
    lengths = lengths.cpu()

    # Initialize variables
    loss = 0
    print_losses = []
    n_totals = 0

    # Forward pass through encoder
    encoder_outputs, encoder_hidden = encoder(input_variable, lengths)

    # Create initial decoder input (start with SOS tokens for each sentence)
    decoder_input = torch.LongTensor([[SOS_token for _ in range(batch_size)]
    decoder_input = decoder_input.to(device)

    # Set initial decoder hidden state to the encoder's final hidden state
    decoder_hidden = encoder_hidden[:decoder.n_layers]

    # Determine if we are using teacher forcing this iteration
    use_teacher_forcing = True if random.random() < config.teacher_forcing_r

    # Forward batch of sequences through decoder one time step at a time
    if use_teacher_forcing:
        for t in range(max_target_len):
            decoder_output, decoder_hidden = decoder(
                decoder_input, decoder_hidden, encoder_outputs
            )
            # Teacher forcing: next input is current target
            decoder_input = target_variable[t].view(1, -1)
```

```
            # Calculate and accumulate loss
            mask_loss, nTotal = maskNLLLoss(decoder_output, target_variable[
            loss += mask_loss
            print_losses.append(mask_loss.item() * nTotal)
            n_totals += nTotal
    else:
        for t in range(max_target_len):
            decoder_output, decoder_hidden = decoder(
                decoder_input, decoder_hidden, encoder_outputs
            )
            # No teacher forcing: next input is decoder's own current output
            _, topi = decoder_output.topk(1)
            decoder_input = torch.LongTensor([[topi[i][0] for i in range(bat
            decoder_input = decoder_input.to(device)
            # Calculate and accumulate loss
            mask_loss, nTotal = maskNLLLoss(decoder_output, target_variable[
            loss += mask_loss
            print_losses.append(mask_loss.item() * nTotal)
            n_totals += nTotal

    # Perform backpropagation
    loss.backward()

    # Clip gradients: gradients are modified in place
    _ = nn.utils.clip_grad_norm_(encoder.parameters(), clip)
    _ = nn.utils.clip_grad_norm_(decoder.parameters(), clip)

    # Adjust model weights
    encoder_optimizer.step()
    decoder_optimizer.step()

    return sum(print_losses) / n_totals

def train_with_wandb(config=None):
    with wandb.init(config=config):
        # Access hyperparameters from wandb.config
        config = wandb.config

        # Configure training/optimization
        clip = config.clip
        teacher_forcing_ratio = config.teacher_forcing_ratio
        learning_rate = config.learning_rate
        decoder_learning_ratio = config.decoder_learning_ratio
        n_iteration = config.n_iteration
        print_every = config.print_every
        save_every = config.save_every
        batch_size = config.batch_size
        hidden_size = config.hidden_size  # Use this for both embedding and

        # Initialize models
        embedding = nn.Embedding(voc.num_words, hidden_size)
        encoder = EncoderRNN(hidden_size, embedding, config.encoder_n_layers
        decoder = LuongAttnDecoderRNN(attn_model, embedding, hidden_size, vo

        # Ensure dropout layers are in train mode
        encoder.train()
```

```
        decoder.train()

        # Initialize optimizers
        print('Building optimizers ...')
        encoder_optimizer = optim.Adam(encoder.parameters(), lr=learning_rat
        decoder_optimizer = optim.Adam(decoder.parameters(), lr=learning_rat

        # If you have CUDA, configure CUDA to call
        if torch.cuda.is_available():
            encoder = encoder.cuda()
            decoder = decoder.cuda()

        # Run training iterations
        print("Starting Training!")
        trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimiz
                   embedding, config.encoder_n_layers, config.decoder_n_laye
                   print_every, save_every, clip, corpus_name, loadFilename,

# Update the EncoderRNN class
class EncoderRNN(nn.Module):
    def __init__(self, hidden_size, embedding, n_layers=1, dropout=0):
        super(EncoderRNN, self).__init__()
        self.n_layers = n_layers
        self.hidden_size = hidden_size
        self.embedding = embedding

        # Initialize GRU; the input_size and hidden_size params are both set
        #   because our input size is a word embedding with number of featur
        self.gru = nn.GRU(hidden_size, hidden_size, n_layers,
                          dropout=(0 if n_layers == 1 else dropout), bidirec

    def forward(self, input_seq, input_lengths, hidden=None):
        # Convert word indexes to embeddings
        embedded = self.embedding(input_seq)
        # Pack padded batch of sequences for RNN module
        packed = nn.utils.rnn.pack_padded_sequence(embedded, input_lengths.c
        # Forward pass through GRU
        outputs, hidden = self.gru(packed, hidden)
        # Unpack padding
        outputs, _ = nn.utils.rnn.pad_packed_sequence(outputs)
        # Sum bidirectional GRU outputs
        outputs = outputs[:, :, :self.hidden_size] + outputs[:, : ,self.hidd
        # Return output and final hidden state
        return outputs, hidden

# Update the sweep configuration
sweep_config = {
    'method': 'random',
    'metric': {
        'name': 'loss',
        'goal': 'minimize'
    },
    'parameters': {
        'clip': {'value': 50.0},
        'teacher_forcing_ratio': {'min': 0.5, 'max': 1.0},
        'learning_rate': {'min': 0.0001, 'max': 0.01},
```

```
        'decoder_learning_ratio': {'min': 1, 'max': 10},
        'n_iteration': {'value': 4000},
        'print_every': {'value': 1},
        'save_every': {'value': 500},
        'batch_size': {'values': [32, 64, 128, 256]},
        'hidden_size': {'values': [256, 512, 1024]},
        'encoder_n_layers': {'min': 1, 'max': 4},
        'decoder_n_layers': {'min': 1, 'max': 4},
        'dropout': {'min': 0.1, 'max': 0.5}
    }
}

# Initialize the sweep
sweep_id = wandb.sweep(sweep_config, project="hw2")

# Start the sweep
wandb.agent(sweep_id, train_with_wandb, count=10)  # Run 10 trials
```

```
Create sweep with ID: bks6hv9r
Sweep URL: https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r
```

```
wandb: Agent Starting Run: 10u73ntq with config:
wandb:  batch_size: 64
wandb:  clip: 50
wandb:  decoder_learning_ratio: 1
wandb:  decoder_n_layers: 4
wandb:  dropout: 0.20245133563165615
wandb:  encoder_n_layers: 1
wandb:  hidden_size: 256
wandb:  learning_rate: 0.007053129799611019
wandb:  n_iteration: 4000
wandb:  print_every: 1
wandb:  save_every: 500
wandb:  teacher_forcing_ratio: 0.6117172532669342
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
```

Tracking run with wandb version 0.18.3

Run data is saved locally in `/scratch/poh2005/wandb/run-20241018_210405-10u73ntq`

Syncing run **atomic-sweep-1** to Weights & Biases (docs)

Sweep page: https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View project at https://wandb.ai/pavly-nyu/hw2

View sweep at https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View run at https://wandb.ai/pavly-nyu/hw2/runs/10u73ntq

```
Building optimizers ...
Starting Training!
Initializing ...
Training...
```

```
Traceback (most recent call last):
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
210, in train_with_wandb
    trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimizer,
decoder_optimizer,
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
73, in trainIters
    loss = train(input_variable, lengths, target_variable, mask, max_target_
len, encoder,
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^^^^^^^^^^^^^
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
147, in train
    decoder_output, decoder_hidden = decoder(
                                     ^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1553, in _wrapped_call_impl
    return self._call_impl(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1562, in _call_impl
    return forward_call(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/state/partition1/job-52408168/ipykernel_4015321/54969897.py", line
27, in forward
    rnn_output, hidden = self.gru(embedded, last_hidden)
                         ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1553, in _wrapped_call_impl
    return self._call_impl(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1562, in _call_impl
    return forward_call(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 1137, in forward
    self.check_forward_args(input, hx, batch_sizes)
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 283, in check_forward_args
    self.check_hidden_size(hidden, expected_hidden_size)
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 266, in check_hidden_size
    raise RuntimeError(msg.format(expected_hidden_size, list(hx.size())))
RuntimeError: Expected hidden size (4, 64, 256), got [2, 64, 256]
```

View run **atomic-sweep-1** at: https://wandb.ai/pavly-nyu/hw2/runs/10u73ntq

View project at: https://wandb.ai/pavly-nyu/hw2

Synced 5 W&B file(s), 0 media file(s), 0 artifact file(s) and 0 other file(s)

Find logs at: `./wandb/run-20241018_210405-10u73ntq/logs`

```
Run 10u73ntq errored:
Traceback (most recent call last):
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/agents/pyage
nt.py", line 306, in _run_job
    self._function()
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
210, in train_with_wandb
    trainIters(model_name, voc, pairs, encoder, decoder, encoder_optimizer,
decoder_optimizer,
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
73, in trainIters
    loss = train(input_variable, lengths, target_variable, mask, max_target_
len, encoder,
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^^^^^^^^^^^^^
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
147, in train
    decoder_output, decoder_hidden = decoder(
                                     ^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1553, in _wrapped_call_impl
    return self._call_impl(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1562, in _call_impl
    return forward_call(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/state/partition1/job-52408168/ipykernel_4015321/54969897.py", line
27, in forward
    rnn_output, hidden = self.gru(embedded, last_hidden)
                         ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1553, in _wrapped_call_impl
    return self._call_impl(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/modul
e.py", line 1562, in _call_impl
    return forward_call(*args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 1137, in forward
    self.check_forward_args(input, hx, batch_sizes)
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 283, in check_forward_args
    self.check_hidden_size(hidden, expected_hidden_size)
  File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/modules/rnn.p
y", line 266, in check_hidden_size
    raise RuntimeError(msg.format(expected_hidden_size, list(hx.size())))
RuntimeError: Expected hidden size (4, 64, 256), got [2, 64, 256]

wandb: ERROR Run 10u73ntq errored:
wandb: ERROR Traceback (most recent call last):
wandb: ERROR   File "/home/poh2005/.local/lib/python3.12/site-packages/wand
b/agents/pyagent.py", line 306, in _run_job
wandb: ERROR     self._function()
wandb: ERROR   File "/state/partition1/job-52408168/ipykernel_4015321/602687
```

```
067.py", line 210, in train_with_wandb
wandb: ERROR     trainIters(model_name, voc, pairs, encoder, decoder, encode
r_optimizer, decoder_optimizer,
wandb: ERROR   File "/state/partition1/job-52408168/ipykernel_4015321/602687
067.py", line 73, in trainIters
wandb: ERROR     loss = train(input_variable, lengths, target_variable, mas
k, max_target_len, encoder,
wandb: ERROR            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/state/partition1/job-52408168/ipykernel_4015321/602687
067.py", line 147, in train
wandb: ERROR     decoder_output, decoder_hidden = decoder(
wandb: ERROR                                      ^^^^^^^^
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/module.py", line 1553, in _wrapped_call_impl
wandb: ERROR     return self._call_impl(*args, **kwargs)
wandb: ERROR            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/module.py", line 1562, in _call_impl
wandb: ERROR     return forward_call(*args, **kwargs)
wandb: ERROR            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/state/partition1/job-52408168/ipykernel_4015321/549698
97.py", line 27, in forward
wandb: ERROR     rnn_output, hidden = self.gru(embedded, last_hidden)
wandb: ERROR                          ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/module.py", line 1553, in _wrapped_call_impl
wandb: ERROR     return self._call_impl(*args, **kwargs)
wandb: ERROR            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/module.py", line 1562, in _call_impl
wandb: ERROR     return forward_call(*args, **kwargs)
wandb: ERROR            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/rnn.py", line 1137, in forward
wandb: ERROR     self.check_forward_args(input, hx, batch_sizes)
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/rnn.py", line 283, in check_forward_args
wandb: ERROR     self.check_hidden_size(hidden, expected_hidden_size)
wandb: ERROR   File "/ext3/miniforge3/lib/python3.12/site-packages/torch/nn/
modules/rnn.py", line 266, in check_hidden_size
wandb: ERROR     raise RuntimeError(msg.format(expected_hidden_size, list(h
x.size())))
wandb: ERROR RuntimeError: Expected hidden size (4, 64, 256), got [2, 64, 25
6]
wandb: ERROR
wandb: Agent Starting Run: 4mmc1pu3 with config:
wandb:  batch_size: 128
wandb:  clip: 50
wandb:  decoder_learning_ratio: 2
wandb:  decoder_n_layers: 3
wandb:  dropout: 0.2633452688693152
wandb:  encoder_n_layers: 2
wandb:  hidden_size: 256
wandb:  learning_rate: 0.009979044917976592
wandb:  n_iteration: 4000
```

```
wandb:  print_every: 1
wandb:  save_every: 500
wandb:  teacher_forcing_ratio: 0.9572783081073128
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
```

Tracking run with wandb version 0.18.3

Run data is saved locally in `/scratch/poh2005/wandb/run-20241018_210410-4mmc1pu3`

Syncing run **silvery-sweep-2** to Weights & Biases (docs)

Sweep page: https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View project at https://wandb.ai/pavly-nyu/hw2

View sweep at https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View run at https://wandb.ai/pavly-nyu/hw2/runs/4mmc1pu3

```
Building optimizers ...
Starting Training!
Initializing ...
Training...
Iteration: 1; Percent complete: 0.0%; Average loss: 8.9656
Iteration: 2; Percent complete: 0.1%; Average loss: 7.8416
Iteration: 3; Percent complete: 0.1%; Average loss: 9.8899
Iteration: 4; Percent complete: 0.1%; Average loss: 6.0761
Iteration: 5; Percent complete: 0.1%; Average loss: 6.3700
Iteration: 6; Percent complete: 0.1%; Average loss: 7.5274
Iteration: 7; Percent complete: 0.2%; Average loss: 7.4576
Iteration: 8; Percent complete: 0.2%; Average loss: 6.9058
Iteration: 9; Percent complete: 0.2%; Average loss: 6.8447
Iteration: 10; Percent complete: 0.2%; Average loss: 7.3675
Iteration: 11; Percent complete: 0.3%; Average loss: 6.9724
Iteration: 12; Percent complete: 0.3%; Average loss: 6.7704
Iteration: 13; Percent complete: 0.3%; Average loss: 7.0365
Iteration: 14; Percent complete: 0.4%; Average loss: 6.8603
Iteration: 15; Percent complete: 0.4%; Average loss: 7.0190
Iteration: 16; Percent complete: 0.4%; Average loss: 6.7122
Iteration: 17; Percent complete: 0.4%; Average loss: 6.6251
Iteration: 18; Percent complete: 0.4%; Average loss: 6.7694
Iteration: 19; Percent complete: 0.5%; Average loss: 6.7885
Iteration: 20; Percent complete: 0.5%; Average loss: 6.7553
Iteration: 21; Percent complete: 0.5%; Average loss: 7.1294
Iteration: 22; Percent complete: 0.5%; Average loss: 6.9011
Iteration: 23; Percent complete: 0.6%; Average loss: 6.9090
Iteration: 24; Percent complete: 0.6%; Average loss: 6.7080
Iteration: 25; Percent complete: 0.6%; Average loss: 6.5092
Iteration: 26; Percent complete: 0.7%; Average loss: 6.5831
Iteration: 27; Percent complete: 0.7%; Average loss: 6.3637
Iteration: 28; Percent complete: 0.7%; Average loss: 6.3666
Iteration: 29; Percent complete: 0.7%; Average loss: 6.8257
Iteration: 30; Percent complete: 0.8%; Average loss: 6.6943
Iteration: 31; Percent complete: 0.8%; Average loss: 6.5330
Iteration: 32; Percent complete: 0.8%; Average loss: 6.5816
Iteration: 33; Percent complete: 0.8%; Average loss: 6.6838
Iteration: 34; Percent complete: 0.9%; Average loss: 6.5382
Iteration: 35; Percent complete: 0.9%; Average loss: 6.1539
Iteration: 36; Percent complete: 0.9%; Average loss: 6.5481
Iteration: 37; Percent complete: 0.9%; Average loss: 6.3536
Iteration: 38; Percent complete: 0.9%; Average loss: 5.9986
Iteration: 39; Percent complete: 1.0%; Average loss: 6.6765
Iteration: 40; Percent complete: 1.0%; Average loss: 6.2869
Iteration: 41; Percent complete: 1.0%; Average loss: 6.4890
Iteration: 42; Percent complete: 1.1%; Average loss: 6.3934
Iteration: 43; Percent complete: 1.1%; Average loss: 6.5964
Iteration: 44; Percent complete: 1.1%; Average loss: 6.2352
Iteration: 45; Percent complete: 1.1%; Average loss: 6.4476
Iteration: 46; Percent complete: 1.1%; Average loss: 6.1066
Iteration: 47; Percent complete: 1.2%; Average loss: 6.2946
Iteration: 48; Percent complete: 1.2%; Average loss: 6.5170
Iteration: 49; Percent complete: 1.2%; Average loss: 6.5840
Iteration: 50; Percent complete: 1.2%; Average loss: 6.4574
Iteration: 51; Percent complete: 1.3%; Average loss: 6.6770
Iteration: 52; Percent complete: 1.3%; Average loss: 6.5831
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Iteration: 53; Percent complete: 1.3%; Average loss: 6.6297
Iteration: 54; Percent complete: 1.4%; Average loss: 6.1290
Iteration: 55; Percent complete: 1.4%; Average loss: 6.2889
Iteration: 56; Percent complete: 1.4%; Average loss: 6.3058
Iteration: 57; Percent complete: 1.4%; Average loss: 6.4635
Iteration: 58; Percent complete: 1.5%; Average loss: 6.8093
Iteration: 59; Percent complete: 1.5%; Average loss: 6.2772
Iteration: 60; Percent complete: 1.5%; Average loss: 6.8159
Iteration: 61; Percent complete: 1.5%; Average loss: 6.6814
Iteration: 62; Percent complete: 1.6%; Average loss: 6.2478
Iteration: 63; Percent complete: 1.6%; Average loss: 6.4227
Iteration: 64; Percent complete: 1.6%; Average loss: 6.2999
Iteration: 65; Percent complete: 1.6%; Average loss: 6.5307
Iteration: 66; Percent complete: 1.7%; Average loss: 6.7435
Iteration: 67; Percent complete: 1.7%; Average loss: 6.6567
Iteration: 68; Percent complete: 1.7%; Average loss: 6.4904
Iteration: 69; Percent complete: 1.7%; Average loss: 6.4679
Iteration: 70; Percent complete: 1.8%; Average loss: 6.2779
Iteration: 71; Percent complete: 1.8%; Average loss: 6.7539
Iteration: 72; Percent complete: 1.8%; Average loss: 6.7389
Iteration: 73; Percent complete: 1.8%; Average loss: 6.3450
Iteration: 74; Percent complete: 1.8%; Average loss: 6.2437
Iteration: 75; Percent complete: 1.9%; Average loss: 6.2285
Iteration: 76; Percent complete: 1.9%; Average loss: 6.8555
Iteration: 77; Percent complete: 1.9%; Average loss: 6.4797
Iteration: 78; Percent complete: 1.9%; Average loss: 6.6297
Iteration: 79; Percent complete: 2.0%; Average loss: 6.2552
Iteration: 80; Percent complete: 2.0%; Average loss: 6.8610
Iteration: 81; Percent complete: 2.0%; Average loss: 6.6788
Iteration: 82; Percent complete: 2.1%; Average loss: 6.5604
Iteration: 83; Percent complete: 2.1%; Average loss: 6.6945
Iteration: 84; Percent complete: 2.1%; Average loss: 7.1495
Iteration: 85; Percent complete: 2.1%; Average loss: 6.7664
Iteration: 86; Percent complete: 2.1%; Average loss: 7.0794
Iteration: 87; Percent complete: 2.2%; Average loss: 7.2542
Iteration: 88; Percent complete: 2.2%; Average loss: 7.0668
Iteration: 89; Percent complete: 2.2%; Average loss: 7.0037
Iteration: 90; Percent complete: 2.2%; Average loss: 6.6522
Iteration: 91; Percent complete: 2.3%; Average loss: 6.9074
Iteration: 92; Percent complete: 2.3%; Average loss: 6.6027
Iteration: 93; Percent complete: 2.3%; Average loss: 6.2488
Iteration: 94; Percent complete: 2.4%; Average loss: 6.9531
Iteration: 95; Percent complete: 2.4%; Average loss: 6.3588
Iteration: 96; Percent complete: 2.4%; Average loss: 7.3218
Iteration: 97; Percent complete: 2.4%; Average loss: 6.7198
Iteration: 98; Percent complete: 2.5%; Average loss: 6.3592
Iteration: 99; Percent complete: 2.5%; Average loss: 6.8966
Iteration: 100; Percent complete: 2.5%; Average loss: 6.6458
Iteration: 101; Percent complete: 2.5%; Average loss: 6.9005
Iteration: 102; Percent complete: 2.5%; Average loss: 6.4803
Iteration: 103; Percent complete: 2.6%; Average loss: 7.1843
Iteration: 104; Percent complete: 2.6%; Average loss: 6.6786
Iteration: 105; Percent complete: 2.6%; Average loss: 6.9484
Iteration: 106; Percent complete: 2.6%; Average loss: 6.9072
Iteration: 107; Percent complete: 2.7%; Average loss: 6.9544
Iteration: 108; Percent complete: 2.7%; Average loss: 6.8646
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Iteration: 109; Percent complete: 2.7%; Average loss: 6.7729
Iteration: 110; Percent complete: 2.8%; Average loss: 6.9120
Iteration: 111; Percent complete: 2.8%; Average loss: 6.8810
Iteration: 112; Percent complete: 2.8%; Average loss: 6.7972
Iteration: 113; Percent complete: 2.8%; Average loss: 6.7722
Iteration: 114; Percent complete: 2.9%; Average loss: 6.5283
Iteration: 115; Percent complete: 2.9%; Average loss: 7.0888
Iteration: 116; Percent complete: 2.9%; Average loss: 6.7870
Iteration: 117; Percent complete: 2.9%; Average loss: 6.9643
Iteration: 118; Percent complete: 2.9%; Average loss: 6.7016
Iteration: 119; Percent complete: 3.0%; Average loss: 6.7231
Iteration: 120; Percent complete: 3.0%; Average loss: 6.5639
Iteration: 121; Percent complete: 3.0%; Average loss: 7.3785
Iteration: 122; Percent complete: 3.0%; Average loss: 6.9707
Iteration: 123; Percent complete: 3.1%; Average loss: 6.9907
Iteration: 124; Percent complete: 3.1%; Average loss: 6.9166
Iteration: 125; Percent complete: 3.1%; Average loss: 7.4133
Iteration: 126; Percent complete: 3.1%; Average loss: 6.5496
Iteration: 127; Percent complete: 3.2%; Average loss: 6.8188
Iteration: 128; Percent complete: 3.2%; Average loss: 6.9277
Iteration: 129; Percent complete: 3.2%; Average loss: 7.1274
Iteration: 130; Percent complete: 3.2%; Average loss: 7.2397
Iteration: 131; Percent complete: 3.3%; Average loss: 6.9825
Iteration: 132; Percent complete: 3.3%; Average loss: 6.7097
Iteration: 133; Percent complete: 3.3%; Average loss: 6.9028
Iteration: 134; Percent complete: 3.4%; Average loss: 6.6355
Iteration: 135; Percent complete: 3.4%; Average loss: 6.6084
Iteration: 136; Percent complete: 3.4%; Average loss: 6.8701
Iteration: 137; Percent complete: 3.4%; Average loss: 7.1476
Iteration: 138; Percent complete: 3.5%; Average loss: 7.4199
Iteration: 139; Percent complete: 3.5%; Average loss: 7.5653
Iteration: 140; Percent complete: 3.5%; Average loss: 7.2100
Iteration: 141; Percent complete: 3.5%; Average loss: 6.9560
Iteration: 142; Percent complete: 3.5%; Average loss: 7.2645
Iteration: 143; Percent complete: 3.6%; Average loss: 7.5170
Iteration: 144; Percent complete: 3.6%; Average loss: 7.0471
Iteration: 145; Percent complete: 3.6%; Average loss: 6.7665
Iteration: 146; Percent complete: 3.6%; Average loss: 7.3239
Iteration: 147; Percent complete: 3.7%; Average loss: 7.4171
Iteration: 148; Percent complete: 3.7%; Average loss: 6.7915
Iteration: 149; Percent complete: 3.7%; Average loss: 7.0521
Iteration: 150; Percent complete: 3.8%; Average loss: 7.1557
Iteration: 151; Percent complete: 3.8%; Average loss: 6.9375
Iteration: 152; Percent complete: 3.8%; Average loss: 6.7806
Iteration: 153; Percent complete: 3.8%; Average loss: 7.3650
Iteration: 154; Percent complete: 3.9%; Average loss: 7.2060
Iteration: 155; Percent complete: 3.9%; Average loss: 7.5497
Iteration: 156; Percent complete: 3.9%; Average loss: 7.1025
Iteration: 157; Percent complete: 3.9%; Average loss: 7.3213
Iteration: 158; Percent complete: 4.0%; Average loss: 7.4234
Iteration: 159; Percent complete: 4.0%; Average loss: 7.4504
Iteration: 160; Percent complete: 4.0%; Average loss: 7.8133
Iteration: 161; Percent complete: 4.0%; Average loss: 7.1827
Iteration: 162; Percent complete: 4.0%; Average loss: 7.0430
Iteration: 163; Percent complete: 4.1%; Average loss: 7.1650
Iteration: 164; Percent complete: 4.1%; Average loss: 7.2857
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Iteration: 165; Percent complete: 4.1%; Average loss: 7.1101
Iteration: 166; Percent complete: 4.2%; Average loss: 6.9328
Iteration: 167; Percent complete: 4.2%; Average loss: 7.5863
Iteration: 168; Percent complete: 4.2%; Average loss: 7.1371
Iteration: 169; Percent complete: 4.2%; Average loss: 7.2703
Iteration: 170; Percent complete: 4.2%; Average loss: 6.9133
Iteration: 171; Percent complete: 4.3%; Average loss: 6.9759
Iteration: 172; Percent complete: 4.3%; Average loss: 6.7280
Iteration: 173; Percent complete: 4.3%; Average loss: 7.6775
Iteration: 174; Percent complete: 4.3%; Average loss: 7.3556
Iteration: 175; Percent complete: 4.4%; Average loss: 7.9986
Iteration: 176; Percent complete: 4.4%; Average loss: 7.1200
Iteration: 177; Percent complete: 4.4%; Average loss: 6.9510
Iteration: 178; Percent complete: 4.5%; Average loss: 7.3455
Iteration: 179; Percent complete: 4.5%; Average loss: 7.1301
Iteration: 180; Percent complete: 4.5%; Average loss: 7.1884
Iteration: 181; Percent complete: 4.5%; Average loss: 7.5232
Iteration: 182; Percent complete: 4.5%; Average loss: 7.4645
Iteration: 183; Percent complete: 4.6%; Average loss: 8.1105
Iteration: 184; Percent complete: 4.6%; Average loss: 7.1963
Iteration: 185; Percent complete: 4.6%; Average loss: 7.1114
Iteration: 186; Percent complete: 4.7%; Average loss: 7.3480
Iteration: 187; Percent complete: 4.7%; Average loss: 7.1132
Iteration: 188; Percent complete: 4.7%; Average loss: 7.6380
Iteration: 189; Percent complete: 4.7%; Average loss: 7.4280
Iteration: 190; Percent complete: 4.8%; Average loss: 7.1407
Iteration: 191; Percent complete: 4.8%; Average loss: 7.1189
Iteration: 192; Percent complete: 4.8%; Average loss: 7.0122
Iteration: 193; Percent complete: 4.8%; Average loss: 6.8632
Iteration: 194; Percent complete: 4.9%; Average loss: 7.4927
Iteration: 195; Percent complete: 4.9%; Average loss: 7.4623
Iteration: 196; Percent complete: 4.9%; Average loss: 7.8672
Iteration: 197; Percent complete: 4.9%; Average loss: 7.1611
Iteration: 198; Percent complete: 5.0%; Average loss: 7.1644
Iteration: 199; Percent complete: 5.0%; Average loss: 7.0696
Iteration: 200; Percent complete: 5.0%; Average loss: 7.2210
Iteration: 201; Percent complete: 5.0%; Average loss: 7.3478
Iteration: 202; Percent complete: 5.1%; Average loss: 7.5621
Iteration: 203; Percent complete: 5.1%; Average loss: 7.5738
Iteration: 204; Percent complete: 5.1%; Average loss: 6.8731
Iteration: 205; Percent complete: 5.1%; Average loss: 7.2198
Iteration: 206; Percent complete: 5.1%; Average loss: 6.7268
Iteration: 207; Percent complete: 5.2%; Average loss: 7.6896
Iteration: 208; Percent complete: 5.2%; Average loss: 7.8600
Iteration: 209; Percent complete: 5.2%; Average loss: 6.9363
Iteration: 210; Percent complete: 5.2%; Average loss: 6.9261
Iteration: 211; Percent complete: 5.3%; Average loss: 7.7910
Iteration: 212; Percent complete: 5.3%; Average loss: 7.5933
Iteration: 213; Percent complete: 5.3%; Average loss: 7.3801
Iteration: 214; Percent complete: 5.3%; Average loss: 7.4162
Iteration: 215; Percent complete: 5.4%; Average loss: 6.8808
Iteration: 216; Percent complete: 5.4%; Average loss: 7.1188
Iteration: 217; Percent complete: 5.4%; Average loss: 7.6123
Iteration: 218; Percent complete: 5.5%; Average loss: 7.5896
Iteration: 219; Percent complete: 5.5%; Average loss: 7.2155
Iteration: 220; Percent complete: 5.5%; Average loss: 7.4800
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Iteration: 221; Percent complete: 5.5%; Average loss: 7.4626
Iteration: 222; Percent complete: 5.5%; Average loss: 6.9708
Iteration: 223; Percent complete: 5.6%; Average loss: 7.5304
Iteration: 224; Percent complete: 5.6%; Average loss: 8.0555
Iteration: 225; Percent complete: 5.6%; Average loss: 6.8338
Iteration: 226; Percent complete: 5.7%; Average loss: 7.4773
Iteration: 227; Percent complete: 5.7%; Average loss: 7.4441
Iteration: 228; Percent complete: 5.7%; Average loss: 7.5222
Iteration: 229; Percent complete: 5.7%; Average loss: 7.2344
Iteration: 230; Percent complete: 5.8%; Average loss: 7.5101
Iteration: 231; Percent complete: 5.8%; Average loss: 6.9519
Iteration: 232; Percent complete: 5.8%; Average loss: 6.8734
Iteration: 233; Percent complete: 5.8%; Average loss: 7.7020
Iteration: 234; Percent complete: 5.9%; Average loss: 8.1324
Iteration: 235; Percent complete: 5.9%; Average loss: 7.5514
Iteration: 236; Percent complete: 5.9%; Average loss: 7.1145
Iteration: 237; Percent complete: 5.9%; Average loss: 7.3607
Iteration: 238; Percent complete: 5.9%; Average loss: 7.8795
Iteration: 239; Percent complete: 6.0%; Average loss: 8.1517
Iteration: 240; Percent complete: 6.0%; Average loss: 7.8348
Iteration: 241; Percent complete: 6.0%; Average loss: 7.6792
Iteration: 242; Percent complete: 6.0%; Average loss: 7.0896
Iteration: 243; Percent complete: 6.1%; Average loss: 7.8741
Iteration: 244; Percent complete: 6.1%; Average loss: 7.6122
Iteration: 245; Percent complete: 6.1%; Average loss: 7.8412
Iteration: 246; Percent complete: 6.2%; Average loss: 7.2498
Iteration: 247; Percent complete: 6.2%; Average loss: 7.1935
Iteration: 248; Percent complete: 6.2%; Average loss: 7.7158
Iteration: 249; Percent complete: 6.2%; Average loss: 7.2721
Iteration: 250; Percent complete: 6.2%; Average loss: 7.7849
Iteration: 251; Percent complete: 6.3%; Average loss: 7.7974
Iteration: 252; Percent complete: 6.3%; Average loss: 7.4657
Iteration: 253; Percent complete: 6.3%; Average loss: 7.9430
Iteration: 254; Percent complete: 6.3%; Average loss: 8.1500
Iteration: 255; Percent complete: 6.4%; Average loss: 7.5402
Iteration: 256; Percent complete: 6.4%; Average loss: 7.1970
Iteration: 257; Percent complete: 6.4%; Average loss: 7.1051
Iteration: 258; Percent complete: 6.5%; Average loss: 7.4329
Iteration: 259; Percent complete: 6.5%; Average loss: 7.5680
Iteration: 260; Percent complete: 6.5%; Average loss: 9.0054
Iteration: 261; Percent complete: 6.5%; Average loss: 7.9650
Iteration: 262; Percent complete: 6.6%; Average loss: 7.9420
Iteration: 263; Percent complete: 6.6%; Average loss: 7.7354
Iteration: 264; Percent complete: 6.6%; Average loss: 7.6611
Iteration: 265; Percent complete: 6.6%; Average loss: 7.7273
Iteration: 266; Percent complete: 6.7%; Average loss: 7.7067
Iteration: 267; Percent complete: 6.7%; Average loss: 7.8890
Iteration: 268; Percent complete: 6.7%; Average loss: 7.7962
Iteration: 269; Percent complete: 6.7%; Average loss: 7.8767
Iteration: 270; Percent complete: 6.8%; Average loss: 7.6329
Iteration: 271; Percent complete: 6.8%; Average loss: 7.2426
Iteration: 272; Percent complete: 6.8%; Average loss: 6.9982
Iteration: 273; Percent complete: 6.8%; Average loss: 7.5918
Iteration: 274; Percent complete: 6.9%; Average loss: 7.0383
Iteration: 275; Percent complete: 6.9%; Average loss: 8.3566
Iteration: 276; Percent complete: 6.9%; Average loss: 7.6827
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Iteration: 277; Percent complete: 6.9%; Average loss: 7.4860
Iteration: 278; Percent complete: 7.0%; Average loss: 7.5621
Iteration: 279; Percent complete: 7.0%; Average loss: 8.2669
Iteration: 280; Percent complete: 7.0%; Average loss: 8.2463
Iteration: 281; Percent complete: 7.0%; Average loss: 7.1746
Iteration: 282; Percent complete: 7.0%; Average loss: 7.6297
Iteration: 283; Percent complete: 7.1%; Average loss: 7.6906
Iteration: 284; Percent complete: 7.1%; Average loss: 7.6077
Iteration: 285; Percent complete: 7.1%; Average loss: 7.6320
Iteration: 286; Percent complete: 7.1%; Average loss: 8.3595
Iteration: 287; Percent complete: 7.2%; Average loss: 7.8296
Iteration: 288; Percent complete: 7.2%; Average loss: 7.9439
Iteration: 289; Percent complete: 7.2%; Average loss: 7.4804
Iteration: 290; Percent complete: 7.2%; Average loss: 7.8393
Iteration: 291; Percent complete: 7.3%; Average loss: 7.4474
Iteration: 292; Percent complete: 7.3%; Average loss: 7.6232
Iteration: 293; Percent complete: 7.3%; Average loss: 8.0033
Iteration: 294; Percent complete: 7.3%; Average loss: 8.0611
Iteration: 295; Percent complete: 7.4%; Average loss: 7.2331
Iteration: 296; Percent complete: 7.4%; Average loss: 8.4495
Iteration: 297; Percent complete: 7.4%; Average loss: 8.3630
Iteration: 298; Percent complete: 7.4%; Average loss: 7.7116
Iteration: 299; Percent complete: 7.5%; Average loss: 8.6386
Iteration: 300; Percent complete: 7.5%; Average loss: 7.3246
Iteration: 301; Percent complete: 7.5%; Average loss: 8.4634
Iteration: 302; Percent complete: 7.5%; Average loss: 7.7874
Iteration: 303; Percent complete: 7.6%; Average loss: 6.9817
Iteration: 304; Percent complete: 7.6%; Average loss: 7.5869
Iteration: 305; Percent complete: 7.6%; Average loss: 7.7367
Iteration: 306; Percent complete: 7.6%; Average loss: 7.6040
Iteration: 307; Percent complete: 7.7%; Average loss: 8.7250
Iteration: 308; Percent complete: 7.7%; Average loss: 8.3276
Iteration: 309; Percent complete: 7.7%; Average loss: 7.4072
Iteration: 310; Percent complete: 7.8%; Average loss: 8.2074
Iteration: 311; Percent complete: 7.8%; Average loss: 8.1451
Iteration: 312; Percent complete: 7.8%; Average loss: 7.5331
Iteration: 313; Percent complete: 7.8%; Average loss: 7.2760
Iteration: 314; Percent complete: 7.8%; Average loss: 7.8933
Iteration: 315; Percent complete: 7.9%; Average loss: 7.6774
Iteration: 316; Percent complete: 7.9%; Average loss: 7.9539
Iteration: 317; Percent complete: 7.9%; Average loss: 7.8560
Iteration: 318; Percent complete: 8.0%; Average loss: 7.4841
Iteration: 319; Percent complete: 8.0%; Average loss: 7.9706
Iteration: 320; Percent complete: 8.0%; Average loss: 7.8771
Iteration: 321; Percent complete: 8.0%; Average loss: 8.1363
Iteration: 322; Percent complete: 8.1%; Average loss: 7.4883
Iteration: 323; Percent complete: 8.1%; Average loss: 8.4296
Iteration: 324; Percent complete: 8.1%; Average loss: 7.5137
Iteration: 325; Percent complete: 8.1%; Average loss: 6.8690
Iteration: 326; Percent complete: 8.2%; Average loss: 7.7349
Iteration: 327; Percent complete: 8.2%; Average loss: 7.7211
Iteration: 328; Percent complete: 8.2%; Average loss: 7.7988
Iteration: 329; Percent complete: 8.2%; Average loss: 7.6997
Iteration: 330; Percent complete: 8.2%; Average loss: 7.7760
Iteration: 331; Percent complete: 8.3%; Average loss: 8.1775
Iteration: 332; Percent complete: 8.3%; Average loss: 7.8842
```

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Iteration: 333; Percent complete: 8.3%; Average loss: 7.9652
Iteration: 334; Percent complete: 8.3%; Average loss: 7.3635
Iteration: 335; Percent complete: 8.4%; Average loss: 7.8394
Iteration: 336; Percent complete: 8.4%; Average loss: 7.3381
Iteration: 337; Percent complete: 8.4%; Average loss: 8.3114
Iteration: 338; Percent complete: 8.5%; Average loss: 8.6676
Iteration: 339; Percent complete: 8.5%; Average loss: 8.7978
Iteration: 340; Percent complete: 8.5%; Average loss: 7.3378
Iteration: 341; Percent complete: 8.5%; Average loss: 7.4934
Iteration: 342; Percent complete: 8.6%; Average loss: 8.3229
Iteration: 343; Percent complete: 8.6%; Average loss: 7.9755
Iteration: 344; Percent complete: 8.6%; Average loss: 8.0261
Iteration: 345; Percent complete: 8.6%; Average loss: 8.0927
Iteration: 346; Percent complete: 8.6%; Average loss: 7.7605
Iteration: 347; Percent complete: 8.7%; Average loss: 8.0336
Iteration: 348; Percent complete: 8.7%; Average loss: 7.2914
Iteration: 349; Percent complete: 8.7%; Average loss: 7.4618
Iteration: 350; Percent complete: 8.8%; Average loss: 7.8414
Iteration: 351; Percent complete: 8.8%; Average loss: 7.6131
Iteration: 352; Percent complete: 8.8%; Average loss: 7.6217
Iteration: 353; Percent complete: 8.8%; Average loss: 7.4998
Iteration: 354; Percent complete: 8.8%; Average loss: 7.7961
Iteration: 355; Percent complete: 8.9%; Average loss: 8.4697
Iteration: 356; Percent complete: 8.9%; Average loss: 8.3787
Iteration: 357; Percent complete: 8.9%; Average loss: 7.0773
Iteration: 358; Percent complete: 8.9%; Average loss: 7.6456
Iteration: 359; Percent complete: 9.0%; Average loss: 8.0308
Iteration: 360; Percent complete: 9.0%; Average loss: 7.3709
Iteration: 361; Percent complete: 9.0%; Average loss: 7.7559
Iteration: 362; Percent complete: 9.0%; Average loss: 7.6319
Iteration: 363; Percent complete: 9.1%; Average loss: 8.5056
Iteration: 364; Percent complete: 9.1%; Average loss: 7.5508
Iteration: 365; Percent complete: 9.1%; Average loss: 7.7263
Iteration: 366; Percent complete: 9.2%; Average loss: 8.4525
Iteration: 367; Percent complete: 9.2%; Average loss: 8.5330
Iteration: 368; Percent complete: 9.2%; Average loss: 7.6860
Iteration: 369; Percent complete: 9.2%; Average loss: 8.0068
Iteration: 370; Percent complete: 9.2%; Average loss: 8.2820
Iteration: 371; Percent complete: 9.3%; Average loss: 8.2989
Iteration: 372; Percent complete: 9.3%; Average loss: 8.0502
Iteration: 373; Percent complete: 9.3%; Average loss: 8.1358
Iteration: 374; Percent complete: 9.3%; Average loss: 7.6566
Iteration: 375; Percent complete: 9.4%; Average loss: nan
Iteration: 376; Percent complete: 9.4%; Average loss: nan
Iteration: 377; Percent complete: 9.4%; Average loss: nan
Iteration: 378; Percent complete: 9.4%; Average loss: nan
Iteration: 379; Percent complete: 9.5%; Average loss: nan
Iteration: 380; Percent complete: 9.5%; Average loss: nan
Iteration: 381; Percent complete: 9.5%; Average loss: nan
Iteration: 382; Percent complete: 9.6%; Average loss: nan
Iteration: 383; Percent complete: 9.6%; Average loss: nan
Iteration: 384; Percent complete: 9.6%; Average loss: nan
Iteration: 385; Percent complete: 9.6%; Average loss: nan
Iteration: 386; Percent complete: 9.7%; Average loss: nan
Iteration: 387; Percent complete: 9.7%; Average loss: nan
Iteration: 388; Percent complete: 9.7%; Average loss: nan
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Iteration: 389; Percent complete: 9.7%; Average loss: nan
Iteration: 390; Percent complete: 9.8%; Average loss: nan
Iteration: 391; Percent complete: 9.8%; Average loss: nan
Iteration: 392; Percent complete: 9.8%; Average loss: nan
Iteration: 393; Percent complete: 9.8%; Average loss: nan
Iteration: 394; Percent complete: 9.8%; Average loss: nan
Iteration: 395; Percent complete: 9.9%; Average loss: nan
Iteration: 396; Percent complete: 9.9%; Average loss: nan
Iteration: 397; Percent complete: 9.9%; Average loss: nan
Iteration: 398; Percent complete: 10.0%; Average loss: nan
Iteration: 399; Percent complete: 10.0%; Average loss: nan
Iteration: 400; Percent complete: 10.0%; Average loss: nan
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Iteration: 402; Percent complete: 10.1%; Average loss: nan
Iteration: 403; Percent complete: 10.1%; Average loss: nan
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Iteration: 406; Percent complete: 10.2%; Average loss: nan
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Iteration: 411; Percent complete: 10.3%; Average loss: nan
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Iteration: 415; Percent complete: 10.4%; Average loss: nan
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Iteration: 419; Percent complete: 10.5%; Average loss: nan
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Iteration: 423; Percent complete: 10.6%; Average loss: nan
Iteration: 424; Percent complete: 10.6%; Average loss: nan
Iteration: 425; Percent complete: 10.6%; Average loss: nan
Iteration: 426; Percent complete: 10.7%; Average loss: nan
Iteration: 427; Percent complete: 10.7%; Average loss: nan
Iteration: 428; Percent complete: 10.7%; Average loss: nan
Iteration: 429; Percent complete: 10.7%; Average loss: nan
Iteration: 430; Percent complete: 10.8%; Average loss: nan
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Iteration: 433; Percent complete: 10.8%; Average loss: nan
Iteration: 434; Percent complete: 10.8%; Average loss: nan
Iteration: 435; Percent complete: 10.9%; Average loss: nan
Iteration: 436; Percent complete: 10.9%; Average loss: nan
Iteration: 437; Percent complete: 10.9%; Average loss: nan
Iteration: 438; Percent complete: 10.9%; Average loss: nan
Iteration: 439; Percent complete: 11.0%; Average loss: nan
Iteration: 440; Percent complete: 11.0%; Average loss: nan
Iteration: 441; Percent complete: 11.0%; Average loss: nan
Iteration: 442; Percent complete: 11.1%; Average loss: nan
Iteration: 443; Percent complete: 11.1%; Average loss: nan
Iteration: 444; Percent complete: 11.1%; Average loss: nan
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Iteration: 445; Percent complete: 11.1%; Average loss: nan
Iteration: 446; Percent complete: 11.2%; Average loss: nan
Iteration: 447; Percent complete: 11.2%; Average loss: nan
Iteration: 448; Percent complete: 11.2%; Average loss: nan
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Iteration: 450; Percent complete: 11.2%; Average loss: nan
Iteration: 451; Percent complete: 11.3%; Average loss: nan
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Iteration: 455; Percent complete: 11.4%; Average loss: nan
Iteration: 456; Percent complete: 11.4%; Average loss: nan
Iteration: 457; Percent complete: 11.4%; Average loss: nan
Iteration: 458; Percent complete: 11.5%; Average loss: nan
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Iteration: 461; Percent complete: 11.5%; Average loss: nan
Iteration: 462; Percent complete: 11.6%; Average loss: nan
Iteration: 463; Percent complete: 11.6%; Average loss: nan
Iteration: 464; Percent complete: 11.6%; Average loss: nan
Iteration: 465; Percent complete: 11.6%; Average loss: nan
Iteration: 466; Percent complete: 11.7%; Average loss: nan
Iteration: 467; Percent complete: 11.7%; Average loss: nan
Iteration: 468; Percent complete: 11.7%; Average loss: nan
Iteration: 469; Percent complete: 11.7%; Average loss: nan
Iteration: 470; Percent complete: 11.8%; Average loss: nan
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Iteration: 475; Percent complete: 11.9%; Average loss: nan
Iteration: 476; Percent complete: 11.9%; Average loss: nan
Iteration: 477; Percent complete: 11.9%; Average loss: nan
Iteration: 478; Percent complete: 11.9%; Average loss: nan
Iteration: 479; Percent complete: 12.0%; Average loss: nan
Iteration: 480; Percent complete: 12.0%; Average loss: nan
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Iteration: 483; Percent complete: 12.1%; Average loss: nan
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Iteration: 485; Percent complete: 12.1%; Average loss: nan
Iteration: 486; Percent complete: 12.2%; Average loss: nan
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Iteration: 491; Percent complete: 12.3%; Average loss: nan
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Iteration: 495; Percent complete: 12.4%; Average loss: nan
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Iteration: 498; Percent complete: 12.4%; Average loss: nan
Iteration: 499; Percent complete: 12.5%; Average loss: nan
Iteration: 500; Percent complete: 12.5%; Average loss: nan
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Iteration: 501; Percent complete: 12.5%; Average loss: nan
Iteration: 502; Percent complete: 12.6%; Average loss: nan
Iteration: 503; Percent complete: 12.6%; Average loss: nan
Iteration: 504; Percent complete: 12.6%; Average loss: nan
Iteration: 505; Percent complete: 12.6%; Average loss: nan
Iteration: 506; Percent complete: 12.7%; Average loss: nan
Iteration: 507; Percent complete: 12.7%; Average loss: nan
Iteration: 508; Percent complete: 12.7%; Average loss: nan
Iteration: 509; Percent complete: 12.7%; Average loss: nan
Iteration: 510; Percent complete: 12.8%; Average loss: nan
Iteration: 511; Percent complete: 12.8%; Average loss: nan
Iteration: 512; Percent complete: 12.8%; Average loss: nan
Iteration: 513; Percent complete: 12.8%; Average loss: nan
Iteration: 514; Percent complete: 12.8%; Average loss: nan
Iteration: 515; Percent complete: 12.9%; Average loss: nan
Iteration: 516; Percent complete: 12.9%; Average loss: nan
Iteration: 517; Percent complete: 12.9%; Average loss: nan
Iteration: 518; Percent complete: 13.0%; Average loss: nan
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Iteration: 522; Percent complete: 13.1%; Average loss: nan
Iteration: 523; Percent complete: 13.1%; Average loss: nan
Iteration: 524; Percent complete: 13.1%; Average loss: nan
Iteration: 525; Percent complete: 13.1%; Average loss: nan
Iteration: 526; Percent complete: 13.2%; Average loss: nan
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Iteration: 531; Percent complete: 13.3%; Average loss: nan
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Iteration: 534; Percent complete: 13.4%; Average loss: nan
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Iteration: 536; Percent complete: 13.4%; Average loss: nan
Iteration: 537; Percent complete: 13.4%; Average loss: nan
Iteration: 538; Percent complete: 13.5%; Average loss: nan
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Iteration: 541; Percent complete: 13.5%; Average loss: nan
Iteration: 542; Percent complete: 13.6%; Average loss: nan
Iteration: 543; Percent complete: 13.6%; Average loss: nan
Iteration: 544; Percent complete: 13.6%; Average loss: nan
Iteration: 545; Percent complete: 13.6%; Average loss: nan
Iteration: 546; Percent complete: 13.7%; Average loss: nan
Iteration: 547; Percent complete: 13.7%; Average loss: nan
Iteration: 548; Percent complete: 13.7%; Average loss: nan
Iteration: 549; Percent complete: 13.7%; Average loss: nan
Iteration: 550; Percent complete: 13.8%; Average loss: nan
Iteration: 551; Percent complete: 13.8%; Average loss: nan
Iteration: 552; Percent complete: 13.8%; Average loss: nan
Iteration: 553; Percent complete: 13.8%; Average loss: nan
Iteration: 554; Percent complete: 13.9%; Average loss: nan
Iteration: 555; Percent complete: 13.9%; Average loss: nan
Iteration: 556; Percent complete: 13.9%; Average loss: nan
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Iteration: 557; Percent complete: 13.9%; Average loss: nan
Iteration: 558; Percent complete: 14.0%; Average loss: nan
Iteration: 559; Percent complete: 14.0%; Average loss: nan
Iteration: 560; Percent complete: 14.0%; Average loss: nan
Iteration: 561; Percent complete: 14.0%; Average loss: nan
Iteration: 562; Percent complete: 14.1%; Average loss: nan
Iteration: 563; Percent complete: 14.1%; Average loss: nan
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Iteration: 567; Percent complete: 14.2%; Average loss: nan
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Iteration: 571; Percent complete: 14.3%; Average loss: nan
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Iteration: 573; Percent complete: 14.3%; Average loss: nan
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Iteration: 575; Percent complete: 14.4%; Average loss: nan
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Iteration: 579; Percent complete: 14.5%; Average loss: nan
Iteration: 580; Percent complete: 14.5%; Average loss: nan
Iteration: 581; Percent complete: 14.5%; Average loss: nan
Iteration: 582; Percent complete: 14.5%; Average loss: nan
Iteration: 583; Percent complete: 14.6%; Average loss: nan
Iteration: 584; Percent complete: 14.6%; Average loss: nan
Iteration: 585; Percent complete: 14.6%; Average loss: nan
Iteration: 586; Percent complete: 14.6%; Average loss: nan
Iteration: 587; Percent complete: 14.7%; Average loss: nan
Iteration: 588; Percent complete: 14.7%; Average loss: nan
Iteration: 589; Percent complete: 14.7%; Average loss: nan
Iteration: 590; Percent complete: 14.8%; Average loss: nan
Iteration: 591; Percent complete: 14.8%; Average loss: nan
Iteration: 592; Percent complete: 14.8%; Average loss: nan
Iteration: 593; Percent complete: 14.8%; Average loss: nan
Iteration: 594; Percent complete: 14.8%; Average loss: nan
Iteration: 595; Percent complete: 14.9%; Average loss: nan
Iteration: 596; Percent complete: 14.9%; Average loss: nan
Iteration: 597; Percent complete: 14.9%; Average loss: nan
Iteration: 598; Percent complete: 14.9%; Average loss: nan
Iteration: 599; Percent complete: 15.0%; Average loss: nan
Iteration: 600; Percent complete: 15.0%; Average loss: nan
Iteration: 601; Percent complete: 15.0%; Average loss: nan
Iteration: 602; Percent complete: 15.0%; Average loss: nan
Iteration: 603; Percent complete: 15.1%; Average loss: nan
Iteration: 604; Percent complete: 15.1%; Average loss: nan
Iteration: 605; Percent complete: 15.1%; Average loss: nan
Iteration: 606; Percent complete: 15.2%; Average loss: nan
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Iteration: 611; Percent complete: 15.3%; Average loss: nan
Iteration: 612; Percent complete: 15.3%; Average loss: nan
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Iteration: 613; Percent complete: 15.3%; Average loss: nan
Iteration: 614; Percent complete: 15.3%; Average loss: nan
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Iteration: 618; Percent complete: 15.4%; Average loss: nan
Iteration: 619; Percent complete: 15.5%; Average loss: nan
Iteration: 620; Percent complete: 15.5%; Average loss: nan
Iteration: 621; Percent complete: 15.5%; Average loss: nan
Iteration: 622; Percent complete: 15.6%; Average loss: nan
Iteration: 623; Percent complete: 15.6%; Average loss: nan
Iteration: 624; Percent complete: 15.6%; Average loss: nan
Iteration: 625; Percent complete: 15.6%; Average loss: nan
Iteration: 626; Percent complete: 15.7%; Average loss: nan
Iteration: 627; Percent complete: 15.7%; Average loss: nan
Iteration: 628; Percent complete: 15.7%; Average loss: nan
Iteration: 629; Percent complete: 15.7%; Average loss: nan
Iteration: 630; Percent complete: 15.8%; Average loss: nan
Iteration: 631; Percent complete: 15.8%; Average loss: nan
Iteration: 632; Percent complete: 15.8%; Average loss: nan
Iteration: 633; Percent complete: 15.8%; Average loss: nan
Iteration: 634; Percent complete: 15.8%; Average loss: nan
Iteration: 635; Percent complete: 15.9%; Average loss: nan
Iteration: 636; Percent complete: 15.9%; Average loss: nan
Iteration: 637; Percent complete: 15.9%; Average loss: nan
Iteration: 638; Percent complete: 16.0%; Average loss: nan
Iteration: 639; Percent complete: 16.0%; Average loss: nan
Iteration: 640; Percent complete: 16.0%; Average loss: nan
Iteration: 641; Percent complete: 16.0%; Average loss: nan
Iteration: 642; Percent complete: 16.1%; Average loss: nan
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Iteration: 651; Percent complete: 16.3%; Average loss: nan
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Iteration: 654; Percent complete: 16.4%; Average loss: nan
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Iteration: 659; Percent complete: 16.5%; Average loss: nan
Iteration: 660; Percent complete: 16.5%; Average loss: nan
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Iteration: 662; Percent complete: 16.6%; Average loss: nan
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Iteration: 665; Percent complete: 16.6%; Average loss: nan
Iteration: 666; Percent complete: 16.7%; Average loss: nan
Iteration: 667; Percent complete: 16.7%; Average loss: nan
Iteration: 668; Percent complete: 16.7%; Average loss: nan
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Iteration: 669; Percent complete: 16.7%; Average loss: nan
Iteration: 670; Percent complete: 16.8%; Average loss: nan
Iteration: 671; Percent complete: 16.8%; Average loss: nan
Iteration: 672; Percent complete: 16.8%; Average loss: nan
Iteration: 673; Percent complete: 16.8%; Average loss: nan
Iteration: 674; Percent complete: 16.9%; Average loss: nan
Iteration: 675; Percent complete: 16.9%; Average loss: nan
Iteration: 676; Percent complete: 16.9%; Average loss: nan
Iteration: 677; Percent complete: 16.9%; Average loss: nan
Iteration: 678; Percent complete: 17.0%; Average loss: nan
Iteration: 679; Percent complete: 17.0%; Average loss: nan
Iteration: 680; Percent complete: 17.0%; Average loss: nan
Iteration: 681; Percent complete: 17.0%; Average loss: nan
Iteration: 682; Percent complete: 17.1%; Average loss: nan
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Iteration: 691; Percent complete: 17.3%; Average loss: nan
Iteration: 692; Percent complete: 17.3%; Average loss: nan
Iteration: 693; Percent complete: 17.3%; Average loss: nan
Iteration: 694; Percent complete: 17.3%; Average loss: nan
Iteration: 695; Percent complete: 17.4%; Average loss: nan
Iteration: 696; Percent complete: 17.4%; Average loss: nan
Iteration: 697; Percent complete: 17.4%; Average loss: nan
Iteration: 698; Percent complete: 17.4%; Average loss: nan
Iteration: 699; Percent complete: 17.5%; Average loss: nan
Iteration: 700; Percent complete: 17.5%; Average loss: nan
Iteration: 701; Percent complete: 17.5%; Average loss: nan
Iteration: 702; Percent complete: 17.5%; Average loss: nan
Iteration: 703; Percent complete: 17.6%; Average loss: nan
Iteration: 704; Percent complete: 17.6%; Average loss: nan
Iteration: 705; Percent complete: 17.6%; Average loss: nan
Iteration: 706; Percent complete: 17.6%; Average loss: nan
Iteration: 707; Percent complete: 17.7%; Average loss: nan
Iteration: 708; Percent complete: 17.7%; Average loss: nan
Iteration: 709; Percent complete: 17.7%; Average loss: nan
Iteration: 710; Percent complete: 17.8%; Average loss: nan
Iteration: 711; Percent complete: 17.8%; Average loss: nan
Iteration: 712; Percent complete: 17.8%; Average loss: nan
Iteration: 713; Percent complete: 17.8%; Average loss: nan
Iteration: 714; Percent complete: 17.8%; Average loss: nan
Iteration: 715; Percent complete: 17.9%; Average loss: nan
Iteration: 716; Percent complete: 17.9%; Average loss: nan
Iteration: 717; Percent complete: 17.9%; Average loss: nan
Iteration: 718; Percent complete: 17.9%; Average loss: nan
Iteration: 719; Percent complete: 18.0%; Average loss: nan
Iteration: 720; Percent complete: 18.0%; Average loss: nan
Iteration: 721; Percent complete: 18.0%; Average loss: nan
Iteration: 722; Percent complete: 18.1%; Average loss: nan
Iteration: 723; Percent complete: 18.1%; Average loss: nan
Iteration: 724; Percent complete: 18.1%; Average loss: nan
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Iteration: 725; Percent complete: 18.1%; Average loss: nan
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Iteration: 727; Percent complete: 18.2%; Average loss: nan
Iteration: 728; Percent complete: 18.2%; Average loss: nan
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Iteration: 730; Percent complete: 18.2%; Average loss: nan
Iteration: 731; Percent complete: 18.3%; Average loss: nan
Iteration: 732; Percent complete: 18.3%; Average loss: nan
Iteration: 733; Percent complete: 18.3%; Average loss: nan
Iteration: 734; Percent complete: 18.4%; Average loss: nan
Iteration: 735; Percent complete: 18.4%; Average loss: nan
Iteration: 736; Percent complete: 18.4%; Average loss: nan
Iteration: 737; Percent complete: 18.4%; Average loss: nan
Iteration: 738; Percent complete: 18.4%; Average loss: nan
Iteration: 739; Percent complete: 18.5%; Average loss: nan
Iteration: 740; Percent complete: 18.5%; Average loss: nan
Iteration: 741; Percent complete: 18.5%; Average loss: nan
Iteration: 742; Percent complete: 18.6%; Average loss: nan
Iteration: 743; Percent complete: 18.6%; Average loss: nan
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Iteration: 745; Percent complete: 18.6%; Average loss: nan
Iteration: 746; Percent complete: 18.6%; Average loss: nan
Iteration: 747; Percent complete: 18.7%; Average loss: nan
Iteration: 748; Percent complete: 18.7%; Average loss: nan
Iteration: 749; Percent complete: 18.7%; Average loss: nan
Iteration: 750; Percent complete: 18.8%; Average loss: nan
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Iteration: 753; Percent complete: 18.8%; Average loss: nan
Iteration: 754; Percent complete: 18.9%; Average loss: nan
Iteration: 755; Percent complete: 18.9%; Average loss: nan
Iteration: 756; Percent complete: 18.9%; Average loss: nan
Iteration: 757; Percent complete: 18.9%; Average loss: nan
Iteration: 758; Percent complete: 18.9%; Average loss: nan
Iteration: 759; Percent complete: 19.0%; Average loss: nan
Iteration: 760; Percent complete: 19.0%; Average loss: nan
Iteration: 761; Percent complete: 19.0%; Average loss: nan
Iteration: 762; Percent complete: 19.1%; Average loss: nan
Iteration: 763; Percent complete: 19.1%; Average loss: nan
Iteration: 764; Percent complete: 19.1%; Average loss: nan
Iteration: 765; Percent complete: 19.1%; Average loss: nan
Iteration: 766; Percent complete: 19.1%; Average loss: nan
Iteration: 767; Percent complete: 19.2%; Average loss: nan
Iteration: 768; Percent complete: 19.2%; Average loss: nan
Iteration: 769; Percent complete: 19.2%; Average loss: nan
Iteration: 770; Percent complete: 19.2%; Average loss: nan
Iteration: 771; Percent complete: 19.3%; Average loss: nan
Iteration: 772; Percent complete: 19.3%; Average loss: nan
Iteration: 773; Percent complete: 19.3%; Average loss: nan
Iteration: 774; Percent complete: 19.4%; Average loss: nan
Iteration: 775; Percent complete: 19.4%; Average loss: nan
Iteration: 776; Percent complete: 19.4%; Average loss: nan
Iteration: 777; Percent complete: 19.4%; Average loss: nan
Iteration: 778; Percent complete: 19.4%; Average loss: nan
Iteration: 779; Percent complete: 19.5%; Average loss: nan
Iteration: 780; Percent complete: 19.5%; Average loss: nan
```

```
Iteration: 781; Percent complete: 19.5%; Average loss: nan
Iteration: 782; Percent complete: 19.6%; Average loss: nan
Iteration: 783; Percent complete: 19.6%; Average loss: nan
Iteration: 784; Percent complete: 19.6%; Average loss: nan
Iteration: 785; Percent complete: 19.6%; Average loss: nan
Iteration: 786; Percent complete: 19.7%; Average loss: nan
Iteration: 787; Percent complete: 19.7%; Average loss: nan
Iteration: 788; Percent complete: 19.7%; Average loss: nan
Iteration: 789; Percent complete: 19.7%; Average loss: nan
Iteration: 790; Percent complete: 19.8%; Average loss: nan
Iteration: 791; Percent complete: 19.8%; Average loss: nan
Iteration: 792; Percent complete: 19.8%; Average loss: nan
Iteration: 793; Percent complete: 19.8%; Average loss: nan
Iteration: 794; Percent complete: 19.9%; Average loss: nan
Iteration: 795; Percent complete: 19.9%; Average loss: nan
Iteration: 796; Percent complete: 19.9%; Average loss: nan
Iteration: 797; Percent complete: 19.9%; Average loss: nan
Iteration: 798; Percent complete: 20.0%; Average loss: nan
Iteration: 799; Percent complete: 20.0%; Average loss: nan
Iteration: 800; Percent complete: 20.0%; Average loss: nan
Iteration: 801; Percent complete: 20.0%; Average loss: nan
Iteration: 802; Percent complete: 20.1%; Average loss: nan
Iteration: 803; Percent complete: 20.1%; Average loss: nan
Iteration: 804; Percent complete: 20.1%; Average loss: nan
Iteration: 805; Percent complete: 20.1%; Average loss: nan
Iteration: 806; Percent complete: 20.2%; Average loss: nan
Iteration: 807; Percent complete: 20.2%; Average loss: nan
Iteration: 808; Percent complete: 20.2%; Average loss: nan
Iteration: 809; Percent complete: 20.2%; Average loss: nan
Iteration: 810; Percent complete: 20.2%; Average loss: nan
Iteration: 811; Percent complete: 20.3%; Average loss: nan
Iteration: 812; Percent complete: 20.3%; Average loss: nan
Iteration: 813; Percent complete: 20.3%; Average loss: nan
Iteration: 814; Percent complete: 20.3%; Average loss: nan
Iteration: 815; Percent complete: 20.4%; Average loss: nan
Iteration: 816; Percent complete: 20.4%; Average loss: nan
Iteration: 817; Percent complete: 20.4%; Average loss: nan
Iteration: 818; Percent complete: 20.4%; Average loss: nan
Iteration: 819; Percent complete: 20.5%; Average loss: nan
Iteration: 820; Percent complete: 20.5%; Average loss: nan
Iteration: 821; Percent complete: 20.5%; Average loss: nan
Iteration: 822; Percent complete: 20.5%; Average loss: nan
Iteration: 823; Percent complete: 20.6%; Average loss: nan
Iteration: 824; Percent complete: 20.6%; Average loss: nan
Iteration: 825; Percent complete: 20.6%; Average loss: nan
Iteration: 826; Percent complete: 20.6%; Average loss: nan
Iteration: 827; Percent complete: 20.7%; Average loss: nan
Iteration: 828; Percent complete: 20.7%; Average loss: nan
Iteration: 829; Percent complete: 20.7%; Average loss: nan
Iteration: 830; Percent complete: 20.8%; Average loss: nan
Iteration: 831; Percent complete: 20.8%; Average loss: nan
Iteration: 832; Percent complete: 20.8%; Average loss: nan
Iteration: 833; Percent complete: 20.8%; Average loss: nan
Iteration: 834; Percent complete: 20.8%; Average loss: nan
Iteration: 835; Percent complete: 20.9%; Average loss: nan
Iteration: 836; Percent complete: 20.9%; Average loss: nan
```

```
Iteration: 837; Percent complete: 20.9%; Average loss: nan
Iteration: 838; Percent complete: 20.9%; Average loss: nan
Iteration: 839; Percent complete: 21.0%; Average loss: nan
Iteration: 840; Percent complete: 21.0%; Average loss: nan
Iteration: 841; Percent complete: 21.0%; Average loss: nan
Iteration: 842; Percent complete: 21.1%; Average loss: nan
Iteration: 843; Percent complete: 21.1%; Average loss: nan
Iteration: 844; Percent complete: 21.1%; Average loss: nan
Iteration: 845; Percent complete: 21.1%; Average loss: nan
Iteration: 846; Percent complete: 21.1%; Average loss: nan
Iteration: 847; Percent complete: 21.2%; Average loss: nan
Iteration: 848; Percent complete: 21.2%; Average loss: nan
Iteration: 849; Percent complete: 21.2%; Average loss: nan
Iteration: 850; Percent complete: 21.2%; Average loss: nan
Iteration: 851; Percent complete: 21.3%; Average loss: nan
Iteration: 852; Percent complete: 21.3%; Average loss: nan
Iteration: 853; Percent complete: 21.3%; Average loss: nan
Iteration: 854; Percent complete: 21.3%; Average loss: nan
Iteration: 855; Percent complete: 21.4%; Average loss: nan
Iteration: 856; Percent complete: 21.4%; Average loss: nan
Iteration: 857; Percent complete: 21.4%; Average loss: nan
Iteration: 858; Percent complete: 21.4%; Average loss: nan
Iteration: 859; Percent complete: 21.5%; Average loss: nan
Iteration: 860; Percent complete: 21.5%; Average loss: nan
Iteration: 861; Percent complete: 21.5%; Average loss: nan
Iteration: 862; Percent complete: 21.6%; Average loss: nan
Iteration: 863; Percent complete: 21.6%; Average loss: nan
Iteration: 864; Percent complete: 21.6%; Average loss: nan
Iteration: 865; Percent complete: 21.6%; Average loss: nan
Iteration: 866; Percent complete: 21.6%; Average loss: nan
Iteration: 867; Percent complete: 21.7%; Average loss: nan
Iteration: 868; Percent complete: 21.7%; Average loss: nan
Iteration: 869; Percent complete: 21.7%; Average loss: nan
Iteration: 870; Percent complete: 21.8%; Average loss: nan
Iteration: 871; Percent complete: 21.8%; Average loss: nan
Iteration: 872; Percent complete: 21.8%; Average loss: nan
Iteration: 873; Percent complete: 21.8%; Average loss: nan
Iteration: 874; Percent complete: 21.9%; Average loss: nan
Iteration: 875; Percent complete: 21.9%; Average loss: nan
Iteration: 876; Percent complete: 21.9%; Average loss: nan
Iteration: 877; Percent complete: 21.9%; Average loss: nan
Iteration: 878; Percent complete: 21.9%; Average loss: nan
Iteration: 879; Percent complete: 22.0%; Average loss: nan
Iteration: 880; Percent complete: 22.0%; Average loss: nan
Iteration: 881; Percent complete: 22.0%; Average loss: nan
Iteration: 882; Percent complete: 22.1%; Average loss: nan
Iteration: 883; Percent complete: 22.1%; Average loss: nan
Iteration: 884; Percent complete: 22.1%; Average loss: nan
Iteration: 885; Percent complete: 22.1%; Average loss: nan
Iteration: 886; Percent complete: 22.1%; Average loss: nan
Iteration: 887; Percent complete: 22.2%; Average loss: nan
Iteration: 888; Percent complete: 22.2%; Average loss: nan
Iteration: 889; Percent complete: 22.2%; Average loss: nan
Iteration: 890; Percent complete: 22.2%; Average loss: nan
Iteration: 891; Percent complete: 22.3%; Average loss: nan
Iteration: 892; Percent complete: 22.3%; Average loss: nan
```

```
Iteration: 893; Percent complete: 22.3%; Average loss: nan
Iteration: 894; Percent complete: 22.4%; Average loss: nan
Iteration: 895; Percent complete: 22.4%; Average loss: nan
Iteration: 896; Percent complete: 22.4%; Average loss: nan
Iteration: 897; Percent complete: 22.4%; Average loss: nan
Iteration: 898; Percent complete: 22.4%; Average loss: nan
Iteration: 899; Percent complete: 22.5%; Average loss: nan
Iteration: 900; Percent complete: 22.5%; Average loss: nan
Iteration: 901; Percent complete: 22.5%; Average loss: nan
Iteration: 902; Percent complete: 22.6%; Average loss: nan
Iteration: 903; Percent complete: 22.6%; Average loss: nan
Iteration: 904; Percent complete: 22.6%; Average loss: nan
Iteration: 905; Percent complete: 22.6%; Average loss: nan
Iteration: 906; Percent complete: 22.7%; Average loss: nan
Iteration: 907; Percent complete: 22.7%; Average loss: nan
Iteration: 908; Percent complete: 22.7%; Average loss: nan
Iteration: 909; Percent complete: 22.7%; Average loss: nan
Iteration: 910; Percent complete: 22.8%; Average loss: nan
Iteration: 911; Percent complete: 22.8%; Average loss: nan
Iteration: 912; Percent complete: 22.8%; Average loss: nan
Iteration: 913; Percent complete: 22.8%; Average loss: nan
Iteration: 914; Percent complete: 22.9%; Average loss: nan
Iteration: 915; Percent complete: 22.9%; Average loss: nan
Iteration: 916; Percent complete: 22.9%; Average loss: nan
Iteration: 917; Percent complete: 22.9%; Average loss: nan
Iteration: 918; Percent complete: 22.9%; Average loss: nan
Iteration: 919; Percent complete: 23.0%; Average loss: nan
Iteration: 920; Percent complete: 23.0%; Average loss: nan
Iteration: 921; Percent complete: 23.0%; Average loss: nan
Iteration: 922; Percent complete: 23.1%; Average loss: nan
Iteration: 923; Percent complete: 23.1%; Average loss: nan
Iteration: 924; Percent complete: 23.1%; Average loss: nan
Iteration: 925; Percent complete: 23.1%; Average loss: nan
Iteration: 926; Percent complete: 23.2%; Average loss: nan
Iteration: 927; Percent complete: 23.2%; Average loss: nan
Iteration: 928; Percent complete: 23.2%; Average loss: nan
Iteration: 929; Percent complete: 23.2%; Average loss: nan
Iteration: 930; Percent complete: 23.2%; Average loss: nan
Iteration: 931; Percent complete: 23.3%; Average loss: nan
Iteration: 932; Percent complete: 23.3%; Average loss: nan
Iteration: 933; Percent complete: 23.3%; Average loss: nan
Iteration: 934; Percent complete: 23.4%; Average loss: nan
Iteration: 935; Percent complete: 23.4%; Average loss: nan
Iteration: 936; Percent complete: 23.4%; Average loss: nan
Iteration: 937; Percent complete: 23.4%; Average loss: nan
Iteration: 938; Percent complete: 23.4%; Average loss: nan
Iteration: 939; Percent complete: 23.5%; Average loss: nan
Iteration: 940; Percent complete: 23.5%; Average loss: nan
Iteration: 941; Percent complete: 23.5%; Average loss: nan
Iteration: 942; Percent complete: 23.5%; Average loss: nan
Iteration: 943; Percent complete: 23.6%; Average loss: nan
Iteration: 944; Percent complete: 23.6%; Average loss: nan
Iteration: 945; Percent complete: 23.6%; Average loss: nan
Iteration: 946; Percent complete: 23.6%; Average loss: nan
Iteration: 947; Percent complete: 23.7%; Average loss: nan
Iteration: 948; Percent complete: 23.7%; Average loss: nan
```

```
Iteration: 949; Percent complete: 23.7%; Average loss: nan
Iteration: 950; Percent complete: 23.8%; Average loss: nan
Iteration: 951; Percent complete: 23.8%; Average loss: nan
Iteration: 952; Percent complete: 23.8%; Average loss: nan
Iteration: 953; Percent complete: 23.8%; Average loss: nan
Iteration: 954; Percent complete: 23.8%; Average loss: nan
Iteration: 955; Percent complete: 23.9%; Average loss: nan
Iteration: 956; Percent complete: 23.9%; Average loss: nan
Iteration: 957; Percent complete: 23.9%; Average loss: nan
Iteration: 958; Percent complete: 23.9%; Average loss: nan
Iteration: 959; Percent complete: 24.0%; Average loss: nan
Iteration: 960; Percent complete: 24.0%; Average loss: nan
Iteration: 961; Percent complete: 24.0%; Average loss: nan
Iteration: 962; Percent complete: 24.1%; Average loss: nan
Iteration: 963; Percent complete: 24.1%; Average loss: nan
Iteration: 964; Percent complete: 24.1%; Average loss: nan
Iteration: 965; Percent complete: 24.1%; Average loss: nan
Iteration: 966; Percent complete: 24.1%; Average loss: nan
Iteration: 967; Percent complete: 24.2%; Average loss: nan
Iteration: 968; Percent complete: 24.2%; Average loss: nan
Iteration: 969; Percent complete: 24.2%; Average loss: nan
Iteration: 970; Percent complete: 24.2%; Average loss: nan
Iteration: 971; Percent complete: 24.3%; Average loss: nan
Iteration: 972; Percent complete: 24.3%; Average loss: nan
Iteration: 973; Percent complete: 24.3%; Average loss: nan
Iteration: 974; Percent complete: 24.3%; Average loss: nan
Iteration: 975; Percent complete: 24.4%; Average loss: nan
Iteration: 976; Percent complete: 24.4%; Average loss: nan
Iteration: 977; Percent complete: 24.4%; Average loss: nan
Iteration: 978; Percent complete: 24.4%; Average loss: nan
Iteration: 979; Percent complete: 24.5%; Average loss: nan
Iteration: 980; Percent complete: 24.5%; Average loss: nan
Iteration: 981; Percent complete: 24.5%; Average loss: nan
Iteration: 982; Percent complete: 24.6%; Average loss: nan
Iteration: 983; Percent complete: 24.6%; Average loss: nan
Iteration: 984; Percent complete: 24.6%; Average loss: nan
Iteration: 985; Percent complete: 24.6%; Average loss: nan
Iteration: 986; Percent complete: 24.6%; Average loss: nan
Iteration: 987; Percent complete: 24.7%; Average loss: nan
Iteration: 988; Percent complete: 24.7%; Average loss: nan
Iteration: 989; Percent complete: 24.7%; Average loss: nan
Iteration: 990; Percent complete: 24.8%; Average loss: nan
Iteration: 991; Percent complete: 24.8%; Average loss: nan
Iteration: 992; Percent complete: 24.8%; Average loss: nan
Iteration: 993; Percent complete: 24.8%; Average loss: nan
Iteration: 994; Percent complete: 24.9%; Average loss: nan
Iteration: 995; Percent complete: 24.9%; Average loss: nan
Iteration: 996; Percent complete: 24.9%; Average loss: nan
Iteration: 997; Percent complete: 24.9%; Average loss: nan
Iteration: 998; Percent complete: 24.9%; Average loss: nan
Iteration: 999; Percent complete: 25.0%; Average loss: nan
Iteration: 1000; Percent complete: 25.0%; Average loss: nan
Iteration: 1001; Percent complete: 25.0%; Average loss: nan
Iteration: 1002; Percent complete: 25.1%; Average loss: nan
Iteration: 1003; Percent complete: 25.1%; Average loss: nan
Iteration: 1004; Percent complete: 25.1%; Average loss: nan
```

```
Iteration: 1005; Percent complete: 25.1%; Average loss: nan
Iteration: 1006; Percent complete: 25.1%; Average loss: nan
Iteration: 1007; Percent complete: 25.2%; Average loss: nan
Iteration: 1008; Percent complete: 25.2%; Average loss: nan
Iteration: 1009; Percent complete: 25.2%; Average loss: nan
Iteration: 1010; Percent complete: 25.2%; Average loss: nan
Iteration: 1011; Percent complete: 25.3%; Average loss: nan
Iteration: 1012; Percent complete: 25.3%; Average loss: nan
Iteration: 1013; Percent complete: 25.3%; Average loss: nan
Iteration: 1014; Percent complete: 25.4%; Average loss: nan
Iteration: 1015; Percent complete: 25.4%; Average loss: nan
Iteration: 1016; Percent complete: 25.4%; Average loss: nan
Iteration: 1017; Percent complete: 25.4%; Average loss: nan
Iteration: 1018; Percent complete: 25.4%; Average loss: nan
Iteration: 1019; Percent complete: 25.5%; Average loss: nan
Iteration: 1020; Percent complete: 25.5%; Average loss: nan
Iteration: 1021; Percent complete: 25.5%; Average loss: nan
Iteration: 1022; Percent complete: 25.6%; Average loss: nan
Iteration: 1023; Percent complete: 25.6%; Average loss: nan
Iteration: 1024; Percent complete: 25.6%; Average loss: nan
Iteration: 1025; Percent complete: 25.6%; Average loss: nan
Iteration: 1026; Percent complete: 25.7%; Average loss: nan
Iteration: 1027; Percent complete: 25.7%; Average loss: nan
Iteration: 1028; Percent complete: 25.7%; Average loss: nan
Iteration: 1029; Percent complete: 25.7%; Average loss: nan
Iteration: 1030; Percent complete: 25.8%; Average loss: nan
Iteration: 1031; Percent complete: 25.8%; Average loss: nan
Iteration: 1032; Percent complete: 25.8%; Average loss: nan
Iteration: 1033; Percent complete: 25.8%; Average loss: nan
Iteration: 1034; Percent complete: 25.9%; Average loss: nan
Iteration: 1035; Percent complete: 25.9%; Average loss: nan
Iteration: 1036; Percent complete: 25.9%; Average loss: nan
Iteration: 1037; Percent complete: 25.9%; Average loss: nan
Iteration: 1038; Percent complete: 25.9%; Average loss: nan
Iteration: 1039; Percent complete: 26.0%; Average loss: nan
Iteration: 1040; Percent complete: 26.0%; Average loss: nan
Iteration: 1041; Percent complete: 26.0%; Average loss: nan
Iteration: 1042; Percent complete: 26.1%; Average loss: nan
Iteration: 1043; Percent complete: 26.1%; Average loss: nan
Iteration: 1044; Percent complete: 26.1%; Average loss: nan
Iteration: 1045; Percent complete: 26.1%; Average loss: nan
Iteration: 1046; Percent complete: 26.2%; Average loss: nan
Iteration: 1047; Percent complete: 26.2%; Average loss: nan
Iteration: 1048; Percent complete: 26.2%; Average loss: nan
Iteration: 1049; Percent complete: 26.2%; Average loss: nan
Iteration: 1050; Percent complete: 26.2%; Average loss: nan
Iteration: 1051; Percent complete: 26.3%; Average loss: nan
Iteration: 1052; Percent complete: 26.3%; Average loss: nan
Iteration: 1053; Percent complete: 26.3%; Average loss: nan
Iteration: 1054; Percent complete: 26.4%; Average loss: nan
Iteration: 1055; Percent complete: 26.4%; Average loss: nan
Iteration: 1056; Percent complete: 26.4%; Average loss: nan
Iteration: 1057; Percent complete: 26.4%; Average loss: nan
Iteration: 1058; Percent complete: 26.5%; Average loss: nan
Iteration: 1059; Percent complete: 26.5%; Average loss: nan
Iteration: 1060; Percent complete: 26.5%; Average loss: nan
```

```
Iteration: 1061; Percent complete: 26.5%; Average loss: nan
Iteration: 1062; Percent complete: 26.6%; Average loss: nan
Iteration: 1063; Percent complete: 26.6%; Average loss: nan
Iteration: 1064; Percent complete: 26.6%; Average loss: nan
Iteration: 1065; Percent complete: 26.6%; Average loss: nan
Iteration: 1066; Percent complete: 26.7%; Average loss: nan
Iteration: 1067; Percent complete: 26.7%; Average loss: nan
Iteration: 1068; Percent complete: 26.7%; Average loss: nan
Iteration: 1069; Percent complete: 26.7%; Average loss: nan
Iteration: 1070; Percent complete: 26.8%; Average loss: nan
Iteration: 1071; Percent complete: 26.8%; Average loss: nan
Iteration: 1072; Percent complete: 26.8%; Average loss: nan
Iteration: 1073; Percent complete: 26.8%; Average loss: nan
Iteration: 1074; Percent complete: 26.9%; Average loss: nan
Iteration: 1075; Percent complete: 26.9%; Average loss: nan
Iteration: 1076; Percent complete: 26.9%; Average loss: nan
Iteration: 1077; Percent complete: 26.9%; Average loss: nan
Iteration: 1078; Percent complete: 27.0%; Average loss: nan
Iteration: 1079; Percent complete: 27.0%; Average loss: nan
Iteration: 1080; Percent complete: 27.0%; Average loss: nan
Iteration: 1081; Percent complete: 27.0%; Average loss: nan
Iteration: 1082; Percent complete: 27.1%; Average loss: nan
Iteration: 1083; Percent complete: 27.1%; Average loss: nan
Iteration: 1084; Percent complete: 27.1%; Average loss: nan
Iteration: 1085; Percent complete: 27.1%; Average loss: nan
Iteration: 1086; Percent complete: 27.2%; Average loss: nan
Iteration: 1087; Percent complete: 27.2%; Average loss: nan
Iteration: 1088; Percent complete: 27.2%; Average loss: nan
Iteration: 1089; Percent complete: 27.2%; Average loss: nan
Iteration: 1090; Percent complete: 27.3%; Average loss: nan
Iteration: 1091; Percent complete: 27.3%; Average loss: nan
Iteration: 1092; Percent complete: 27.3%; Average loss: nan
Iteration: 1093; Percent complete: 27.3%; Average loss: nan
Iteration: 1094; Percent complete: 27.4%; Average loss: nan
Iteration: 1095; Percent complete: 27.4%; Average loss: nan
Iteration: 1096; Percent complete: 27.4%; Average loss: nan
Iteration: 1097; Percent complete: 27.4%; Average loss: nan
Iteration: 1098; Percent complete: 27.5%; Average loss: nan
Iteration: 1099; Percent complete: 27.5%; Average loss: nan
Iteration: 1100; Percent complete: 27.5%; Average loss: nan
Iteration: 1101; Percent complete: 27.5%; Average loss: nan
Iteration: 1102; Percent complete: 27.6%; Average loss: nan
Iteration: 1103; Percent complete: 27.6%; Average loss: nan
Iteration: 1104; Percent complete: 27.6%; Average loss: nan
Iteration: 1105; Percent complete: 27.6%; Average loss: nan
Iteration: 1106; Percent complete: 27.7%; Average loss: nan
Iteration: 1107; Percent complete: 27.7%; Average loss: nan
Iteration: 1108; Percent complete: 27.7%; Average loss: nan
Iteration: 1109; Percent complete: 27.7%; Average loss: nan
Iteration: 1110; Percent complete: 27.8%; Average loss: nan
Iteration: 1111; Percent complete: 27.8%; Average loss: nan
Iteration: 1112; Percent complete: 27.8%; Average loss: nan
Iteration: 1113; Percent complete: 27.8%; Average loss: nan
Iteration: 1114; Percent complete: 27.9%; Average loss: nan
Iteration: 1115; Percent complete: 27.9%; Average loss: nan
Iteration: 1116; Percent complete: 27.9%; Average loss: nan
```

```
Iteration: 1117; Percent complete: 27.9%; Average loss: nan
Iteration: 1118; Percent complete: 28.0%; Average loss: nan
Iteration: 1119; Percent complete: 28.0%; Average loss: nan
Iteration: 1120; Percent complete: 28.0%; Average loss: nan
Iteration: 1121; Percent complete: 28.0%; Average loss: nan
Iteration: 1122; Percent complete: 28.1%; Average loss: nan
Iteration: 1123; Percent complete: 28.1%; Average loss: nan
Iteration: 1124; Percent complete: 28.1%; Average loss: nan
Iteration: 1125; Percent complete: 28.1%; Average loss: nan
Iteration: 1126; Percent complete: 28.1%; Average loss: nan
Iteration: 1127; Percent complete: 28.2%; Average loss: nan
Iteration: 1128; Percent complete: 28.2%; Average loss: nan
Iteration: 1129; Percent complete: 28.2%; Average loss: nan
Iteration: 1130; Percent complete: 28.2%; Average loss: nan
Iteration: 1131; Percent complete: 28.3%; Average loss: nan
Iteration: 1132; Percent complete: 28.3%; Average loss: nan
Iteration: 1133; Percent complete: 28.3%; Average loss: nan
Iteration: 1134; Percent complete: 28.3%; Average loss: nan
Iteration: 1135; Percent complete: 28.4%; Average loss: nan
Iteration: 1136; Percent complete: 28.4%; Average loss: nan
Iteration: 1137; Percent complete: 28.4%; Average loss: nan
Iteration: 1138; Percent complete: 28.4%; Average loss: nan
Iteration: 1139; Percent complete: 28.5%; Average loss: nan
Iteration: 1140; Percent complete: 28.5%; Average loss: nan
Iteration: 1141; Percent complete: 28.5%; Average loss: nan
Iteration: 1142; Percent complete: 28.5%; Average loss: nan
Iteration: 1143; Percent complete: 28.6%; Average loss: nan
Iteration: 1144; Percent complete: 28.6%; Average loss: nan
Iteration: 1145; Percent complete: 28.6%; Average loss: nan
Iteration: 1146; Percent complete: 28.6%; Average loss: nan
Iteration: 1147; Percent complete: 28.7%; Average loss: nan
Iteration: 1148; Percent complete: 28.7%; Average loss: nan
Iteration: 1149; Percent complete: 28.7%; Average loss: nan
Iteration: 1150; Percent complete: 28.7%; Average loss: nan
Iteration: 1151; Percent complete: 28.8%; Average loss: nan
Iteration: 1152; Percent complete: 28.8%; Average loss: nan
Iteration: 1153; Percent complete: 28.8%; Average loss: nan
Iteration: 1154; Percent complete: 28.8%; Average loss: nan
Iteration: 1155; Percent complete: 28.9%; Average loss: nan
Iteration: 1156; Percent complete: 28.9%; Average loss: nan
Iteration: 1157; Percent complete: 28.9%; Average loss: nan
Iteration: 1158; Percent complete: 28.9%; Average loss: nan
Iteration: 1159; Percent complete: 29.0%; Average loss: nan
Iteration: 1160; Percent complete: 29.0%; Average loss: nan
Iteration: 1161; Percent complete: 29.0%; Average loss: nan
Iteration: 1162; Percent complete: 29.0%; Average loss: nan
Iteration: 1163; Percent complete: 29.1%; Average loss: nan
Iteration: 1164; Percent complete: 29.1%; Average loss: nan
Iteration: 1165; Percent complete: 29.1%; Average loss: nan
Iteration: 1166; Percent complete: 29.1%; Average loss: nan
Iteration: 1167; Percent complete: 29.2%; Average loss: nan
Iteration: 1168; Percent complete: 29.2%; Average loss: nan
Iteration: 1169; Percent complete: 29.2%; Average loss: nan
Iteration: 1170; Percent complete: 29.2%; Average loss: nan
Iteration: 1171; Percent complete: 29.3%; Average loss: nan
Iteration: 1172; Percent complete: 29.3%; Average loss: nan
```

```
Iteration: 1173; Percent complete: 29.3%; Average loss: nan
Iteration: 1174; Percent complete: 29.3%; Average loss: nan
Iteration: 1175; Percent complete: 29.4%; Average loss: nan
Iteration: 1176; Percent complete: 29.4%; Average loss: nan
Iteration: 1177; Percent complete: 29.4%; Average loss: nan
Iteration: 1178; Percent complete: 29.4%; Average loss: nan
Iteration: 1179; Percent complete: 29.5%; Average loss: nan
Iteration: 1180; Percent complete: 29.5%; Average loss: nan
Iteration: 1181; Percent complete: 29.5%; Average loss: nan
Iteration: 1182; Percent complete: 29.5%; Average loss: nan
Iteration: 1183; Percent complete: 29.6%; Average loss: nan
Iteration: 1184; Percent complete: 29.6%; Average loss: nan
Iteration: 1185; Percent complete: 29.6%; Average loss: nan
Iteration: 1186; Percent complete: 29.6%; Average loss: nan
Iteration: 1187; Percent complete: 29.7%; Average loss: nan
Iteration: 1188; Percent complete: 29.7%; Average loss: nan
Iteration: 1189; Percent complete: 29.7%; Average loss: nan
Iteration: 1190; Percent complete: 29.8%; Average loss: nan
Iteration: 1191; Percent complete: 29.8%; Average loss: nan
Iteration: 1192; Percent complete: 29.8%; Average loss: nan
Iteration: 1193; Percent complete: 29.8%; Average loss: nan
Iteration: 1194; Percent complete: 29.8%; Average loss: nan
Iteration: 1195; Percent complete: 29.9%; Average loss: nan
Iteration: 1196; Percent complete: 29.9%; Average loss: nan
Iteration: 1197; Percent complete: 29.9%; Average loss: nan
Iteration: 1198; Percent complete: 29.9%; Average loss: nan
Iteration: 1199; Percent complete: 30.0%; Average loss: nan
Iteration: 1200; Percent complete: 30.0%; Average loss: nan
Iteration: 1201; Percent complete: 30.0%; Average loss: nan
Iteration: 1202; Percent complete: 30.0%; Average loss: nan
Iteration: 1203; Percent complete: 30.1%; Average loss: nan
Iteration: 1204; Percent complete: 30.1%; Average loss: nan
Iteration: 1205; Percent complete: 30.1%; Average loss: nan
Iteration: 1206; Percent complete: 30.1%; Average loss: nan
Iteration: 1207; Percent complete: 30.2%; Average loss: nan
Iteration: 1208; Percent complete: 30.2%; Average loss: nan
Iteration: 1209; Percent complete: 30.2%; Average loss: nan
Iteration: 1210; Percent complete: 30.2%; Average loss: nan
Iteration: 1211; Percent complete: 30.3%; Average loss: nan
Iteration: 1212; Percent complete: 30.3%; Average loss: nan
Iteration: 1213; Percent complete: 30.3%; Average loss: nan
Iteration: 1214; Percent complete: 30.3%; Average loss: nan
Iteration: 1215; Percent complete: 30.4%; Average loss: nan
Iteration: 1216; Percent complete: 30.4%; Average loss: nan
Iteration: 1217; Percent complete: 30.4%; Average loss: nan
Iteration: 1218; Percent complete: 30.4%; Average loss: nan
Iteration: 1219; Percent complete: 30.5%; Average loss: nan
Iteration: 1220; Percent complete: 30.5%; Average loss: nan
Iteration: 1221; Percent complete: 30.5%; Average loss: nan
Iteration: 1222; Percent complete: 30.6%; Average loss: nan
Iteration: 1223; Percent complete: 30.6%; Average loss: nan
Iteration: 1224; Percent complete: 30.6%; Average loss: nan
Iteration: 1225; Percent complete: 30.6%; Average loss: nan
Iteration: 1226; Percent complete: 30.6%; Average loss: nan
Iteration: 1227; Percent complete: 30.7%; Average loss: nan
Iteration: 1228; Percent complete: 30.7%; Average loss: nan
```

```
Iteration: 1229; Percent complete: 30.7%; Average loss: nan
Iteration: 1230; Percent complete: 30.8%; Average loss: nan
Iteration: 1231; Percent complete: 30.8%; Average loss: nan
Iteration: 1232; Percent complete: 30.8%; Average loss: nan
Iteration: 1233; Percent complete: 30.8%; Average loss: nan
Iteration: 1234; Percent complete: 30.9%; Average loss: nan
Iteration: 1235; Percent complete: 30.9%; Average loss: nan
Iteration: 1236; Percent complete: 30.9%; Average loss: nan
Iteration: 1237; Percent complete: 30.9%; Average loss: nan
Iteration: 1238; Percent complete: 30.9%; Average loss: nan
Iteration: 1239; Percent complete: 31.0%; Average loss: nan
Iteration: 1240; Percent complete: 31.0%; Average loss: nan
Iteration: 1241; Percent complete: 31.0%; Average loss: nan
Iteration: 1242; Percent complete: 31.1%; Average loss: nan
Iteration: 1243; Percent complete: 31.1%; Average loss: nan
Iteration: 1244; Percent complete: 31.1%; Average loss: nan
Iteration: 1245; Percent complete: 31.1%; Average loss: nan
Iteration: 1246; Percent complete: 31.1%; Average loss: nan
Iteration: 1247; Percent complete: 31.2%; Average loss: nan
Iteration: 1248; Percent complete: 31.2%; Average loss: nan
Iteration: 1249; Percent complete: 31.2%; Average loss: nan
Iteration: 1250; Percent complete: 31.2%; Average loss: nan
Iteration: 1251; Percent complete: 31.3%; Average loss: nan
Iteration: 1252; Percent complete: 31.3%; Average loss: nan
Iteration: 1253; Percent complete: 31.3%; Average loss: nan
Iteration: 1254; Percent complete: 31.4%; Average loss: nan
Iteration: 1255; Percent complete: 31.4%; Average loss: nan
Iteration: 1256; Percent complete: 31.4%; Average loss: nan
Iteration: 1257; Percent complete: 31.4%; Average loss: nan
Iteration: 1258; Percent complete: 31.4%; Average loss: nan
Iteration: 1259; Percent complete: 31.5%; Average loss: nan
Iteration: 1260; Percent complete: 31.5%; Average loss: nan
Iteration: 1261; Percent complete: 31.5%; Average loss: nan
Iteration: 1262; Percent complete: 31.6%; Average loss: nan
Iteration: 1263; Percent complete: 31.6%; Average loss: nan
Iteration: 1264; Percent complete: 31.6%; Average loss: nan
Iteration: 1265; Percent complete: 31.6%; Average loss: nan
Iteration: 1266; Percent complete: 31.6%; Average loss: nan
Iteration: 1267; Percent complete: 31.7%; Average loss: nan
Iteration: 1268; Percent complete: 31.7%; Average loss: nan
Iteration: 1269; Percent complete: 31.7%; Average loss: nan
Iteration: 1270; Percent complete: 31.8%; Average loss: nan
Iteration: 1271; Percent complete: 31.8%; Average loss: nan
Iteration: 1272; Percent complete: 31.8%; Average loss: nan
Iteration: 1273; Percent complete: 31.8%; Average loss: nan
Iteration: 1274; Percent complete: 31.9%; Average loss: nan
Iteration: 1275; Percent complete: 31.9%; Average loss: nan
Iteration: 1276; Percent complete: 31.9%; Average loss: nan
Iteration: 1277; Percent complete: 31.9%; Average loss: nan
Iteration: 1278; Percent complete: 31.9%; Average loss: nan
Iteration: 1279; Percent complete: 32.0%; Average loss: nan
Iteration: 1280; Percent complete: 32.0%; Average loss: nan
Iteration: 1281; Percent complete: 32.0%; Average loss: nan
Iteration: 1282; Percent complete: 32.0%; Average loss: nan
Iteration: 1283; Percent complete: 32.1%; Average loss: nan
Iteration: 1284; Percent complete: 32.1%; Average loss: nan
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Iteration: 1285; Percent complete: 32.1%; Average loss: nan
Iteration: 1286; Percent complete: 32.1%; Average loss: nan
Iteration: 1287; Percent complete: 32.2%; Average loss: nan
Iteration: 1288; Percent complete: 32.2%; Average loss: nan
Iteration: 1289; Percent complete: 32.2%; Average loss: nan
Iteration: 1290; Percent complete: 32.2%; Average loss: nan
Iteration: 1291; Percent complete: 32.3%; Average loss: nan
Iteration: 1292; Percent complete: 32.3%; Average loss: nan
Iteration: 1293; Percent complete: 32.3%; Average loss: nan
Iteration: 1294; Percent complete: 32.4%; Average loss: nan
Iteration: 1295; Percent complete: 32.4%; Average loss: nan
Iteration: 1296; Percent complete: 32.4%; Average loss: nan
Iteration: 1297; Percent complete: 32.4%; Average loss: nan
Iteration: 1298; Percent complete: 32.5%; Average loss: nan
Iteration: 1299; Percent complete: 32.5%; Average loss: nan
Iteration: 1300; Percent complete: 32.5%; Average loss: nan
Iteration: 1301; Percent complete: 32.5%; Average loss: nan
Iteration: 1302; Percent complete: 32.6%; Average loss: nan
Iteration: 1303; Percent complete: 32.6%; Average loss: nan
Iteration: 1304; Percent complete: 32.6%; Average loss: nan
Iteration: 1305; Percent complete: 32.6%; Average loss: nan
Iteration: 1306; Percent complete: 32.6%; Average loss: nan
Iteration: 1307; Percent complete: 32.7%; Average loss: nan
Iteration: 1308; Percent complete: 32.7%; Average loss: nan
Iteration: 1309; Percent complete: 32.7%; Average loss: nan
Iteration: 1310; Percent complete: 32.8%; Average loss: nan
Iteration: 1311; Percent complete: 32.8%; Average loss: nan
Iteration: 1312; Percent complete: 32.8%; Average loss: nan
Iteration: 1313; Percent complete: 32.8%; Average loss: nan
Iteration: 1314; Percent complete: 32.9%; Average loss: nan
Iteration: 1315; Percent complete: 32.9%; Average loss: nan
Iteration: 1316; Percent complete: 32.9%; Average loss: nan
Iteration: 1317; Percent complete: 32.9%; Average loss: nan
Iteration: 1318; Percent complete: 33.0%; Average loss: nan
Iteration: 1319; Percent complete: 33.0%; Average loss: nan
Iteration: 1320; Percent complete: 33.0%; Average loss: nan
Iteration: 1321; Percent complete: 33.0%; Average loss: nan
Iteration: 1322; Percent complete: 33.1%; Average loss: nan
Iteration: 1323; Percent complete: 33.1%; Average loss: nan
Iteration: 1324; Percent complete: 33.1%; Average loss: nan
Iteration: 1325; Percent complete: 33.1%; Average loss: nan
Iteration: 1326; Percent complete: 33.1%; Average loss: nan
Iteration: 1327; Percent complete: 33.2%; Average loss: nan
Iteration: 1328; Percent complete: 33.2%; Average loss: nan
Iteration: 1329; Percent complete: 33.2%; Average loss: nan
Iteration: 1330; Percent complete: 33.2%; Average loss: nan
Iteration: 1331; Percent complete: 33.3%; Average loss: nan
Iteration: 1332; Percent complete: 33.3%; Average loss: nan
Iteration: 1333; Percent complete: 33.3%; Average loss: nan
Iteration: 1334; Percent complete: 33.4%; Average loss: nan
Iteration: 1335; Percent complete: 33.4%; Average loss: nan
Iteration: 1336; Percent complete: 33.4%; Average loss: nan
Iteration: 1337; Percent complete: 33.4%; Average loss: nan
Iteration: 1338; Percent complete: 33.5%; Average loss: nan
Iteration: 1339; Percent complete: 33.5%; Average loss: nan
Iteration: 1340; Percent complete: 33.5%; Average loss: nan
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```
Iteration: 1341; Percent complete: 33.5%; Average loss: nan
Iteration: 1342; Percent complete: 33.6%; Average loss: nan
Iteration: 1343; Percent complete: 33.6%; Average loss: nan
Iteration: 1344; Percent complete: 33.6%; Average loss: nan
Iteration: 1345; Percent complete: 33.6%; Average loss: nan
Iteration: 1346; Percent complete: 33.7%; Average loss: nan
Iteration: 1347; Percent complete: 33.7%; Average loss: nan
Iteration: 1348; Percent complete: 33.7%; Average loss: nan
Iteration: 1349; Percent complete: 33.7%; Average loss: nan
Iteration: 1350; Percent complete: 33.8%; Average loss: nan
Iteration: 1351; Percent complete: 33.8%; Average loss: nan
Iteration: 1352; Percent complete: 33.8%; Average loss: nan
Iteration: 1353; Percent complete: 33.8%; Average loss: nan
Iteration: 1354; Percent complete: 33.9%; Average loss: nan
Iteration: 1355; Percent complete: 33.9%; Average loss: nan
Iteration: 1356; Percent complete: 33.9%; Average loss: nan
Iteration: 1357; Percent complete: 33.9%; Average loss: nan
Iteration: 1358; Percent complete: 34.0%; Average loss: nan
Iteration: 1359; Percent complete: 34.0%; Average loss: nan
Iteration: 1360; Percent complete: 34.0%; Average loss: nan
Iteration: 1361; Percent complete: 34.0%; Average loss: nan
Iteration: 1362; Percent complete: 34.1%; Average loss: nan
Iteration: 1363; Percent complete: 34.1%; Average loss: nan
Iteration: 1364; Percent complete: 34.1%; Average loss: nan
Iteration: 1365; Percent complete: 34.1%; Average loss: nan
Iteration: 1366; Percent complete: 34.2%; Average loss: nan
Iteration: 1367; Percent complete: 34.2%; Average loss: nan
Iteration: 1368; Percent complete: 34.2%; Average loss: nan
Iteration: 1369; Percent complete: 34.2%; Average loss: nan
Iteration: 1370; Percent complete: 34.2%; Average loss: nan
Iteration: 1371; Percent complete: 34.3%; Average loss: nan
Iteration: 1372; Percent complete: 34.3%; Average loss: nan
Iteration: 1373; Percent complete: 34.3%; Average loss: nan
Iteration: 1374; Percent complete: 34.4%; Average loss: nan
Iteration: 1375; Percent complete: 34.4%; Average loss: nan
Iteration: 1376; Percent complete: 34.4%; Average loss: nan
Iteration: 1377; Percent complete: 34.4%; Average loss: nan
Iteration: 1378; Percent complete: 34.4%; Average loss: nan
Iteration: 1379; Percent complete: 34.5%; Average loss: nan
Iteration: 1380; Percent complete: 34.5%; Average loss: nan
Iteration: 1381; Percent complete: 34.5%; Average loss: nan
Iteration: 1382; Percent complete: 34.5%; Average loss: nan
Iteration: 1383; Percent complete: 34.6%; Average loss: nan
Iteration: 1384; Percent complete: 34.6%; Average loss: nan
Iteration: 1385; Percent complete: 34.6%; Average loss: nan
Iteration: 1386; Percent complete: 34.6%; Average loss: nan
Iteration: 1387; Percent complete: 34.7%; Average loss: nan
Iteration: 1388; Percent complete: 34.7%; Average loss: nan
Iteration: 1389; Percent complete: 34.7%; Average loss: nan
Iteration: 1390; Percent complete: 34.8%; Average loss: nan
Iteration: 1391; Percent complete: 34.8%; Average loss: nan
Iteration: 1392; Percent complete: 34.8%; Average loss: nan
Iteration: 1393; Percent complete: 34.8%; Average loss: nan
Iteration: 1394; Percent complete: 34.8%; Average loss: nan
Iteration: 1395; Percent complete: 34.9%; Average loss: nan
Iteration: 1396; Percent complete: 34.9%; Average loss: nan
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```
Iteration: 1397; Percent complete: 34.9%; Average loss: nan
Iteration: 1398; Percent complete: 34.9%; Average loss: nan
Iteration: 1399; Percent complete: 35.0%; Average loss: nan
Iteration: 1400; Percent complete: 35.0%; Average loss: nan
Iteration: 1401; Percent complete: 35.0%; Average loss: nan
Iteration: 1402; Percent complete: 35.0%; Average loss: nan
Iteration: 1403; Percent complete: 35.1%; Average loss: nan
Iteration: 1404; Percent complete: 35.1%; Average loss: nan
Iteration: 1405; Percent complete: 35.1%; Average loss: nan
Iteration: 1406; Percent complete: 35.1%; Average loss: nan
Iteration: 1407; Percent complete: 35.2%; Average loss: nan
Iteration: 1408; Percent complete: 35.2%; Average loss: nan
Iteration: 1409; Percent complete: 35.2%; Average loss: nan
Iteration: 1410; Percent complete: 35.2%; Average loss: nan
Iteration: 1411; Percent complete: 35.3%; Average loss: nan
Iteration: 1412; Percent complete: 35.3%; Average loss: nan
Iteration: 1413; Percent complete: 35.3%; Average loss: nan
Iteration: 1414; Percent complete: 35.4%; Average loss: nan
Iteration: 1415; Percent complete: 35.4%; Average loss: nan
Iteration: 1416; Percent complete: 35.4%; Average loss: nan
Iteration: 1417; Percent complete: 35.4%; Average loss: nan
Iteration: 1418; Percent complete: 35.4%; Average loss: nan
Iteration: 1419; Percent complete: 35.5%; Average loss: nan
Iteration: 1420; Percent complete: 35.5%; Average loss: nan
Iteration: 1421; Percent complete: 35.5%; Average loss: nan
Iteration: 1422; Percent complete: 35.5%; Average loss: nan
Iteration: 1423; Percent complete: 35.6%; Average loss: nan
Iteration: 1424; Percent complete: 35.6%; Average loss: nan
Iteration: 1425; Percent complete: 35.6%; Average loss: nan
Iteration: 1426; Percent complete: 35.6%; Average loss: nan
Iteration: 1427; Percent complete: 35.7%; Average loss: nan
Iteration: 1428; Percent complete: 35.7%; Average loss: nan
Iteration: 1429; Percent complete: 35.7%; Average loss: nan
Iteration: 1430; Percent complete: 35.8%; Average loss: nan
Iteration: 1431; Percent complete: 35.8%; Average loss: nan
Iteration: 1432; Percent complete: 35.8%; Average loss: nan
Iteration: 1433; Percent complete: 35.8%; Average loss: nan
Iteration: 1434; Percent complete: 35.9%; Average loss: nan
Iteration: 1435; Percent complete: 35.9%; Average loss: nan
Iteration: 1436; Percent complete: 35.9%; Average loss: nan
Iteration: 1437; Percent complete: 35.9%; Average loss: nan
Iteration: 1438; Percent complete: 35.9%; Average loss: nan
Iteration: 1439; Percent complete: 36.0%; Average loss: nan
Iteration: 1440; Percent complete: 36.0%; Average loss: nan
Iteration: 1441; Percent complete: 36.0%; Average loss: nan
Iteration: 1442; Percent complete: 36.0%; Average loss: nan
Iteration: 1443; Percent complete: 36.1%; Average loss: nan
Iteration: 1444; Percent complete: 36.1%; Average loss: nan
Iteration: 1445; Percent complete: 36.1%; Average loss: nan
Iteration: 1446; Percent complete: 36.1%; Average loss: nan
Iteration: 1447; Percent complete: 36.2%; Average loss: nan
Iteration: 1448; Percent complete: 36.2%; Average loss: nan
Iteration: 1449; Percent complete: 36.2%; Average loss: nan
Iteration: 1450; Percent complete: 36.2%; Average loss: nan
Iteration: 1451; Percent complete: 36.3%; Average loss: nan
Iteration: 1452; Percent complete: 36.3%; Average loss: nan
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```
Iteration: 1453; Percent complete: 36.3%; Average loss: nan
Iteration: 1454; Percent complete: 36.4%; Average loss: nan
Iteration: 1455; Percent complete: 36.4%; Average loss: nan
Iteration: 1456; Percent complete: 36.4%; Average loss: nan
Iteration: 1457; Percent complete: 36.4%; Average loss: nan
Iteration: 1458; Percent complete: 36.4%; Average loss: nan
Iteration: 1459; Percent complete: 36.5%; Average loss: nan
Iteration: 1460; Percent complete: 36.5%; Average loss: nan
Iteration: 1461; Percent complete: 36.5%; Average loss: nan
Iteration: 1462; Percent complete: 36.5%; Average loss: nan
Iteration: 1463; Percent complete: 36.6%; Average loss: nan
Iteration: 1464; Percent complete: 36.6%; Average loss: nan
Iteration: 1465; Percent complete: 36.6%; Average loss: nan
Iteration: 1466; Percent complete: 36.6%; Average loss: nan
Iteration: 1467; Percent complete: 36.7%; Average loss: nan
Iteration: 1468; Percent complete: 36.7%; Average loss: nan
Iteration: 1469; Percent complete: 36.7%; Average loss: nan
Iteration: 1470; Percent complete: 36.8%; Average loss: nan
Iteration: 1471; Percent complete: 36.8%; Average loss: nan
Iteration: 1472; Percent complete: 36.8%; Average loss: nan
Iteration: 1473; Percent complete: 36.8%; Average loss: nan
Iteration: 1474; Percent complete: 36.9%; Average loss: nan
Iteration: 1475; Percent complete: 36.9%; Average loss: nan
Iteration: 1476; Percent complete: 36.9%; Average loss: nan
Iteration: 1477; Percent complete: 36.9%; Average loss: nan
Iteration: 1478; Percent complete: 37.0%; Average loss: nan
Iteration: 1479; Percent complete: 37.0%; Average loss: nan
Iteration: 1480; Percent complete: 37.0%; Average loss: nan
Iteration: 1481; Percent complete: 37.0%; Average loss: nan
Iteration: 1482; Percent complete: 37.0%; Average loss: nan
Iteration: 1483; Percent complete: 37.1%; Average loss: nan
Iteration: 1484; Percent complete: 37.1%; Average loss: nan
Iteration: 1485; Percent complete: 37.1%; Average loss: nan
Iteration: 1486; Percent complete: 37.1%; Average loss: nan
Iteration: 1487; Percent complete: 37.2%; Average loss: nan
Iteration: 1488; Percent complete: 37.2%; Average loss: nan
Iteration: 1489; Percent complete: 37.2%; Average loss: nan
Iteration: 1490; Percent complete: 37.2%; Average loss: nan
Iteration: 1491; Percent complete: 37.3%; Average loss: nan
Iteration: 1492; Percent complete: 37.3%; Average loss: nan
Iteration: 1493; Percent complete: 37.3%; Average loss: nan
Iteration: 1494; Percent complete: 37.4%; Average loss: nan
Iteration: 1495; Percent complete: 37.4%; Average loss: nan
Iteration: 1496; Percent complete: 37.4%; Average loss: nan
Iteration: 1497; Percent complete: 37.4%; Average loss: nan
Iteration: 1498; Percent complete: 37.5%; Average loss: nan
Iteration: 1499; Percent complete: 37.5%; Average loss: nan
Iteration: 1500; Percent complete: 37.5%; Average loss: nan
Iteration: 1501; Percent complete: 37.5%; Average loss: nan
Iteration: 1502; Percent complete: 37.5%; Average loss: nan
Iteration: 1503; Percent complete: 37.6%; Average loss: nan
Iteration: 1504; Percent complete: 37.6%; Average loss: nan
Iteration: 1505; Percent complete: 37.6%; Average loss: nan
Iteration: 1506; Percent complete: 37.6%; Average loss: nan
Iteration: 1507; Percent complete: 37.7%; Average loss: nan
Iteration: 1508; Percent complete: 37.7%; Average loss: nan
```

```
Iteration: 1509; Percent complete: 37.7%; Average loss: nan
Iteration: 1510; Percent complete: 37.8%; Average loss: nan
Iteration: 1511; Percent complete: 37.8%; Average loss: nan
Iteration: 1512; Percent complete: 37.8%; Average loss: nan
Iteration: 1513; Percent complete: 37.8%; Average loss: nan
Iteration: 1514; Percent complete: 37.9%; Average loss: nan
Iteration: 1515; Percent complete: 37.9%; Average loss: nan
Iteration: 1516; Percent complete: 37.9%; Average loss: nan
Iteration: 1517; Percent complete: 37.9%; Average loss: nan
Iteration: 1518; Percent complete: 38.0%; Average loss: nan
Iteration: 1519; Percent complete: 38.0%; Average loss: nan
Iteration: 1520; Percent complete: 38.0%; Average loss: nan
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Iteration: 1522; Percent complete: 38.0%; Average loss: nan
Iteration: 1523; Percent complete: 38.1%; Average loss: nan
Iteration: 1524; Percent complete: 38.1%; Average loss: nan
Iteration: 1525; Percent complete: 38.1%; Average loss: nan
Iteration: 1526; Percent complete: 38.1%; Average loss: nan
Iteration: 1527; Percent complete: 38.2%; Average loss: nan
Iteration: 1528; Percent complete: 38.2%; Average loss: nan
Iteration: 1529; Percent complete: 38.2%; Average loss: nan
Iteration: 1530; Percent complete: 38.2%; Average loss: nan
Iteration: 1531; Percent complete: 38.3%; Average loss: nan
Iteration: 1532; Percent complete: 38.3%; Average loss: nan
Iteration: 1533; Percent complete: 38.3%; Average loss: nan
Iteration: 1534; Percent complete: 38.4%; Average loss: nan
Iteration: 1535; Percent complete: 38.4%; Average loss: nan
Iteration: 1536; Percent complete: 38.4%; Average loss: nan
Iteration: 1537; Percent complete: 38.4%; Average loss: nan
Iteration: 1538; Percent complete: 38.5%; Average loss: nan
Iteration: 1539; Percent complete: 38.5%; Average loss: nan
Iteration: 1540; Percent complete: 38.5%; Average loss: nan
Iteration: 1541; Percent complete: 38.5%; Average loss: nan
Iteration: 1542; Percent complete: 38.6%; Average loss: nan
Iteration: 1543; Percent complete: 38.6%; Average loss: nan
Iteration: 1544; Percent complete: 38.6%; Average loss: nan
Iteration: 1545; Percent complete: 38.6%; Average loss: nan
Iteration: 1546; Percent complete: 38.6%; Average loss: nan
Iteration: 1547; Percent complete: 38.7%; Average loss: nan
Iteration: 1548; Percent complete: 38.7%; Average loss: nan
Iteration: 1549; Percent complete: 38.7%; Average loss: nan
Iteration: 1550; Percent complete: 38.8%; Average loss: nan
Iteration: 1551; Percent complete: 38.8%; Average loss: nan
Iteration: 1552; Percent complete: 38.8%; Average loss: nan
Iteration: 1553; Percent complete: 38.8%; Average loss: nan
Iteration: 1554; Percent complete: 38.9%; Average loss: nan
Iteration: 1555; Percent complete: 38.9%; Average loss: nan
Iteration: 1556; Percent complete: 38.9%; Average loss: nan
Iteration: 1557; Percent complete: 38.9%; Average loss: nan
Iteration: 1558; Percent complete: 39.0%; Average loss: nan
Iteration: 1559; Percent complete: 39.0%; Average loss: nan
Iteration: 1560; Percent complete: 39.0%; Average loss: nan
Iteration: 1561; Percent complete: 39.0%; Average loss: nan
Iteration: 1562; Percent complete: 39.1%; Average loss: nan
Iteration: 1563; Percent complete: 39.1%; Average loss: nan
Iteration: 1564; Percent complete: 39.1%; Average loss: nan
```

```
Iteration: 1565; Percent complete: 39.1%; Average loss: nan
Iteration: 1566; Percent complete: 39.1%; Average loss: nan
Iteration: 1567; Percent complete: 39.2%; Average loss: nan
Iteration: 1568; Percent complete: 39.2%; Average loss: nan
Iteration: 1569; Percent complete: 39.2%; Average loss: nan
Iteration: 1570; Percent complete: 39.2%; Average loss: nan
Iteration: 1571; Percent complete: 39.3%; Average loss: nan
Iteration: 1572; Percent complete: 39.3%; Average loss: nan
Iteration: 1573; Percent complete: 39.3%; Average loss: nan
Iteration: 1574; Percent complete: 39.4%; Average loss: nan
Iteration: 1575; Percent complete: 39.4%; Average loss: nan
Iteration: 1576; Percent complete: 39.4%; Average loss: nan
Iteration: 1577; Percent complete: 39.4%; Average loss: nan
Iteration: 1578; Percent complete: 39.5%; Average loss: nan
Iteration: 1579; Percent complete: 39.5%; Average loss: nan
Iteration: 1580; Percent complete: 39.5%; Average loss: nan
Iteration: 1581; Percent complete: 39.5%; Average loss: nan
Iteration: 1582; Percent complete: 39.6%; Average loss: nan
Iteration: 1583; Percent complete: 39.6%; Average loss: nan
Iteration: 1584; Percent complete: 39.6%; Average loss: nan
Iteration: 1585; Percent complete: 39.6%; Average loss: nan
Iteration: 1586; Percent complete: 39.6%; Average loss: nan
Iteration: 1587; Percent complete: 39.7%; Average loss: nan
Iteration: 1588; Percent complete: 39.7%; Average loss: nan
Iteration: 1589; Percent complete: 39.7%; Average loss: nan
Iteration: 1590; Percent complete: 39.8%; Average loss: nan
Iteration: 1591; Percent complete: 39.8%; Average loss: nan
Iteration: 1592; Percent complete: 39.8%; Average loss: nan
Iteration: 1593; Percent complete: 39.8%; Average loss: nan
Iteration: 1594; Percent complete: 39.9%; Average loss: nan
Iteration: 1595; Percent complete: 39.9%; Average loss: nan
Iteration: 1596; Percent complete: 39.9%; Average loss: nan
Iteration: 1597; Percent complete: 39.9%; Average loss: nan
Iteration: 1598; Percent complete: 40.0%; Average loss: nan
Iteration: 1599; Percent complete: 40.0%; Average loss: nan
Iteration: 1600; Percent complete: 40.0%; Average loss: nan
Iteration: 1601; Percent complete: 40.0%; Average loss: nan
Iteration: 1602; Percent complete: 40.1%; Average loss: nan
Iteration: 1603; Percent complete: 40.1%; Average loss: nan
Iteration: 1604; Percent complete: 40.1%; Average loss: nan
Iteration: 1605; Percent complete: 40.1%; Average loss: nan
Iteration: 1606; Percent complete: 40.2%; Average loss: nan
Iteration: 1607; Percent complete: 40.2%; Average loss: nan
Iteration: 1608; Percent complete: 40.2%; Average loss: nan
Iteration: 1609; Percent complete: 40.2%; Average loss: nan
Iteration: 1610; Percent complete: 40.2%; Average loss: nan
Iteration: 1611; Percent complete: 40.3%; Average loss: nan
Iteration: 1612; Percent complete: 40.3%; Average loss: nan
Iteration: 1613; Percent complete: 40.3%; Average loss: nan
Iteration: 1614; Percent complete: 40.4%; Average loss: nan
Iteration: 1615; Percent complete: 40.4%; Average loss: nan
Iteration: 1616; Percent complete: 40.4%; Average loss: nan
Iteration: 1617; Percent complete: 40.4%; Average loss: nan
Iteration: 1618; Percent complete: 40.5%; Average loss: nan
Iteration: 1619; Percent complete: 40.5%; Average loss: nan
Iteration: 1620; Percent complete: 40.5%; Average loss: nan
```

```
Iteration: 1621; Percent complete: 40.5%; Average loss: nan
Iteration: 1622; Percent complete: 40.6%; Average loss: nan
Iteration: 1623; Percent complete: 40.6%; Average loss: nan
Iteration: 1624; Percent complete: 40.6%; Average loss: nan
Iteration: 1625; Percent complete: 40.6%; Average loss: nan
Iteration: 1626; Percent complete: 40.6%; Average loss: nan
Iteration: 1627; Percent complete: 40.7%; Average loss: nan
Iteration: 1628; Percent complete: 40.7%; Average loss: nan
Iteration: 1629; Percent complete: 40.7%; Average loss: nan
Iteration: 1630; Percent complete: 40.8%; Average loss: nan
Iteration: 1631; Percent complete: 40.8%; Average loss: nan
Iteration: 1632; Percent complete: 40.8%; Average loss: nan
Iteration: 1633; Percent complete: 40.8%; Average loss: nan
Iteration: 1634; Percent complete: 40.8%; Average loss: nan
Iteration: 1635; Percent complete: 40.9%; Average loss: nan
Iteration: 1636; Percent complete: 40.9%; Average loss: nan
Iteration: 1637; Percent complete: 40.9%; Average loss: nan
Iteration: 1638; Percent complete: 40.9%; Average loss: nan
Iteration: 1639; Percent complete: 41.0%; Average loss: nan
Iteration: 1640; Percent complete: 41.0%; Average loss: nan
Iteration: 1641; Percent complete: 41.0%; Average loss: nan
Iteration: 1642; Percent complete: 41.0%; Average loss: nan
Iteration: 1643; Percent complete: 41.1%; Average loss: nan
Iteration: 1644; Percent complete: 41.1%; Average loss: nan
Iteration: 1645; Percent complete: 41.1%; Average loss: nan
Iteration: 1646; Percent complete: 41.1%; Average loss: nan
Iteration: 1647; Percent complete: 41.2%; Average loss: nan
Iteration: 1648; Percent complete: 41.2%; Average loss: nan
Iteration: 1649; Percent complete: 41.2%; Average loss: nan
Iteration: 1650; Percent complete: 41.2%; Average loss: nan
Iteration: 1651; Percent complete: 41.3%; Average loss: nan
Iteration: 1652; Percent complete: 41.3%; Average loss: nan
Iteration: 1653; Percent complete: 41.3%; Average loss: nan
Iteration: 1654; Percent complete: 41.3%; Average loss: nan
Iteration: 1655; Percent complete: 41.4%; Average loss: nan
Iteration: 1656; Percent complete: 41.4%; Average loss: nan
Iteration: 1657; Percent complete: 41.4%; Average loss: nan
Iteration: 1658; Percent complete: 41.4%; Average loss: nan
Iteration: 1659; Percent complete: 41.5%; Average loss: nan
Iteration: 1660; Percent complete: 41.5%; Average loss: nan
Iteration: 1661; Percent complete: 41.5%; Average loss: nan
Iteration: 1662; Percent complete: 41.5%; Average loss: nan
Iteration: 1663; Percent complete: 41.6%; Average loss: nan
Iteration: 1664; Percent complete: 41.6%; Average loss: nan
Iteration: 1665; Percent complete: 41.6%; Average loss: nan
Iteration: 1666; Percent complete: 41.6%; Average loss: nan
Iteration: 1667; Percent complete: 41.7%; Average loss: nan
Iteration: 1668; Percent complete: 41.7%; Average loss: nan
Iteration: 1669; Percent complete: 41.7%; Average loss: nan
Iteration: 1670; Percent complete: 41.8%; Average loss: nan
Iteration: 1671; Percent complete: 41.8%; Average loss: nan
Iteration: 1672; Percent complete: 41.8%; Average loss: nan
Iteration: 1673; Percent complete: 41.8%; Average loss: nan
Iteration: 1674; Percent complete: 41.9%; Average loss: nan
Iteration: 1675; Percent complete: 41.9%; Average loss: nan
Iteration: 1676; Percent complete: 41.9%; Average loss: nan
```

```
Iteration: 1677; Percent complete: 41.9%; Average loss: nan
Iteration: 1678; Percent complete: 41.9%; Average loss: nan
Iteration: 1679; Percent complete: 42.0%; Average loss: nan
Iteration: 1680; Percent complete: 42.0%; Average loss: nan
Iteration: 1681; Percent complete: 42.0%; Average loss: nan
Iteration: 1682; Percent complete: 42.0%; Average loss: nan
Iteration: 1683; Percent complete: 42.1%; Average loss: nan
Iteration: 1684; Percent complete: 42.1%; Average loss: nan
Iteration: 1685; Percent complete: 42.1%; Average loss: nan
Iteration: 1686; Percent complete: 42.1%; Average loss: nan
Iteration: 1687; Percent complete: 42.2%; Average loss: nan
Iteration: 1688; Percent complete: 42.2%; Average loss: nan
Iteration: 1689; Percent complete: 42.2%; Average loss: nan
Iteration: 1690; Percent complete: 42.2%; Average loss: nan
Iteration: 1691; Percent complete: 42.3%; Average loss: nan
Iteration: 1692; Percent complete: 42.3%; Average loss: nan
Iteration: 1693; Percent complete: 42.3%; Average loss: nan
Iteration: 1694; Percent complete: 42.4%; Average loss: nan
Iteration: 1695; Percent complete: 42.4%; Average loss: nan
Iteration: 1696; Percent complete: 42.4%; Average loss: nan
Iteration: 1697; Percent complete: 42.4%; Average loss: nan
Iteration: 1698; Percent complete: 42.4%; Average loss: nan
Iteration: 1699; Percent complete: 42.5%; Average loss: nan
Iteration: 1700; Percent complete: 42.5%; Average loss: nan
Iteration: 1701; Percent complete: 42.5%; Average loss: nan
Iteration: 1702; Percent complete: 42.5%; Average loss: nan
Iteration: 1703; Percent complete: 42.6%; Average loss: nan
Iteration: 1704; Percent complete: 42.6%; Average loss: nan
Iteration: 1705; Percent complete: 42.6%; Average loss: nan
Iteration: 1706; Percent complete: 42.6%; Average loss: nan
Iteration: 1707; Percent complete: 42.7%; Average loss: nan
Iteration: 1708; Percent complete: 42.7%; Average loss: nan
Iteration: 1709; Percent complete: 42.7%; Average loss: nan
Iteration: 1710; Percent complete: 42.8%; Average loss: nan
Iteration: 1711; Percent complete: 42.8%; Average loss: nan
Iteration: 1712; Percent complete: 42.8%; Average loss: nan
Iteration: 1713; Percent complete: 42.8%; Average loss: nan
Iteration: 1714; Percent complete: 42.9%; Average loss: nan
Iteration: 1715; Percent complete: 42.9%; Average loss: nan
Iteration: 1716; Percent complete: 42.9%; Average loss: nan
Iteration: 1717; Percent complete: 42.9%; Average loss: nan
Iteration: 1718; Percent complete: 43.0%; Average loss: nan
Iteration: 1719; Percent complete: 43.0%; Average loss: nan
Iteration: 1720; Percent complete: 43.0%; Average loss: nan
Iteration: 1721; Percent complete: 43.0%; Average loss: nan
Iteration: 1722; Percent complete: 43.0%; Average loss: nan
Iteration: 1723; Percent complete: 43.1%; Average loss: nan
Iteration: 1724; Percent complete: 43.1%; Average loss: nan
Iteration: 1725; Percent complete: 43.1%; Average loss: nan
Iteration: 1726; Percent complete: 43.1%; Average loss: nan
Iteration: 1727; Percent complete: 43.2%; Average loss: nan
Iteration: 1728; Percent complete: 43.2%; Average loss: nan
Iteration: 1729; Percent complete: 43.2%; Average loss: nan
Iteration: 1730; Percent complete: 43.2%; Average loss: nan
Iteration: 1731; Percent complete: 43.3%; Average loss: nan
Iteration: 1732; Percent complete: 43.3%; Average loss: nan
```

```
Iteration: 1733; Percent complete: 43.3%; Average loss: nan
Iteration: 1734; Percent complete: 43.4%; Average loss: nan
Iteration: 1735; Percent complete: 43.4%; Average loss: nan
Iteration: 1736; Percent complete: 43.4%; Average loss: nan
Iteration: 1737; Percent complete: 43.4%; Average loss: nan
Iteration: 1738; Percent complete: 43.5%; Average loss: nan
Iteration: 1739; Percent complete: 43.5%; Average loss: nan
Iteration: 1740; Percent complete: 43.5%; Average loss: nan
Iteration: 1741; Percent complete: 43.5%; Average loss: nan
Iteration: 1742; Percent complete: 43.5%; Average loss: nan
Iteration: 1743; Percent complete: 43.6%; Average loss: nan
Iteration: 1744; Percent complete: 43.6%; Average loss: nan
Iteration: 1745; Percent complete: 43.6%; Average loss: nan
Iteration: 1746; Percent complete: 43.6%; Average loss: nan
Iteration: 1747; Percent complete: 43.7%; Average loss: nan
Iteration: 1748; Percent complete: 43.7%; Average loss: nan
Iteration: 1749; Percent complete: 43.7%; Average loss: nan
Iteration: 1750; Percent complete: 43.8%; Average loss: nan
Iteration: 1751; Percent complete: 43.8%; Average loss: nan
Iteration: 1752; Percent complete: 43.8%; Average loss: nan
Iteration: 1753; Percent complete: 43.8%; Average loss: nan
Iteration: 1754; Percent complete: 43.9%; Average loss: nan
Iteration: 1755; Percent complete: 43.9%; Average loss: nan
Iteration: 1756; Percent complete: 43.9%; Average loss: nan
Iteration: 1757; Percent complete: 43.9%; Average loss: nan
Iteration: 1758; Percent complete: 44.0%; Average loss: nan
Iteration: 1759; Percent complete: 44.0%; Average loss: nan
Iteration: 1760; Percent complete: 44.0%; Average loss: nan
Iteration: 1761; Percent complete: 44.0%; Average loss: nan
Iteration: 1762; Percent complete: 44.0%; Average loss: nan
Iteration: 1763; Percent complete: 44.1%; Average loss: nan
Iteration: 1764; Percent complete: 44.1%; Average loss: nan
Iteration: 1765; Percent complete: 44.1%; Average loss: nan
Iteration: 1766; Percent complete: 44.1%; Average loss: nan
Iteration: 1767; Percent complete: 44.2%; Average loss: nan
Iteration: 1768; Percent complete: 44.2%; Average loss: nan
Iteration: 1769; Percent complete: 44.2%; Average loss: nan
Iteration: 1770; Percent complete: 44.2%; Average loss: nan
Iteration: 1771; Percent complete: 44.3%; Average loss: nan
Iteration: 1772; Percent complete: 44.3%; Average loss: nan
Iteration: 1773; Percent complete: 44.3%; Average loss: nan
Iteration: 1774; Percent complete: 44.4%; Average loss: nan
Iteration: 1775; Percent complete: 44.4%; Average loss: nan
Iteration: 1776; Percent complete: 44.4%; Average loss: nan
Iteration: 1777; Percent complete: 44.4%; Average loss: nan
Iteration: 1778; Percent complete: 44.5%; Average loss: nan
Iteration: 1779; Percent complete: 44.5%; Average loss: nan
Iteration: 1780; Percent complete: 44.5%; Average loss: nan
Iteration: 1781; Percent complete: 44.5%; Average loss: nan
Iteration: 1782; Percent complete: 44.5%; Average loss: nan
Iteration: 1783; Percent complete: 44.6%; Average loss: nan
Iteration: 1784; Percent complete: 44.6%; Average loss: nan
Iteration: 1785; Percent complete: 44.6%; Average loss: nan
Iteration: 1786; Percent complete: 44.6%; Average loss: nan
Iteration: 1787; Percent complete: 44.7%; Average loss: nan
Iteration: 1788; Percent complete: 44.7%; Average loss: nan
```

```
Iteration: 1789; Percent complete: 44.7%; Average loss: nan
Iteration: 1790; Percent complete: 44.8%; Average loss: nan
Iteration: 1791; Percent complete: 44.8%; Average loss: nan
Iteration: 1792; Percent complete: 44.8%; Average loss: nan
Iteration: 1793; Percent complete: 44.8%; Average loss: nan
Iteration: 1794; Percent complete: 44.9%; Average loss: nan
Iteration: 1795; Percent complete: 44.9%; Average loss: nan
Iteration: 1796; Percent complete: 44.9%; Average loss: nan
Iteration: 1797; Percent complete: 44.9%; Average loss: nan
Iteration: 1798; Percent complete: 45.0%; Average loss: nan
Iteration: 1799; Percent complete: 45.0%; Average loss: nan
Iteration: 1800; Percent complete: 45.0%; Average loss: nan
Iteration: 1801; Percent complete: 45.0%; Average loss: nan
Iteration: 1802; Percent complete: 45.1%; Average loss: nan
Iteration: 1803; Percent complete: 45.1%; Average loss: nan
Iteration: 1804; Percent complete: 45.1%; Average loss: nan
Iteration: 1805; Percent complete: 45.1%; Average loss: nan
Iteration: 1806; Percent complete: 45.1%; Average loss: nan
Iteration: 1807; Percent complete: 45.2%; Average loss: nan
Iteration: 1808; Percent complete: 45.2%; Average loss: nan
Iteration: 1809; Percent complete: 45.2%; Average loss: nan
Iteration: 1810; Percent complete: 45.2%; Average loss: nan
Iteration: 1811; Percent complete: 45.3%; Average loss: nan
Iteration: 1812; Percent complete: 45.3%; Average loss: nan
Iteration: 1813; Percent complete: 45.3%; Average loss: nan
Iteration: 1814; Percent complete: 45.4%; Average loss: nan
Iteration: 1815; Percent complete: 45.4%; Average loss: nan
Iteration: 1816; Percent complete: 45.4%; Average loss: nan
Iteration: 1817; Percent complete: 45.4%; Average loss: nan
Iteration: 1818; Percent complete: 45.5%; Average loss: nan
Iteration: 1819; Percent complete: 45.5%; Average loss: nan
Iteration: 1820; Percent complete: 45.5%; Average loss: nan
Iteration: 1821; Percent complete: 45.5%; Average loss: nan
Iteration: 1822; Percent complete: 45.6%; Average loss: nan
Iteration: 1823; Percent complete: 45.6%; Average loss: nan
Iteration: 1824; Percent complete: 45.6%; Average loss: nan
Iteration: 1825; Percent complete: 45.6%; Average loss: nan
Iteration: 1826; Percent complete: 45.6%; Average loss: nan
Iteration: 1827; Percent complete: 45.7%; Average loss: nan
Iteration: 1828; Percent complete: 45.7%; Average loss: nan
Iteration: 1829; Percent complete: 45.7%; Average loss: nan
Iteration: 1830; Percent complete: 45.8%; Average loss: nan
Iteration: 1831; Percent complete: 45.8%; Average loss: nan
Iteration: 1832; Percent complete: 45.8%; Average loss: nan
Iteration: 1833; Percent complete: 45.8%; Average loss: nan
Iteration: 1834; Percent complete: 45.9%; Average loss: nan
Iteration: 1835; Percent complete: 45.9%; Average loss: nan
Iteration: 1836; Percent complete: 45.9%; Average loss: nan
Iteration: 1837; Percent complete: 45.9%; Average loss: nan
Iteration: 1838; Percent complete: 46.0%; Average loss: nan
Iteration: 1839; Percent complete: 46.0%; Average loss: nan
Iteration: 1840; Percent complete: 46.0%; Average loss: nan
Iteration: 1841; Percent complete: 46.0%; Average loss: nan
Iteration: 1842; Percent complete: 46.1%; Average loss: nan
Iteration: 1843; Percent complete: 46.1%; Average loss: nan
Iteration: 1844; Percent complete: 46.1%; Average loss: nan
```

```
Iteration: 1845; Percent complete: 46.1%; Average loss: nan
Iteration: 1846; Percent complete: 46.2%; Average loss: nan
Iteration: 1847; Percent complete: 46.2%; Average loss: nan
Iteration: 1848; Percent complete: 46.2%; Average loss: nan
Iteration: 1849; Percent complete: 46.2%; Average loss: nan
Iteration: 1850; Percent complete: 46.2%; Average loss: nan
Iteration: 1851; Percent complete: 46.3%; Average loss: nan
Iteration: 1852; Percent complete: 46.3%; Average loss: nan
Iteration: 1853; Percent complete: 46.3%; Average loss: nan
Iteration: 1854; Percent complete: 46.4%; Average loss: nan
Iteration: 1855; Percent complete: 46.4%; Average loss: nan
Iteration: 1856; Percent complete: 46.4%; Average loss: nan
Iteration: 1857; Percent complete: 46.4%; Average loss: nan
Iteration: 1858; Percent complete: 46.5%; Average loss: nan
Iteration: 1859; Percent complete: 46.5%; Average loss: nan
Iteration: 1860; Percent complete: 46.5%; Average loss: nan
Iteration: 1861; Percent complete: 46.5%; Average loss: nan
Iteration: 1862; Percent complete: 46.6%; Average loss: nan
Iteration: 1863; Percent complete: 46.6%; Average loss: nan
Iteration: 1864; Percent complete: 46.6%; Average loss: nan
Iteration: 1865; Percent complete: 46.6%; Average loss: nan
Iteration: 1866; Percent complete: 46.7%; Average loss: nan
Iteration: 1867; Percent complete: 46.7%; Average loss: nan
Iteration: 1868; Percent complete: 46.7%; Average loss: nan
Iteration: 1869; Percent complete: 46.7%; Average loss: nan
Iteration: 1870; Percent complete: 46.8%; Average loss: nan
Iteration: 1871; Percent complete: 46.8%; Average loss: nan
Iteration: 1872; Percent complete: 46.8%; Average loss: nan
Iteration: 1873; Percent complete: 46.8%; Average loss: nan
Iteration: 1874; Percent complete: 46.9%; Average loss: nan
Iteration: 1875; Percent complete: 46.9%; Average loss: nan
Iteration: 1876; Percent complete: 46.9%; Average loss: nan
Iteration: 1877; Percent complete: 46.9%; Average loss: nan
Iteration: 1878; Percent complete: 46.9%; Average loss: nan
Iteration: 1879; Percent complete: 47.0%; Average loss: nan
Iteration: 1880; Percent complete: 47.0%; Average loss: nan
Iteration: 1881; Percent complete: 47.0%; Average loss: nan
Iteration: 1882; Percent complete: 47.0%; Average loss: nan
Iteration: 1883; Percent complete: 47.1%; Average loss: nan
Iteration: 1884; Percent complete: 47.1%; Average loss: nan
Iteration: 1885; Percent complete: 47.1%; Average loss: nan
Iteration: 1886; Percent complete: 47.1%; Average loss: nan
Iteration: 1887; Percent complete: 47.2%; Average loss: nan
Iteration: 1888; Percent complete: 47.2%; Average loss: nan
Iteration: 1889; Percent complete: 47.2%; Average loss: nan
Iteration: 1890; Percent complete: 47.2%; Average loss: nan
Iteration: 1891; Percent complete: 47.3%; Average loss: nan
Iteration: 1892; Percent complete: 47.3%; Average loss: nan
Iteration: 1893; Percent complete: 47.3%; Average loss: nan
Iteration: 1894; Percent complete: 47.3%; Average loss: nan
Iteration: 1895; Percent complete: 47.4%; Average loss: nan
Iteration: 1896; Percent complete: 47.4%; Average loss: nan
Iteration: 1897; Percent complete: 47.4%; Average loss: nan
Iteration: 1898; Percent complete: 47.4%; Average loss: nan
Iteration: 1899; Percent complete: 47.5%; Average loss: nan
Iteration: 1900; Percent complete: 47.5%; Average loss: nan
```

```
Iteration: 1901; Percent complete: 47.5%; Average loss: nan
Iteration: 1902; Percent complete: 47.5%; Average loss: nan
Iteration: 1903; Percent complete: 47.6%; Average loss: nan
Iteration: 1904; Percent complete: 47.6%; Average loss: nan
Iteration: 1905; Percent complete: 47.6%; Average loss: nan
Iteration: 1906; Percent complete: 47.6%; Average loss: nan
Iteration: 1907; Percent complete: 47.7%; Average loss: nan
Iteration: 1908; Percent complete: 47.7%; Average loss: nan
Iteration: 1909; Percent complete: 47.7%; Average loss: nan
Iteration: 1910; Percent complete: 47.8%; Average loss: nan
Iteration: 1911; Percent complete: 47.8%; Average loss: nan
Iteration: 1912; Percent complete: 47.8%; Average loss: nan
Iteration: 1913; Percent complete: 47.8%; Average loss: nan
Iteration: 1914; Percent complete: 47.9%; Average loss: nan
Iteration: 1915; Percent complete: 47.9%; Average loss: nan
Iteration: 1916; Percent complete: 47.9%; Average loss: nan
Iteration: 1917; Percent complete: 47.9%; Average loss: nan
Iteration: 1918; Percent complete: 47.9%; Average loss: nan
Iteration: 1919; Percent complete: 48.0%; Average loss: nan
Iteration: 1920; Percent complete: 48.0%; Average loss: nan
Iteration: 1921; Percent complete: 48.0%; Average loss: nan
Iteration: 1922; Percent complete: 48.0%; Average loss: nan
Iteration: 1923; Percent complete: 48.1%; Average loss: nan
Iteration: 1924; Percent complete: 48.1%; Average loss: nan
Iteration: 1925; Percent complete: 48.1%; Average loss: nan
Iteration: 1926; Percent complete: 48.1%; Average loss: nan
Iteration: 1927; Percent complete: 48.2%; Average loss: nan
Iteration: 1928; Percent complete: 48.2%; Average loss: nan
Iteration: 1929; Percent complete: 48.2%; Average loss: nan
Iteration: 1930; Percent complete: 48.2%; Average loss: nan
Iteration: 1931; Percent complete: 48.3%; Average loss: nan
Iteration: 1932; Percent complete: 48.3%; Average loss: nan
Iteration: 1933; Percent complete: 48.3%; Average loss: nan
Iteration: 1934; Percent complete: 48.4%; Average loss: nan
Iteration: 1935; Percent complete: 48.4%; Average loss: nan
Iteration: 1936; Percent complete: 48.4%; Average loss: nan
Iteration: 1937; Percent complete: 48.4%; Average loss: nan
Iteration: 1938; Percent complete: 48.4%; Average loss: nan
Iteration: 1939; Percent complete: 48.5%; Average loss: nan
Iteration: 1940; Percent complete: 48.5%; Average loss: nan
Iteration: 1941; Percent complete: 48.5%; Average loss: nan
Iteration: 1942; Percent complete: 48.5%; Average loss: nan
Iteration: 1943; Percent complete: 48.6%; Average loss: nan
Iteration: 1944; Percent complete: 48.6%; Average loss: nan
Iteration: 1945; Percent complete: 48.6%; Average loss: nan
Iteration: 1946; Percent complete: 48.6%; Average loss: nan
Iteration: 1947; Percent complete: 48.7%; Average loss: nan
Iteration: 1948; Percent complete: 48.7%; Average loss: nan
Iteration: 1949; Percent complete: 48.7%; Average loss: nan
Iteration: 1950; Percent complete: 48.8%; Average loss: nan
Iteration: 1951; Percent complete: 48.8%; Average loss: nan
Iteration: 1952; Percent complete: 48.8%; Average loss: nan
Iteration: 1953; Percent complete: 48.8%; Average loss: nan
Iteration: 1954; Percent complete: 48.9%; Average loss: nan
Iteration: 1955; Percent complete: 48.9%; Average loss: nan
Iteration: 1956; Percent complete: 48.9%; Average loss: nan
```

```
Iteration: 1957; Percent complete: 48.9%; Average loss: nan
Iteration: 1958; Percent complete: 48.9%; Average loss: nan
Iteration: 1959; Percent complete: 49.0%; Average loss: nan
Iteration: 1960; Percent complete: 49.0%; Average loss: nan
Iteration: 1961; Percent complete: 49.0%; Average loss: nan
Iteration: 1962; Percent complete: 49.0%; Average loss: nan
Iteration: 1963; Percent complete: 49.1%; Average loss: nan
Iteration: 1964; Percent complete: 49.1%; Average loss: nan
Iteration: 1965; Percent complete: 49.1%; Average loss: nan
Iteration: 1966; Percent complete: 49.1%; Average loss: nan
Iteration: 1967; Percent complete: 49.2%; Average loss: nan
Iteration: 1968; Percent complete: 49.2%; Average loss: nan
Iteration: 1969; Percent complete: 49.2%; Average loss: nan
Iteration: 1970; Percent complete: 49.2%; Average loss: nan
Iteration: 1971; Percent complete: 49.3%; Average loss: nan
Iteration: 1972; Percent complete: 49.3%; Average loss: nan
Iteration: 1973; Percent complete: 49.3%; Average loss: nan
Iteration: 1974; Percent complete: 49.4%; Average loss: nan
Iteration: 1975; Percent complete: 49.4%; Average loss: nan
Iteration: 1976; Percent complete: 49.4%; Average loss: nan
Iteration: 1977; Percent complete: 49.4%; Average loss: nan
Iteration: 1978; Percent complete: 49.5%; Average loss: nan
Iteration: 1979; Percent complete: 49.5%; Average loss: nan
Iteration: 1980; Percent complete: 49.5%; Average loss: nan
Iteration: 1981; Percent complete: 49.5%; Average loss: nan
Iteration: 1982; Percent complete: 49.5%; Average loss: nan
Iteration: 1983; Percent complete: 49.6%; Average loss: nan
Iteration: 1984; Percent complete: 49.6%; Average loss: nan
Iteration: 1985; Percent complete: 49.6%; Average loss: nan
Iteration: 1986; Percent complete: 49.6%; Average loss: nan
Iteration: 1987; Percent complete: 49.7%; Average loss: nan
Iteration: 1988; Percent complete: 49.7%; Average loss: nan
Iteration: 1989; Percent complete: 49.7%; Average loss: nan
Iteration: 1990; Percent complete: 49.8%; Average loss: nan
Iteration: 1991; Percent complete: 49.8%; Average loss: nan
Iteration: 1992; Percent complete: 49.8%; Average loss: nan
Iteration: 1993; Percent complete: 49.8%; Average loss: nan
Iteration: 1994; Percent complete: 49.9%; Average loss: nan
Iteration: 1995; Percent complete: 49.9%; Average loss: nan
Iteration: 1996; Percent complete: 49.9%; Average loss: nan
Iteration: 1997; Percent complete: 49.9%; Average loss: nan
Iteration: 1998; Percent complete: 50.0%; Average loss: nan
Iteration: 1999; Percent complete: 50.0%; Average loss: nan
Iteration: 2000; Percent complete: 50.0%; Average loss: nan
Iteration: 2001; Percent complete: 50.0%; Average loss: nan
Iteration: 2002; Percent complete: 50.0%; Average loss: nan
Iteration: 2003; Percent complete: 50.1%; Average loss: nan
Iteration: 2004; Percent complete: 50.1%; Average loss: nan
Iteration: 2005; Percent complete: 50.1%; Average loss: nan
Iteration: 2006; Percent complete: 50.1%; Average loss: nan
Iteration: 2007; Percent complete: 50.2%; Average loss: nan
Iteration: 2008; Percent complete: 50.2%; Average loss: nan
Iteration: 2009; Percent complete: 50.2%; Average loss: nan
Iteration: 2010; Percent complete: 50.2%; Average loss: nan
Iteration: 2011; Percent complete: 50.3%; Average loss: nan
Iteration: 2012; Percent complete: 50.3%; Average loss: nan
```

```
Iteration: 2013; Percent complete: 50.3%; Average loss: nan
Iteration: 2014; Percent complete: 50.3%; Average loss: nan
Iteration: 2015; Percent complete: 50.4%; Average loss: nan
Iteration: 2016; Percent complete: 50.4%; Average loss: nan
Iteration: 2017; Percent complete: 50.4%; Average loss: nan
Iteration: 2018; Percent complete: 50.4%; Average loss: nan
Iteration: 2019; Percent complete: 50.5%; Average loss: nan
Iteration: 2020; Percent complete: 50.5%; Average loss: nan
Iteration: 2021; Percent complete: 50.5%; Average loss: nan
Iteration: 2022; Percent complete: 50.5%; Average loss: nan
Iteration: 2023; Percent complete: 50.6%; Average loss: nan
Iteration: 2024; Percent complete: 50.6%; Average loss: nan
Iteration: 2025; Percent complete: 50.6%; Average loss: nan
Iteration: 2026; Percent complete: 50.6%; Average loss: nan
Iteration: 2027; Percent complete: 50.7%; Average loss: nan
Iteration: 2028; Percent complete: 50.7%; Average loss: nan
Iteration: 2029; Percent complete: 50.7%; Average loss: nan
Iteration: 2030; Percent complete: 50.7%; Average loss: nan
Iteration: 2031; Percent complete: 50.8%; Average loss: nan
Iteration: 2032; Percent complete: 50.8%; Average loss: nan
Iteration: 2033; Percent complete: 50.8%; Average loss: nan
Iteration: 2034; Percent complete: 50.8%; Average loss: nan
Iteration: 2035; Percent complete: 50.9%; Average loss: nan
Iteration: 2036; Percent complete: 50.9%; Average loss: nan
Iteration: 2037; Percent complete: 50.9%; Average loss: nan
Iteration: 2038; Percent complete: 50.9%; Average loss: nan
Iteration: 2039; Percent complete: 51.0%; Average loss: nan
Iteration: 2040; Percent complete: 51.0%; Average loss: nan
Iteration: 2041; Percent complete: 51.0%; Average loss: nan
Iteration: 2042; Percent complete: 51.0%; Average loss: nan
Iteration: 2043; Percent complete: 51.1%; Average loss: nan
Iteration: 2044; Percent complete: 51.1%; Average loss: nan
Iteration: 2045; Percent complete: 51.1%; Average loss: nan
Iteration: 2046; Percent complete: 51.1%; Average loss: nan
Iteration: 2047; Percent complete: 51.2%; Average loss: nan
Iteration: 2048; Percent complete: 51.2%; Average loss: nan
Iteration: 2049; Percent complete: 51.2%; Average loss: nan
Iteration: 2050; Percent complete: 51.2%; Average loss: nan
Iteration: 2051; Percent complete: 51.3%; Average loss: nan
Iteration: 2052; Percent complete: 51.3%; Average loss: nan
Iteration: 2053; Percent complete: 51.3%; Average loss: nan
Iteration: 2054; Percent complete: 51.3%; Average loss: nan
Iteration: 2055; Percent complete: 51.4%; Average loss: nan
Iteration: 2056; Percent complete: 51.4%; Average loss: nan
Iteration: 2057; Percent complete: 51.4%; Average loss: nan
Iteration: 2058; Percent complete: 51.4%; Average loss: nan
Iteration: 2059; Percent complete: 51.5%; Average loss: nan
Iteration: 2060; Percent complete: 51.5%; Average loss: nan
Iteration: 2061; Percent complete: 51.5%; Average loss: nan
Iteration: 2062; Percent complete: 51.5%; Average loss: nan
Iteration: 2063; Percent complete: 51.6%; Average loss: nan
Iteration: 2064; Percent complete: 51.6%; Average loss: nan
Iteration: 2065; Percent complete: 51.6%; Average loss: nan
Iteration: 2066; Percent complete: 51.6%; Average loss: nan
Iteration: 2067; Percent complete: 51.7%; Average loss: nan
Iteration: 2068; Percent complete: 51.7%; Average loss: nan
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Iteration: 2069; Percent complete: 51.7%; Average loss: nan
Iteration: 2070; Percent complete: 51.7%; Average loss: nan
Iteration: 2071; Percent complete: 51.8%; Average loss: nan
Iteration: 2072; Percent complete: 51.8%; Average loss: nan
Iteration: 2073; Percent complete: 51.8%; Average loss: nan
Iteration: 2074; Percent complete: 51.8%; Average loss: nan
Iteration: 2075; Percent complete: 51.9%; Average loss: nan
Iteration: 2076; Percent complete: 51.9%; Average loss: nan
Iteration: 2077; Percent complete: 51.9%; Average loss: nan
Iteration: 2078; Percent complete: 51.9%; Average loss: nan
Iteration: 2079; Percent complete: 52.0%; Average loss: nan
Iteration: 2080; Percent complete: 52.0%; Average loss: nan
Iteration: 2081; Percent complete: 52.0%; Average loss: nan
Iteration: 2082; Percent complete: 52.0%; Average loss: nan
Iteration: 2083; Percent complete: 52.1%; Average loss: nan
Iteration: 2084; Percent complete: 52.1%; Average loss: nan
Iteration: 2085; Percent complete: 52.1%; Average loss: nan
Iteration: 2086; Percent complete: 52.1%; Average loss: nan
Iteration: 2087; Percent complete: 52.2%; Average loss: nan
Iteration: 2088; Percent complete: 52.2%; Average loss: nan
Iteration: 2089; Percent complete: 52.2%; Average loss: nan
Iteration: 2090; Percent complete: 52.2%; Average loss: nan
Iteration: 2091; Percent complete: 52.3%; Average loss: nan
Iteration: 2092; Percent complete: 52.3%; Average loss: nan
Iteration: 2093; Percent complete: 52.3%; Average loss: nan
Iteration: 2094; Percent complete: 52.3%; Average loss: nan
Iteration: 2095; Percent complete: 52.4%; Average loss: nan
Iteration: 2096; Percent complete: 52.4%; Average loss: nan
Iteration: 2097; Percent complete: 52.4%; Average loss: nan
Iteration: 2098; Percent complete: 52.4%; Average loss: nan
Iteration: 2099; Percent complete: 52.5%; Average loss: nan
Iteration: 2100; Percent complete: 52.5%; Average loss: nan
Iteration: 2101; Percent complete: 52.5%; Average loss: nan
Iteration: 2102; Percent complete: 52.5%; Average loss: nan
Iteration: 2103; Percent complete: 52.6%; Average loss: nan
Iteration: 2104; Percent complete: 52.6%; Average loss: nan
Iteration: 2105; Percent complete: 52.6%; Average loss: nan
Iteration: 2106; Percent complete: 52.6%; Average loss: nan
Iteration: 2107; Percent complete: 52.7%; Average loss: nan
Iteration: 2108; Percent complete: 52.7%; Average loss: nan
Iteration: 2109; Percent complete: 52.7%; Average loss: nan
Iteration: 2110; Percent complete: 52.8%; Average loss: nan
Iteration: 2111; Percent complete: 52.8%; Average loss: nan
Iteration: 2112; Percent complete: 52.8%; Average loss: nan
Iteration: 2113; Percent complete: 52.8%; Average loss: nan
Iteration: 2114; Percent complete: 52.8%; Average loss: nan
Iteration: 2115; Percent complete: 52.9%; Average loss: nan
Iteration: 2116; Percent complete: 52.9%; Average loss: nan
Iteration: 2117; Percent complete: 52.9%; Average loss: nan
Iteration: 2118; Percent complete: 52.9%; Average loss: nan
Iteration: 2119; Percent complete: 53.0%; Average loss: nan
Iteration: 2120; Percent complete: 53.0%; Average loss: nan
Iteration: 2121; Percent complete: 53.0%; Average loss: nan
Iteration: 2122; Percent complete: 53.0%; Average loss: nan
Iteration: 2123; Percent complete: 53.1%; Average loss: nan
Iteration: 2124; Percent complete: 53.1%; Average loss: nan
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Iteration: 2125; Percent complete: 53.1%; Average loss: nan
Iteration: 2126; Percent complete: 53.1%; Average loss: nan
Iteration: 2127; Percent complete: 53.2%; Average loss: nan
Iteration: 2128; Percent complete: 53.2%; Average loss: nan
Iteration: 2129; Percent complete: 53.2%; Average loss: nan
Iteration: 2130; Percent complete: 53.2%; Average loss: nan
Iteration: 2131; Percent complete: 53.3%; Average loss: nan
Iteration: 2132; Percent complete: 53.3%; Average loss: nan
Iteration: 2133; Percent complete: 53.3%; Average loss: nan
Iteration: 2134; Percent complete: 53.3%; Average loss: nan
Iteration: 2135; Percent complete: 53.4%; Average loss: nan
Iteration: 2136; Percent complete: 53.4%; Average loss: nan
Iteration: 2137; Percent complete: 53.4%; Average loss: nan
Iteration: 2138; Percent complete: 53.4%; Average loss: nan
Iteration: 2139; Percent complete: 53.5%; Average loss: nan
Iteration: 2140; Percent complete: 53.5%; Average loss: nan
Iteration: 2141; Percent complete: 53.5%; Average loss: nan
Iteration: 2142; Percent complete: 53.5%; Average loss: nan
Iteration: 2143; Percent complete: 53.6%; Average loss: nan
Iteration: 2144; Percent complete: 53.6%; Average loss: nan
Iteration: 2145; Percent complete: 53.6%; Average loss: nan
Iteration: 2146; Percent complete: 53.6%; Average loss: nan
Iteration: 2147; Percent complete: 53.7%; Average loss: nan
Iteration: 2148; Percent complete: 53.7%; Average loss: nan
Iteration: 2149; Percent complete: 53.7%; Average loss: nan
Iteration: 2150; Percent complete: 53.8%; Average loss: nan
Iteration: 2151; Percent complete: 53.8%; Average loss: nan
Iteration: 2152; Percent complete: 53.8%; Average loss: nan
Iteration: 2153; Percent complete: 53.8%; Average loss: nan
Iteration: 2154; Percent complete: 53.8%; Average loss: nan
Iteration: 2155; Percent complete: 53.9%; Average loss: nan
Iteration: 2156; Percent complete: 53.9%; Average loss: nan
Iteration: 2157; Percent complete: 53.9%; Average loss: nan
Iteration: 2158; Percent complete: 53.9%; Average loss: nan
Iteration: 2159; Percent complete: 54.0%; Average loss: nan
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Iteration: 2163; Percent complete: 54.1%; Average loss: nan
Iteration: 2164; Percent complete: 54.1%; Average loss: nan
Iteration: 2165; Percent complete: 54.1%; Average loss: nan
Iteration: 2166; Percent complete: 54.1%; Average loss: nan
Iteration: 2167; Percent complete: 54.2%; Average loss: nan
Iteration: 2168; Percent complete: 54.2%; Average loss: nan
Iteration: 2169; Percent complete: 54.2%; Average loss: nan
Iteration: 2170; Percent complete: 54.2%; Average loss: nan
Iteration: 2171; Percent complete: 54.3%; Average loss: nan
Iteration: 2172; Percent complete: 54.3%; Average loss: nan
Iteration: 2173; Percent complete: 54.3%; Average loss: nan
Iteration: 2174; Percent complete: 54.4%; Average loss: nan
Iteration: 2175; Percent complete: 54.4%; Average loss: nan
Iteration: 2176; Percent complete: 54.4%; Average loss: nan
Iteration: 2177; Percent complete: 54.4%; Average loss: nan
Iteration: 2178; Percent complete: 54.4%; Average loss: nan
Iteration: 2179; Percent complete: 54.5%; Average loss: nan
Iteration: 2180; Percent complete: 54.5%; Average loss: nan
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Iteration: 2181; Percent complete: 54.5%; Average loss: nan
Iteration: 2182; Percent complete: 54.5%; Average loss: nan
Iteration: 2183; Percent complete: 54.6%; Average loss: nan
Iteration: 2184; Percent complete: 54.6%; Average loss: nan
Iteration: 2185; Percent complete: 54.6%; Average loss: nan
Iteration: 2186; Percent complete: 54.6%; Average loss: nan
Iteration: 2187; Percent complete: 54.7%; Average loss: nan
Iteration: 2188; Percent complete: 54.7%; Average loss: nan
Iteration: 2189; Percent complete: 54.7%; Average loss: nan
Iteration: 2190; Percent complete: 54.8%; Average loss: nan
Iteration: 2191; Percent complete: 54.8%; Average loss: nan
Iteration: 2192; Percent complete: 54.8%; Average loss: nan
Iteration: 2193; Percent complete: 54.8%; Average loss: nan
Iteration: 2194; Percent complete: 54.9%; Average loss: nan
Iteration: 2195; Percent complete: 54.9%; Average loss: nan
Iteration: 2196; Percent complete: 54.9%; Average loss: nan
Iteration: 2197; Percent complete: 54.9%; Average loss: nan
Iteration: 2198; Percent complete: 54.9%; Average loss: nan
Iteration: 2199; Percent complete: 55.0%; Average loss: nan
Iteration: 2200; Percent complete: 55.0%; Average loss: nan
Iteration: 2201; Percent complete: 55.0%; Average loss: nan
Iteration: 2202; Percent complete: 55.0%; Average loss: nan
Iteration: 2203; Percent complete: 55.1%; Average loss: nan
Iteration: 2204; Percent complete: 55.1%; Average loss: nan
Iteration: 2205; Percent complete: 55.1%; Average loss: nan
Iteration: 2206; Percent complete: 55.1%; Average loss: nan
Iteration: 2207; Percent complete: 55.2%; Average loss: nan
Iteration: 2208; Percent complete: 55.2%; Average loss: nan
Iteration: 2209; Percent complete: 55.2%; Average loss: nan
Iteration: 2210; Percent complete: 55.2%; Average loss: nan
Iteration: 2211; Percent complete: 55.3%; Average loss: nan
Iteration: 2212; Percent complete: 55.3%; Average loss: nan
Iteration: 2213; Percent complete: 55.3%; Average loss: nan
Iteration: 2214; Percent complete: 55.4%; Average loss: nan
Iteration: 2215; Percent complete: 55.4%; Average loss: nan
Iteration: 2216; Percent complete: 55.4%; Average loss: nan
Iteration: 2217; Percent complete: 55.4%; Average loss: nan
Iteration: 2218; Percent complete: 55.5%; Average loss: nan
Iteration: 2219; Percent complete: 55.5%; Average loss: nan
Iteration: 2220; Percent complete: 55.5%; Average loss: nan
Iteration: 2221; Percent complete: 55.5%; Average loss: nan
Iteration: 2222; Percent complete: 55.5%; Average loss: nan
Iteration: 2223; Percent complete: 55.6%; Average loss: nan
Iteration: 2224; Percent complete: 55.6%; Average loss: nan
Iteration: 2225; Percent complete: 55.6%; Average loss: nan
Iteration: 2226; Percent complete: 55.6%; Average loss: nan
Iteration: 2227; Percent complete: 55.7%; Average loss: nan
Iteration: 2228; Percent complete: 55.7%; Average loss: nan
Iteration: 2229; Percent complete: 55.7%; Average loss: nan
Iteration: 2230; Percent complete: 55.8%; Average loss: nan
Iteration: 2231; Percent complete: 55.8%; Average loss: nan
Iteration: 2232; Percent complete: 55.8%; Average loss: nan
Iteration: 2233; Percent complete: 55.8%; Average loss: nan
Iteration: 2234; Percent complete: 55.9%; Average loss: nan
Iteration: 2235; Percent complete: 55.9%; Average loss: nan
Iteration: 2236; Percent complete: 55.9%; Average loss: nan
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Iteration: 2237; Percent complete: 55.9%; Average loss: nan
Iteration: 2238; Percent complete: 56.0%; Average loss: nan
Iteration: 2239; Percent complete: 56.0%; Average loss: nan
Iteration: 2240; Percent complete: 56.0%; Average loss: nan
Iteration: 2241; Percent complete: 56.0%; Average loss: nan
Iteration: 2242; Percent complete: 56.0%; Average loss: nan
Iteration: 2243; Percent complete: 56.1%; Average loss: nan
Iteration: 2244; Percent complete: 56.1%; Average loss: nan
Iteration: 2245; Percent complete: 56.1%; Average loss: nan
Iteration: 2246; Percent complete: 56.1%; Average loss: nan
Iteration: 2247; Percent complete: 56.2%; Average loss: nan
Iteration: 2248; Percent complete: 56.2%; Average loss: nan
Iteration: 2249; Percent complete: 56.2%; Average loss: nan
Iteration: 2250; Percent complete: 56.2%; Average loss: nan
Iteration: 2251; Percent complete: 56.3%; Average loss: nan
Iteration: 2252; Percent complete: 56.3%; Average loss: nan
Iteration: 2253; Percent complete: 56.3%; Average loss: nan
Iteration: 2254; Percent complete: 56.4%; Average loss: nan
Iteration: 2255; Percent complete: 56.4%; Average loss: nan
Iteration: 2256; Percent complete: 56.4%; Average loss: nan
Iteration: 2257; Percent complete: 56.4%; Average loss: nan
Iteration: 2258; Percent complete: 56.5%; Average loss: nan
Iteration: 2259; Percent complete: 56.5%; Average loss: nan
Iteration: 2260; Percent complete: 56.5%; Average loss: nan
Iteration: 2261; Percent complete: 56.5%; Average loss: nan
Iteration: 2262; Percent complete: 56.5%; Average loss: nan
Iteration: 2263; Percent complete: 56.6%; Average loss: nan
Iteration: 2264; Percent complete: 56.6%; Average loss: nan
Iteration: 2265; Percent complete: 56.6%; Average loss: nan
Iteration: 2266; Percent complete: 56.6%; Average loss: nan
Iteration: 2267; Percent complete: 56.7%; Average loss: nan
Iteration: 2268; Percent complete: 56.7%; Average loss: nan
Iteration: 2269; Percent complete: 56.7%; Average loss: nan
Iteration: 2270; Percent complete: 56.8%; Average loss: nan
Iteration: 2271; Percent complete: 56.8%; Average loss: nan
Iteration: 2272; Percent complete: 56.8%; Average loss: nan
Iteration: 2273; Percent complete: 56.8%; Average loss: nan
Iteration: 2274; Percent complete: 56.9%; Average loss: nan
Iteration: 2275; Percent complete: 56.9%; Average loss: nan
Iteration: 2276; Percent complete: 56.9%; Average loss: nan
Iteration: 2277; Percent complete: 56.9%; Average loss: nan
Iteration: 2278; Percent complete: 57.0%; Average loss: nan
Iteration: 2279; Percent complete: 57.0%; Average loss: nan
Iteration: 2280; Percent complete: 57.0%; Average loss: nan
Iteration: 2281; Percent complete: 57.0%; Average loss: nan
Iteration: 2282; Percent complete: 57.0%; Average loss: nan
Iteration: 2283; Percent complete: 57.1%; Average loss: nan
Iteration: 2284; Percent complete: 57.1%; Average loss: nan
Iteration: 2285; Percent complete: 57.1%; Average loss: nan
Iteration: 2286; Percent complete: 57.1%; Average loss: nan
Iteration: 2287; Percent complete: 57.2%; Average loss: nan
Iteration: 2288; Percent complete: 57.2%; Average loss: nan
Iteration: 2289; Percent complete: 57.2%; Average loss: nan
Iteration: 2290; Percent complete: 57.2%; Average loss: nan
Iteration: 2291; Percent complete: 57.3%; Average loss: nan
Iteration: 2292; Percent complete: 57.3%; Average loss: nan
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Iteration: 2293; Percent complete: 57.3%; Average loss: nan
Iteration: 2294; Percent complete: 57.4%; Average loss: nan
Iteration: 2295; Percent complete: 57.4%; Average loss: nan
Iteration: 2296; Percent complete: 57.4%; Average loss: nan
Iteration: 2297; Percent complete: 57.4%; Average loss: nan
Iteration: 2298; Percent complete: 57.5%; Average loss: nan
Iteration: 2299; Percent complete: 57.5%; Average loss: nan
Iteration: 2300; Percent complete: 57.5%; Average loss: nan
Iteration: 2301; Percent complete: 57.5%; Average loss: nan
Iteration: 2302; Percent complete: 57.6%; Average loss: nan
Iteration: 2303; Percent complete: 57.6%; Average loss: nan
Iteration: 2304; Percent complete: 57.6%; Average loss: nan
Iteration: 2305; Percent complete: 57.6%; Average loss: nan
Iteration: 2306; Percent complete: 57.6%; Average loss: nan
Iteration: 2307; Percent complete: 57.7%; Average loss: nan
Iteration: 2308; Percent complete: 57.7%; Average loss: nan
Iteration: 2309; Percent complete: 57.7%; Average loss: nan
Iteration: 2310; Percent complete: 57.8%; Average loss: nan
Iteration: 2311; Percent complete: 57.8%; Average loss: nan
Iteration: 2312; Percent complete: 57.8%; Average loss: nan
Iteration: 2313; Percent complete: 57.8%; Average loss: nan
Iteration: 2314; Percent complete: 57.9%; Average loss: nan
Iteration: 2315; Percent complete: 57.9%; Average loss: nan
Iteration: 2316; Percent complete: 57.9%; Average loss: nan
Iteration: 2317; Percent complete: 57.9%; Average loss: nan
Iteration: 2318; Percent complete: 58.0%; Average loss: nan
Iteration: 2319; Percent complete: 58.0%; Average loss: nan
Iteration: 2320; Percent complete: 58.0%; Average loss: nan
Iteration: 2321; Percent complete: 58.0%; Average loss: nan
Iteration: 2322; Percent complete: 58.1%; Average loss: nan
Iteration: 2323; Percent complete: 58.1%; Average loss: nan
Iteration: 2324; Percent complete: 58.1%; Average loss: nan
Iteration: 2325; Percent complete: 58.1%; Average loss: nan
Iteration: 2326; Percent complete: 58.1%; Average loss: nan
Iteration: 2327; Percent complete: 58.2%; Average loss: nan
Iteration: 2328; Percent complete: 58.2%; Average loss: nan
Iteration: 2329; Percent complete: 58.2%; Average loss: nan
Iteration: 2330; Percent complete: 58.2%; Average loss: nan
Iteration: 2331; Percent complete: 58.3%; Average loss: nan
Iteration: 2332; Percent complete: 58.3%; Average loss: nan
Iteration: 2333; Percent complete: 58.3%; Average loss: nan
Iteration: 2334; Percent complete: 58.4%; Average loss: nan
Iteration: 2335; Percent complete: 58.4%; Average loss: nan
Iteration: 2336; Percent complete: 58.4%; Average loss: nan
Iteration: 2337; Percent complete: 58.4%; Average loss: nan
Iteration: 2338; Percent complete: 58.5%; Average loss: nan
Iteration: 2339; Percent complete: 58.5%; Average loss: nan
Iteration: 2340; Percent complete: 58.5%; Average loss: nan
Iteration: 2341; Percent complete: 58.5%; Average loss: nan
Iteration: 2342; Percent complete: 58.6%; Average loss: nan
Iteration: 2343; Percent complete: 58.6%; Average loss: nan
Iteration: 2344; Percent complete: 58.6%; Average loss: nan
Iteration: 2345; Percent complete: 58.6%; Average loss: nan
Iteration: 2346; Percent complete: 58.7%; Average loss: nan
Iteration: 2347; Percent complete: 58.7%; Average loss: nan
Iteration: 2348; Percent complete: 58.7%; Average loss: nan
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Iteration: 2349; Percent complete: 58.7%; Average loss: nan
Iteration: 2350; Percent complete: 58.8%; Average loss: nan
Iteration: 2351; Percent complete: 58.8%; Average loss: nan
Iteration: 2352; Percent complete: 58.8%; Average loss: nan
Iteration: 2353; Percent complete: 58.8%; Average loss: nan
Iteration: 2354; Percent complete: 58.9%; Average loss: nan
Iteration: 2355; Percent complete: 58.9%; Average loss: nan
Iteration: 2356; Percent complete: 58.9%; Average loss: nan
Iteration: 2357; Percent complete: 58.9%; Average loss: nan
Iteration: 2358; Percent complete: 59.0%; Average loss: nan
Iteration: 2359; Percent complete: 59.0%; Average loss: nan
Iteration: 2360; Percent complete: 59.0%; Average loss: nan
Iteration: 2361; Percent complete: 59.0%; Average loss: nan
Iteration: 2362; Percent complete: 59.1%; Average loss: nan
Iteration: 2363; Percent complete: 59.1%; Average loss: nan
Iteration: 2364; Percent complete: 59.1%; Average loss: nan
Iteration: 2365; Percent complete: 59.1%; Average loss: nan
Iteration: 2366; Percent complete: 59.2%; Average loss: nan
Iteration: 2367; Percent complete: 59.2%; Average loss: nan
Iteration: 2368; Percent complete: 59.2%; Average loss: nan
Iteration: 2369; Percent complete: 59.2%; Average loss: nan
Iteration: 2370; Percent complete: 59.2%; Average loss: nan
Iteration: 2371; Percent complete: 59.3%; Average loss: nan
Iteration: 2372; Percent complete: 59.3%; Average loss: nan
Iteration: 2373; Percent complete: 59.3%; Average loss: nan
Iteration: 2374; Percent complete: 59.4%; Average loss: nan
Iteration: 2375; Percent complete: 59.4%; Average loss: nan
Iteration: 2376; Percent complete: 59.4%; Average loss: nan
Iteration: 2377; Percent complete: 59.4%; Average loss: nan
Iteration: 2378; Percent complete: 59.5%; Average loss: nan
Iteration: 2379; Percent complete: 59.5%; Average loss: nan
Iteration: 2380; Percent complete: 59.5%; Average loss: nan
Iteration: 2381; Percent complete: 59.5%; Average loss: nan
Iteration: 2382; Percent complete: 59.6%; Average loss: nan
Iteration: 2383; Percent complete: 59.6%; Average loss: nan
Iteration: 2384; Percent complete: 59.6%; Average loss: nan
Iteration: 2385; Percent complete: 59.6%; Average loss: nan
Iteration: 2386; Percent complete: 59.7%; Average loss: nan
Iteration: 2387; Percent complete: 59.7%; Average loss: nan
Iteration: 2388; Percent complete: 59.7%; Average loss: nan
Iteration: 2389; Percent complete: 59.7%; Average loss: nan
Iteration: 2390; Percent complete: 59.8%; Average loss: nan
Iteration: 2391; Percent complete: 59.8%; Average loss: nan
Iteration: 2392; Percent complete: 59.8%; Average loss: nan
Iteration: 2393; Percent complete: 59.8%; Average loss: nan
Iteration: 2394; Percent complete: 59.9%; Average loss: nan
Iteration: 2395; Percent complete: 59.9%; Average loss: nan
Iteration: 2396; Percent complete: 59.9%; Average loss: nan
Iteration: 2397; Percent complete: 59.9%; Average loss: nan
Iteration: 2398; Percent complete: 60.0%; Average loss: nan
Iteration: 2399; Percent complete: 60.0%; Average loss: nan
Iteration: 2400; Percent complete: 60.0%; Average loss: nan
Iteration: 2401; Percent complete: 60.0%; Average loss: nan
Iteration: 2402; Percent complete: 60.1%; Average loss: nan
Iteration: 2403; Percent complete: 60.1%; Average loss: nan
Iteration: 2404; Percent complete: 60.1%; Average loss: nan
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Iteration: 2405; Percent complete: 60.1%; Average loss: nan
Iteration: 2406; Percent complete: 60.2%; Average loss: nan
Iteration: 2407; Percent complete: 60.2%; Average loss: nan
Iteration: 2408; Percent complete: 60.2%; Average loss: nan
Iteration: 2409; Percent complete: 60.2%; Average loss: nan
Iteration: 2410; Percent complete: 60.2%; Average loss: nan
Iteration: 2411; Percent complete: 60.3%; Average loss: nan
Iteration: 2412; Percent complete: 60.3%; Average loss: nan
Iteration: 2413; Percent complete: 60.3%; Average loss: nan
Iteration: 2414; Percent complete: 60.4%; Average loss: nan
Iteration: 2415; Percent complete: 60.4%; Average loss: nan
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Iteration: 2418; Percent complete: 60.5%; Average loss: nan
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Iteration: 2421; Percent complete: 60.5%; Average loss: nan
Iteration: 2422; Percent complete: 60.6%; Average loss: nan
Iteration: 2423; Percent complete: 60.6%; Average loss: nan
Iteration: 2424; Percent complete: 60.6%; Average loss: nan
Iteration: 2425; Percent complete: 60.6%; Average loss: nan
Iteration: 2426; Percent complete: 60.7%; Average loss: nan
Iteration: 2427; Percent complete: 60.7%; Average loss: nan
Iteration: 2428; Percent complete: 60.7%; Average loss: nan
Iteration: 2429; Percent complete: 60.7%; Average loss: nan
Iteration: 2430; Percent complete: 60.8%; Average loss: nan
Iteration: 2431; Percent complete: 60.8%; Average loss: nan
Iteration: 2432; Percent complete: 60.8%; Average loss: nan
Iteration: 2433; Percent complete: 60.8%; Average loss: nan
Iteration: 2434; Percent complete: 60.9%; Average loss: nan
Iteration: 2435; Percent complete: 60.9%; Average loss: nan
Iteration: 2436; Percent complete: 60.9%; Average loss: nan
Iteration: 2437; Percent complete: 60.9%; Average loss: nan
Iteration: 2438; Percent complete: 61.0%; Average loss: nan
Iteration: 2439; Percent complete: 61.0%; Average loss: nan
Iteration: 2440; Percent complete: 61.0%; Average loss: nan
Iteration: 2441; Percent complete: 61.0%; Average loss: nan
Iteration: 2442; Percent complete: 61.1%; Average loss: nan
Iteration: 2443; Percent complete: 61.1%; Average loss: nan
Iteration: 2444; Percent complete: 61.1%; Average loss: nan
Iteration: 2445; Percent complete: 61.1%; Average loss: nan
Iteration: 2446; Percent complete: 61.2%; Average loss: nan
Iteration: 2447; Percent complete: 61.2%; Average loss: nan
Iteration: 2448; Percent complete: 61.2%; Average loss: nan
Iteration: 2449; Percent complete: 61.2%; Average loss: nan
Iteration: 2450; Percent complete: 61.3%; Average loss: nan
Iteration: 2451; Percent complete: 61.3%; Average loss: nan
Iteration: 2452; Percent complete: 61.3%; Average loss: nan
Iteration: 2453; Percent complete: 61.3%; Average loss: nan
Iteration: 2454; Percent complete: 61.4%; Average loss: nan
Iteration: 2455; Percent complete: 61.4%; Average loss: nan
Iteration: 2456; Percent complete: 61.4%; Average loss: nan
Iteration: 2457; Percent complete: 61.4%; Average loss: nan
Iteration: 2458; Percent complete: 61.5%; Average loss: nan
Iteration: 2459; Percent complete: 61.5%; Average loss: nan
Iteration: 2460; Percent complete: 61.5%; Average loss: nan
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Iteration: 2461; Percent complete: 61.5%; Average loss: nan
Iteration: 2462; Percent complete: 61.6%; Average loss: nan
Iteration: 2463; Percent complete: 61.6%; Average loss: nan
Iteration: 2464; Percent complete: 61.6%; Average loss: nan
Iteration: 2465; Percent complete: 61.6%; Average loss: nan
Iteration: 2466; Percent complete: 61.7%; Average loss: nan
Iteration: 2467; Percent complete: 61.7%; Average loss: nan
Iteration: 2468; Percent complete: 61.7%; Average loss: nan
Iteration: 2469; Percent complete: 61.7%; Average loss: nan
Iteration: 2470; Percent complete: 61.8%; Average loss: nan
Iteration: 2471; Percent complete: 61.8%; Average loss: nan
Iteration: 2472; Percent complete: 61.8%; Average loss: nan
Iteration: 2473; Percent complete: 61.8%; Average loss: nan
Iteration: 2474; Percent complete: 61.9%; Average loss: nan
Iteration: 2475; Percent complete: 61.9%; Average loss: nan
Iteration: 2476; Percent complete: 61.9%; Average loss: nan
Iteration: 2477; Percent complete: 61.9%; Average loss: nan
Iteration: 2478; Percent complete: 62.0%; Average loss: nan
Iteration: 2479; Percent complete: 62.0%; Average loss: nan
Iteration: 2480; Percent complete: 62.0%; Average loss: nan
Iteration: 2481; Percent complete: 62.0%; Average loss: nan
Iteration: 2482; Percent complete: 62.1%; Average loss: nan
Iteration: 2483; Percent complete: 62.1%; Average loss: nan
Iteration: 2484; Percent complete: 62.1%; Average loss: nan
Iteration: 2485; Percent complete: 62.1%; Average loss: nan
Iteration: 2486; Percent complete: 62.2%; Average loss: nan
Iteration: 2487; Percent complete: 62.2%; Average loss: nan
Iteration: 2488; Percent complete: 62.2%; Average loss: nan
Iteration: 2489; Percent complete: 62.2%; Average loss: nan
Iteration: 2490; Percent complete: 62.3%; Average loss: nan
Iteration: 2491; Percent complete: 62.3%; Average loss: nan
Iteration: 2492; Percent complete: 62.3%; Average loss: nan
Iteration: 2493; Percent complete: 62.3%; Average loss: nan
Iteration: 2494; Percent complete: 62.4%; Average loss: nan
Iteration: 2495; Percent complete: 62.4%; Average loss: nan
Iteration: 2496; Percent complete: 62.4%; Average loss: nan
Iteration: 2497; Percent complete: 62.4%; Average loss: nan
Iteration: 2498; Percent complete: 62.5%; Average loss: nan
Iteration: 2499; Percent complete: 62.5%; Average loss: nan
Iteration: 2500; Percent complete: 62.5%; Average loss: nan
Iteration: 2501; Percent complete: 62.5%; Average loss: nan
Iteration: 2502; Percent complete: 62.5%; Average loss: nan
Iteration: 2503; Percent complete: 62.6%; Average loss: nan
Iteration: 2504; Percent complete: 62.6%; Average loss: nan
Iteration: 2505; Percent complete: 62.6%; Average loss: nan
Iteration: 2506; Percent complete: 62.6%; Average loss: nan
Iteration: 2507; Percent complete: 62.7%; Average loss: nan
Iteration: 2508; Percent complete: 62.7%; Average loss: nan
Iteration: 2509; Percent complete: 62.7%; Average loss: nan
Iteration: 2510; Percent complete: 62.7%; Average loss: nan
Iteration: 2511; Percent complete: 62.8%; Average loss: nan
Iteration: 2512; Percent complete: 62.8%; Average loss: nan
Iteration: 2513; Percent complete: 62.8%; Average loss: nan
Iteration: 2514; Percent complete: 62.8%; Average loss: nan
Iteration: 2515; Percent complete: 62.9%; Average loss: nan
Iteration: 2516; Percent complete: 62.9%; Average loss: nan
```

```
Iteration: 2517; Percent complete: 62.9%; Average loss: nan
Iteration: 2518; Percent complete: 62.9%; Average loss: nan
Iteration: 2519; Percent complete: 63.0%; Average loss: nan
Iteration: 2520; Percent complete: 63.0%; Average loss: nan
Iteration: 2521; Percent complete: 63.0%; Average loss: nan
Iteration: 2522; Percent complete: 63.0%; Average loss: nan
Iteration: 2523; Percent complete: 63.1%; Average loss: nan
Iteration: 2524; Percent complete: 63.1%; Average loss: nan
Iteration: 2525; Percent complete: 63.1%; Average loss: nan
Iteration: 2526; Percent complete: 63.1%; Average loss: nan
Iteration: 2527; Percent complete: 63.2%; Average loss: nan
Iteration: 2528; Percent complete: 63.2%; Average loss: nan
Iteration: 2529; Percent complete: 63.2%; Average loss: nan
Iteration: 2530; Percent complete: 63.2%; Average loss: nan
Iteration: 2531; Percent complete: 63.3%; Average loss: nan
Iteration: 2532; Percent complete: 63.3%; Average loss: nan
Iteration: 2533; Percent complete: 63.3%; Average loss: nan
Iteration: 2534; Percent complete: 63.3%; Average loss: nan
Iteration: 2535; Percent complete: 63.4%; Average loss: nan
Iteration: 2536; Percent complete: 63.4%; Average loss: nan
Iteration: 2537; Percent complete: 63.4%; Average loss: nan
Iteration: 2538; Percent complete: 63.4%; Average loss: nan
Iteration: 2539; Percent complete: 63.5%; Average loss: nan
Iteration: 2540; Percent complete: 63.5%; Average loss: nan
Iteration: 2541; Percent complete: 63.5%; Average loss: nan
Iteration: 2542; Percent complete: 63.5%; Average loss: nan
Iteration: 2543; Percent complete: 63.6%; Average loss: nan
Iteration: 2544; Percent complete: 63.6%; Average loss: nan
Iteration: 2545; Percent complete: 63.6%; Average loss: nan
Iteration: 2546; Percent complete: 63.6%; Average loss: nan
Iteration: 2547; Percent complete: 63.7%; Average loss: nan
Iteration: 2548; Percent complete: 63.7%; Average loss: nan
Iteration: 2549; Percent complete: 63.7%; Average loss: nan
Iteration: 2550; Percent complete: 63.7%; Average loss: nan
Iteration: 2551; Percent complete: 63.8%; Average loss: nan
Iteration: 2552; Percent complete: 63.8%; Average loss: nan
Iteration: 2553; Percent complete: 63.8%; Average loss: nan
Iteration: 2554; Percent complete: 63.8%; Average loss: nan
Iteration: 2555; Percent complete: 63.9%; Average loss: nan
Iteration: 2556; Percent complete: 63.9%; Average loss: nan
Iteration: 2557; Percent complete: 63.9%; Average loss: nan
Iteration: 2558; Percent complete: 63.9%; Average loss: nan
Iteration: 2559; Percent complete: 64.0%; Average loss: nan
Iteration: 2560; Percent complete: 64.0%; Average loss: nan
Iteration: 2561; Percent complete: 64.0%; Average loss: nan
Iteration: 2562; Percent complete: 64.0%; Average loss: nan
Iteration: 2563; Percent complete: 64.1%; Average loss: nan
Iteration: 2564; Percent complete: 64.1%; Average loss: nan
Iteration: 2565; Percent complete: 64.1%; Average loss: nan
Iteration: 2566; Percent complete: 64.1%; Average loss: nan
Iteration: 2567; Percent complete: 64.2%; Average loss: nan
Iteration: 2568; Percent complete: 64.2%; Average loss: nan
Iteration: 2569; Percent complete: 64.2%; Average loss: nan
Iteration: 2570; Percent complete: 64.2%; Average loss: nan
Iteration: 2571; Percent complete: 64.3%; Average loss: nan
Iteration: 2572; Percent complete: 64.3%; Average loss: nan
```

```
Iteration: 2573; Percent complete: 64.3%; Average loss: nan
Iteration: 2574; Percent complete: 64.3%; Average loss: nan
Iteration: 2575; Percent complete: 64.4%; Average loss: nan
Iteration: 2576; Percent complete: 64.4%; Average loss: nan
Iteration: 2577; Percent complete: 64.4%; Average loss: nan
Iteration: 2578; Percent complete: 64.5%; Average loss: nan
Iteration: 2579; Percent complete: 64.5%; Average loss: nan
Iteration: 2580; Percent complete: 64.5%; Average loss: nan
Iteration: 2581; Percent complete: 64.5%; Average loss: nan
Iteration: 2582; Percent complete: 64.5%; Average loss: nan
Iteration: 2583; Percent complete: 64.6%; Average loss: nan
Iteration: 2584; Percent complete: 64.6%; Average loss: nan
Iteration: 2585; Percent complete: 64.6%; Average loss: nan
Iteration: 2586; Percent complete: 64.6%; Average loss: nan
Iteration: 2587; Percent complete: 64.7%; Average loss: nan
Iteration: 2588; Percent complete: 64.7%; Average loss: nan
Iteration: 2589; Percent complete: 64.7%; Average loss: nan
Iteration: 2590; Percent complete: 64.8%; Average loss: nan
Iteration: 2591; Percent complete: 64.8%; Average loss: nan
Iteration: 2592; Percent complete: 64.8%; Average loss: nan
Iteration: 2593; Percent complete: 64.8%; Average loss: nan
Iteration: 2594; Percent complete: 64.8%; Average loss: nan
Iteration: 2595; Percent complete: 64.9%; Average loss: nan
Iteration: 2596; Percent complete: 64.9%; Average loss: nan
Iteration: 2597; Percent complete: 64.9%; Average loss: nan
Iteration: 2598; Percent complete: 65.0%; Average loss: nan
Iteration: 2599; Percent complete: 65.0%; Average loss: nan
Iteration: 2600; Percent complete: 65.0%; Average loss: nan
Iteration: 2601; Percent complete: 65.0%; Average loss: nan
Iteration: 2602; Percent complete: 65.0%; Average loss: nan
Iteration: 2603; Percent complete: 65.1%; Average loss: nan
Iteration: 2604; Percent complete: 65.1%; Average loss: nan
Iteration: 2605; Percent complete: 65.1%; Average loss: nan
Iteration: 2606; Percent complete: 65.1%; Average loss: nan
Iteration: 2607; Percent complete: 65.2%; Average loss: nan
Iteration: 2608; Percent complete: 65.2%; Average loss: nan
Iteration: 2609; Percent complete: 65.2%; Average loss: nan
Iteration: 2610; Percent complete: 65.2%; Average loss: nan
Iteration: 2611; Percent complete: 65.3%; Average loss: nan
Iteration: 2612; Percent complete: 65.3%; Average loss: nan
Iteration: 2613; Percent complete: 65.3%; Average loss: nan
Iteration: 2614; Percent complete: 65.3%; Average loss: nan
Iteration: 2615; Percent complete: 65.4%; Average loss: nan
Iteration: 2616; Percent complete: 65.4%; Average loss: nan
Iteration: 2617; Percent complete: 65.4%; Average loss: nan
Iteration: 2618; Percent complete: 65.5%; Average loss: nan
Iteration: 2619; Percent complete: 65.5%; Average loss: nan
Iteration: 2620; Percent complete: 65.5%; Average loss: nan
Iteration: 2621; Percent complete: 65.5%; Average loss: nan
Iteration: 2622; Percent complete: 65.5%; Average loss: nan
Iteration: 2623; Percent complete: 65.6%; Average loss: nan
Iteration: 2624; Percent complete: 65.6%; Average loss: nan
Iteration: 2625; Percent complete: 65.6%; Average loss: nan
Iteration: 2626; Percent complete: 65.6%; Average loss: nan
Iteration: 2627; Percent complete: 65.7%; Average loss: nan
Iteration: 2628; Percent complete: 65.7%; Average loss: nan
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```
Iteration: 2629; Percent complete: 65.7%; Average loss: nan
Iteration: 2630; Percent complete: 65.8%; Average loss: nan
Iteration: 2631; Percent complete: 65.8%; Average loss: nan
Iteration: 2632; Percent complete: 65.8%; Average loss: nan
Iteration: 2633; Percent complete: 65.8%; Average loss: nan
Iteration: 2634; Percent complete: 65.8%; Average loss: nan
Iteration: 2635; Percent complete: 65.9%; Average loss: nan
Iteration: 2636; Percent complete: 65.9%; Average loss: nan
Iteration: 2637; Percent complete: 65.9%; Average loss: nan
Iteration: 2638; Percent complete: 66.0%; Average loss: nan
Iteration: 2639; Percent complete: 66.0%; Average loss: nan
Iteration: 2640; Percent complete: 66.0%; Average loss: nan
Iteration: 2641; Percent complete: 66.0%; Average loss: nan
Iteration: 2642; Percent complete: 66.0%; Average loss: nan
Iteration: 2643; Percent complete: 66.1%; Average loss: nan
Iteration: 2644; Percent complete: 66.1%; Average loss: nan
Iteration: 2645; Percent complete: 66.1%; Average loss: nan
Iteration: 2646; Percent complete: 66.1%; Average loss: nan
Iteration: 2647; Percent complete: 66.2%; Average loss: nan
Iteration: 2648; Percent complete: 66.2%; Average loss: nan
Iteration: 2649; Percent complete: 66.2%; Average loss: nan
Iteration: 2650; Percent complete: 66.2%; Average loss: nan
Iteration: 2651; Percent complete: 66.3%; Average loss: nan
Iteration: 2652; Percent complete: 66.3%; Average loss: nan
Iteration: 2653; Percent complete: 66.3%; Average loss: nan
Iteration: 2654; Percent complete: 66.3%; Average loss: nan
Iteration: 2655; Percent complete: 66.4%; Average loss: nan
Iteration: 2656; Percent complete: 66.4%; Average loss: nan
Iteration: 2657; Percent complete: 66.4%; Average loss: nan
Iteration: 2658; Percent complete: 66.5%; Average loss: nan
Iteration: 2659; Percent complete: 66.5%; Average loss: nan
Iteration: 2660; Percent complete: 66.5%; Average loss: nan
Iteration: 2661; Percent complete: 66.5%; Average loss: nan
Iteration: 2662; Percent complete: 66.5%; Average loss: nan
Iteration: 2663; Percent complete: 66.6%; Average loss: nan
Iteration: 2664; Percent complete: 66.6%; Average loss: nan
Iteration: 2665; Percent complete: 66.6%; Average loss: nan
Iteration: 2666; Percent complete: 66.6%; Average loss: nan
Iteration: 2667; Percent complete: 66.7%; Average loss: nan
Iteration: 2668; Percent complete: 66.7%; Average loss: nan
Iteration: 2669; Percent complete: 66.7%; Average loss: nan
Iteration: 2670; Percent complete: 66.8%; Average loss: nan
Iteration: 2671; Percent complete: 66.8%; Average loss: nan
Iteration: 2672; Percent complete: 66.8%; Average loss: nan
Iteration: 2673; Percent complete: 66.8%; Average loss: nan
Iteration: 2674; Percent complete: 66.8%; Average loss: nan
Iteration: 2675; Percent complete: 66.9%; Average loss: nan
Iteration: 2676; Percent complete: 66.9%; Average loss: nan
Iteration: 2677; Percent complete: 66.9%; Average loss: nan
Iteration: 2678; Percent complete: 67.0%; Average loss: nan
Iteration: 2679; Percent complete: 67.0%; Average loss: nan
Iteration: 2680; Percent complete: 67.0%; Average loss: nan
Iteration: 2681; Percent complete: 67.0%; Average loss: nan
Iteration: 2682; Percent complete: 67.0%; Average loss: nan
Iteration: 2683; Percent complete: 67.1%; Average loss: nan
Iteration: 2684; Percent complete: 67.1%; Average loss: nan
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```
Iteration: 2685; Percent complete: 67.1%; Average loss: nan
Iteration: 2686; Percent complete: 67.2%; Average loss: nan
Iteration: 2687; Percent complete: 67.2%; Average loss: nan
Iteration: 2688; Percent complete: 67.2%; Average loss: nan
Iteration: 2689; Percent complete: 67.2%; Average loss: nan
Iteration: 2690; Percent complete: 67.2%; Average loss: nan
Iteration: 2691; Percent complete: 67.3%; Average loss: nan
Iteration: 2692; Percent complete: 67.3%; Average loss: nan
Iteration: 2693; Percent complete: 67.3%; Average loss: nan
Iteration: 2694; Percent complete: 67.3%; Average loss: nan
Iteration: 2695; Percent complete: 67.4%; Average loss: nan
Iteration: 2696; Percent complete: 67.4%; Average loss: nan
Iteration: 2697; Percent complete: 67.4%; Average loss: nan
Iteration: 2698; Percent complete: 67.5%; Average loss: nan
Iteration: 2699; Percent complete: 67.5%; Average loss: nan
Iteration: 2700; Percent complete: 67.5%; Average loss: nan
Iteration: 2701; Percent complete: 67.5%; Average loss: nan
Iteration: 2702; Percent complete: 67.5%; Average loss: nan
Iteration: 2703; Percent complete: 67.6%; Average loss: nan
Iteration: 2704; Percent complete: 67.6%; Average loss: nan
Iteration: 2705; Percent complete: 67.6%; Average loss: nan
Iteration: 2706; Percent complete: 67.7%; Average loss: nan
Iteration: 2707; Percent complete: 67.7%; Average loss: nan
Iteration: 2708; Percent complete: 67.7%; Average loss: nan
Iteration: 2709; Percent complete: 67.7%; Average loss: nan
Iteration: 2710; Percent complete: 67.8%; Average loss: nan
Iteration: 2711; Percent complete: 67.8%; Average loss: nan
Iteration: 2712; Percent complete: 67.8%; Average loss: nan
Iteration: 2713; Percent complete: 67.8%; Average loss: nan
Iteration: 2714; Percent complete: 67.8%; Average loss: nan
Iteration: 2715; Percent complete: 67.9%; Average loss: nan
Iteration: 2716; Percent complete: 67.9%; Average loss: nan
Iteration: 2717; Percent complete: 67.9%; Average loss: nan
Iteration: 2718; Percent complete: 68.0%; Average loss: nan
Iteration: 2719; Percent complete: 68.0%; Average loss: nan
Iteration: 2720; Percent complete: 68.0%; Average loss: nan
Iteration: 2721; Percent complete: 68.0%; Average loss: nan
Iteration: 2722; Percent complete: 68.0%; Average loss: nan
Iteration: 2723; Percent complete: 68.1%; Average loss: nan
Iteration: 2724; Percent complete: 68.1%; Average loss: nan
Iteration: 2725; Percent complete: 68.1%; Average loss: nan
Iteration: 2726; Percent complete: 68.2%; Average loss: nan
Iteration: 2727; Percent complete: 68.2%; Average loss: nan
Iteration: 2728; Percent complete: 68.2%; Average loss: nan
Iteration: 2729; Percent complete: 68.2%; Average loss: nan
Iteration: 2730; Percent complete: 68.2%; Average loss: nan
Iteration: 2731; Percent complete: 68.3%; Average loss: nan
Iteration: 2732; Percent complete: 68.3%; Average loss: nan
Iteration: 2733; Percent complete: 68.3%; Average loss: nan
Iteration: 2734; Percent complete: 68.3%; Average loss: nan
Iteration: 2735; Percent complete: 68.4%; Average loss: nan
Iteration: 2736; Percent complete: 68.4%; Average loss: nan
Iteration: 2737; Percent complete: 68.4%; Average loss: nan
Iteration: 2738; Percent complete: 68.5%; Average loss: nan
Iteration: 2739; Percent complete: 68.5%; Average loss: nan
Iteration: 2740; Percent complete: 68.5%; Average loss: nan
```

```
Iteration: 2741; Percent complete: 68.5%; Average loss: nan
Iteration: 2742; Percent complete: 68.5%; Average loss: nan
Iteration: 2743; Percent complete: 68.6%; Average loss: nan
Iteration: 2744; Percent complete: 68.6%; Average loss: nan
Iteration: 2745; Percent complete: 68.6%; Average loss: nan
Iteration: 2746; Percent complete: 68.7%; Average loss: nan
Iteration: 2747; Percent complete: 68.7%; Average loss: nan
Iteration: 2748; Percent complete: 68.7%; Average loss: nan
Iteration: 2749; Percent complete: 68.7%; Average loss: nan
Iteration: 2750; Percent complete: 68.8%; Average loss: nan
Iteration: 2751; Percent complete: 68.8%; Average loss: nan
Iteration: 2752; Percent complete: 68.8%; Average loss: nan
Iteration: 2753; Percent complete: 68.8%; Average loss: nan
Iteration: 2754; Percent complete: 68.8%; Average loss: nan
Iteration: 2755; Percent complete: 68.9%; Average loss: nan
Iteration: 2756; Percent complete: 68.9%; Average loss: nan
Iteration: 2757; Percent complete: 68.9%; Average loss: nan
Iteration: 2758; Percent complete: 69.0%; Average loss: nan
Iteration: 2759; Percent complete: 69.0%; Average loss: nan
Iteration: 2760; Percent complete: 69.0%; Average loss: nan
Iteration: 2761; Percent complete: 69.0%; Average loss: nan
Iteration: 2762; Percent complete: 69.0%; Average loss: nan
Iteration: 2763; Percent complete: 69.1%; Average loss: nan
Iteration: 2764; Percent complete: 69.1%; Average loss: nan
Iteration: 2765; Percent complete: 69.1%; Average loss: nan
Iteration: 2766; Percent complete: 69.2%; Average loss: nan
Iteration: 2767; Percent complete: 69.2%; Average loss: nan
Iteration: 2768; Percent complete: 69.2%; Average loss: nan
Iteration: 2769; Percent complete: 69.2%; Average loss: nan
Iteration: 2770; Percent complete: 69.2%; Average loss: nan
Iteration: 2771; Percent complete: 69.3%; Average loss: nan
Iteration: 2772; Percent complete: 69.3%; Average loss: nan
Iteration: 2773; Percent complete: 69.3%; Average loss: nan
Iteration: 2774; Percent complete: 69.3%; Average loss: nan
Iteration: 2775; Percent complete: 69.4%; Average loss: nan
Iteration: 2776; Percent complete: 69.4%; Average loss: nan
Iteration: 2777; Percent complete: 69.4%; Average loss: nan
Iteration: 2778; Percent complete: 69.5%; Average loss: nan
Iteration: 2779; Percent complete: 69.5%; Average loss: nan
Iteration: 2780; Percent complete: 69.5%; Average loss: nan
Iteration: 2781; Percent complete: 69.5%; Average loss: nan
Iteration: 2782; Percent complete: 69.5%; Average loss: nan
Iteration: 2783; Percent complete: 69.6%; Average loss: nan
Iteration: 2784; Percent complete: 69.6%; Average loss: nan
Iteration: 2785; Percent complete: 69.6%; Average loss: nan
Iteration: 2786; Percent complete: 69.7%; Average loss: nan
Iteration: 2787; Percent complete: 69.7%; Average loss: nan
Iteration: 2788; Percent complete: 69.7%; Average loss: nan
Iteration: 2789; Percent complete: 69.7%; Average loss: nan
Iteration: 2790; Percent complete: 69.8%; Average loss: nan
Iteration: 2791; Percent complete: 69.8%; Average loss: nan
Iteration: 2792; Percent complete: 69.8%; Average loss: nan
Iteration: 2793; Percent complete: 69.8%; Average loss: nan
Iteration: 2794; Percent complete: 69.8%; Average loss: nan
Iteration: 2795; Percent complete: 69.9%; Average loss: nan
Iteration: 2796; Percent complete: 69.9%; Average loss: nan
```

```
Iteration: 2797; Percent complete: 69.9%; Average loss: nan
Iteration: 2798; Percent complete: 70.0%; Average loss: nan
Iteration: 2799; Percent complete: 70.0%; Average loss: nan
Iteration: 2800; Percent complete: 70.0%; Average loss: nan
Iteration: 2801; Percent complete: 70.0%; Average loss: nan
Iteration: 2802; Percent complete: 70.0%; Average loss: nan
Iteration: 2803; Percent complete: 70.1%; Average loss: nan
Iteration: 2804; Percent complete: 70.1%; Average loss: nan
Iteration: 2805; Percent complete: 70.1%; Average loss: nan
Iteration: 2806; Percent complete: 70.2%; Average loss: nan
Iteration: 2807; Percent complete: 70.2%; Average loss: nan
Iteration: 2808; Percent complete: 70.2%; Average loss: nan
Iteration: 2809; Percent complete: 70.2%; Average loss: nan
Iteration: 2810; Percent complete: 70.2%; Average loss: nan
Iteration: 2811; Percent complete: 70.3%; Average loss: nan
Iteration: 2812; Percent complete: 70.3%; Average loss: nan
Iteration: 2813; Percent complete: 70.3%; Average loss: nan
Iteration: 2814; Percent complete: 70.3%; Average loss: nan
Iteration: 2815; Percent complete: 70.4%; Average loss: nan
Iteration: 2816; Percent complete: 70.4%; Average loss: nan
Iteration: 2817; Percent complete: 70.4%; Average loss: nan
Iteration: 2818; Percent complete: 70.5%; Average loss: nan
Iteration: 2819; Percent complete: 70.5%; Average loss: nan
Iteration: 2820; Percent complete: 70.5%; Average loss: nan
Iteration: 2821; Percent complete: 70.5%; Average loss: nan
Iteration: 2822; Percent complete: 70.5%; Average loss: nan
Iteration: 2823; Percent complete: 70.6%; Average loss: nan
Iteration: 2824; Percent complete: 70.6%; Average loss: nan
Iteration: 2825; Percent complete: 70.6%; Average loss: nan
Iteration: 2826; Percent complete: 70.7%; Average loss: nan
Iteration: 2827; Percent complete: 70.7%; Average loss: nan
Iteration: 2828; Percent complete: 70.7%; Average loss: nan
Iteration: 2829; Percent complete: 70.7%; Average loss: nan
Iteration: 2830; Percent complete: 70.8%; Average loss: nan
Iteration: 2831; Percent complete: 70.8%; Average loss: nan
Iteration: 2832; Percent complete: 70.8%; Average loss: nan
Iteration: 2833; Percent complete: 70.8%; Average loss: nan
Iteration: 2834; Percent complete: 70.9%; Average loss: nan
Iteration: 2835; Percent complete: 70.9%; Average loss: nan
Iteration: 2836; Percent complete: 70.9%; Average loss: nan
Iteration: 2837; Percent complete: 70.9%; Average loss: nan
Iteration: 2838; Percent complete: 71.0%; Average loss: nan
Iteration: 2839; Percent complete: 71.0%; Average loss: nan
Iteration: 2840; Percent complete: 71.0%; Average loss: nan
Iteration: 2841; Percent complete: 71.0%; Average loss: nan
Iteration: 2842; Percent complete: 71.0%; Average loss: nan
Iteration: 2843; Percent complete: 71.1%; Average loss: nan
Iteration: 2844; Percent complete: 71.1%; Average loss: nan
Iteration: 2845; Percent complete: 71.1%; Average loss: nan
Iteration: 2846; Percent complete: 71.2%; Average loss: nan
Iteration: 2847; Percent complete: 71.2%; Average loss: nan
Iteration: 2848; Percent complete: 71.2%; Average loss: nan
Iteration: 2849; Percent complete: 71.2%; Average loss: nan
Iteration: 2850; Percent complete: 71.2%; Average loss: nan
Iteration: 2851; Percent complete: 71.3%; Average loss: nan
Iteration: 2852; Percent complete: 71.3%; Average loss: nan
```

```
Iteration: 2853; Percent complete: 71.3%; Average loss: nan
Iteration: 2854; Percent complete: 71.4%; Average loss: nan
Iteration: 2855; Percent complete: 71.4%; Average loss: nan
Iteration: 2856; Percent complete: 71.4%; Average loss: nan
Iteration: 2857; Percent complete: 71.4%; Average loss: nan
Iteration: 2858; Percent complete: 71.5%; Average loss: nan
Iteration: 2859; Percent complete: 71.5%; Average loss: nan
Iteration: 2860; Percent complete: 71.5%; Average loss: nan
Iteration: 2861; Percent complete: 71.5%; Average loss: nan
Iteration: 2862; Percent complete: 71.5%; Average loss: nan
Iteration: 2863; Percent complete: 71.6%; Average loss: nan
Iteration: 2864; Percent complete: 71.6%; Average loss: nan
Iteration: 2865; Percent complete: 71.6%; Average loss: nan
Iteration: 2866; Percent complete: 71.7%; Average loss: nan
Iteration: 2867; Percent complete: 71.7%; Average loss: nan
Iteration: 2868; Percent complete: 71.7%; Average loss: nan
Iteration: 2869; Percent complete: 71.7%; Average loss: nan
Iteration: 2870; Percent complete: 71.8%; Average loss: nan
Iteration: 2871; Percent complete: 71.8%; Average loss: nan
Iteration: 2872; Percent complete: 71.8%; Average loss: nan
Iteration: 2873; Percent complete: 71.8%; Average loss: nan
Iteration: 2874; Percent complete: 71.9%; Average loss: nan
Iteration: 2875; Percent complete: 71.9%; Average loss: nan
Iteration: 2876; Percent complete: 71.9%; Average loss: nan
Iteration: 2877; Percent complete: 71.9%; Average loss: nan
Iteration: 2878; Percent complete: 72.0%; Average loss: nan
Iteration: 2879; Percent complete: 72.0%; Average loss: nan
Iteration: 2880; Percent complete: 72.0%; Average loss: nan
Iteration: 2881; Percent complete: 72.0%; Average loss: nan
Iteration: 2882; Percent complete: 72.0%; Average loss: nan
Iteration: 2883; Percent complete: 72.1%; Average loss: nan
Iteration: 2884; Percent complete: 72.1%; Average loss: nan
Iteration: 2885; Percent complete: 72.1%; Average loss: nan
Iteration: 2886; Percent complete: 72.2%; Average loss: nan
Iteration: 2887; Percent complete: 72.2%; Average loss: nan
Iteration: 2888; Percent complete: 72.2%; Average loss: nan
Iteration: 2889; Percent complete: 72.2%; Average loss: nan
Iteration: 2890; Percent complete: 72.2%; Average loss: nan
Iteration: 2891; Percent complete: 72.3%; Average loss: nan
Iteration: 2892; Percent complete: 72.3%; Average loss: nan
Iteration: 2893; Percent complete: 72.3%; Average loss: nan
Iteration: 2894; Percent complete: 72.4%; Average loss: nan
Iteration: 2895; Percent complete: 72.4%; Average loss: nan
Iteration: 2896; Percent complete: 72.4%; Average loss: nan
Iteration: 2897; Percent complete: 72.4%; Average loss: nan
Iteration: 2898; Percent complete: 72.5%; Average loss: nan
Iteration: 2899; Percent complete: 72.5%; Average loss: nan
Iteration: 2900; Percent complete: 72.5%; Average loss: nan
Iteration: 2901; Percent complete: 72.5%; Average loss: nan
Iteration: 2902; Percent complete: 72.5%; Average loss: nan
Iteration: 2903; Percent complete: 72.6%; Average loss: nan
Iteration: 2904; Percent complete: 72.6%; Average loss: nan
Iteration: 2905; Percent complete: 72.6%; Average loss: nan
Iteration: 2906; Percent complete: 72.7%; Average loss: nan
Iteration: 2907; Percent complete: 72.7%; Average loss: nan
Iteration: 2908; Percent complete: 72.7%; Average loss: nan
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Iteration: 2909; Percent complete: 72.7%; Average loss: nan
Iteration: 2910; Percent complete: 72.8%; Average loss: nan
Iteration: 2911; Percent complete: 72.8%; Average loss: nan
Iteration: 2912; Percent complete: 72.8%; Average loss: nan
Iteration: 2913; Percent complete: 72.8%; Average loss: nan
Iteration: 2914; Percent complete: 72.9%; Average loss: nan
Iteration: 2915; Percent complete: 72.9%; Average loss: nan
Iteration: 2916; Percent complete: 72.9%; Average loss: nan
Iteration: 2917; Percent complete: 72.9%; Average loss: nan
Iteration: 2918; Percent complete: 73.0%; Average loss: nan
Iteration: 2919; Percent complete: 73.0%; Average loss: nan
Iteration: 2920; Percent complete: 73.0%; Average loss: nan
Iteration: 2921; Percent complete: 73.0%; Average loss: nan
Iteration: 2922; Percent complete: 73.0%; Average loss: nan
Iteration: 2923; Percent complete: 73.1%; Average loss: nan
Iteration: 2924; Percent complete: 73.1%; Average loss: nan
Iteration: 2925; Percent complete: 73.1%; Average loss: nan
Iteration: 2926; Percent complete: 73.2%; Average loss: nan
Iteration: 2927; Percent complete: 73.2%; Average loss: nan
Iteration: 2928; Percent complete: 73.2%; Average loss: nan
Iteration: 2929; Percent complete: 73.2%; Average loss: nan
Iteration: 2930; Percent complete: 73.2%; Average loss: nan
Iteration: 2931; Percent complete: 73.3%; Average loss: nan
Iteration: 2932; Percent complete: 73.3%; Average loss: nan
Iteration: 2933; Percent complete: 73.3%; Average loss: nan
Iteration: 2934; Percent complete: 73.4%; Average loss: nan
Iteration: 2935; Percent complete: 73.4%; Average loss: nan
Iteration: 2936; Percent complete: 73.4%; Average loss: nan
Iteration: 2937; Percent complete: 73.4%; Average loss: nan
Iteration: 2938; Percent complete: 73.5%; Average loss: nan
Iteration: 2939; Percent complete: 73.5%; Average loss: nan
Iteration: 2940; Percent complete: 73.5%; Average loss: nan
Iteration: 2941; Percent complete: 73.5%; Average loss: nan
Iteration: 2942; Percent complete: 73.6%; Average loss: nan
Iteration: 2943; Percent complete: 73.6%; Average loss: nan
Iteration: 2944; Percent complete: 73.6%; Average loss: nan
Iteration: 2945; Percent complete: 73.6%; Average loss: nan
Iteration: 2946; Percent complete: 73.7%; Average loss: nan
Iteration: 2947; Percent complete: 73.7%; Average loss: nan
Iteration: 2948; Percent complete: 73.7%; Average loss: nan
Iteration: 2949; Percent complete: 73.7%; Average loss: nan
Iteration: 2950; Percent complete: 73.8%; Average loss: nan
Iteration: 2951; Percent complete: 73.8%; Average loss: nan
Iteration: 2952; Percent complete: 73.8%; Average loss: nan
Iteration: 2953; Percent complete: 73.8%; Average loss: nan
Iteration: 2954; Percent complete: 73.9%; Average loss: nan
Iteration: 2955; Percent complete: 73.9%; Average loss: nan
Iteration: 2956; Percent complete: 73.9%; Average loss: nan
Iteration: 2957; Percent complete: 73.9%; Average loss: nan
Iteration: 2958; Percent complete: 74.0%; Average loss: nan
Iteration: 2959; Percent complete: 74.0%; Average loss: nan
Iteration: 2960; Percent complete: 74.0%; Average loss: nan
Iteration: 2961; Percent complete: 74.0%; Average loss: nan
Iteration: 2962; Percent complete: 74.1%; Average loss: nan
Iteration: 2963; Percent complete: 74.1%; Average loss: nan
Iteration: 2964; Percent complete: 74.1%; Average loss: nan
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Iteration: 2965; Percent complete: 74.1%; Average loss: nan
Iteration: 2966; Percent complete: 74.2%; Average loss: nan
Iteration: 2967; Percent complete: 74.2%; Average loss: nan
Iteration: 2968; Percent complete: 74.2%; Average loss: nan
Iteration: 2969; Percent complete: 74.2%; Average loss: nan
Iteration: 2970; Percent complete: 74.2%; Average loss: nan
Iteration: 2971; Percent complete: 74.3%; Average loss: nan
Iteration: 2972; Percent complete: 74.3%; Average loss: nan
Iteration: 2973; Percent complete: 74.3%; Average loss: nan
Iteration: 2974; Percent complete: 74.4%; Average loss: nan
Iteration: 2975; Percent complete: 74.4%; Average loss: nan
Iteration: 2976; Percent complete: 74.4%; Average loss: nan
Iteration: 2977; Percent complete: 74.4%; Average loss: nan
Iteration: 2978; Percent complete: 74.5%; Average loss: nan
Iteration: 2979; Percent complete: 74.5%; Average loss: nan
Iteration: 2980; Percent complete: 74.5%; Average loss: nan
Iteration: 2981; Percent complete: 74.5%; Average loss: nan
Iteration: 2982; Percent complete: 74.6%; Average loss: nan
Iteration: 2983; Percent complete: 74.6%; Average loss: nan
Iteration: 2984; Percent complete: 74.6%; Average loss: nan
Iteration: 2985; Percent complete: 74.6%; Average loss: nan
Iteration: 2986; Percent complete: 74.7%; Average loss: nan
Iteration: 2987; Percent complete: 74.7%; Average loss: nan
Iteration: 2988; Percent complete: 74.7%; Average loss: nan
Iteration: 2989; Percent complete: 74.7%; Average loss: nan
Iteration: 2990; Percent complete: 74.8%; Average loss: nan
Iteration: 2991; Percent complete: 74.8%; Average loss: nan
Iteration: 2992; Percent complete: 74.8%; Average loss: nan
Iteration: 2993; Percent complete: 74.8%; Average loss: nan
Iteration: 2994; Percent complete: 74.9%; Average loss: nan
Iteration: 2995; Percent complete: 74.9%; Average loss: nan
Iteration: 2996; Percent complete: 74.9%; Average loss: nan
Iteration: 2997; Percent complete: 74.9%; Average loss: nan
Iteration: 2998; Percent complete: 75.0%; Average loss: nan
Iteration: 2999; Percent complete: 75.0%; Average loss: nan
Iteration: 3000; Percent complete: 75.0%; Average loss: nan
Iteration: 3001; Percent complete: 75.0%; Average loss: nan
Iteration: 3002; Percent complete: 75.0%; Average loss: nan
Iteration: 3003; Percent complete: 75.1%; Average loss: nan
Iteration: 3004; Percent complete: 75.1%; Average loss: nan
Iteration: 3005; Percent complete: 75.1%; Average loss: nan
Iteration: 3006; Percent complete: 75.1%; Average loss: nan
Iteration: 3007; Percent complete: 75.2%; Average loss: nan
Iteration: 3008; Percent complete: 75.2%; Average loss: nan
Iteration: 3009; Percent complete: 75.2%; Average loss: nan
Iteration: 3010; Percent complete: 75.2%; Average loss: nan
Iteration: 3011; Percent complete: 75.3%; Average loss: nan
Iteration: 3012; Percent complete: 75.3%; Average loss: nan
Iteration: 3013; Percent complete: 75.3%; Average loss: nan
Iteration: 3014; Percent complete: 75.3%; Average loss: nan
Iteration: 3015; Percent complete: 75.4%; Average loss: nan
Iteration: 3016; Percent complete: 75.4%; Average loss: nan
Iteration: 3017; Percent complete: 75.4%; Average loss: nan
Iteration: 3018; Percent complete: 75.4%; Average loss: nan
Iteration: 3019; Percent complete: 75.5%; Average loss: nan
Iteration: 3020; Percent complete: 75.5%; Average loss: nan
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Iteration: 3021; Percent complete: 75.5%; Average loss: nan
Iteration: 3022; Percent complete: 75.5%; Average loss: nan
Iteration: 3023; Percent complete: 75.6%; Average loss: nan
Iteration: 3024; Percent complete: 75.6%; Average loss: nan
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Iteration: 3026; Percent complete: 75.6%; Average loss: nan
Iteration: 3027; Percent complete: 75.7%; Average loss: nan
Iteration: 3028; Percent complete: 75.7%; Average loss: nan
Iteration: 3029; Percent complete: 75.7%; Average loss: nan
Iteration: 3030; Percent complete: 75.8%; Average loss: nan
Iteration: 3031; Percent complete: 75.8%; Average loss: nan
Iteration: 3032; Percent complete: 75.8%; Average loss: nan
Iteration: 3033; Percent complete: 75.8%; Average loss: nan
Iteration: 3034; Percent complete: 75.8%; Average loss: nan
Iteration: 3035; Percent complete: 75.9%; Average loss: nan
Iteration: 3036; Percent complete: 75.9%; Average loss: nan
Iteration: 3037; Percent complete: 75.9%; Average loss: nan
Iteration: 3038; Percent complete: 75.9%; Average loss: nan
Iteration: 3039; Percent complete: 76.0%; Average loss: nan
Iteration: 3040; Percent complete: 76.0%; Average loss: nan
Iteration: 3041; Percent complete: 76.0%; Average loss: nan
Iteration: 3042; Percent complete: 76.0%; Average loss: nan
Iteration: 3043; Percent complete: 76.1%; Average loss: nan
Iteration: 3044; Percent complete: 76.1%; Average loss: nan
Iteration: 3045; Percent complete: 76.1%; Average loss: nan
Iteration: 3046; Percent complete: 76.1%; Average loss: nan
Iteration: 3047; Percent complete: 76.2%; Average loss: nan
Iteration: 3048; Percent complete: 76.2%; Average loss: nan
Iteration: 3049; Percent complete: 76.2%; Average loss: nan
Iteration: 3050; Percent complete: 76.2%; Average loss: nan
Iteration: 3051; Percent complete: 76.3%; Average loss: nan
Iteration: 3052; Percent complete: 76.3%; Average loss: nan
Iteration: 3053; Percent complete: 76.3%; Average loss: nan
Iteration: 3054; Percent complete: 76.3%; Average loss: nan
Iteration: 3055; Percent complete: 76.4%; Average loss: nan
Iteration: 3056; Percent complete: 76.4%; Average loss: nan
Iteration: 3057; Percent complete: 76.4%; Average loss: nan
Iteration: 3058; Percent complete: 76.4%; Average loss: nan
Iteration: 3059; Percent complete: 76.5%; Average loss: nan
Iteration: 3060; Percent complete: 76.5%; Average loss: nan
Iteration: 3061; Percent complete: 76.5%; Average loss: nan
Iteration: 3062; Percent complete: 76.5%; Average loss: nan
Iteration: 3063; Percent complete: 76.6%; Average loss: nan
Iteration: 3064; Percent complete: 76.6%; Average loss: nan
Iteration: 3065; Percent complete: 76.6%; Average loss: nan
Iteration: 3066; Percent complete: 76.6%; Average loss: nan
Iteration: 3067; Percent complete: 76.7%; Average loss: nan
Iteration: 3068; Percent complete: 76.7%; Average loss: nan
Iteration: 3069; Percent complete: 76.7%; Average loss: nan
Iteration: 3070; Percent complete: 76.8%; Average loss: nan
Iteration: 3071; Percent complete: 76.8%; Average loss: nan
Iteration: 3072; Percent complete: 76.8%; Average loss: nan
Iteration: 3073; Percent complete: 76.8%; Average loss: nan
Iteration: 3074; Percent complete: 76.8%; Average loss: nan
Iteration: 3075; Percent complete: 76.9%; Average loss: nan
Iteration: 3076; Percent complete: 76.9%; Average loss: nan
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Iteration: 3077; Percent complete: 76.9%; Average loss: nan
Iteration: 3078; Percent complete: 77.0%; Average loss: nan
Iteration: 3079; Percent complete: 77.0%; Average loss: nan
Iteration: 3080; Percent complete: 77.0%; Average loss: nan
Iteration: 3081; Percent complete: 77.0%; Average loss: nan
Iteration: 3082; Percent complete: 77.0%; Average loss: nan
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Iteration: 3086; Percent complete: 77.1%; Average loss: nan
Iteration: 3087; Percent complete: 77.2%; Average loss: nan
Iteration: 3088; Percent complete: 77.2%; Average loss: nan
Iteration: 3089; Percent complete: 77.2%; Average loss: nan
Iteration: 3090; Percent complete: 77.2%; Average loss: nan
Iteration: 3091; Percent complete: 77.3%; Average loss: nan
Iteration: 3092; Percent complete: 77.3%; Average loss: nan
Iteration: 3093; Percent complete: 77.3%; Average loss: nan
Iteration: 3094; Percent complete: 77.3%; Average loss: nan
Iteration: 3095; Percent complete: 77.4%; Average loss: nan
Iteration: 3096; Percent complete: 77.4%; Average loss: nan
Iteration: 3097; Percent complete: 77.4%; Average loss: nan
Iteration: 3098; Percent complete: 77.5%; Average loss: nan
Iteration: 3099; Percent complete: 77.5%; Average loss: nan
Iteration: 3100; Percent complete: 77.5%; Average loss: nan
Iteration: 3101; Percent complete: 77.5%; Average loss: nan
Iteration: 3102; Percent complete: 77.5%; Average loss: nan
Iteration: 3103; Percent complete: 77.6%; Average loss: nan
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Iteration: 3106; Percent complete: 77.6%; Average loss: nan
Iteration: 3107; Percent complete: 77.7%; Average loss: nan
Iteration: 3108; Percent complete: 77.7%; Average loss: nan
Iteration: 3109; Percent complete: 77.7%; Average loss: nan
Iteration: 3110; Percent complete: 77.8%; Average loss: nan
Iteration: 3111; Percent complete: 77.8%; Average loss: nan
Iteration: 3112; Percent complete: 77.8%; Average loss: nan
Iteration: 3113; Percent complete: 77.8%; Average loss: nan
Iteration: 3114; Percent complete: 77.8%; Average loss: nan
Iteration: 3115; Percent complete: 77.9%; Average loss: nan
Iteration: 3116; Percent complete: 77.9%; Average loss: nan
Iteration: 3117; Percent complete: 77.9%; Average loss: nan
Iteration: 3118; Percent complete: 78.0%; Average loss: nan
Iteration: 3119; Percent complete: 78.0%; Average loss: nan
Iteration: 3120; Percent complete: 78.0%; Average loss: nan
Iteration: 3121; Percent complete: 78.0%; Average loss: nan
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Iteration: 3126; Percent complete: 78.1%; Average loss: nan
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Iteration: 3131; Percent complete: 78.3%; Average loss: nan
Iteration: 3132; Percent complete: 78.3%; Average loss: nan
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Iteration: 3133; Percent complete: 78.3%; Average loss: nan
Iteration: 3134; Percent complete: 78.3%; Average loss: nan
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Iteration: 3146; Percent complete: 78.6%; Average loss: nan
Iteration: 3147; Percent complete: 78.7%; Average loss: nan
Iteration: 3148; Percent complete: 78.7%; Average loss: nan
Iteration: 3149; Percent complete: 78.7%; Average loss: nan
Iteration: 3150; Percent complete: 78.8%; Average loss: nan
Iteration: 3151; Percent complete: 78.8%; Average loss: nan
Iteration: 3152; Percent complete: 78.8%; Average loss: nan
Iteration: 3153; Percent complete: 78.8%; Average loss: nan
Iteration: 3154; Percent complete: 78.8%; Average loss: nan
Iteration: 3155; Percent complete: 78.9%; Average loss: nan
Iteration: 3156; Percent complete: 78.9%; Average loss: nan
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Iteration: 3175; Percent complete: 79.4%; Average loss: nan
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Iteration: 3185; Percent complete: 79.6%; Average loss: nan
Iteration: 3186; Percent complete: 79.7%; Average loss: nan
Iteration: 3187; Percent complete: 79.7%; Average loss: nan
Iteration: 3188; Percent complete: 79.7%; Average loss: nan
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Iteration: 3189; Percent complete: 79.7%; Average loss: nan
Iteration: 3190; Percent complete: 79.8%; Average loss: nan
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Iteration: 3193; Percent complete: 79.8%; Average loss: nan
Iteration: 3194; Percent complete: 79.8%; Average loss: nan
Iteration: 3195; Percent complete: 79.9%; Average loss: nan
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Iteration: 3198; Percent complete: 80.0%; Average loss: nan
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Iteration: 3211; Percent complete: 80.3%; Average loss: nan
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Iteration: 3213; Percent complete: 80.3%; Average loss: nan
Iteration: 3214; Percent complete: 80.3%; Average loss: nan
Iteration: 3215; Percent complete: 80.4%; Average loss: nan
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Iteration: 3226; Percent complete: 80.7%; Average loss: nan
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Iteration: 3238; Percent complete: 81.0%; Average loss: nan
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Iteration: 3243; Percent complete: 81.1%; Average loss: nan
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Iteration: 3245; Percent complete: 81.1%; Average loss: nan
Iteration: 3246; Percent complete: 81.2%; Average loss: nan
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Iteration: 3253; Percent complete: 81.3%; Average loss: nan
Iteration: 3254; Percent complete: 81.3%; Average loss: nan
Iteration: 3255; Percent complete: 81.4%; Average loss: nan
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Iteration: 3258; Percent complete: 81.5%; Average loss: nan
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Iteration: 3268; Percent complete: 81.7%; Average loss: nan
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Iteration: 3275; Percent complete: 81.9%; Average loss: nan
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Iteration: 3281; Percent complete: 82.0%; Average loss: nan
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Iteration: 3293; Percent complete: 82.3%; Average loss: nan
Iteration: 3294; Percent complete: 82.3%; Average loss: nan
Iteration: 3295; Percent complete: 82.4%; Average loss: nan
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Iteration: 3297; Percent complete: 82.4%; Average loss: nan
Iteration: 3298; Percent complete: 82.5%; Average loss: nan
Iteration: 3299; Percent complete: 82.5%; Average loss: nan
Iteration: 3300; Percent complete: 82.5%; Average loss: nan
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```
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Iteration: 3303; Percent complete: 82.6%; Average loss: nan
Iteration: 3304; Percent complete: 82.6%; Average loss: nan
Iteration: 3305; Percent complete: 82.6%; Average loss: nan
Iteration: 3306; Percent complete: 82.7%; Average loss: nan
Iteration: 3307; Percent complete: 82.7%; Average loss: nan
Iteration: 3308; Percent complete: 82.7%; Average loss: nan
Iteration: 3309; Percent complete: 82.7%; Average loss: nan
Iteration: 3310; Percent complete: 82.8%; Average loss: nan
Iteration: 3311; Percent complete: 82.8%; Average loss: nan
Iteration: 3312; Percent complete: 82.8%; Average loss: nan
Iteration: 3313; Percent complete: 82.8%; Average loss: nan
Iteration: 3314; Percent complete: 82.8%; Average loss: nan
Iteration: 3315; Percent complete: 82.9%; Average loss: nan
Iteration: 3316; Percent complete: 82.9%; Average loss: nan
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Iteration: 3323; Percent complete: 83.1%; Average loss: nan
Iteration: 3324; Percent complete: 83.1%; Average loss: nan
Iteration: 3325; Percent complete: 83.1%; Average loss: nan
Iteration: 3326; Percent complete: 83.2%; Average loss: nan
Iteration: 3327; Percent complete: 83.2%; Average loss: nan
Iteration: 3328; Percent complete: 83.2%; Average loss: nan
Iteration: 3329; Percent complete: 83.2%; Average loss: nan
Iteration: 3330; Percent complete: 83.2%; Average loss: nan
Iteration: 3331; Percent complete: 83.3%; Average loss: nan
Iteration: 3332; Percent complete: 83.3%; Average loss: nan
Iteration: 3333; Percent complete: 83.3%; Average loss: nan
Iteration: 3334; Percent complete: 83.4%; Average loss: nan
Iteration: 3335; Percent complete: 83.4%; Average loss: nan
Iteration: 3336; Percent complete: 83.4%; Average loss: nan
Iteration: 3337; Percent complete: 83.4%; Average loss: nan
Iteration: 3338; Percent complete: 83.5%; Average loss: nan
Iteration: 3339; Percent complete: 83.5%; Average loss: nan
Iteration: 3340; Percent complete: 83.5%; Average loss: nan
Iteration: 3341; Percent complete: 83.5%; Average loss: nan
Iteration: 3342; Percent complete: 83.5%; Average loss: nan
Iteration: 3343; Percent complete: 83.6%; Average loss: nan
Iteration: 3344; Percent complete: 83.6%; Average loss: nan
Iteration: 3345; Percent complete: 83.6%; Average loss: nan
Iteration: 3346; Percent complete: 83.7%; Average loss: nan
Iteration: 3347; Percent complete: 83.7%; Average loss: nan
Iteration: 3348; Percent complete: 83.7%; Average loss: nan
Iteration: 3349; Percent complete: 83.7%; Average loss: nan
Iteration: 3350; Percent complete: 83.8%; Average loss: nan
Iteration: 3351; Percent complete: 83.8%; Average loss: nan
Iteration: 3352; Percent complete: 83.8%; Average loss: nan
Iteration: 3353; Percent complete: 83.8%; Average loss: nan
Iteration: 3354; Percent complete: 83.9%; Average loss: nan
Iteration: 3355; Percent complete: 83.9%; Average loss: nan
Iteration: 3356; Percent complete: 83.9%; Average loss: nan
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Iteration: 3357; Percent complete: 83.9%; Average loss: nan
Iteration: 3358; Percent complete: 84.0%; Average loss: nan
Iteration: 3359; Percent complete: 84.0%; Average loss: nan
Iteration: 3360; Percent complete: 84.0%; Average loss: nan
Iteration: 3361; Percent complete: 84.0%; Average loss: nan
Iteration: 3362; Percent complete: 84.0%; Average loss: nan
Iteration: 3363; Percent complete: 84.1%; Average loss: nan
Iteration: 3364; Percent complete: 84.1%; Average loss: nan
Iteration: 3365; Percent complete: 84.1%; Average loss: nan
Iteration: 3366; Percent complete: 84.2%; Average loss: nan
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Iteration: 3378; Percent complete: 84.5%; Average loss: nan
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Iteration: 3380; Percent complete: 84.5%; Average loss: nan
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Iteration: 3386; Percent complete: 84.7%; Average loss: nan
Iteration: 3387; Percent complete: 84.7%; Average loss: nan
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Iteration: 3390; Percent complete: 84.8%; Average loss: nan
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Iteration: 3394; Percent complete: 84.9%; Average loss: nan
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Iteration: 3397; Percent complete: 84.9%; Average loss: nan
Iteration: 3398; Percent complete: 85.0%; Average loss: nan
Iteration: 3399; Percent complete: 85.0%; Average loss: nan
Iteration: 3400; Percent complete: 85.0%; Average loss: nan
Iteration: 3401; Percent complete: 85.0%; Average loss: nan
Iteration: 3402; Percent complete: 85.0%; Average loss: nan
Iteration: 3403; Percent complete: 85.1%; Average loss: nan
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Iteration: 3405; Percent complete: 85.1%; Average loss: nan
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Iteration: 3410; Percent complete: 85.2%; Average loss: nan
Iteration: 3411; Percent complete: 85.3%; Average loss: nan
Iteration: 3412; Percent complete: 85.3%; Average loss: nan
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Iteration: 3413; Percent complete: 85.3%; Average loss: nan
Iteration: 3414; Percent complete: 85.4%; Average loss: nan
Iteration: 3415; Percent complete: 85.4%; Average loss: nan
Iteration: 3416; Percent complete: 85.4%; Average loss: nan
Iteration: 3417; Percent complete: 85.4%; Average loss: nan
Iteration: 3418; Percent complete: 85.5%; Average loss: nan
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Iteration: 3425; Percent complete: 85.6%; Average loss: nan
Iteration: 3426; Percent complete: 85.7%; Average loss: nan
Iteration: 3427; Percent complete: 85.7%; Average loss: nan
Iteration: 3428; Percent complete: 85.7%; Average loss: nan
Iteration: 3429; Percent complete: 85.7%; Average loss: nan
Iteration: 3430; Percent complete: 85.8%; Average loss: nan
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Iteration: 3433; Percent complete: 85.8%; Average loss: nan
Iteration: 3434; Percent complete: 85.9%; Average loss: nan
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Iteration: 3436; Percent complete: 85.9%; Average loss: nan
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Iteration: 3444; Percent complete: 86.1%; Average loss: nan
Iteration: 3445; Percent complete: 86.1%; Average loss: nan
Iteration: 3446; Percent complete: 86.2%; Average loss: nan
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Iteration: 3450; Percent complete: 86.2%; Average loss: nan
Iteration: 3451; Percent complete: 86.3%; Average loss: nan
Iteration: 3452; Percent complete: 86.3%; Average loss: nan
Iteration: 3453; Percent complete: 86.3%; Average loss: nan
Iteration: 3454; Percent complete: 86.4%; Average loss: nan
Iteration: 3455; Percent complete: 86.4%; Average loss: nan
Iteration: 3456; Percent complete: 86.4%; Average loss: nan
Iteration: 3457; Percent complete: 86.4%; Average loss: nan
Iteration: 3458; Percent complete: 86.5%; Average loss: nan
Iteration: 3459; Percent complete: 86.5%; Average loss: nan
Iteration: 3460; Percent complete: 86.5%; Average loss: nan
Iteration: 3461; Percent complete: 86.5%; Average loss: nan
Iteration: 3462; Percent complete: 86.6%; Average loss: nan
Iteration: 3463; Percent complete: 86.6%; Average loss: nan
Iteration: 3464; Percent complete: 86.6%; Average loss: nan
Iteration: 3465; Percent complete: 86.6%; Average loss: nan
Iteration: 3466; Percent complete: 86.7%; Average loss: nan
Iteration: 3467; Percent complete: 86.7%; Average loss: nan
Iteration: 3468; Percent complete: 86.7%; Average loss: nan
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Iteration: 3469; Percent complete: 86.7%; Average loss: nan
Iteration: 3470; Percent complete: 86.8%; Average loss: nan
Iteration: 3471; Percent complete: 86.8%; Average loss: nan
Iteration: 3472; Percent complete: 86.8%; Average loss: nan
Iteration: 3473; Percent complete: 86.8%; Average loss: nan
Iteration: 3474; Percent complete: 86.9%; Average loss: nan
Iteration: 3475; Percent complete: 86.9%; Average loss: nan
Iteration: 3476; Percent complete: 86.9%; Average loss: nan
Iteration: 3477; Percent complete: 86.9%; Average loss: nan
Iteration: 3478; Percent complete: 87.0%; Average loss: nan
Iteration: 3479; Percent complete: 87.0%; Average loss: nan
Iteration: 3480; Percent complete: 87.0%; Average loss: nan
Iteration: 3481; Percent complete: 87.0%; Average loss: nan
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Iteration: 3485; Percent complete: 87.1%; Average loss: nan
Iteration: 3486; Percent complete: 87.2%; Average loss: nan
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Iteration: 3488; Percent complete: 87.2%; Average loss: nan
Iteration: 3489; Percent complete: 87.2%; Average loss: nan
Iteration: 3490; Percent complete: 87.2%; Average loss: nan
Iteration: 3491; Percent complete: 87.3%; Average loss: nan
Iteration: 3492; Percent complete: 87.3%; Average loss: nan
Iteration: 3493; Percent complete: 87.3%; Average loss: nan
Iteration: 3494; Percent complete: 87.4%; Average loss: nan
Iteration: 3495; Percent complete: 87.4%; Average loss: nan
Iteration: 3496; Percent complete: 87.4%; Average loss: nan
Iteration: 3497; Percent complete: 87.4%; Average loss: nan
Iteration: 3498; Percent complete: 87.5%; Average loss: nan
Iteration: 3499; Percent complete: 87.5%; Average loss: nan
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Iteration: 3501; Percent complete: 87.5%; Average loss: nan
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Iteration: 3506; Percent complete: 87.6%; Average loss: nan
Iteration: 3507; Percent complete: 87.7%; Average loss: nan
Iteration: 3508; Percent complete: 87.7%; Average loss: nan
Iteration: 3509; Percent complete: 87.7%; Average loss: nan
Iteration: 3510; Percent complete: 87.8%; Average loss: nan
Iteration: 3511; Percent complete: 87.8%; Average loss: nan
Iteration: 3512; Percent complete: 87.8%; Average loss: nan
Iteration: 3513; Percent complete: 87.8%; Average loss: nan
Iteration: 3514; Percent complete: 87.8%; Average loss: nan
Iteration: 3515; Percent complete: 87.9%; Average loss: nan
Iteration: 3516; Percent complete: 87.9%; Average loss: nan
Iteration: 3517; Percent complete: 87.9%; Average loss: nan
Iteration: 3518; Percent complete: 87.9%; Average loss: nan
Iteration: 3519; Percent complete: 88.0%; Average loss: nan
Iteration: 3520; Percent complete: 88.0%; Average loss: nan
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Iteration: 3525; Percent complete: 88.1%; Average loss: nan
Iteration: 3526; Percent complete: 88.1%; Average loss: nan
Iteration: 3527; Percent complete: 88.2%; Average loss: nan
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Iteration: 3529; Percent complete: 88.2%; Average loss: nan
Iteration: 3530; Percent complete: 88.2%; Average loss: nan
Iteration: 3531; Percent complete: 88.3%; Average loss: nan
Iteration: 3532; Percent complete: 88.3%; Average loss: nan
Iteration: 3533; Percent complete: 88.3%; Average loss: nan
Iteration: 3534; Percent complete: 88.3%; Average loss: nan
Iteration: 3535; Percent complete: 88.4%; Average loss: nan
Iteration: 3536; Percent complete: 88.4%; Average loss: nan
Iteration: 3537; Percent complete: 88.4%; Average loss: nan
Iteration: 3538; Percent complete: 88.4%; Average loss: nan
Iteration: 3539; Percent complete: 88.5%; Average loss: nan
Iteration: 3540; Percent complete: 88.5%; Average loss: nan
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Iteration: 3545; Percent complete: 88.6%; Average loss: nan
Iteration: 3546; Percent complete: 88.6%; Average loss: nan
Iteration: 3547; Percent complete: 88.7%; Average loss: nan
Iteration: 3548; Percent complete: 88.7%; Average loss: nan
Iteration: 3549; Percent complete: 88.7%; Average loss: nan
Iteration: 3550; Percent complete: 88.8%; Average loss: nan
Iteration: 3551; Percent complete: 88.8%; Average loss: nan
Iteration: 3552; Percent complete: 88.8%; Average loss: nan
Iteration: 3553; Percent complete: 88.8%; Average loss: nan
Iteration: 3554; Percent complete: 88.8%; Average loss: nan
Iteration: 3555; Percent complete: 88.9%; Average loss: nan
Iteration: 3556; Percent complete: 88.9%; Average loss: nan
Iteration: 3557; Percent complete: 88.9%; Average loss: nan
Iteration: 3558; Percent complete: 88.9%; Average loss: nan
Iteration: 3559; Percent complete: 89.0%; Average loss: nan
Iteration: 3560; Percent complete: 89.0%; Average loss: nan
Iteration: 3561; Percent complete: 89.0%; Average loss: nan
Iteration: 3562; Percent complete: 89.0%; Average loss: nan
Iteration: 3563; Percent complete: 89.1%; Average loss: nan
Iteration: 3564; Percent complete: 89.1%; Average loss: nan
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Iteration: 3566; Percent complete: 89.1%; Average loss: nan
Iteration: 3567; Percent complete: 89.2%; Average loss: nan
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Iteration: 3569; Percent complete: 89.2%; Average loss: nan
Iteration: 3570; Percent complete: 89.2%; Average loss: nan
Iteration: 3571; Percent complete: 89.3%; Average loss: nan
Iteration: 3572; Percent complete: 89.3%; Average loss: nan
Iteration: 3573; Percent complete: 89.3%; Average loss: nan
Iteration: 3574; Percent complete: 89.3%; Average loss: nan
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Iteration: 3576; Percent complete: 89.4%; Average loss: nan
Iteration: 3577; Percent complete: 89.4%; Average loss: nan
Iteration: 3578; Percent complete: 89.5%; Average loss: nan
Iteration: 3579; Percent complete: 89.5%; Average loss: nan
Iteration: 3580; Percent complete: 89.5%; Average loss: nan
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Iteration: 3582; Percent complete: 89.5%; Average loss: nan
Iteration: 3583; Percent complete: 89.6%; Average loss: nan
Iteration: 3584; Percent complete: 89.6%; Average loss: nan
Iteration: 3585; Percent complete: 89.6%; Average loss: nan
Iteration: 3586; Percent complete: 89.6%; Average loss: nan
Iteration: 3587; Percent complete: 89.7%; Average loss: nan
Iteration: 3588; Percent complete: 89.7%; Average loss: nan
Iteration: 3589; Percent complete: 89.7%; Average loss: nan
Iteration: 3590; Percent complete: 89.8%; Average loss: nan
Iteration: 3591; Percent complete: 89.8%; Average loss: nan
Iteration: 3592; Percent complete: 89.8%; Average loss: nan
Iteration: 3593; Percent complete: 89.8%; Average loss: nan
Iteration: 3594; Percent complete: 89.8%; Average loss: nan
Iteration: 3595; Percent complete: 89.9%; Average loss: nan
Iteration: 3596; Percent complete: 89.9%; Average loss: nan
Iteration: 3597; Percent complete: 89.9%; Average loss: nan
Iteration: 3598; Percent complete: 90.0%; Average loss: nan
Iteration: 3599; Percent complete: 90.0%; Average loss: nan
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Iteration: 3610; Percent complete: 90.2%; Average loss: nan
Iteration: 3611; Percent complete: 90.3%; Average loss: nan
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Iteration: 3613; Percent complete: 90.3%; Average loss: nan
Iteration: 3614; Percent complete: 90.3%; Average loss: nan
Iteration: 3615; Percent complete: 90.4%; Average loss: nan
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Iteration: 3630; Percent complete: 90.8%; Average loss: nan
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Iteration: 3634; Percent complete: 90.8%; Average loss: nan
Iteration: 3635; Percent complete: 90.9%; Average loss: nan
Iteration: 3636; Percent complete: 90.9%; Average loss: nan
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Iteration: 3637; Percent complete: 90.9%; Average loss: nan
Iteration: 3638; Percent complete: 91.0%; Average loss: nan
Iteration: 3639; Percent complete: 91.0%; Average loss: nan
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Iteration: 3641; Percent complete: 91.0%; Average loss: nan
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Iteration: 3647; Percent complete: 91.2%; Average loss: nan
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Iteration: 3650; Percent complete: 91.2%; Average loss: nan
Iteration: 3651; Percent complete: 91.3%; Average loss: nan
Iteration: 3652; Percent complete: 91.3%; Average loss: nan
Iteration: 3653; Percent complete: 91.3%; Average loss: nan
Iteration: 3654; Percent complete: 91.3%; Average loss: nan
Iteration: 3655; Percent complete: 91.4%; Average loss: nan
Iteration: 3656; Percent complete: 91.4%; Average loss: nan
Iteration: 3657; Percent complete: 91.4%; Average loss: nan
Iteration: 3658; Percent complete: 91.5%; Average loss: nan
Iteration: 3659; Percent complete: 91.5%; Average loss: nan
Iteration: 3660; Percent complete: 91.5%; Average loss: nan
Iteration: 3661; Percent complete: 91.5%; Average loss: nan
Iteration: 3662; Percent complete: 91.5%; Average loss: nan
Iteration: 3663; Percent complete: 91.6%; Average loss: nan
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Iteration: 3665; Percent complete: 91.6%; Average loss: nan
Iteration: 3666; Percent complete: 91.6%; Average loss: nan
Iteration: 3667; Percent complete: 91.7%; Average loss: nan
Iteration: 3668; Percent complete: 91.7%; Average loss: nan
Iteration: 3669; Percent complete: 91.7%; Average loss: nan
Iteration: 3670; Percent complete: 91.8%; Average loss: nan
Iteration: 3671; Percent complete: 91.8%; Average loss: nan
Iteration: 3672; Percent complete: 91.8%; Average loss: nan
Iteration: 3673; Percent complete: 91.8%; Average loss: nan
Iteration: 3674; Percent complete: 91.8%; Average loss: nan
Iteration: 3675; Percent complete: 91.9%; Average loss: nan
Iteration: 3676; Percent complete: 91.9%; Average loss: nan
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Iteration: 3678; Percent complete: 92.0%; Average loss: nan
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Iteration: 3681; Percent complete: 92.0%; Average loss: nan
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Iteration: 3686; Percent complete: 92.2%; Average loss: nan
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Iteration: 3688; Percent complete: 92.2%; Average loss: nan
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Iteration: 3691; Percent complete: 92.3%; Average loss: nan
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Iteration: 3693; Percent complete: 92.3%; Average loss: nan
Iteration: 3694; Percent complete: 92.3%; Average loss: nan
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Iteration: 3697; Percent complete: 92.4%; Average loss: nan
Iteration: 3698; Percent complete: 92.5%; Average loss: nan
Iteration: 3699; Percent complete: 92.5%; Average loss: nan
Iteration: 3700; Percent complete: 92.5%; Average loss: nan
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Iteration: 3703; Percent complete: 92.6%; Average loss: nan
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Iteration: 3705; Percent complete: 92.6%; Average loss: nan
Iteration: 3706; Percent complete: 92.7%; Average loss: nan
Iteration: 3707; Percent complete: 92.7%; Average loss: nan
Iteration: 3708; Percent complete: 92.7%; Average loss: nan
Iteration: 3709; Percent complete: 92.7%; Average loss: nan
Iteration: 3710; Percent complete: 92.8%; Average loss: nan
Iteration: 3711; Percent complete: 92.8%; Average loss: nan
Iteration: 3712; Percent complete: 92.8%; Average loss: nan
Iteration: 3713; Percent complete: 92.8%; Average loss: nan
Iteration: 3714; Percent complete: 92.8%; Average loss: nan
Iteration: 3715; Percent complete: 92.9%; Average loss: nan
Iteration: 3716; Percent complete: 92.9%; Average loss: nan
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Iteration: 3746; Percent complete: 93.7%; Average loss: nan
Iteration: 3747; Percent complete: 93.7%; Average loss: nan
Iteration: 3748; Percent complete: 93.7%; Average loss: nan
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Iteration: 3749; Percent complete: 93.7%; Average loss: nan
Iteration: 3750; Percent complete: 93.8%; Average loss: nan
Iteration: 3751; Percent complete: 93.8%; Average loss: nan
Iteration: 3752; Percent complete: 93.8%; Average loss: nan
Iteration: 3753; Percent complete: 93.8%; Average loss: nan
Iteration: 3754; Percent complete: 93.8%; Average loss: nan
Iteration: 3755; Percent complete: 93.9%; Average loss: nan
Iteration: 3756; Percent complete: 93.9%; Average loss: nan
Iteration: 3757; Percent complete: 93.9%; Average loss: nan
Iteration: 3758; Percent complete: 94.0%; Average loss: nan
Iteration: 3759; Percent complete: 94.0%; Average loss: nan
Iteration: 3760; Percent complete: 94.0%; Average loss: nan
Iteration: 3761; Percent complete: 94.0%; Average loss: nan
Iteration: 3762; Percent complete: 94.0%; Average loss: nan
Iteration: 3763; Percent complete: 94.1%; Average loss: nan
Iteration: 3764; Percent complete: 94.1%; Average loss: nan
Iteration: 3765; Percent complete: 94.1%; Average loss: nan
Iteration: 3766; Percent complete: 94.2%; Average loss: nan
Iteration: 3767; Percent complete: 94.2%; Average loss: nan
Iteration: 3768; Percent complete: 94.2%; Average loss: nan
Iteration: 3769; Percent complete: 94.2%; Average loss: nan
Iteration: 3770; Percent complete: 94.2%; Average loss: nan
Iteration: 3771; Percent complete: 94.3%; Average loss: nan
Iteration: 3772; Percent complete: 94.3%; Average loss: nan
Iteration: 3773; Percent complete: 94.3%; Average loss: nan
Iteration: 3774; Percent complete: 94.3%; Average loss: nan
Iteration: 3775; Percent complete: 94.4%; Average loss: nan
Iteration: 3776; Percent complete: 94.4%; Average loss: nan
Iteration: 3777; Percent complete: 94.4%; Average loss: nan
Iteration: 3778; Percent complete: 94.5%; Average loss: nan
Iteration: 3779; Percent complete: 94.5%; Average loss: nan
Iteration: 3780; Percent complete: 94.5%; Average loss: nan
Iteration: 3781; Percent complete: 94.5%; Average loss: nan
Iteration: 3782; Percent complete: 94.5%; Average loss: nan
Iteration: 3783; Percent complete: 94.6%; Average loss: nan
Iteration: 3784; Percent complete: 94.6%; Average loss: nan
Iteration: 3785; Percent complete: 94.6%; Average loss: nan
Iteration: 3786; Percent complete: 94.7%; Average loss: nan
Iteration: 3787; Percent complete: 94.7%; Average loss: nan
Iteration: 3788; Percent complete: 94.7%; Average loss: nan
Iteration: 3789; Percent complete: 94.7%; Average loss: nan
Iteration: 3790; Percent complete: 94.8%; Average loss: nan
Iteration: 3791; Percent complete: 94.8%; Average loss: nan
Iteration: 3792; Percent complete: 94.8%; Average loss: nan
Iteration: 3793; Percent complete: 94.8%; Average loss: nan
Iteration: 3794; Percent complete: 94.8%; Average loss: nan
Iteration: 3795; Percent complete: 94.9%; Average loss: nan
Iteration: 3796; Percent complete: 94.9%; Average loss: nan
Iteration: 3797; Percent complete: 94.9%; Average loss: nan
Iteration: 3798; Percent complete: 95.0%; Average loss: nan
Iteration: 3799; Percent complete: 95.0%; Average loss: nan
Iteration: 3800; Percent complete: 95.0%; Average loss: nan
Iteration: 3801; Percent complete: 95.0%; Average loss: nan
Iteration: 3802; Percent complete: 95.0%; Average loss: nan
Iteration: 3803; Percent complete: 95.1%; Average loss: nan
Iteration: 3804; Percent complete: 95.1%; Average loss: nan
```

```
Iteration: 3805; Percent complete: 95.1%; Average loss: nan
Iteration: 3806; Percent complete: 95.2%; Average loss: nan
Iteration: 3807; Percent complete: 95.2%; Average loss: nan
Iteration: 3808; Percent complete: 95.2%; Average loss: nan
Iteration: 3809; Percent complete: 95.2%; Average loss: nan
Iteration: 3810; Percent complete: 95.2%; Average loss: nan
Iteration: 3811; Percent complete: 95.3%; Average loss: nan
Iteration: 3812; Percent complete: 95.3%; Average loss: nan
Iteration: 3813; Percent complete: 95.3%; Average loss: nan
Iteration: 3814; Percent complete: 95.3%; Average loss: nan
Iteration: 3815; Percent complete: 95.4%; Average loss: nan
Iteration: 3816; Percent complete: 95.4%; Average loss: nan
Iteration: 3817; Percent complete: 95.4%; Average loss: nan
Iteration: 3818; Percent complete: 95.5%; Average loss: nan
Iteration: 3819; Percent complete: 95.5%; Average loss: nan
Iteration: 3820; Percent complete: 95.5%; Average loss: nan
Iteration: 3821; Percent complete: 95.5%; Average loss: nan
Iteration: 3822; Percent complete: 95.5%; Average loss: nan
Iteration: 3823; Percent complete: 95.6%; Average loss: nan
Iteration: 3824; Percent complete: 95.6%; Average loss: nan
Iteration: 3825; Percent complete: 95.6%; Average loss: nan
Iteration: 3826; Percent complete: 95.7%; Average loss: nan
Iteration: 3827; Percent complete: 95.7%; Average loss: nan
Iteration: 3828; Percent complete: 95.7%; Average loss: nan
Iteration: 3829; Percent complete: 95.7%; Average loss: nan
Iteration: 3830; Percent complete: 95.8%; Average loss: nan
Iteration: 3831; Percent complete: 95.8%; Average loss: nan
Iteration: 3832; Percent complete: 95.8%; Average loss: nan
Iteration: 3833; Percent complete: 95.8%; Average loss: nan
Iteration: 3834; Percent complete: 95.9%; Average loss: nan
Iteration: 3835; Percent complete: 95.9%; Average loss: nan
Iteration: 3836; Percent complete: 95.9%; Average loss: nan
Iteration: 3837; Percent complete: 95.9%; Average loss: nan
Iteration: 3838; Percent complete: 96.0%; Average loss: nan
Iteration: 3839; Percent complete: 96.0%; Average loss: nan
Iteration: 3840; Percent complete: 96.0%; Average loss: nan
Iteration: 3841; Percent complete: 96.0%; Average loss: nan
Iteration: 3842; Percent complete: 96.0%; Average loss: nan
Iteration: 3843; Percent complete: 96.1%; Average loss: nan
Iteration: 3844; Percent complete: 96.1%; Average loss: nan
Iteration: 3845; Percent complete: 96.1%; Average loss: nan
Iteration: 3846; Percent complete: 96.2%; Average loss: nan
Iteration: 3847; Percent complete: 96.2%; Average loss: nan
Iteration: 3848; Percent complete: 96.2%; Average loss: nan
Iteration: 3849; Percent complete: 96.2%; Average loss: nan
Iteration: 3850; Percent complete: 96.2%; Average loss: nan
Iteration: 3851; Percent complete: 96.3%; Average loss: nan
Iteration: 3852; Percent complete: 96.3%; Average loss: nan
Iteration: 3853; Percent complete: 96.3%; Average loss: nan
Iteration: 3854; Percent complete: 96.4%; Average loss: nan
Iteration: 3855; Percent complete: 96.4%; Average loss: nan
Iteration: 3856; Percent complete: 96.4%; Average loss: nan
Iteration: 3857; Percent complete: 96.4%; Average loss: nan
Iteration: 3858; Percent complete: 96.5%; Average loss: nan
Iteration: 3859; Percent complete: 96.5%; Average loss: nan
Iteration: 3860; Percent complete: 96.5%; Average loss: nan
```

```
Iteration: 3861; Percent complete: 96.5%; Average loss: nan
Iteration: 3862; Percent complete: 96.5%; Average loss: nan
Iteration: 3863; Percent complete: 96.6%; Average loss: nan
Iteration: 3864; Percent complete: 96.6%; Average loss: nan
Iteration: 3865; Percent complete: 96.6%; Average loss: nan
Iteration: 3866; Percent complete: 96.7%; Average loss: nan
Iteration: 3867; Percent complete: 96.7%; Average loss: nan
Iteration: 3868; Percent complete: 96.7%; Average loss: nan
Iteration: 3869; Percent complete: 96.7%; Average loss: nan
Iteration: 3870; Percent complete: 96.8%; Average loss: nan
Iteration: 3871; Percent complete: 96.8%; Average loss: nan
Iteration: 3872; Percent complete: 96.8%; Average loss: nan
Iteration: 3873; Percent complete: 96.8%; Average loss: nan
Iteration: 3874; Percent complete: 96.9%; Average loss: nan
Iteration: 3875; Percent complete: 96.9%; Average loss: nan
Iteration: 3876; Percent complete: 96.9%; Average loss: nan
Iteration: 3877; Percent complete: 96.9%; Average loss: nan
Iteration: 3878; Percent complete: 97.0%; Average loss: nan
Iteration: 3879; Percent complete: 97.0%; Average loss: nan
Iteration: 3880; Percent complete: 97.0%; Average loss: nan
Iteration: 3881; Percent complete: 97.0%; Average loss: nan
Iteration: 3882; Percent complete: 97.0%; Average loss: nan
Iteration: 3883; Percent complete: 97.1%; Average loss: nan
Iteration: 3884; Percent complete: 97.1%; Average loss: nan
Iteration: 3885; Percent complete: 97.1%; Average loss: nan
Iteration: 3886; Percent complete: 97.2%; Average loss: nan
Iteration: 3887; Percent complete: 97.2%; Average loss: nan
Iteration: 3888; Percent complete: 97.2%; Average loss: nan
Iteration: 3889; Percent complete: 97.2%; Average loss: nan
Iteration: 3890; Percent complete: 97.2%; Average loss: nan
Iteration: 3891; Percent complete: 97.3%; Average loss: nan
Iteration: 3892; Percent complete: 97.3%; Average loss: nan
Iteration: 3893; Percent complete: 97.3%; Average loss: nan
Iteration: 3894; Percent complete: 97.4%; Average loss: nan
Iteration: 3895; Percent complete: 97.4%; Average loss: nan
Iteration: 3896; Percent complete: 97.4%; Average loss: nan
Iteration: 3897; Percent complete: 97.4%; Average loss: nan
Iteration: 3898; Percent complete: 97.5%; Average loss: nan
Iteration: 3899; Percent complete: 97.5%; Average loss: nan
Iteration: 3900; Percent complete: 97.5%; Average loss: nan
Iteration: 3901; Percent complete: 97.5%; Average loss: nan
Iteration: 3902; Percent complete: 97.5%; Average loss: nan
Iteration: 3903; Percent complete: 97.6%; Average loss: nan
Iteration: 3904; Percent complete: 97.6%; Average loss: nan
Iteration: 3905; Percent complete: 97.6%; Average loss: nan
Iteration: 3906; Percent complete: 97.7%; Average loss: nan
Iteration: 3907; Percent complete: 97.7%; Average loss: nan
Iteration: 3908; Percent complete: 97.7%; Average loss: nan
Iteration: 3909; Percent complete: 97.7%; Average loss: nan
Iteration: 3910; Percent complete: 97.8%; Average loss: nan
Iteration: 3911; Percent complete: 97.8%; Average loss: nan
Iteration: 3912; Percent complete: 97.8%; Average loss: nan
Iteration: 3913; Percent complete: 97.8%; Average loss: nan
Iteration: 3914; Percent complete: 97.9%; Average loss: nan
Iteration: 3915; Percent complete: 97.9%; Average loss: nan
Iteration: 3916; Percent complete: 97.9%; Average loss: nan
```

```
Iteration: 3917; Percent complete: 97.9%; Average loss: nan
Iteration: 3918; Percent complete: 98.0%; Average loss: nan
Iteration: 3919; Percent complete: 98.0%; Average loss: nan
Iteration: 3920; Percent complete: 98.0%; Average loss: nan
Iteration: 3921; Percent complete: 98.0%; Average loss: nan
Iteration: 3922; Percent complete: 98.0%; Average loss: nan
Iteration: 3923; Percent complete: 98.1%; Average loss: nan
Iteration: 3924; Percent complete: 98.1%; Average loss: nan
Iteration: 3925; Percent complete: 98.1%; Average loss: nan
Iteration: 3926; Percent complete: 98.2%; Average loss: nan
Iteration: 3927; Percent complete: 98.2%; Average loss: nan
Iteration: 3928; Percent complete: 98.2%; Average loss: nan
Iteration: 3929; Percent complete: 98.2%; Average loss: nan
Iteration: 3930; Percent complete: 98.2%; Average loss: nan
Iteration: 3931; Percent complete: 98.3%; Average loss: nan
Iteration: 3932; Percent complete: 98.3%; Average loss: nan
Iteration: 3933; Percent complete: 98.3%; Average loss: nan
Iteration: 3934; Percent complete: 98.4%; Average loss: nan
Iteration: 3935; Percent complete: 98.4%; Average loss: nan
Iteration: 3936; Percent complete: 98.4%; Average loss: nan
Iteration: 3937; Percent complete: 98.4%; Average loss: nan
Iteration: 3938; Percent complete: 98.5%; Average loss: nan
Iteration: 3939; Percent complete: 98.5%; Average loss: nan
Iteration: 3940; Percent complete: 98.5%; Average loss: nan
Iteration: 3941; Percent complete: 98.5%; Average loss: nan
Iteration: 3942; Percent complete: 98.6%; Average loss: nan
Iteration: 3943; Percent complete: 98.6%; Average loss: nan
Iteration: 3944; Percent complete: 98.6%; Average loss: nan
Iteration: 3945; Percent complete: 98.6%; Average loss: nan
Iteration: 3946; Percent complete: 98.7%; Average loss: nan
Iteration: 3947; Percent complete: 98.7%; Average loss: nan
Iteration: 3948; Percent complete: 98.7%; Average loss: nan
Iteration: 3949; Percent complete: 98.7%; Average loss: nan
Iteration: 3950; Percent complete: 98.8%; Average loss: nan
Iteration: 3951; Percent complete: 98.8%; Average loss: nan
Iteration: 3952; Percent complete: 98.8%; Average loss: nan
Iteration: 3953; Percent complete: 98.8%; Average loss: nan
Iteration: 3954; Percent complete: 98.9%; Average loss: nan
Iteration: 3955; Percent complete: 98.9%; Average loss: nan
Iteration: 3956; Percent complete: 98.9%; Average loss: nan
Iteration: 3957; Percent complete: 98.9%; Average loss: nan
Iteration: 3958; Percent complete: 99.0%; Average loss: nan
Iteration: 3959; Percent complete: 99.0%; Average loss: nan
Iteration: 3960; Percent complete: 99.0%; Average loss: nan
Iteration: 3961; Percent complete: 99.0%; Average loss: nan
Iteration: 3962; Percent complete: 99.1%; Average loss: nan
Iteration: 3963; Percent complete: 99.1%; Average loss: nan
Iteration: 3964; Percent complete: 99.1%; Average loss: nan
Iteration: 3965; Percent complete: 99.1%; Average loss: nan
Iteration: 3966; Percent complete: 99.2%; Average loss: nan
Iteration: 3967; Percent complete: 99.2%; Average loss: nan
Iteration: 3968; Percent complete: 99.2%; Average loss: nan
Iteration: 3969; Percent complete: 99.2%; Average loss: nan
Iteration: 3970; Percent complete: 99.2%; Average loss: nan
Iteration: 3971; Percent complete: 99.3%; Average loss: nan
Iteration: 3972; Percent complete: 99.3%; Average loss: nan
```

```
Iteration: 3973; Percent complete: 99.3%; Average loss: nan
Iteration: 3974; Percent complete: 99.4%; Average loss: nan
Iteration: 3975; Percent complete: 99.4%; Average loss: nan
Iteration: 3976; Percent complete: 99.4%; Average loss: nan
Iteration: 3977; Percent complete: 99.4%; Average loss: nan
Iteration: 3978; Percent complete: 99.5%; Average loss: nan
Iteration: 3979; Percent complete: 99.5%; Average loss: nan
Iteration: 3980; Percent complete: 99.5%; Average loss: nan
Iteration: 3981; Percent complete: 99.5%; Average loss: nan
Iteration: 3982; Percent complete: 99.6%; Average loss: nan
Iteration: 3983; Percent complete: 99.6%; Average loss: nan
Iteration: 3984; Percent complete: 99.6%; Average loss: nan
Iteration: 3985; Percent complete: 99.6%; Average loss: nan
Iteration: 3986; Percent complete: 99.7%; Average loss: nan
Iteration: 3987; Percent complete: 99.7%; Average loss: nan
Iteration: 3988; Percent complete: 99.7%; Average loss: nan
Iteration: 3989; Percent complete: 99.7%; Average loss: nan
Iteration: 3990; Percent complete: 99.8%; Average loss: nan
Iteration: 3991; Percent complete: 99.8%; Average loss: nan
Iteration: 3992; Percent complete: 99.8%; Average loss: nan
Iteration: 3993; Percent complete: 99.8%; Average loss: nan
Iteration: 3994; Percent complete: 99.9%; Average loss: nan
Iteration: 3995; Percent complete: 99.9%; Average loss: nan
Iteration: 3996; Percent complete: 99.9%; Average loss: nan
Iteration: 3997; Percent complete: 99.9%; Average loss: nan
Iteration: 3998; Percent complete: 100.0%; Average loss: nan
Iteration: 3999; Percent complete: 100.0%; Average loss: nan
Iteration: 4000; Percent complete: 100.0%; Average loss: nan
```

Run history:

iteration	
loss	

Run summary:

iteration	4000
loss	nan

View run **silvery-sweep-2** at: https://wandb.ai/pavly-nyu/hw2/runs/4mmc1pu3

View project at: https://wandb.ai/pavly-nyu/hw2

Synced 5 W&B file(s), 0 media file(s), 0 artifact file(s) and 0 other file(s)

Find logs at: `./wandb/run-20241018_210410-4mmc1pu3/logs`

```
wandb: Agent Starting Run: zwcqrvai with config:
wandb:  batch_size: 64
wandb:  clip: 50
wandb:  decoder_learning_ratio: 6
wandb:  decoder_n_layers: 1
wandb:  dropout: 0.47718346292662506
wandb:  encoder_n_layers: 1
wandb:  hidden_size: 256
wandb:  learning_rate: 0.009054739111577274
wandb:  n_iteration: 4000
wandb:  print_every: 1
wandb:  save_every: 500
wandb:  teacher_forcing_ratio: 0.6150378059296729
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
```

Tracking run with wandb version 0.18.3

Run data is saved locally in `/scratch/poh2005/wandb/run-20241018_210556-zwcqrvai`

Syncing run **dainty-sweep-3** to Weights & Biases (docs)

Sweep page: https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View project at https://wandb.ai/pavly-nyu/hw2

View sweep at https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View run at https://wandb.ai/pavly-nyu/hw2/runs/zwcqrvai

```
Building optimizers ...
Starting Training!
Initializing ...
Training...
Iteration: 1; Percent complete: 0.0%; Average loss: 8.9782
Iteration: 2; Percent complete: 0.1%; Average loss: 6.9904
Iteration: 3; Percent complete: 0.1%; Average loss: 10.4642
Iteration: 4; Percent complete: 0.1%; Average loss: 16.3534
Iteration: 5; Percent complete: 0.1%; Average loss: 21.8443
Iteration: 6; Percent complete: 0.1%; Average loss: 24.2530
Iteration: 7; Percent complete: 0.2%; Average loss: 29.2198
Iteration: 8; Percent complete: 0.2%; Average loss: 26.1571
Iteration: 9; Percent complete: 0.2%; Average loss: 25.7723
Iteration: 10; Percent complete: 0.2%; Average loss: 26.4747
Iteration: 11; Percent complete: 0.3%; Average loss: 27.0007
Iteration: 12; Percent complete: 0.3%; Average loss: nan
Iteration: 13; Percent complete: 0.3%; Average loss: nan
Iteration: 14; Percent complete: 0.4%; Average loss: nan
Iteration: 15; Percent complete: 0.4%; Average loss: nan
Iteration: 16; Percent complete: 0.4%; Average loss: nan
Iteration: 17; Percent complete: 0.4%; Average loss: nan
Iteration: 18; Percent complete: 0.4%; Average loss: nan
Iteration: 19; Percent complete: 0.5%; Average loss: nan
Iteration: 20; Percent complete: 0.5%; Average loss: nan
Iteration: 21; Percent complete: 0.5%; Average loss: nan
Iteration: 22; Percent complete: 0.5%; Average loss: nan
Iteration: 23; Percent complete: 0.6%; Average loss: nan
Iteration: 24; Percent complete: 0.6%; Average loss: nan
Iteration: 25; Percent complete: 0.6%; Average loss: nan
Iteration: 26; Percent complete: 0.7%; Average loss: nan
Iteration: 27; Percent complete: 0.7%; Average loss: nan
Iteration: 28; Percent complete: 0.7%; Average loss: nan
Iteration: 29; Percent complete: 0.7%; Average loss: nan
Iteration: 30; Percent complete: 0.8%; Average loss: nan
Iteration: 31; Percent complete: 0.8%; Average loss: nan
Iteration: 32; Percent complete: 0.8%; Average loss: nan
Iteration: 33; Percent complete: 0.8%; Average loss: nan
Iteration: 34; Percent complete: 0.9%; Average loss: nan
Iteration: 35; Percent complete: 0.9%; Average loss: nan
Iteration: 36; Percent complete: 0.9%; Average loss: nan
Iteration: 37; Percent complete: 0.9%; Average loss: nan
Iteration: 38; Percent complete: 0.9%; Average loss: nan
Iteration: 39; Percent complete: 1.0%; Average loss: nan
Iteration: 40; Percent complete: 1.0%; Average loss: nan
Iteration: 41; Percent complete: 1.0%; Average loss: nan
Iteration: 42; Percent complete: 1.1%; Average loss: nan
Iteration: 43; Percent complete: 1.1%; Average loss: nan
Iteration: 44; Percent complete: 1.1%; Average loss: nan
Iteration: 45; Percent complete: 1.1%; Average loss: nan
Iteration: 46; Percent complete: 1.1%; Average loss: nan
Iteration: 47; Percent complete: 1.2%; Average loss: nan
Iteration: 48; Percent complete: 1.2%; Average loss: nan
Iteration: 49; Percent complete: 1.2%; Average loss: nan
Iteration: 50; Percent complete: 1.2%; Average loss: nan
Iteration: 51; Percent complete: 1.3%; Average loss: nan
Iteration: 52; Percent complete: 1.3%; Average loss: nan
```

```
Iteration: 53; Percent complete: 1.3%; Average loss: nan
Iteration: 54; Percent complete: 1.4%; Average loss: nan
Iteration: 55; Percent complete: 1.4%; Average loss: nan
Iteration: 56; Percent complete: 1.4%; Average loss: nan
Iteration: 57; Percent complete: 1.4%; Average loss: nan
Iteration: 58; Percent complete: 1.5%; Average loss: nan
Iteration: 59; Percent complete: 1.5%; Average loss: nan
Iteration: 60; Percent complete: 1.5%; Average loss: nan
Iteration: 61; Percent complete: 1.5%; Average loss: nan
Iteration: 62; Percent complete: 1.6%; Average loss: nan
Iteration: 63; Percent complete: 1.6%; Average loss: nan
Iteration: 64; Percent complete: 1.6%; Average loss: nan
Iteration: 65; Percent complete: 1.6%; Average loss: nan
Iteration: 66; Percent complete: 1.7%; Average loss: nan
Iteration: 67; Percent complete: 1.7%; Average loss: nan
Iteration: 68; Percent complete: 1.7%; Average loss: nan
Iteration: 69; Percent complete: 1.7%; Average loss: nan
Iteration: 70; Percent complete: 1.8%; Average loss: nan
Iteration: 71; Percent complete: 1.8%; Average loss: nan
Iteration: 72; Percent complete: 1.8%; Average loss: nan
Iteration: 73; Percent complete: 1.8%; Average loss: nan
Iteration: 74; Percent complete: 1.8%; Average loss: nan
Iteration: 75; Percent complete: 1.9%; Average loss: nan
Iteration: 76; Percent complete: 1.9%; Average loss: nan
Iteration: 77; Percent complete: 1.9%; Average loss: nan
Iteration: 78; Percent complete: 1.9%; Average loss: nan
Iteration: 79; Percent complete: 2.0%; Average loss: nan
Iteration: 80; Percent complete: 2.0%; Average loss: nan
Iteration: 81; Percent complete: 2.0%; Average loss: nan
Iteration: 82; Percent complete: 2.1%; Average loss: nan
Iteration: 83; Percent complete: 2.1%; Average loss: nan
Iteration: 84; Percent complete: 2.1%; Average loss: nan
Iteration: 85; Percent complete: 2.1%; Average loss: nan
Iteration: 86; Percent complete: 2.1%; Average loss: nan
Iteration: 87; Percent complete: 2.2%; Average loss: nan
Iteration: 88; Percent complete: 2.2%; Average loss: nan
Iteration: 89; Percent complete: 2.2%; Average loss: nan
Iteration: 90; Percent complete: 2.2%; Average loss: nan
Iteration: 91; Percent complete: 2.3%; Average loss: nan
Iteration: 92; Percent complete: 2.3%; Average loss: nan
Iteration: 93; Percent complete: 2.3%; Average loss: nan
Iteration: 94; Percent complete: 2.4%; Average loss: nan
Iteration: 95; Percent complete: 2.4%; Average loss: nan
Iteration: 96; Percent complete: 2.4%; Average loss: nan
Iteration: 97; Percent complete: 2.4%; Average loss: nan
Iteration: 98; Percent complete: 2.5%; Average loss: nan
Iteration: 99; Percent complete: 2.5%; Average loss: nan
Iteration: 100; Percent complete: 2.5%; Average loss: nan
Iteration: 101; Percent complete: 2.5%; Average loss: nan
Iteration: 102; Percent complete: 2.5%; Average loss: nan
Iteration: 103; Percent complete: 2.6%; Average loss: nan
Iteration: 104; Percent complete: 2.6%; Average loss: nan
Iteration: 105; Percent complete: 2.6%; Average loss: nan
Iteration: 106; Percent complete: 2.6%; Average loss: nan
Iteration: 107; Percent complete: 2.7%; Average loss: nan
Iteration: 108; Percent complete: 2.7%; Average loss: nan
```

```
Iteration: 109; Percent complete: 2.7%; Average loss: nan
Iteration: 110; Percent complete: 2.8%; Average loss: nan
Iteration: 111; Percent complete: 2.8%; Average loss: nan
Iteration: 112; Percent complete: 2.8%; Average loss: nan
Iteration: 113; Percent complete: 2.8%; Average loss: nan
Iteration: 114; Percent complete: 2.9%; Average loss: nan
Iteration: 115; Percent complete: 2.9%; Average loss: nan
Iteration: 116; Percent complete: 2.9%; Average loss: nan
Iteration: 117; Percent complete: 2.9%; Average loss: nan
Iteration: 118; Percent complete: 2.9%; Average loss: nan
Iteration: 119; Percent complete: 3.0%; Average loss: nan
Iteration: 120; Percent complete: 3.0%; Average loss: nan
Iteration: 121; Percent complete: 3.0%; Average loss: nan
Iteration: 122; Percent complete: 3.0%; Average loss: nan
Iteration: 123; Percent complete: 3.1%; Average loss: nan
Iteration: 124; Percent complete: 3.1%; Average loss: nan
Iteration: 125; Percent complete: 3.1%; Average loss: nan
Iteration: 126; Percent complete: 3.1%; Average loss: nan
Iteration: 127; Percent complete: 3.2%; Average loss: nan
Iteration: 128; Percent complete: 3.2%; Average loss: nan
Iteration: 129; Percent complete: 3.2%; Average loss: nan
Iteration: 130; Percent complete: 3.2%; Average loss: nan
Iteration: 131; Percent complete: 3.3%; Average loss: nan
Iteration: 132; Percent complete: 3.3%; Average loss: nan
Iteration: 133; Percent complete: 3.3%; Average loss: nan
Iteration: 134; Percent complete: 3.4%; Average loss: nan
Iteration: 135; Percent complete: 3.4%; Average loss: nan
Iteration: 136; Percent complete: 3.4%; Average loss: nan
Iteration: 137; Percent complete: 3.4%; Average loss: nan
Iteration: 138; Percent complete: 3.5%; Average loss: nan
Iteration: 139; Percent complete: 3.5%; Average loss: nan
Iteration: 140; Percent complete: 3.5%; Average loss: nan
Iteration: 141; Percent complete: 3.5%; Average loss: nan
Iteration: 142; Percent complete: 3.5%; Average loss: nan
Iteration: 143; Percent complete: 3.6%; Average loss: nan
Iteration: 144; Percent complete: 3.6%; Average loss: nan
Iteration: 145; Percent complete: 3.6%; Average loss: nan
Iteration: 146; Percent complete: 3.6%; Average loss: nan
Iteration: 147; Percent complete: 3.7%; Average loss: nan
Iteration: 148; Percent complete: 3.7%; Average loss: nan
Iteration: 149; Percent complete: 3.7%; Average loss: nan
Iteration: 150; Percent complete: 3.8%; Average loss: nan
Iteration: 151; Percent complete: 3.8%; Average loss: nan
Iteration: 152; Percent complete: 3.8%; Average loss: nan
Iteration: 153; Percent complete: 3.8%; Average loss: nan
Iteration: 154; Percent complete: 3.9%; Average loss: nan
Iteration: 155; Percent complete: 3.9%; Average loss: nan
Iteration: 156; Percent complete: 3.9%; Average loss: nan
Iteration: 157; Percent complete: 3.9%; Average loss: nan
Iteration: 158; Percent complete: 4.0%; Average loss: nan
Iteration: 159; Percent complete: 4.0%; Average loss: nan
Iteration: 160; Percent complete: 4.0%; Average loss: nan
Iteration: 161; Percent complete: 4.0%; Average loss: nan
Iteration: 162; Percent complete: 4.0%; Average loss: nan
Iteration: 163; Percent complete: 4.1%; Average loss: nan
Iteration: 164; Percent complete: 4.1%; Average loss: nan
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Iteration: 165; Percent complete: 4.1%; Average loss: nan
Iteration: 166; Percent complete: 4.2%; Average loss: nan
Iteration: 167; Percent complete: 4.2%; Average loss: nan
Iteration: 168; Percent complete: 4.2%; Average loss: nan
Iteration: 169; Percent complete: 4.2%; Average loss: nan
Iteration: 170; Percent complete: 4.2%; Average loss: nan
Iteration: 171; Percent complete: 4.3%; Average loss: nan
Iteration: 172; Percent complete: 4.3%; Average loss: nan
Iteration: 173; Percent complete: 4.3%; Average loss: nan
Iteration: 174; Percent complete: 4.3%; Average loss: nan
Iteration: 175; Percent complete: 4.4%; Average loss: nan
Iteration: 176; Percent complete: 4.4%; Average loss: nan
Iteration: 177; Percent complete: 4.4%; Average loss: nan
Iteration: 178; Percent complete: 4.5%; Average loss: nan
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Iteration: 180; Percent complete: 4.5%; Average loss: nan
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Iteration: 183; Percent complete: 4.6%; Average loss: nan
Iteration: 184; Percent complete: 4.6%; Average loss: nan
Iteration: 185; Percent complete: 4.6%; Average loss: nan
Iteration: 186; Percent complete: 4.7%; Average loss: nan
Iteration: 187; Percent complete: 4.7%; Average loss: nan
Iteration: 188; Percent complete: 4.7%; Average loss: nan
Iteration: 189; Percent complete: 4.7%; Average loss: nan
Iteration: 190; Percent complete: 4.8%; Average loss: nan
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Iteration: 197; Percent complete: 4.9%; Average loss: nan
Iteration: 198; Percent complete: 5.0%; Average loss: nan
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Iteration: 217; Percent complete: 5.4%; Average loss: nan
Iteration: 218; Percent complete: 5.5%; Average loss: nan
Iteration: 219; Percent complete: 5.5%; Average loss: nan
Iteration: 220; Percent complete: 5.5%; Average loss: nan
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Iteration: 221; Percent complete: 5.5%; Average loss: nan
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Iteration: 223; Percent complete: 5.6%; Average loss: nan
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Iteration: 265; Percent complete: 6.6%; Average loss: nan
Iteration: 266; Percent complete: 6.7%; Average loss: nan
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Iteration: 269; Percent complete: 6.7%; Average loss: nan
Iteration: 270; Percent complete: 6.8%; Average loss: nan
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Iteration: 273; Percent complete: 6.8%; Average loss: nan
Iteration: 274; Percent complete: 6.9%; Average loss: nan
Iteration: 275; Percent complete: 6.9%; Average loss: nan
Iteration: 276; Percent complete: 6.9%; Average loss: nan
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Iteration: 277; Percent complete: 6.9%; Average loss: nan
Iteration: 278; Percent complete: 7.0%; Average loss: nan
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Iteration: 287; Percent complete: 7.2%; Average loss: nan
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Iteration: 295; Percent complete: 7.4%; Average loss: nan
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Iteration: 299; Percent complete: 7.5%; Average loss: nan
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Iteration: 307; Percent complete: 7.7%; Average loss: nan
Iteration: 308; Percent complete: 7.7%; Average loss: nan
Iteration: 309; Percent complete: 7.7%; Average loss: nan
Iteration: 310; Percent complete: 7.8%; Average loss: nan
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Iteration: 314; Percent complete: 7.8%; Average loss: nan
Iteration: 315; Percent complete: 7.9%; Average loss: nan
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Iteration: 317; Percent complete: 7.9%; Average loss: nan
Iteration: 318; Percent complete: 8.0%; Average loss: nan
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Iteration: 326; Percent complete: 8.2%; Average loss: nan
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Iteration: 329; Percent complete: 8.2%; Average loss: nan
Iteration: 330; Percent complete: 8.2%; Average loss: nan
Iteration: 331; Percent complete: 8.3%; Average loss: nan
Iteration: 332; Percent complete: 8.3%; Average loss: nan
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Iteration: 333; Percent complete: 8.3%; Average loss: nan
Iteration: 334; Percent complete: 8.3%; Average loss: nan
Iteration: 335; Percent complete: 8.4%; Average loss: nan
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Iteration: 338; Percent complete: 8.5%; Average loss: nan
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Iteration: 347; Percent complete: 8.7%; Average loss: nan
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Iteration: 349; Percent complete: 8.7%; Average loss: nan
Iteration: 350; Percent complete: 8.8%; Average loss: nan
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Iteration: 355; Percent complete: 8.9%; Average loss: nan
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Iteration: 359; Percent complete: 9.0%; Average loss: nan
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Iteration: 366; Percent complete: 9.2%; Average loss: nan
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Iteration: 371; Percent complete: 9.3%; Average loss: nan
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Iteration: 375; Percent complete: 9.4%; Average loss: nan
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Iteration: 377; Percent complete: 9.4%; Average loss: nan
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Iteration: 379; Percent complete: 9.5%; Average loss: nan
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Iteration: 385; Percent complete: 9.6%; Average loss: nan
Iteration: 386; Percent complete: 9.7%; Average loss: nan
Iteration: 387; Percent complete: 9.7%; Average loss: nan
Iteration: 388; Percent complete: 9.7%; Average loss: nan
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Iteration: 389; Percent complete: 9.7%; Average loss: nan
Iteration: 390; Percent complete: 9.8%; Average loss: nan
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Iteration: 439; Percent complete: 11.0%; Average loss: nan
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Iteration: 445; Percent complete: 11.1%; Average loss: nan
Iteration: 446; Percent complete: 11.2%; Average loss: nan
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Iteration: 499; Percent complete: 12.5%; Average loss: nan
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Iteration: 501; Percent complete: 12.5%; Average loss: nan
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Iteration: 554; Percent complete: 13.9%; Average loss: nan
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Iteration: 556; Percent complete: 13.9%; Average loss: nan
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Iteration: 557; Percent complete: 13.9%; Average loss: nan
Iteration: 558; Percent complete: 14.0%; Average loss: nan
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Iteration: 587; Percent complete: 14.7%; Average loss: nan
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Iteration: 598; Percent complete: 14.9%; Average loss: nan
Iteration: 599; Percent complete: 15.0%; Average loss: nan
Iteration: 600; Percent complete: 15.0%; Average loss: nan
Iteration: 601; Percent complete: 15.0%; Average loss: nan
Iteration: 602; Percent complete: 15.0%; Average loss: nan
Iteration: 603; Percent complete: 15.1%; Average loss: nan
Iteration: 604; Percent complete: 15.1%; Average loss: nan
Iteration: 605; Percent complete: 15.1%; Average loss: nan
Iteration: 606; Percent complete: 15.2%; Average loss: nan
Iteration: 607; Percent complete: 15.2%; Average loss: nan
Iteration: 608; Percent complete: 15.2%; Average loss: nan
Iteration: 609; Percent complete: 15.2%; Average loss: nan
Iteration: 610; Percent complete: 15.2%; Average loss: nan
Iteration: 611; Percent complete: 15.3%; Average loss: nan
Iteration: 612; Percent complete: 15.3%; Average loss: nan
```

```
Iteration: 613; Percent complete: 15.3%; Average loss: nan
Iteration: 614; Percent complete: 15.3%; Average loss: nan
Iteration: 615; Percent complete: 15.4%; Average loss: nan
Iteration: 616; Percent complete: 15.4%; Average loss: nan
Iteration: 617; Percent complete: 15.4%; Average loss: nan
Iteration: 618; Percent complete: 15.4%; Average loss: nan
Iteration: 619; Percent complete: 15.5%; Average loss: nan
Iteration: 620; Percent complete: 15.5%; Average loss: nan
Iteration: 621; Percent complete: 15.5%; Average loss: nan
Iteration: 622; Percent complete: 15.6%; Average loss: nan
Iteration: 623; Percent complete: 15.6%; Average loss: nan
Iteration: 624; Percent complete: 15.6%; Average loss: nan
Iteration: 625; Percent complete: 15.6%; Average loss: nan
Iteration: 626; Percent complete: 15.7%; Average loss: nan
Iteration: 627; Percent complete: 15.7%; Average loss: nan
Iteration: 628; Percent complete: 15.7%; Average loss: nan
Iteration: 629; Percent complete: 15.7%; Average loss: nan
Iteration: 630; Percent complete: 15.8%; Average loss: nan
Iteration: 631; Percent complete: 15.8%; Average loss: nan
Iteration: 632; Percent complete: 15.8%; Average loss: nan
Iteration: 633; Percent complete: 15.8%; Average loss: nan
Iteration: 634; Percent complete: 15.8%; Average loss: nan
Iteration: 635; Percent complete: 15.9%; Average loss: nan
Iteration: 636; Percent complete: 15.9%; Average loss: nan
Iteration: 637; Percent complete: 15.9%; Average loss: nan
Iteration: 638; Percent complete: 16.0%; Average loss: nan
Iteration: 639; Percent complete: 16.0%; Average loss: nan
Iteration: 640; Percent complete: 16.0%; Average loss: nan
Iteration: 641; Percent complete: 16.0%; Average loss: nan
Iteration: 642; Percent complete: 16.1%; Average loss: nan
Iteration: 643; Percent complete: 16.1%; Average loss: nan
Iteration: 644; Percent complete: 16.1%; Average loss: nan
Iteration: 645; Percent complete: 16.1%; Average loss: nan
Iteration: 646; Percent complete: 16.2%; Average loss: nan
Iteration: 647; Percent complete: 16.2%; Average loss: nan
Iteration: 648; Percent complete: 16.2%; Average loss: nan
Iteration: 649; Percent complete: 16.2%; Average loss: nan
Iteration: 650; Percent complete: 16.2%; Average loss: nan
Iteration: 651; Percent complete: 16.3%; Average loss: nan
Iteration: 652; Percent complete: 16.3%; Average loss: nan
Iteration: 653; Percent complete: 16.3%; Average loss: nan
Iteration: 654; Percent complete: 16.4%; Average loss: nan
Iteration: 655; Percent complete: 16.4%; Average loss: nan
Iteration: 656; Percent complete: 16.4%; Average loss: nan
Iteration: 657; Percent complete: 16.4%; Average loss: nan
Iteration: 658; Percent complete: 16.4%; Average loss: nan
Iteration: 659; Percent complete: 16.5%; Average loss: nan
Iteration: 660; Percent complete: 16.5%; Average loss: nan
Iteration: 661; Percent complete: 16.5%; Average loss: nan
Iteration: 662; Percent complete: 16.6%; Average loss: nan
Iteration: 663; Percent complete: 16.6%; Average loss: nan
Iteration: 664; Percent complete: 16.6%; Average loss: nan
Iteration: 665; Percent complete: 16.6%; Average loss: nan
Iteration: 666; Percent complete: 16.7%; Average loss: nan
Iteration: 667; Percent complete: 16.7%; Average loss: nan
Iteration: 668; Percent complete: 16.7%; Average loss: nan
```

```
Iteration: 669; Percent complete: 16.7%; Average loss: nan
Iteration: 670; Percent complete: 16.8%; Average loss: nan
Iteration: 671; Percent complete: 16.8%; Average loss: nan
Iteration: 672; Percent complete: 16.8%; Average loss: nan
Iteration: 673; Percent complete: 16.8%; Average loss: nan
Iteration: 674; Percent complete: 16.9%; Average loss: nan
Iteration: 675; Percent complete: 16.9%; Average loss: nan
Iteration: 676; Percent complete: 16.9%; Average loss: nan
Iteration: 677; Percent complete: 16.9%; Average loss: nan
Iteration: 678; Percent complete: 17.0%; Average loss: nan
Iteration: 679; Percent complete: 17.0%; Average loss: nan
Iteration: 680; Percent complete: 17.0%; Average loss: nan
Iteration: 681; Percent complete: 17.0%; Average loss: nan
Iteration: 682; Percent complete: 17.1%; Average loss: nan
Iteration: 683; Percent complete: 17.1%; Average loss: nan
Iteration: 684; Percent complete: 17.1%; Average loss: nan
Iteration: 685; Percent complete: 17.1%; Average loss: nan
Iteration: 686; Percent complete: 17.2%; Average loss: nan
Iteration: 687; Percent complete: 17.2%; Average loss: nan
Iteration: 688; Percent complete: 17.2%; Average loss: nan
Iteration: 689; Percent complete: 17.2%; Average loss: nan
Iteration: 690; Percent complete: 17.2%; Average loss: nan
Iteration: 691; Percent complete: 17.3%; Average loss: nan
Iteration: 692; Percent complete: 17.3%; Average loss: nan
Iteration: 693; Percent complete: 17.3%; Average loss: nan
Iteration: 694; Percent complete: 17.3%; Average loss: nan
Iteration: 695; Percent complete: 17.4%; Average loss: nan
Iteration: 696; Percent complete: 17.4%; Average loss: nan
Iteration: 697; Percent complete: 17.4%; Average loss: nan
Iteration: 698; Percent complete: 17.4%; Average loss: nan
Iteration: 699; Percent complete: 17.5%; Average loss: nan
Iteration: 700; Percent complete: 17.5%; Average loss: nan
Iteration: 701; Percent complete: 17.5%; Average loss: nan
Iteration: 702; Percent complete: 17.5%; Average loss: nan
Iteration: 703; Percent complete: 17.6%; Average loss: nan
Iteration: 704; Percent complete: 17.6%; Average loss: nan
Iteration: 705; Percent complete: 17.6%; Average loss: nan
Iteration: 706; Percent complete: 17.6%; Average loss: nan
Iteration: 707; Percent complete: 17.7%; Average loss: nan
Iteration: 708; Percent complete: 17.7%; Average loss: nan
Iteration: 709; Percent complete: 17.7%; Average loss: nan
Iteration: 710; Percent complete: 17.8%; Average loss: nan
Iteration: 711; Percent complete: 17.8%; Average loss: nan
Iteration: 712; Percent complete: 17.8%; Average loss: nan
Iteration: 713; Percent complete: 17.8%; Average loss: nan
Iteration: 714; Percent complete: 17.8%; Average loss: nan
Iteration: 715; Percent complete: 17.9%; Average loss: nan
Iteration: 716; Percent complete: 17.9%; Average loss: nan
Iteration: 717; Percent complete: 17.9%; Average loss: nan
Iteration: 718; Percent complete: 17.9%; Average loss: nan
Iteration: 719; Percent complete: 18.0%; Average loss: nan
Iteration: 720; Percent complete: 18.0%; Average loss: nan
Iteration: 721; Percent complete: 18.0%; Average loss: nan
Iteration: 722; Percent complete: 18.1%; Average loss: nan
Iteration: 723; Percent complete: 18.1%; Average loss: nan
Iteration: 724; Percent complete: 18.1%; Average loss: nan
```

```
Iteration: 725; Percent complete: 18.1%; Average loss: nan
Iteration: 726; Percent complete: 18.1%; Average loss: nan
Iteration: 727; Percent complete: 18.2%; Average loss: nan
Iteration: 728; Percent complete: 18.2%; Average loss: nan
Iteration: 729; Percent complete: 18.2%; Average loss: nan
Iteration: 730; Percent complete: 18.2%; Average loss: nan
Iteration: 731; Percent complete: 18.3%; Average loss: nan
Iteration: 732; Percent complete: 18.3%; Average loss: nan
Iteration: 733; Percent complete: 18.3%; Average loss: nan
Iteration: 734; Percent complete: 18.4%; Average loss: nan
Iteration: 735; Percent complete: 18.4%; Average loss: nan
Iteration: 736; Percent complete: 18.4%; Average loss: nan
Iteration: 737; Percent complete: 18.4%; Average loss: nan
Iteration: 738; Percent complete: 18.4%; Average loss: nan
Iteration: 739; Percent complete: 18.5%; Average loss: nan
Iteration: 740; Percent complete: 18.5%; Average loss: nan
Iteration: 741; Percent complete: 18.5%; Average loss: nan
Iteration: 742; Percent complete: 18.6%; Average loss: nan
Iteration: 743; Percent complete: 18.6%; Average loss: nan
Iteration: 744; Percent complete: 18.6%; Average loss: nan
Iteration: 745; Percent complete: 18.6%; Average loss: nan
Iteration: 746; Percent complete: 18.6%; Average loss: nan
Iteration: 747; Percent complete: 18.7%; Average loss: nan
Iteration: 748; Percent complete: 18.7%; Average loss: nan
Iteration: 749; Percent complete: 18.7%; Average loss: nan
Iteration: 750; Percent complete: 18.8%; Average loss: nan
Iteration: 751; Percent complete: 18.8%; Average loss: nan
Iteration: 752; Percent complete: 18.8%; Average loss: nan
Iteration: 753; Percent complete: 18.8%; Average loss: nan
Iteration: 754; Percent complete: 18.9%; Average loss: nan
Iteration: 755; Percent complete: 18.9%; Average loss: nan
Iteration: 756; Percent complete: 18.9%; Average loss: nan
Iteration: 757; Percent complete: 18.9%; Average loss: nan
Iteration: 758; Percent complete: 18.9%; Average loss: nan
Iteration: 759; Percent complete: 19.0%; Average loss: nan
Iteration: 760; Percent complete: 19.0%; Average loss: nan
Iteration: 761; Percent complete: 19.0%; Average loss: nan
Iteration: 762; Percent complete: 19.1%; Average loss: nan
Iteration: 763; Percent complete: 19.1%; Average loss: nan
Iteration: 764; Percent complete: 19.1%; Average loss: nan
Iteration: 765; Percent complete: 19.1%; Average loss: nan
Iteration: 766; Percent complete: 19.1%; Average loss: nan
Iteration: 767; Percent complete: 19.2%; Average loss: nan
Iteration: 768; Percent complete: 19.2%; Average loss: nan
Iteration: 769; Percent complete: 19.2%; Average loss: nan
Iteration: 770; Percent complete: 19.2%; Average loss: nan
Iteration: 771; Percent complete: 19.3%; Average loss: nan
Iteration: 772; Percent complete: 19.3%; Average loss: nan
Iteration: 773; Percent complete: 19.3%; Average loss: nan
Iteration: 774; Percent complete: 19.4%; Average loss: nan
Iteration: 775; Percent complete: 19.4%; Average loss: nan
Iteration: 776; Percent complete: 19.4%; Average loss: nan
Iteration: 777; Percent complete: 19.4%; Average loss: nan
Iteration: 778; Percent complete: 19.4%; Average loss: nan
Iteration: 779; Percent complete: 19.5%; Average loss: nan
Iteration: 780; Percent complete: 19.5%; Average loss: nan
```

```
Iteration: 781; Percent complete: 19.5%; Average loss: nan
Iteration: 782; Percent complete: 19.6%; Average loss: nan
Iteration: 783; Percent complete: 19.6%; Average loss: nan
Iteration: 784; Percent complete: 19.6%; Average loss: nan
Iteration: 785; Percent complete: 19.6%; Average loss: nan
Iteration: 786; Percent complete: 19.7%; Average loss: nan
Iteration: 787; Percent complete: 19.7%; Average loss: nan
Iteration: 788; Percent complete: 19.7%; Average loss: nan
Iteration: 789; Percent complete: 19.7%; Average loss: nan
Iteration: 790; Percent complete: 19.8%; Average loss: nan
Iteration: 791; Percent complete: 19.8%; Average loss: nan
Iteration: 792; Percent complete: 19.8%; Average loss: nan
Iteration: 793; Percent complete: 19.8%; Average loss: nan
Iteration: 794; Percent complete: 19.9%; Average loss: nan
Iteration: 795; Percent complete: 19.9%; Average loss: nan
Iteration: 796; Percent complete: 19.9%; Average loss: nan
Iteration: 797; Percent complete: 19.9%; Average loss: nan
Iteration: 798; Percent complete: 20.0%; Average loss: nan
Iteration: 799; Percent complete: 20.0%; Average loss: nan
Iteration: 800; Percent complete: 20.0%; Average loss: nan
Iteration: 801; Percent complete: 20.0%; Average loss: nan
Iteration: 802; Percent complete: 20.1%; Average loss: nan
Iteration: 803; Percent complete: 20.1%; Average loss: nan
Iteration: 804; Percent complete: 20.1%; Average loss: nan
Iteration: 805; Percent complete: 20.1%; Average loss: nan
Iteration: 806; Percent complete: 20.2%; Average loss: nan
Iteration: 807; Percent complete: 20.2%; Average loss: nan
Iteration: 808; Percent complete: 20.2%; Average loss: nan
Iteration: 809; Percent complete: 20.2%; Average loss: nan
Iteration: 810; Percent complete: 20.2%; Average loss: nan
Iteration: 811; Percent complete: 20.3%; Average loss: nan
Iteration: 812; Percent complete: 20.3%; Average loss: nan
Iteration: 813; Percent complete: 20.3%; Average loss: nan
Iteration: 814; Percent complete: 20.3%; Average loss: nan
Iteration: 815; Percent complete: 20.4%; Average loss: nan
Iteration: 816; Percent complete: 20.4%; Average loss: nan
Iteration: 817; Percent complete: 20.4%; Average loss: nan
Iteration: 818; Percent complete: 20.4%; Average loss: nan
Iteration: 819; Percent complete: 20.5%; Average loss: nan
Iteration: 820; Percent complete: 20.5%; Average loss: nan
Iteration: 821; Percent complete: 20.5%; Average loss: nan
Iteration: 822; Percent complete: 20.5%; Average loss: nan
Iteration: 823; Percent complete: 20.6%; Average loss: nan
Iteration: 824; Percent complete: 20.6%; Average loss: nan
Iteration: 825; Percent complete: 20.6%; Average loss: nan
Iteration: 826; Percent complete: 20.6%; Average loss: nan
Iteration: 827; Percent complete: 20.7%; Average loss: nan
Iteration: 828; Percent complete: 20.7%; Average loss: nan
Iteration: 829; Percent complete: 20.7%; Average loss: nan
Iteration: 830; Percent complete: 20.8%; Average loss: nan
Iteration: 831; Percent complete: 20.8%; Average loss: nan
Iteration: 832; Percent complete: 20.8%; Average loss: nan
Iteration: 833; Percent complete: 20.8%; Average loss: nan
Iteration: 834; Percent complete: 20.8%; Average loss: nan
Iteration: 835; Percent complete: 20.9%; Average loss: nan
Iteration: 836; Percent complete: 20.9%; Average loss: nan
```

```
Iteration: 837; Percent complete: 20.9%; Average loss: nan
Iteration: 838; Percent complete: 20.9%; Average loss: nan
Iteration: 839; Percent complete: 21.0%; Average loss: nan
Iteration: 840; Percent complete: 21.0%; Average loss: nan
Iteration: 841; Percent complete: 21.0%; Average loss: nan
Iteration: 842; Percent complete: 21.1%; Average loss: nan
Iteration: 843; Percent complete: 21.1%; Average loss: nan
Iteration: 844; Percent complete: 21.1%; Average loss: nan
Iteration: 845; Percent complete: 21.1%; Average loss: nan
Iteration: 846; Percent complete: 21.1%; Average loss: nan
Iteration: 847; Percent complete: 21.2%; Average loss: nan
Iteration: 848; Percent complete: 21.2%; Average loss: nan
Iteration: 849; Percent complete: 21.2%; Average loss: nan
Iteration: 850; Percent complete: 21.2%; Average loss: nan
Iteration: 851; Percent complete: 21.3%; Average loss: nan
Iteration: 852; Percent complete: 21.3%; Average loss: nan
Iteration: 853; Percent complete: 21.3%; Average loss: nan
Iteration: 854; Percent complete: 21.3%; Average loss: nan
Iteration: 855; Percent complete: 21.4%; Average loss: nan
Iteration: 856; Percent complete: 21.4%; Average loss: nan
Iteration: 857; Percent complete: 21.4%; Average loss: nan
Iteration: 858; Percent complete: 21.4%; Average loss: nan
Iteration: 859; Percent complete: 21.5%; Average loss: nan
Iteration: 860; Percent complete: 21.5%; Average loss: nan
Iteration: 861; Percent complete: 21.5%; Average loss: nan
Iteration: 862; Percent complete: 21.6%; Average loss: nan
Iteration: 863; Percent complete: 21.6%; Average loss: nan
Iteration: 864; Percent complete: 21.6%; Average loss: nan
Iteration: 865; Percent complete: 21.6%; Average loss: nan
Iteration: 866; Percent complete: 21.6%; Average loss: nan
Iteration: 867; Percent complete: 21.7%; Average loss: nan
Iteration: 868; Percent complete: 21.7%; Average loss: nan
Iteration: 869; Percent complete: 21.7%; Average loss: nan
Iteration: 870; Percent complete: 21.8%; Average loss: nan
Iteration: 871; Percent complete: 21.8%; Average loss: nan
Iteration: 872; Percent complete: 21.8%; Average loss: nan
Iteration: 873; Percent complete: 21.8%; Average loss: nan
Iteration: 874; Percent complete: 21.9%; Average loss: nan
Iteration: 875; Percent complete: 21.9%; Average loss: nan
Iteration: 876; Percent complete: 21.9%; Average loss: nan
Iteration: 877; Percent complete: 21.9%; Average loss: nan
Iteration: 878; Percent complete: 21.9%; Average loss: nan
Iteration: 879; Percent complete: 22.0%; Average loss: nan
Iteration: 880; Percent complete: 22.0%; Average loss: nan
Iteration: 881; Percent complete: 22.0%; Average loss: nan
Iteration: 882; Percent complete: 22.1%; Average loss: nan
Iteration: 883; Percent complete: 22.1%; Average loss: nan
Iteration: 884; Percent complete: 22.1%; Average loss: nan
Iteration: 885; Percent complete: 22.1%; Average loss: nan
Iteration: 886; Percent complete: 22.1%; Average loss: nan
Iteration: 887; Percent complete: 22.2%; Average loss: nan
Iteration: 888; Percent complete: 22.2%; Average loss: nan
Iteration: 889; Percent complete: 22.2%; Average loss: nan
Iteration: 890; Percent complete: 22.2%; Average loss: nan
Iteration: 891; Percent complete: 22.3%; Average loss: nan
Iteration: 892; Percent complete: 22.3%; Average loss: nan
```

```
Iteration: 893; Percent complete: 22.3%; Average loss: nan
Iteration: 894; Percent complete: 22.4%; Average loss: nan
Iteration: 895; Percent complete: 22.4%; Average loss: nan
Iteration: 896; Percent complete: 22.4%; Average loss: nan
Iteration: 897; Percent complete: 22.4%; Average loss: nan
Iteration: 898; Percent complete: 22.4%; Average loss: nan
Iteration: 899; Percent complete: 22.5%; Average loss: nan
Iteration: 900; Percent complete: 22.5%; Average loss: nan
Iteration: 901; Percent complete: 22.5%; Average loss: nan
Iteration: 902; Percent complete: 22.6%; Average loss: nan
Iteration: 903; Percent complete: 22.6%; Average loss: nan
Iteration: 904; Percent complete: 22.6%; Average loss: nan
Iteration: 905; Percent complete: 22.6%; Average loss: nan
Iteration: 906; Percent complete: 22.7%; Average loss: nan
Iteration: 907; Percent complete: 22.7%; Average loss: nan
Iteration: 908; Percent complete: 22.7%; Average loss: nan
Iteration: 909; Percent complete: 22.7%; Average loss: nan
Iteration: 910; Percent complete: 22.8%; Average loss: nan
Iteration: 911; Percent complete: 22.8%; Average loss: nan
Iteration: 912; Percent complete: 22.8%; Average loss: nan
Iteration: 913; Percent complete: 22.8%; Average loss: nan
Iteration: 914; Percent complete: 22.9%; Average loss: nan
Iteration: 915; Percent complete: 22.9%; Average loss: nan
Iteration: 916; Percent complete: 22.9%; Average loss: nan
Iteration: 917; Percent complete: 22.9%; Average loss: nan
Iteration: 918; Percent complete: 22.9%; Average loss: nan
Iteration: 919; Percent complete: 23.0%; Average loss: nan
Iteration: 920; Percent complete: 23.0%; Average loss: nan
Iteration: 921; Percent complete: 23.0%; Average loss: nan
Iteration: 922; Percent complete: 23.1%; Average loss: nan
Iteration: 923; Percent complete: 23.1%; Average loss: nan
Iteration: 924; Percent complete: 23.1%; Average loss: nan
Iteration: 925; Percent complete: 23.1%; Average loss: nan
Iteration: 926; Percent complete: 23.2%; Average loss: nan
Iteration: 927; Percent complete: 23.2%; Average loss: nan
Iteration: 928; Percent complete: 23.2%; Average loss: nan
Iteration: 929; Percent complete: 23.2%; Average loss: nan
Iteration: 930; Percent complete: 23.2%; Average loss: nan
Iteration: 931; Percent complete: 23.3%; Average loss: nan
Iteration: 932; Percent complete: 23.3%; Average loss: nan
Iteration: 933; Percent complete: 23.3%; Average loss: nan
Iteration: 934; Percent complete: 23.4%; Average loss: nan
Iteration: 935; Percent complete: 23.4%; Average loss: nan
Iteration: 936; Percent complete: 23.4%; Average loss: nan
Iteration: 937; Percent complete: 23.4%; Average loss: nan
Iteration: 938; Percent complete: 23.4%; Average loss: nan
Iteration: 939; Percent complete: 23.5%; Average loss: nan
Iteration: 940; Percent complete: 23.5%; Average loss: nan
Iteration: 941; Percent complete: 23.5%; Average loss: nan
Iteration: 942; Percent complete: 23.5%; Average loss: nan
Iteration: 943; Percent complete: 23.6%; Average loss: nan
Iteration: 944; Percent complete: 23.6%; Average loss: nan
Iteration: 945; Percent complete: 23.6%; Average loss: nan
Iteration: 946; Percent complete: 23.6%; Average loss: nan
Iteration: 947; Percent complete: 23.7%; Average loss: nan
Iteration: 948; Percent complete: 23.7%; Average loss: nan
```

```
Iteration: 949; Percent complete: 23.7%; Average loss: nan
Iteration: 950; Percent complete: 23.8%; Average loss: nan
Iteration: 951; Percent complete: 23.8%; Average loss: nan
Iteration: 952; Percent complete: 23.8%; Average loss: nan
Iteration: 953; Percent complete: 23.8%; Average loss: nan
Iteration: 954; Percent complete: 23.8%; Average loss: nan
Iteration: 955; Percent complete: 23.9%; Average loss: nan
Iteration: 956; Percent complete: 23.9%; Average loss: nan
Iteration: 957; Percent complete: 23.9%; Average loss: nan
Iteration: 958; Percent complete: 23.9%; Average loss: nan
Iteration: 959; Percent complete: 24.0%; Average loss: nan
Iteration: 960; Percent complete: 24.0%; Average loss: nan
Iteration: 961; Percent complete: 24.0%; Average loss: nan
Iteration: 962; Percent complete: 24.1%; Average loss: nan
Iteration: 963; Percent complete: 24.1%; Average loss: nan
Iteration: 964; Percent complete: 24.1%; Average loss: nan
Iteration: 965; Percent complete: 24.1%; Average loss: nan
Iteration: 966; Percent complete: 24.1%; Average loss: nan
Iteration: 967; Percent complete: 24.2%; Average loss: nan
Iteration: 968; Percent complete: 24.2%; Average loss: nan
Iteration: 969; Percent complete: 24.2%; Average loss: nan
Iteration: 970; Percent complete: 24.2%; Average loss: nan
Iteration: 971; Percent complete: 24.3%; Average loss: nan
Iteration: 972; Percent complete: 24.3%; Average loss: nan
Iteration: 973; Percent complete: 24.3%; Average loss: nan
Iteration: 974; Percent complete: 24.3%; Average loss: nan
Iteration: 975; Percent complete: 24.4%; Average loss: nan
Iteration: 976; Percent complete: 24.4%; Average loss: nan
Iteration: 977; Percent complete: 24.4%; Average loss: nan
Iteration: 978; Percent complete: 24.4%; Average loss: nan
Iteration: 979; Percent complete: 24.5%; Average loss: nan
Iteration: 980; Percent complete: 24.5%; Average loss: nan
Iteration: 981; Percent complete: 24.5%; Average loss: nan
Iteration: 982; Percent complete: 24.6%; Average loss: nan
Iteration: 983; Percent complete: 24.6%; Average loss: nan
Iteration: 984; Percent complete: 24.6%; Average loss: nan
Iteration: 985; Percent complete: 24.6%; Average loss: nan
Iteration: 986; Percent complete: 24.6%; Average loss: nan
Iteration: 987; Percent complete: 24.7%; Average loss: nan
Iteration: 988; Percent complete: 24.7%; Average loss: nan
Iteration: 989; Percent complete: 24.7%; Average loss: nan
Iteration: 990; Percent complete: 24.8%; Average loss: nan
Iteration: 991; Percent complete: 24.8%; Average loss: nan
Iteration: 992; Percent complete: 24.8%; Average loss: nan
Iteration: 993; Percent complete: 24.8%; Average loss: nan
Iteration: 994; Percent complete: 24.9%; Average loss: nan
Iteration: 995; Percent complete: 24.9%; Average loss: nan
Iteration: 996; Percent complete: 24.9%; Average loss: nan
Iteration: 997; Percent complete: 24.9%; Average loss: nan
Iteration: 998; Percent complete: 24.9%; Average loss: nan
Iteration: 999; Percent complete: 25.0%; Average loss: nan
Iteration: 1000; Percent complete: 25.0%; Average loss: nan
Iteration: 1001; Percent complete: 25.0%; Average loss: nan
Iteration: 1002; Percent complete: 25.1%; Average loss: nan
Iteration: 1003; Percent complete: 25.1%; Average loss: nan
Iteration: 1004; Percent complete: 25.1%; Average loss: nan
```

```
Iteration: 1005; Percent complete: 25.1%; Average loss: nan
Iteration: 1006; Percent complete: 25.1%; Average loss: nan
Iteration: 1007; Percent complete: 25.2%; Average loss: nan
Iteration: 1008; Percent complete: 25.2%; Average loss: nan
Iteration: 1009; Percent complete: 25.2%; Average loss: nan
Iteration: 1010; Percent complete: 25.2%; Average loss: nan
Iteration: 1011; Percent complete: 25.3%; Average loss: nan
Iteration: 1012; Percent complete: 25.3%; Average loss: nan
Iteration: 1013; Percent complete: 25.3%; Average loss: nan
Iteration: 1014; Percent complete: 25.4%; Average loss: nan
Iteration: 1015; Percent complete: 25.4%; Average loss: nan
Iteration: 1016; Percent complete: 25.4%; Average loss: nan
Iteration: 1017; Percent complete: 25.4%; Average loss: nan
Iteration: 1018; Percent complete: 25.4%; Average loss: nan
Iteration: 1019; Percent complete: 25.5%; Average loss: nan
Iteration: 1020; Percent complete: 25.5%; Average loss: nan
Iteration: 1021; Percent complete: 25.5%; Average loss: nan
Iteration: 1022; Percent complete: 25.6%; Average loss: nan
Iteration: 1023; Percent complete: 25.6%; Average loss: nan
Iteration: 1024; Percent complete: 25.6%; Average loss: nan
Iteration: 1025; Percent complete: 25.6%; Average loss: nan
Iteration: 1026; Percent complete: 25.7%; Average loss: nan
Iteration: 1027; Percent complete: 25.7%; Average loss: nan
Iteration: 1028; Percent complete: 25.7%; Average loss: nan
Iteration: 1029; Percent complete: 25.7%; Average loss: nan
Iteration: 1030; Percent complete: 25.8%; Average loss: nan
Iteration: 1031; Percent complete: 25.8%; Average loss: nan
Iteration: 1032; Percent complete: 25.8%; Average loss: nan
Iteration: 1033; Percent complete: 25.8%; Average loss: nan
Iteration: 1034; Percent complete: 25.9%; Average loss: nan
Iteration: 1035; Percent complete: 25.9%; Average loss: nan
Iteration: 1036; Percent complete: 25.9%; Average loss: nan
Iteration: 1037; Percent complete: 25.9%; Average loss: nan
Iteration: 1038; Percent complete: 25.9%; Average loss: nan
Iteration: 1039; Percent complete: 26.0%; Average loss: nan
Iteration: 1040; Percent complete: 26.0%; Average loss: nan
Iteration: 1041; Percent complete: 26.0%; Average loss: nan
Iteration: 1042; Percent complete: 26.1%; Average loss: nan
Iteration: 1043; Percent complete: 26.1%; Average loss: nan
Iteration: 1044; Percent complete: 26.1%; Average loss: nan
Iteration: 1045; Percent complete: 26.1%; Average loss: nan
Iteration: 1046; Percent complete: 26.2%; Average loss: nan
Iteration: 1047; Percent complete: 26.2%; Average loss: nan
Iteration: 1048; Percent complete: 26.2%; Average loss: nan
Iteration: 1049; Percent complete: 26.2%; Average loss: nan
Iteration: 1050; Percent complete: 26.2%; Average loss: nan
Iteration: 1051; Percent complete: 26.3%; Average loss: nan
Iteration: 1052; Percent complete: 26.3%; Average loss: nan
Iteration: 1053; Percent complete: 26.3%; Average loss: nan
Iteration: 1054; Percent complete: 26.4%; Average loss: nan
Iteration: 1055; Percent complete: 26.4%; Average loss: nan
Iteration: 1056; Percent complete: 26.4%; Average loss: nan
Iteration: 1057; Percent complete: 26.4%; Average loss: nan
Iteration: 1058; Percent complete: 26.5%; Average loss: nan
Iteration: 1059; Percent complete: 26.5%; Average loss: nan
Iteration: 1060; Percent complete: 26.5%; Average loss: nan
```

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Iteration: 1061; Percent complete: 26.5%; Average loss: nan
Iteration: 1062; Percent complete: 26.6%; Average loss: nan
Iteration: 1063; Percent complete: 26.6%; Average loss: nan
Iteration: 1064; Percent complete: 26.6%; Average loss: nan
Iteration: 1065; Percent complete: 26.6%; Average loss: nan
Iteration: 1066; Percent complete: 26.7%; Average loss: nan
Iteration: 1067; Percent complete: 26.7%; Average loss: nan
Iteration: 1068; Percent complete: 26.7%; Average loss: nan
Iteration: 1069; Percent complete: 26.7%; Average loss: nan
Iteration: 1070; Percent complete: 26.8%; Average loss: nan
Iteration: 1071; Percent complete: 26.8%; Average loss: nan
Iteration: 1072; Percent complete: 26.8%; Average loss: nan
Iteration: 1073; Percent complete: 26.8%; Average loss: nan
Iteration: 1074; Percent complete: 26.9%; Average loss: nan
Iteration: 1075; Percent complete: 26.9%; Average loss: nan
Iteration: 1076; Percent complete: 26.9%; Average loss: nan
Iteration: 1077; Percent complete: 26.9%; Average loss: nan
Iteration: 1078; Percent complete: 27.0%; Average loss: nan
Iteration: 1079; Percent complete: 27.0%; Average loss: nan
Iteration: 1080; Percent complete: 27.0%; Average loss: nan
Iteration: 1081; Percent complete: 27.0%; Average loss: nan
Iteration: 1082; Percent complete: 27.1%; Average loss: nan
Iteration: 1083; Percent complete: 27.1%; Average loss: nan
Iteration: 1084; Percent complete: 27.1%; Average loss: nan
Iteration: 1085; Percent complete: 27.1%; Average loss: nan
Iteration: 1086; Percent complete: 27.2%; Average loss: nan
Iteration: 1087; Percent complete: 27.2%; Average loss: nan
Iteration: 1088; Percent complete: 27.2%; Average loss: nan
Iteration: 1089; Percent complete: 27.2%; Average loss: nan
Iteration: 1090; Percent complete: 27.3%; Average loss: nan
Iteration: 1091; Percent complete: 27.3%; Average loss: nan
Iteration: 1092; Percent complete: 27.3%; Average loss: nan
Iteration: 1093; Percent complete: 27.3%; Average loss: nan
Iteration: 1094; Percent complete: 27.4%; Average loss: nan
Iteration: 1095; Percent complete: 27.4%; Average loss: nan
Iteration: 1096; Percent complete: 27.4%; Average loss: nan
Iteration: 1097; Percent complete: 27.4%; Average loss: nan
Iteration: 1098; Percent complete: 27.5%; Average loss: nan
Iteration: 1099; Percent complete: 27.5%; Average loss: nan
Iteration: 1100; Percent complete: 27.5%; Average loss: nan
Iteration: 1101; Percent complete: 27.5%; Average loss: nan
Iteration: 1102; Percent complete: 27.6%; Average loss: nan
Iteration: 1103; Percent complete: 27.6%; Average loss: nan
Iteration: 1104; Percent complete: 27.6%; Average loss: nan
Iteration: 1105; Percent complete: 27.6%; Average loss: nan
Iteration: 1106; Percent complete: 27.7%; Average loss: nan
Iteration: 1107; Percent complete: 27.7%; Average loss: nan
Iteration: 1108; Percent complete: 27.7%; Average loss: nan
Iteration: 1109; Percent complete: 27.7%; Average loss: nan
Iteration: 1110; Percent complete: 27.8%; Average loss: nan
Iteration: 1111; Percent complete: 27.8%; Average loss: nan
Iteration: 1112; Percent complete: 27.8%; Average loss: nan
Iteration: 1113; Percent complete: 27.8%; Average loss: nan
Iteration: 1114; Percent complete: 27.9%; Average loss: nan
Iteration: 1115; Percent complete: 27.9%; Average loss: nan
Iteration: 1116; Percent complete: 27.9%; Average loss: nan
```

```
Iteration: 1117; Percent complete: 27.9%; Average loss: nan
Iteration: 1118; Percent complete: 28.0%; Average loss: nan
Iteration: 1119; Percent complete: 28.0%; Average loss: nan
Iteration: 1120; Percent complete: 28.0%; Average loss: nan
Iteration: 1121; Percent complete: 28.0%; Average loss: nan
Iteration: 1122; Percent complete: 28.1%; Average loss: nan
Iteration: 1123; Percent complete: 28.1%; Average loss: nan
Iteration: 1124; Percent complete: 28.1%; Average loss: nan
Iteration: 1125; Percent complete: 28.1%; Average loss: nan
Iteration: 1126; Percent complete: 28.1%; Average loss: nan
Iteration: 1127; Percent complete: 28.2%; Average loss: nan
Iteration: 1128; Percent complete: 28.2%; Average loss: nan
Iteration: 1129; Percent complete: 28.2%; Average loss: nan
Iteration: 1130; Percent complete: 28.2%; Average loss: nan
Iteration: 1131; Percent complete: 28.3%; Average loss: nan
Iteration: 1132; Percent complete: 28.3%; Average loss: nan
Iteration: 1133; Percent complete: 28.3%; Average loss: nan
Iteration: 1134; Percent complete: 28.3%; Average loss: nan
Iteration: 1135; Percent complete: 28.4%; Average loss: nan
Iteration: 1136; Percent complete: 28.4%; Average loss: nan
Iteration: 1137; Percent complete: 28.4%; Average loss: nan
Iteration: 1138; Percent complete: 28.4%; Average loss: nan
Iteration: 1139; Percent complete: 28.5%; Average loss: nan
Iteration: 1140; Percent complete: 28.5%; Average loss: nan
Iteration: 1141; Percent complete: 28.5%; Average loss: nan
Iteration: 1142; Percent complete: 28.5%; Average loss: nan
Iteration: 1143; Percent complete: 28.6%; Average loss: nan
Iteration: 1144; Percent complete: 28.6%; Average loss: nan
Iteration: 1145; Percent complete: 28.6%; Average loss: nan
Iteration: 1146; Percent complete: 28.6%; Average loss: nan
Iteration: 1147; Percent complete: 28.7%; Average loss: nan
Iteration: 1148; Percent complete: 28.7%; Average loss: nan
Iteration: 1149; Percent complete: 28.7%; Average loss: nan
Iteration: 1150; Percent complete: 28.7%; Average loss: nan
Iteration: 1151; Percent complete: 28.8%; Average loss: nan
Iteration: 1152; Percent complete: 28.8%; Average loss: nan
Iteration: 1153; Percent complete: 28.8%; Average loss: nan
Iteration: 1154; Percent complete: 28.8%; Average loss: nan
Iteration: 1155; Percent complete: 28.9%; Average loss: nan
Iteration: 1156; Percent complete: 28.9%; Average loss: nan
Iteration: 1157; Percent complete: 28.9%; Average loss: nan
Iteration: 1158; Percent complete: 28.9%; Average loss: nan
Iteration: 1159; Percent complete: 29.0%; Average loss: nan
Iteration: 1160; Percent complete: 29.0%; Average loss: nan
Iteration: 1161; Percent complete: 29.0%; Average loss: nan
Iteration: 1162; Percent complete: 29.0%; Average loss: nan
Iteration: 1163; Percent complete: 29.1%; Average loss: nan
Iteration: 1164; Percent complete: 29.1%; Average loss: nan
Iteration: 1165; Percent complete: 29.1%; Average loss: nan
Iteration: 1166; Percent complete: 29.1%; Average loss: nan
Iteration: 1167; Percent complete: 29.2%; Average loss: nan
Iteration: 1168; Percent complete: 29.2%; Average loss: nan
Iteration: 1169; Percent complete: 29.2%; Average loss: nan
Iteration: 1170; Percent complete: 29.2%; Average loss: nan
Iteration: 1171; Percent complete: 29.3%; Average loss: nan
Iteration: 1172; Percent complete: 29.3%; Average loss: nan
```

```
Iteration: 1173; Percent complete: 29.3%; Average loss: nan
Iteration: 1174; Percent complete: 29.3%; Average loss: nan
Iteration: 1175; Percent complete: 29.4%; Average loss: nan
Iteration: 1176; Percent complete: 29.4%; Average loss: nan
Iteration: 1177; Percent complete: 29.4%; Average loss: nan
Iteration: 1178; Percent complete: 29.4%; Average loss: nan
Iteration: 1179; Percent complete: 29.5%; Average loss: nan
Iteration: 1180; Percent complete: 29.5%; Average loss: nan
Iteration: 1181; Percent complete: 29.5%; Average loss: nan
Iteration: 1182; Percent complete: 29.5%; Average loss: nan
Iteration: 1183; Percent complete: 29.6%; Average loss: nan
Iteration: 1184; Percent complete: 29.6%; Average loss: nan
Iteration: 1185; Percent complete: 29.6%; Average loss: nan
Iteration: 1186; Percent complete: 29.6%; Average loss: nan
Iteration: 1187; Percent complete: 29.7%; Average loss: nan
Iteration: 1188; Percent complete: 29.7%; Average loss: nan
Iteration: 1189; Percent complete: 29.7%; Average loss: nan
Iteration: 1190; Percent complete: 29.8%; Average loss: nan
Iteration: 1191; Percent complete: 29.8%; Average loss: nan
Iteration: 1192; Percent complete: 29.8%; Average loss: nan
Iteration: 1193; Percent complete: 29.8%; Average loss: nan
Iteration: 1194; Percent complete: 29.8%; Average loss: nan
Iteration: 1195; Percent complete: 29.9%; Average loss: nan
Iteration: 1196; Percent complete: 29.9%; Average loss: nan
Iteration: 1197; Percent complete: 29.9%; Average loss: nan
Iteration: 1198; Percent complete: 29.9%; Average loss: nan
Iteration: 1199; Percent complete: 30.0%; Average loss: nan
Iteration: 1200; Percent complete: 30.0%; Average loss: nan
Iteration: 1201; Percent complete: 30.0%; Average loss: nan
Iteration: 1202; Percent complete: 30.0%; Average loss: nan
Iteration: 1203; Percent complete: 30.1%; Average loss: nan
Iteration: 1204; Percent complete: 30.1%; Average loss: nan
Iteration: 1205; Percent complete: 30.1%; Average loss: nan
Iteration: 1206; Percent complete: 30.1%; Average loss: nan
Iteration: 1207; Percent complete: 30.2%; Average loss: nan
Iteration: 1208; Percent complete: 30.2%; Average loss: nan
Iteration: 1209; Percent complete: 30.2%; Average loss: nan
Iteration: 1210; Percent complete: 30.2%; Average loss: nan
Iteration: 1211; Percent complete: 30.3%; Average loss: nan
Iteration: 1212; Percent complete: 30.3%; Average loss: nan
Iteration: 1213; Percent complete: 30.3%; Average loss: nan
Iteration: 1214; Percent complete: 30.3%; Average loss: nan
Iteration: 1215; Percent complete: 30.4%; Average loss: nan
Iteration: 1216; Percent complete: 30.4%; Average loss: nan
Iteration: 1217; Percent complete: 30.4%; Average loss: nan
Iteration: 1218; Percent complete: 30.4%; Average loss: nan
Iteration: 1219; Percent complete: 30.5%; Average loss: nan
Iteration: 1220; Percent complete: 30.5%; Average loss: nan
Iteration: 1221; Percent complete: 30.5%; Average loss: nan
Iteration: 1222; Percent complete: 30.6%; Average loss: nan
Iteration: 1223; Percent complete: 30.6%; Average loss: nan
Iteration: 1224; Percent complete: 30.6%; Average loss: nan
Iteration: 1225; Percent complete: 30.6%; Average loss: nan
Iteration: 1226; Percent complete: 30.6%; Average loss: nan
Iteration: 1227; Percent complete: 30.7%; Average loss: nan
Iteration: 1228; Percent complete: 30.7%; Average loss: nan
```

```
Iteration: 1229; Percent complete: 30.7%; Average loss: nan
Iteration: 1230; Percent complete: 30.8%; Average loss: nan
Iteration: 1231; Percent complete: 30.8%; Average loss: nan
Iteration: 1232; Percent complete: 30.8%; Average loss: nan
Iteration: 1233; Percent complete: 30.8%; Average loss: nan
Iteration: 1234; Percent complete: 30.9%; Average loss: nan
Iteration: 1235; Percent complete: 30.9%; Average loss: nan
Iteration: 1236; Percent complete: 30.9%; Average loss: nan
Iteration: 1237; Percent complete: 30.9%; Average loss: nan
Iteration: 1238; Percent complete: 30.9%; Average loss: nan
Iteration: 1239; Percent complete: 31.0%; Average loss: nan
Iteration: 1240; Percent complete: 31.0%; Average loss: nan
Iteration: 1241; Percent complete: 31.0%; Average loss: nan
Iteration: 1242; Percent complete: 31.1%; Average loss: nan
Iteration: 1243; Percent complete: 31.1%; Average loss: nan
Iteration: 1244; Percent complete: 31.1%; Average loss: nan
Iteration: 1245; Percent complete: 31.1%; Average loss: nan
Iteration: 1246; Percent complete: 31.1%; Average loss: nan
Iteration: 1247; Percent complete: 31.2%; Average loss: nan
Iteration: 1248; Percent complete: 31.2%; Average loss: nan
Iteration: 1249; Percent complete: 31.2%; Average loss: nan
Iteration: 1250; Percent complete: 31.2%; Average loss: nan
Iteration: 1251; Percent complete: 31.3%; Average loss: nan
Iteration: 1252; Percent complete: 31.3%; Average loss: nan
Iteration: 1253; Percent complete: 31.3%; Average loss: nan
Iteration: 1254; Percent complete: 31.4%; Average loss: nan
Iteration: 1255; Percent complete: 31.4%; Average loss: nan
Iteration: 1256; Percent complete: 31.4%; Average loss: nan
Iteration: 1257; Percent complete: 31.4%; Average loss: nan
Iteration: 1258; Percent complete: 31.4%; Average loss: nan
Iteration: 1259; Percent complete: 31.5%; Average loss: nan
Iteration: 1260; Percent complete: 31.5%; Average loss: nan
Iteration: 1261; Percent complete: 31.5%; Average loss: nan
Iteration: 1262; Percent complete: 31.6%; Average loss: nan
Iteration: 1263; Percent complete: 31.6%; Average loss: nan
Iteration: 1264; Percent complete: 31.6%; Average loss: nan
Iteration: 1265; Percent complete: 31.6%; Average loss: nan
Iteration: 1266; Percent complete: 31.6%; Average loss: nan
Iteration: 1267; Percent complete: 31.7%; Average loss: nan
Iteration: 1268; Percent complete: 31.7%; Average loss: nan
Iteration: 1269; Percent complete: 31.7%; Average loss: nan
Iteration: 1270; Percent complete: 31.8%; Average loss: nan
Iteration: 1271; Percent complete: 31.8%; Average loss: nan
Iteration: 1272; Percent complete: 31.8%; Average loss: nan
Iteration: 1273; Percent complete: 31.8%; Average loss: nan
Iteration: 1274; Percent complete: 31.9%; Average loss: nan
Iteration: 1275; Percent complete: 31.9%; Average loss: nan
Iteration: 1276; Percent complete: 31.9%; Average loss: nan
Iteration: 1277; Percent complete: 31.9%; Average loss: nan
Iteration: 1278; Percent complete: 31.9%; Average loss: nan
Iteration: 1279; Percent complete: 32.0%; Average loss: nan
Iteration: 1280; Percent complete: 32.0%; Average loss: nan
Iteration: 1281; Percent complete: 32.0%; Average loss: nan
Iteration: 1282; Percent complete: 32.0%; Average loss: nan
Iteration: 1283; Percent complete: 32.1%; Average loss: nan
Iteration: 1284; Percent complete: 32.1%; Average loss: nan
```

```
Iteration: 1285; Percent complete: 32.1%; Average loss: nan
Iteration: 1286; Percent complete: 32.1%; Average loss: nan
Iteration: 1287; Percent complete: 32.2%; Average loss: nan
Iteration: 1288; Percent complete: 32.2%; Average loss: nan
Iteration: 1289; Percent complete: 32.2%; Average loss: nan
Iteration: 1290; Percent complete: 32.2%; Average loss: nan
Iteration: 1291; Percent complete: 32.3%; Average loss: nan
Iteration: 1292; Percent complete: 32.3%; Average loss: nan
Iteration: 1293; Percent complete: 32.3%; Average loss: nan
Iteration: 1294; Percent complete: 32.4%; Average loss: nan
Iteration: 1295; Percent complete: 32.4%; Average loss: nan
Iteration: 1296; Percent complete: 32.4%; Average loss: nan
Iteration: 1297; Percent complete: 32.4%; Average loss: nan
Iteration: 1298; Percent complete: 32.5%; Average loss: nan
Iteration: 1299; Percent complete: 32.5%; Average loss: nan
Iteration: 1300; Percent complete: 32.5%; Average loss: nan
Iteration: 1301; Percent complete: 32.5%; Average loss: nan
Iteration: 1302; Percent complete: 32.6%; Average loss: nan
Iteration: 1303; Percent complete: 32.6%; Average loss: nan
Iteration: 1304; Percent complete: 32.6%; Average loss: nan
Iteration: 1305; Percent complete: 32.6%; Average loss: nan
Iteration: 1306; Percent complete: 32.6%; Average loss: nan
Iteration: 1307; Percent complete: 32.7%; Average loss: nan
Iteration: 1308; Percent complete: 32.7%; Average loss: nan
Iteration: 1309; Percent complete: 32.7%; Average loss: nan
Iteration: 1310; Percent complete: 32.8%; Average loss: nan
Iteration: 1311; Percent complete: 32.8%; Average loss: nan
Iteration: 1312; Percent complete: 32.8%; Average loss: nan
Iteration: 1313; Percent complete: 32.8%; Average loss: nan
Iteration: 1314; Percent complete: 32.9%; Average loss: nan
Iteration: 1315; Percent complete: 32.9%; Average loss: nan
Iteration: 1316; Percent complete: 32.9%; Average loss: nan
Iteration: 1317; Percent complete: 32.9%; Average loss: nan
Iteration: 1318; Percent complete: 33.0%; Average loss: nan
Iteration: 1319; Percent complete: 33.0%; Average loss: nan
Iteration: 1320; Percent complete: 33.0%; Average loss: nan
Iteration: 1321; Percent complete: 33.0%; Average loss: nan
Iteration: 1322; Percent complete: 33.1%; Average loss: nan
Iteration: 1323; Percent complete: 33.1%; Average loss: nan
Iteration: 1324; Percent complete: 33.1%; Average loss: nan
Iteration: 1325; Percent complete: 33.1%; Average loss: nan
Iteration: 1326; Percent complete: 33.1%; Average loss: nan
Iteration: 1327; Percent complete: 33.2%; Average loss: nan
Iteration: 1328; Percent complete: 33.2%; Average loss: nan
Iteration: 1329; Percent complete: 33.2%; Average loss: nan
Iteration: 1330; Percent complete: 33.2%; Average loss: nan
Iteration: 1331; Percent complete: 33.3%; Average loss: nan
Iteration: 1332; Percent complete: 33.3%; Average loss: nan
Iteration: 1333; Percent complete: 33.3%; Average loss: nan
Iteration: 1334; Percent complete: 33.4%; Average loss: nan
Iteration: 1335; Percent complete: 33.4%; Average loss: nan
Iteration: 1336; Percent complete: 33.4%; Average loss: nan
Iteration: 1337; Percent complete: 33.4%; Average loss: nan
Iteration: 1338; Percent complete: 33.5%; Average loss: nan
Iteration: 1339; Percent complete: 33.5%; Average loss: nan
Iteration: 1340; Percent complete: 33.5%; Average loss: nan
```

```
Iteration: 1341; Percent complete: 33.5%; Average loss: nan
Iteration: 1342; Percent complete: 33.6%; Average loss: nan
Iteration: 1343; Percent complete: 33.6%; Average loss: nan
Iteration: 1344; Percent complete: 33.6%; Average loss: nan
Iteration: 1345; Percent complete: 33.6%; Average loss: nan
Iteration: 1346; Percent complete: 33.7%; Average loss: nan
Iteration: 1347; Percent complete: 33.7%; Average loss: nan
Iteration: 1348; Percent complete: 33.7%; Average loss: nan
Iteration: 1349; Percent complete: 33.7%; Average loss: nan
Iteration: 1350; Percent complete: 33.8%; Average loss: nan
Iteration: 1351; Percent complete: 33.8%; Average loss: nan
Iteration: 1352; Percent complete: 33.8%; Average loss: nan
Iteration: 1353; Percent complete: 33.8%; Average loss: nan
Iteration: 1354; Percent complete: 33.9%; Average loss: nan
Iteration: 1355; Percent complete: 33.9%; Average loss: nan
Iteration: 1356; Percent complete: 33.9%; Average loss: nan
Iteration: 1357; Percent complete: 33.9%; Average loss: nan
Iteration: 1358; Percent complete: 34.0%; Average loss: nan
Iteration: 1359; Percent complete: 34.0%; Average loss: nan
Iteration: 1360; Percent complete: 34.0%; Average loss: nan
Iteration: 1361; Percent complete: 34.0%; Average loss: nan
Iteration: 1362; Percent complete: 34.1%; Average loss: nan
Iteration: 1363; Percent complete: 34.1%; Average loss: nan
Iteration: 1364; Percent complete: 34.1%; Average loss: nan
Iteration: 1365; Percent complete: 34.1%; Average loss: nan
Iteration: 1366; Percent complete: 34.2%; Average loss: nan
Iteration: 1367; Percent complete: 34.2%; Average loss: nan
Iteration: 1368; Percent complete: 34.2%; Average loss: nan
Iteration: 1369; Percent complete: 34.2%; Average loss: nan
Iteration: 1370; Percent complete: 34.2%; Average loss: nan
Iteration: 1371; Percent complete: 34.3%; Average loss: nan
Iteration: 1372; Percent complete: 34.3%; Average loss: nan
Iteration: 1373; Percent complete: 34.3%; Average loss: nan
Iteration: 1374; Percent complete: 34.4%; Average loss: nan
Iteration: 1375; Percent complete: 34.4%; Average loss: nan
Iteration: 1376; Percent complete: 34.4%; Average loss: nan
Iteration: 1377; Percent complete: 34.4%; Average loss: nan
Iteration: 1378; Percent complete: 34.4%; Average loss: nan
Iteration: 1379; Percent complete: 34.5%; Average loss: nan
Iteration: 1380; Percent complete: 34.5%; Average loss: nan
Iteration: 1381; Percent complete: 34.5%; Average loss: nan
Iteration: 1382; Percent complete: 34.5%; Average loss: nan
Iteration: 1383; Percent complete: 34.6%; Average loss: nan
Iteration: 1384; Percent complete: 34.6%; Average loss: nan
Iteration: 1385; Percent complete: 34.6%; Average loss: nan
Iteration: 1386; Percent complete: 34.6%; Average loss: nan
Iteration: 1387; Percent complete: 34.7%; Average loss: nan
Iteration: 1388; Percent complete: 34.7%; Average loss: nan
Iteration: 1389; Percent complete: 34.7%; Average loss: nan
Iteration: 1390; Percent complete: 34.8%; Average loss: nan
Iteration: 1391; Percent complete: 34.8%; Average loss: nan
Iteration: 1392; Percent complete: 34.8%; Average loss: nan
Iteration: 1393; Percent complete: 34.8%; Average loss: nan
Iteration: 1394; Percent complete: 34.8%; Average loss: nan
Iteration: 1395; Percent complete: 34.9%; Average loss: nan
Iteration: 1396; Percent complete: 34.9%; Average loss: nan
```

```
Iteration: 1397; Percent complete: 34.9%; Average loss: nan
Iteration: 1398; Percent complete: 34.9%; Average loss: nan
Iteration: 1399; Percent complete: 35.0%; Average loss: nan
Iteration: 1400; Percent complete: 35.0%; Average loss: nan
Iteration: 1401; Percent complete: 35.0%; Average loss: nan
Iteration: 1402; Percent complete: 35.0%; Average loss: nan
Iteration: 1403; Percent complete: 35.1%; Average loss: nan
Iteration: 1404; Percent complete: 35.1%; Average loss: nan
Iteration: 1405; Percent complete: 35.1%; Average loss: nan
Iteration: 1406; Percent complete: 35.1%; Average loss: nan
Iteration: 1407; Percent complete: 35.2%; Average loss: nan
Iteration: 1408; Percent complete: 35.2%; Average loss: nan
Iteration: 1409; Percent complete: 35.2%; Average loss: nan
Iteration: 1410; Percent complete: 35.2%; Average loss: nan
Iteration: 1411; Percent complete: 35.3%; Average loss: nan
Iteration: 1412; Percent complete: 35.3%; Average loss: nan
Iteration: 1413; Percent complete: 35.3%; Average loss: nan
Iteration: 1414; Percent complete: 35.4%; Average loss: nan
Iteration: 1415; Percent complete: 35.4%; Average loss: nan
Iteration: 1416; Percent complete: 35.4%; Average loss: nan
Iteration: 1417; Percent complete: 35.4%; Average loss: nan
Iteration: 1418; Percent complete: 35.4%; Average loss: nan
Iteration: 1419; Percent complete: 35.5%; Average loss: nan
Iteration: 1420; Percent complete: 35.5%; Average loss: nan
Iteration: 1421; Percent complete: 35.5%; Average loss: nan
Iteration: 1422; Percent complete: 35.5%; Average loss: nan
Iteration: 1423; Percent complete: 35.6%; Average loss: nan
Iteration: 1424; Percent complete: 35.6%; Average loss: nan
Iteration: 1425; Percent complete: 35.6%; Average loss: nan
Iteration: 1426; Percent complete: 35.6%; Average loss: nan
Iteration: 1427; Percent complete: 35.7%; Average loss: nan
Iteration: 1428; Percent complete: 35.7%; Average loss: nan
Iteration: 1429; Percent complete: 35.7%; Average loss: nan
Iteration: 1430; Percent complete: 35.8%; Average loss: nan
Iteration: 1431; Percent complete: 35.8%; Average loss: nan
Iteration: 1432; Percent complete: 35.8%; Average loss: nan
Iteration: 1433; Percent complete: 35.8%; Average loss: nan
Iteration: 1434; Percent complete: 35.9%; Average loss: nan
Iteration: 1435; Percent complete: 35.9%; Average loss: nan
Iteration: 1436; Percent complete: 35.9%; Average loss: nan
Iteration: 1437; Percent complete: 35.9%; Average loss: nan
Iteration: 1438; Percent complete: 35.9%; Average loss: nan
Iteration: 1439; Percent complete: 36.0%; Average loss: nan
Iteration: 1440; Percent complete: 36.0%; Average loss: nan
Iteration: 1441; Percent complete: 36.0%; Average loss: nan
Iteration: 1442; Percent complete: 36.0%; Average loss: nan
Iteration: 1443; Percent complete: 36.1%; Average loss: nan
Iteration: 1444; Percent complete: 36.1%; Average loss: nan
Iteration: 1445; Percent complete: 36.1%; Average loss: nan
Iteration: 1446; Percent complete: 36.1%; Average loss: nan
Iteration: 1447; Percent complete: 36.2%; Average loss: nan
Iteration: 1448; Percent complete: 36.2%; Average loss: nan
Iteration: 1449; Percent complete: 36.2%; Average loss: nan
Iteration: 1450; Percent complete: 36.2%; Average loss: nan
Iteration: 1451; Percent complete: 36.3%; Average loss: nan
Iteration: 1452; Percent complete: 36.3%; Average loss: nan
```

```
Iteration: 1453; Percent complete: 36.3%; Average loss: nan
Iteration: 1454; Percent complete: 36.4%; Average loss: nan
Iteration: 1455; Percent complete: 36.4%; Average loss: nan
Iteration: 1456; Percent complete: 36.4%; Average loss: nan
Iteration: 1457; Percent complete: 36.4%; Average loss: nan
Iteration: 1458; Percent complete: 36.4%; Average loss: nan
Iteration: 1459; Percent complete: 36.5%; Average loss: nan
Iteration: 1460; Percent complete: 36.5%; Average loss: nan
Iteration: 1461; Percent complete: 36.5%; Average loss: nan
Iteration: 1462; Percent complete: 36.5%; Average loss: nan
Iteration: 1463; Percent complete: 36.6%; Average loss: nan
Iteration: 1464; Percent complete: 36.6%; Average loss: nan
Iteration: 1465; Percent complete: 36.6%; Average loss: nan
Iteration: 1466; Percent complete: 36.6%; Average loss: nan
Iteration: 1467; Percent complete: 36.7%; Average loss: nan
Iteration: 1468; Percent complete: 36.7%; Average loss: nan
Iteration: 1469; Percent complete: 36.7%; Average loss: nan
Iteration: 1470; Percent complete: 36.8%; Average loss: nan
Iteration: 1471; Percent complete: 36.8%; Average loss: nan
Iteration: 1472; Percent complete: 36.8%; Average loss: nan
Iteration: 1473; Percent complete: 36.8%; Average loss: nan
Iteration: 1474; Percent complete: 36.9%; Average loss: nan
Iteration: 1475; Percent complete: 36.9%; Average loss: nan
Iteration: 1476; Percent complete: 36.9%; Average loss: nan
Iteration: 1477; Percent complete: 36.9%; Average loss: nan
Iteration: 1478; Percent complete: 37.0%; Average loss: nan
Iteration: 1479; Percent complete: 37.0%; Average loss: nan
Iteration: 1480; Percent complete: 37.0%; Average loss: nan
Iteration: 1481; Percent complete: 37.0%; Average loss: nan
Iteration: 1482; Percent complete: 37.0%; Average loss: nan
Iteration: 1483; Percent complete: 37.1%; Average loss: nan
Iteration: 1484; Percent complete: 37.1%; Average loss: nan
Iteration: 1485; Percent complete: 37.1%; Average loss: nan
Iteration: 1486; Percent complete: 37.1%; Average loss: nan
Iteration: 1487; Percent complete: 37.2%; Average loss: nan
Iteration: 1488; Percent complete: 37.2%; Average loss: nan
Iteration: 1489; Percent complete: 37.2%; Average loss: nan
Iteration: 1490; Percent complete: 37.2%; Average loss: nan
Iteration: 1491; Percent complete: 37.3%; Average loss: nan
Iteration: 1492; Percent complete: 37.3%; Average loss: nan
Iteration: 1493; Percent complete: 37.3%; Average loss: nan
Iteration: 1494; Percent complete: 37.4%; Average loss: nan
Iteration: 1495; Percent complete: 37.4%; Average loss: nan
Iteration: 1496; Percent complete: 37.4%; Average loss: nan
Iteration: 1497; Percent complete: 37.4%; Average loss: nan
Iteration: 1498; Percent complete: 37.5%; Average loss: nan
Iteration: 1499; Percent complete: 37.5%; Average loss: nan
Iteration: 1500; Percent complete: 37.5%; Average loss: nan
Iteration: 1501; Percent complete: 37.5%; Average loss: nan
Iteration: 1502; Percent complete: 37.5%; Average loss: nan
Iteration: 1503; Percent complete: 37.6%; Average loss: nan
Iteration: 1504; Percent complete: 37.6%; Average loss: nan
Iteration: 1505; Percent complete: 37.6%; Average loss: nan
Iteration: 1506; Percent complete: 37.6%; Average loss: nan
Iteration: 1507; Percent complete: 37.7%; Average loss: nan
Iteration: 1508; Percent complete: 37.7%; Average loss: nan
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```
Iteration: 1509; Percent complete: 37.7%; Average loss: nan
Iteration: 1510; Percent complete: 37.8%; Average loss: nan
Iteration: 1511; Percent complete: 37.8%; Average loss: nan
Iteration: 1512; Percent complete: 37.8%; Average loss: nan
Iteration: 1513; Percent complete: 37.8%; Average loss: nan
Iteration: 1514; Percent complete: 37.9%; Average loss: nan
Iteration: 1515; Percent complete: 37.9%; Average loss: nan
Iteration: 1516; Percent complete: 37.9%; Average loss: nan
Iteration: 1517; Percent complete: 37.9%; Average loss: nan
Iteration: 1518; Percent complete: 38.0%; Average loss: nan
Iteration: 1519; Percent complete: 38.0%; Average loss: nan
Iteration: 1520; Percent complete: 38.0%; Average loss: nan
Iteration: 1521; Percent complete: 38.0%; Average loss: nan
Iteration: 1522; Percent complete: 38.0%; Average loss: nan
Iteration: 1523; Percent complete: 38.1%; Average loss: nan
Iteration: 1524; Percent complete: 38.1%; Average loss: nan
Iteration: 1525; Percent complete: 38.1%; Average loss: nan
Iteration: 1526; Percent complete: 38.1%; Average loss: nan
Iteration: 1527; Percent complete: 38.2%; Average loss: nan
Iteration: 1528; Percent complete: 38.2%; Average loss: nan
Iteration: 1529; Percent complete: 38.2%; Average loss: nan
Iteration: 1530; Percent complete: 38.2%; Average loss: nan
Iteration: 1531; Percent complete: 38.3%; Average loss: nan
Iteration: 1532; Percent complete: 38.3%; Average loss: nan
Iteration: 1533; Percent complete: 38.3%; Average loss: nan
Iteration: 1534; Percent complete: 38.4%; Average loss: nan
Iteration: 1535; Percent complete: 38.4%; Average loss: nan
Iteration: 1536; Percent complete: 38.4%; Average loss: nan
Iteration: 1537; Percent complete: 38.4%; Average loss: nan
Iteration: 1538; Percent complete: 38.5%; Average loss: nan
Iteration: 1539; Percent complete: 38.5%; Average loss: nan
Iteration: 1540; Percent complete: 38.5%; Average loss: nan
Iteration: 1541; Percent complete: 38.5%; Average loss: nan
Iteration: 1542; Percent complete: 38.6%; Average loss: nan
Iteration: 1543; Percent complete: 38.6%; Average loss: nan
Iteration: 1544; Percent complete: 38.6%; Average loss: nan
Iteration: 1545; Percent complete: 38.6%; Average loss: nan
Iteration: 1546; Percent complete: 38.6%; Average loss: nan
Iteration: 1547; Percent complete: 38.7%; Average loss: nan
Iteration: 1548; Percent complete: 38.7%; Average loss: nan
Iteration: 1549; Percent complete: 38.7%; Average loss: nan
Iteration: 1550; Percent complete: 38.8%; Average loss: nan
Iteration: 1551; Percent complete: 38.8%; Average loss: nan
Iteration: 1552; Percent complete: 38.8%; Average loss: nan
Iteration: 1553; Percent complete: 38.8%; Average loss: nan
Iteration: 1554; Percent complete: 38.9%; Average loss: nan
Iteration: 1555; Percent complete: 38.9%; Average loss: nan
Iteration: 1556; Percent complete: 38.9%; Average loss: nan
Iteration: 1557; Percent complete: 38.9%; Average loss: nan
Iteration: 1558; Percent complete: 39.0%; Average loss: nan
Iteration: 1559; Percent complete: 39.0%; Average loss: nan
Iteration: 1560; Percent complete: 39.0%; Average loss: nan
Iteration: 1561; Percent complete: 39.0%; Average loss: nan
Iteration: 1562; Percent complete: 39.1%; Average loss: nan
Iteration: 1563; Percent complete: 39.1%; Average loss: nan
Iteration: 1564; Percent complete: 39.1%; Average loss: nan
```

```
Iteration: 1565; Percent complete: 39.1%; Average loss: nan
Iteration: 1566; Percent complete: 39.1%; Average loss: nan
Iteration: 1567; Percent complete: 39.2%; Average loss: nan
Iteration: 1568; Percent complete: 39.2%; Average loss: nan
Iteration: 1569; Percent complete: 39.2%; Average loss: nan
Iteration: 1570; Percent complete: 39.2%; Average loss: nan
Iteration: 1571; Percent complete: 39.3%; Average loss: nan
Iteration: 1572; Percent complete: 39.3%; Average loss: nan
Iteration: 1573; Percent complete: 39.3%; Average loss: nan
Iteration: 1574; Percent complete: 39.4%; Average loss: nan
Iteration: 1575; Percent complete: 39.4%; Average loss: nan
Iteration: 1576; Percent complete: 39.4%; Average loss: nan
Iteration: 1577; Percent complete: 39.4%; Average loss: nan
Iteration: 1578; Percent complete: 39.5%; Average loss: nan
Iteration: 1579; Percent complete: 39.5%; Average loss: nan
Iteration: 1580; Percent complete: 39.5%; Average loss: nan
Iteration: 1581; Percent complete: 39.5%; Average loss: nan
Iteration: 1582; Percent complete: 39.6%; Average loss: nan
Iteration: 1583; Percent complete: 39.6%; Average loss: nan
Iteration: 1584; Percent complete: 39.6%; Average loss: nan
Iteration: 1585; Percent complete: 39.6%; Average loss: nan
Iteration: 1586; Percent complete: 39.6%; Average loss: nan
Iteration: 1587; Percent complete: 39.7%; Average loss: nan
Iteration: 1588; Percent complete: 39.7%; Average loss: nan
Iteration: 1589; Percent complete: 39.7%; Average loss: nan
Iteration: 1590; Percent complete: 39.8%; Average loss: nan
Iteration: 1591; Percent complete: 39.8%; Average loss: nan
Iteration: 1592; Percent complete: 39.8%; Average loss: nan
Iteration: 1593; Percent complete: 39.8%; Average loss: nan
Iteration: 1594; Percent complete: 39.9%; Average loss: nan
Iteration: 1595; Percent complete: 39.9%; Average loss: nan
Iteration: 1596; Percent complete: 39.9%; Average loss: nan
Iteration: 1597; Percent complete: 39.9%; Average loss: nan
Iteration: 1598; Percent complete: 40.0%; Average loss: nan
Iteration: 1599; Percent complete: 40.0%; Average loss: nan
Iteration: 1600; Percent complete: 40.0%; Average loss: nan
Iteration: 1601; Percent complete: 40.0%; Average loss: nan
Iteration: 1602; Percent complete: 40.1%; Average loss: nan
Iteration: 1603; Percent complete: 40.1%; Average loss: nan
Iteration: 1604; Percent complete: 40.1%; Average loss: nan
Iteration: 1605; Percent complete: 40.1%; Average loss: nan
Iteration: 1606; Percent complete: 40.2%; Average loss: nan
Iteration: 1607; Percent complete: 40.2%; Average loss: nan
Iteration: 1608; Percent complete: 40.2%; Average loss: nan
Iteration: 1609; Percent complete: 40.2%; Average loss: nan
Iteration: 1610; Percent complete: 40.2%; Average loss: nan
Iteration: 1611; Percent complete: 40.3%; Average loss: nan
Iteration: 1612; Percent complete: 40.3%; Average loss: nan
Iteration: 1613; Percent complete: 40.3%; Average loss: nan
Iteration: 1614; Percent complete: 40.4%; Average loss: nan
Iteration: 1615; Percent complete: 40.4%; Average loss: nan
Iteration: 1616; Percent complete: 40.4%; Average loss: nan
Iteration: 1617; Percent complete: 40.4%; Average loss: nan
Iteration: 1618; Percent complete: 40.5%; Average loss: nan
Iteration: 1619; Percent complete: 40.5%; Average loss: nan
Iteration: 1620; Percent complete: 40.5%; Average loss: nan
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```
Iteration: 1621; Percent complete: 40.5%; Average loss: nan
Iteration: 1622; Percent complete: 40.6%; Average loss: nan
Iteration: 1623; Percent complete: 40.6%; Average loss: nan
Iteration: 1624; Percent complete: 40.6%; Average loss: nan
Iteration: 1625; Percent complete: 40.6%; Average loss: nan
Iteration: 1626; Percent complete: 40.6%; Average loss: nan
Iteration: 1627; Percent complete: 40.7%; Average loss: nan
Iteration: 1628; Percent complete: 40.7%; Average loss: nan
Iteration: 1629; Percent complete: 40.7%; Average loss: nan
Iteration: 1630; Percent complete: 40.8%; Average loss: nan
Iteration: 1631; Percent complete: 40.8%; Average loss: nan
Iteration: 1632; Percent complete: 40.8%; Average loss: nan
Iteration: 1633; Percent complete: 40.8%; Average loss: nan
Iteration: 1634; Percent complete: 40.8%; Average loss: nan
Iteration: 1635; Percent complete: 40.9%; Average loss: nan
Iteration: 1636; Percent complete: 40.9%; Average loss: nan
Iteration: 1637; Percent complete: 40.9%; Average loss: nan
Iteration: 1638; Percent complete: 40.9%; Average loss: nan
Iteration: 1639; Percent complete: 41.0%; Average loss: nan
Iteration: 1640; Percent complete: 41.0%; Average loss: nan
Iteration: 1641; Percent complete: 41.0%; Average loss: nan
Iteration: 1642; Percent complete: 41.0%; Average loss: nan
Iteration: 1643; Percent complete: 41.1%; Average loss: nan
Iteration: 1644; Percent complete: 41.1%; Average loss: nan
Iteration: 1645; Percent complete: 41.1%; Average loss: nan
Iteration: 1646; Percent complete: 41.1%; Average loss: nan
Iteration: 1647; Percent complete: 41.2%; Average loss: nan
Iteration: 1648; Percent complete: 41.2%; Average loss: nan
Iteration: 1649; Percent complete: 41.2%; Average loss: nan
Iteration: 1650; Percent complete: 41.2%; Average loss: nan
Iteration: 1651; Percent complete: 41.3%; Average loss: nan
Iteration: 1652; Percent complete: 41.3%; Average loss: nan
Iteration: 1653; Percent complete: 41.3%; Average loss: nan
Iteration: 1654; Percent complete: 41.3%; Average loss: nan
Iteration: 1655; Percent complete: 41.4%; Average loss: nan
Iteration: 1656; Percent complete: 41.4%; Average loss: nan
Iteration: 1657; Percent complete: 41.4%; Average loss: nan
Iteration: 1658; Percent complete: 41.4%; Average loss: nan
Iteration: 1659; Percent complete: 41.5%; Average loss: nan
Iteration: 1660; Percent complete: 41.5%; Average loss: nan
Iteration: 1661; Percent complete: 41.5%; Average loss: nan
Iteration: 1662; Percent complete: 41.5%; Average loss: nan
Iteration: 1663; Percent complete: 41.6%; Average loss: nan
Iteration: 1664; Percent complete: 41.6%; Average loss: nan
Iteration: 1665; Percent complete: 41.6%; Average loss: nan
Iteration: 1666; Percent complete: 41.6%; Average loss: nan
Iteration: 1667; Percent complete: 41.7%; Average loss: nan
Iteration: 1668; Percent complete: 41.7%; Average loss: nan
Iteration: 1669; Percent complete: 41.7%; Average loss: nan
Iteration: 1670; Percent complete: 41.8%; Average loss: nan
Iteration: 1671; Percent complete: 41.8%; Average loss: nan
Iteration: 1672; Percent complete: 41.8%; Average loss: nan
Iteration: 1673; Percent complete: 41.8%; Average loss: nan
Iteration: 1674; Percent complete: 41.9%; Average loss: nan
Iteration: 1675; Percent complete: 41.9%; Average loss: nan
Iteration: 1676; Percent complete: 41.9%; Average loss: nan
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```
Iteration: 1677; Percent complete: 41.9%; Average loss: nan
Iteration: 1678; Percent complete: 41.9%; Average loss: nan
Iteration: 1679; Percent complete: 42.0%; Average loss: nan
Iteration: 1680; Percent complete: 42.0%; Average loss: nan
Iteration: 1681; Percent complete: 42.0%; Average loss: nan
Iteration: 1682; Percent complete: 42.0%; Average loss: nan
Iteration: 1683; Percent complete: 42.1%; Average loss: nan
Iteration: 1684; Percent complete: 42.1%; Average loss: nan
Iteration: 1685; Percent complete: 42.1%; Average loss: nan
Iteration: 1686; Percent complete: 42.1%; Average loss: nan
Iteration: 1687; Percent complete: 42.2%; Average loss: nan
Iteration: 1688; Percent complete: 42.2%; Average loss: nan
Iteration: 1689; Percent complete: 42.2%; Average loss: nan
Iteration: 1690; Percent complete: 42.2%; Average loss: nan
Iteration: 1691; Percent complete: 42.3%; Average loss: nan
Iteration: 1692; Percent complete: 42.3%; Average loss: nan
Iteration: 1693; Percent complete: 42.3%; Average loss: nan
Iteration: 1694; Percent complete: 42.4%; Average loss: nan
Iteration: 1695; Percent complete: 42.4%; Average loss: nan
Iteration: 1696; Percent complete: 42.4%; Average loss: nan
Iteration: 1697; Percent complete: 42.4%; Average loss: nan
Iteration: 1698; Percent complete: 42.4%; Average loss: nan
Iteration: 1699; Percent complete: 42.5%; Average loss: nan
Iteration: 1700; Percent complete: 42.5%; Average loss: nan
Iteration: 1701; Percent complete: 42.5%; Average loss: nan
Iteration: 1702; Percent complete: 42.5%; Average loss: nan
Iteration: 1703; Percent complete: 42.6%; Average loss: nan
Iteration: 1704; Percent complete: 42.6%; Average loss: nan
Iteration: 1705; Percent complete: 42.6%; Average loss: nan
Iteration: 1706; Percent complete: 42.6%; Average loss: nan
Iteration: 1707; Percent complete: 42.7%; Average loss: nan
Iteration: 1708; Percent complete: 42.7%; Average loss: nan
Iteration: 1709; Percent complete: 42.7%; Average loss: nan
Iteration: 1710; Percent complete: 42.8%; Average loss: nan
Iteration: 1711; Percent complete: 42.8%; Average loss: nan
Iteration: 1712; Percent complete: 42.8%; Average loss: nan
Iteration: 1713; Percent complete: 42.8%; Average loss: nan
Iteration: 1714; Percent complete: 42.9%; Average loss: nan
Iteration: 1715; Percent complete: 42.9%; Average loss: nan
Iteration: 1716; Percent complete: 42.9%; Average loss: nan
Iteration: 1717; Percent complete: 42.9%; Average loss: nan
Iteration: 1718; Percent complete: 43.0%; Average loss: nan
Iteration: 1719; Percent complete: 43.0%; Average loss: nan
Iteration: 1720; Percent complete: 43.0%; Average loss: nan
Iteration: 1721; Percent complete: 43.0%; Average loss: nan
Iteration: 1722; Percent complete: 43.0%; Average loss: nan
Iteration: 1723; Percent complete: 43.1%; Average loss: nan
Iteration: 1724; Percent complete: 43.1%; Average loss: nan
Iteration: 1725; Percent complete: 43.1%; Average loss: nan
Iteration: 1726; Percent complete: 43.1%; Average loss: nan
Iteration: 1727; Percent complete: 43.2%; Average loss: nan
Iteration: 1728; Percent complete: 43.2%; Average loss: nan
Iteration: 1729; Percent complete: 43.2%; Average loss: nan
Iteration: 1730; Percent complete: 43.2%; Average loss: nan
Iteration: 1731; Percent complete: 43.3%; Average loss: nan
Iteration: 1732; Percent complete: 43.3%; Average loss: nan
```

```
Iteration: 1733; Percent complete: 43.3%; Average loss: nan
Iteration: 1734; Percent complete: 43.4%; Average loss: nan
Iteration: 1735; Percent complete: 43.4%; Average loss: nan
Iteration: 1736; Percent complete: 43.4%; Average loss: nan
Iteration: 1737; Percent complete: 43.4%; Average loss: nan
Iteration: 1738; Percent complete: 43.5%; Average loss: nan
Iteration: 1739; Percent complete: 43.5%; Average loss: nan
Iteration: 1740; Percent complete: 43.5%; Average loss: nan
Iteration: 1741; Percent complete: 43.5%; Average loss: nan
Iteration: 1742; Percent complete: 43.5%; Average loss: nan
Iteration: 1743; Percent complete: 43.6%; Average loss: nan
Iteration: 1744; Percent complete: 43.6%; Average loss: nan
Iteration: 1745; Percent complete: 43.6%; Average loss: nan
Iteration: 1746; Percent complete: 43.6%; Average loss: nan
Iteration: 1747; Percent complete: 43.7%; Average loss: nan
Iteration: 1748; Percent complete: 43.7%; Average loss: nan
Iteration: 1749; Percent complete: 43.7%; Average loss: nan
Iteration: 1750; Percent complete: 43.8%; Average loss: nan
Iteration: 1751; Percent complete: 43.8%; Average loss: nan
Iteration: 1752; Percent complete: 43.8%; Average loss: nan
Iteration: 1753; Percent complete: 43.8%; Average loss: nan
Iteration: 1754; Percent complete: 43.9%; Average loss: nan
Iteration: 1755; Percent complete: 43.9%; Average loss: nan
Iteration: 1756; Percent complete: 43.9%; Average loss: nan
Iteration: 1757; Percent complete: 43.9%; Average loss: nan
Iteration: 1758; Percent complete: 44.0%; Average loss: nan
Iteration: 1759; Percent complete: 44.0%; Average loss: nan
Iteration: 1760; Percent complete: 44.0%; Average loss: nan
Iteration: 1761; Percent complete: 44.0%; Average loss: nan
Iteration: 1762; Percent complete: 44.0%; Average loss: nan
Iteration: 1763; Percent complete: 44.1%; Average loss: nan
Iteration: 1764; Percent complete: 44.1%; Average loss: nan
Iteration: 1765; Percent complete: 44.1%; Average loss: nan
Iteration: 1766; Percent complete: 44.1%; Average loss: nan
Iteration: 1767; Percent complete: 44.2%; Average loss: nan
Iteration: 1768; Percent complete: 44.2%; Average loss: nan
Iteration: 1769; Percent complete: 44.2%; Average loss: nan
Iteration: 1770; Percent complete: 44.2%; Average loss: nan
Iteration: 1771; Percent complete: 44.3%; Average loss: nan
Iteration: 1772; Percent complete: 44.3%; Average loss: nan
Iteration: 1773; Percent complete: 44.3%; Average loss: nan
Iteration: 1774; Percent complete: 44.4%; Average loss: nan
Iteration: 1775; Percent complete: 44.4%; Average loss: nan
Iteration: 1776; Percent complete: 44.4%; Average loss: nan
Iteration: 1777; Percent complete: 44.4%; Average loss: nan
Iteration: 1778; Percent complete: 44.5%; Average loss: nan
Iteration: 1779; Percent complete: 44.5%; Average loss: nan
Iteration: 1780; Percent complete: 44.5%; Average loss: nan
Iteration: 1781; Percent complete: 44.5%; Average loss: nan
Iteration: 1782; Percent complete: 44.5%; Average loss: nan
Iteration: 1783; Percent complete: 44.6%; Average loss: nan
Iteration: 1784; Percent complete: 44.6%; Average loss: nan
Iteration: 1785; Percent complete: 44.6%; Average loss: nan
Iteration: 1786; Percent complete: 44.6%; Average loss: nan
Iteration: 1787; Percent complete: 44.7%; Average loss: nan
Iteration: 1788; Percent complete: 44.7%; Average loss: nan
```

```
Iteration: 1789; Percent complete: 44.7%; Average loss: nan
Iteration: 1790; Percent complete: 44.8%; Average loss: nan
Iteration: 1791; Percent complete: 44.8%; Average loss: nan
Iteration: 1792; Percent complete: 44.8%; Average loss: nan
Iteration: 1793; Percent complete: 44.8%; Average loss: nan
Iteration: 1794; Percent complete: 44.9%; Average loss: nan
Iteration: 1795; Percent complete: 44.9%; Average loss: nan
Iteration: 1796; Percent complete: 44.9%; Average loss: nan
Iteration: 1797; Percent complete: 44.9%; Average loss: nan
Iteration: 1798; Percent complete: 45.0%; Average loss: nan
Iteration: 1799; Percent complete: 45.0%; Average loss: nan
Iteration: 1800; Percent complete: 45.0%; Average loss: nan
Iteration: 1801; Percent complete: 45.0%; Average loss: nan
Iteration: 1802; Percent complete: 45.1%; Average loss: nan
Iteration: 1803; Percent complete: 45.1%; Average loss: nan
Iteration: 1804; Percent complete: 45.1%; Average loss: nan
Iteration: 1805; Percent complete: 45.1%; Average loss: nan
Iteration: 1806; Percent complete: 45.1%; Average loss: nan
Iteration: 1807; Percent complete: 45.2%; Average loss: nan
Iteration: 1808; Percent complete: 45.2%; Average loss: nan
Iteration: 1809; Percent complete: 45.2%; Average loss: nan
Iteration: 1810; Percent complete: 45.2%; Average loss: nan
Iteration: 1811; Percent complete: 45.3%; Average loss: nan
Iteration: 1812; Percent complete: 45.3%; Average loss: nan
Iteration: 1813; Percent complete: 45.3%; Average loss: nan
Iteration: 1814; Percent complete: 45.4%; Average loss: nan
Iteration: 1815; Percent complete: 45.4%; Average loss: nan
Iteration: 1816; Percent complete: 45.4%; Average loss: nan
Iteration: 1817; Percent complete: 45.4%; Average loss: nan
Iteration: 1818; Percent complete: 45.5%; Average loss: nan
Iteration: 1819; Percent complete: 45.5%; Average loss: nan
Iteration: 1820; Percent complete: 45.5%; Average loss: nan
Iteration: 1821; Percent complete: 45.5%; Average loss: nan
Iteration: 1822; Percent complete: 45.6%; Average loss: nan
Iteration: 1823; Percent complete: 45.6%; Average loss: nan
Iteration: 1824; Percent complete: 45.6%; Average loss: nan
Iteration: 1825; Percent complete: 45.6%; Average loss: nan
Iteration: 1826; Percent complete: 45.6%; Average loss: nan
Iteration: 1827; Percent complete: 45.7%; Average loss: nan
Iteration: 1828; Percent complete: 45.7%; Average loss: nan
Iteration: 1829; Percent complete: 45.7%; Average loss: nan
Iteration: 1830; Percent complete: 45.8%; Average loss: nan
Iteration: 1831; Percent complete: 45.8%; Average loss: nan
Iteration: 1832; Percent complete: 45.8%; Average loss: nan
Iteration: 1833; Percent complete: 45.8%; Average loss: nan
Iteration: 1834; Percent complete: 45.9%; Average loss: nan
Iteration: 1835; Percent complete: 45.9%; Average loss: nan
Iteration: 1836; Percent complete: 45.9%; Average loss: nan
Iteration: 1837; Percent complete: 45.9%; Average loss: nan
Iteration: 1838; Percent complete: 46.0%; Average loss: nan
Iteration: 1839; Percent complete: 46.0%; Average loss: nan
Iteration: 1840; Percent complete: 46.0%; Average loss: nan
Iteration: 1841; Percent complete: 46.0%; Average loss: nan
Iteration: 1842; Percent complete: 46.1%; Average loss: nan
Iteration: 1843; Percent complete: 46.1%; Average loss: nan
Iteration: 1844; Percent complete: 46.1%; Average loss: nan
```

```
Iteration: 1845; Percent complete: 46.1%; Average loss: nan
Iteration: 1846; Percent complete: 46.2%; Average loss: nan
Iteration: 1847; Percent complete: 46.2%; Average loss: nan
Iteration: 1848; Percent complete: 46.2%; Average loss: nan
Iteration: 1849; Percent complete: 46.2%; Average loss: nan
Iteration: 1850; Percent complete: 46.2%; Average loss: nan
Iteration: 1851; Percent complete: 46.3%; Average loss: nan
Iteration: 1852; Percent complete: 46.3%; Average loss: nan
Iteration: 1853; Percent complete: 46.3%; Average loss: nan
Iteration: 1854; Percent complete: 46.4%; Average loss: nan
Iteration: 1855; Percent complete: 46.4%; Average loss: nan
Iteration: 1856; Percent complete: 46.4%; Average loss: nan
Iteration: 1857; Percent complete: 46.4%; Average loss: nan
Iteration: 1858; Percent complete: 46.5%; Average loss: nan
Iteration: 1859; Percent complete: 46.5%; Average loss: nan
Iteration: 1860; Percent complete: 46.5%; Average loss: nan
Iteration: 1861; Percent complete: 46.5%; Average loss: nan
Iteration: 1862; Percent complete: 46.6%; Average loss: nan
Iteration: 1863; Percent complete: 46.6%; Average loss: nan
Iteration: 1864; Percent complete: 46.6%; Average loss: nan
Iteration: 1865; Percent complete: 46.6%; Average loss: nan
Iteration: 1866; Percent complete: 46.7%; Average loss: nan
Iteration: 1867; Percent complete: 46.7%; Average loss: nan
Iteration: 1868; Percent complete: 46.7%; Average loss: nan
Iteration: 1869; Percent complete: 46.7%; Average loss: nan
Iteration: 1870; Percent complete: 46.8%; Average loss: nan
Iteration: 1871; Percent complete: 46.8%; Average loss: nan
Iteration: 1872; Percent complete: 46.8%; Average loss: nan
Iteration: 1873; Percent complete: 46.8%; Average loss: nan
Iteration: 1874; Percent complete: 46.9%; Average loss: nan
Iteration: 1875; Percent complete: 46.9%; Average loss: nan
Iteration: 1876; Percent complete: 46.9%; Average loss: nan
Iteration: 1877; Percent complete: 46.9%; Average loss: nan
Iteration: 1878; Percent complete: 46.9%; Average loss: nan
Iteration: 1879; Percent complete: 47.0%; Average loss: nan
Iteration: 1880; Percent complete: 47.0%; Average loss: nan
Iteration: 1881; Percent complete: 47.0%; Average loss: nan
Iteration: 1882; Percent complete: 47.0%; Average loss: nan
Iteration: 1883; Percent complete: 47.1%; Average loss: nan
Iteration: 1884; Percent complete: 47.1%; Average loss: nan
Iteration: 1885; Percent complete: 47.1%; Average loss: nan
Iteration: 1886; Percent complete: 47.1%; Average loss: nan
Iteration: 1887; Percent complete: 47.2%; Average loss: nan
Iteration: 1888; Percent complete: 47.2%; Average loss: nan
Iteration: 1889; Percent complete: 47.2%; Average loss: nan
Iteration: 1890; Percent complete: 47.2%; Average loss: nan
Iteration: 1891; Percent complete: 47.3%; Average loss: nan
Iteration: 1892; Percent complete: 47.3%; Average loss: nan
Iteration: 1893; Percent complete: 47.3%; Average loss: nan
Iteration: 1894; Percent complete: 47.3%; Average loss: nan
Iteration: 1895; Percent complete: 47.4%; Average loss: nan
Iteration: 1896; Percent complete: 47.4%; Average loss: nan
Iteration: 1897; Percent complete: 47.4%; Average loss: nan
Iteration: 1898; Percent complete: 47.4%; Average loss: nan
Iteration: 1899; Percent complete: 47.5%; Average loss: nan
Iteration: 1900; Percent complete: 47.5%; Average loss: nan
```

```
Iteration: 1901; Percent complete: 47.5%; Average loss: nan
Iteration: 1902; Percent complete: 47.5%; Average loss: nan
Iteration: 1903; Percent complete: 47.6%; Average loss: nan
Iteration: 1904; Percent complete: 47.6%; Average loss: nan
Iteration: 1905; Percent complete: 47.6%; Average loss: nan
Iteration: 1906; Percent complete: 47.6%; Average loss: nan
Iteration: 1907; Percent complete: 47.7%; Average loss: nan
Iteration: 1908; Percent complete: 47.7%; Average loss: nan
Iteration: 1909; Percent complete: 47.7%; Average loss: nan
Iteration: 1910; Percent complete: 47.8%; Average loss: nan
Iteration: 1911; Percent complete: 47.8%; Average loss: nan
Iteration: 1912; Percent complete: 47.8%; Average loss: nan
Iteration: 1913; Percent complete: 47.8%; Average loss: nan
Iteration: 1914; Percent complete: 47.9%; Average loss: nan
Iteration: 1915; Percent complete: 47.9%; Average loss: nan
Iteration: 1916; Percent complete: 47.9%; Average loss: nan
Iteration: 1917; Percent complete: 47.9%; Average loss: nan
Iteration: 1918; Percent complete: 47.9%; Average loss: nan
Iteration: 1919; Percent complete: 48.0%; Average loss: nan
Iteration: 1920; Percent complete: 48.0%; Average loss: nan
Iteration: 1921; Percent complete: 48.0%; Average loss: nan
Iteration: 1922; Percent complete: 48.0%; Average loss: nan
Iteration: 1923; Percent complete: 48.1%; Average loss: nan
Iteration: 1924; Percent complete: 48.1%; Average loss: nan
Iteration: 1925; Percent complete: 48.1%; Average loss: nan
Iteration: 1926; Percent complete: 48.1%; Average loss: nan
Iteration: 1927; Percent complete: 48.2%; Average loss: nan
Iteration: 1928; Percent complete: 48.2%; Average loss: nan
Iteration: 1929; Percent complete: 48.2%; Average loss: nan
Iteration: 1930; Percent complete: 48.2%; Average loss: nan
Iteration: 1931; Percent complete: 48.3%; Average loss: nan
Iteration: 1932; Percent complete: 48.3%; Average loss: nan
Iteration: 1933; Percent complete: 48.3%; Average loss: nan
Iteration: 1934; Percent complete: 48.4%; Average loss: nan
Iteration: 1935; Percent complete: 48.4%; Average loss: nan
Iteration: 1936; Percent complete: 48.4%; Average loss: nan
Iteration: 1937; Percent complete: 48.4%; Average loss: nan
Iteration: 1938; Percent complete: 48.4%; Average loss: nan
Iteration: 1939; Percent complete: 48.5%; Average loss: nan
Iteration: 1940; Percent complete: 48.5%; Average loss: nan
Iteration: 1941; Percent complete: 48.5%; Average loss: nan
Iteration: 1942; Percent complete: 48.5%; Average loss: nan
Iteration: 1943; Percent complete: 48.6%; Average loss: nan
Iteration: 1944; Percent complete: 48.6%; Average loss: nan
Iteration: 1945; Percent complete: 48.6%; Average loss: nan
Iteration: 1946; Percent complete: 48.6%; Average loss: nan
Iteration: 1947; Percent complete: 48.7%; Average loss: nan
Iteration: 1948; Percent complete: 48.7%; Average loss: nan
Iteration: 1949; Percent complete: 48.7%; Average loss: nan
Iteration: 1950; Percent complete: 48.8%; Average loss: nan
Iteration: 1951; Percent complete: 48.8%; Average loss: nan
Iteration: 1952; Percent complete: 48.8%; Average loss: nan
Iteration: 1953; Percent complete: 48.8%; Average loss: nan
Iteration: 1954; Percent complete: 48.9%; Average loss: nan
Iteration: 1955; Percent complete: 48.9%; Average loss: nan
Iteration: 1956; Percent complete: 48.9%; Average loss: nan
```

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Iteration: 1957; Percent complete: 48.9%; Average loss: nan
Iteration: 1958; Percent complete: 48.9%; Average loss: nan
Iteration: 1959; Percent complete: 49.0%; Average loss: nan
Iteration: 1960; Percent complete: 49.0%; Average loss: nan
Iteration: 1961; Percent complete: 49.0%; Average loss: nan
Iteration: 1962; Percent complete: 49.0%; Average loss: nan
Iteration: 1963; Percent complete: 49.1%; Average loss: nan
Iteration: 1964; Percent complete: 49.1%; Average loss: nan
Iteration: 1965; Percent complete: 49.1%; Average loss: nan
Iteration: 1966; Percent complete: 49.1%; Average loss: nan
Iteration: 1967; Percent complete: 49.2%; Average loss: nan
Iteration: 1968; Percent complete: 49.2%; Average loss: nan
Iteration: 1969; Percent complete: 49.2%; Average loss: nan
Iteration: 1970; Percent complete: 49.2%; Average loss: nan
Iteration: 1971; Percent complete: 49.3%; Average loss: nan
Iteration: 1972; Percent complete: 49.3%; Average loss: nan
Iteration: 1973; Percent complete: 49.3%; Average loss: nan
Iteration: 1974; Percent complete: 49.4%; Average loss: nan
Iteration: 1975; Percent complete: 49.4%; Average loss: nan
Iteration: 1976; Percent complete: 49.4%; Average loss: nan
Iteration: 1977; Percent complete: 49.4%; Average loss: nan
Iteration: 1978; Percent complete: 49.5%; Average loss: nan
Iteration: 1979; Percent complete: 49.5%; Average loss: nan
Iteration: 1980; Percent complete: 49.5%; Average loss: nan
Iteration: 1981; Percent complete: 49.5%; Average loss: nan
Iteration: 1982; Percent complete: 49.5%; Average loss: nan
Iteration: 1983; Percent complete: 49.6%; Average loss: nan
Iteration: 1984; Percent complete: 49.6%; Average loss: nan
Iteration: 1985; Percent complete: 49.6%; Average loss: nan
Iteration: 1986; Percent complete: 49.6%; Average loss: nan
Iteration: 1987; Percent complete: 49.7%; Average loss: nan
Iteration: 1988; Percent complete: 49.7%; Average loss: nan
Iteration: 1989; Percent complete: 49.7%; Average loss: nan
Iteration: 1990; Percent complete: 49.8%; Average loss: nan
Iteration: 1991; Percent complete: 49.8%; Average loss: nan
Iteration: 1992; Percent complete: 49.8%; Average loss: nan
Iteration: 1993; Percent complete: 49.8%; Average loss: nan
Iteration: 1994; Percent complete: 49.9%; Average loss: nan
Iteration: 1995; Percent complete: 49.9%; Average loss: nan
Iteration: 1996; Percent complete: 49.9%; Average loss: nan
Iteration: 1997; Percent complete: 49.9%; Average loss: nan
Iteration: 1998; Percent complete: 50.0%; Average loss: nan
Iteration: 1999; Percent complete: 50.0%; Average loss: nan
Iteration: 2000; Percent complete: 50.0%; Average loss: nan
Iteration: 2001; Percent complete: 50.0%; Average loss: nan
Iteration: 2002; Percent complete: 50.0%; Average loss: nan
Iteration: 2003; Percent complete: 50.1%; Average loss: nan
Iteration: 2004; Percent complete: 50.1%; Average loss: nan
Iteration: 2005; Percent complete: 50.1%; Average loss: nan
Iteration: 2006; Percent complete: 50.1%; Average loss: nan
Iteration: 2007; Percent complete: 50.2%; Average loss: nan
Iteration: 2008; Percent complete: 50.2%; Average loss: nan
Iteration: 2009; Percent complete: 50.2%; Average loss: nan
Iteration: 2010; Percent complete: 50.2%; Average loss: nan
Iteration: 2011; Percent complete: 50.3%; Average loss: nan
Iteration: 2012; Percent complete: 50.3%; Average loss: nan
```

```
Iteration: 2013; Percent complete: 50.3%; Average loss: nan
Iteration: 2014; Percent complete: 50.3%; Average loss: nan
Iteration: 2015; Percent complete: 50.4%; Average loss: nan
Iteration: 2016; Percent complete: 50.4%; Average loss: nan
Iteration: 2017; Percent complete: 50.4%; Average loss: nan
Iteration: 2018; Percent complete: 50.4%; Average loss: nan
Iteration: 2019; Percent complete: 50.5%; Average loss: nan
Iteration: 2020; Percent complete: 50.5%; Average loss: nan
Iteration: 2021; Percent complete: 50.5%; Average loss: nan
Iteration: 2022; Percent complete: 50.5%; Average loss: nan
Iteration: 2023; Percent complete: 50.6%; Average loss: nan
Iteration: 2024; Percent complete: 50.6%; Average loss: nan
Iteration: 2025; Percent complete: 50.6%; Average loss: nan
Iteration: 2026; Percent complete: 50.6%; Average loss: nan
Iteration: 2027; Percent complete: 50.7%; Average loss: nan
Iteration: 2028; Percent complete: 50.7%; Average loss: nan
Iteration: 2029; Percent complete: 50.7%; Average loss: nan
Iteration: 2030; Percent complete: 50.7%; Average loss: nan
Iteration: 2031; Percent complete: 50.8%; Average loss: nan
Iteration: 2032; Percent complete: 50.8%; Average loss: nan
Iteration: 2033; Percent complete: 50.8%; Average loss: nan
Iteration: 2034; Percent complete: 50.8%; Average loss: nan
Iteration: 2035; Percent complete: 50.9%; Average loss: nan
Iteration: 2036; Percent complete: 50.9%; Average loss: nan
Iteration: 2037; Percent complete: 50.9%; Average loss: nan
Iteration: 2038; Percent complete: 50.9%; Average loss: nan
Iteration: 2039; Percent complete: 51.0%; Average loss: nan
Iteration: 2040; Percent complete: 51.0%; Average loss: nan
Iteration: 2041; Percent complete: 51.0%; Average loss: nan
Iteration: 2042; Percent complete: 51.0%; Average loss: nan
Iteration: 2043; Percent complete: 51.1%; Average loss: nan
Iteration: 2044; Percent complete: 51.1%; Average loss: nan
Iteration: 2045; Percent complete: 51.1%; Average loss: nan
Iteration: 2046; Percent complete: 51.1%; Average loss: nan
Iteration: 2047; Percent complete: 51.2%; Average loss: nan
Iteration: 2048; Percent complete: 51.2%; Average loss: nan
Iteration: 2049; Percent complete: 51.2%; Average loss: nan
Iteration: 2050; Percent complete: 51.2%; Average loss: nan
Iteration: 2051; Percent complete: 51.3%; Average loss: nan
Iteration: 2052; Percent complete: 51.3%; Average loss: nan
Iteration: 2053; Percent complete: 51.3%; Average loss: nan
Iteration: 2054; Percent complete: 51.3%; Average loss: nan
Iteration: 2055; Percent complete: 51.4%; Average loss: nan
Iteration: 2056; Percent complete: 51.4%; Average loss: nan
Iteration: 2057; Percent complete: 51.4%; Average loss: nan
Iteration: 2058; Percent complete: 51.4%; Average loss: nan
Iteration: 2059; Percent complete: 51.5%; Average loss: nan
Iteration: 2060; Percent complete: 51.5%; Average loss: nan
Iteration: 2061; Percent complete: 51.5%; Average loss: nan
Iteration: 2062; Percent complete: 51.5%; Average loss: nan
Iteration: 2063; Percent complete: 51.6%; Average loss: nan
Iteration: 2064; Percent complete: 51.6%; Average loss: nan
Iteration: 2065; Percent complete: 51.6%; Average loss: nan
Iteration: 2066; Percent complete: 51.6%; Average loss: nan
Iteration: 2067; Percent complete: 51.7%; Average loss: nan
Iteration: 2068; Percent complete: 51.7%; Average loss: nan
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```
Iteration: 2069; Percent complete: 51.7%; Average loss: nan
Iteration: 2070; Percent complete: 51.7%; Average loss: nan
Iteration: 2071; Percent complete: 51.8%; Average loss: nan
Iteration: 2072; Percent complete: 51.8%; Average loss: nan
Iteration: 2073; Percent complete: 51.8%; Average loss: nan
Iteration: 2074; Percent complete: 51.8%; Average loss: nan
Iteration: 2075; Percent complete: 51.9%; Average loss: nan
Iteration: 2076; Percent complete: 51.9%; Average loss: nan
Iteration: 2077; Percent complete: 51.9%; Average loss: nan
Iteration: 2078; Percent complete: 51.9%; Average loss: nan
Iteration: 2079; Percent complete: 52.0%; Average loss: nan
Iteration: 2080; Percent complete: 52.0%; Average loss: nan
Iteration: 2081; Percent complete: 52.0%; Average loss: nan
Iteration: 2082; Percent complete: 52.0%; Average loss: nan
Iteration: 2083; Percent complete: 52.1%; Average loss: nan
Iteration: 2084; Percent complete: 52.1%; Average loss: nan
Iteration: 2085; Percent complete: 52.1%; Average loss: nan
Iteration: 2086; Percent complete: 52.1%; Average loss: nan
Iteration: 2087; Percent complete: 52.2%; Average loss: nan
Iteration: 2088; Percent complete: 52.2%; Average loss: nan
Iteration: 2089; Percent complete: 52.2%; Average loss: nan
Iteration: 2090; Percent complete: 52.2%; Average loss: nan
Iteration: 2091; Percent complete: 52.3%; Average loss: nan
Iteration: 2092; Percent complete: 52.3%; Average loss: nan
Iteration: 2093; Percent complete: 52.3%; Average loss: nan
Iteration: 2094; Percent complete: 52.3%; Average loss: nan
Iteration: 2095; Percent complete: 52.4%; Average loss: nan
Iteration: 2096; Percent complete: 52.4%; Average loss: nan
Iteration: 2097; Percent complete: 52.4%; Average loss: nan
Iteration: 2098; Percent complete: 52.4%; Average loss: nan
Iteration: 2099; Percent complete: 52.5%; Average loss: nan
Iteration: 2100; Percent complete: 52.5%; Average loss: nan
Iteration: 2101; Percent complete: 52.5%; Average loss: nan
Iteration: 2102; Percent complete: 52.5%; Average loss: nan
Iteration: 2103; Percent complete: 52.6%; Average loss: nan
Iteration: 2104; Percent complete: 52.6%; Average loss: nan
Iteration: 2105; Percent complete: 52.6%; Average loss: nan
Iteration: 2106; Percent complete: 52.6%; Average loss: nan
Iteration: 2107; Percent complete: 52.7%; Average loss: nan
Iteration: 2108; Percent complete: 52.7%; Average loss: nan
Iteration: 2109; Percent complete: 52.7%; Average loss: nan
Iteration: 2110; Percent complete: 52.8%; Average loss: nan
Iteration: 2111; Percent complete: 52.8%; Average loss: nan
Iteration: 2112; Percent complete: 52.8%; Average loss: nan
Iteration: 2113; Percent complete: 52.8%; Average loss: nan
Iteration: 2114; Percent complete: 52.8%; Average loss: nan
Iteration: 2115; Percent complete: 52.9%; Average loss: nan
Iteration: 2116; Percent complete: 52.9%; Average loss: nan
Iteration: 2117; Percent complete: 52.9%; Average loss: nan
Iteration: 2118; Percent complete: 52.9%; Average loss: nan
Iteration: 2119; Percent complete: 53.0%; Average loss: nan
Iteration: 2120; Percent complete: 53.0%; Average loss: nan
Iteration: 2121; Percent complete: 53.0%; Average loss: nan
Iteration: 2122; Percent complete: 53.0%; Average loss: nan
Iteration: 2123; Percent complete: 53.1%; Average loss: nan
Iteration: 2124; Percent complete: 53.1%; Average loss: nan
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Iteration: 2125; Percent complete: 53.1%; Average loss: nan
Iteration: 2126; Percent complete: 53.1%; Average loss: nan
Iteration: 2127; Percent complete: 53.2%; Average loss: nan
Iteration: 2128; Percent complete: 53.2%; Average loss: nan
Iteration: 2129; Percent complete: 53.2%; Average loss: nan
Iteration: 2130; Percent complete: 53.2%; Average loss: nan
Iteration: 2131; Percent complete: 53.3%; Average loss: nan
Iteration: 2132; Percent complete: 53.3%; Average loss: nan
Iteration: 2133; Percent complete: 53.3%; Average loss: nan
Iteration: 2134; Percent complete: 53.3%; Average loss: nan
Iteration: 2135; Percent complete: 53.4%; Average loss: nan
Iteration: 2136; Percent complete: 53.4%; Average loss: nan
Iteration: 2137; Percent complete: 53.4%; Average loss: nan
Iteration: 2138; Percent complete: 53.4%; Average loss: nan
Iteration: 2139; Percent complete: 53.5%; Average loss: nan
Iteration: 2140; Percent complete: 53.5%; Average loss: nan
Iteration: 2141; Percent complete: 53.5%; Average loss: nan
Iteration: 2142; Percent complete: 53.5%; Average loss: nan
Iteration: 2143; Percent complete: 53.6%; Average loss: nan
Iteration: 2144; Percent complete: 53.6%; Average loss: nan
Iteration: 2145; Percent complete: 53.6%; Average loss: nan
Iteration: 2146; Percent complete: 53.6%; Average loss: nan
Iteration: 2147; Percent complete: 53.7%; Average loss: nan
Iteration: 2148; Percent complete: 53.7%; Average loss: nan
Iteration: 2149; Percent complete: 53.7%; Average loss: nan
Iteration: 2150; Percent complete: 53.8%; Average loss: nan
Iteration: 2151; Percent complete: 53.8%; Average loss: nan
Iteration: 2152; Percent complete: 53.8%; Average loss: nan
Iteration: 2153; Percent complete: 53.8%; Average loss: nan
Iteration: 2154; Percent complete: 53.8%; Average loss: nan
Iteration: 2155; Percent complete: 53.9%; Average loss: nan
Iteration: 2156; Percent complete: 53.9%; Average loss: nan
Iteration: 2157; Percent complete: 53.9%; Average loss: nan
Iteration: 2158; Percent complete: 53.9%; Average loss: nan
Iteration: 2159; Percent complete: 54.0%; Average loss: nan
Iteration: 2160; Percent complete: 54.0%; Average loss: nan
Iteration: 2161; Percent complete: 54.0%; Average loss: nan
Iteration: 2162; Percent complete: 54.0%; Average loss: nan
Iteration: 2163; Percent complete: 54.1%; Average loss: nan
Iteration: 2164; Percent complete: 54.1%; Average loss: nan
Iteration: 2165; Percent complete: 54.1%; Average loss: nan
Iteration: 2166; Percent complete: 54.1%; Average loss: nan
Iteration: 2167; Percent complete: 54.2%; Average loss: nan
Iteration: 2168; Percent complete: 54.2%; Average loss: nan
Iteration: 2169; Percent complete: 54.2%; Average loss: nan
Iteration: 2170; Percent complete: 54.2%; Average loss: nan
Iteration: 2171; Percent complete: 54.3%; Average loss: nan
Iteration: 2172; Percent complete: 54.3%; Average loss: nan
Iteration: 2173; Percent complete: 54.3%; Average loss: nan
Iteration: 2174; Percent complete: 54.4%; Average loss: nan
Iteration: 2175; Percent complete: 54.4%; Average loss: nan
Iteration: 2176; Percent complete: 54.4%; Average loss: nan
Iteration: 2177; Percent complete: 54.4%; Average loss: nan
Iteration: 2178; Percent complete: 54.4%; Average loss: nan
Iteration: 2179; Percent complete: 54.5%; Average loss: nan
Iteration: 2180; Percent complete: 54.5%; Average loss: nan
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Iteration: 2181; Percent complete: 54.5%; Average loss: nan
Iteration: 2182; Percent complete: 54.5%; Average loss: nan
Iteration: 2183; Percent complete: 54.6%; Average loss: nan
Iteration: 2184; Percent complete: 54.6%; Average loss: nan
Iteration: 2185; Percent complete: 54.6%; Average loss: nan
Iteration: 2186; Percent complete: 54.6%; Average loss: nan
Iteration: 2187; Percent complete: 54.7%; Average loss: nan
Iteration: 2188; Percent complete: 54.7%; Average loss: nan
Iteration: 2189; Percent complete: 54.7%; Average loss: nan
Iteration: 2190; Percent complete: 54.8%; Average loss: nan
Iteration: 2191; Percent complete: 54.8%; Average loss: nan
Iteration: 2192; Percent complete: 54.8%; Average loss: nan
Iteration: 2193; Percent complete: 54.8%; Average loss: nan
Iteration: 2194; Percent complete: 54.9%; Average loss: nan
Iteration: 2195; Percent complete: 54.9%; Average loss: nan
Iteration: 2196; Percent complete: 54.9%; Average loss: nan
Iteration: 2197; Percent complete: 54.9%; Average loss: nan
Iteration: 2198; Percent complete: 54.9%; Average loss: nan
Iteration: 2199; Percent complete: 55.0%; Average loss: nan
Iteration: 2200; Percent complete: 55.0%; Average loss: nan
Iteration: 2201; Percent complete: 55.0%; Average loss: nan
Iteration: 2202; Percent complete: 55.0%; Average loss: nan
Iteration: 2203; Percent complete: 55.1%; Average loss: nan
Iteration: 2204; Percent complete: 55.1%; Average loss: nan
Iteration: 2205; Percent complete: 55.1%; Average loss: nan
Iteration: 2206; Percent complete: 55.1%; Average loss: nan
Iteration: 2207; Percent complete: 55.2%; Average loss: nan
Iteration: 2208; Percent complete: 55.2%; Average loss: nan
Iteration: 2209; Percent complete: 55.2%; Average loss: nan
Iteration: 2210; Percent complete: 55.2%; Average loss: nan
Iteration: 2211; Percent complete: 55.3%; Average loss: nan
Iteration: 2212; Percent complete: 55.3%; Average loss: nan
Iteration: 2213; Percent complete: 55.3%; Average loss: nan
Iteration: 2214; Percent complete: 55.4%; Average loss: nan
Iteration: 2215; Percent complete: 55.4%; Average loss: nan
Iteration: 2216; Percent complete: 55.4%; Average loss: nan
Iteration: 2217; Percent complete: 55.4%; Average loss: nan
Iteration: 2218; Percent complete: 55.5%; Average loss: nan
Iteration: 2219; Percent complete: 55.5%; Average loss: nan
Iteration: 2220; Percent complete: 55.5%; Average loss: nan
Iteration: 2221; Percent complete: 55.5%; Average loss: nan
Iteration: 2222; Percent complete: 55.5%; Average loss: nan
Iteration: 2223; Percent complete: 55.6%; Average loss: nan
Iteration: 2224; Percent complete: 55.6%; Average loss: nan
Iteration: 2225; Percent complete: 55.6%; Average loss: nan
Iteration: 2226; Percent complete: 55.6%; Average loss: nan
Iteration: 2227; Percent complete: 55.7%; Average loss: nan
Iteration: 2228; Percent complete: 55.7%; Average loss: nan
Iteration: 2229; Percent complete: 55.7%; Average loss: nan
Iteration: 2230; Percent complete: 55.8%; Average loss: nan
Iteration: 2231; Percent complete: 55.8%; Average loss: nan
Iteration: 2232; Percent complete: 55.8%; Average loss: nan
Iteration: 2233; Percent complete: 55.8%; Average loss: nan
Iteration: 2234; Percent complete: 55.9%; Average loss: nan
Iteration: 2235; Percent complete: 55.9%; Average loss: nan
Iteration: 2236; Percent complete: 55.9%; Average loss: nan
```

```
Iteration: 2237; Percent complete: 55.9%; Average loss: nan
Iteration: 2238; Percent complete: 56.0%; Average loss: nan
Iteration: 2239; Percent complete: 56.0%; Average loss: nan
Iteration: 2240; Percent complete: 56.0%; Average loss: nan
Iteration: 2241; Percent complete: 56.0%; Average loss: nan
Iteration: 2242; Percent complete: 56.0%; Average loss: nan
Iteration: 2243; Percent complete: 56.1%; Average loss: nan
Iteration: 2244; Percent complete: 56.1%; Average loss: nan
Iteration: 2245; Percent complete: 56.1%; Average loss: nan
Iteration: 2246; Percent complete: 56.1%; Average loss: nan
Iteration: 2247; Percent complete: 56.2%; Average loss: nan
Iteration: 2248; Percent complete: 56.2%; Average loss: nan
Iteration: 2249; Percent complete: 56.2%; Average loss: nan
Iteration: 2250; Percent complete: 56.2%; Average loss: nan
Iteration: 2251; Percent complete: 56.3%; Average loss: nan
Iteration: 2252; Percent complete: 56.3%; Average loss: nan
Iteration: 2253; Percent complete: 56.3%; Average loss: nan
Iteration: 2254; Percent complete: 56.4%; Average loss: nan
Iteration: 2255; Percent complete: 56.4%; Average loss: nan
Iteration: 2256; Percent complete: 56.4%; Average loss: nan
Iteration: 2257; Percent complete: 56.4%; Average loss: nan
Iteration: 2258; Percent complete: 56.5%; Average loss: nan
Iteration: 2259; Percent complete: 56.5%; Average loss: nan
Iteration: 2260; Percent complete: 56.5%; Average loss: nan
Iteration: 2261; Percent complete: 56.5%; Average loss: nan
Iteration: 2262; Percent complete: 56.5%; Average loss: nan
Iteration: 2263; Percent complete: 56.6%; Average loss: nan
Iteration: 2264; Percent complete: 56.6%; Average loss: nan
Iteration: 2265; Percent complete: 56.6%; Average loss: nan
Iteration: 2266; Percent complete: 56.6%; Average loss: nan
Iteration: 2267; Percent complete: 56.7%; Average loss: nan
Iteration: 2268; Percent complete: 56.7%; Average loss: nan
Iteration: 2269; Percent complete: 56.7%; Average loss: nan
Iteration: 2270; Percent complete: 56.8%; Average loss: nan
Iteration: 2271; Percent complete: 56.8%; Average loss: nan
Iteration: 2272; Percent complete: 56.8%; Average loss: nan
Iteration: 2273; Percent complete: 56.8%; Average loss: nan
Iteration: 2274; Percent complete: 56.9%; Average loss: nan
Iteration: 2275; Percent complete: 56.9%; Average loss: nan
Iteration: 2276; Percent complete: 56.9%; Average loss: nan
Iteration: 2277; Percent complete: 56.9%; Average loss: nan
Iteration: 2278; Percent complete: 57.0%; Average loss: nan
Iteration: 2279; Percent complete: 57.0%; Average loss: nan
Iteration: 2280; Percent complete: 57.0%; Average loss: nan
Iteration: 2281; Percent complete: 57.0%; Average loss: nan
Iteration: 2282; Percent complete: 57.0%; Average loss: nan
Iteration: 2283; Percent complete: 57.1%; Average loss: nan
Iteration: 2284; Percent complete: 57.1%; Average loss: nan
Iteration: 2285; Percent complete: 57.1%; Average loss: nan
Iteration: 2286; Percent complete: 57.1%; Average loss: nan
Iteration: 2287; Percent complete: 57.2%; Average loss: nan
Iteration: 2288; Percent complete: 57.2%; Average loss: nan
Iteration: 2289; Percent complete: 57.2%; Average loss: nan
Iteration: 2290; Percent complete: 57.2%; Average loss: nan
Iteration: 2291; Percent complete: 57.3%; Average loss: nan
Iteration: 2292; Percent complete: 57.3%; Average loss: nan
```

```
Iteration: 2293; Percent complete: 57.3%; Average loss: nan
Iteration: 2294; Percent complete: 57.4%; Average loss: nan
Iteration: 2295; Percent complete: 57.4%; Average loss: nan
Iteration: 2296; Percent complete: 57.4%; Average loss: nan
Iteration: 2297; Percent complete: 57.4%; Average loss: nan
Iteration: 2298; Percent complete: 57.5%; Average loss: nan
Iteration: 2299; Percent complete: 57.5%; Average loss: nan
Iteration: 2300; Percent complete: 57.5%; Average loss: nan
Iteration: 2301; Percent complete: 57.5%; Average loss: nan
Iteration: 2302; Percent complete: 57.6%; Average loss: nan
Iteration: 2303; Percent complete: 57.6%; Average loss: nan
Iteration: 2304; Percent complete: 57.6%; Average loss: nan
Iteration: 2305; Percent complete: 57.6%; Average loss: nan
Iteration: 2306; Percent complete: 57.6%; Average loss: nan
Iteration: 2307; Percent complete: 57.7%; Average loss: nan
Iteration: 2308; Percent complete: 57.7%; Average loss: nan
Iteration: 2309; Percent complete: 57.7%; Average loss: nan
Iteration: 2310; Percent complete: 57.8%; Average loss: nan
Iteration: 2311; Percent complete: 57.8%; Average loss: nan
Iteration: 2312; Percent complete: 57.8%; Average loss: nan
Iteration: 2313; Percent complete: 57.8%; Average loss: nan
Iteration: 2314; Percent complete: 57.9%; Average loss: nan
Iteration: 2315; Percent complete: 57.9%; Average loss: nan
Iteration: 2316; Percent complete: 57.9%; Average loss: nan
Iteration: 2317; Percent complete: 57.9%; Average loss: nan
Iteration: 2318; Percent complete: 58.0%; Average loss: nan
Iteration: 2319; Percent complete: 58.0%; Average loss: nan
Iteration: 2320; Percent complete: 58.0%; Average loss: nan
Iteration: 2321; Percent complete: 58.0%; Average loss: nan
Iteration: 2322; Percent complete: 58.1%; Average loss: nan
Iteration: 2323; Percent complete: 58.1%; Average loss: nan
Iteration: 2324; Percent complete: 58.1%; Average loss: nan
Iteration: 2325; Percent complete: 58.1%; Average loss: nan
Iteration: 2326; Percent complete: 58.1%; Average loss: nan
Iteration: 2327; Percent complete: 58.2%; Average loss: nan
Iteration: 2328; Percent complete: 58.2%; Average loss: nan
Iteration: 2329; Percent complete: 58.2%; Average loss: nan
Iteration: 2330; Percent complete: 58.2%; Average loss: nan
Iteration: 2331; Percent complete: 58.3%; Average loss: nan
Iteration: 2332; Percent complete: 58.3%; Average loss: nan
Iteration: 2333; Percent complete: 58.3%; Average loss: nan
Iteration: 2334; Percent complete: 58.4%; Average loss: nan
Iteration: 2335; Percent complete: 58.4%; Average loss: nan
Iteration: 2336; Percent complete: 58.4%; Average loss: nan
Iteration: 2337; Percent complete: 58.4%; Average loss: nan
Iteration: 2338; Percent complete: 58.5%; Average loss: nan
Iteration: 2339; Percent complete: 58.5%; Average loss: nan
Iteration: 2340; Percent complete: 58.5%; Average loss: nan
Iteration: 2341; Percent complete: 58.5%; Average loss: nan
Iteration: 2342; Percent complete: 58.6%; Average loss: nan
Iteration: 2343; Percent complete: 58.6%; Average loss: nan
Iteration: 2344; Percent complete: 58.6%; Average loss: nan
Iteration: 2345; Percent complete: 58.6%; Average loss: nan
Iteration: 2346; Percent complete: 58.7%; Average loss: nan
Iteration: 2347; Percent complete: 58.7%; Average loss: nan
Iteration: 2348; Percent complete: 58.7%; Average loss: nan
```

```
Iteration: 2349; Percent complete: 58.7%; Average loss: nan
Iteration: 2350; Percent complete: 58.8%; Average loss: nan
Iteration: 2351; Percent complete: 58.8%; Average loss: nan
Iteration: 2352; Percent complete: 58.8%; Average loss: nan
Iteration: 2353; Percent complete: 58.8%; Average loss: nan
Iteration: 2354; Percent complete: 58.9%; Average loss: nan
Iteration: 2355; Percent complete: 58.9%; Average loss: nan
Iteration: 2356; Percent complete: 58.9%; Average loss: nan
Iteration: 2357; Percent complete: 58.9%; Average loss: nan
Iteration: 2358; Percent complete: 59.0%; Average loss: nan
Iteration: 2359; Percent complete: 59.0%; Average loss: nan
Iteration: 2360; Percent complete: 59.0%; Average loss: nan
Iteration: 2361; Percent complete: 59.0%; Average loss: nan
Iteration: 2362; Percent complete: 59.1%; Average loss: nan
Iteration: 2363; Percent complete: 59.1%; Average loss: nan
Iteration: 2364; Percent complete: 59.1%; Average loss: nan
Iteration: 2365; Percent complete: 59.1%; Average loss: nan
Iteration: 2366; Percent complete: 59.2%; Average loss: nan
Iteration: 2367; Percent complete: 59.2%; Average loss: nan
Iteration: 2368; Percent complete: 59.2%; Average loss: nan
Iteration: 2369; Percent complete: 59.2%; Average loss: nan
Iteration: 2370; Percent complete: 59.2%; Average loss: nan
Iteration: 2371; Percent complete: 59.3%; Average loss: nan
Iteration: 2372; Percent complete: 59.3%; Average loss: nan
Iteration: 2373; Percent complete: 59.3%; Average loss: nan
Iteration: 2374; Percent complete: 59.4%; Average loss: nan
Iteration: 2375; Percent complete: 59.4%; Average loss: nan
Iteration: 2376; Percent complete: 59.4%; Average loss: nan
Iteration: 2377; Percent complete: 59.4%; Average loss: nan
Iteration: 2378; Percent complete: 59.5%; Average loss: nan
Iteration: 2379; Percent complete: 59.5%; Average loss: nan
Iteration: 2380; Percent complete: 59.5%; Average loss: nan
Iteration: 2381; Percent complete: 59.5%; Average loss: nan
Iteration: 2382; Percent complete: 59.6%; Average loss: nan
Iteration: 2383; Percent complete: 59.6%; Average loss: nan
Iteration: 2384; Percent complete: 59.6%; Average loss: nan
Iteration: 2385; Percent complete: 59.6%; Average loss: nan
Iteration: 2386; Percent complete: 59.7%; Average loss: nan
Iteration: 2387; Percent complete: 59.7%; Average loss: nan
Iteration: 2388; Percent complete: 59.7%; Average loss: nan
Iteration: 2389; Percent complete: 59.7%; Average loss: nan
Iteration: 2390; Percent complete: 59.8%; Average loss: nan
Iteration: 2391; Percent complete: 59.8%; Average loss: nan
Iteration: 2392; Percent complete: 59.8%; Average loss: nan
Iteration: 2393; Percent complete: 59.8%; Average loss: nan
Iteration: 2394; Percent complete: 59.9%; Average loss: nan
Iteration: 2395; Percent complete: 59.9%; Average loss: nan
Iteration: 2396; Percent complete: 59.9%; Average loss: nan
Iteration: 2397; Percent complete: 59.9%; Average loss: nan
Iteration: 2398; Percent complete: 60.0%; Average loss: nan
Iteration: 2399; Percent complete: 60.0%; Average loss: nan
Iteration: 2400; Percent complete: 60.0%; Average loss: nan
Iteration: 2401; Percent complete: 60.0%; Average loss: nan
Iteration: 2402; Percent complete: 60.1%; Average loss: nan
Iteration: 2403; Percent complete: 60.1%; Average loss: nan
Iteration: 2404; Percent complete: 60.1%; Average loss: nan
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```
Iteration: 2405; Percent complete: 60.1%; Average loss: nan
Iteration: 2406; Percent complete: 60.2%; Average loss: nan
Iteration: 2407; Percent complete: 60.2%; Average loss: nan
Iteration: 2408; Percent complete: 60.2%; Average loss: nan
Iteration: 2409; Percent complete: 60.2%; Average loss: nan
Iteration: 2410; Percent complete: 60.2%; Average loss: nan
Iteration: 2411; Percent complete: 60.3%; Average loss: nan
Iteration: 2412; Percent complete: 60.3%; Average loss: nan
Iteration: 2413; Percent complete: 60.3%; Average loss: nan
Iteration: 2414; Percent complete: 60.4%; Average loss: nan
Iteration: 2415; Percent complete: 60.4%; Average loss: nan
Iteration: 2416; Percent complete: 60.4%; Average loss: nan
Iteration: 2417; Percent complete: 60.4%; Average loss: nan
Iteration: 2418; Percent complete: 60.5%; Average loss: nan
Iteration: 2419; Percent complete: 60.5%; Average loss: nan
Iteration: 2420; Percent complete: 60.5%; Average loss: nan
Iteration: 2421; Percent complete: 60.5%; Average loss: nan
Iteration: 2422; Percent complete: 60.6%; Average loss: nan
Iteration: 2423; Percent complete: 60.6%; Average loss: nan
Iteration: 2424; Percent complete: 60.6%; Average loss: nan
Iteration: 2425; Percent complete: 60.6%; Average loss: nan
Iteration: 2426; Percent complete: 60.7%; Average loss: nan
Iteration: 2427; Percent complete: 60.7%; Average loss: nan
Iteration: 2428; Percent complete: 60.7%; Average loss: nan
Iteration: 2429; Percent complete: 60.7%; Average loss: nan
Iteration: 2430; Percent complete: 60.8%; Average loss: nan
Iteration: 2431; Percent complete: 60.8%; Average loss: nan
Iteration: 2432; Percent complete: 60.8%; Average loss: nan
Iteration: 2433; Percent complete: 60.8%; Average loss: nan
Iteration: 2434; Percent complete: 60.9%; Average loss: nan
Iteration: 2435; Percent complete: 60.9%; Average loss: nan
Iteration: 2436; Percent complete: 60.9%; Average loss: nan
Iteration: 2437; Percent complete: 60.9%; Average loss: nan
Iteration: 2438; Percent complete: 61.0%; Average loss: nan
Iteration: 2439; Percent complete: 61.0%; Average loss: nan
Iteration: 2440; Percent complete: 61.0%; Average loss: nan
Iteration: 2441; Percent complete: 61.0%; Average loss: nan
Iteration: 2442; Percent complete: 61.1%; Average loss: nan
Iteration: 2443; Percent complete: 61.1%; Average loss: nan
Iteration: 2444; Percent complete: 61.1%; Average loss: nan
Iteration: 2445; Percent complete: 61.1%; Average loss: nan
Iteration: 2446; Percent complete: 61.2%; Average loss: nan
Iteration: 2447; Percent complete: 61.2%; Average loss: nan
Iteration: 2448; Percent complete: 61.2%; Average loss: nan
Iteration: 2449; Percent complete: 61.2%; Average loss: nan
Iteration: 2450; Percent complete: 61.3%; Average loss: nan
Iteration: 2451; Percent complete: 61.3%; Average loss: nan
Iteration: 2452; Percent complete: 61.3%; Average loss: nan
Iteration: 2453; Percent complete: 61.3%; Average loss: nan
Iteration: 2454; Percent complete: 61.4%; Average loss: nan
Iteration: 2455; Percent complete: 61.4%; Average loss: nan
Iteration: 2456; Percent complete: 61.4%; Average loss: nan
Iteration: 2457; Percent complete: 61.4%; Average loss: nan
Iteration: 2458; Percent complete: 61.5%; Average loss: nan
Iteration: 2459; Percent complete: 61.5%; Average loss: nan
Iteration: 2460; Percent complete: 61.5%; Average loss: nan
```

```
Iteration: 2461; Percent complete: 61.5%; Average loss: nan
Iteration: 2462; Percent complete: 61.6%; Average loss: nan
Iteration: 2463; Percent complete: 61.6%; Average loss: nan
Iteration: 2464; Percent complete: 61.6%; Average loss: nan
Iteration: 2465; Percent complete: 61.6%; Average loss: nan
Iteration: 2466; Percent complete: 61.7%; Average loss: nan
Iteration: 2467; Percent complete: 61.7%; Average loss: nan
Iteration: 2468; Percent complete: 61.7%; Average loss: nan
Iteration: 2469; Percent complete: 61.7%; Average loss: nan
Iteration: 2470; Percent complete: 61.8%; Average loss: nan
Iteration: 2471; Percent complete: 61.8%; Average loss: nan
Iteration: 2472; Percent complete: 61.8%; Average loss: nan
Iteration: 2473; Percent complete: 61.8%; Average loss: nan
Iteration: 2474; Percent complete: 61.9%; Average loss: nan
Iteration: 2475; Percent complete: 61.9%; Average loss: nan
Iteration: 2476; Percent complete: 61.9%; Average loss: nan
Iteration: 2477; Percent complete: 61.9%; Average loss: nan
Iteration: 2478; Percent complete: 62.0%; Average loss: nan
Iteration: 2479; Percent complete: 62.0%; Average loss: nan
Iteration: 2480; Percent complete: 62.0%; Average loss: nan
Iteration: 2481; Percent complete: 62.0%; Average loss: nan
Iteration: 2482; Percent complete: 62.1%; Average loss: nan
Iteration: 2483; Percent complete: 62.1%; Average loss: nan
Iteration: 2484; Percent complete: 62.1%; Average loss: nan
Iteration: 2485; Percent complete: 62.1%; Average loss: nan
Iteration: 2486; Percent complete: 62.2%; Average loss: nan
Iteration: 2487; Percent complete: 62.2%; Average loss: nan
Iteration: 2488; Percent complete: 62.2%; Average loss: nan
Iteration: 2489; Percent complete: 62.2%; Average loss: nan
Iteration: 2490; Percent complete: 62.3%; Average loss: nan
Iteration: 2491; Percent complete: 62.3%; Average loss: nan
Iteration: 2492; Percent complete: 62.3%; Average loss: nan
Iteration: 2493; Percent complete: 62.3%; Average loss: nan
Iteration: 2494; Percent complete: 62.4%; Average loss: nan
Iteration: 2495; Percent complete: 62.4%; Average loss: nan
Iteration: 2496; Percent complete: 62.4%; Average loss: nan
Iteration: 2497; Percent complete: 62.4%; Average loss: nan
Iteration: 2498; Percent complete: 62.5%; Average loss: nan
Iteration: 2499; Percent complete: 62.5%; Average loss: nan
Iteration: 2500; Percent complete: 62.5%; Average loss: nan
Iteration: 2501; Percent complete: 62.5%; Average loss: nan
Iteration: 2502; Percent complete: 62.5%; Average loss: nan
Iteration: 2503; Percent complete: 62.6%; Average loss: nan
Iteration: 2504; Percent complete: 62.6%; Average loss: nan
Iteration: 2505; Percent complete: 62.6%; Average loss: nan
Iteration: 2506; Percent complete: 62.6%; Average loss: nan
Iteration: 2507; Percent complete: 62.7%; Average loss: nan
Iteration: 2508; Percent complete: 62.7%; Average loss: nan
Iteration: 2509; Percent complete: 62.7%; Average loss: nan
Iteration: 2510; Percent complete: 62.7%; Average loss: nan
Iteration: 2511; Percent complete: 62.8%; Average loss: nan
Iteration: 2512; Percent complete: 62.8%; Average loss: nan
Iteration: 2513; Percent complete: 62.8%; Average loss: nan
Iteration: 2514; Percent complete: 62.8%; Average loss: nan
Iteration: 2515; Percent complete: 62.9%; Average loss: nan
Iteration: 2516; Percent complete: 62.9%; Average loss: nan
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```
Iteration: 2517; Percent complete: 62.9%; Average loss: nan
Iteration: 2518; Percent complete: 62.9%; Average loss: nan
Iteration: 2519; Percent complete: 63.0%; Average loss: nan
Iteration: 2520; Percent complete: 63.0%; Average loss: nan
Iteration: 2521; Percent complete: 63.0%; Average loss: nan
Iteration: 2522; Percent complete: 63.0%; Average loss: nan
Iteration: 2523; Percent complete: 63.1%; Average loss: nan
Iteration: 2524; Percent complete: 63.1%; Average loss: nan
Iteration: 2525; Percent complete: 63.1%; Average loss: nan
Iteration: 2526; Percent complete: 63.1%; Average loss: nan
Iteration: 2527; Percent complete: 63.2%; Average loss: nan
Iteration: 2528; Percent complete: 63.2%; Average loss: nan
Iteration: 2529; Percent complete: 63.2%; Average loss: nan
Iteration: 2530; Percent complete: 63.2%; Average loss: nan
Iteration: 2531; Percent complete: 63.3%; Average loss: nan
Iteration: 2532; Percent complete: 63.3%; Average loss: nan
Iteration: 2533; Percent complete: 63.3%; Average loss: nan
Iteration: 2534; Percent complete: 63.3%; Average loss: nan
Iteration: 2535; Percent complete: 63.4%; Average loss: nan
Iteration: 2536; Percent complete: 63.4%; Average loss: nan
Iteration: 2537; Percent complete: 63.4%; Average loss: nan
Iteration: 2538; Percent complete: 63.4%; Average loss: nan
Iteration: 2539; Percent complete: 63.5%; Average loss: nan
Iteration: 2540; Percent complete: 63.5%; Average loss: nan
Iteration: 2541; Percent complete: 63.5%; Average loss: nan
Iteration: 2542; Percent complete: 63.5%; Average loss: nan
Iteration: 2543; Percent complete: 63.6%; Average loss: nan
Iteration: 2544; Percent complete: 63.6%; Average loss: nan
Iteration: 2545; Percent complete: 63.6%; Average loss: nan
Iteration: 2546; Percent complete: 63.6%; Average loss: nan
Iteration: 2547; Percent complete: 63.7%; Average loss: nan
Iteration: 2548; Percent complete: 63.7%; Average loss: nan
Iteration: 2549; Percent complete: 63.7%; Average loss: nan
Iteration: 2550; Percent complete: 63.7%; Average loss: nan
Iteration: 2551; Percent complete: 63.8%; Average loss: nan
Iteration: 2552; Percent complete: 63.8%; Average loss: nan
Iteration: 2553; Percent complete: 63.8%; Average loss: nan
Iteration: 2554; Percent complete: 63.8%; Average loss: nan
Iteration: 2555; Percent complete: 63.9%; Average loss: nan
Iteration: 2556; Percent complete: 63.9%; Average loss: nan
Iteration: 2557; Percent complete: 63.9%; Average loss: nan
Iteration: 2558; Percent complete: 63.9%; Average loss: nan
Iteration: 2559; Percent complete: 64.0%; Average loss: nan
Iteration: 2560; Percent complete: 64.0%; Average loss: nan
Iteration: 2561; Percent complete: 64.0%; Average loss: nan
Iteration: 2562; Percent complete: 64.0%; Average loss: nan
Iteration: 2563; Percent complete: 64.1%; Average loss: nan
Iteration: 2564; Percent complete: 64.1%; Average loss: nan
Iteration: 2565; Percent complete: 64.1%; Average loss: nan
Iteration: 2566; Percent complete: 64.1%; Average loss: nan
Iteration: 2567; Percent complete: 64.2%; Average loss: nan
Iteration: 2568; Percent complete: 64.2%; Average loss: nan
Iteration: 2569; Percent complete: 64.2%; Average loss: nan
Iteration: 2570; Percent complete: 64.2%; Average loss: nan
Iteration: 2571; Percent complete: 64.3%; Average loss: nan
Iteration: 2572; Percent complete: 64.3%; Average loss: nan
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```
Iteration: 2573; Percent complete: 64.3%; Average loss: nan
Iteration: 2574; Percent complete: 64.3%; Average loss: nan
Iteration: 2575; Percent complete: 64.4%; Average loss: nan
Iteration: 2576; Percent complete: 64.4%; Average loss: nan
Iteration: 2577; Percent complete: 64.4%; Average loss: nan
Iteration: 2578; Percent complete: 64.5%; Average loss: nan
Iteration: 2579; Percent complete: 64.5%; Average loss: nan
Iteration: 2580; Percent complete: 64.5%; Average loss: nan
Iteration: 2581; Percent complete: 64.5%; Average loss: nan
Iteration: 2582; Percent complete: 64.5%; Average loss: nan
Iteration: 2583; Percent complete: 64.6%; Average loss: nan
Iteration: 2584; Percent complete: 64.6%; Average loss: nan
Iteration: 2585; Percent complete: 64.6%; Average loss: nan
Iteration: 2586; Percent complete: 64.6%; Average loss: nan
Iteration: 2587; Percent complete: 64.7%; Average loss: nan
Iteration: 2588; Percent complete: 64.7%; Average loss: nan
Iteration: 2589; Percent complete: 64.7%; Average loss: nan
Iteration: 2590; Percent complete: 64.8%; Average loss: nan
Iteration: 2591; Percent complete: 64.8%; Average loss: nan
Iteration: 2592; Percent complete: 64.8%; Average loss: nan
Iteration: 2593; Percent complete: 64.8%; Average loss: nan
Iteration: 2594; Percent complete: 64.8%; Average loss: nan
Iteration: 2595; Percent complete: 64.9%; Average loss: nan
Iteration: 2596; Percent complete: 64.9%; Average loss: nan
Iteration: 2597; Percent complete: 64.9%; Average loss: nan
Iteration: 2598; Percent complete: 65.0%; Average loss: nan
Iteration: 2599; Percent complete: 65.0%; Average loss: nan
Iteration: 2600; Percent complete: 65.0%; Average loss: nan
Iteration: 2601; Percent complete: 65.0%; Average loss: nan
Iteration: 2602; Percent complete: 65.0%; Average loss: nan
Iteration: 2603; Percent complete: 65.1%; Average loss: nan
Iteration: 2604; Percent complete: 65.1%; Average loss: nan
Iteration: 2605; Percent complete: 65.1%; Average loss: nan
Iteration: 2606; Percent complete: 65.1%; Average loss: nan
Iteration: 2607; Percent complete: 65.2%; Average loss: nan
Iteration: 2608; Percent complete: 65.2%; Average loss: nan
Iteration: 2609; Percent complete: 65.2%; Average loss: nan
Iteration: 2610; Percent complete: 65.2%; Average loss: nan
Iteration: 2611; Percent complete: 65.3%; Average loss: nan
Iteration: 2612; Percent complete: 65.3%; Average loss: nan
Iteration: 2613; Percent complete: 65.3%; Average loss: nan
Iteration: 2614; Percent complete: 65.3%; Average loss: nan
Iteration: 2615; Percent complete: 65.4%; Average loss: nan
Iteration: 2616; Percent complete: 65.4%; Average loss: nan
Iteration: 2617; Percent complete: 65.4%; Average loss: nan
Iteration: 2618; Percent complete: 65.5%; Average loss: nan
Iteration: 2619; Percent complete: 65.5%; Average loss: nan
Iteration: 2620; Percent complete: 65.5%; Average loss: nan
Iteration: 2621; Percent complete: 65.5%; Average loss: nan
Iteration: 2622; Percent complete: 65.5%; Average loss: nan
Iteration: 2623; Percent complete: 65.6%; Average loss: nan
Iteration: 2624; Percent complete: 65.6%; Average loss: nan
Iteration: 2625; Percent complete: 65.6%; Average loss: nan
Iteration: 2626; Percent complete: 65.6%; Average loss: nan
Iteration: 2627; Percent complete: 65.7%; Average loss: nan
Iteration: 2628; Percent complete: 65.7%; Average loss: nan
```

```
Iteration: 2629; Percent complete: 65.7%; Average loss: nan
Iteration: 2630; Percent complete: 65.8%; Average loss: nan
Iteration: 2631; Percent complete: 65.8%; Average loss: nan
Iteration: 2632; Percent complete: 65.8%; Average loss: nan
Iteration: 2633; Percent complete: 65.8%; Average loss: nan
Iteration: 2634; Percent complete: 65.8%; Average loss: nan
Iteration: 2635; Percent complete: 65.9%; Average loss: nan
Iteration: 2636; Percent complete: 65.9%; Average loss: nan
Iteration: 2637; Percent complete: 65.9%; Average loss: nan
Iteration: 2638; Percent complete: 66.0%; Average loss: nan
Iteration: 2639; Percent complete: 66.0%; Average loss: nan
Iteration: 2640; Percent complete: 66.0%; Average loss: nan
Iteration: 2641; Percent complete: 66.0%; Average loss: nan
Iteration: 2642; Percent complete: 66.0%; Average loss: nan
Iteration: 2643; Percent complete: 66.1%; Average loss: nan
Iteration: 2644; Percent complete: 66.1%; Average loss: nan
Iteration: 2645; Percent complete: 66.1%; Average loss: nan
Iteration: 2646; Percent complete: 66.1%; Average loss: nan
Iteration: 2647; Percent complete: 66.2%; Average loss: nan
Iteration: 2648; Percent complete: 66.2%; Average loss: nan
Iteration: 2649; Percent complete: 66.2%; Average loss: nan
Iteration: 2650; Percent complete: 66.2%; Average loss: nan
Iteration: 2651; Percent complete: 66.3%; Average loss: nan
Iteration: 2652; Percent complete: 66.3%; Average loss: nan
Iteration: 2653; Percent complete: 66.3%; Average loss: nan
Iteration: 2654; Percent complete: 66.3%; Average loss: nan
Iteration: 2655; Percent complete: 66.4%; Average loss: nan
Iteration: 2656; Percent complete: 66.4%; Average loss: nan
Iteration: 2657; Percent complete: 66.4%; Average loss: nan
Iteration: 2658; Percent complete: 66.5%; Average loss: nan
Iteration: 2659; Percent complete: 66.5%; Average loss: nan
Iteration: 2660; Percent complete: 66.5%; Average loss: nan
Iteration: 2661; Percent complete: 66.5%; Average loss: nan
Iteration: 2662; Percent complete: 66.5%; Average loss: nan
Iteration: 2663; Percent complete: 66.6%; Average loss: nan
Iteration: 2664; Percent complete: 66.6%; Average loss: nan
Iteration: 2665; Percent complete: 66.6%; Average loss: nan
Iteration: 2666; Percent complete: 66.6%; Average loss: nan
Iteration: 2667; Percent complete: 66.7%; Average loss: nan
Iteration: 2668; Percent complete: 66.7%; Average loss: nan
Iteration: 2669; Percent complete: 66.7%; Average loss: nan
Iteration: 2670; Percent complete: 66.8%; Average loss: nan
Iteration: 2671; Percent complete: 66.8%; Average loss: nan
Iteration: 2672; Percent complete: 66.8%; Average loss: nan
Iteration: 2673; Percent complete: 66.8%; Average loss: nan
Iteration: 2674; Percent complete: 66.8%; Average loss: nan
Iteration: 2675; Percent complete: 66.9%; Average loss: nan
Iteration: 2676; Percent complete: 66.9%; Average loss: nan
Iteration: 2677; Percent complete: 66.9%; Average loss: nan
Iteration: 2678; Percent complete: 67.0%; Average loss: nan
Iteration: 2679; Percent complete: 67.0%; Average loss: nan
Iteration: 2680; Percent complete: 67.0%; Average loss: nan
Iteration: 2681; Percent complete: 67.0%; Average loss: nan
Iteration: 2682; Percent complete: 67.0%; Average loss: nan
Iteration: 2683; Percent complete: 67.1%; Average loss: nan
Iteration: 2684; Percent complete: 67.1%; Average loss: nan
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Iteration: 2685; Percent complete: 67.1%; Average loss: nan
Iteration: 2686; Percent complete: 67.2%; Average loss: nan
Iteration: 2687; Percent complete: 67.2%; Average loss: nan
Iteration: 2688; Percent complete: 67.2%; Average loss: nan
Iteration: 2689; Percent complete: 67.2%; Average loss: nan
Iteration: 2690; Percent complete: 67.2%; Average loss: nan
Iteration: 2691; Percent complete: 67.3%; Average loss: nan
Iteration: 2692; Percent complete: 67.3%; Average loss: nan
Iteration: 2693; Percent complete: 67.3%; Average loss: nan
Iteration: 2694; Percent complete: 67.3%; Average loss: nan
Iteration: 2695; Percent complete: 67.4%; Average loss: nan
Iteration: 2696; Percent complete: 67.4%; Average loss: nan
Iteration: 2697; Percent complete: 67.4%; Average loss: nan
Iteration: 2698; Percent complete: 67.5%; Average loss: nan
Iteration: 2699; Percent complete: 67.5%; Average loss: nan
Iteration: 2700; Percent complete: 67.5%; Average loss: nan
Iteration: 2701; Percent complete: 67.5%; Average loss: nan
Iteration: 2702; Percent complete: 67.5%; Average loss: nan
Iteration: 2703; Percent complete: 67.6%; Average loss: nan
Iteration: 2704; Percent complete: 67.6%; Average loss: nan
Iteration: 2705; Percent complete: 67.6%; Average loss: nan
Iteration: 2706; Percent complete: 67.7%; Average loss: nan
Iteration: 2707; Percent complete: 67.7%; Average loss: nan
Iteration: 2708; Percent complete: 67.7%; Average loss: nan
Iteration: 2709; Percent complete: 67.7%; Average loss: nan
Iteration: 2710; Percent complete: 67.8%; Average loss: nan
Iteration: 2711; Percent complete: 67.8%; Average loss: nan
Iteration: 2712; Percent complete: 67.8%; Average loss: nan
Iteration: 2713; Percent complete: 67.8%; Average loss: nan
Iteration: 2714; Percent complete: 67.8%; Average loss: nan
Iteration: 2715; Percent complete: 67.9%; Average loss: nan
Iteration: 2716; Percent complete: 67.9%; Average loss: nan
Iteration: 2717; Percent complete: 67.9%; Average loss: nan
Iteration: 2718; Percent complete: 68.0%; Average loss: nan
Iteration: 2719; Percent complete: 68.0%; Average loss: nan
Iteration: 2720; Percent complete: 68.0%; Average loss: nan
Iteration: 2721; Percent complete: 68.0%; Average loss: nan
Iteration: 2722; Percent complete: 68.0%; Average loss: nan
Iteration: 2723; Percent complete: 68.1%; Average loss: nan
Iteration: 2724; Percent complete: 68.1%; Average loss: nan
Iteration: 2725; Percent complete: 68.1%; Average loss: nan
Iteration: 2726; Percent complete: 68.2%; Average loss: nan
Iteration: 2727; Percent complete: 68.2%; Average loss: nan
Iteration: 2728; Percent complete: 68.2%; Average loss: nan
Iteration: 2729; Percent complete: 68.2%; Average loss: nan
Iteration: 2730; Percent complete: 68.2%; Average loss: nan
Iteration: 2731; Percent complete: 68.3%; Average loss: nan
Iteration: 2732; Percent complete: 68.3%; Average loss: nan
Iteration: 2733; Percent complete: 68.3%; Average loss: nan
Iteration: 2734; Percent complete: 68.3%; Average loss: nan
Iteration: 2735; Percent complete: 68.4%; Average loss: nan
Iteration: 2736; Percent complete: 68.4%; Average loss: nan
Iteration: 2737; Percent complete: 68.4%; Average loss: nan
Iteration: 2738; Percent complete: 68.5%; Average loss: nan
Iteration: 2739; Percent complete: 68.5%; Average loss: nan
Iteration: 2740; Percent complete: 68.5%; Average loss: nan
```

```
Iteration: 2741; Percent complete: 68.5%; Average loss: nan
Iteration: 2742; Percent complete: 68.5%; Average loss: nan
Iteration: 2743; Percent complete: 68.6%; Average loss: nan
Iteration: 2744; Percent complete: 68.6%; Average loss: nan
Iteration: 2745; Percent complete: 68.6%; Average loss: nan
Iteration: 2746; Percent complete: 68.7%; Average loss: nan
Iteration: 2747; Percent complete: 68.7%; Average loss: nan
Iteration: 2748; Percent complete: 68.7%; Average loss: nan
Iteration: 2749; Percent complete: 68.7%; Average loss: nan
Iteration: 2750; Percent complete: 68.8%; Average loss: nan
Iteration: 2751; Percent complete: 68.8%; Average loss: nan
Iteration: 2752; Percent complete: 68.8%; Average loss: nan
Iteration: 2753; Percent complete: 68.8%; Average loss: nan
Iteration: 2754; Percent complete: 68.8%; Average loss: nan
Iteration: 2755; Percent complete: 68.9%; Average loss: nan
Iteration: 2756; Percent complete: 68.9%; Average loss: nan
Iteration: 2757; Percent complete: 68.9%; Average loss: nan
Iteration: 2758; Percent complete: 69.0%; Average loss: nan
Iteration: 2759; Percent complete: 69.0%; Average loss: nan
Iteration: 2760; Percent complete: 69.0%; Average loss: nan
Iteration: 2761; Percent complete: 69.0%; Average loss: nan
Iteration: 2762; Percent complete: 69.0%; Average loss: nan
Iteration: 2763; Percent complete: 69.1%; Average loss: nan
Iteration: 2764; Percent complete: 69.1%; Average loss: nan
Iteration: 2765; Percent complete: 69.1%; Average loss: nan
Iteration: 2766; Percent complete: 69.2%; Average loss: nan
Iteration: 2767; Percent complete: 69.2%; Average loss: nan
Iteration: 2768; Percent complete: 69.2%; Average loss: nan
Iteration: 2769; Percent complete: 69.2%; Average loss: nan
Iteration: 2770; Percent complete: 69.2%; Average loss: nan
Iteration: 2771; Percent complete: 69.3%; Average loss: nan
Iteration: 2772; Percent complete: 69.3%; Average loss: nan
Iteration: 2773; Percent complete: 69.3%; Average loss: nan
Iteration: 2774; Percent complete: 69.3%; Average loss: nan
Iteration: 2775; Percent complete: 69.4%; Average loss: nan
Iteration: 2776; Percent complete: 69.4%; Average loss: nan
Iteration: 2777; Percent complete: 69.4%; Average loss: nan
Iteration: 2778; Percent complete: 69.5%; Average loss: nan
Iteration: 2779; Percent complete: 69.5%; Average loss: nan
Iteration: 2780; Percent complete: 69.5%; Average loss: nan
Iteration: 2781; Percent complete: 69.5%; Average loss: nan
Iteration: 2782; Percent complete: 69.5%; Average loss: nan
Iteration: 2783; Percent complete: 69.6%; Average loss: nan
Iteration: 2784; Percent complete: 69.6%; Average loss: nan
Iteration: 2785; Percent complete: 69.6%; Average loss: nan
Iteration: 2786; Percent complete: 69.7%; Average loss: nan
Iteration: 2787; Percent complete: 69.7%; Average loss: nan
Iteration: 2788; Percent complete: 69.7%; Average loss: nan
Iteration: 2789; Percent complete: 69.7%; Average loss: nan
Iteration: 2790; Percent complete: 69.8%; Average loss: nan
Iteration: 2791; Percent complete: 69.8%; Average loss: nan
Iteration: 2792; Percent complete: 69.8%; Average loss: nan
Iteration: 2793; Percent complete: 69.8%; Average loss: nan
Iteration: 2794; Percent complete: 69.8%; Average loss: nan
Iteration: 2795; Percent complete: 69.9%; Average loss: nan
Iteration: 2796; Percent complete: 69.9%; Average loss: nan
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Iteration: 2797; Percent complete: 69.9%; Average loss: nan
Iteration: 2798; Percent complete: 70.0%; Average loss: nan
Iteration: 2799; Percent complete: 70.0%; Average loss: nan
Iteration: 2800; Percent complete: 70.0%; Average loss: nan
Iteration: 2801; Percent complete: 70.0%; Average loss: nan
Iteration: 2802; Percent complete: 70.0%; Average loss: nan
Iteration: 2803; Percent complete: 70.1%; Average loss: nan
Iteration: 2804; Percent complete: 70.1%; Average loss: nan
Iteration: 2805; Percent complete: 70.1%; Average loss: nan
Iteration: 2806; Percent complete: 70.2%; Average loss: nan
Iteration: 2807; Percent complete: 70.2%; Average loss: nan
Iteration: 2808; Percent complete: 70.2%; Average loss: nan
Iteration: 2809; Percent complete: 70.2%; Average loss: nan
Iteration: 2810; Percent complete: 70.2%; Average loss: nan
Iteration: 2811; Percent complete: 70.3%; Average loss: nan
Iteration: 2812; Percent complete: 70.3%; Average loss: nan
Iteration: 2813; Percent complete: 70.3%; Average loss: nan
Iteration: 2814; Percent complete: 70.3%; Average loss: nan
Iteration: 2815; Percent complete: 70.4%; Average loss: nan
Iteration: 2816; Percent complete: 70.4%; Average loss: nan
Iteration: 2817; Percent complete: 70.4%; Average loss: nan
Iteration: 2818; Percent complete: 70.5%; Average loss: nan
Iteration: 2819; Percent complete: 70.5%; Average loss: nan
Iteration: 2820; Percent complete: 70.5%; Average loss: nan
Iteration: 2821; Percent complete: 70.5%; Average loss: nan
Iteration: 2822; Percent complete: 70.5%; Average loss: nan
Iteration: 2823; Percent complete: 70.6%; Average loss: nan
Iteration: 2824; Percent complete: 70.6%; Average loss: nan
Iteration: 2825; Percent complete: 70.6%; Average loss: nan
Iteration: 2826; Percent complete: 70.7%; Average loss: nan
Iteration: 2827; Percent complete: 70.7%; Average loss: nan
Iteration: 2828; Percent complete: 70.7%; Average loss: nan
Iteration: 2829; Percent complete: 70.7%; Average loss: nan
Iteration: 2830; Percent complete: 70.8%; Average loss: nan
Iteration: 2831; Percent complete: 70.8%; Average loss: nan
Iteration: 2832; Percent complete: 70.8%; Average loss: nan
Iteration: 2833; Percent complete: 70.8%; Average loss: nan
Iteration: 2834; Percent complete: 70.9%; Average loss: nan
Iteration: 2835; Percent complete: 70.9%; Average loss: nan
Iteration: 2836; Percent complete: 70.9%; Average loss: nan
Iteration: 2837; Percent complete: 70.9%; Average loss: nan
Iteration: 2838; Percent complete: 71.0%; Average loss: nan
Iteration: 2839; Percent complete: 71.0%; Average loss: nan
Iteration: 2840; Percent complete: 71.0%; Average loss: nan
Iteration: 2841; Percent complete: 71.0%; Average loss: nan
Iteration: 2842; Percent complete: 71.0%; Average loss: nan
Iteration: 2843; Percent complete: 71.1%; Average loss: nan
Iteration: 2844; Percent complete: 71.1%; Average loss: nan
Iteration: 2845; Percent complete: 71.1%; Average loss: nan
Iteration: 2846; Percent complete: 71.2%; Average loss: nan
Iteration: 2847; Percent complete: 71.2%; Average loss: nan
Iteration: 2848; Percent complete: 71.2%; Average loss: nan
Iteration: 2849; Percent complete: 71.2%; Average loss: nan
Iteration: 2850; Percent complete: 71.2%; Average loss: nan
Iteration: 2851; Percent complete: 71.3%; Average loss: nan
Iteration: 2852; Percent complete: 71.3%; Average loss: nan
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Iteration: 2853; Percent complete: 71.3%; Average loss: nan
Iteration: 2854; Percent complete: 71.4%; Average loss: nan
Iteration: 2855; Percent complete: 71.4%; Average loss: nan
Iteration: 2856; Percent complete: 71.4%; Average loss: nan
Iteration: 2857; Percent complete: 71.4%; Average loss: nan
Iteration: 2858; Percent complete: 71.5%; Average loss: nan
Iteration: 2859; Percent complete: 71.5%; Average loss: nan
Iteration: 2860; Percent complete: 71.5%; Average loss: nan
Iteration: 2861; Percent complete: 71.5%; Average loss: nan
Iteration: 2862; Percent complete: 71.5%; Average loss: nan
Iteration: 2863; Percent complete: 71.6%; Average loss: nan
Iteration: 2864; Percent complete: 71.6%; Average loss: nan
Iteration: 2865; Percent complete: 71.6%; Average loss: nan
Iteration: 2866; Percent complete: 71.7%; Average loss: nan
Iteration: 2867; Percent complete: 71.7%; Average loss: nan
Iteration: 2868; Percent complete: 71.7%; Average loss: nan
Iteration: 2869; Percent complete: 71.7%; Average loss: nan
Iteration: 2870; Percent complete: 71.8%; Average loss: nan
Iteration: 2871; Percent complete: 71.8%; Average loss: nan
Iteration: 2872; Percent complete: 71.8%; Average loss: nan
Iteration: 2873; Percent complete: 71.8%; Average loss: nan
Iteration: 2874; Percent complete: 71.9%; Average loss: nan
Iteration: 2875; Percent complete: 71.9%; Average loss: nan
Iteration: 2876; Percent complete: 71.9%; Average loss: nan
Iteration: 2877; Percent complete: 71.9%; Average loss: nan
Iteration: 2878; Percent complete: 72.0%; Average loss: nan
Iteration: 2879; Percent complete: 72.0%; Average loss: nan
Iteration: 2880; Percent complete: 72.0%; Average loss: nan
Iteration: 2881; Percent complete: 72.0%; Average loss: nan
Iteration: 2882; Percent complete: 72.0%; Average loss: nan
Iteration: 2883; Percent complete: 72.1%; Average loss: nan
Iteration: 2884; Percent complete: 72.1%; Average loss: nan
Iteration: 2885; Percent complete: 72.1%; Average loss: nan
Iteration: 2886; Percent complete: 72.2%; Average loss: nan
Iteration: 2887; Percent complete: 72.2%; Average loss: nan
Iteration: 2888; Percent complete: 72.2%; Average loss: nan
Iteration: 2889; Percent complete: 72.2%; Average loss: nan
Iteration: 2890; Percent complete: 72.2%; Average loss: nan
Iteration: 2891; Percent complete: 72.3%; Average loss: nan
Iteration: 2892; Percent complete: 72.3%; Average loss: nan
Iteration: 2893; Percent complete: 72.3%; Average loss: nan
Iteration: 2894; Percent complete: 72.4%; Average loss: nan
Iteration: 2895; Percent complete: 72.4%; Average loss: nan
Iteration: 2896; Percent complete: 72.4%; Average loss: nan
Iteration: 2897; Percent complete: 72.4%; Average loss: nan
Iteration: 2898; Percent complete: 72.5%; Average loss: nan
Iteration: 2899; Percent complete: 72.5%; Average loss: nan
Iteration: 2900; Percent complete: 72.5%; Average loss: nan
Iteration: 2901; Percent complete: 72.5%; Average loss: nan
Iteration: 2902; Percent complete: 72.5%; Average loss: nan
Iteration: 2903; Percent complete: 72.6%; Average loss: nan
Iteration: 2904; Percent complete: 72.6%; Average loss: nan
Iteration: 2905; Percent complete: 72.6%; Average loss: nan
Iteration: 2906; Percent complete: 72.7%; Average loss: nan
Iteration: 2907; Percent complete: 72.7%; Average loss: nan
Iteration: 2908; Percent complete: 72.7%; Average loss: nan
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Iteration: 2909; Percent complete: 72.7%; Average loss: nan
Iteration: 2910; Percent complete: 72.8%; Average loss: nan
Iteration: 2911; Percent complete: 72.8%; Average loss: nan
Iteration: 2912; Percent complete: 72.8%; Average loss: nan
Iteration: 2913; Percent complete: 72.8%; Average loss: nan
Iteration: 2914; Percent complete: 72.9%; Average loss: nan
Iteration: 2915; Percent complete: 72.9%; Average loss: nan
Iteration: 2916; Percent complete: 72.9%; Average loss: nan
Iteration: 2917; Percent complete: 72.9%; Average loss: nan
Iteration: 2918; Percent complete: 73.0%; Average loss: nan
Iteration: 2919; Percent complete: 73.0%; Average loss: nan
Iteration: 2920; Percent complete: 73.0%; Average loss: nan
Iteration: 2921; Percent complete: 73.0%; Average loss: nan
Iteration: 2922; Percent complete: 73.0%; Average loss: nan
Iteration: 2923; Percent complete: 73.1%; Average loss: nan
Iteration: 2924; Percent complete: 73.1%; Average loss: nan
Iteration: 2925; Percent complete: 73.1%; Average loss: nan
Iteration: 2926; Percent complete: 73.2%; Average loss: nan
Iteration: 2927; Percent complete: 73.2%; Average loss: nan
Iteration: 2928; Percent complete: 73.2%; Average loss: nan
Iteration: 2929; Percent complete: 73.2%; Average loss: nan
Iteration: 2930; Percent complete: 73.2%; Average loss: nan
Iteration: 2931; Percent complete: 73.3%; Average loss: nan
Iteration: 2932; Percent complete: 73.3%; Average loss: nan
Iteration: 2933; Percent complete: 73.3%; Average loss: nan
Iteration: 2934; Percent complete: 73.4%; Average loss: nan
Iteration: 2935; Percent complete: 73.4%; Average loss: nan
Iteration: 2936; Percent complete: 73.4%; Average loss: nan
Iteration: 2937; Percent complete: 73.4%; Average loss: nan
Iteration: 2938; Percent complete: 73.5%; Average loss: nan
Iteration: 2939; Percent complete: 73.5%; Average loss: nan
Iteration: 2940; Percent complete: 73.5%; Average loss: nan
Iteration: 2941; Percent complete: 73.5%; Average loss: nan
Iteration: 2942; Percent complete: 73.6%; Average loss: nan
Iteration: 2943; Percent complete: 73.6%; Average loss: nan
Iteration: 2944; Percent complete: 73.6%; Average loss: nan
Iteration: 2945; Percent complete: 73.6%; Average loss: nan
Iteration: 2946; Percent complete: 73.7%; Average loss: nan
Iteration: 2947; Percent complete: 73.7%; Average loss: nan
Iteration: 2948; Percent complete: 73.7%; Average loss: nan
Iteration: 2949; Percent complete: 73.7%; Average loss: nan
Iteration: 2950; Percent complete: 73.8%; Average loss: nan
Iteration: 2951; Percent complete: 73.8%; Average loss: nan
Iteration: 2952; Percent complete: 73.8%; Average loss: nan
Iteration: 2953; Percent complete: 73.8%; Average loss: nan
Iteration: 2954; Percent complete: 73.9%; Average loss: nan
Iteration: 2955; Percent complete: 73.9%; Average loss: nan
Iteration: 2956; Percent complete: 73.9%; Average loss: nan
Iteration: 2957; Percent complete: 73.9%; Average loss: nan
Iteration: 2958; Percent complete: 74.0%; Average loss: nan
Iteration: 2959; Percent complete: 74.0%; Average loss: nan
Iteration: 2960; Percent complete: 74.0%; Average loss: nan
Iteration: 2961; Percent complete: 74.0%; Average loss: nan
Iteration: 2962; Percent complete: 74.1%; Average loss: nan
Iteration: 2963; Percent complete: 74.1%; Average loss: nan
Iteration: 2964; Percent complete: 74.1%; Average loss: nan
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```
Iteration: 2965; Percent complete: 74.1%; Average loss: nan
Iteration: 2966; Percent complete: 74.2%; Average loss: nan
Iteration: 2967; Percent complete: 74.2%; Average loss: nan
Iteration: 2968; Percent complete: 74.2%; Average loss: nan
Iteration: 2969; Percent complete: 74.2%; Average loss: nan
Iteration: 2970; Percent complete: 74.2%; Average loss: nan
Iteration: 2971; Percent complete: 74.3%; Average loss: nan
Iteration: 2972; Percent complete: 74.3%; Average loss: nan
Iteration: 2973; Percent complete: 74.3%; Average loss: nan
Iteration: 2974; Percent complete: 74.4%; Average loss: nan
Iteration: 2975; Percent complete: 74.4%; Average loss: nan
Iteration: 2976; Percent complete: 74.4%; Average loss: nan
Iteration: 2977; Percent complete: 74.4%; Average loss: nan
Iteration: 2978; Percent complete: 74.5%; Average loss: nan
Iteration: 2979; Percent complete: 74.5%; Average loss: nan
Iteration: 2980; Percent complete: 74.5%; Average loss: nan
Iteration: 2981; Percent complete: 74.5%; Average loss: nan
Iteration: 2982; Percent complete: 74.6%; Average loss: nan
Iteration: 2983; Percent complete: 74.6%; Average loss: nan
Iteration: 2984; Percent complete: 74.6%; Average loss: nan
Iteration: 2985; Percent complete: 74.6%; Average loss: nan
Iteration: 2986; Percent complete: 74.7%; Average loss: nan
Iteration: 2987; Percent complete: 74.7%; Average loss: nan
Iteration: 2988; Percent complete: 74.7%; Average loss: nan
Iteration: 2989; Percent complete: 74.7%; Average loss: nan
Iteration: 2990; Percent complete: 74.8%; Average loss: nan
Iteration: 2991; Percent complete: 74.8%; Average loss: nan
Iteration: 2992; Percent complete: 74.8%; Average loss: nan
Iteration: 2993; Percent complete: 74.8%; Average loss: nan
Iteration: 2994; Percent complete: 74.9%; Average loss: nan
Iteration: 2995; Percent complete: 74.9%; Average loss: nan
Iteration: 2996; Percent complete: 74.9%; Average loss: nan
Iteration: 2997; Percent complete: 74.9%; Average loss: nan
Iteration: 2998; Percent complete: 75.0%; Average loss: nan
Iteration: 2999; Percent complete: 75.0%; Average loss: nan
Iteration: 3000; Percent complete: 75.0%; Average loss: nan
Iteration: 3001; Percent complete: 75.0%; Average loss: nan
Iteration: 3002; Percent complete: 75.0%; Average loss: nan
Iteration: 3003; Percent complete: 75.1%; Average loss: nan
Iteration: 3004; Percent complete: 75.1%; Average loss: nan
Iteration: 3005; Percent complete: 75.1%; Average loss: nan
Iteration: 3006; Percent complete: 75.1%; Average loss: nan
Iteration: 3007; Percent complete: 75.2%; Average loss: nan
Iteration: 3008; Percent complete: 75.2%; Average loss: nan
Iteration: 3009; Percent complete: 75.2%; Average loss: nan
Iteration: 3010; Percent complete: 75.2%; Average loss: nan
Iteration: 3011; Percent complete: 75.3%; Average loss: nan
Iteration: 3012; Percent complete: 75.3%; Average loss: nan
Iteration: 3013; Percent complete: 75.3%; Average loss: nan
Iteration: 3014; Percent complete: 75.3%; Average loss: nan
Iteration: 3015; Percent complete: 75.4%; Average loss: nan
Iteration: 3016; Percent complete: 75.4%; Average loss: nan
Iteration: 3017; Percent complete: 75.4%; Average loss: nan
Iteration: 3018; Percent complete: 75.4%; Average loss: nan
Iteration: 3019; Percent complete: 75.5%; Average loss: nan
Iteration: 3020; Percent complete: 75.5%; Average loss: nan
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Iteration: 3021; Percent complete: 75.5%; Average loss: nan
Iteration: 3022; Percent complete: 75.5%; Average loss: nan
Iteration: 3023; Percent complete: 75.6%; Average loss: nan
Iteration: 3024; Percent complete: 75.6%; Average loss: nan
Iteration: 3025; Percent complete: 75.6%; Average loss: nan
Iteration: 3026; Percent complete: 75.6%; Average loss: nan
Iteration: 3027; Percent complete: 75.7%; Average loss: nan
Iteration: 3028; Percent complete: 75.7%; Average loss: nan
Iteration: 3029; Percent complete: 75.7%; Average loss: nan
Iteration: 3030; Percent complete: 75.8%; Average loss: nan
Iteration: 3031; Percent complete: 75.8%; Average loss: nan
Iteration: 3032; Percent complete: 75.8%; Average loss: nan
Iteration: 3033; Percent complete: 75.8%; Average loss: nan
Iteration: 3034; Percent complete: 75.8%; Average loss: nan
Iteration: 3035; Percent complete: 75.9%; Average loss: nan
Iteration: 3036; Percent complete: 75.9%; Average loss: nan
Iteration: 3037; Percent complete: 75.9%; Average loss: nan
Iteration: 3038; Percent complete: 75.9%; Average loss: nan
Iteration: 3039; Percent complete: 76.0%; Average loss: nan
Iteration: 3040; Percent complete: 76.0%; Average loss: nan
Iteration: 3041; Percent complete: 76.0%; Average loss: nan
Iteration: 3042; Percent complete: 76.0%; Average loss: nan
Iteration: 3043; Percent complete: 76.1%; Average loss: nan
Iteration: 3044; Percent complete: 76.1%; Average loss: nan
Iteration: 3045; Percent complete: 76.1%; Average loss: nan
Iteration: 3046; Percent complete: 76.1%; Average loss: nan
Iteration: 3047; Percent complete: 76.2%; Average loss: nan
Iteration: 3048; Percent complete: 76.2%; Average loss: nan
Iteration: 3049; Percent complete: 76.2%; Average loss: nan
Iteration: 3050; Percent complete: 76.2%; Average loss: nan
Iteration: 3051; Percent complete: 76.3%; Average loss: nan
Iteration: 3052; Percent complete: 76.3%; Average loss: nan
Iteration: 3053; Percent complete: 76.3%; Average loss: nan
Iteration: 3054; Percent complete: 76.3%; Average loss: nan
Iteration: 3055; Percent complete: 76.4%; Average loss: nan
Iteration: 3056; Percent complete: 76.4%; Average loss: nan
Iteration: 3057; Percent complete: 76.4%; Average loss: nan
Iteration: 3058; Percent complete: 76.4%; Average loss: nan
Iteration: 3059; Percent complete: 76.5%; Average loss: nan
Iteration: 3060; Percent complete: 76.5%; Average loss: nan
Iteration: 3061; Percent complete: 76.5%; Average loss: nan
Iteration: 3062; Percent complete: 76.5%; Average loss: nan
Iteration: 3063; Percent complete: 76.6%; Average loss: nan
Iteration: 3064; Percent complete: 76.6%; Average loss: nan
Iteration: 3065; Percent complete: 76.6%; Average loss: nan
Iteration: 3066; Percent complete: 76.6%; Average loss: nan
Iteration: 3067; Percent complete: 76.7%; Average loss: nan
Iteration: 3068; Percent complete: 76.7%; Average loss: nan
Iteration: 3069; Percent complete: 76.7%; Average loss: nan
Iteration: 3070; Percent complete: 76.8%; Average loss: nan
Iteration: 3071; Percent complete: 76.8%; Average loss: nan
Iteration: 3072; Percent complete: 76.8%; Average loss: nan
Iteration: 3073; Percent complete: 76.8%; Average loss: nan
Iteration: 3074; Percent complete: 76.8%; Average loss: nan
Iteration: 3075; Percent complete: 76.9%; Average loss: nan
Iteration: 3076; Percent complete: 76.9%; Average loss: nan
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Iteration: 3077; Percent complete: 76.9%; Average loss: nan
Iteration: 3078; Percent complete: 77.0%; Average loss: nan
Iteration: 3079; Percent complete: 77.0%; Average loss: nan
Iteration: 3080; Percent complete: 77.0%; Average loss: nan
Iteration: 3081; Percent complete: 77.0%; Average loss: nan
Iteration: 3082; Percent complete: 77.0%; Average loss: nan
Iteration: 3083; Percent complete: 77.1%; Average loss: nan
Iteration: 3084; Percent complete: 77.1%; Average loss: nan
Iteration: 3085; Percent complete: 77.1%; Average loss: nan
Iteration: 3086; Percent complete: 77.1%; Average loss: nan
Iteration: 3087; Percent complete: 77.2%; Average loss: nan
Iteration: 3088; Percent complete: 77.2%; Average loss: nan
Iteration: 3089; Percent complete: 77.2%; Average loss: nan
Iteration: 3090; Percent complete: 77.2%; Average loss: nan
Iteration: 3091; Percent complete: 77.3%; Average loss: nan
Iteration: 3092; Percent complete: 77.3%; Average loss: nan
Iteration: 3093; Percent complete: 77.3%; Average loss: nan
Iteration: 3094; Percent complete: 77.3%; Average loss: nan
Iteration: 3095; Percent complete: 77.4%; Average loss: nan
Iteration: 3096; Percent complete: 77.4%; Average loss: nan
Iteration: 3097; Percent complete: 77.4%; Average loss: nan
Iteration: 3098; Percent complete: 77.5%; Average loss: nan
Iteration: 3099; Percent complete: 77.5%; Average loss: nan
Iteration: 3100; Percent complete: 77.5%; Average loss: nan
Iteration: 3101; Percent complete: 77.5%; Average loss: nan
Iteration: 3102; Percent complete: 77.5%; Average loss: nan
Iteration: 3103; Percent complete: 77.6%; Average loss: nan
Iteration: 3104; Percent complete: 77.6%; Average loss: nan
Iteration: 3105; Percent complete: 77.6%; Average loss: nan
Iteration: 3106; Percent complete: 77.6%; Average loss: nan
Iteration: 3107; Percent complete: 77.7%; Average loss: nan
Iteration: 3108; Percent complete: 77.7%; Average loss: nan
Iteration: 3109; Percent complete: 77.7%; Average loss: nan
Iteration: 3110; Percent complete: 77.8%; Average loss: nan
Iteration: 3111; Percent complete: 77.8%; Average loss: nan
Iteration: 3112; Percent complete: 77.8%; Average loss: nan
Iteration: 3113; Percent complete: 77.8%; Average loss: nan
Iteration: 3114; Percent complete: 77.8%; Average loss: nan
Iteration: 3115; Percent complete: 77.9%; Average loss: nan
Iteration: 3116; Percent complete: 77.9%; Average loss: nan
Iteration: 3117; Percent complete: 77.9%; Average loss: nan
Iteration: 3118; Percent complete: 78.0%; Average loss: nan
Iteration: 3119; Percent complete: 78.0%; Average loss: nan
Iteration: 3120; Percent complete: 78.0%; Average loss: nan
Iteration: 3121; Percent complete: 78.0%; Average loss: nan
Iteration: 3122; Percent complete: 78.0%; Average loss: nan
Iteration: 3123; Percent complete: 78.1%; Average loss: nan
Iteration: 3124; Percent complete: 78.1%; Average loss: nan
Iteration: 3125; Percent complete: 78.1%; Average loss: nan
Iteration: 3126; Percent complete: 78.1%; Average loss: nan
Iteration: 3127; Percent complete: 78.2%; Average loss: nan
Iteration: 3128; Percent complete: 78.2%; Average loss: nan
Iteration: 3129; Percent complete: 78.2%; Average loss: nan
Iteration: 3130; Percent complete: 78.2%; Average loss: nan
Iteration: 3131; Percent complete: 78.3%; Average loss: nan
Iteration: 3132; Percent complete: 78.3%; Average loss: nan
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Iteration: 3133; Percent complete: 78.3%; Average loss: nan
Iteration: 3134; Percent complete: 78.3%; Average loss: nan
Iteration: 3135; Percent complete: 78.4%; Average loss: nan
Iteration: 3136; Percent complete: 78.4%; Average loss: nan
Iteration: 3137; Percent complete: 78.4%; Average loss: nan
Iteration: 3138; Percent complete: 78.5%; Average loss: nan
Iteration: 3139; Percent complete: 78.5%; Average loss: nan
Iteration: 3140; Percent complete: 78.5%; Average loss: nan
Iteration: 3141; Percent complete: 78.5%; Average loss: nan
Iteration: 3142; Percent complete: 78.5%; Average loss: nan
Iteration: 3143; Percent complete: 78.6%; Average loss: nan
Iteration: 3144; Percent complete: 78.6%; Average loss: nan
Iteration: 3145; Percent complete: 78.6%; Average loss: nan
Iteration: 3146; Percent complete: 78.6%; Average loss: nan
Iteration: 3147; Percent complete: 78.7%; Average loss: nan
Iteration: 3148; Percent complete: 78.7%; Average loss: nan
Iteration: 3149; Percent complete: 78.7%; Average loss: nan
Iteration: 3150; Percent complete: 78.8%; Average loss: nan
Iteration: 3151; Percent complete: 78.8%; Average loss: nan
Iteration: 3152; Percent complete: 78.8%; Average loss: nan
Iteration: 3153; Percent complete: 78.8%; Average loss: nan
Iteration: 3154; Percent complete: 78.8%; Average loss: nan
Iteration: 3155; Percent complete: 78.9%; Average loss: nan
Iteration: 3156; Percent complete: 78.9%; Average loss: nan
Iteration: 3157; Percent complete: 78.9%; Average loss: nan
Iteration: 3158; Percent complete: 79.0%; Average loss: nan
Iteration: 3159; Percent complete: 79.0%; Average loss: nan
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Iteration: 3165; Percent complete: 79.1%; Average loss: nan
Iteration: 3166; Percent complete: 79.1%; Average loss: nan
Iteration: 3167; Percent complete: 79.2%; Average loss: nan
Iteration: 3168; Percent complete: 79.2%; Average loss: nan
Iteration: 3169; Percent complete: 79.2%; Average loss: nan
Iteration: 3170; Percent complete: 79.2%; Average loss: nan
Iteration: 3171; Percent complete: 79.3%; Average loss: nan
Iteration: 3172; Percent complete: 79.3%; Average loss: nan
Iteration: 3173; Percent complete: 79.3%; Average loss: nan
Iteration: 3174; Percent complete: 79.3%; Average loss: nan
Iteration: 3175; Percent complete: 79.4%; Average loss: nan
Iteration: 3176; Percent complete: 79.4%; Average loss: nan
Iteration: 3177; Percent complete: 79.4%; Average loss: nan
Iteration: 3178; Percent complete: 79.5%; Average loss: nan
Iteration: 3179; Percent complete: 79.5%; Average loss: nan
Iteration: 3180; Percent complete: 79.5%; Average loss: nan
Iteration: 3181; Percent complete: 79.5%; Average loss: nan
Iteration: 3182; Percent complete: 79.5%; Average loss: nan
Iteration: 3183; Percent complete: 79.6%; Average loss: nan
Iteration: 3184; Percent complete: 79.6%; Average loss: nan
Iteration: 3185; Percent complete: 79.6%; Average loss: nan
Iteration: 3186; Percent complete: 79.7%; Average loss: nan
Iteration: 3187; Percent complete: 79.7%; Average loss: nan
Iteration: 3188; Percent complete: 79.7%; Average loss: nan
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Iteration: 3189; Percent complete: 79.7%; Average loss: nan
Iteration: 3190; Percent complete: 79.8%; Average loss: nan
Iteration: 3191; Percent complete: 79.8%; Average loss: nan
Iteration: 3192; Percent complete: 79.8%; Average loss: nan
Iteration: 3193; Percent complete: 79.8%; Average loss: nan
Iteration: 3194; Percent complete: 79.8%; Average loss: nan
Iteration: 3195; Percent complete: 79.9%; Average loss: nan
Iteration: 3196; Percent complete: 79.9%; Average loss: nan
Iteration: 3197; Percent complete: 79.9%; Average loss: nan
Iteration: 3198; Percent complete: 80.0%; Average loss: nan
Iteration: 3199; Percent complete: 80.0%; Average loss: nan
Iteration: 3200; Percent complete: 80.0%; Average loss: nan
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Iteration: 3203; Percent complete: 80.1%; Average loss: nan
Iteration: 3204; Percent complete: 80.1%; Average loss: nan
Iteration: 3205; Percent complete: 80.1%; Average loss: nan
Iteration: 3206; Percent complete: 80.2%; Average loss: nan
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Iteration: 3210; Percent complete: 80.2%; Average loss: nan
Iteration: 3211; Percent complete: 80.3%; Average loss: nan
Iteration: 3212; Percent complete: 80.3%; Average loss: nan
Iteration: 3213; Percent complete: 80.3%; Average loss: nan
Iteration: 3214; Percent complete: 80.3%; Average loss: nan
Iteration: 3215; Percent complete: 80.4%; Average loss: nan
Iteration: 3216; Percent complete: 80.4%; Average loss: nan
Iteration: 3217; Percent complete: 80.4%; Average loss: nan
Iteration: 3218; Percent complete: 80.5%; Average loss: nan
Iteration: 3219; Percent complete: 80.5%; Average loss: nan
Iteration: 3220; Percent complete: 80.5%; Average loss: nan
Iteration: 3221; Percent complete: 80.5%; Average loss: nan
Iteration: 3222; Percent complete: 80.5%; Average loss: nan
Iteration: 3223; Percent complete: 80.6%; Average loss: nan
Iteration: 3224; Percent complete: 80.6%; Average loss: nan
Iteration: 3225; Percent complete: 80.6%; Average loss: nan
Iteration: 3226; Percent complete: 80.7%; Average loss: nan
Iteration: 3227; Percent complete: 80.7%; Average loss: nan
Iteration: 3228; Percent complete: 80.7%; Average loss: nan
Iteration: 3229; Percent complete: 80.7%; Average loss: nan
Iteration: 3230; Percent complete: 80.8%; Average loss: nan
Iteration: 3231; Percent complete: 80.8%; Average loss: nan
Iteration: 3232; Percent complete: 80.8%; Average loss: nan
Iteration: 3233; Percent complete: 80.8%; Average loss: nan
Iteration: 3234; Percent complete: 80.8%; Average loss: nan
Iteration: 3235; Percent complete: 80.9%; Average loss: nan
Iteration: 3236; Percent complete: 80.9%; Average loss: nan
Iteration: 3237; Percent complete: 80.9%; Average loss: nan
Iteration: 3238; Percent complete: 81.0%; Average loss: nan
Iteration: 3239; Percent complete: 81.0%; Average loss: nan
Iteration: 3240; Percent complete: 81.0%; Average loss: nan
Iteration: 3241; Percent complete: 81.0%; Average loss: nan
Iteration: 3242; Percent complete: 81.0%; Average loss: nan
Iteration: 3243; Percent complete: 81.1%; Average loss: nan
Iteration: 3244; Percent complete: 81.1%; Average loss: nan
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Iteration: 3245; Percent complete: 81.1%; Average loss: nan
Iteration: 3246; Percent complete: 81.2%; Average loss: nan
Iteration: 3247; Percent complete: 81.2%; Average loss: nan
Iteration: 3248; Percent complete: 81.2%; Average loss: nan
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Iteration: 3250; Percent complete: 81.2%; Average loss: nan
Iteration: 3251; Percent complete: 81.3%; Average loss: nan
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Iteration: 3253; Percent complete: 81.3%; Average loss: nan
Iteration: 3254; Percent complete: 81.3%; Average loss: nan
Iteration: 3255; Percent complete: 81.4%; Average loss: nan
Iteration: 3256; Percent complete: 81.4%; Average loss: nan
Iteration: 3257; Percent complete: 81.4%; Average loss: nan
Iteration: 3258; Percent complete: 81.5%; Average loss: nan
Iteration: 3259; Percent complete: 81.5%; Average loss: nan
Iteration: 3260; Percent complete: 81.5%; Average loss: nan
Iteration: 3261; Percent complete: 81.5%; Average loss: nan
Iteration: 3262; Percent complete: 81.5%; Average loss: nan
Iteration: 3263; Percent complete: 81.6%; Average loss: nan
Iteration: 3264; Percent complete: 81.6%; Average loss: nan
Iteration: 3265; Percent complete: 81.6%; Average loss: nan
Iteration: 3266; Percent complete: 81.7%; Average loss: nan
Iteration: 3267; Percent complete: 81.7%; Average loss: nan
Iteration: 3268; Percent complete: 81.7%; Average loss: nan
Iteration: 3269; Percent complete: 81.7%; Average loss: nan
Iteration: 3270; Percent complete: 81.8%; Average loss: nan
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Iteration: 3275; Percent complete: 81.9%; Average loss: nan
Iteration: 3276; Percent complete: 81.9%; Average loss: nan
Iteration: 3277; Percent complete: 81.9%; Average loss: nan
Iteration: 3278; Percent complete: 82.0%; Average loss: nan
Iteration: 3279; Percent complete: 82.0%; Average loss: nan
Iteration: 3280; Percent complete: 82.0%; Average loss: nan
Iteration: 3281; Percent complete: 82.0%; Average loss: nan
Iteration: 3282; Percent complete: 82.0%; Average loss: nan
Iteration: 3283; Percent complete: 82.1%; Average loss: nan
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Iteration: 3286; Percent complete: 82.2%; Average loss: nan
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Iteration: 3291; Percent complete: 82.3%; Average loss: nan
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Iteration: 3295; Percent complete: 82.4%; Average loss: nan
Iteration: 3296; Percent complete: 82.4%; Average loss: nan
Iteration: 3297; Percent complete: 82.4%; Average loss: nan
Iteration: 3298; Percent complete: 82.5%; Average loss: nan
Iteration: 3299; Percent complete: 82.5%; Average loss: nan
Iteration: 3300; Percent complete: 82.5%; Average loss: nan
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Iteration: 3301; Percent complete: 82.5%; Average loss: nan
Iteration: 3302; Percent complete: 82.5%; Average loss: nan
Iteration: 3303; Percent complete: 82.6%; Average loss: nan
Iteration: 3304; Percent complete: 82.6%; Average loss: nan
Iteration: 3305; Percent complete: 82.6%; Average loss: nan
Iteration: 3306; Percent complete: 82.7%; Average loss: nan
Iteration: 3307; Percent complete: 82.7%; Average loss: nan
Iteration: 3308; Percent complete: 82.7%; Average loss: nan
Iteration: 3309; Percent complete: 82.7%; Average loss: nan
Iteration: 3310; Percent complete: 82.8%; Average loss: nan
Iteration: 3311; Percent complete: 82.8%; Average loss: nan
Iteration: 3312; Percent complete: 82.8%; Average loss: nan
Iteration: 3313; Percent complete: 82.8%; Average loss: nan
Iteration: 3314; Percent complete: 82.8%; Average loss: nan
Iteration: 3315; Percent complete: 82.9%; Average loss: nan
Iteration: 3316; Percent complete: 82.9%; Average loss: nan
Iteration: 3317; Percent complete: 82.9%; Average loss: nan
Iteration: 3318; Percent complete: 83.0%; Average loss: nan
Iteration: 3319; Percent complete: 83.0%; Average loss: nan
Iteration: 3320; Percent complete: 83.0%; Average loss: nan
Iteration: 3321; Percent complete: 83.0%; Average loss: nan
Iteration: 3322; Percent complete: 83.0%; Average loss: nan
Iteration: 3323; Percent complete: 83.1%; Average loss: nan
Iteration: 3324; Percent complete: 83.1%; Average loss: nan
Iteration: 3325; Percent complete: 83.1%; Average loss: nan
Iteration: 3326; Percent complete: 83.2%; Average loss: nan
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Iteration: 3330; Percent complete: 83.2%; Average loss: nan
Iteration: 3331; Percent complete: 83.3%; Average loss: nan
Iteration: 3332; Percent complete: 83.3%; Average loss: nan
Iteration: 3333; Percent complete: 83.3%; Average loss: nan
Iteration: 3334; Percent complete: 83.4%; Average loss: nan
Iteration: 3335; Percent complete: 83.4%; Average loss: nan
Iteration: 3336; Percent complete: 83.4%; Average loss: nan
Iteration: 3337; Percent complete: 83.4%; Average loss: nan
Iteration: 3338; Percent complete: 83.5%; Average loss: nan
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Iteration: 3342; Percent complete: 83.5%; Average loss: nan
Iteration: 3343; Percent complete: 83.6%; Average loss: nan
Iteration: 3344; Percent complete: 83.6%; Average loss: nan
Iteration: 3345; Percent complete: 83.6%; Average loss: nan
Iteration: 3346; Percent complete: 83.7%; Average loss: nan
Iteration: 3347; Percent complete: 83.7%; Average loss: nan
Iteration: 3348; Percent complete: 83.7%; Average loss: nan
Iteration: 3349; Percent complete: 83.7%; Average loss: nan
Iteration: 3350; Percent complete: 83.8%; Average loss: nan
Iteration: 3351; Percent complete: 83.8%; Average loss: nan
Iteration: 3352; Percent complete: 83.8%; Average loss: nan
Iteration: 3353; Percent complete: 83.8%; Average loss: nan
Iteration: 3354; Percent complete: 83.9%; Average loss: nan
Iteration: 3355; Percent complete: 83.9%; Average loss: nan
Iteration: 3356; Percent complete: 83.9%; Average loss: nan
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Iteration: 3357; Percent complete: 83.9%; Average loss: nan
Iteration: 3358; Percent complete: 84.0%; Average loss: nan
Iteration: 3359; Percent complete: 84.0%; Average loss: nan
Iteration: 3360; Percent complete: 84.0%; Average loss: nan
Iteration: 3361; Percent complete: 84.0%; Average loss: nan
Iteration: 3362; Percent complete: 84.0%; Average loss: nan
Iteration: 3363; Percent complete: 84.1%; Average loss: nan
Iteration: 3364; Percent complete: 84.1%; Average loss: nan
Iteration: 3365; Percent complete: 84.1%; Average loss: nan
Iteration: 3366; Percent complete: 84.2%; Average loss: nan
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Iteration: 3373; Percent complete: 84.3%; Average loss: nan
Iteration: 3374; Percent complete: 84.4%; Average loss: nan
Iteration: 3375; Percent complete: 84.4%; Average loss: nan
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Iteration: 3378; Percent complete: 84.5%; Average loss: nan
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Iteration: 3380; Percent complete: 84.5%; Average loss: nan
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Iteration: 3383; Percent complete: 84.6%; Average loss: nan
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Iteration: 3386; Percent complete: 84.7%; Average loss: nan
Iteration: 3387; Percent complete: 84.7%; Average loss: nan
Iteration: 3388; Percent complete: 84.7%; Average loss: nan
Iteration: 3389; Percent complete: 84.7%; Average loss: nan
Iteration: 3390; Percent complete: 84.8%; Average loss: nan
Iteration: 3391; Percent complete: 84.8%; Average loss: nan
Iteration: 3392; Percent complete: 84.8%; Average loss: nan
Iteration: 3393; Percent complete: 84.8%; Average loss: nan
Iteration: 3394; Percent complete: 84.9%; Average loss: nan
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Iteration: 3398; Percent complete: 85.0%; Average loss: nan
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Iteration: 3401; Percent complete: 85.0%; Average loss: nan
Iteration: 3402; Percent complete: 85.0%; Average loss: nan
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Iteration: 3406; Percent complete: 85.2%; Average loss: nan
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Iteration: 3409; Percent complete: 85.2%; Average loss: nan
Iteration: 3410; Percent complete: 85.2%; Average loss: nan
Iteration: 3411; Percent complete: 85.3%; Average loss: nan
Iteration: 3412; Percent complete: 85.3%; Average loss: nan
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Iteration: 3413; Percent complete: 85.3%; Average loss: nan
Iteration: 3414; Percent complete: 85.4%; Average loss: nan
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Iteration: 3423; Percent complete: 85.6%; Average loss: nan
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Iteration: 3426; Percent complete: 85.7%; Average loss: nan
Iteration: 3427; Percent complete: 85.7%; Average loss: nan
Iteration: 3428; Percent complete: 85.7%; Average loss: nan
Iteration: 3429; Percent complete: 85.7%; Average loss: nan
Iteration: 3430; Percent complete: 85.8%; Average loss: nan
Iteration: 3431; Percent complete: 85.8%; Average loss: nan
Iteration: 3432; Percent complete: 85.8%; Average loss: nan
Iteration: 3433; Percent complete: 85.8%; Average loss: nan
Iteration: 3434; Percent complete: 85.9%; Average loss: nan
Iteration: 3435; Percent complete: 85.9%; Average loss: nan
Iteration: 3436; Percent complete: 85.9%; Average loss: nan
Iteration: 3437; Percent complete: 85.9%; Average loss: nan
Iteration: 3438; Percent complete: 86.0%; Average loss: nan
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Iteration: 3441; Percent complete: 86.0%; Average loss: nan
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Iteration: 3445; Percent complete: 86.1%; Average loss: nan
Iteration: 3446; Percent complete: 86.2%; Average loss: nan
Iteration: 3447; Percent complete: 86.2%; Average loss: nan
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Iteration: 3449; Percent complete: 86.2%; Average loss: nan
Iteration: 3450; Percent complete: 86.2%; Average loss: nan
Iteration: 3451; Percent complete: 86.3%; Average loss: nan
Iteration: 3452; Percent complete: 86.3%; Average loss: nan
Iteration: 3453; Percent complete: 86.3%; Average loss: nan
Iteration: 3454; Percent complete: 86.4%; Average loss: nan
Iteration: 3455; Percent complete: 86.4%; Average loss: nan
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Iteration: 3458; Percent complete: 86.5%; Average loss: nan
Iteration: 3459; Percent complete: 86.5%; Average loss: nan
Iteration: 3460; Percent complete: 86.5%; Average loss: nan
Iteration: 3461; Percent complete: 86.5%; Average loss: nan
Iteration: 3462; Percent complete: 86.6%; Average loss: nan
Iteration: 3463; Percent complete: 86.6%; Average loss: nan
Iteration: 3464; Percent complete: 86.6%; Average loss: nan
Iteration: 3465; Percent complete: 86.6%; Average loss: nan
Iteration: 3466; Percent complete: 86.7%; Average loss: nan
Iteration: 3467; Percent complete: 86.7%; Average loss: nan
Iteration: 3468; Percent complete: 86.7%; Average loss: nan
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Iteration: 3469; Percent complete: 86.7%; Average loss: nan
Iteration: 3470; Percent complete: 86.8%; Average loss: nan
Iteration: 3471; Percent complete: 86.8%; Average loss: nan
Iteration: 3472; Percent complete: 86.8%; Average loss: nan
Iteration: 3473; Percent complete: 86.8%; Average loss: nan
Iteration: 3474; Percent complete: 86.9%; Average loss: nan
Iteration: 3475; Percent complete: 86.9%; Average loss: nan
Iteration: 3476; Percent complete: 86.9%; Average loss: nan
Iteration: 3477; Percent complete: 86.9%; Average loss: nan
Iteration: 3478; Percent complete: 87.0%; Average loss: nan
Iteration: 3479; Percent complete: 87.0%; Average loss: nan
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Iteration: 3481; Percent complete: 87.0%; Average loss: nan
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Iteration: 3486; Percent complete: 87.2%; Average loss: nan
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Iteration: 3490; Percent complete: 87.2%; Average loss: nan
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Iteration: 3492; Percent complete: 87.3%; Average loss: nan
Iteration: 3493; Percent complete: 87.3%; Average loss: nan
Iteration: 3494; Percent complete: 87.4%; Average loss: nan
Iteration: 3495; Percent complete: 87.4%; Average loss: nan
Iteration: 3496; Percent complete: 87.4%; Average loss: nan
Iteration: 3497; Percent complete: 87.4%; Average loss: nan
Iteration: 3498; Percent complete: 87.5%; Average loss: nan
Iteration: 3499; Percent complete: 87.5%; Average loss: nan
Iteration: 3500; Percent complete: 87.5%; Average loss: nan
Iteration: 3501; Percent complete: 87.5%; Average loss: nan
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Iteration: 3506; Percent complete: 87.6%; Average loss: nan
Iteration: 3507; Percent complete: 87.7%; Average loss: nan
Iteration: 3508; Percent complete: 87.7%; Average loss: nan
Iteration: 3509; Percent complete: 87.7%; Average loss: nan
Iteration: 3510; Percent complete: 87.8%; Average loss: nan
Iteration: 3511; Percent complete: 87.8%; Average loss: nan
Iteration: 3512; Percent complete: 87.8%; Average loss: nan
Iteration: 3513; Percent complete: 87.8%; Average loss: nan
Iteration: 3514; Percent complete: 87.8%; Average loss: nan
Iteration: 3515; Percent complete: 87.9%; Average loss: nan
Iteration: 3516; Percent complete: 87.9%; Average loss: nan
Iteration: 3517; Percent complete: 87.9%; Average loss: nan
Iteration: 3518; Percent complete: 87.9%; Average loss: nan
Iteration: 3519; Percent complete: 88.0%; Average loss: nan
Iteration: 3520; Percent complete: 88.0%; Average loss: nan
Iteration: 3521; Percent complete: 88.0%; Average loss: nan
Iteration: 3522; Percent complete: 88.0%; Average loss: nan
Iteration: 3523; Percent complete: 88.1%; Average loss: nan
Iteration: 3524; Percent complete: 88.1%; Average loss: nan
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Iteration: 3525; Percent complete: 88.1%; Average loss: nan
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Iteration: 3531; Percent complete: 88.3%; Average loss: nan
Iteration: 3532; Percent complete: 88.3%; Average loss: nan
Iteration: 3533; Percent complete: 88.3%; Average loss: nan
Iteration: 3534; Percent complete: 88.3%; Average loss: nan
Iteration: 3535; Percent complete: 88.4%; Average loss: nan
Iteration: 3536; Percent complete: 88.4%; Average loss: nan
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Iteration: 3545; Percent complete: 88.6%; Average loss: nan
Iteration: 3546; Percent complete: 88.6%; Average loss: nan
Iteration: 3547; Percent complete: 88.7%; Average loss: nan
Iteration: 3548; Percent complete: 88.7%; Average loss: nan
Iteration: 3549; Percent complete: 88.7%; Average loss: nan
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Iteration: 3552; Percent complete: 88.8%; Average loss: nan
Iteration: 3553; Percent complete: 88.8%; Average loss: nan
Iteration: 3554; Percent complete: 88.8%; Average loss: nan
Iteration: 3555; Percent complete: 88.9%; Average loss: nan
Iteration: 3556; Percent complete: 88.9%; Average loss: nan
Iteration: 3557; Percent complete: 88.9%; Average loss: nan
Iteration: 3558; Percent complete: 88.9%; Average loss: nan
Iteration: 3559; Percent complete: 89.0%; Average loss: nan
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Iteration: 3562; Percent complete: 89.0%; Average loss: nan
Iteration: 3563; Percent complete: 89.1%; Average loss: nan
Iteration: 3564; Percent complete: 89.1%; Average loss: nan
Iteration: 3565; Percent complete: 89.1%; Average loss: nan
Iteration: 3566; Percent complete: 89.1%; Average loss: nan
Iteration: 3567; Percent complete: 89.2%; Average loss: nan
Iteration: 3568; Percent complete: 89.2%; Average loss: nan
Iteration: 3569; Percent complete: 89.2%; Average loss: nan
Iteration: 3570; Percent complete: 89.2%; Average loss: nan
Iteration: 3571; Percent complete: 89.3%; Average loss: nan
Iteration: 3572; Percent complete: 89.3%; Average loss: nan
Iteration: 3573; Percent complete: 89.3%; Average loss: nan
Iteration: 3574; Percent complete: 89.3%; Average loss: nan
Iteration: 3575; Percent complete: 89.4%; Average loss: nan
Iteration: 3576; Percent complete: 89.4%; Average loss: nan
Iteration: 3577; Percent complete: 89.4%; Average loss: nan
Iteration: 3578; Percent complete: 89.5%; Average loss: nan
Iteration: 3579; Percent complete: 89.5%; Average loss: nan
Iteration: 3580; Percent complete: 89.5%; Average loss: nan
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Iteration: 3582; Percent complete: 89.5%; Average loss: nan
Iteration: 3583; Percent complete: 89.6%; Average loss: nan
Iteration: 3584; Percent complete: 89.6%; Average loss: nan
Iteration: 3585; Percent complete: 89.6%; Average loss: nan
Iteration: 3586; Percent complete: 89.6%; Average loss: nan
Iteration: 3587; Percent complete: 89.7%; Average loss: nan
Iteration: 3588; Percent complete: 89.7%; Average loss: nan
Iteration: 3589; Percent complete: 89.7%; Average loss: nan
Iteration: 3590; Percent complete: 89.8%; Average loss: nan
Iteration: 3591; Percent complete: 89.8%; Average loss: nan
Iteration: 3592; Percent complete: 89.8%; Average loss: nan
Iteration: 3593; Percent complete: 89.8%; Average loss: nan
Iteration: 3594; Percent complete: 89.8%; Average loss: nan
Iteration: 3595; Percent complete: 89.9%; Average loss: nan
Iteration: 3596; Percent complete: 89.9%; Average loss: nan
Iteration: 3597; Percent complete: 89.9%; Average loss: nan
Iteration: 3598; Percent complete: 90.0%; Average loss: nan
Iteration: 3599; Percent complete: 90.0%; Average loss: nan
Iteration: 3600; Percent complete: 90.0%; Average loss: nan
Iteration: 3601; Percent complete: 90.0%; Average loss: nan
Iteration: 3602; Percent complete: 90.0%; Average loss: nan
Iteration: 3603; Percent complete: 90.1%; Average loss: nan
Iteration: 3604; Percent complete: 90.1%; Average loss: nan
Iteration: 3605; Percent complete: 90.1%; Average loss: nan
Iteration: 3606; Percent complete: 90.1%; Average loss: nan
Iteration: 3607; Percent complete: 90.2%; Average loss: nan
Iteration: 3608; Percent complete: 90.2%; Average loss: nan
Iteration: 3609; Percent complete: 90.2%; Average loss: nan
Iteration: 3610; Percent complete: 90.2%; Average loss: nan
Iteration: 3611; Percent complete: 90.3%; Average loss: nan
Iteration: 3612; Percent complete: 90.3%; Average loss: nan
Iteration: 3613; Percent complete: 90.3%; Average loss: nan
Iteration: 3614; Percent complete: 90.3%; Average loss: nan
Iteration: 3615; Percent complete: 90.4%; Average loss: nan
Iteration: 3616; Percent complete: 90.4%; Average loss: nan
Iteration: 3617; Percent complete: 90.4%; Average loss: nan
Iteration: 3618; Percent complete: 90.5%; Average loss: nan
Iteration: 3619; Percent complete: 90.5%; Average loss: nan
Iteration: 3620; Percent complete: 90.5%; Average loss: nan
Iteration: 3621; Percent complete: 90.5%; Average loss: nan
Iteration: 3622; Percent complete: 90.5%; Average loss: nan
Iteration: 3623; Percent complete: 90.6%; Average loss: nan
Iteration: 3624; Percent complete: 90.6%; Average loss: nan
Iteration: 3625; Percent complete: 90.6%; Average loss: nan
Iteration: 3626; Percent complete: 90.6%; Average loss: nan
Iteration: 3627; Percent complete: 90.7%; Average loss: nan
Iteration: 3628; Percent complete: 90.7%; Average loss: nan
Iteration: 3629; Percent complete: 90.7%; Average loss: nan
Iteration: 3630; Percent complete: 90.8%; Average loss: nan
Iteration: 3631; Percent complete: 90.8%; Average loss: nan
Iteration: 3632; Percent complete: 90.8%; Average loss: nan
Iteration: 3633; Percent complete: 90.8%; Average loss: nan
Iteration: 3634; Percent complete: 90.8%; Average loss: nan
Iteration: 3635; Percent complete: 90.9%; Average loss: nan
Iteration: 3636; Percent complete: 90.9%; Average loss: nan
```

```
Iteration: 3637; Percent complete: 90.9%; Average loss: nan
Iteration: 3638; Percent complete: 91.0%; Average loss: nan
Iteration: 3639; Percent complete: 91.0%; Average loss: nan
Iteration: 3640; Percent complete: 91.0%; Average loss: nan
Iteration: 3641; Percent complete: 91.0%; Average loss: nan
Iteration: 3642; Percent complete: 91.0%; Average loss: nan
Iteration: 3643; Percent complete: 91.1%; Average loss: nan
Iteration: 3644; Percent complete: 91.1%; Average loss: nan
Iteration: 3645; Percent complete: 91.1%; Average loss: nan
Iteration: 3646; Percent complete: 91.1%; Average loss: nan
Iteration: 3647; Percent complete: 91.2%; Average loss: nan
Iteration: 3648; Percent complete: 91.2%; Average loss: nan
Iteration: 3649; Percent complete: 91.2%; Average loss: nan
Iteration: 3650; Percent complete: 91.2%; Average loss: nan
Iteration: 3651; Percent complete: 91.3%; Average loss: nan
Iteration: 3652; Percent complete: 91.3%; Average loss: nan
Iteration: 3653; Percent complete: 91.3%; Average loss: nan
Iteration: 3654; Percent complete: 91.3%; Average loss: nan
Iteration: 3655; Percent complete: 91.4%; Average loss: nan
Iteration: 3656; Percent complete: 91.4%; Average loss: nan
Iteration: 3657; Percent complete: 91.4%; Average loss: nan
Iteration: 3658; Percent complete: 91.5%; Average loss: nan
Iteration: 3659; Percent complete: 91.5%; Average loss: nan
Iteration: 3660; Percent complete: 91.5%; Average loss: nan
Iteration: 3661; Percent complete: 91.5%; Average loss: nan
Iteration: 3662; Percent complete: 91.5%; Average loss: nan
Iteration: 3663; Percent complete: 91.6%; Average loss: nan
Iteration: 3664; Percent complete: 91.6%; Average loss: nan
Iteration: 3665; Percent complete: 91.6%; Average loss: nan
Iteration: 3666; Percent complete: 91.6%; Average loss: nan
Iteration: 3667; Percent complete: 91.7%; Average loss: nan
Iteration: 3668; Percent complete: 91.7%; Average loss: nan
Iteration: 3669; Percent complete: 91.7%; Average loss: nan
Iteration: 3670; Percent complete: 91.8%; Average loss: nan
Iteration: 3671; Percent complete: 91.8%; Average loss: nan
Iteration: 3672; Percent complete: 91.8%; Average loss: nan
Iteration: 3673; Percent complete: 91.8%; Average loss: nan
Iteration: 3674; Percent complete: 91.8%; Average loss: nan
Iteration: 3675; Percent complete: 91.9%; Average loss: nan
Iteration: 3676; Percent complete: 91.9%; Average loss: nan
Iteration: 3677; Percent complete: 91.9%; Average loss: nan
Iteration: 3678; Percent complete: 92.0%; Average loss: nan
Iteration: 3679; Percent complete: 92.0%; Average loss: nan
Iteration: 3680; Percent complete: 92.0%; Average loss: nan
Iteration: 3681; Percent complete: 92.0%; Average loss: nan
Iteration: 3682; Percent complete: 92.0%; Average loss: nan
Iteration: 3683; Percent complete: 92.1%; Average loss: nan
Iteration: 3684; Percent complete: 92.1%; Average loss: nan
Iteration: 3685; Percent complete: 92.1%; Average loss: nan
Iteration: 3686; Percent complete: 92.2%; Average loss: nan
Iteration: 3687; Percent complete: 92.2%; Average loss: nan
Iteration: 3688; Percent complete: 92.2%; Average loss: nan
Iteration: 3689; Percent complete: 92.2%; Average loss: nan
Iteration: 3690; Percent complete: 92.2%; Average loss: nan
Iteration: 3691; Percent complete: 92.3%; Average loss: nan
Iteration: 3692; Percent complete: 92.3%; Average loss: nan
```

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Iteration: 3693; Percent complete: 92.3%; Average loss: nan
Iteration: 3694; Percent complete: 92.3%; Average loss: nan
Iteration: 3695; Percent complete: 92.4%; Average loss: nan
Iteration: 3696; Percent complete: 92.4%; Average loss: nan
Iteration: 3697; Percent complete: 92.4%; Average loss: nan
Iteration: 3698; Percent complete: 92.5%; Average loss: nan
Iteration: 3699; Percent complete: 92.5%; Average loss: nan
Iteration: 3700; Percent complete: 92.5%; Average loss: nan
Iteration: 3701; Percent complete: 92.5%; Average loss: nan
Iteration: 3702; Percent complete: 92.5%; Average loss: nan
Iteration: 3703; Percent complete: 92.6%; Average loss: nan
Iteration: 3704; Percent complete: 92.6%; Average loss: nan
Iteration: 3705; Percent complete: 92.6%; Average loss: nan
Iteration: 3706; Percent complete: 92.7%; Average loss: nan
Iteration: 3707; Percent complete: 92.7%; Average loss: nan
Iteration: 3708; Percent complete: 92.7%; Average loss: nan
Iteration: 3709; Percent complete: 92.7%; Average loss: nan
Iteration: 3710; Percent complete: 92.8%; Average loss: nan
Iteration: 3711; Percent complete: 92.8%; Average loss: nan
Iteration: 3712; Percent complete: 92.8%; Average loss: nan
Iteration: 3713; Percent complete: 92.8%; Average loss: nan
Iteration: 3714; Percent complete: 92.8%; Average loss: nan
Iteration: 3715; Percent complete: 92.9%; Average loss: nan
Iteration: 3716; Percent complete: 92.9%; Average loss: nan
Iteration: 3717; Percent complete: 92.9%; Average loss: nan
Iteration: 3718; Percent complete: 93.0%; Average loss: nan
Iteration: 3719; Percent complete: 93.0%; Average loss: nan
Iteration: 3720; Percent complete: 93.0%; Average loss: nan
Iteration: 3721; Percent complete: 93.0%; Average loss: nan
Iteration: 3722; Percent complete: 93.0%; Average loss: nan
Iteration: 3723; Percent complete: 93.1%; Average loss: nan
Iteration: 3724; Percent complete: 93.1%; Average loss: nan
Iteration: 3725; Percent complete: 93.1%; Average loss: nan
Iteration: 3726; Percent complete: 93.2%; Average loss: nan
Iteration: 3727; Percent complete: 93.2%; Average loss: nan
Iteration: 3728; Percent complete: 93.2%; Average loss: nan
Iteration: 3729; Percent complete: 93.2%; Average loss: nan
Iteration: 3730; Percent complete: 93.2%; Average loss: nan
Iteration: 3731; Percent complete: 93.3%; Average loss: nan
Iteration: 3732; Percent complete: 93.3%; Average loss: nan
Iteration: 3733; Percent complete: 93.3%; Average loss: nan
Iteration: 3734; Percent complete: 93.3%; Average loss: nan
Iteration: 3735; Percent complete: 93.4%; Average loss: nan
Iteration: 3736; Percent complete: 93.4%; Average loss: nan
Iteration: 3737; Percent complete: 93.4%; Average loss: nan
Iteration: 3738; Percent complete: 93.5%; Average loss: nan
Iteration: 3739; Percent complete: 93.5%; Average loss: nan
Iteration: 3740; Percent complete: 93.5%; Average loss: nan
Iteration: 3741; Percent complete: 93.5%; Average loss: nan
Iteration: 3742; Percent complete: 93.5%; Average loss: nan
Iteration: 3743; Percent complete: 93.6%; Average loss: nan
Iteration: 3744; Percent complete: 93.6%; Average loss: nan
Iteration: 3745; Percent complete: 93.6%; Average loss: nan
Iteration: 3746; Percent complete: 93.7%; Average loss: nan
Iteration: 3747; Percent complete: 93.7%; Average loss: nan
Iteration: 3748; Percent complete: 93.7%; Average loss: nan
```

```
Iteration: 3749; Percent complete: 93.7%; Average loss: nan
Iteration: 3750; Percent complete: 93.8%; Average loss: nan
Iteration: 3751; Percent complete: 93.8%; Average loss: nan
Iteration: 3752; Percent complete: 93.8%; Average loss: nan
Iteration: 3753; Percent complete: 93.8%; Average loss: nan
Iteration: 3754; Percent complete: 93.8%; Average loss: nan
Iteration: 3755; Percent complete: 93.9%; Average loss: nan
Iteration: 3756; Percent complete: 93.9%; Average loss: nan
Iteration: 3757; Percent complete: 93.9%; Average loss: nan
Iteration: 3758; Percent complete: 94.0%; Average loss: nan
Iteration: 3759; Percent complete: 94.0%; Average loss: nan
Iteration: 3760; Percent complete: 94.0%; Average loss: nan
Iteration: 3761; Percent complete: 94.0%; Average loss: nan
Iteration: 3762; Percent complete: 94.0%; Average loss: nan
Iteration: 3763; Percent complete: 94.1%; Average loss: nan
Iteration: 3764; Percent complete: 94.1%; Average loss: nan
Iteration: 3765; Percent complete: 94.1%; Average loss: nan
Iteration: 3766; Percent complete: 94.2%; Average loss: nan
Iteration: 3767; Percent complete: 94.2%; Average loss: nan
Iteration: 3768; Percent complete: 94.2%; Average loss: nan
Iteration: 3769; Percent complete: 94.2%; Average loss: nan
Iteration: 3770; Percent complete: 94.2%; Average loss: nan
Iteration: 3771; Percent complete: 94.3%; Average loss: nan
Iteration: 3772; Percent complete: 94.3%; Average loss: nan
Iteration: 3773; Percent complete: 94.3%; Average loss: nan
Iteration: 3774; Percent complete: 94.3%; Average loss: nan
Iteration: 3775; Percent complete: 94.4%; Average loss: nan
Iteration: 3776; Percent complete: 94.4%; Average loss: nan
Iteration: 3777; Percent complete: 94.4%; Average loss: nan
Iteration: 3778; Percent complete: 94.5%; Average loss: nan
Iteration: 3779; Percent complete: 94.5%; Average loss: nan
Iteration: 3780; Percent complete: 94.5%; Average loss: nan
Iteration: 3781; Percent complete: 94.5%; Average loss: nan
Iteration: 3782; Percent complete: 94.5%; Average loss: nan
Iteration: 3783; Percent complete: 94.6%; Average loss: nan
Iteration: 3784; Percent complete: 94.6%; Average loss: nan
Iteration: 3785; Percent complete: 94.6%; Average loss: nan
Iteration: 3786; Percent complete: 94.7%; Average loss: nan
Iteration: 3787; Percent complete: 94.7%; Average loss: nan
Iteration: 3788; Percent complete: 94.7%; Average loss: nan
Iteration: 3789; Percent complete: 94.7%; Average loss: nan
Iteration: 3790; Percent complete: 94.8%; Average loss: nan
Iteration: 3791; Percent complete: 94.8%; Average loss: nan
Iteration: 3792; Percent complete: 94.8%; Average loss: nan
Iteration: 3793; Percent complete: 94.8%; Average loss: nan
Iteration: 3794; Percent complete: 94.8%; Average loss: nan
Iteration: 3795; Percent complete: 94.9%; Average loss: nan
Iteration: 3796; Percent complete: 94.9%; Average loss: nan
Iteration: 3797; Percent complete: 94.9%; Average loss: nan
Iteration: 3798; Percent complete: 95.0%; Average loss: nan
Iteration: 3799; Percent complete: 95.0%; Average loss: nan
Iteration: 3800; Percent complete: 95.0%; Average loss: nan
Iteration: 3801; Percent complete: 95.0%; Average loss: nan
Iteration: 3802; Percent complete: 95.0%; Average loss: nan
Iteration: 3803; Percent complete: 95.1%; Average loss: nan
Iteration: 3804; Percent complete: 95.1%; Average loss: nan
```

```
Iteration: 3805; Percent complete: 95.1%; Average loss: nan
Iteration: 3806; Percent complete: 95.2%; Average loss: nan
Iteration: 3807; Percent complete: 95.2%; Average loss: nan
Iteration: 3808; Percent complete: 95.2%; Average loss: nan
Iteration: 3809; Percent complete: 95.2%; Average loss: nan
Iteration: 3810; Percent complete: 95.2%; Average loss: nan
Iteration: 3811; Percent complete: 95.3%; Average loss: nan
Iteration: 3812; Percent complete: 95.3%; Average loss: nan
Iteration: 3813; Percent complete: 95.3%; Average loss: nan
Iteration: 3814; Percent complete: 95.3%; Average loss: nan
Iteration: 3815; Percent complete: 95.4%; Average loss: nan
Iteration: 3816; Percent complete: 95.4%; Average loss: nan
Iteration: 3817; Percent complete: 95.4%; Average loss: nan
Iteration: 3818; Percent complete: 95.5%; Average loss: nan
Iteration: 3819; Percent complete: 95.5%; Average loss: nan
Iteration: 3820; Percent complete: 95.5%; Average loss: nan
Iteration: 3821; Percent complete: 95.5%; Average loss: nan
Iteration: 3822; Percent complete: 95.5%; Average loss: nan
Iteration: 3823; Percent complete: 95.6%; Average loss: nan
Iteration: 3824; Percent complete: 95.6%; Average loss: nan
Iteration: 3825; Percent complete: 95.6%; Average loss: nan
Iteration: 3826; Percent complete: 95.7%; Average loss: nan
Iteration: 3827; Percent complete: 95.7%; Average loss: nan
Iteration: 3828; Percent complete: 95.7%; Average loss: nan
Iteration: 3829; Percent complete: 95.7%; Average loss: nan
Iteration: 3830; Percent complete: 95.8%; Average loss: nan
Iteration: 3831; Percent complete: 95.8%; Average loss: nan
Iteration: 3832; Percent complete: 95.8%; Average loss: nan
Iteration: 3833; Percent complete: 95.8%; Average loss: nan
Iteration: 3834; Percent complete: 95.9%; Average loss: nan
Iteration: 3835; Percent complete: 95.9%; Average loss: nan
Iteration: 3836; Percent complete: 95.9%; Average loss: nan
Iteration: 3837; Percent complete: 95.9%; Average loss: nan
Iteration: 3838; Percent complete: 96.0%; Average loss: nan
Iteration: 3839; Percent complete: 96.0%; Average loss: nan
Iteration: 3840; Percent complete: 96.0%; Average loss: nan
Iteration: 3841; Percent complete: 96.0%; Average loss: nan
Iteration: 3842; Percent complete: 96.0%; Average loss: nan
Iteration: 3843; Percent complete: 96.1%; Average loss: nan
Iteration: 3844; Percent complete: 96.1%; Average loss: nan
Iteration: 3845; Percent complete: 96.1%; Average loss: nan
Iteration: 3846; Percent complete: 96.2%; Average loss: nan
Iteration: 3847; Percent complete: 96.2%; Average loss: nan
Iteration: 3848; Percent complete: 96.2%; Average loss: nan
Iteration: 3849; Percent complete: 96.2%; Average loss: nan
Iteration: 3850; Percent complete: 96.2%; Average loss: nan
Iteration: 3851; Percent complete: 96.3%; Average loss: nan
Iteration: 3852; Percent complete: 96.3%; Average loss: nan
Iteration: 3853; Percent complete: 96.3%; Average loss: nan
Iteration: 3854; Percent complete: 96.4%; Average loss: nan
Iteration: 3855; Percent complete: 96.4%; Average loss: nan
Iteration: 3856; Percent complete: 96.4%; Average loss: nan
Iteration: 3857; Percent complete: 96.4%; Average loss: nan
Iteration: 3858; Percent complete: 96.5%; Average loss: nan
Iteration: 3859; Percent complete: 96.5%; Average loss: nan
Iteration: 3860; Percent complete: 96.5%; Average loss: nan
```

```
Iteration: 3861; Percent complete: 96.5%; Average loss: nan
Iteration: 3862; Percent complete: 96.5%; Average loss: nan
Iteration: 3863; Percent complete: 96.6%; Average loss: nan
Iteration: 3864; Percent complete: 96.6%; Average loss: nan
Iteration: 3865; Percent complete: 96.6%; Average loss: nan
Iteration: 3866; Percent complete: 96.7%; Average loss: nan
Iteration: 3867; Percent complete: 96.7%; Average loss: nan
Iteration: 3868; Percent complete: 96.7%; Average loss: nan
Iteration: 3869; Percent complete: 96.7%; Average loss: nan
Iteration: 3870; Percent complete: 96.8%; Average loss: nan
Iteration: 3871; Percent complete: 96.8%; Average loss: nan
Iteration: 3872; Percent complete: 96.8%; Average loss: nan
Iteration: 3873; Percent complete: 96.8%; Average loss: nan
Iteration: 3874; Percent complete: 96.9%; Average loss: nan
Iteration: 3875; Percent complete: 96.9%; Average loss: nan
Iteration: 3876; Percent complete: 96.9%; Average loss: nan
Iteration: 3877; Percent complete: 96.9%; Average loss: nan
Iteration: 3878; Percent complete: 97.0%; Average loss: nan
Iteration: 3879; Percent complete: 97.0%; Average loss: nan
Iteration: 3880; Percent complete: 97.0%; Average loss: nan
Iteration: 3881; Percent complete: 97.0%; Average loss: nan
Iteration: 3882; Percent complete: 97.0%; Average loss: nan
Iteration: 3883; Percent complete: 97.1%; Average loss: nan
Iteration: 3884; Percent complete: 97.1%; Average loss: nan
Iteration: 3885; Percent complete: 97.1%; Average loss: nan
Iteration: 3886; Percent complete: 97.2%; Average loss: nan
Iteration: 3887; Percent complete: 97.2%; Average loss: nan
Iteration: 3888; Percent complete: 97.2%; Average loss: nan
Iteration: 3889; Percent complete: 97.2%; Average loss: nan
Iteration: 3890; Percent complete: 97.2%; Average loss: nan
Iteration: 3891; Percent complete: 97.3%; Average loss: nan
Iteration: 3892; Percent complete: 97.3%; Average loss: nan
Iteration: 3893; Percent complete: 97.3%; Average loss: nan
Iteration: 3894; Percent complete: 97.4%; Average loss: nan
Iteration: 3895; Percent complete: 97.4%; Average loss: nan
Iteration: 3896; Percent complete: 97.4%; Average loss: nan
Iteration: 3897; Percent complete: 97.4%; Average loss: nan
Iteration: 3898; Percent complete: 97.5%; Average loss: nan
Iteration: 3899; Percent complete: 97.5%; Average loss: nan
Iteration: 3900; Percent complete: 97.5%; Average loss: nan
Iteration: 3901; Percent complete: 97.5%; Average loss: nan
Iteration: 3902; Percent complete: 97.5%; Average loss: nan
Iteration: 3903; Percent complete: 97.6%; Average loss: nan
Iteration: 3904; Percent complete: 97.6%; Average loss: nan
Iteration: 3905; Percent complete: 97.6%; Average loss: nan
Iteration: 3906; Percent complete: 97.7%; Average loss: nan
Iteration: 3907; Percent complete: 97.7%; Average loss: nan
Iteration: 3908; Percent complete: 97.7%; Average loss: nan
Iteration: 3909; Percent complete: 97.7%; Average loss: nan
Iteration: 3910; Percent complete: 97.8%; Average loss: nan
Iteration: 3911; Percent complete: 97.8%; Average loss: nan
Iteration: 3912; Percent complete: 97.8%; Average loss: nan
Iteration: 3913; Percent complete: 97.8%; Average loss: nan
Iteration: 3914; Percent complete: 97.9%; Average loss: nan
Iteration: 3915; Percent complete: 97.9%; Average loss: nan
Iteration: 3916; Percent complete: 97.9%; Average loss: nan
```

```
Iteration: 3917; Percent complete: 97.9%; Average loss: nan
Iteration: 3918; Percent complete: 98.0%; Average loss: nan
Iteration: 3919; Percent complete: 98.0%; Average loss: nan
Iteration: 3920; Percent complete: 98.0%; Average loss: nan
Iteration: 3921; Percent complete: 98.0%; Average loss: nan
Iteration: 3922; Percent complete: 98.0%; Average loss: nan
Iteration: 3923; Percent complete: 98.1%; Average loss: nan
Iteration: 3924; Percent complete: 98.1%; Average loss: nan
Iteration: 3925; Percent complete: 98.1%; Average loss: nan
Iteration: 3926; Percent complete: 98.2%; Average loss: nan
Iteration: 3927; Percent complete: 98.2%; Average loss: nan
Iteration: 3928; Percent complete: 98.2%; Average loss: nan
Iteration: 3929; Percent complete: 98.2%; Average loss: nan
Iteration: 3930; Percent complete: 98.2%; Average loss: nan
Iteration: 3931; Percent complete: 98.3%; Average loss: nan
Iteration: 3932; Percent complete: 98.3%; Average loss: nan
Iteration: 3933; Percent complete: 98.3%; Average loss: nan
Iteration: 3934; Percent complete: 98.4%; Average loss: nan
Iteration: 3935; Percent complete: 98.4%; Average loss: nan
Iteration: 3936; Percent complete: 98.4%; Average loss: nan
Iteration: 3937; Percent complete: 98.4%; Average loss: nan
Iteration: 3938; Percent complete: 98.5%; Average loss: nan
Iteration: 3939; Percent complete: 98.5%; Average loss: nan
Iteration: 3940; Percent complete: 98.5%; Average loss: nan
Iteration: 3941; Percent complete: 98.5%; Average loss: nan
Iteration: 3942; Percent complete: 98.6%; Average loss: nan
Iteration: 3943; Percent complete: 98.6%; Average loss: nan
Iteration: 3944; Percent complete: 98.6%; Average loss: nan
Iteration: 3945; Percent complete: 98.6%; Average loss: nan
Iteration: 3946; Percent complete: 98.7%; Average loss: nan
Iteration: 3947; Percent complete: 98.7%; Average loss: nan
Iteration: 3948; Percent complete: 98.7%; Average loss: nan
Iteration: 3949; Percent complete: 98.7%; Average loss: nan
Iteration: 3950; Percent complete: 98.8%; Average loss: nan
Iteration: 3951; Percent complete: 98.8%; Average loss: nan
Iteration: 3952; Percent complete: 98.8%; Average loss: nan
Iteration: 3953; Percent complete: 98.8%; Average loss: nan
Iteration: 3954; Percent complete: 98.9%; Average loss: nan
Iteration: 3955; Percent complete: 98.9%; Average loss: nan
Iteration: 3956; Percent complete: 98.9%; Average loss: nan
Iteration: 3957; Percent complete: 98.9%; Average loss: nan
Iteration: 3958; Percent complete: 99.0%; Average loss: nan
Iteration: 3959; Percent complete: 99.0%; Average loss: nan
Iteration: 3960; Percent complete: 99.0%; Average loss: nan
Iteration: 3961; Percent complete: 99.0%; Average loss: nan
Iteration: 3962; Percent complete: 99.1%; Average loss: nan
Iteration: 3963; Percent complete: 99.1%; Average loss: nan
Iteration: 3964; Percent complete: 99.1%; Average loss: nan
Iteration: 3965; Percent complete: 99.1%; Average loss: nan
Iteration: 3966; Percent complete: 99.2%; Average loss: nan
Iteration: 3967; Percent complete: 99.2%; Average loss: nan
Iteration: 3968; Percent complete: 99.2%; Average loss: nan
Iteration: 3969; Percent complete: 99.2%; Average loss: nan
Iteration: 3970; Percent complete: 99.2%; Average loss: nan
Iteration: 3971; Percent complete: 99.3%; Average loss: nan
Iteration: 3972; Percent complete: 99.3%; Average loss: nan
```

```
Iteration: 3973; Percent complete: 99.3%; Average loss: nan
Iteration: 3974; Percent complete: 99.4%; Average loss: nan
Iteration: 3975; Percent complete: 99.4%; Average loss: nan
Iteration: 3976; Percent complete: 99.4%; Average loss: nan
Iteration: 3977; Percent complete: 99.4%; Average loss: nan
Iteration: 3978; Percent complete: 99.5%; Average loss: nan
Iteration: 3979; Percent complete: 99.5%; Average loss: nan
Iteration: 3980; Percent complete: 99.5%; Average loss: nan
Iteration: 3981; Percent complete: 99.5%; Average loss: nan
Iteration: 3982; Percent complete: 99.6%; Average loss: nan
Iteration: 3983; Percent complete: 99.6%; Average loss: nan
Iteration: 3984; Percent complete: 99.6%; Average loss: nan
Iteration: 3985; Percent complete: 99.6%; Average loss: nan
Iteration: 3986; Percent complete: 99.7%; Average loss: nan
Iteration: 3987; Percent complete: 99.7%; Average loss: nan
Iteration: 3988; Percent complete: 99.7%; Average loss: nan
Iteration: 3989; Percent complete: 99.7%; Average loss: nan
Iteration: 3990; Percent complete: 99.8%; Average loss: nan
Iteration: 3991; Percent complete: 99.8%; Average loss: nan
Iteration: 3992; Percent complete: 99.8%; Average loss: nan
Iteration: 3993; Percent complete: 99.8%; Average loss: nan
Iteration: 3994; Percent complete: 99.9%; Average loss: nan
Iteration: 3995; Percent complete: 99.9%; Average loss: nan
Iteration: 3996; Percent complete: 99.9%; Average loss: nan
Iteration: 3997; Percent complete: 99.9%; Average loss: nan
Iteration: 3998; Percent complete: 100.0%; Average loss: nan
Iteration: 3999; Percent complete: 100.0%; Average loss: nan
Iteration: 4000; Percent complete: 100.0%; Average loss: nan
```

Run history:

iteration 

Run summary:

iteration	4000
loss	nan

View run **dainty-sweep-3** at: https://wandb.ai/pavly-nyu/hw2/runs/zwcqrvai
View project at: https://wandb.ai/pavly-nyu/hw2
Synced 5 W&B file(s), 0 media file(s), 0 artifact file(s) and 0 other file(s)
Find logs at: `./wandb/run-20241018_210556-zwcqrvai/logs`

```
wandb: Agent Starting Run: b8jjh5x0 with config:
wandb:  batch_size: 64
wandb:  clip: 50
wandb:  decoder_learning_ratio: 6
wandb:  decoder_n_layers: 4
wandb:  dropout: 0.23832870459074296
wandb:  encoder_n_layers: 3
wandb:  hidden_size: 512
wandb:  learning_rate: 0.008127554354317557
wandb:  n_iteration: 4000
wandb:  print_every: 1
wandb:  save_every: 500
wandb:  teacher_forcing_ratio: 0.9205096065308463
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
```

Tracking run with wandb version 0.18.3

Run data is saved locally in `/scratch/poh2005/wandb/run-20241018_210727-b8jjh5x0`

Syncing run **azure-sweep-4** to Weights & Biases (docs)

Sweep page: https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View project at https://wandb.ai/pavly-nyu/hw2

View sweep at https://wandb.ai/pavly-nyu/hw2/sweeps/bks6hv9r

View run at https://wandb.ai/pavly-nyu/hw2/runs/b8jjh5x0

```
Building optimizers ...
Starting Training!
Initializing ...
Training...
Iteration: 1; Percent complete: 0.0%; Average loss: 8.9627
Iteration: 2; Percent complete: 0.1%; Average loss: 8.3109
Iteration: 3; Percent complete: 0.1%; Average loss: 32.6827
Iteration: 4; Percent complete: 0.1%; Average loss: 18.0321
Iteration: 5; Percent complete: 0.1%; Average loss: 21.9503
Iteration: 6; Percent complete: 0.1%; Average loss: 21.2446
Iteration: 7; Percent complete: 0.2%; Average loss: 27.0249
Iteration: 8; Percent complete: 0.2%; Average loss: nan
Iteration: 9; Percent complete: 0.2%; Average loss: nan
Iteration: 10; Percent complete: 0.2%; Average loss: nan
Iteration: 11; Percent complete: 0.3%; Average loss: nan
Iteration: 12; Percent complete: 0.3%; Average loss: nan
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Iteration: 438; Percent complete: 10.9%; Average loss: nan
Iteration: 439; Percent complete: 11.0%; Average loss: nan
Iteration: 440; Percent complete: 11.0%; Average loss: nan
Iteration: 441; Percent complete: 11.0%; Average loss: nan
Iteration: 442; Percent complete: 11.1%; Average loss: nan
Iteration: 443; Percent complete: 11.1%; Average loss: nan
Iteration: 444; Percent complete: 11.1%; Average loss: nan
```

```
Iteration: 445; Percent complete: 11.1%; Average loss: nan
Iteration: 446; Percent complete: 11.2%; Average loss: nan
Iteration: 447; Percent complete: 11.2%; Average loss: nan
Iteration: 448; Percent complete: 11.2%; Average loss: nan
Iteration: 449; Percent complete: 11.2%; Average loss: nan
Iteration: 450; Percent complete: 11.2%; Average loss: nan
Iteration: 451; Percent complete: 11.3%; Average loss: nan
Iteration: 452; Percent complete: 11.3%; Average loss: nan
Iteration: 453; Percent complete: 11.3%; Average loss: nan
Iteration: 454; Percent complete: 11.3%; Average loss: nan
Iteration: 455; Percent complete: 11.4%; Average loss: nan
Iteration: 456; Percent complete: 11.4%; Average loss: nan
Iteration: 457; Percent complete: 11.4%; Average loss: nan
Iteration: 458; Percent complete: 11.5%; Average loss: nan
Iteration: 459; Percent complete: 11.5%; Average loss: nan
Iteration: 460; Percent complete: 11.5%; Average loss: nan
Iteration: 461; Percent complete: 11.5%; Average loss: nan
Iteration: 462; Percent complete: 11.6%; Average loss: nan
Iteration: 463; Percent complete: 11.6%; Average loss: nan
Iteration: 464; Percent complete: 11.6%; Average loss: nan
Iteration: 465; Percent complete: 11.6%; Average loss: nan
Iteration: 466; Percent complete: 11.7%; Average loss: nan
Iteration: 467; Percent complete: 11.7%; Average loss: nan
Iteration: 468; Percent complete: 11.7%; Average loss: nan
Iteration: 469; Percent complete: 11.7%; Average loss: nan
Iteration: 470; Percent complete: 11.8%; Average loss: nan
Iteration: 471; Percent complete: 11.8%; Average loss: nan
Iteration: 472; Percent complete: 11.8%; Average loss: nan
Iteration: 473; Percent complete: 11.8%; Average loss: nan
Iteration: 474; Percent complete: 11.8%; Average loss: nan
Iteration: 475; Percent complete: 11.9%; Average loss: nan
Iteration: 476; Percent complete: 11.9%; Average loss: nan
Iteration: 477; Percent complete: 11.9%; Average loss: nan
Iteration: 478; Percent complete: 11.9%; Average loss: nan
Iteration: 479; Percent complete: 12.0%; Average loss: nan
Iteration: 480; Percent complete: 12.0%; Average loss: nan
Iteration: 481; Percent complete: 12.0%; Average loss: nan
Iteration: 482; Percent complete: 12.0%; Average loss: nan
Iteration: 483; Percent complete: 12.1%; Average loss: nan
Iteration: 484; Percent complete: 12.1%; Average loss: nan
Iteration: 485; Percent complete: 12.1%; Average loss: nan
Iteration: 486; Percent complete: 12.2%; Average loss: nan
Iteration: 487; Percent complete: 12.2%; Average loss: nan
Iteration: 488; Percent complete: 12.2%; Average loss: nan
Iteration: 489; Percent complete: 12.2%; Average loss: nan
Iteration: 490; Percent complete: 12.2%; Average loss: nan
Iteration: 491; Percent complete: 12.3%; Average loss: nan
Iteration: 492; Percent complete: 12.3%; Average loss: nan
Iteration: 493; Percent complete: 12.3%; Average loss: nan
Iteration: 494; Percent complete: 12.3%; Average loss: nan
Iteration: 495; Percent complete: 12.4%; Average loss: nan
Iteration: 496; Percent complete: 12.4%; Average loss: nan
Iteration: 497; Percent complete: 12.4%; Average loss: nan
Iteration: 498; Percent complete: 12.4%; Average loss: nan
Iteration: 499; Percent complete: 12.5%; Average loss: nan
Iteration: 500; Percent complete: 12.5%; Average loss: nan
```

```
Iteration: 501; Percent complete: 12.5%; Average loss: nan
Iteration: 502; Percent complete: 12.6%; Average loss: nan
Iteration: 503; Percent complete: 12.6%; Average loss: nan
Iteration: 504; Percent complete: 12.6%; Average loss: nan
Iteration: 505; Percent complete: 12.6%; Average loss: nan
Iteration: 506; Percent complete: 12.7%; Average loss: nan
Iteration: 507; Percent complete: 12.7%; Average loss: nan
Iteration: 508; Percent complete: 12.7%; Average loss: nan
Iteration: 509; Percent complete: 12.7%; Average loss: nan
Iteration: 510; Percent complete: 12.8%; Average loss: nan
Iteration: 511; Percent complete: 12.8%; Average loss: nan
Iteration: 512; Percent complete: 12.8%; Average loss: nan
Iteration: 513; Percent complete: 12.8%; Average loss: nan
Iteration: 514; Percent complete: 12.8%; Average loss: nan
Iteration: 515; Percent complete: 12.9%; Average loss: nan
Iteration: 516; Percent complete: 12.9%; Average loss: nan
Iteration: 517; Percent complete: 12.9%; Average loss: nan
Iteration: 518; Percent complete: 13.0%; Average loss: nan
Iteration: 519; Percent complete: 13.0%; Average loss: nan
Iteration: 520; Percent complete: 13.0%; Average loss: nan
Iteration: 521; Percent complete: 13.0%; Average loss: nan
Iteration: 522; Percent complete: 13.1%; Average loss: nan
Iteration: 523; Percent complete: 13.1%; Average loss: nan
Iteration: 524; Percent complete: 13.1%; Average loss: nan
Iteration: 525; Percent complete: 13.1%; Average loss: nan
Iteration: 526; Percent complete: 13.2%; Average loss: nan
Iteration: 527; Percent complete: 13.2%; Average loss: nan
Iteration: 528; Percent complete: 13.2%; Average loss: nan
Iteration: 529; Percent complete: 13.2%; Average loss: nan
Iteration: 530; Percent complete: 13.2%; Average loss: nan
Iteration: 531; Percent complete: 13.3%; Average loss: nan
Iteration: 532; Percent complete: 13.3%; Average loss: nan
Iteration: 533; Percent complete: 13.3%; Average loss: nan
Iteration: 534; Percent complete: 13.4%; Average loss: nan
Iteration: 535; Percent complete: 13.4%; Average loss: nan
Iteration: 536; Percent complete: 13.4%; Average loss: nan
Iteration: 537; Percent complete: 13.4%; Average loss: nan
Iteration: 538; Percent complete: 13.5%; Average loss: nan
Iteration: 539; Percent complete: 13.5%; Average loss: nan
Iteration: 540; Percent complete: 13.5%; Average loss: nan
Iteration: 541; Percent complete: 13.5%; Average loss: nan
Iteration: 542; Percent complete: 13.6%; Average loss: nan
Iteration: 543; Percent complete: 13.6%; Average loss: nan
Iteration: 544; Percent complete: 13.6%; Average loss: nan
Iteration: 545; Percent complete: 13.6%; Average loss: nan
Iteration: 546; Percent complete: 13.7%; Average loss: nan
Iteration: 547; Percent complete: 13.7%; Average loss: nan
Iteration: 548; Percent complete: 13.7%; Average loss: nan
Iteration: 549; Percent complete: 13.7%; Average loss: nan
Iteration: 550; Percent complete: 13.8%; Average loss: nan
Iteration: 551; Percent complete: 13.8%; Average loss: nan
Iteration: 552; Percent complete: 13.8%; Average loss: nan
Iteration: 553; Percent complete: 13.8%; Average loss: nan
Iteration: 554; Percent complete: 13.9%; Average loss: nan
Iteration: 555; Percent complete: 13.9%; Average loss: nan
Iteration: 556; Percent complete: 13.9%; Average loss: nan
```

```
Iteration: 557; Percent complete: 13.9%; Average loss: nan
Iteration: 558; Percent complete: 14.0%; Average loss: nan
Iteration: 559; Percent complete: 14.0%; Average loss: nan
Iteration: 560; Percent complete: 14.0%; Average loss: nan
Iteration: 561; Percent complete: 14.0%; Average loss: nan
Iteration: 562; Percent complete: 14.1%; Average loss: nan
Iteration: 563; Percent complete: 14.1%; Average loss: nan
Iteration: 564; Percent complete: 14.1%; Average loss: nan
Iteration: 565; Percent complete: 14.1%; Average loss: nan
Iteration: 566; Percent complete: 14.1%; Average loss: nan
Iteration: 567; Percent complete: 14.2%; Average loss: nan
Iteration: 568; Percent complete: 14.2%; Average loss: nan
Iteration: 569; Percent complete: 14.2%; Average loss: nan
Iteration: 570; Percent complete: 14.2%; Average loss: nan
Iteration: 571; Percent complete: 14.3%; Average loss: nan
Iteration: 572; Percent complete: 14.3%; Average loss: nan
Iteration: 573; Percent complete: 14.3%; Average loss: nan
Iteration: 574; Percent complete: 14.3%; Average loss: nan
Iteration: 575; Percent complete: 14.4%; Average loss: nan
Iteration: 576; Percent complete: 14.4%; Average loss: nan
Iteration: 577; Percent complete: 14.4%; Average loss: nan
Iteration: 578; Percent complete: 14.4%; Average loss: nan
Iteration: 579; Percent complete: 14.5%; Average loss: nan
Iteration: 580; Percent complete: 14.5%; Average loss: nan
Iteration: 581; Percent complete: 14.5%; Average loss: nan
Iteration: 582; Percent complete: 14.5%; Average loss: nan
Iteration: 583; Percent complete: 14.6%; Average loss: nan
Iteration: 584; Percent complete: 14.6%; Average loss: nan
Iteration: 585; Percent complete: 14.6%; Average loss: nan
Iteration: 586; Percent complete: 14.6%; Average loss: nan
Iteration: 587; Percent complete: 14.7%; Average loss: nan
Iteration: 588; Percent complete: 14.7%; Average loss: nan
Iteration: 589; Percent complete: 14.7%; Average loss: nan
Iteration: 590; Percent complete: 14.8%; Average loss: nan
Iteration: 591; Percent complete: 14.8%; Average loss: nan
Iteration: 592; Percent complete: 14.8%; Average loss: nan
Iteration: 593; Percent complete: 14.8%; Average loss: nan
Iteration: 594; Percent complete: 14.8%; Average loss: nan
Iteration: 595; Percent complete: 14.9%; Average loss: nan
Iteration: 596; Percent complete: 14.9%; Average loss: nan
Iteration: 597; Percent complete: 14.9%; Average loss: nan
Iteration: 598; Percent complete: 14.9%; Average loss: nan
Iteration: 599; Percent complete: 15.0%; Average loss: nan
Iteration: 600; Percent complete: 15.0%; Average loss: nan
Iteration: 601; Percent complete: 15.0%; Average loss: nan
Iteration: 602; Percent complete: 15.0%; Average loss: nan
Iteration: 603; Percent complete: 15.1%; Average loss: nan
Iteration: 604; Percent complete: 15.1%; Average loss: nan
Iteration: 605; Percent complete: 15.1%; Average loss: nan
Iteration: 606; Percent complete: 15.2%; Average loss: nan
Iteration: 607; Percent complete: 15.2%; Average loss: nan
Iteration: 608; Percent complete: 15.2%; Average loss: nan
Iteration: 609; Percent complete: 15.2%; Average loss: nan
Iteration: 610; Percent complete: 15.2%; Average loss: nan
Iteration: 611; Percent complete: 15.3%; Average loss: nan
Iteration: 612; Percent complete: 15.3%; Average loss: nan
```

```
Iteration: 613; Percent complete: 15.3%; Average loss: nan
Iteration: 614; Percent complete: 15.3%; Average loss: nan
Iteration: 615; Percent complete: 15.4%; Average loss: nan
Iteration: 616; Percent complete: 15.4%; Average loss: nan
Iteration: 617; Percent complete: 15.4%; Average loss: nan
Iteration: 618; Percent complete: 15.4%; Average loss: nan
Iteration: 619; Percent complete: 15.5%; Average loss: nan
Iteration: 620; Percent complete: 15.5%; Average loss: nan
Iteration: 621; Percent complete: 15.5%; Average loss: nan
Iteration: 622; Percent complete: 15.6%; Average loss: nan
Iteration: 623; Percent complete: 15.6%; Average loss: nan
Iteration: 624; Percent complete: 15.6%; Average loss: nan
Iteration: 625; Percent complete: 15.6%; Average loss: nan
Iteration: 626; Percent complete: 15.7%; Average loss: nan
Iteration: 627; Percent complete: 15.7%; Average loss: nan
Iteration: 628; Percent complete: 15.7%; Average loss: nan
Iteration: 629; Percent complete: 15.7%; Average loss: nan
Iteration: 630; Percent complete: 15.8%; Average loss: nan
Iteration: 631; Percent complete: 15.8%; Average loss: nan
Iteration: 632; Percent complete: 15.8%; Average loss: nan
Iteration: 633; Percent complete: 15.8%; Average loss: nan
Iteration: 634; Percent complete: 15.8%; Average loss: nan
Iteration: 635; Percent complete: 15.9%; Average loss: nan
Iteration: 636; Percent complete: 15.9%; Average loss: nan
Iteration: 637; Percent complete: 15.9%; Average loss: nan
Iteration: 638; Percent complete: 16.0%; Average loss: nan
Iteration: 639; Percent complete: 16.0%; Average loss: nan
Iteration: 640; Percent complete: 16.0%; Average loss: nan
Iteration: 641; Percent complete: 16.0%; Average loss: nan
Iteration: 642; Percent complete: 16.1%; Average loss: nan
Iteration: 643; Percent complete: 16.1%; Average loss: nan
Iteration: 644; Percent complete: 16.1%; Average loss: nan
Iteration: 645; Percent complete: 16.1%; Average loss: nan
Iteration: 646; Percent complete: 16.2%; Average loss: nan
Iteration: 647; Percent complete: 16.2%; Average loss: nan
Iteration: 648; Percent complete: 16.2%; Average loss: nan
Iteration: 649; Percent complete: 16.2%; Average loss: nan
Iteration: 650; Percent complete: 16.2%; Average loss: nan
Iteration: 651; Percent complete: 16.3%; Average loss: nan
Iteration: 652; Percent complete: 16.3%; Average loss: nan
Iteration: 653; Percent complete: 16.3%; Average loss: nan
Iteration: 654; Percent complete: 16.4%; Average loss: nan
Iteration: 655; Percent complete: 16.4%; Average loss: nan
Iteration: 656; Percent complete: 16.4%; Average loss: nan
Iteration: 657; Percent complete: 16.4%; Average loss: nan
Iteration: 658; Percent complete: 16.4%; Average loss: nan
Iteration: 659; Percent complete: 16.5%; Average loss: nan
Iteration: 660; Percent complete: 16.5%; Average loss: nan
Iteration: 661; Percent complete: 16.5%; Average loss: nan
Iteration: 662; Percent complete: 16.6%; Average loss: nan
Iteration: 663; Percent complete: 16.6%; Average loss: nan
Iteration: 664; Percent complete: 16.6%; Average loss: nan
Iteration: 665; Percent complete: 16.6%; Average loss: nan
Iteration: 666; Percent complete: 16.7%; Average loss: nan
Iteration: 667; Percent complete: 16.7%; Average loss: nan
Iteration: 668; Percent complete: 16.7%; Average loss: nan
```

```
Iteration: 669; Percent complete: 16.7%; Average loss: nan
Iteration: 670; Percent complete: 16.8%; Average loss: nan
Iteration: 671; Percent complete: 16.8%; Average loss: nan
Iteration: 672; Percent complete: 16.8%; Average loss: nan
Iteration: 673; Percent complete: 16.8%; Average loss: nan
Iteration: 674; Percent complete: 16.9%; Average loss: nan
Iteration: 675; Percent complete: 16.9%; Average loss: nan
Iteration: 676; Percent complete: 16.9%; Average loss: nan
Iteration: 677; Percent complete: 16.9%; Average loss: nan
Iteration: 678; Percent complete: 17.0%; Average loss: nan
Iteration: 679; Percent complete: 17.0%; Average loss: nan
Iteration: 680; Percent complete: 17.0%; Average loss: nan
Iteration: 681; Percent complete: 17.0%; Average loss: nan
Iteration: 682; Percent complete: 17.1%; Average loss: nan
Iteration: 683; Percent complete: 17.1%; Average loss: nan
Iteration: 684; Percent complete: 17.1%; Average loss: nan
Iteration: 685; Percent complete: 17.1%; Average loss: nan
Iteration: 686; Percent complete: 17.2%; Average loss: nan
Iteration: 687; Percent complete: 17.2%; Average loss: nan
Iteration: 688; Percent complete: 17.2%; Average loss: nan
Iteration: 689; Percent complete: 17.2%; Average loss: nan
Iteration: 690; Percent complete: 17.2%; Average loss: nan
Iteration: 691; Percent complete: 17.3%; Average loss: nan
Iteration: 692; Percent complete: 17.3%; Average loss: nan
Iteration: 693; Percent complete: 17.3%; Average loss: nan
Iteration: 694; Percent complete: 17.3%; Average loss: nan
Iteration: 695; Percent complete: 17.4%; Average loss: nan
Iteration: 696; Percent complete: 17.4%; Average loss: nan
Iteration: 697; Percent complete: 17.4%; Average loss: nan
Iteration: 698; Percent complete: 17.4%; Average loss: nan
Iteration: 699; Percent complete: 17.5%; Average loss: nan
Iteration: 700; Percent complete: 17.5%; Average loss: nan
Iteration: 701; Percent complete: 17.5%; Average loss: nan
Iteration: 702; Percent complete: 17.5%; Average loss: nan
Iteration: 703; Percent complete: 17.6%; Average loss: nan
Iteration: 704; Percent complete: 17.6%; Average loss: nan
Iteration: 705; Percent complete: 17.6%; Average loss: nan
Iteration: 706; Percent complete: 17.6%; Average loss: nan
Iteration: 707; Percent complete: 17.7%; Average loss: nan
Iteration: 708; Percent complete: 17.7%; Average loss: nan
Iteration: 709; Percent complete: 17.7%; Average loss: nan
Iteration: 710; Percent complete: 17.8%; Average loss: nan
Iteration: 711; Percent complete: 17.8%; Average loss: nan
Iteration: 712; Percent complete: 17.8%; Average loss: nan
Iteration: 713; Percent complete: 17.8%; Average loss: nan
Iteration: 714; Percent complete: 17.8%; Average loss: nan
Iteration: 715; Percent complete: 17.9%; Average loss: nan
Iteration: 716; Percent complete: 17.9%; Average loss: nan
Iteration: 717; Percent complete: 17.9%; Average loss: nan
Iteration: 718; Percent complete: 17.9%; Average loss: nan
Iteration: 719; Percent complete: 18.0%; Average loss: nan
Iteration: 720; Percent complete: 18.0%; Average loss: nan
Iteration: 721; Percent complete: 18.0%; Average loss: nan
Iteration: 722; Percent complete: 18.1%; Average loss: nan
Iteration: 723; Percent complete: 18.1%; Average loss: nan
Iteration: 724; Percent complete: 18.1%; Average loss: nan
```

```
Iteration: 725; Percent complete: 18.1%; Average loss: nan
Iteration: 726; Percent complete: 18.1%; Average loss: nan
Iteration: 727; Percent complete: 18.2%; Average loss: nan
Iteration: 728; Percent complete: 18.2%; Average loss: nan
Iteration: 729; Percent complete: 18.2%; Average loss: nan
Iteration: 730; Percent complete: 18.2%; Average loss: nan
Iteration: 731; Percent complete: 18.3%; Average loss: nan
Iteration: 732; Percent complete: 18.3%; Average loss: nan
Iteration: 733; Percent complete: 18.3%; Average loss: nan
Iteration: 734; Percent complete: 18.4%; Average loss: nan
Iteration: 735; Percent complete: 18.4%; Average loss: nan
Iteration: 736; Percent complete: 18.4%; Average loss: nan
Iteration: 737; Percent complete: 18.4%; Average loss: nan
Iteration: 738; Percent complete: 18.4%; Average loss: nan
Iteration: 739; Percent complete: 18.5%; Average loss: nan
Iteration: 740; Percent complete: 18.5%; Average loss: nan
Iteration: 741; Percent complete: 18.5%; Average loss: nan
Iteration: 742; Percent complete: 18.6%; Average loss: nan
Iteration: 743; Percent complete: 18.6%; Average loss: nan
Iteration: 744; Percent complete: 18.6%; Average loss: nan
Iteration: 745; Percent complete: 18.6%; Average loss: nan
Iteration: 746; Percent complete: 18.6%; Average loss: nan
Iteration: 747; Percent complete: 18.7%; Average loss: nan
Iteration: 748; Percent complete: 18.7%; Average loss: nan
Iteration: 749; Percent complete: 18.7%; Average loss: nan
Iteration: 750; Percent complete: 18.8%; Average loss: nan
Iteration: 751; Percent complete: 18.8%; Average loss: nan
Iteration: 752; Percent complete: 18.8%; Average loss: nan
Iteration: 753; Percent complete: 18.8%; Average loss: nan
Iteration: 754; Percent complete: 18.9%; Average loss: nan
Iteration: 755; Percent complete: 18.9%; Average loss: nan
Iteration: 756; Percent complete: 18.9%; Average loss: nan
Iteration: 757; Percent complete: 18.9%; Average loss: nan
Iteration: 758; Percent complete: 18.9%; Average loss: nan
Iteration: 759; Percent complete: 19.0%; Average loss: nan
Iteration: 760; Percent complete: 19.0%; Average loss: nan
Iteration: 761; Percent complete: 19.0%; Average loss: nan
Iteration: 762; Percent complete: 19.1%; Average loss: nan
Iteration: 763; Percent complete: 19.1%; Average loss: nan
Iteration: 764; Percent complete: 19.1%; Average loss: nan
Iteration: 765; Percent complete: 19.1%; Average loss: nan
Iteration: 766; Percent complete: 19.1%; Average loss: nan
Iteration: 767; Percent complete: 19.2%; Average loss: nan
Iteration: 768; Percent complete: 19.2%; Average loss: nan
Iteration: 769; Percent complete: 19.2%; Average loss: nan
Iteration: 770; Percent complete: 19.2%; Average loss: nan
Iteration: 771; Percent complete: 19.3%; Average loss: nan
Iteration: 772; Percent complete: 19.3%; Average loss: nan
Iteration: 773; Percent complete: 19.3%; Average loss: nan
Iteration: 774; Percent complete: 19.4%; Average loss: nan
Iteration: 775; Percent complete: 19.4%; Average loss: nan
Iteration: 776; Percent complete: 19.4%; Average loss: nan
Iteration: 777; Percent complete: 19.4%; Average loss: nan
Iteration: 778; Percent complete: 19.4%; Average loss: nan
Iteration: 779; Percent complete: 19.5%; Average loss: nan
Iteration: 780; Percent complete: 19.5%; Average loss: nan
```

```
Iteration: 781; Percent complete: 19.5%; Average loss: nan
Iteration: 782; Percent complete: 19.6%; Average loss: nan
Iteration: 783; Percent complete: 19.6%; Average loss: nan
Iteration: 784; Percent complete: 19.6%; Average loss: nan
Iteration: 785; Percent complete: 19.6%; Average loss: nan
Iteration: 786; Percent complete: 19.7%; Average loss: nan
Iteration: 787; Percent complete: 19.7%; Average loss: nan
Iteration: 788; Percent complete: 19.7%; Average loss: nan
Iteration: 789; Percent complete: 19.7%; Average loss: nan
Iteration: 790; Percent complete: 19.8%; Average loss: nan
Iteration: 791; Percent complete: 19.8%; Average loss: nan
Iteration: 792; Percent complete: 19.8%; Average loss: nan
Iteration: 793; Percent complete: 19.8%; Average loss: nan
Iteration: 794; Percent complete: 19.9%; Average loss: nan
Iteration: 795; Percent complete: 19.9%; Average loss: nan
Iteration: 796; Percent complete: 19.9%; Average loss: nan
Iteration: 797; Percent complete: 19.9%; Average loss: nan
Iteration: 798; Percent complete: 20.0%; Average loss: nan
Iteration: 799; Percent complete: 20.0%; Average loss: nan
Iteration: 800; Percent complete: 20.0%; Average loss: nan
Iteration: 801; Percent complete: 20.0%; Average loss: nan
Iteration: 802; Percent complete: 20.1%; Average loss: nan
Iteration: 803; Percent complete: 20.1%; Average loss: nan
Iteration: 804; Percent complete: 20.1%; Average loss: nan
Iteration: 805; Percent complete: 20.1%; Average loss: nan
Iteration: 806; Percent complete: 20.2%; Average loss: nan
Iteration: 807; Percent complete: 20.2%; Average loss: nan
Iteration: 808; Percent complete: 20.2%; Average loss: nan
Iteration: 809; Percent complete: 20.2%; Average loss: nan
Iteration: 810; Percent complete: 20.2%; Average loss: nan
Iteration: 811; Percent complete: 20.3%; Average loss: nan
Iteration: 812; Percent complete: 20.3%; Average loss: nan
Iteration: 813; Percent complete: 20.3%; Average loss: nan
Iteration: 814; Percent complete: 20.3%; Average loss: nan
Iteration: 815; Percent complete: 20.4%; Average loss: nan
Iteration: 816; Percent complete: 20.4%; Average loss: nan
Iteration: 817; Percent complete: 20.4%; Average loss: nan
Iteration: 818; Percent complete: 20.4%; Average loss: nan
Iteration: 819; Percent complete: 20.5%; Average loss: nan
Iteration: 820; Percent complete: 20.5%; Average loss: nan
Iteration: 821; Percent complete: 20.5%; Average loss: nan
Iteration: 822; Percent complete: 20.5%; Average loss: nan
Iteration: 823; Percent complete: 20.6%; Average loss: nan
Iteration: 824; Percent complete: 20.6%; Average loss: nan
Iteration: 825; Percent complete: 20.6%; Average loss: nan
Iteration: 826; Percent complete: 20.6%; Average loss: nan
Iteration: 827; Percent complete: 20.7%; Average loss: nan
Iteration: 828; Percent complete: 20.7%; Average loss: nan
Iteration: 829; Percent complete: 20.7%; Average loss: nan
Iteration: 830; Percent complete: 20.8%; Average loss: nan
Iteration: 831; Percent complete: 20.8%; Average loss: nan
Iteration: 832; Percent complete: 20.8%; Average loss: nan
Iteration: 833; Percent complete: 20.8%; Average loss: nan
Iteration: 834; Percent complete: 20.8%; Average loss: nan
Iteration: 835; Percent complete: 20.9%; Average loss: nan
Iteration: 836; Percent complete: 20.9%; Average loss: nan
```

```
Iteration: 837; Percent complete: 20.9%; Average loss: nan
Iteration: 838; Percent complete: 20.9%; Average loss: nan
Iteration: 839; Percent complete: 21.0%; Average loss: nan
Iteration: 840; Percent complete: 21.0%; Average loss: nan
Iteration: 841; Percent complete: 21.0%; Average loss: nan
Iteration: 842; Percent complete: 21.1%; Average loss: nan
Iteration: 843; Percent complete: 21.1%; Average loss: nan
Iteration: 844; Percent complete: 21.1%; Average loss: nan
Iteration: 845; Percent complete: 21.1%; Average loss: nan
Iteration: 846; Percent complete: 21.1%; Average loss: nan
Iteration: 847; Percent complete: 21.2%; Average loss: nan
Iteration: 848; Percent complete: 21.2%; Average loss: nan
Iteration: 849; Percent complete: 21.2%; Average loss: nan
Iteration: 850; Percent complete: 21.2%; Average loss: nan
Iteration: 851; Percent complete: 21.3%; Average loss: nan
Iteration: 852; Percent complete: 21.3%; Average loss: nan
Iteration: 853; Percent complete: 21.3%; Average loss: nan
Iteration: 854; Percent complete: 21.3%; Average loss: nan
Iteration: 855; Percent complete: 21.4%; Average loss: nan
Iteration: 856; Percent complete: 21.4%; Average loss: nan
Iteration: 857; Percent complete: 21.4%; Average loss: nan
Iteration: 858; Percent complete: 21.4%; Average loss: nan
Iteration: 859; Percent complete: 21.5%; Average loss: nan
Iteration: 860; Percent complete: 21.5%; Average loss: nan
Iteration: 861; Percent complete: 21.5%; Average loss: nan
Iteration: 862; Percent complete: 21.6%; Average loss: nan
Iteration: 863; Percent complete: 21.6%; Average loss: nan
Iteration: 864; Percent complete: 21.6%; Average loss: nan
Iteration: 865; Percent complete: 21.6%; Average loss: nan
Iteration: 866; Percent complete: 21.6%; Average loss: nan
Iteration: 867; Percent complete: 21.7%; Average loss: nan
Iteration: 868; Percent complete: 21.7%; Average loss: nan
Iteration: 869; Percent complete: 21.7%; Average loss: nan
Iteration: 870; Percent complete: 21.8%; Average loss: nan
Iteration: 871; Percent complete: 21.8%; Average loss: nan
Iteration: 872; Percent complete: 21.8%; Average loss: nan
Iteration: 873; Percent complete: 21.8%; Average loss: nan
Iteration: 874; Percent complete: 21.9%; Average loss: nan
Iteration: 875; Percent complete: 21.9%; Average loss: nan
Iteration: 876; Percent complete: 21.9%; Average loss: nan
Iteration: 877; Percent complete: 21.9%; Average loss: nan
Iteration: 878; Percent complete: 21.9%; Average loss: nan
Iteration: 879; Percent complete: 22.0%; Average loss: nan
Iteration: 880; Percent complete: 22.0%; Average loss: nan
Iteration: 881; Percent complete: 22.0%; Average loss: nan
Iteration: 882; Percent complete: 22.1%; Average loss: nan
Iteration: 883; Percent complete: 22.1%; Average loss: nan
Iteration: 884; Percent complete: 22.1%; Average loss: nan
Iteration: 885; Percent complete: 22.1%; Average loss: nan
Iteration: 886; Percent complete: 22.1%; Average loss: nan
Iteration: 887; Percent complete: 22.2%; Average loss: nan
Iteration: 888; Percent complete: 22.2%; Average loss: nan
Iteration: 889; Percent complete: 22.2%; Average loss: nan
Iteration: 890; Percent complete: 22.2%; Average loss: nan
Iteration: 891; Percent complete: 22.3%; Average loss: nan
Iteration: 892; Percent complete: 22.3%; Average loss: nan
```

```
Iteration: 893; Percent complete: 22.3%; Average loss: nan
Iteration: 894; Percent complete: 22.4%; Average loss: nan
Iteration: 895; Percent complete: 22.4%; Average loss: nan
Iteration: 896; Percent complete: 22.4%; Average loss: nan
Iteration: 897; Percent complete: 22.4%; Average loss: nan
Iteration: 898; Percent complete: 22.4%; Average loss: nan
Iteration: 899; Percent complete: 22.5%; Average loss: nan
Iteration: 900; Percent complete: 22.5%; Average loss: nan
Iteration: 901; Percent complete: 22.5%; Average loss: nan
Iteration: 902; Percent complete: 22.6%; Average loss: nan
Iteration: 903; Percent complete: 22.6%; Average loss: nan
Iteration: 904; Percent complete: 22.6%; Average loss: nan
Iteration: 905; Percent complete: 22.6%; Average loss: nan
Iteration: 906; Percent complete: 22.7%; Average loss: nan
Iteration: 907; Percent complete: 22.7%; Average loss: nan
Iteration: 908; Percent complete: 22.7%; Average loss: nan
Iteration: 909; Percent complete: 22.7%; Average loss: nan
Iteration: 910; Percent complete: 22.8%; Average loss: nan
Iteration: 911; Percent complete: 22.8%; Average loss: nan
Iteration: 912; Percent complete: 22.8%; Average loss: nan
Iteration: 913; Percent complete: 22.8%; Average loss: nan
Iteration: 914; Percent complete: 22.9%; Average loss: nan
Iteration: 915; Percent complete: 22.9%; Average loss: nan
Iteration: 916; Percent complete: 22.9%; Average loss: nan
Iteration: 917; Percent complete: 22.9%; Average loss: nan
Iteration: 918; Percent complete: 22.9%; Average loss: nan
Iteration: 919; Percent complete: 23.0%; Average loss: nan
Iteration: 920; Percent complete: 23.0%; Average loss: nan
Iteration: 921; Percent complete: 23.0%; Average loss: nan
Iteration: 922; Percent complete: 23.1%; Average loss: nan
Iteration: 923; Percent complete: 23.1%; Average loss: nan
Iteration: 924; Percent complete: 23.1%; Average loss: nan
Iteration: 925; Percent complete: 23.1%; Average loss: nan
Iteration: 926; Percent complete: 23.2%; Average loss: nan
Iteration: 927; Percent complete: 23.2%; Average loss: nan
Iteration: 928; Percent complete: 23.2%; Average loss: nan
Iteration: 929; Percent complete: 23.2%; Average loss: nan
Iteration: 930; Percent complete: 23.2%; Average loss: nan
Iteration: 931; Percent complete: 23.3%; Average loss: nan
Iteration: 932; Percent complete: 23.3%; Average loss: nan
Iteration: 933; Percent complete: 23.3%; Average loss: nan
Iteration: 934; Percent complete: 23.4%; Average loss: nan
Iteration: 935; Percent complete: 23.4%; Average loss: nan
Iteration: 936; Percent complete: 23.4%; Average loss: nan
Iteration: 937; Percent complete: 23.4%; Average loss: nan
Iteration: 938; Percent complete: 23.4%; Average loss: nan
Iteration: 939; Percent complete: 23.5%; Average loss: nan
Iteration: 940; Percent complete: 23.5%; Average loss: nan
Iteration: 941; Percent complete: 23.5%; Average loss: nan
Iteration: 942; Percent complete: 23.5%; Average loss: nan
Iteration: 943; Percent complete: 23.6%; Average loss: nan
Iteration: 944; Percent complete: 23.6%; Average loss: nan
Iteration: 945; Percent complete: 23.6%; Average loss: nan
Iteration: 946; Percent complete: 23.6%; Average loss: nan
Iteration: 947; Percent complete: 23.7%; Average loss: nan
Iteration: 948; Percent complete: 23.7%; Average loss: nan
```

```
Iteration: 949; Percent complete: 23.7%; Average loss: nan
Iteration: 950; Percent complete: 23.8%; Average loss: nan
Iteration: 951; Percent complete: 23.8%; Average loss: nan
Iteration: 952; Percent complete: 23.8%; Average loss: nan
Iteration: 953; Percent complete: 23.8%; Average loss: nan
Iteration: 954; Percent complete: 23.8%; Average loss: nan
Iteration: 955; Percent complete: 23.9%; Average loss: nan
Iteration: 956; Percent complete: 23.9%; Average loss: nan
Iteration: 957; Percent complete: 23.9%; Average loss: nan
Iteration: 958; Percent complete: 23.9%; Average loss: nan
Iteration: 959; Percent complete: 24.0%; Average loss: nan
Iteration: 960; Percent complete: 24.0%; Average loss: nan
Iteration: 961; Percent complete: 24.0%; Average loss: nan
Iteration: 962; Percent complete: 24.1%; Average loss: nan
Iteration: 963; Percent complete: 24.1%; Average loss: nan
Iteration: 964; Percent complete: 24.1%; Average loss: nan
Iteration: 965; Percent complete: 24.1%; Average loss: nan
Iteration: 966; Percent complete: 24.1%; Average loss: nan
Iteration: 967; Percent complete: 24.2%; Average loss: nan
Iteration: 968; Percent complete: 24.2%; Average loss: nan
Iteration: 969; Percent complete: 24.2%; Average loss: nan
Iteration: 970; Percent complete: 24.2%; Average loss: nan
Iteration: 971; Percent complete: 24.3%; Average loss: nan
Iteration: 972; Percent complete: 24.3%; Average loss: nan
Iteration: 973; Percent complete: 24.3%; Average loss: nan
Iteration: 974; Percent complete: 24.3%; Average loss: nan
Iteration: 975; Percent complete: 24.4%; Average loss: nan
Iteration: 976; Percent complete: 24.4%; Average loss: nan
Iteration: 977; Percent complete: 24.4%; Average loss: nan
Iteration: 978; Percent complete: 24.4%; Average loss: nan
Iteration: 979; Percent complete: 24.5%; Average loss: nan
Iteration: 980; Percent complete: 24.5%; Average loss: nan
Iteration: 981; Percent complete: 24.5%; Average loss: nan
Iteration: 982; Percent complete: 24.6%; Average loss: nan
Iteration: 983; Percent complete: 24.6%; Average loss: nan
Iteration: 984; Percent complete: 24.6%; Average loss: nan
Iteration: 985; Percent complete: 24.6%; Average loss: nan
Iteration: 986; Percent complete: 24.6%; Average loss: nan
Iteration: 987; Percent complete: 24.7%; Average loss: nan
Iteration: 988; Percent complete: 24.7%; Average loss: nan
Iteration: 989; Percent complete: 24.7%; Average loss: nan
Iteration: 990; Percent complete: 24.8%; Average loss: nan
Iteration: 991; Percent complete: 24.8%; Average loss: nan
Iteration: 992; Percent complete: 24.8%; Average loss: nan
Iteration: 993; Percent complete: 24.8%; Average loss: nan
Iteration: 994; Percent complete: 24.9%; Average loss: nan
Iteration: 995; Percent complete: 24.9%; Average loss: nan
Iteration: 996; Percent complete: 24.9%; Average loss: nan
Iteration: 997; Percent complete: 24.9%; Average loss: nan
Iteration: 998; Percent complete: 24.9%; Average loss: nan
Iteration: 999; Percent complete: 25.0%; Average loss: nan
Iteration: 1000; Percent complete: 25.0%; Average loss: nan
Iteration: 1001; Percent complete: 25.0%; Average loss: nan
Iteration: 1002; Percent complete: 25.1%; Average loss: nan
Iteration: 1003; Percent complete: 25.1%; Average loss: nan
Iteration: 1004; Percent complete: 25.1%; Average loss: nan
```

```
Iteration: 1005; Percent complete: 25.1%; Average loss: nan
Iteration: 1006; Percent complete: 25.1%; Average loss: nan
Iteration: 1007; Percent complete: 25.2%; Average loss: nan
Iteration: 1008; Percent complete: 25.2%; Average loss: nan
Iteration: 1009; Percent complete: 25.2%; Average loss: nan
Iteration: 1010; Percent complete: 25.2%; Average loss: nan
Iteration: 1011; Percent complete: 25.3%; Average loss: nan
Iteration: 1012; Percent complete: 25.3%; Average loss: nan
Iteration: 1013; Percent complete: 25.3%; Average loss: nan
Iteration: 1014; Percent complete: 25.4%; Average loss: nan
Iteration: 1015; Percent complete: 25.4%; Average loss: nan
Iteration: 1016; Percent complete: 25.4%; Average loss: nan
Iteration: 1017; Percent complete: 25.4%; Average loss: nan
Iteration: 1018; Percent complete: 25.4%; Average loss: nan
Iteration: 1019; Percent complete: 25.5%; Average loss: nan
Iteration: 1020; Percent complete: 25.5%; Average loss: nan
Iteration: 1021; Percent complete: 25.5%; Average loss: nan
Iteration: 1022; Percent complete: 25.6%; Average loss: nan
Iteration: 1023; Percent complete: 25.6%; Average loss: nan
Iteration: 1024; Percent complete: 25.6%; Average loss: nan
Iteration: 1025; Percent complete: 25.6%; Average loss: nan
Iteration: 1026; Percent complete: 25.7%; Average loss: nan
Iteration: 1027; Percent complete: 25.7%; Average loss: nan
Iteration: 1028; Percent complete: 25.7%; Average loss: nan
Iteration: 1029; Percent complete: 25.7%; Average loss: nan
Iteration: 1030; Percent complete: 25.8%; Average loss: nan
Iteration: 1031; Percent complete: 25.8%; Average loss: nan
Iteration: 1032; Percent complete: 25.8%; Average loss: nan
Iteration: 1033; Percent complete: 25.8%; Average loss: nan
Iteration: 1034; Percent complete: 25.9%; Average loss: nan
Iteration: 1035; Percent complete: 25.9%; Average loss: nan
Iteration: 1036; Percent complete: 25.9%; Average loss: nan
Iteration: 1037; Percent complete: 25.9%; Average loss: nan
Iteration: 1038; Percent complete: 25.9%; Average loss: nan
Iteration: 1039; Percent complete: 26.0%; Average loss: nan
Iteration: 1040; Percent complete: 26.0%; Average loss: nan
Iteration: 1041; Percent complete: 26.0%; Average loss: nan
Iteration: 1042; Percent complete: 26.1%; Average loss: nan
Iteration: 1043; Percent complete: 26.1%; Average loss: nan
Iteration: 1044; Percent complete: 26.1%; Average loss: nan
Iteration: 1045; Percent complete: 26.1%; Average loss: nan
Iteration: 1046; Percent complete: 26.2%; Average loss: nan
Iteration: 1047; Percent complete: 26.2%; Average loss: nan
Iteration: 1048; Percent complete: 26.2%; Average loss: nan
Iteration: 1049; Percent complete: 26.2%; Average loss: nan
Iteration: 1050; Percent complete: 26.2%; Average loss: nan
Iteration: 1051; Percent complete: 26.3%; Average loss: nan
Iteration: 1052; Percent complete: 26.3%; Average loss: nan
Iteration: 1053; Percent complete: 26.3%; Average loss: nan
Iteration: 1054; Percent complete: 26.4%; Average loss: nan
Iteration: 1055; Percent complete: 26.4%; Average loss: nan
Iteration: 1056; Percent complete: 26.4%; Average loss: nan
Iteration: 1057; Percent complete: 26.4%; Average loss: nan
Iteration: 1058; Percent complete: 26.5%; Average loss: nan
Iteration: 1059; Percent complete: 26.5%; Average loss: nan
Iteration: 1060; Percent complete: 26.5%; Average loss: nan
```

```
Iteration: 1061; Percent complete: 26.5%; Average loss: nan
Iteration: 1062; Percent complete: 26.6%; Average loss: nan
Iteration: 1063; Percent complete: 26.6%; Average loss: nan
Iteration: 1064; Percent complete: 26.6%; Average loss: nan
Iteration: 1065; Percent complete: 26.6%; Average loss: nan
Iteration: 1066; Percent complete: 26.7%; Average loss: nan
Iteration: 1067; Percent complete: 26.7%; Average loss: nan
Iteration: 1068; Percent complete: 26.7%; Average loss: nan
Iteration: 1069; Percent complete: 26.7%; Average loss: nan
Iteration: 1070; Percent complete: 26.8%; Average loss: nan
Iteration: 1071; Percent complete: 26.8%; Average loss: nan
Iteration: 1072; Percent complete: 26.8%; Average loss: nan
Iteration: 1073; Percent complete: 26.8%; Average loss: nan
Iteration: 1074; Percent complete: 26.9%; Average loss: nan
Iteration: 1075; Percent complete: 26.9%; Average loss: nan
Iteration: 1076; Percent complete: 26.9%; Average loss: nan
Iteration: 1077; Percent complete: 26.9%; Average loss: nan
Iteration: 1078; Percent complete: 27.0%; Average loss: nan
Iteration: 1079; Percent complete: 27.0%; Average loss: nan
Iteration: 1080; Percent complete: 27.0%; Average loss: nan
Iteration: 1081; Percent complete: 27.0%; Average loss: nan
Iteration: 1082; Percent complete: 27.1%; Average loss: nan
Iteration: 1083; Percent complete: 27.1%; Average loss: nan
Iteration: 1084; Percent complete: 27.1%; Average loss: nan
Iteration: 1085; Percent complete: 27.1%; Average loss: nan
Iteration: 1086; Percent complete: 27.2%; Average loss: nan
Iteration: 1087; Percent complete: 27.2%; Average loss: nan
Iteration: 1088; Percent complete: 27.2%; Average loss: nan
Iteration: 1089; Percent complete: 27.2%; Average loss: nan
Iteration: 1090; Percent complete: 27.3%; Average loss: nan
Iteration: 1091; Percent complete: 27.3%; Average loss: nan
Iteration: 1092; Percent complete: 27.3%; Average loss: nan
Iteration: 1093; Percent complete: 27.3%; Average loss: nan
Iteration: 1094; Percent complete: 27.4%; Average loss: nan
Iteration: 1095; Percent complete: 27.4%; Average loss: nan
Iteration: 1096; Percent complete: 27.4%; Average loss: nan
Iteration: 1097; Percent complete: 27.4%; Average loss: nan
Iteration: 1098; Percent complete: 27.5%; Average loss: nan
Iteration: 1099; Percent complete: 27.5%; Average loss: nan
Iteration: 1100; Percent complete: 27.5%; Average loss: nan
Iteration: 1101; Percent complete: 27.5%; Average loss: nan
Iteration: 1102; Percent complete: 27.6%; Average loss: nan
Iteration: 1103; Percent complete: 27.6%; Average loss: nan
Iteration: 1104; Percent complete: 27.6%; Average loss: nan
Iteration: 1105; Percent complete: 27.6%; Average loss: nan
Iteration: 1106; Percent complete: 27.7%; Average loss: nan
Iteration: 1107; Percent complete: 27.7%; Average loss: nan
Iteration: 1108; Percent complete: 27.7%; Average loss: nan
Iteration: 1109; Percent complete: 27.7%; Average loss: nan
Iteration: 1110; Percent complete: 27.8%; Average loss: nan
Iteration: 1111; Percent complete: 27.8%; Average loss: nan
Iteration: 1112; Percent complete: 27.8%; Average loss: nan
Iteration: 1113; Percent complete: 27.8%; Average loss: nan
Iteration: 1114; Percent complete: 27.9%; Average loss: nan
Iteration: 1115; Percent complete: 27.9%; Average loss: nan
Iteration: 1116; Percent complete: 27.9%; Average loss: nan
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Iteration: 1117; Percent complete: 27.9%; Average loss: nan
Iteration: 1118; Percent complete: 28.0%; Average loss: nan
Iteration: 1119; Percent complete: 28.0%; Average loss: nan
Iteration: 1120; Percent complete: 28.0%; Average loss: nan
Iteration: 1121; Percent complete: 28.0%; Average loss: nan
Iteration: 1122; Percent complete: 28.1%; Average loss: nan
Iteration: 1123; Percent complete: 28.1%; Average loss: nan
Iteration: 1124; Percent complete: 28.1%; Average loss: nan
Iteration: 1125; Percent complete: 28.1%; Average loss: nan
Iteration: 1126; Percent complete: 28.1%; Average loss: nan
Iteration: 1127; Percent complete: 28.2%; Average loss: nan
Iteration: 1128; Percent complete: 28.2%; Average loss: nan
Iteration: 1129; Percent complete: 28.2%; Average loss: nan
Iteration: 1130; Percent complete: 28.2%; Average loss: nan
Iteration: 1131; Percent complete: 28.3%; Average loss: nan
Iteration: 1132; Percent complete: 28.3%; Average loss: nan
Iteration: 1133; Percent complete: 28.3%; Average loss: nan
Iteration: 1134; Percent complete: 28.3%; Average loss: nan
Iteration: 1135; Percent complete: 28.4%; Average loss: nan
Iteration: 1136; Percent complete: 28.4%; Average loss: nan
Iteration: 1137; Percent complete: 28.4%; Average loss: nan
Iteration: 1138; Percent complete: 28.4%; Average loss: nan
Iteration: 1139; Percent complete: 28.5%; Average loss: nan
Iteration: 1140; Percent complete: 28.5%; Average loss: nan
Iteration: 1141; Percent complete: 28.5%; Average loss: nan
Iteration: 1142; Percent complete: 28.5%; Average loss: nan
Iteration: 1143; Percent complete: 28.6%; Average loss: nan
Iteration: 1144; Percent complete: 28.6%; Average loss: nan
Iteration: 1145; Percent complete: 28.6%; Average loss: nan
Iteration: 1146; Percent complete: 28.6%; Average loss: nan
Iteration: 1147; Percent complete: 28.7%; Average loss: nan
Iteration: 1148; Percent complete: 28.7%; Average loss: nan
Iteration: 1149; Percent complete: 28.7%; Average loss: nan
Iteration: 1150; Percent complete: 28.7%; Average loss: nan
Iteration: 1151; Percent complete: 28.8%; Average loss: nan
Iteration: 1152; Percent complete: 28.8%; Average loss: nan
Iteration: 1153; Percent complete: 28.8%; Average loss: nan
Iteration: 1154; Percent complete: 28.8%; Average loss: nan
Iteration: 1155; Percent complete: 28.9%; Average loss: nan
Iteration: 1156; Percent complete: 28.9%; Average loss: nan
Iteration: 1157; Percent complete: 28.9%; Average loss: nan
Iteration: 1158; Percent complete: 28.9%; Average loss: nan
Iteration: 1159; Percent complete: 29.0%; Average loss: nan
Iteration: 1160; Percent complete: 29.0%; Average loss: nan
Iteration: 1161; Percent complete: 29.0%; Average loss: nan
Iteration: 1162; Percent complete: 29.0%; Average loss: nan
Iteration: 1163; Percent complete: 29.1%; Average loss: nan
Iteration: 1164; Percent complete: 29.1%; Average loss: nan
Iteration: 1165; Percent complete: 29.1%; Average loss: nan
Iteration: 1166; Percent complete: 29.1%; Average loss: nan
Iteration: 1167; Percent complete: 29.2%; Average loss: nan
Iteration: 1168; Percent complete: 29.2%; Average loss: nan
Iteration: 1169; Percent complete: 29.2%; Average loss: nan
Iteration: 1170; Percent complete: 29.2%; Average loss: nan
Iteration: 1171; Percent complete: 29.3%; Average loss: nan
Iteration: 1172; Percent complete: 29.3%; Average loss: nan
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```
Iteration: 1173; Percent complete: 29.3%; Average loss: nan
Iteration: 1174; Percent complete: 29.3%; Average loss: nan
Iteration: 1175; Percent complete: 29.4%; Average loss: nan
Iteration: 1176; Percent complete: 29.4%; Average loss: nan
Iteration: 1177; Percent complete: 29.4%; Average loss: nan
Iteration: 1178; Percent complete: 29.4%; Average loss: nan
Iteration: 1179; Percent complete: 29.5%; Average loss: nan
Iteration: 1180; Percent complete: 29.5%; Average loss: nan
Iteration: 1181; Percent complete: 29.5%; Average loss: nan
Iteration: 1182; Percent complete: 29.5%; Average loss: nan
Iteration: 1183; Percent complete: 29.6%; Average loss: nan
Iteration: 1184; Percent complete: 29.6%; Average loss: nan
Iteration: 1185; Percent complete: 29.6%; Average loss: nan
Iteration: 1186; Percent complete: 29.6%; Average loss: nan
Iteration: 1187; Percent complete: 29.7%; Average loss: nan
Iteration: 1188; Percent complete: 29.7%; Average loss: nan
Iteration: 1189; Percent complete: 29.7%; Average loss: nan
Iteration: 1190; Percent complete: 29.8%; Average loss: nan
Iteration: 1191; Percent complete: 29.8%; Average loss: nan
Iteration: 1192; Percent complete: 29.8%; Average loss: nan
Iteration: 1193; Percent complete: 29.8%; Average loss: nan
Iteration: 1194; Percent complete: 29.8%; Average loss: nan
Iteration: 1195; Percent complete: 29.9%; Average loss: nan
Iteration: 1196; Percent complete: 29.9%; Average loss: nan
Iteration: 1197; Percent complete: 29.9%; Average loss: nan
Iteration: 1198; Percent complete: 29.9%; Average loss: nan
Iteration: 1199; Percent complete: 30.0%; Average loss: nan
Iteration: 1200; Percent complete: 30.0%; Average loss: nan
Iteration: 1201; Percent complete: 30.0%; Average loss: nan
Iteration: 1202; Percent complete: 30.0%; Average loss: nan
Iteration: 1203; Percent complete: 30.1%; Average loss: nan
Iteration: 1204; Percent complete: 30.1%; Average loss: nan
Iteration: 1205; Percent complete: 30.1%; Average loss: nan
Iteration: 1206; Percent complete: 30.1%; Average loss: nan
Iteration: 1207; Percent complete: 30.2%; Average loss: nan
Iteration: 1208; Percent complete: 30.2%; Average loss: nan
Iteration: 1209; Percent complete: 30.2%; Average loss: nan
Iteration: 1210; Percent complete: 30.2%; Average loss: nan
Iteration: 1211; Percent complete: 30.3%; Average loss: nan
Iteration: 1212; Percent complete: 30.3%; Average loss: nan
Iteration: 1213; Percent complete: 30.3%; Average loss: nan
Iteration: 1214; Percent complete: 30.3%; Average loss: nan
Iteration: 1215; Percent complete: 30.4%; Average loss: nan
Iteration: 1216; Percent complete: 30.4%; Average loss: nan
Iteration: 1217; Percent complete: 30.4%; Average loss: nan
Iteration: 1218; Percent complete: 30.4%; Average loss: nan
Iteration: 1219; Percent complete: 30.5%; Average loss: nan
Iteration: 1220; Percent complete: 30.5%; Average loss: nan
Iteration: 1221; Percent complete: 30.5%; Average loss: nan
Iteration: 1222; Percent complete: 30.6%; Average loss: nan
Iteration: 1223; Percent complete: 30.6%; Average loss: nan
Iteration: 1224; Percent complete: 30.6%; Average loss: nan
Iteration: 1225; Percent complete: 30.6%; Average loss: nan
Iteration: 1226; Percent complete: 30.6%; Average loss: nan
Iteration: 1227; Percent complete: 30.7%; Average loss: nan
Iteration: 1228; Percent complete: 30.7%; Average loss: nan
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Iteration: 1229; Percent complete: 30.7%; Average loss: nan
Iteration: 1230; Percent complete: 30.8%; Average loss: nan
Iteration: 1231; Percent complete: 30.8%; Average loss: nan
Iteration: 1232; Percent complete: 30.8%; Average loss: nan
Iteration: 1233; Percent complete: 30.8%; Average loss: nan
Iteration: 1234; Percent complete: 30.9%; Average loss: nan
Iteration: 1235; Percent complete: 30.9%; Average loss: nan
Iteration: 1236; Percent complete: 30.9%; Average loss: nan
Iteration: 1237; Percent complete: 30.9%; Average loss: nan
Iteration: 1238; Percent complete: 30.9%; Average loss: nan
Iteration: 1239; Percent complete: 31.0%; Average loss: nan
Iteration: 1240; Percent complete: 31.0%; Average loss: nan
Iteration: 1241; Percent complete: 31.0%; Average loss: nan
Iteration: 1242; Percent complete: 31.1%; Average loss: nan
Iteration: 1243; Percent complete: 31.1%; Average loss: nan
Iteration: 1244; Percent complete: 31.1%; Average loss: nan
Iteration: 1245; Percent complete: 31.1%; Average loss: nan
Iteration: 1246; Percent complete: 31.1%; Average loss: nan
Iteration: 1247; Percent complete: 31.2%; Average loss: nan
Iteration: 1248; Percent complete: 31.2%; Average loss: nan
Iteration: 1249; Percent complete: 31.2%; Average loss: nan
Iteration: 1250; Percent complete: 31.2%; Average loss: nan
Iteration: 1251; Percent complete: 31.3%; Average loss: nan
Iteration: 1252; Percent complete: 31.3%; Average loss: nan
Iteration: 1253; Percent complete: 31.3%; Average loss: nan
Iteration: 1254; Percent complete: 31.4%; Average loss: nan
Iteration: 1255; Percent complete: 31.4%; Average loss: nan
Iteration: 1256; Percent complete: 31.4%; Average loss: nan
Iteration: 1257; Percent complete: 31.4%; Average loss: nan
Iteration: 1258; Percent complete: 31.4%; Average loss: nan
Iteration: 1259; Percent complete: 31.5%; Average loss: nan
Iteration: 1260; Percent complete: 31.5%; Average loss: nan
Iteration: 1261; Percent complete: 31.5%; Average loss: nan
Iteration: 1262; Percent complete: 31.6%; Average loss: nan
Iteration: 1263; Percent complete: 31.6%; Average loss: nan
Iteration: 1264; Percent complete: 31.6%; Average loss: nan
Iteration: 1265; Percent complete: 31.6%; Average loss: nan
Iteration: 1266; Percent complete: 31.6%; Average loss: nan
Iteration: 1267; Percent complete: 31.7%; Average loss: nan
Iteration: 1268; Percent complete: 31.7%; Average loss: nan
Iteration: 1269; Percent complete: 31.7%; Average loss: nan
Iteration: 1270; Percent complete: 31.8%; Average loss: nan
Iteration: 1271; Percent complete: 31.8%; Average loss: nan
Iteration: 1272; Percent complete: 31.8%; Average loss: nan
Iteration: 1273; Percent complete: 31.8%; Average loss: nan
Iteration: 1274; Percent complete: 31.9%; Average loss: nan
Iteration: 1275; Percent complete: 31.9%; Average loss: nan
Iteration: 1276; Percent complete: 31.9%; Average loss: nan
Iteration: 1277; Percent complete: 31.9%; Average loss: nan
Iteration: 1278; Percent complete: 31.9%; Average loss: nan
Iteration: 1279; Percent complete: 32.0%; Average loss: nan
Iteration: 1280; Percent complete: 32.0%; Average loss: nan
Iteration: 1281; Percent complete: 32.0%; Average loss: nan
Iteration: 1282; Percent complete: 32.0%; Average loss: nan
Iteration: 1283; Percent complete: 32.1%; Average loss: nan
Iteration: 1284; Percent complete: 32.1%; Average loss: nan
```

```
Iteration: 1285; Percent complete: 32.1%; Average loss: nan
Iteration: 1286; Percent complete: 32.1%; Average loss: nan
Iteration: 1287; Percent complete: 32.2%; Average loss: nan
Iteration: 1288; Percent complete: 32.2%; Average loss: nan
Iteration: 1289; Percent complete: 32.2%; Average loss: nan
Iteration: 1290; Percent complete: 32.2%; Average loss: nan
Iteration: 1291; Percent complete: 32.3%; Average loss: nan
Iteration: 1292; Percent complete: 32.3%; Average loss: nan
Iteration: 1293; Percent complete: 32.3%; Average loss: nan
Iteration: 1294; Percent complete: 32.4%; Average loss: nan
Iteration: 1295; Percent complete: 32.4%; Average loss: nan
Iteration: 1296; Percent complete: 32.4%; Average loss: nan
Iteration: 1297; Percent complete: 32.4%; Average loss: nan
Iteration: 1298; Percent complete: 32.5%; Average loss: nan
Iteration: 1299; Percent complete: 32.5%; Average loss: nan
Iteration: 1300; Percent complete: 32.5%; Average loss: nan
Iteration: 1301; Percent complete: 32.5%; Average loss: nan
Iteration: 1302; Percent complete: 32.6%; Average loss: nan
Iteration: 1303; Percent complete: 32.6%; Average loss: nan
Iteration: 1304; Percent complete: 32.6%; Average loss: nan
Iteration: 1305; Percent complete: 32.6%; Average loss: nan
Iteration: 1306; Percent complete: 32.6%; Average loss: nan
Iteration: 1307; Percent complete: 32.7%; Average loss: nan
Iteration: 1308; Percent complete: 32.7%; Average loss: nan
Iteration: 1309; Percent complete: 32.7%; Average loss: nan
Iteration: 1310; Percent complete: 32.8%; Average loss: nan
Iteration: 1311; Percent complete: 32.8%; Average loss: nan
Iteration: 1312; Percent complete: 32.8%; Average loss: nan
Iteration: 1313; Percent complete: 32.8%; Average loss: nan
Iteration: 1314; Percent complete: 32.9%; Average loss: nan
Iteration: 1315; Percent complete: 32.9%; Average loss: nan
Iteration: 1316; Percent complete: 32.9%; Average loss: nan
Iteration: 1317; Percent complete: 32.9%; Average loss: nan
Iteration: 1318; Percent complete: 33.0%; Average loss: nan
Iteration: 1319; Percent complete: 33.0%; Average loss: nan
Iteration: 1320; Percent complete: 33.0%; Average loss: nan
Iteration: 1321; Percent complete: 33.0%; Average loss: nan
Iteration: 1322; Percent complete: 33.1%; Average loss: nan
Iteration: 1323; Percent complete: 33.1%; Average loss: nan
Iteration: 1324; Percent complete: 33.1%; Average loss: nan
Iteration: 1325; Percent complete: 33.1%; Average loss: nan
Iteration: 1326; Percent complete: 33.1%; Average loss: nan
Iteration: 1327; Percent complete: 33.2%; Average loss: nan
Iteration: 1328; Percent complete: 33.2%; Average loss: nan
Iteration: 1329; Percent complete: 33.2%; Average loss: nan
Iteration: 1330; Percent complete: 33.2%; Average loss: nan
Iteration: 1331; Percent complete: 33.3%; Average loss: nan
Iteration: 1332; Percent complete: 33.3%; Average loss: nan
Iteration: 1333; Percent complete: 33.3%; Average loss: nan
Iteration: 1334; Percent complete: 33.4%; Average loss: nan
Iteration: 1335; Percent complete: 33.4%; Average loss: nan
Iteration: 1336; Percent complete: 33.4%; Average loss: nan
Iteration: 1337; Percent complete: 33.4%; Average loss: nan
Iteration: 1338; Percent complete: 33.5%; Average loss: nan
Iteration: 1339; Percent complete: 33.5%; Average loss: nan
Iteration: 1340; Percent complete: 33.5%; Average loss: nan
```

```
Iteration: 1341; Percent complete: 33.5%; Average loss: nan
Iteration: 1342; Percent complete: 33.6%; Average loss: nan
Iteration: 1343; Percent complete: 33.6%; Average loss: nan
Iteration: 1344; Percent complete: 33.6%; Average loss: nan
Iteration: 1345; Percent complete: 33.6%; Average loss: nan
Iteration: 1346; Percent complete: 33.7%; Average loss: nan
Iteration: 1347; Percent complete: 33.7%; Average loss: nan
Iteration: 1348; Percent complete: 33.7%; Average loss: nan
Iteration: 1349; Percent complete: 33.7%; Average loss: nan
Iteration: 1350; Percent complete: 33.8%; Average loss: nan
Iteration: 1351; Percent complete: 33.8%; Average loss: nan
Iteration: 1352; Percent complete: 33.8%; Average loss: nan
Iteration: 1353; Percent complete: 33.8%; Average loss: nan
Iteration: 1354; Percent complete: 33.9%; Average loss: nan
Iteration: 1355; Percent complete: 33.9%; Average loss: nan
Iteration: 1356; Percent complete: 33.9%; Average loss: nan
Iteration: 1357; Percent complete: 33.9%; Average loss: nan
Iteration: 1358; Percent complete: 34.0%; Average loss: nan
Iteration: 1359; Percent complete: 34.0%; Average loss: nan
Iteration: 1360; Percent complete: 34.0%; Average loss: nan
Iteration: 1361; Percent complete: 34.0%; Average loss: nan
Iteration: 1362; Percent complete: 34.1%; Average loss: nan
Iteration: 1363; Percent complete: 34.1%; Average loss: nan
Iteration: 1364; Percent complete: 34.1%; Average loss: nan
Iteration: 1365; Percent complete: 34.1%; Average loss: nan
Iteration: 1366; Percent complete: 34.2%; Average loss: nan
Iteration: 1367; Percent complete: 34.2%; Average loss: nan
Iteration: 1368; Percent complete: 34.2%; Average loss: nan
Iteration: 1369; Percent complete: 34.2%; Average loss: nan
Iteration: 1370; Percent complete: 34.2%; Average loss: nan
Iteration: 1371; Percent complete: 34.3%; Average loss: nan
Iteration: 1372; Percent complete: 34.3%; Average loss: nan
Iteration: 1373; Percent complete: 34.3%; Average loss: nan
Iteration: 1374; Percent complete: 34.4%; Average loss: nan
Iteration: 1375; Percent complete: 34.4%; Average loss: nan
Iteration: 1376; Percent complete: 34.4%; Average loss: nan
Iteration: 1377; Percent complete: 34.4%; Average loss: nan
Iteration: 1378; Percent complete: 34.4%; Average loss: nan
Iteration: 1379; Percent complete: 34.5%; Average loss: nan
Iteration: 1380; Percent complete: 34.5%; Average loss: nan
Iteration: 1381; Percent complete: 34.5%; Average loss: nan
Iteration: 1382; Percent complete: 34.5%; Average loss: nan
Iteration: 1383; Percent complete: 34.6%; Average loss: nan
Iteration: 1384; Percent complete: 34.6%; Average loss: nan
Iteration: 1385; Percent complete: 34.6%; Average loss: nan
Iteration: 1386; Percent complete: 34.6%; Average loss: nan
Iteration: 1387; Percent complete: 34.7%; Average loss: nan
Iteration: 1388; Percent complete: 34.7%; Average loss: nan
Iteration: 1389; Percent complete: 34.7%; Average loss: nan
Iteration: 1390; Percent complete: 34.8%; Average loss: nan
Iteration: 1391; Percent complete: 34.8%; Average loss: nan
Iteration: 1392; Percent complete: 34.8%; Average loss: nan
Iteration: 1393; Percent complete: 34.8%; Average loss: nan
Iteration: 1394; Percent complete: 34.8%; Average loss: nan
Iteration: 1395; Percent complete: 34.9%; Average loss: nan
Iteration: 1396; Percent complete: 34.9%; Average loss: nan
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Iteration: 1397; Percent complete: 34.9%; Average loss: nan
Iteration: 1398; Percent complete: 34.9%; Average loss: nan
Iteration: 1399; Percent complete: 35.0%; Average loss: nan
Iteration: 1400; Percent complete: 35.0%; Average loss: nan
Iteration: 1401; Percent complete: 35.0%; Average loss: nan
Iteration: 1402; Percent complete: 35.0%; Average loss: nan
Iteration: 1403; Percent complete: 35.1%; Average loss: nan
Iteration: 1404; Percent complete: 35.1%; Average loss: nan
Iteration: 1405; Percent complete: 35.1%; Average loss: nan
Iteration: 1406; Percent complete: 35.1%; Average loss: nan
Iteration: 1407; Percent complete: 35.2%; Average loss: nan
Iteration: 1408; Percent complete: 35.2%; Average loss: nan
Iteration: 1409; Percent complete: 35.2%; Average loss: nan
Iteration: 1410; Percent complete: 35.2%; Average loss: nan
Iteration: 1411; Percent complete: 35.3%; Average loss: nan
Iteration: 1412; Percent complete: 35.3%; Average loss: nan
Iteration: 1413; Percent complete: 35.3%; Average loss: nan
Iteration: 1414; Percent complete: 35.4%; Average loss: nan
Iteration: 1415; Percent complete: 35.4%; Average loss: nan
Iteration: 1416; Percent complete: 35.4%; Average loss: nan
Iteration: 1417; Percent complete: 35.4%; Average loss: nan
Iteration: 1418; Percent complete: 35.4%; Average loss: nan
Iteration: 1419; Percent complete: 35.5%; Average loss: nan
Iteration: 1420; Percent complete: 35.5%; Average loss: nan
Iteration: 1421; Percent complete: 35.5%; Average loss: nan
Iteration: 1422; Percent complete: 35.5%; Average loss: nan
Iteration: 1423; Percent complete: 35.6%; Average loss: nan
Iteration: 1424; Percent complete: 35.6%; Average loss: nan
Iteration: 1425; Percent complete: 35.6%; Average loss: nan
Iteration: 1426; Percent complete: 35.6%; Average loss: nan
Iteration: 1427; Percent complete: 35.7%; Average loss: nan
Iteration: 1428; Percent complete: 35.7%; Average loss: nan
Iteration: 1429; Percent complete: 35.7%; Average loss: nan
Iteration: 1430; Percent complete: 35.8%; Average loss: nan
Iteration: 1431; Percent complete: 35.8%; Average loss: nan
Iteration: 1432; Percent complete: 35.8%; Average loss: nan
Iteration: 1433; Percent complete: 35.8%; Average loss: nan
Iteration: 1434; Percent complete: 35.9%; Average loss: nan
Iteration: 1435; Percent complete: 35.9%; Average loss: nan
Iteration: 1436; Percent complete: 35.9%; Average loss: nan
Iteration: 1437; Percent complete: 35.9%; Average loss: nan
Iteration: 1438; Percent complete: 35.9%; Average loss: nan
Iteration: 1439; Percent complete: 36.0%; Average loss: nan
Iteration: 1440; Percent complete: 36.0%; Average loss: nan
Iteration: 1441; Percent complete: 36.0%; Average loss: nan
Iteration: 1442; Percent complete: 36.0%; Average loss: nan
Iteration: 1443; Percent complete: 36.1%; Average loss: nan
Iteration: 1444; Percent complete: 36.1%; Average loss: nan
Iteration: 1445; Percent complete: 36.1%; Average loss: nan
Iteration: 1446; Percent complete: 36.1%; Average loss: nan
Iteration: 1447; Percent complete: 36.2%; Average loss: nan
Iteration: 1448; Percent complete: 36.2%; Average loss: nan
Iteration: 1449; Percent complete: 36.2%; Average loss: nan
Iteration: 1450; Percent complete: 36.2%; Average loss: nan
Iteration: 1451; Percent complete: 36.3%; Average loss: nan
Iteration: 1452; Percent complete: 36.3%; Average loss: nan
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Iteration: 1453; Percent complete: 36.3%; Average loss: nan
Iteration: 1454; Percent complete: 36.4%; Average loss: nan
Iteration: 1455; Percent complete: 36.4%; Average loss: nan
Iteration: 1456; Percent complete: 36.4%; Average loss: nan
Iteration: 1457; Percent complete: 36.4%; Average loss: nan
Iteration: 1458; Percent complete: 36.4%; Average loss: nan
Iteration: 1459; Percent complete: 36.5%; Average loss: nan
Iteration: 1460; Percent complete: 36.5%; Average loss: nan
Iteration: 1461; Percent complete: 36.5%; Average loss: nan
Iteration: 1462; Percent complete: 36.5%; Average loss: nan
Iteration: 1463; Percent complete: 36.6%; Average loss: nan
Iteration: 1464; Percent complete: 36.6%; Average loss: nan
Iteration: 1465; Percent complete: 36.6%; Average loss: nan
Iteration: 1466; Percent complete: 36.6%; Average loss: nan
Iteration: 1467; Percent complete: 36.7%; Average loss: nan
Iteration: 1468; Percent complete: 36.7%; Average loss: nan
Iteration: 1469; Percent complete: 36.7%; Average loss: nan
Iteration: 1470; Percent complete: 36.8%; Average loss: nan
Iteration: 1471; Percent complete: 36.8%; Average loss: nan
Iteration: 1472; Percent complete: 36.8%; Average loss: nan
Iteration: 1473; Percent complete: 36.8%; Average loss: nan
Iteration: 1474; Percent complete: 36.9%; Average loss: nan
Iteration: 1475; Percent complete: 36.9%; Average loss: nan
Iteration: 1476; Percent complete: 36.9%; Average loss: nan
Iteration: 1477; Percent complete: 36.9%; Average loss: nan
Iteration: 1478; Percent complete: 37.0%; Average loss: nan
Iteration: 1479; Percent complete: 37.0%; Average loss: nan
Iteration: 1480; Percent complete: 37.0%; Average loss: nan
Iteration: 1481; Percent complete: 37.0%; Average loss: nan
Iteration: 1482; Percent complete: 37.0%; Average loss: nan
Iteration: 1483; Percent complete: 37.1%; Average loss: nan
Iteration: 1484; Percent complete: 37.1%; Average loss: nan
Iteration: 1485; Percent complete: 37.1%; Average loss: nan
Iteration: 1486; Percent complete: 37.1%; Average loss: nan
Iteration: 1487; Percent complete: 37.2%; Average loss: nan
Iteration: 1488; Percent complete: 37.2%; Average loss: nan
Iteration: 1489; Percent complete: 37.2%; Average loss: nan
Iteration: 1490; Percent complete: 37.2%; Average loss: nan
Iteration: 1491; Percent complete: 37.3%; Average loss: nan
Iteration: 1492; Percent complete: 37.3%; Average loss: nan
Iteration: 1493; Percent complete: 37.3%; Average loss: nan
Iteration: 1494; Percent complete: 37.4%; Average loss: nan
Iteration: 1495; Percent complete: 37.4%; Average loss: nan
Iteration: 1496; Percent complete: 37.4%; Average loss: nan
Iteration: 1497; Percent complete: 37.4%; Average loss: nan
Iteration: 1498; Percent complete: 37.5%; Average loss: nan
Iteration: 1499; Percent complete: 37.5%; Average loss: nan
Iteration: 1500; Percent complete: 37.5%; Average loss: nan
Iteration: 1501; Percent complete: 37.5%; Average loss: nan
Iteration: 1502; Percent complete: 37.5%; Average loss: nan
Iteration: 1503; Percent complete: 37.6%; Average loss: nan
Iteration: 1504; Percent complete: 37.6%; Average loss: nan
Iteration: 1505; Percent complete: 37.6%; Average loss: nan
Iteration: 1506; Percent complete: 37.6%; Average loss: nan
Iteration: 1507; Percent complete: 37.7%; Average loss: nan
Iteration: 1508; Percent complete: 37.7%; Average loss: nan
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```
Iteration: 1509; Percent complete: 37.7%; Average loss: nan
Iteration: 1510; Percent complete: 37.8%; Average loss: nan
Iteration: 1511; Percent complete: 37.8%; Average loss: nan
Iteration: 1512; Percent complete: 37.8%; Average loss: nan
Iteration: 1513; Percent complete: 37.8%; Average loss: nan
Iteration: 1514; Percent complete: 37.9%; Average loss: nan
Iteration: 1515; Percent complete: 37.9%; Average loss: nan
Iteration: 1516; Percent complete: 37.9%; Average loss: nan
Iteration: 1517; Percent complete: 37.9%; Average loss: nan
Iteration: 1518; Percent complete: 38.0%; Average loss: nan
Iteration: 1519; Percent complete: 38.0%; Average loss: nan
Iteration: 1520; Percent complete: 38.0%; Average loss: nan
Iteration: 1521; Percent complete: 38.0%; Average loss: nan
Iteration: 1522; Percent complete: 38.0%; Average loss: nan
Iteration: 1523; Percent complete: 38.1%; Average loss: nan
Iteration: 1524; Percent complete: 38.1%; Average loss: nan
Iteration: 1525; Percent complete: 38.1%; Average loss: nan
Iteration: 1526; Percent complete: 38.1%; Average loss: nan
Iteration: 1527; Percent complete: 38.2%; Average loss: nan
Iteration: 1528; Percent complete: 38.2%; Average loss: nan
Iteration: 1529; Percent complete: 38.2%; Average loss: nan
Iteration: 1530; Percent complete: 38.2%; Average loss: nan
Iteration: 1531; Percent complete: 38.3%; Average loss: nan
Iteration: 1532; Percent complete: 38.3%; Average loss: nan
Iteration: 1533; Percent complete: 38.3%; Average loss: nan
Iteration: 1534; Percent complete: 38.4%; Average loss: nan
Iteration: 1535; Percent complete: 38.4%; Average loss: nan
Iteration: 1536; Percent complete: 38.4%; Average loss: nan
Iteration: 1537; Percent complete: 38.4%; Average loss: nan
Iteration: 1538; Percent complete: 38.5%; Average loss: nan
Iteration: 1539; Percent complete: 38.5%; Average loss: nan
Iteration: 1540; Percent complete: 38.5%; Average loss: nan
Iteration: 1541; Percent complete: 38.5%; Average loss: nan
Iteration: 1542; Percent complete: 38.6%; Average loss: nan
Iteration: 1543; Percent complete: 38.6%; Average loss: nan
Iteration: 1544; Percent complete: 38.6%; Average loss: nan
Iteration: 1545; Percent complete: 38.6%; Average loss: nan
Iteration: 1546; Percent complete: 38.6%; Average loss: nan
Iteration: 1547; Percent complete: 38.7%; Average loss: nan
Iteration: 1548; Percent complete: 38.7%; Average loss: nan
Iteration: 1549; Percent complete: 38.7%; Average loss: nan
Iteration: 1550; Percent complete: 38.8%; Average loss: nan
Iteration: 1551; Percent complete: 38.8%; Average loss: nan
Iteration: 1552; Percent complete: 38.8%; Average loss: nan
Iteration: 1553; Percent complete: 38.8%; Average loss: nan
Iteration: 1554; Percent complete: 38.9%; Average loss: nan
Iteration: 1555; Percent complete: 38.9%; Average loss: nan
Iteration: 1556; Percent complete: 38.9%; Average loss: nan
Iteration: 1557; Percent complete: 38.9%; Average loss: nan
Iteration: 1558; Percent complete: 39.0%; Average loss: nan
Iteration: 1559; Percent complete: 39.0%; Average loss: nan
Iteration: 1560; Percent complete: 39.0%; Average loss: nan
Iteration: 1561; Percent complete: 39.0%; Average loss: nan
Iteration: 1562; Percent complete: 39.1%; Average loss: nan
Iteration: 1563; Percent complete: 39.1%; Average loss: nan
Iteration: 1564; Percent complete: 39.1%; Average loss: nan
```

```
Iteration: 1565; Percent complete: 39.1%; Average loss: nan
Iteration: 1566; Percent complete: 39.1%; Average loss: nan
Iteration: 1567; Percent complete: 39.2%; Average loss: nan
Iteration: 1568; Percent complete: 39.2%; Average loss: nan
Iteration: 1569; Percent complete: 39.2%; Average loss: nan
Iteration: 1570; Percent complete: 39.2%; Average loss: nan
Iteration: 1571; Percent complete: 39.3%; Average loss: nan
Iteration: 1572; Percent complete: 39.3%; Average loss: nan
Iteration: 1573; Percent complete: 39.3%; Average loss: nan
Iteration: 1574; Percent complete: 39.4%; Average loss: nan
Iteration: 1575; Percent complete: 39.4%; Average loss: nan
Iteration: 1576; Percent complete: 39.4%; Average loss: nan
Iteration: 1577; Percent complete: 39.4%; Average loss: nan
Iteration: 1578; Percent complete: 39.5%; Average loss: nan
Iteration: 1579; Percent complete: 39.5%; Average loss: nan
Iteration: 1580; Percent complete: 39.5%; Average loss: nan
Iteration: 1581; Percent complete: 39.5%; Average loss: nan
Iteration: 1582; Percent complete: 39.6%; Average loss: nan
Iteration: 1583; Percent complete: 39.6%; Average loss: nan
Iteration: 1584; Percent complete: 39.6%; Average loss: nan
Iteration: 1585; Percent complete: 39.6%; Average loss: nan
Iteration: 1586; Percent complete: 39.6%; Average loss: nan
Iteration: 1587; Percent complete: 39.7%; Average loss: nan
Iteration: 1588; Percent complete: 39.7%; Average loss: nan
Iteration: 1589; Percent complete: 39.7%; Average loss: nan
Iteration: 1590; Percent complete: 39.8%; Average loss: nan
Iteration: 1591; Percent complete: 39.8%; Average loss: nan
Iteration: 1592; Percent complete: 39.8%; Average loss: nan
Iteration: 1593; Percent complete: 39.8%; Average loss: nan
Iteration: 1594; Percent complete: 39.9%; Average loss: nan
Iteration: 1595; Percent complete: 39.9%; Average loss: nan
Iteration: 1596; Percent complete: 39.9%; Average loss: nan
Iteration: 1597; Percent complete: 39.9%; Average loss: nan
Iteration: 1598; Percent complete: 40.0%; Average loss: nan
Iteration: 1599; Percent complete: 40.0%; Average loss: nan
Iteration: 1600; Percent complete: 40.0%; Average loss: nan
Iteration: 1601; Percent complete: 40.0%; Average loss: nan
Iteration: 1602; Percent complete: 40.1%; Average loss: nan
Iteration: 1603; Percent complete: 40.1%; Average loss: nan
Iteration: 1604; Percent complete: 40.1%; Average loss: nan
Iteration: 1605; Percent complete: 40.1%; Average loss: nan
Iteration: 1606; Percent complete: 40.2%; Average loss: nan
Iteration: 1607; Percent complete: 40.2%; Average loss: nan
Iteration: 1608; Percent complete: 40.2%; Average loss: nan
Iteration: 1609; Percent complete: 40.2%; Average loss: nan
Iteration: 1610; Percent complete: 40.2%; Average loss: nan
Iteration: 1611; Percent complete: 40.3%; Average loss: nan
Iteration: 1612; Percent complete: 40.3%; Average loss: nan
Iteration: 1613; Percent complete: 40.3%; Average loss: nan
Iteration: 1614; Percent complete: 40.4%; Average loss: nan
Iteration: 1615; Percent complete: 40.4%; Average loss: nan
Iteration: 1616; Percent complete: 40.4%; Average loss: nan
Iteration: 1617; Percent complete: 40.4%; Average loss: nan
Iteration: 1618; Percent complete: 40.5%; Average loss: nan
Iteration: 1619; Percent complete: 40.5%; Average loss: nan
Iteration: 1620; Percent complete: 40.5%; Average loss: nan
```

```
Iteration: 1621; Percent complete: 40.5%; Average loss: nan
Iteration: 1622; Percent complete: 40.6%; Average loss: nan
Iteration: 1623; Percent complete: 40.6%; Average loss: nan
Iteration: 1624; Percent complete: 40.6%; Average loss: nan
Iteration: 1625; Percent complete: 40.6%; Average loss: nan
Iteration: 1626; Percent complete: 40.6%; Average loss: nan
Iteration: 1627; Percent complete: 40.7%; Average loss: nan
Iteration: 1628; Percent complete: 40.7%; Average loss: nan
Iteration: 1629; Percent complete: 40.7%; Average loss: nan
Iteration: 1630; Percent complete: 40.8%; Average loss: nan
Iteration: 1631; Percent complete: 40.8%; Average loss: nan
Iteration: 1632; Percent complete: 40.8%; Average loss: nan
Iteration: 1633; Percent complete: 40.8%; Average loss: nan
Iteration: 1634; Percent complete: 40.8%; Average loss: nan
Iteration: 1635; Percent complete: 40.9%; Average loss: nan
Iteration: 1636; Percent complete: 40.9%; Average loss: nan
Iteration: 1637; Percent complete: 40.9%; Average loss: nan
Iteration: 1638; Percent complete: 40.9%; Average loss: nan
Iteration: 1639; Percent complete: 41.0%; Average loss: nan
Iteration: 1640; Percent complete: 41.0%; Average loss: nan
Iteration: 1641; Percent complete: 41.0%; Average loss: nan
Iteration: 1642; Percent complete: 41.0%; Average loss: nan
Iteration: 1643; Percent complete: 41.1%; Average loss: nan
Iteration: 1644; Percent complete: 41.1%; Average loss: nan
Iteration: 1645; Percent complete: 41.1%; Average loss: nan
Iteration: 1646; Percent complete: 41.1%; Average loss: nan
Iteration: 1647; Percent complete: 41.2%; Average loss: nan
Iteration: 1648; Percent complete: 41.2%; Average loss: nan
Iteration: 1649; Percent complete: 41.2%; Average loss: nan
Iteration: 1650; Percent complete: 41.2%; Average loss: nan
Iteration: 1651; Percent complete: 41.3%; Average loss: nan
Iteration: 1652; Percent complete: 41.3%; Average loss: nan
Iteration: 1653; Percent complete: 41.3%; Average loss: nan
Iteration: 1654; Percent complete: 41.3%; Average loss: nan
Iteration: 1655; Percent complete: 41.4%; Average loss: nan
Iteration: 1656; Percent complete: 41.4%; Average loss: nan
Iteration: 1657; Percent complete: 41.4%; Average loss: nan
Iteration: 1658; Percent complete: 41.4%; Average loss: nan
Iteration: 1659; Percent complete: 41.5%; Average loss: nan
Iteration: 1660; Percent complete: 41.5%; Average loss: nan
Iteration: 1661; Percent complete: 41.5%; Average loss: nan
Iteration: 1662; Percent complete: 41.5%; Average loss: nan
Iteration: 1663; Percent complete: 41.6%; Average loss: nan
Iteration: 1664; Percent complete: 41.6%; Average loss: nan
Iteration: 1665; Percent complete: 41.6%; Average loss: nan
Iteration: 1666; Percent complete: 41.6%; Average loss: nan
Iteration: 1667; Percent complete: 41.7%; Average loss: nan
Iteration: 1668; Percent complete: 41.7%; Average loss: nan
Iteration: 1669; Percent complete: 41.7%; Average loss: nan
Iteration: 1670; Percent complete: 41.8%; Average loss: nan
Iteration: 1671; Percent complete: 41.8%; Average loss: nan
Iteration: 1672; Percent complete: 41.8%; Average loss: nan
Iteration: 1673; Percent complete: 41.8%; Average loss: nan
Iteration: 1674; Percent complete: 41.9%; Average loss: nan
Iteration: 1675; Percent complete: 41.9%; Average loss: nan
Iteration: 1676; Percent complete: 41.9%; Average loss: nan
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Iteration: 1677; Percent complete: 41.9%; Average loss: nan
Iteration: 1678; Percent complete: 41.9%; Average loss: nan
Iteration: 1679; Percent complete: 42.0%; Average loss: nan
Iteration: 1680; Percent complete: 42.0%; Average loss: nan
Iteration: 1681; Percent complete: 42.0%; Average loss: nan
Iteration: 1682; Percent complete: 42.0%; Average loss: nan
Iteration: 1683; Percent complete: 42.1%; Average loss: nan
Iteration: 1684; Percent complete: 42.1%; Average loss: nan
Iteration: 1685; Percent complete: 42.1%; Average loss: nan
Iteration: 1686; Percent complete: 42.1%; Average loss: nan
Iteration: 1687; Percent complete: 42.2%; Average loss: nan
Iteration: 1688; Percent complete: 42.2%; Average loss: nan
Iteration: 1689; Percent complete: 42.2%; Average loss: nan
Iteration: 1690; Percent complete: 42.2%; Average loss: nan
Iteration: 1691; Percent complete: 42.3%; Average loss: nan
Iteration: 1692; Percent complete: 42.3%; Average loss: nan
Iteration: 1693; Percent complete: 42.3%; Average loss: nan
Iteration: 1694; Percent complete: 42.4%; Average loss: nan
Iteration: 1695; Percent complete: 42.4%; Average loss: nan
Iteration: 1696; Percent complete: 42.4%; Average loss: nan
Iteration: 1697; Percent complete: 42.4%; Average loss: nan
Iteration: 1698; Percent complete: 42.4%; Average loss: nan
Iteration: 1699; Percent complete: 42.5%; Average loss: nan
Iteration: 1700; Percent complete: 42.5%; Average loss: nan
Iteration: 1701; Percent complete: 42.5%; Average loss: nan
Iteration: 1702; Percent complete: 42.5%; Average loss: nan
Iteration: 1703; Percent complete: 42.6%; Average loss: nan
Iteration: 1704; Percent complete: 42.6%; Average loss: nan
Iteration: 1705; Percent complete: 42.6%; Average loss: nan
Iteration: 1706; Percent complete: 42.6%; Average loss: nan
Iteration: 1707; Percent complete: 42.7%; Average loss: nan
Iteration: 1708; Percent complete: 42.7%; Average loss: nan
Iteration: 1709; Percent complete: 42.7%; Average loss: nan
Iteration: 1710; Percent complete: 42.8%; Average loss: nan
Iteration: 1711; Percent complete: 42.8%; Average loss: nan
Iteration: 1712; Percent complete: 42.8%; Average loss: nan
Iteration: 1713; Percent complete: 42.8%; Average loss: nan
Iteration: 1714; Percent complete: 42.9%; Average loss: nan
Iteration: 1715; Percent complete: 42.9%; Average loss: nan
Iteration: 1716; Percent complete: 42.9%; Average loss: nan
Iteration: 1717; Percent complete: 42.9%; Average loss: nan
Iteration: 1718; Percent complete: 43.0%; Average loss: nan
Iteration: 1719; Percent complete: 43.0%; Average loss: nan
Iteration: 1720; Percent complete: 43.0%; Average loss: nan
Iteration: 1721; Percent complete: 43.0%; Average loss: nan
Iteration: 1722; Percent complete: 43.0%; Average loss: nan
Iteration: 1723; Percent complete: 43.1%; Average loss: nan
Iteration: 1724; Percent complete: 43.1%; Average loss: nan
Iteration: 1725; Percent complete: 43.1%; Average loss: nan
Iteration: 1726; Percent complete: 43.1%; Average loss: nan
Iteration: 1727; Percent complete: 43.2%; Average loss: nan
Iteration: 1728; Percent complete: 43.2%; Average loss: nan
Iteration: 1729; Percent complete: 43.2%; Average loss: nan
Iteration: 1730; Percent complete: 43.2%; Average loss: nan
Iteration: 1731; Percent complete: 43.3%; Average loss: nan
Iteration: 1732; Percent complete: 43.3%; Average loss: nan
```

```
Iteration: 1733; Percent complete: 43.3%; Average loss: nan
Iteration: 1734; Percent complete: 43.4%; Average loss: nan
Iteration: 1735; Percent complete: 43.4%; Average loss: nan
Iteration: 1736; Percent complete: 43.4%; Average loss: nan
Iteration: 1737; Percent complete: 43.4%; Average loss: nan
Iteration: 1738; Percent complete: 43.5%; Average loss: nan
Iteration: 1739; Percent complete: 43.5%; Average loss: nan
Iteration: 1740; Percent complete: 43.5%; Average loss: nan
Iteration: 1741; Percent complete: 43.5%; Average loss: nan
Iteration: 1742; Percent complete: 43.5%; Average loss: nan
Iteration: 1743; Percent complete: 43.6%; Average loss: nan
Iteration: 1744; Percent complete: 43.6%; Average loss: nan
Iteration: 1745; Percent complete: 43.6%; Average loss: nan
Iteration: 1746; Percent complete: 43.6%; Average loss: nan
Iteration: 1747; Percent complete: 43.7%; Average loss: nan
Iteration: 1748; Percent complete: 43.7%; Average loss: nan
Iteration: 1749; Percent complete: 43.7%; Average loss: nan
Iteration: 1750; Percent complete: 43.8%; Average loss: nan
Iteration: 1751; Percent complete: 43.8%; Average loss: nan
Iteration: 1752; Percent complete: 43.8%; Average loss: nan
Iteration: 1753; Percent complete: 43.8%; Average loss: nan
Iteration: 1754; Percent complete: 43.9%; Average loss: nan
Iteration: 1755; Percent complete: 43.9%; Average loss: nan
Iteration: 1756; Percent complete: 43.9%; Average loss: nan
Iteration: 1757; Percent complete: 43.9%; Average loss: nan
Iteration: 1758; Percent complete: 44.0%; Average loss: nan
Iteration: 1759; Percent complete: 44.0%; Average loss: nan
Iteration: 1760; Percent complete: 44.0%; Average loss: nan
Iteration: 1761; Percent complete: 44.0%; Average loss: nan
Iteration: 1762; Percent complete: 44.0%; Average loss: nan
Iteration: 1763; Percent complete: 44.1%; Average loss: nan
Iteration: 1764; Percent complete: 44.1%; Average loss: nan
Iteration: 1765; Percent complete: 44.1%; Average loss: nan
Iteration: 1766; Percent complete: 44.1%; Average loss: nan
Iteration: 1767; Percent complete: 44.2%; Average loss: nan
Iteration: 1768; Percent complete: 44.2%; Average loss: nan
Iteration: 1769; Percent complete: 44.2%; Average loss: nan
Iteration: 1770; Percent complete: 44.2%; Average loss: nan
Iteration: 1771; Percent complete: 44.3%; Average loss: nan
Iteration: 1772; Percent complete: 44.3%; Average loss: nan
Iteration: 1773; Percent complete: 44.3%; Average loss: nan
Iteration: 1774; Percent complete: 44.4%; Average loss: nan
Iteration: 1775; Percent complete: 44.4%; Average loss: nan
Iteration: 1776; Percent complete: 44.4%; Average loss: nan
Iteration: 1777; Percent complete: 44.4%; Average loss: nan
Iteration: 1778; Percent complete: 44.5%; Average loss: nan
Iteration: 1779; Percent complete: 44.5%; Average loss: nan
Iteration: 1780; Percent complete: 44.5%; Average loss: nan
Iteration: 1781; Percent complete: 44.5%; Average loss: nan
Iteration: 1782; Percent complete: 44.5%; Average loss: nan
Iteration: 1783; Percent complete: 44.6%; Average loss: nan
Iteration: 1784; Percent complete: 44.6%; Average loss: nan
Iteration: 1785; Percent complete: 44.6%; Average loss: nan
Iteration: 1786; Percent complete: 44.6%; Average loss: nan
Iteration: 1787; Percent complete: 44.7%; Average loss: nan
Iteration: 1788; Percent complete: 44.7%; Average loss: nan
```

```
Iteration: 1789; Percent complete: 44.7%; Average loss: nan
Iteration: 1790; Percent complete: 44.8%; Average loss: nan
Iteration: 1791; Percent complete: 44.8%; Average loss: nan
Iteration: 1792; Percent complete: 44.8%; Average loss: nan
Iteration: 1793; Percent complete: 44.8%; Average loss: nan
Iteration: 1794; Percent complete: 44.9%; Average loss: nan
Iteration: 1795; Percent complete: 44.9%; Average loss: nan
Iteration: 1796; Percent complete: 44.9%; Average loss: nan
Iteration: 1797; Percent complete: 44.9%; Average loss: nan
Iteration: 1798; Percent complete: 45.0%; Average loss: nan
Iteration: 1799; Percent complete: 45.0%; Average loss: nan
Iteration: 1800; Percent complete: 45.0%; Average loss: nan
Iteration: 1801; Percent complete: 45.0%; Average loss: nan
Iteration: 1802; Percent complete: 45.1%; Average loss: nan
Iteration: 1803; Percent complete: 45.1%; Average loss: nan
Iteration: 1804; Percent complete: 45.1%; Average loss: nan
Iteration: 1805; Percent complete: 45.1%; Average loss: nan
Iteration: 1806; Percent complete: 45.1%; Average loss: nan
Iteration: 1807; Percent complete: 45.2%; Average loss: nan
Iteration: 1808; Percent complete: 45.2%; Average loss: nan
Iteration: 1809; Percent complete: 45.2%; Average loss: nan
Iteration: 1810; Percent complete: 45.2%; Average loss: nan
Iteration: 1811; Percent complete: 45.3%; Average loss: nan
Iteration: 1812; Percent complete: 45.3%; Average loss: nan
Iteration: 1813; Percent complete: 45.3%; Average loss: nan
Iteration: 1814; Percent complete: 45.4%; Average loss: nan
Iteration: 1815; Percent complete: 45.4%; Average loss: nan
Iteration: 1816; Percent complete: 45.4%; Average loss: nan
Iteration: 1817; Percent complete: 45.4%; Average loss: nan
Iteration: 1818; Percent complete: 45.5%; Average loss: nan
Iteration: 1819; Percent complete: 45.5%; Average loss: nan
Iteration: 1820; Percent complete: 45.5%; Average loss: nan
Iteration: 1821; Percent complete: 45.5%; Average loss: nan
Iteration: 1822; Percent complete: 45.6%; Average loss: nan
Iteration: 1823; Percent complete: 45.6%; Average loss: nan
Iteration: 1824; Percent complete: 45.6%; Average loss: nan
Iteration: 1825; Percent complete: 45.6%; Average loss: nan
Iteration: 1826; Percent complete: 45.6%; Average loss: nan
Iteration: 1827; Percent complete: 45.7%; Average loss: nan
Iteration: 1828; Percent complete: 45.7%; Average loss: nan
Iteration: 1829; Percent complete: 45.7%; Average loss: nan
Iteration: 1830; Percent complete: 45.8%; Average loss: nan
Iteration: 1831; Percent complete: 45.8%; Average loss: nan
Iteration: 1832; Percent complete: 45.8%; Average loss: nan
Iteration: 1833; Percent complete: 45.8%; Average loss: nan
Iteration: 1834; Percent complete: 45.9%; Average loss: nan
Iteration: 1835; Percent complete: 45.9%; Average loss: nan
Iteration: 1836; Percent complete: 45.9%; Average loss: nan
Iteration: 1837; Percent complete: 45.9%; Average loss: nan
Iteration: 1838; Percent complete: 46.0%; Average loss: nan
Iteration: 1839; Percent complete: 46.0%; Average loss: nan
Iteration: 1840; Percent complete: 46.0%; Average loss: nan
Iteration: 1841; Percent complete: 46.0%; Average loss: nan
Iteration: 1842; Percent complete: 46.1%; Average loss: nan
Iteration: 1843; Percent complete: 46.1%; Average loss: nan
Iteration: 1844; Percent complete: 46.1%; Average loss: nan
```

```
Iteration: 1845; Percent complete: 46.1%; Average loss: nan
Iteration: 1846; Percent complete: 46.2%; Average loss: nan
Iteration: 1847; Percent complete: 46.2%; Average loss: nan
Iteration: 1848; Percent complete: 46.2%; Average loss: nan
Iteration: 1849; Percent complete: 46.2%; Average loss: nan
Iteration: 1850; Percent complete: 46.2%; Average loss: nan
Iteration: 1851; Percent complete: 46.3%; Average loss: nan
Iteration: 1852; Percent complete: 46.3%; Average loss: nan
Iteration: 1853; Percent complete: 46.3%; Average loss: nan
Iteration: 1854; Percent complete: 46.4%; Average loss: nan
Iteration: 1855; Percent complete: 46.4%; Average loss: nan
Iteration: 1856; Percent complete: 46.4%; Average loss: nan
Iteration: 1857; Percent complete: 46.4%; Average loss: nan
Iteration: 1858; Percent complete: 46.5%; Average loss: nan
Iteration: 1859; Percent complete: 46.5%; Average loss: nan
Iteration: 1860; Percent complete: 46.5%; Average loss: nan
Iteration: 1861; Percent complete: 46.5%; Average loss: nan
Iteration: 1862; Percent complete: 46.6%; Average loss: nan
Iteration: 1863; Percent complete: 46.6%; Average loss: nan
Iteration: 1864; Percent complete: 46.6%; Average loss: nan
Iteration: 1865; Percent complete: 46.6%; Average loss: nan
Iteration: 1866; Percent complete: 46.7%; Average loss: nan
Iteration: 1867; Percent complete: 46.7%; Average loss: nan
Iteration: 1868; Percent complete: 46.7%; Average loss: nan
Iteration: 1869; Percent complete: 46.7%; Average loss: nan
Iteration: 1870; Percent complete: 46.8%; Average loss: nan
Iteration: 1871; Percent complete: 46.8%; Average loss: nan
Iteration: 1872; Percent complete: 46.8%; Average loss: nan
Iteration: 1873; Percent complete: 46.8%; Average loss: nan
Iteration: 1874; Percent complete: 46.9%; Average loss: nan
Iteration: 1875; Percent complete: 46.9%; Average loss: nan
Iteration: 1876; Percent complete: 46.9%; Average loss: nan
Iteration: 1877; Percent complete: 46.9%; Average loss: nan
Iteration: 1878; Percent complete: 46.9%; Average loss: nan
Iteration: 1879; Percent complete: 47.0%; Average loss: nan
Iteration: 1880; Percent complete: 47.0%; Average loss: nan
Iteration: 1881; Percent complete: 47.0%; Average loss: nan
Iteration: 1882; Percent complete: 47.0%; Average loss: nan
Iteration: 1883; Percent complete: 47.1%; Average loss: nan
Iteration: 1884; Percent complete: 47.1%; Average loss: nan
Iteration: 1885; Percent complete: 47.1%; Average loss: nan
Iteration: 1886; Percent complete: 47.1%; Average loss: nan
Iteration: 1887; Percent complete: 47.2%; Average loss: nan
Iteration: 1888; Percent complete: 47.2%; Average loss: nan
Iteration: 1889; Percent complete: 47.2%; Average loss: nan
Iteration: 1890; Percent complete: 47.2%; Average loss: nan
Iteration: 1891; Percent complete: 47.3%; Average loss: nan
Iteration: 1892; Percent complete: 47.3%; Average loss: nan
Iteration: 1893; Percent complete: 47.3%; Average loss: nan
Iteration: 1894; Percent complete: 47.3%; Average loss: nan
Iteration: 1895; Percent complete: 47.4%; Average loss: nan
Iteration: 1896; Percent complete: 47.4%; Average loss: nan
Iteration: 1897; Percent complete: 47.4%; Average loss: nan
Iteration: 1898; Percent complete: 47.4%; Average loss: nan
Iteration: 1899; Percent complete: 47.5%; Average loss: nan
Iteration: 1900; Percent complete: 47.5%; Average loss: nan
```

```
Iteration: 1901; Percent complete: 47.5%; Average loss: nan
Iteration: 1902; Percent complete: 47.5%; Average loss: nan
Iteration: 1903; Percent complete: 47.6%; Average loss: nan
Iteration: 1904; Percent complete: 47.6%; Average loss: nan
Iteration: 1905; Percent complete: 47.6%; Average loss: nan
Iteration: 1906; Percent complete: 47.6%; Average loss: nan
Iteration: 1907; Percent complete: 47.7%; Average loss: nan
Iteration: 1908; Percent complete: 47.7%; Average loss: nan
Iteration: 1909; Percent complete: 47.7%; Average loss: nan
Iteration: 1910; Percent complete: 47.8%; Average loss: nan
Iteration: 1911; Percent complete: 47.8%; Average loss: nan
Iteration: 1912; Percent complete: 47.8%; Average loss: nan
Iteration: 1913; Percent complete: 47.8%; Average loss: nan
Iteration: 1914; Percent complete: 47.9%; Average loss: nan
Iteration: 1915; Percent complete: 47.9%; Average loss: nan
Iteration: 1916; Percent complete: 47.9%; Average loss: nan
Iteration: 1917; Percent complete: 47.9%; Average loss: nan
Iteration: 1918; Percent complete: 47.9%; Average loss: nan
Iteration: 1919; Percent complete: 48.0%; Average loss: nan
Iteration: 1920; Percent complete: 48.0%; Average loss: nan
Iteration: 1921; Percent complete: 48.0%; Average loss: nan
Iteration: 1922; Percent complete: 48.0%; Average loss: nan
Iteration: 1923; Percent complete: 48.1%; Average loss: nan
Iteration: 1924; Percent complete: 48.1%; Average loss: nan
Iteration: 1925; Percent complete: 48.1%; Average loss: nan
Iteration: 1926; Percent complete: 48.1%; Average loss: nan
Iteration: 1927; Percent complete: 48.2%; Average loss: nan
Iteration: 1928; Percent complete: 48.2%; Average loss: nan
Iteration: 1929; Percent complete: 48.2%; Average loss: nan
Iteration: 1930; Percent complete: 48.2%; Average loss: nan
Iteration: 1931; Percent complete: 48.3%; Average loss: nan
Iteration: 1932; Percent complete: 48.3%; Average loss: nan
Iteration: 1933; Percent complete: 48.3%; Average loss: nan
Iteration: 1934; Percent complete: 48.4%; Average loss: nan
Iteration: 1935; Percent complete: 48.4%; Average loss: nan
Iteration: 1936; Percent complete: 48.4%; Average loss: nan
Iteration: 1937; Percent complete: 48.4%; Average loss: nan
Iteration: 1938; Percent complete: 48.4%; Average loss: nan
Iteration: 1939; Percent complete: 48.5%; Average loss: nan
Iteration: 1940; Percent complete: 48.5%; Average loss: nan
Iteration: 1941; Percent complete: 48.5%; Average loss: nan
Iteration: 1942; Percent complete: 48.5%; Average loss: nan
Iteration: 1943; Percent complete: 48.6%; Average loss: nan
Iteration: 1944; Percent complete: 48.6%; Average loss: nan
Iteration: 1945; Percent complete: 48.6%; Average loss: nan
Iteration: 1946; Percent complete: 48.6%; Average loss: nan
Iteration: 1947; Percent complete: 48.7%; Average loss: nan
Iteration: 1948; Percent complete: 48.7%; Average loss: nan
Iteration: 1949; Percent complete: 48.7%; Average loss: nan
Iteration: 1950; Percent complete: 48.8%; Average loss: nan
Iteration: 1951; Percent complete: 48.8%; Average loss: nan
Iteration: 1952; Percent complete: 48.8%; Average loss: nan
Iteration: 1953; Percent complete: 48.8%; Average loss: nan
Iteration: 1954; Percent complete: 48.9%; Average loss: nan
Iteration: 1955; Percent complete: 48.9%; Average loss: nan
Iteration: 1956; Percent complete: 48.9%; Average loss: nan
```

```
Iteration: 1957; Percent complete: 48.9%; Average loss: nan
Iteration: 1958; Percent complete: 48.9%; Average loss: nan
Iteration: 1959; Percent complete: 49.0%; Average loss: nan
Iteration: 1960; Percent complete: 49.0%; Average loss: nan
Iteration: 1961; Percent complete: 49.0%; Average loss: nan
Iteration: 1962; Percent complete: 49.0%; Average loss: nan
Iteration: 1963; Percent complete: 49.1%; Average loss: nan
Iteration: 1964; Percent complete: 49.1%; Average loss: nan
Iteration: 1965; Percent complete: 49.1%; Average loss: nan
Iteration: 1966; Percent complete: 49.1%; Average loss: nan
Iteration: 1967; Percent complete: 49.2%; Average loss: nan
Iteration: 1968; Percent complete: 49.2%; Average loss: nan
Iteration: 1969; Percent complete: 49.2%; Average loss: nan
Iteration: 1970; Percent complete: 49.2%; Average loss: nan
Iteration: 1971; Percent complete: 49.3%; Average loss: nan
Iteration: 1972; Percent complete: 49.3%; Average loss: nan
Iteration: 1973; Percent complete: 49.3%; Average loss: nan
Iteration: 1974; Percent complete: 49.4%; Average loss: nan
Iteration: 1975; Percent complete: 49.4%; Average loss: nan
Iteration: 1976; Percent complete: 49.4%; Average loss: nan
Iteration: 1977; Percent complete: 49.4%; Average loss: nan
Iteration: 1978; Percent complete: 49.5%; Average loss: nan
Iteration: 1979; Percent complete: 49.5%; Average loss: nan
Iteration: 1980; Percent complete: 49.5%; Average loss: nan
Iteration: 1981; Percent complete: 49.5%; Average loss: nan
Iteration: 1982; Percent complete: 49.5%; Average loss: nan
Iteration: 1983; Percent complete: 49.6%; Average loss: nan
Iteration: 1984; Percent complete: 49.6%; Average loss: nan
Iteration: 1985; Percent complete: 49.6%; Average loss: nan
Iteration: 1986; Percent complete: 49.6%; Average loss: nan
Iteration: 1987; Percent complete: 49.7%; Average loss: nan
Iteration: 1988; Percent complete: 49.7%; Average loss: nan
Iteration: 1989; Percent complete: 49.7%; Average loss: nan
Iteration: 1990; Percent complete: 49.8%; Average loss: nan
Iteration: 1991; Percent complete: 49.8%; Average loss: nan
Iteration: 1992; Percent complete: 49.8%; Average loss: nan
Iteration: 1993; Percent complete: 49.8%; Average loss: nan
Iteration: 1994; Percent complete: 49.9%; Average loss: nan
Iteration: 1995; Percent complete: 49.9%; Average loss: nan
Iteration: 1996; Percent complete: 49.9%; Average loss: nan
Iteration: 1997; Percent complete: 49.9%; Average loss: nan
Iteration: 1998; Percent complete: 50.0%; Average loss: nan
Iteration: 1999; Percent complete: 50.0%; Average loss: nan
Iteration: 2000; Percent complete: 50.0%; Average loss: nan
Iteration: 2001; Percent complete: 50.0%; Average loss: nan
Iteration: 2002; Percent complete: 50.0%; Average loss: nan
Iteration: 2003; Percent complete: 50.1%; Average loss: nan
Iteration: 2004; Percent complete: 50.1%; Average loss: nan
Iteration: 2005; Percent complete: 50.1%; Average loss: nan
Iteration: 2006; Percent complete: 50.1%; Average loss: nan
Iteration: 2007; Percent complete: 50.2%; Average loss: nan
Iteration: 2008; Percent complete: 50.2%; Average loss: nan
Iteration: 2009; Percent complete: 50.2%; Average loss: nan
Iteration: 2010; Percent complete: 50.2%; Average loss: nan
Iteration: 2011; Percent complete: 50.3%; Average loss: nan
Iteration: 2012; Percent complete: 50.3%; Average loss: nan
```

```
Iteration: 2013; Percent complete: 50.3%; Average loss: nan
Iteration: 2014; Percent complete: 50.3%; Average loss: nan
Iteration: 2015; Percent complete: 50.4%; Average loss: nan
Iteration: 2016; Percent complete: 50.4%; Average loss: nan
Iteration: 2017; Percent complete: 50.4%; Average loss: nan
Iteration: 2018; Percent complete: 50.4%; Average loss: nan
Iteration: 2019; Percent complete: 50.5%; Average loss: nan
Iteration: 2020; Percent complete: 50.5%; Average loss: nan
Iteration: 2021; Percent complete: 50.5%; Average loss: nan
Iteration: 2022; Percent complete: 50.5%; Average loss: nan
Iteration: 2023; Percent complete: 50.6%; Average loss: nan
Iteration: 2024; Percent complete: 50.6%; Average loss: nan
Iteration: 2025; Percent complete: 50.6%; Average loss: nan
Iteration: 2026; Percent complete: 50.6%; Average loss: nan
Iteration: 2027; Percent complete: 50.7%; Average loss: nan
Iteration: 2028; Percent complete: 50.7%; Average loss: nan
Iteration: 2029; Percent complete: 50.7%; Average loss: nan
Iteration: 2030; Percent complete: 50.7%; Average loss: nan
Iteration: 2031; Percent complete: 50.8%; Average loss: nan
Iteration: 2032; Percent complete: 50.8%; Average loss: nan
Iteration: 2033; Percent complete: 50.8%; Average loss: nan
Iteration: 2034; Percent complete: 50.8%; Average loss: nan
Iteration: 2035; Percent complete: 50.9%; Average loss: nan
Iteration: 2036; Percent complete: 50.9%; Average loss: nan
Iteration: 2037; Percent complete: 50.9%; Average loss: nan
Iteration: 2038; Percent complete: 50.9%; Average loss: nan
Iteration: 2039; Percent complete: 51.0%; Average loss: nan
Iteration: 2040; Percent complete: 51.0%; Average loss: nan
Iteration: 2041; Percent complete: 51.0%; Average loss: nan
Iteration: 2042; Percent complete: 51.0%; Average loss: nan
Iteration: 2043; Percent complete: 51.1%; Average loss: nan
Iteration: 2044; Percent complete: 51.1%; Average loss: nan
Iteration: 2045; Percent complete: 51.1%; Average loss: nan
Iteration: 2046; Percent complete: 51.1%; Average loss: nan
Iteration: 2047; Percent complete: 51.2%; Average loss: nan
Iteration: 2048; Percent complete: 51.2%; Average loss: nan
Iteration: 2049; Percent complete: 51.2%; Average loss: nan
Iteration: 2050; Percent complete: 51.2%; Average loss: nan
Iteration: 2051; Percent complete: 51.3%; Average loss: nan
Iteration: 2052; Percent complete: 51.3%; Average loss: nan
Iteration: 2053; Percent complete: 51.3%; Average loss: nan
Iteration: 2054; Percent complete: 51.3%; Average loss: nan
Iteration: 2055; Percent complete: 51.4%; Average loss: nan
Iteration: 2056; Percent complete: 51.4%; Average loss: nan
Iteration: 2057; Percent complete: 51.4%; Average loss: nan
Iteration: 2058; Percent complete: 51.4%; Average loss: nan
Iteration: 2059; Percent complete: 51.5%; Average loss: nan
Iteration: 2060; Percent complete: 51.5%; Average loss: nan
Iteration: 2061; Percent complete: 51.5%; Average loss: nan
Iteration: 2062; Percent complete: 51.5%; Average loss: nan
Iteration: 2063; Percent complete: 51.6%; Average loss: nan
Iteration: 2064; Percent complete: 51.6%; Average loss: nan
Iteration: 2065; Percent complete: 51.6%; Average loss: nan
Iteration: 2066; Percent complete: 51.6%; Average loss: nan
Iteration: 2067; Percent complete: 51.7%; Average loss: nan
Iteration: 2068; Percent complete: 51.7%; Average loss: nan
```

```
Iteration: 2069; Percent complete: 51.7%; Average loss: nan
Iteration: 2070; Percent complete: 51.7%; Average loss: nan
Iteration: 2071; Percent complete: 51.8%; Average loss: nan
Iteration: 2072; Percent complete: 51.8%; Average loss: nan
Iteration: 2073; Percent complete: 51.8%; Average loss: nan
Iteration: 2074; Percent complete: 51.8%; Average loss: nan
Iteration: 2075; Percent complete: 51.9%; Average loss: nan
Iteration: 2076; Percent complete: 51.9%; Average loss: nan
Iteration: 2077; Percent complete: 51.9%; Average loss: nan
Iteration: 2078; Percent complete: 51.9%; Average loss: nan
Iteration: 2079; Percent complete: 52.0%; Average loss: nan
Iteration: 2080; Percent complete: 52.0%; Average loss: nan
Iteration: 2081; Percent complete: 52.0%; Average loss: nan
Iteration: 2082; Percent complete: 52.0%; Average loss: nan
Iteration: 2083; Percent complete: 52.1%; Average loss: nan
Iteration: 2084; Percent complete: 52.1%; Average loss: nan
Iteration: 2085; Percent complete: 52.1%; Average loss: nan
Iteration: 2086; Percent complete: 52.1%; Average loss: nan
Iteration: 2087; Percent complete: 52.2%; Average loss: nan
Iteration: 2088; Percent complete: 52.2%; Average loss: nan
Iteration: 2089; Percent complete: 52.2%; Average loss: nan
Iteration: 2090; Percent complete: 52.2%; Average loss: nan
Iteration: 2091; Percent complete: 52.3%; Average loss: nan
Iteration: 2092; Percent complete: 52.3%; Average loss: nan
Iteration: 2093; Percent complete: 52.3%; Average loss: nan
Iteration: 2094; Percent complete: 52.3%; Average loss: nan
Iteration: 2095; Percent complete: 52.4%; Average loss: nan
Iteration: 2096; Percent complete: 52.4%; Average loss: nan
Iteration: 2097; Percent complete: 52.4%; Average loss: nan
Iteration: 2098; Percent complete: 52.4%; Average loss: nan
Iteration: 2099; Percent complete: 52.5%; Average loss: nan
Iteration: 2100; Percent complete: 52.5%; Average loss: nan
Iteration: 2101; Percent complete: 52.5%; Average loss: nan
Iteration: 2102; Percent complete: 52.5%; Average loss: nan
Iteration: 2103; Percent complete: 52.6%; Average loss: nan
Iteration: 2104; Percent complete: 52.6%; Average loss: nan
Iteration: 2105; Percent complete: 52.6%; Average loss: nan
Iteration: 2106; Percent complete: 52.6%; Average loss: nan
Iteration: 2107; Percent complete: 52.7%; Average loss: nan
Iteration: 2108; Percent complete: 52.7%; Average loss: nan
Iteration: 2109; Percent complete: 52.7%; Average loss: nan
Iteration: 2110; Percent complete: 52.8%; Average loss: nan
Iteration: 2111; Percent complete: 52.8%; Average loss: nan
Iteration: 2112; Percent complete: 52.8%; Average loss: nan
Iteration: 2113; Percent complete: 52.8%; Average loss: nan
Iteration: 2114; Percent complete: 52.8%; Average loss: nan
Iteration: 2115; Percent complete: 52.9%; Average loss: nan
Iteration: 2116; Percent complete: 52.9%; Average loss: nan
Iteration: 2117; Percent complete: 52.9%; Average loss: nan
Iteration: 2118; Percent complete: 52.9%; Average loss: nan
Iteration: 2119; Percent complete: 53.0%; Average loss: nan
Iteration: 2120; Percent complete: 53.0%; Average loss: nan
Iteration: 2121; Percent complete: 53.0%; Average loss: nan
Iteration: 2122; Percent complete: 53.0%; Average loss: nan
Iteration: 2123; Percent complete: 53.1%; Average loss: nan
Iteration: 2124; Percent complete: 53.1%; Average loss: nan
```

```
Iteration: 2125; Percent complete: 53.1%; Average loss: nan
Iteration: 2126; Percent complete: 53.1%; Average loss: nan
Iteration: 2127; Percent complete: 53.2%; Average loss: nan
Iteration: 2128; Percent complete: 53.2%; Average loss: nan
Iteration: 2129; Percent complete: 53.2%; Average loss: nan
Iteration: 2130; Percent complete: 53.2%; Average loss: nan
Iteration: 2131; Percent complete: 53.3%; Average loss: nan
Iteration: 2132; Percent complete: 53.3%; Average loss: nan
Iteration: 2133; Percent complete: 53.3%; Average loss: nan
Iteration: 2134; Percent complete: 53.3%; Average loss: nan
Iteration: 2135; Percent complete: 53.4%; Average loss: nan
Iteration: 2136; Percent complete: 53.4%; Average loss: nan
Iteration: 2137; Percent complete: 53.4%; Average loss: nan
Iteration: 2138; Percent complete: 53.4%; Average loss: nan
Iteration: 2139; Percent complete: 53.5%; Average loss: nan
Iteration: 2140; Percent complete: 53.5%; Average loss: nan
Iteration: 2141; Percent complete: 53.5%; Average loss: nan
Iteration: 2142; Percent complete: 53.5%; Average loss: nan
Iteration: 2143; Percent complete: 53.6%; Average loss: nan
Iteration: 2144; Percent complete: 53.6%; Average loss: nan
Iteration: 2145; Percent complete: 53.6%; Average loss: nan
Iteration: 2146; Percent complete: 53.6%; Average loss: nan
Iteration: 2147; Percent complete: 53.7%; Average loss: nan
Iteration: 2148; Percent complete: 53.7%; Average loss: nan
Iteration: 2149; Percent complete: 53.7%; Average loss: nan
Iteration: 2150; Percent complete: 53.8%; Average loss: nan
Iteration: 2151; Percent complete: 53.8%; Average loss: nan
Iteration: 2152; Percent complete: 53.8%; Average loss: nan
Iteration: 2153; Percent complete: 53.8%; Average loss: nan
Iteration: 2154; Percent complete: 53.8%; Average loss: nan
Iteration: 2155; Percent complete: 53.9%; Average loss: nan
Iteration: 2156; Percent complete: 53.9%; Average loss: nan
Iteration: 2157; Percent complete: 53.9%; Average loss: nan
Iteration: 2158; Percent complete: 53.9%; Average loss: nan
Iteration: 2159; Percent complete: 54.0%; Average loss: nan
Iteration: 2160; Percent complete: 54.0%; Average loss: nan
Iteration: 2161; Percent complete: 54.0%; Average loss: nan
Iteration: 2162; Percent complete: 54.0%; Average loss: nan
Iteration: 2163; Percent complete: 54.1%; Average loss: nan
Iteration: 2164; Percent complete: 54.1%; Average loss: nan
Iteration: 2165; Percent complete: 54.1%; Average loss: nan
Iteration: 2166; Percent complete: 54.1%; Average loss: nan
Iteration: 2167; Percent complete: 54.2%; Average loss: nan
Iteration: 2168; Percent complete: 54.2%; Average loss: nan
Iteration: 2169; Percent complete: 54.2%; Average loss: nan
Iteration: 2170; Percent complete: 54.2%; Average loss: nan
Iteration: 2171; Percent complete: 54.3%; Average loss: nan
Iteration: 2172; Percent complete: 54.3%; Average loss: nan
Iteration: 2173; Percent complete: 54.3%; Average loss: nan
Iteration: 2174; Percent complete: 54.4%; Average loss: nan
Iteration: 2175; Percent complete: 54.4%; Average loss: nan
Iteration: 2176; Percent complete: 54.4%; Average loss: nan
Iteration: 2177; Percent complete: 54.4%; Average loss: nan
Iteration: 2178; Percent complete: 54.4%; Average loss: nan
Iteration: 2179; Percent complete: 54.5%; Average loss: nan
Iteration: 2180; Percent complete: 54.5%; Average loss: nan
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Iteration: 2181; Percent complete: 54.5%; Average loss: nan
Iteration: 2182; Percent complete: 54.5%; Average loss: nan
Iteration: 2183; Percent complete: 54.6%; Average loss: nan
Iteration: 2184; Percent complete: 54.6%; Average loss: nan
Iteration: 2185; Percent complete: 54.6%; Average loss: nan
Iteration: 2186; Percent complete: 54.6%; Average loss: nan
Iteration: 2187; Percent complete: 54.7%; Average loss: nan
Iteration: 2188; Percent complete: 54.7%; Average loss: nan
Iteration: 2189; Percent complete: 54.7%; Average loss: nan
Iteration: 2190; Percent complete: 54.8%; Average loss: nan
Iteration: 2191; Percent complete: 54.8%; Average loss: nan
Iteration: 2192; Percent complete: 54.8%; Average loss: nan
Iteration: 2193; Percent complete: 54.8%; Average loss: nan
Iteration: 2194; Percent complete: 54.9%; Average loss: nan
Iteration: 2195; Percent complete: 54.9%; Average loss: nan
Iteration: 2196; Percent complete: 54.9%; Average loss: nan
Iteration: 2197; Percent complete: 54.9%; Average loss: nan
Iteration: 2198; Percent complete: 54.9%; Average loss: nan
Iteration: 2199; Percent complete: 55.0%; Average loss: nan
Iteration: 2200; Percent complete: 55.0%; Average loss: nan
Iteration: 2201; Percent complete: 55.0%; Average loss: nan
Iteration: 2202; Percent complete: 55.0%; Average loss: nan
Iteration: 2203; Percent complete: 55.1%; Average loss: nan
Iteration: 2204; Percent complete: 55.1%; Average loss: nan
Iteration: 2205; Percent complete: 55.1%; Average loss: nan
Iteration: 2206; Percent complete: 55.1%; Average loss: nan
Iteration: 2207; Percent complete: 55.2%; Average loss: nan
Iteration: 2208; Percent complete: 55.2%; Average loss: nan
Iteration: 2209; Percent complete: 55.2%; Average loss: nan
Iteration: 2210; Percent complete: 55.2%; Average loss: nan
Iteration: 2211; Percent complete: 55.3%; Average loss: nan
Iteration: 2212; Percent complete: 55.3%; Average loss: nan
Iteration: 2213; Percent complete: 55.3%; Average loss: nan
Iteration: 2214; Percent complete: 55.4%; Average loss: nan
Iteration: 2215; Percent complete: 55.4%; Average loss: nan
Iteration: 2216; Percent complete: 55.4%; Average loss: nan
Iteration: 2217; Percent complete: 55.4%; Average loss: nan
Iteration: 2218; Percent complete: 55.5%; Average loss: nan
Iteration: 2219; Percent complete: 55.5%; Average loss: nan
Iteration: 2220; Percent complete: 55.5%; Average loss: nan
Iteration: 2221; Percent complete: 55.5%; Average loss: nan
Iteration: 2222; Percent complete: 55.5%; Average loss: nan
Iteration: 2223; Percent complete: 55.6%; Average loss: nan
Iteration: 2224; Percent complete: 55.6%; Average loss: nan
Iteration: 2225; Percent complete: 55.6%; Average loss: nan
Iteration: 2226; Percent complete: 55.6%; Average loss: nan
Iteration: 2227; Percent complete: 55.7%; Average loss: nan
Iteration: 2228; Percent complete: 55.7%; Average loss: nan
Iteration: 2229; Percent complete: 55.7%; Average loss: nan
Iteration: 2230; Percent complete: 55.8%; Average loss: nan
Iteration: 2231; Percent complete: 55.8%; Average loss: nan
Iteration: 2232; Percent complete: 55.8%; Average loss: nan
Iteration: 2233; Percent complete: 55.8%; Average loss: nan
Iteration: 2234; Percent complete: 55.9%; Average loss: nan
Iteration: 2235; Percent complete: 55.9%; Average loss: nan
Iteration: 2236; Percent complete: 55.9%; Average loss: nan
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Iteration: 2237; Percent complete: 55.9%; Average loss: nan
Iteration: 2238; Percent complete: 56.0%; Average loss: nan
Iteration: 2239; Percent complete: 56.0%; Average loss: nan
Iteration: 2240; Percent complete: 56.0%; Average loss: nan
Iteration: 2241; Percent complete: 56.0%; Average loss: nan
Iteration: 2242; Percent complete: 56.0%; Average loss: nan
Iteration: 2243; Percent complete: 56.1%; Average loss: nan
Iteration: 2244; Percent complete: 56.1%; Average loss: nan
Iteration: 2245; Percent complete: 56.1%; Average loss: nan
Iteration: 2246; Percent complete: 56.1%; Average loss: nan
Iteration: 2247; Percent complete: 56.2%; Average loss: nan
Iteration: 2248; Percent complete: 56.2%; Average loss: nan
Iteration: 2249; Percent complete: 56.2%; Average loss: nan
Iteration: 2250; Percent complete: 56.2%; Average loss: nan
Iteration: 2251; Percent complete: 56.3%; Average loss: nan
Iteration: 2252; Percent complete: 56.3%; Average loss: nan
Iteration: 2253; Percent complete: 56.3%; Average loss: nan
Iteration: 2254; Percent complete: 56.4%; Average loss: nan
Iteration: 2255; Percent complete: 56.4%; Average loss: nan
Iteration: 2256; Percent complete: 56.4%; Average loss: nan
Iteration: 2257; Percent complete: 56.4%; Average loss: nan
Iteration: 2258; Percent complete: 56.5%; Average loss: nan
Iteration: 2259; Percent complete: 56.5%; Average loss: nan
Iteration: 2260; Percent complete: 56.5%; Average loss: nan
Iteration: 2261; Percent complete: 56.5%; Average loss: nan
Iteration: 2262; Percent complete: 56.5%; Average loss: nan
Iteration: 2263; Percent complete: 56.6%; Average loss: nan
Iteration: 2264; Percent complete: 56.6%; Average loss: nan
Iteration: 2265; Percent complete: 56.6%; Average loss: nan
Iteration: 2266; Percent complete: 56.6%; Average loss: nan
Iteration: 2267; Percent complete: 56.7%; Average loss: nan
Iteration: 2268; Percent complete: 56.7%; Average loss: nan
Iteration: 2269; Percent complete: 56.7%; Average loss: nan
Iteration: 2270; Percent complete: 56.8%; Average loss: nan
Iteration: 2271; Percent complete: 56.8%; Average loss: nan
Iteration: 2272; Percent complete: 56.8%; Average loss: nan
Iteration: 2273; Percent complete: 56.8%; Average loss: nan
Iteration: 2274; Percent complete: 56.9%; Average loss: nan
Iteration: 2275; Percent complete: 56.9%; Average loss: nan
Iteration: 2276; Percent complete: 56.9%; Average loss: nan
Iteration: 2277; Percent complete: 56.9%; Average loss: nan
Iteration: 2278; Percent complete: 57.0%; Average loss: nan
Iteration: 2279; Percent complete: 57.0%; Average loss: nan
Iteration: 2280; Percent complete: 57.0%; Average loss: nan
Iteration: 2281; Percent complete: 57.0%; Average loss: nan
Iteration: 2282; Percent complete: 57.0%; Average loss: nan
Iteration: 2283; Percent complete: 57.1%; Average loss: nan
Iteration: 2284; Percent complete: 57.1%; Average loss: nan
Iteration: 2285; Percent complete: 57.1%; Average loss: nan
Iteration: 2286; Percent complete: 57.1%; Average loss: nan
Iteration: 2287; Percent complete: 57.2%; Average loss: nan
Iteration: 2288; Percent complete: 57.2%; Average loss: nan
Iteration: 2289; Percent complete: 57.2%; Average loss: nan
Iteration: 2290; Percent complete: 57.2%; Average loss: nan
Iteration: 2291; Percent complete: 57.3%; Average loss: nan
Iteration: 2292; Percent complete: 57.3%; Average loss: nan
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Iteration: 2293; Percent complete: 57.3%; Average loss: nan
Iteration: 2294; Percent complete: 57.4%; Average loss: nan
Iteration: 2295; Percent complete: 57.4%; Average loss: nan
Iteration: 2296; Percent complete: 57.4%; Average loss: nan
Iteration: 2297; Percent complete: 57.4%; Average loss: nan
Iteration: 2298; Percent complete: 57.5%; Average loss: nan
Iteration: 2299; Percent complete: 57.5%; Average loss: nan
Iteration: 2300; Percent complete: 57.5%; Average loss: nan
Iteration: 2301; Percent complete: 57.5%; Average loss: nan
Iteration: 2302; Percent complete: 57.6%; Average loss: nan
Iteration: 2303; Percent complete: 57.6%; Average loss: nan
Iteration: 2304; Percent complete: 57.6%; Average loss: nan
Iteration: 2305; Percent complete: 57.6%; Average loss: nan
Iteration: 2306; Percent complete: 57.6%; Average loss: nan
Iteration: 2307; Percent complete: 57.7%; Average loss: nan
Iteration: 2308; Percent complete: 57.7%; Average loss: nan
Iteration: 2309; Percent complete: 57.7%; Average loss: nan
Iteration: 2310; Percent complete: 57.8%; Average loss: nan
Iteration: 2311; Percent complete: 57.8%; Average loss: nan
Iteration: 2312; Percent complete: 57.8%; Average loss: nan
Iteration: 2313; Percent complete: 57.8%; Average loss: nan
Iteration: 2314; Percent complete: 57.9%; Average loss: nan
Iteration: 2315; Percent complete: 57.9%; Average loss: nan
Iteration: 2316; Percent complete: 57.9%; Average loss: nan
Iteration: 2317; Percent complete: 57.9%; Average loss: nan
Iteration: 2318; Percent complete: 58.0%; Average loss: nan
Iteration: 2319; Percent complete: 58.0%; Average loss: nan
Iteration: 2320; Percent complete: 58.0%; Average loss: nan
Iteration: 2321; Percent complete: 58.0%; Average loss: nan
Iteration: 2322; Percent complete: 58.1%; Average loss: nan
Iteration: 2323; Percent complete: 58.1%; Average loss: nan
Iteration: 2324; Percent complete: 58.1%; Average loss: nan
Iteration: 2325; Percent complete: 58.1%; Average loss: nan
Iteration: 2326; Percent complete: 58.1%; Average loss: nan
Iteration: 2327; Percent complete: 58.2%; Average loss: nan
Iteration: 2328; Percent complete: 58.2%; Average loss: nan
Iteration: 2329; Percent complete: 58.2%; Average loss: nan
Iteration: 2330; Percent complete: 58.2%; Average loss: nan
Iteration: 2331; Percent complete: 58.3%; Average loss: nan
Iteration: 2332; Percent complete: 58.3%; Average loss: nan
Iteration: 2333; Percent complete: 58.3%; Average loss: nan
Iteration: 2334; Percent complete: 58.4%; Average loss: nan
Iteration: 2335; Percent complete: 58.4%; Average loss: nan
Iteration: 2336; Percent complete: 58.4%; Average loss: nan
Iteration: 2337; Percent complete: 58.4%; Average loss: nan
Iteration: 2338; Percent complete: 58.5%; Average loss: nan
Iteration: 2339; Percent complete: 58.5%; Average loss: nan
Iteration: 2340; Percent complete: 58.5%; Average loss: nan
Iteration: 2341; Percent complete: 58.5%; Average loss: nan
Iteration: 2342; Percent complete: 58.6%; Average loss: nan
Iteration: 2343; Percent complete: 58.6%; Average loss: nan
Iteration: 2344; Percent complete: 58.6%; Average loss: nan
Iteration: 2345; Percent complete: 58.6%; Average loss: nan
Iteration: 2346; Percent complete: 58.7%; Average loss: nan
Iteration: 2347; Percent complete: 58.7%; Average loss: nan
Iteration: 2348; Percent complete: 58.7%; Average loss: nan
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```
Iteration: 2349; Percent complete: 58.7%; Average loss: nan
Iteration: 2350; Percent complete: 58.8%; Average loss: nan
Iteration: 2351; Percent complete: 58.8%; Average loss: nan
Iteration: 2352; Percent complete: 58.8%; Average loss: nan
Iteration: 2353; Percent complete: 58.8%; Average loss: nan
Iteration: 2354; Percent complete: 58.9%; Average loss: nan
Iteration: 2355; Percent complete: 58.9%; Average loss: nan
Iteration: 2356; Percent complete: 58.9%; Average loss: nan
Iteration: 2357; Percent complete: 58.9%; Average loss: nan
Iteration: 2358; Percent complete: 59.0%; Average loss: nan
Iteration: 2359; Percent complete: 59.0%; Average loss: nan
Iteration: 2360; Percent complete: 59.0%; Average loss: nan
Iteration: 2361; Percent complete: 59.0%; Average loss: nan
Iteration: 2362; Percent complete: 59.1%; Average loss: nan
Iteration: 2363; Percent complete: 59.1%; Average loss: nan
Iteration: 2364; Percent complete: 59.1%; Average loss: nan
Iteration: 2365; Percent complete: 59.1%; Average loss: nan
Iteration: 2366; Percent complete: 59.2%; Average loss: nan
Iteration: 2367; Percent complete: 59.2%; Average loss: nan
Iteration: 2368; Percent complete: 59.2%; Average loss: nan
Iteration: 2369; Percent complete: 59.2%; Average loss: nan
Iteration: 2370; Percent complete: 59.2%; Average loss: nan
Iteration: 2371; Percent complete: 59.3%; Average loss: nan
Iteration: 2372; Percent complete: 59.3%; Average loss: nan
Iteration: 2373; Percent complete: 59.3%; Average loss: nan
Iteration: 2374; Percent complete: 59.4%; Average loss: nan
Iteration: 2375; Percent complete: 59.4%; Average loss: nan
Iteration: 2376; Percent complete: 59.4%; Average loss: nan
Iteration: 2377; Percent complete: 59.4%; Average loss: nan
Iteration: 2378; Percent complete: 59.5%; Average loss: nan
Iteration: 2379; Percent complete: 59.5%; Average loss: nan
Iteration: 2380; Percent complete: 59.5%; Average loss: nan
Iteration: 2381; Percent complete: 59.5%; Average loss: nan
Iteration: 2382; Percent complete: 59.6%; Average loss: nan
Iteration: 2383; Percent complete: 59.6%; Average loss: nan
Iteration: 2384; Percent complete: 59.6%; Average loss: nan
Iteration: 2385; Percent complete: 59.6%; Average loss: nan
Iteration: 2386; Percent complete: 59.7%; Average loss: nan
Iteration: 2387; Percent complete: 59.7%; Average loss: nan
Iteration: 2388; Percent complete: 59.7%; Average loss: nan
Iteration: 2389; Percent complete: 59.7%; Average loss: nan
Iteration: 2390; Percent complete: 59.8%; Average loss: nan
Iteration: 2391; Percent complete: 59.8%; Average loss: nan
Iteration: 2392; Percent complete: 59.8%; Average loss: nan
Iteration: 2393; Percent complete: 59.8%; Average loss: nan
Iteration: 2394; Percent complete: 59.9%; Average loss: nan
Iteration: 2395; Percent complete: 59.9%; Average loss: nan
Iteration: 2396; Percent complete: 59.9%; Average loss: nan
Iteration: 2397; Percent complete: 59.9%; Average loss: nan
Iteration: 2398; Percent complete: 60.0%; Average loss: nan
Iteration: 2399; Percent complete: 60.0%; Average loss: nan
Iteration: 2400; Percent complete: 60.0%; Average loss: nan
Iteration: 2401; Percent complete: 60.0%; Average loss: nan
Iteration: 2402; Percent complete: 60.1%; Average loss: nan
Iteration: 2403; Percent complete: 60.1%; Average loss: nan
Iteration: 2404; Percent complete: 60.1%; Average loss: nan
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Iteration: 2405; Percent complete: 60.1%; Average loss: nan
Iteration: 2406; Percent complete: 60.2%; Average loss: nan
Iteration: 2407; Percent complete: 60.2%; Average loss: nan
Iteration: 2408; Percent complete: 60.2%; Average loss: nan
Iteration: 2409; Percent complete: 60.2%; Average loss: nan
Iteration: 2410; Percent complete: 60.2%; Average loss: nan
Iteration: 2411; Percent complete: 60.3%; Average loss: nan
Iteration: 2412; Percent complete: 60.3%; Average loss: nan
Iteration: 2413; Percent complete: 60.3%; Average loss: nan
Iteration: 2414; Percent complete: 60.4%; Average loss: nan
Iteration: 2415; Percent complete: 60.4%; Average loss: nan
Iteration: 2416; Percent complete: 60.4%; Average loss: nan
Iteration: 2417; Percent complete: 60.4%; Average loss: nan
Iteration: 2418; Percent complete: 60.5%; Average loss: nan
Iteration: 2419; Percent complete: 60.5%; Average loss: nan
Iteration: 2420; Percent complete: 60.5%; Average loss: nan
Iteration: 2421; Percent complete: 60.5%; Average loss: nan
Iteration: 2422; Percent complete: 60.6%; Average loss: nan
Iteration: 2423; Percent complete: 60.6%; Average loss: nan
Iteration: 2424; Percent complete: 60.6%; Average loss: nan
Iteration: 2425; Percent complete: 60.6%; Average loss: nan
Iteration: 2426; Percent complete: 60.7%; Average loss: nan
Iteration: 2427; Percent complete: 60.7%; Average loss: nan
Iteration: 2428; Percent complete: 60.7%; Average loss: nan
Iteration: 2429; Percent complete: 60.7%; Average loss: nan
Iteration: 2430; Percent complete: 60.8%; Average loss: nan
Iteration: 2431; Percent complete: 60.8%; Average loss: nan
Iteration: 2432; Percent complete: 60.8%; Average loss: nan
Iteration: 2433; Percent complete: 60.8%; Average loss: nan
Iteration: 2434; Percent complete: 60.9%; Average loss: nan
Iteration: 2435; Percent complete: 60.9%; Average loss: nan
Iteration: 2436; Percent complete: 60.9%; Average loss: nan
Iteration: 2437; Percent complete: 60.9%; Average loss: nan
Iteration: 2438; Percent complete: 61.0%; Average loss: nan
Iteration: 2439; Percent complete: 61.0%; Average loss: nan
Iteration: 2440; Percent complete: 61.0%; Average loss: nan
Iteration: 2441; Percent complete: 61.0%; Average loss: nan
Iteration: 2442; Percent complete: 61.1%; Average loss: nan
Iteration: 2443; Percent complete: 61.1%; Average loss: nan
Iteration: 2444; Percent complete: 61.1%; Average loss: nan
Iteration: 2445; Percent complete: 61.1%; Average loss: nan
Iteration: 2446; Percent complete: 61.2%; Average loss: nan
Iteration: 2447; Percent complete: 61.2%; Average loss: nan
Iteration: 2448; Percent complete: 61.2%; Average loss: nan
Iteration: 2449; Percent complete: 61.2%; Average loss: nan
Iteration: 2450; Percent complete: 61.3%; Average loss: nan
Iteration: 2451; Percent complete: 61.3%; Average loss: nan
Iteration: 2452; Percent complete: 61.3%; Average loss: nan
Iteration: 2453; Percent complete: 61.3%; Average loss: nan
Iteration: 2454; Percent complete: 61.4%; Average loss: nan
Iteration: 2455; Percent complete: 61.4%; Average loss: nan
Iteration: 2456; Percent complete: 61.4%; Average loss: nan
Iteration: 2457; Percent complete: 61.4%; Average loss: nan
Iteration: 2458; Percent complete: 61.5%; Average loss: nan
Iteration: 2459; Percent complete: 61.5%; Average loss: nan
Iteration: 2460; Percent complete: 61.5%; Average loss: nan
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Iteration: 2461; Percent complete: 61.5%; Average loss: nan
Iteration: 2462; Percent complete: 61.6%; Average loss: nan
Iteration: 2463; Percent complete: 61.6%; Average loss: nan
Iteration: 2464; Percent complete: 61.6%; Average loss: nan
Iteration: 2465; Percent complete: 61.6%; Average loss: nan
Iteration: 2466; Percent complete: 61.7%; Average loss: nan
Iteration: 2467; Percent complete: 61.7%; Average loss: nan
Iteration: 2468; Percent complete: 61.7%; Average loss: nan
Iteration: 2469; Percent complete: 61.7%; Average loss: nan
Iteration: 2470; Percent complete: 61.8%; Average loss: nan
Iteration: 2471; Percent complete: 61.8%; Average loss: nan
Iteration: 2472; Percent complete: 61.8%; Average loss: nan
Iteration: 2473; Percent complete: 61.8%; Average loss: nan
Iteration: 2474; Percent complete: 61.9%; Average loss: nan
Iteration: 2475; Percent complete: 61.9%; Average loss: nan
Iteration: 2476; Percent complete: 61.9%; Average loss: nan
Iteration: 2477; Percent complete: 61.9%; Average loss: nan
Iteration: 2478; Percent complete: 62.0%; Average loss: nan
Iteration: 2479; Percent complete: 62.0%; Average loss: nan
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Iteration: 2481; Percent complete: 62.0%; Average loss: nan
Iteration: 2482; Percent complete: 62.1%; Average loss: nan
Iteration: 2483; Percent complete: 62.1%; Average loss: nan
Iteration: 2484; Percent complete: 62.1%; Average loss: nan
Iteration: 2485; Percent complete: 62.1%; Average loss: nan
Iteration: 2486; Percent complete: 62.2%; Average loss: nan
Iteration: 2487; Percent complete: 62.2%; Average loss: nan
Iteration: 2488; Percent complete: 62.2%; Average loss: nan
Iteration: 2489; Percent complete: 62.2%; Average loss: nan
Iteration: 2490; Percent complete: 62.3%; Average loss: nan
Iteration: 2491; Percent complete: 62.3%; Average loss: nan
Iteration: 2492; Percent complete: 62.3%; Average loss: nan
Iteration: 2493; Percent complete: 62.3%; Average loss: nan
Iteration: 2494; Percent complete: 62.4%; Average loss: nan
Iteration: 2495; Percent complete: 62.4%; Average loss: nan
Iteration: 2496; Percent complete: 62.4%; Average loss: nan
Iteration: 2497; Percent complete: 62.4%; Average loss: nan
Iteration: 2498; Percent complete: 62.5%; Average loss: nan
Iteration: 2499; Percent complete: 62.5%; Average loss: nan
Iteration: 2500; Percent complete: 62.5%; Average loss: nan
Iteration: 2501; Percent complete: 62.5%; Average loss: nan
Iteration: 2502; Percent complete: 62.5%; Average loss: nan
Iteration: 2503; Percent complete: 62.6%; Average loss: nan
Iteration: 2504; Percent complete: 62.6%; Average loss: nan
Iteration: 2505; Percent complete: 62.6%; Average loss: nan
Iteration: 2506; Percent complete: 62.6%; Average loss: nan
Iteration: 2507; Percent complete: 62.7%; Average loss: nan
Iteration: 2508; Percent complete: 62.7%; Average loss: nan
Iteration: 2509; Percent complete: 62.7%; Average loss: nan
Iteration: 2510; Percent complete: 62.7%; Average loss: nan
Iteration: 2511; Percent complete: 62.8%; Average loss: nan
Iteration: 2512; Percent complete: 62.8%; Average loss: nan
Iteration: 2513; Percent complete: 62.8%; Average loss: nan
Iteration: 2514; Percent complete: 62.8%; Average loss: nan
Iteration: 2515; Percent complete: 62.9%; Average loss: nan
Iteration: 2516; Percent complete: 62.9%; Average loss: nan
```

```
Iteration: 2517; Percent complete: 62.9%; Average loss: nan
Iteration: 2518; Percent complete: 62.9%; Average loss: nan
Iteration: 2519; Percent complete: 63.0%; Average loss: nan
Iteration: 2520; Percent complete: 63.0%; Average loss: nan
Iteration: 2521; Percent complete: 63.0%; Average loss: nan
Iteration: 2522; Percent complete: 63.0%; Average loss: nan
Iteration: 2523; Percent complete: 63.1%; Average loss: nan
Iteration: 2524; Percent complete: 63.1%; Average loss: nan
Iteration: 2525; Percent complete: 63.1%; Average loss: nan
Iteration: 2526; Percent complete: 63.1%; Average loss: nan
Iteration: 2527; Percent complete: 63.2%; Average loss: nan
Iteration: 2528; Percent complete: 63.2%; Average loss: nan
Iteration: 2529; Percent complete: 63.2%; Average loss: nan
Iteration: 2530; Percent complete: 63.2%; Average loss: nan
Iteration: 2531; Percent complete: 63.3%; Average loss: nan
Iteration: 2532; Percent complete: 63.3%; Average loss: nan
Iteration: 2533; Percent complete: 63.3%; Average loss: nan
Iteration: 2534; Percent complete: 63.3%; Average loss: nan
Iteration: 2535; Percent complete: 63.4%; Average loss: nan
Iteration: 2536; Percent complete: 63.4%; Average loss: nan
Iteration: 2537; Percent complete: 63.4%; Average loss: nan
Iteration: 2538; Percent complete: 63.4%; Average loss: nan
Iteration: 2539; Percent complete: 63.5%; Average loss: nan
Iteration: 2540; Percent complete: 63.5%; Average loss: nan
Iteration: 2541; Percent complete: 63.5%; Average loss: nan
Iteration: 2542; Percent complete: 63.5%; Average loss: nan
Iteration: 2543; Percent complete: 63.6%; Average loss: nan
Iteration: 2544; Percent complete: 63.6%; Average loss: nan
Iteration: 2545; Percent complete: 63.6%; Average loss: nan
Iteration: 2546; Percent complete: 63.6%; Average loss: nan
Iteration: 2547; Percent complete: 63.7%; Average loss: nan
Iteration: 2548; Percent complete: 63.7%; Average loss: nan
Iteration: 2549; Percent complete: 63.7%; Average loss: nan
Iteration: 2550; Percent complete: 63.7%; Average loss: nan
Iteration: 2551; Percent complete: 63.8%; Average loss: nan
Iteration: 2552; Percent complete: 63.8%; Average loss: nan
Iteration: 2553; Percent complete: 63.8%; Average loss: nan
Iteration: 2554; Percent complete: 63.8%; Average loss: nan
Iteration: 2555; Percent complete: 63.9%; Average loss: nan
Iteration: 2556; Percent complete: 63.9%; Average loss: nan
Iteration: 2557; Percent complete: 63.9%; Average loss: nan
Iteration: 2558; Percent complete: 63.9%; Average loss: nan
Iteration: 2559; Percent complete: 64.0%; Average loss: nan
Iteration: 2560; Percent complete: 64.0%; Average loss: nan
Iteration: 2561; Percent complete: 64.0%; Average loss: nan
Iteration: 2562; Percent complete: 64.0%; Average loss: nan
Iteration: 2563; Percent complete: 64.1%; Average loss: nan
Iteration: 2564; Percent complete: 64.1%; Average loss: nan
Iteration: 2565; Percent complete: 64.1%; Average loss: nan
Iteration: 2566; Percent complete: 64.1%; Average loss: nan
Iteration: 2567; Percent complete: 64.2%; Average loss: nan
Iteration: 2568; Percent complete: 64.2%; Average loss: nan
Iteration: 2569; Percent complete: 64.2%; Average loss: nan
Iteration: 2570; Percent complete: 64.2%; Average loss: nan
Iteration: 2571; Percent complete: 64.3%; Average loss: nan
Iteration: 2572; Percent complete: 64.3%; Average loss: nan
```

```
Iteration: 2573; Percent complete: 64.3%; Average loss: nan
Iteration: 2574; Percent complete: 64.3%; Average loss: nan
Iteration: 2575; Percent complete: 64.4%; Average loss: nan
Iteration: 2576; Percent complete: 64.4%; Average loss: nan
Iteration: 2577; Percent complete: 64.4%; Average loss: nan
Iteration: 2578; Percent complete: 64.5%; Average loss: nan
Iteration: 2579; Percent complete: 64.5%; Average loss: nan
Iteration: 2580; Percent complete: 64.5%; Average loss: nan
Iteration: 2581; Percent complete: 64.5%; Average loss: nan
Iteration: 2582; Percent complete: 64.5%; Average loss: nan
Iteration: 2583; Percent complete: 64.6%; Average loss: nan
Iteration: 2584; Percent complete: 64.6%; Average loss: nan
Iteration: 2585; Percent complete: 64.6%; Average loss: nan
Iteration: 2586; Percent complete: 64.6%; Average loss: nan
Iteration: 2587; Percent complete: 64.7%; Average loss: nan
Iteration: 2588; Percent complete: 64.7%; Average loss: nan
Iteration: 2589; Percent complete: 64.7%; Average loss: nan
Iteration: 2590; Percent complete: 64.8%; Average loss: nan
Iteration: 2591; Percent complete: 64.8%; Average loss: nan
Iteration: 2592; Percent complete: 64.8%; Average loss: nan
Iteration: 2593; Percent complete: 64.8%; Average loss: nan
Iteration: 2594; Percent complete: 64.8%; Average loss: nan
Iteration: 2595; Percent complete: 64.9%; Average loss: nan
Iteration: 2596; Percent complete: 64.9%; Average loss: nan
Iteration: 2597; Percent complete: 64.9%; Average loss: nan
Iteration: 2598; Percent complete: 65.0%; Average loss: nan
Iteration: 2599; Percent complete: 65.0%; Average loss: nan
Iteration: 2600; Percent complete: 65.0%; Average loss: nan
Iteration: 2601; Percent complete: 65.0%; Average loss: nan
Iteration: 2602; Percent complete: 65.0%; Average loss: nan
Iteration: 2603; Percent complete: 65.1%; Average loss: nan
Iteration: 2604; Percent complete: 65.1%; Average loss: nan
Iteration: 2605; Percent complete: 65.1%; Average loss: nan
Iteration: 2606; Percent complete: 65.1%; Average loss: nan
Iteration: 2607; Percent complete: 65.2%; Average loss: nan
Iteration: 2608; Percent complete: 65.2%; Average loss: nan
Iteration: 2609; Percent complete: 65.2%; Average loss: nan
Iteration: 2610; Percent complete: 65.2%; Average loss: nan
Iteration: 2611; Percent complete: 65.3%; Average loss: nan
Iteration: 2612; Percent complete: 65.3%; Average loss: nan
Iteration: 2613; Percent complete: 65.3%; Average loss: nan
Iteration: 2614; Percent complete: 65.3%; Average loss: nan
Iteration: 2615; Percent complete: 65.4%; Average loss: nan
Iteration: 2616; Percent complete: 65.4%; Average loss: nan
Iteration: 2617; Percent complete: 65.4%; Average loss: nan
Iteration: 2618; Percent complete: 65.5%; Average loss: nan
Iteration: 2619; Percent complete: 65.5%; Average loss: nan
Iteration: 2620; Percent complete: 65.5%; Average loss: nan
Iteration: 2621; Percent complete: 65.5%; Average loss: nan
Iteration: 2622; Percent complete: 65.5%; Average loss: nan
Iteration: 2623; Percent complete: 65.6%; Average loss: nan
Iteration: 2624; Percent complete: 65.6%; Average loss: nan
Iteration: 2625; Percent complete: 65.6%; Average loss: nan
Iteration: 2626; Percent complete: 65.6%; Average loss: nan
Iteration: 2627; Percent complete: 65.7%; Average loss: nan
Iteration: 2628; Percent complete: 65.7%; Average loss: nan
```

```
Iteration: 2629; Percent complete: 65.7%; Average loss: nan
Iteration: 2630; Percent complete: 65.8%; Average loss: nan
Iteration: 2631; Percent complete: 65.8%; Average loss: nan
Iteration: 2632; Percent complete: 65.8%; Average loss: nan
Iteration: 2633; Percent complete: 65.8%; Average loss: nan
Iteration: 2634; Percent complete: 65.8%; Average loss: nan
Iteration: 2635; Percent complete: 65.9%; Average loss: nan
Iteration: 2636; Percent complete: 65.9%; Average loss: nan
Iteration: 2637; Percent complete: 65.9%; Average loss: nan
Iteration: 2638; Percent complete: 66.0%; Average loss: nan
Iteration: 2639; Percent complete: 66.0%; Average loss: nan
Iteration: 2640; Percent complete: 66.0%; Average loss: nan
Iteration: 2641; Percent complete: 66.0%; Average loss: nan
Iteration: 2642; Percent complete: 66.0%; Average loss: nan
Iteration: 2643; Percent complete: 66.1%; Average loss: nan
Iteration: 2644; Percent complete: 66.1%; Average loss: nan
Iteration: 2645; Percent complete: 66.1%; Average loss: nan
Iteration: 2646; Percent complete: 66.1%; Average loss: nan
Iteration: 2647; Percent complete: 66.2%; Average loss: nan
Iteration: 2648; Percent complete: 66.2%; Average loss: nan
Iteration: 2649; Percent complete: 66.2%; Average loss: nan
Iteration: 2650; Percent complete: 66.2%; Average loss: nan
Iteration: 2651; Percent complete: 66.3%; Average loss: nan
Iteration: 2652; Percent complete: 66.3%; Average loss: nan
Iteration: 2653; Percent complete: 66.3%; Average loss: nan
Iteration: 2654; Percent complete: 66.3%; Average loss: nan
Iteration: 2655; Percent complete: 66.4%; Average loss: nan
Iteration: 2656; Percent complete: 66.4%; Average loss: nan
Iteration: 2657; Percent complete: 66.4%; Average loss: nan
Iteration: 2658; Percent complete: 66.5%; Average loss: nan
Iteration: 2659; Percent complete: 66.5%; Average loss: nan
Iteration: 2660; Percent complete: 66.5%; Average loss: nan
Iteration: 2661; Percent complete: 66.5%; Average loss: nan
Iteration: 2662; Percent complete: 66.5%; Average loss: nan
Iteration: 2663; Percent complete: 66.6%; Average loss: nan
Iteration: 2664; Percent complete: 66.6%; Average loss: nan
Iteration: 2665; Percent complete: 66.6%; Average loss: nan
Iteration: 2666; Percent complete: 66.6%; Average loss: nan
Iteration: 2667; Percent complete: 66.7%; Average loss: nan
Iteration: 2668; Percent complete: 66.7%; Average loss: nan
Iteration: 2669; Percent complete: 66.7%; Average loss: nan
Iteration: 2670; Percent complete: 66.8%; Average loss: nan
Iteration: 2671; Percent complete: 66.8%; Average loss: nan
Iteration: 2672; Percent complete: 66.8%; Average loss: nan
Iteration: 2673; Percent complete: 66.8%; Average loss: nan
Iteration: 2674; Percent complete: 66.8%; Average loss: nan
Iteration: 2675; Percent complete: 66.9%; Average loss: nan
Iteration: 2676; Percent complete: 66.9%; Average loss: nan
Iteration: 2677; Percent complete: 66.9%; Average loss: nan
Iteration: 2678; Percent complete: 67.0%; Average loss: nan
Iteration: 2679; Percent complete: 67.0%; Average loss: nan
Iteration: 2680; Percent complete: 67.0%; Average loss: nan
Iteration: 2681; Percent complete: 67.0%; Average loss: nan
Iteration: 2682; Percent complete: 67.0%; Average loss: nan
Iteration: 2683; Percent complete: 67.1%; Average loss: nan
Iteration: 2684; Percent complete: 67.1%; Average loss: nan
```

```
Iteration: 2685; Percent complete: 67.1%; Average loss: nan
Iteration: 2686; Percent complete: 67.2%; Average loss: nan
Iteration: 2687; Percent complete: 67.2%; Average loss: nan
Iteration: 2688; Percent complete: 67.2%; Average loss: nan
Iteration: 2689; Percent complete: 67.2%; Average loss: nan
Iteration: 2690; Percent complete: 67.2%; Average loss: nan
Iteration: 2691; Percent complete: 67.3%; Average loss: nan
Iteration: 2692; Percent complete: 67.3%; Average loss: nan
Iteration: 2693; Percent complete: 67.3%; Average loss: nan
Iteration: 2694; Percent complete: 67.3%; Average loss: nan
Iteration: 2695; Percent complete: 67.4%; Average loss: nan
Iteration: 2696; Percent complete: 67.4%; Average loss: nan
Iteration: 2697; Percent complete: 67.4%; Average loss: nan
Iteration: 2698; Percent complete: 67.5%; Average loss: nan
Iteration: 2699; Percent complete: 67.5%; Average loss: nan
Iteration: 2700; Percent complete: 67.5%; Average loss: nan
Iteration: 2701; Percent complete: 67.5%; Average loss: nan
Iteration: 2702; Percent complete: 67.5%; Average loss: nan
Iteration: 2703; Percent complete: 67.6%; Average loss: nan
Iteration: 2704; Percent complete: 67.6%; Average loss: nan
Iteration: 2705; Percent complete: 67.6%; Average loss: nan
Iteration: 2706; Percent complete: 67.7%; Average loss: nan
Iteration: 2707; Percent complete: 67.7%; Average loss: nan
Iteration: 2708; Percent complete: 67.7%; Average loss: nan
Iteration: 2709; Percent complete: 67.7%; Average loss: nan
Iteration: 2710; Percent complete: 67.8%; Average loss: nan
Iteration: 2711; Percent complete: 67.8%; Average loss: nan
Iteration: 2712; Percent complete: 67.8%; Average loss: nan
Iteration: 2713; Percent complete: 67.8%; Average loss: nan
Iteration: 2714; Percent complete: 67.8%; Average loss: nan
Iteration: 2715; Percent complete: 67.9%; Average loss: nan
Iteration: 2716; Percent complete: 67.9%; Average loss: nan
Iteration: 2717; Percent complete: 67.9%; Average loss: nan
Iteration: 2718; Percent complete: 68.0%; Average loss: nan
Iteration: 2719; Percent complete: 68.0%; Average loss: nan
Iteration: 2720; Percent complete: 68.0%; Average loss: nan
Iteration: 2721; Percent complete: 68.0%; Average loss: nan
Iteration: 2722; Percent complete: 68.0%; Average loss: nan
Iteration: 2723; Percent complete: 68.1%; Average loss: nan
Iteration: 2724; Percent complete: 68.1%; Average loss: nan
Iteration: 2725; Percent complete: 68.1%; Average loss: nan
Iteration: 2726; Percent complete: 68.2%; Average loss: nan
Iteration: 2727; Percent complete: 68.2%; Average loss: nan
Iteration: 2728; Percent complete: 68.2%; Average loss: nan
Iteration: 2729; Percent complete: 68.2%; Average loss: nan
Iteration: 2730; Percent complete: 68.2%; Average loss: nan
Iteration: 2731; Percent complete: 68.3%; Average loss: nan
Iteration: 2732; Percent complete: 68.3%; Average loss: nan
Iteration: 2733; Percent complete: 68.3%; Average loss: nan
Iteration: 2734; Percent complete: 68.3%; Average loss: nan
Iteration: 2735; Percent complete: 68.4%; Average loss: nan
Iteration: 2736; Percent complete: 68.4%; Average loss: nan
Iteration: 2737; Percent complete: 68.4%; Average loss: nan
Iteration: 2738; Percent complete: 68.5%; Average loss: nan
Iteration: 2739; Percent complete: 68.5%; Average loss: nan
Iteration: 2740; Percent complete: 68.5%; Average loss: nan
```

```
Iteration: 2741; Percent complete: 68.5%; Average loss: nan
Iteration: 2742; Percent complete: 68.5%; Average loss: nan
Iteration: 2743; Percent complete: 68.6%; Average loss: nan
Iteration: 2744; Percent complete: 68.6%; Average loss: nan
Iteration: 2745; Percent complete: 68.6%; Average loss: nan
Iteration: 2746; Percent complete: 68.7%; Average loss: nan
Iteration: 2747; Percent complete: 68.7%; Average loss: nan
Iteration: 2748; Percent complete: 68.7%; Average loss: nan
Iteration: 2749; Percent complete: 68.7%; Average loss: nan
Iteration: 2750; Percent complete: 68.8%; Average loss: nan
Iteration: 2751; Percent complete: 68.8%; Average loss: nan
Iteration: 2752; Percent complete: 68.8%; Average loss: nan
Iteration: 2753; Percent complete: 68.8%; Average loss: nan
Iteration: 2754; Percent complete: 68.8%; Average loss: nan
Iteration: 2755; Percent complete: 68.9%; Average loss: nan
Iteration: 2756; Percent complete: 68.9%; Average loss: nan
Iteration: 2757; Percent complete: 68.9%; Average loss: nan
Iteration: 2758; Percent complete: 69.0%; Average loss: nan
Iteration: 2759; Percent complete: 69.0%; Average loss: nan
Iteration: 2760; Percent complete: 69.0%; Average loss: nan
Iteration: 2761; Percent complete: 69.0%; Average loss: nan
Iteration: 2762; Percent complete: 69.0%; Average loss: nan
Iteration: 2763; Percent complete: 69.1%; Average loss: nan
Iteration: 2764; Percent complete: 69.1%; Average loss: nan
Iteration: 2765; Percent complete: 69.1%; Average loss: nan
Iteration: 2766; Percent complete: 69.2%; Average loss: nan
Iteration: 2767; Percent complete: 69.2%; Average loss: nan
Iteration: 2768; Percent complete: 69.2%; Average loss: nan
Iteration: 2769; Percent complete: 69.2%; Average loss: nan
Iteration: 2770; Percent complete: 69.2%; Average loss: nan
Iteration: 2771; Percent complete: 69.3%; Average loss: nan
Iteration: 2772; Percent complete: 69.3%; Average loss: nan
Iteration: 2773; Percent complete: 69.3%; Average loss: nan
Iteration: 2774; Percent complete: 69.3%; Average loss: nan
Iteration: 2775; Percent complete: 69.4%; Average loss: nan
Iteration: 2776; Percent complete: 69.4%; Average loss: nan
Iteration: 2777; Percent complete: 69.4%; Average loss: nan
Iteration: 2778; Percent complete: 69.5%; Average loss: nan
Iteration: 2779; Percent complete: 69.5%; Average loss: nan
Iteration: 2780; Percent complete: 69.5%; Average loss: nan
Iteration: 2781; Percent complete: 69.5%; Average loss: nan
Iteration: 2782; Percent complete: 69.5%; Average loss: nan
Iteration: 2783; Percent complete: 69.6%; Average loss: nan
Iteration: 2784; Percent complete: 69.6%; Average loss: nan
Iteration: 2785; Percent complete: 69.6%; Average loss: nan
Iteration: 2786; Percent complete: 69.7%; Average loss: nan
Iteration: 2787; Percent complete: 69.7%; Average loss: nan
Iteration: 2788; Percent complete: 69.7%; Average loss: nan
Iteration: 2789; Percent complete: 69.7%; Average loss: nan
Iteration: 2790; Percent complete: 69.8%; Average loss: nan
Iteration: 2791; Percent complete: 69.8%; Average loss: nan
Iteration: 2792; Percent complete: 69.8%; Average loss: nan
Iteration: 2793; Percent complete: 69.8%; Average loss: nan
Iteration: 2794; Percent complete: 69.8%; Average loss: nan
Iteration: 2795; Percent complete: 69.9%; Average loss: nan
Iteration: 2796; Percent complete: 69.9%; Average loss: nan
```

```
Iteration: 2797; Percent complete: 69.9%; Average loss: nan
Iteration: 2798; Percent complete: 70.0%; Average loss: nan
Iteration: 2799; Percent complete: 70.0%; Average loss: nan
Iteration: 2800; Percent complete: 70.0%; Average loss: nan
Iteration: 2801; Percent complete: 70.0%; Average loss: nan
Iteration: 2802; Percent complete: 70.0%; Average loss: nan
Iteration: 2803; Percent complete: 70.1%; Average loss: nan
Iteration: 2804; Percent complete: 70.1%; Average loss: nan
Iteration: 2805; Percent complete: 70.1%; Average loss: nan
Iteration: 2806; Percent complete: 70.2%; Average loss: nan
Iteration: 2807; Percent complete: 70.2%; Average loss: nan
Iteration: 2808; Percent complete: 70.2%; Average loss: nan
Iteration: 2809; Percent complete: 70.2%; Average loss: nan
Iteration: 2810; Percent complete: 70.2%; Average loss: nan
Iteration: 2811; Percent complete: 70.3%; Average loss: nan
Iteration: 2812; Percent complete: 70.3%; Average loss: nan
Iteration: 2813; Percent complete: 70.3%; Average loss: nan
Iteration: 2814; Percent complete: 70.3%; Average loss: nan
Iteration: 2815; Percent complete: 70.4%; Average loss: nan
Iteration: 2816; Percent complete: 70.4%; Average loss: nan
Iteration: 2817; Percent complete: 70.4%; Average loss: nan
Iteration: 2818; Percent complete: 70.5%; Average loss: nan
Iteration: 2819; Percent complete: 70.5%; Average loss: nan
Iteration: 2820; Percent complete: 70.5%; Average loss: nan
Iteration: 2821; Percent complete: 70.5%; Average loss: nan
Iteration: 2822; Percent complete: 70.5%; Average loss: nan
Iteration: 2823; Percent complete: 70.6%; Average loss: nan
Iteration: 2824; Percent complete: 70.6%; Average loss: nan
Iteration: 2825; Percent complete: 70.6%; Average loss: nan
Iteration: 2826; Percent complete: 70.7%; Average loss: nan
Iteration: 2827; Percent complete: 70.7%; Average loss: nan
Iteration: 2828; Percent complete: 70.7%; Average loss: nan
Iteration: 2829; Percent complete: 70.7%; Average loss: nan
Iteration: 2830; Percent complete: 70.8%; Average loss: nan
Iteration: 2831; Percent complete: 70.8%; Average loss: nan
Iteration: 2832; Percent complete: 70.8%; Average loss: nan
Iteration: 2833; Percent complete: 70.8%; Average loss: nan
Iteration: 2834; Percent complete: 70.9%; Average loss: nan
Iteration: 2835; Percent complete: 70.9%; Average loss: nan
Iteration: 2836; Percent complete: 70.9%; Average loss: nan
Iteration: 2837; Percent complete: 70.9%; Average loss: nan
Iteration: 2838; Percent complete: 71.0%; Average loss: nan
Iteration: 2839; Percent complete: 71.0%; Average loss: nan
Iteration: 2840; Percent complete: 71.0%; Average loss: nan
Iteration: 2841; Percent complete: 71.0%; Average loss: nan
Iteration: 2842; Percent complete: 71.0%; Average loss: nan
Iteration: 2843; Percent complete: 71.1%; Average loss: nan
Iteration: 2844; Percent complete: 71.1%; Average loss: nan
Iteration: 2845; Percent complete: 71.1%; Average loss: nan
Iteration: 2846; Percent complete: 71.2%; Average loss: nan
Iteration: 2847; Percent complete: 71.2%; Average loss: nan
Iteration: 2848; Percent complete: 71.2%; Average loss: nan
Iteration: 2849; Percent complete: 71.2%; Average loss: nan
Iteration: 2850; Percent complete: 71.2%; Average loss: nan
Iteration: 2851; Percent complete: 71.3%; Average loss: nan
Iteration: 2852; Percent complete: 71.3%; Average loss: nan
```

```
Iteration: 2853; Percent complete: 71.3%; Average loss: nan
Iteration: 2854; Percent complete: 71.4%; Average loss: nan
Iteration: 2855; Percent complete: 71.4%; Average loss: nan
Iteration: 2856; Percent complete: 71.4%; Average loss: nan
Iteration: 2857; Percent complete: 71.4%; Average loss: nan
Iteration: 2858; Percent complete: 71.5%; Average loss: nan
Iteration: 2859; Percent complete: 71.5%; Average loss: nan
Iteration: 2860; Percent complete: 71.5%; Average loss: nan
Iteration: 2861; Percent complete: 71.5%; Average loss: nan
Iteration: 2862; Percent complete: 71.5%; Average loss: nan
Iteration: 2863; Percent complete: 71.6%; Average loss: nan
Iteration: 2864; Percent complete: 71.6%; Average loss: nan
Iteration: 2865; Percent complete: 71.6%; Average loss: nan
Iteration: 2866; Percent complete: 71.7%; Average loss: nan
Iteration: 2867; Percent complete: 71.7%; Average loss: nan
Iteration: 2868; Percent complete: 71.7%; Average loss: nan
Iteration: 2869; Percent complete: 71.7%; Average loss: nan
Iteration: 2870; Percent complete: 71.8%; Average loss: nan
Iteration: 2871; Percent complete: 71.8%; Average loss: nan
Iteration: 2872; Percent complete: 71.8%; Average loss: nan
Iteration: 2873; Percent complete: 71.8%; Average loss: nan
Iteration: 2874; Percent complete: 71.9%; Average loss: nan
Iteration: 2875; Percent complete: 71.9%; Average loss: nan
Iteration: 2876; Percent complete: 71.9%; Average loss: nan
Iteration: 2877; Percent complete: 71.9%; Average loss: nan
Iteration: 2878; Percent complete: 72.0%; Average loss: nan
Iteration: 2879; Percent complete: 72.0%; Average loss: nan
Iteration: 2880; Percent complete: 72.0%; Average loss: nan
Iteration: 2881; Percent complete: 72.0%; Average loss: nan
Iteration: 2882; Percent complete: 72.0%; Average loss: nan
Iteration: 2883; Percent complete: 72.1%; Average loss: nan
Iteration: 2884; Percent complete: 72.1%; Average loss: nan
Iteration: 2885; Percent complete: 72.1%; Average loss: nan
Iteration: 2886; Percent complete: 72.2%; Average loss: nan
Iteration: 2887; Percent complete: 72.2%; Average loss: nan
Iteration: 2888; Percent complete: 72.2%; Average loss: nan
Iteration: 2889; Percent complete: 72.2%; Average loss: nan
Iteration: 2890; Percent complete: 72.2%; Average loss: nan
Iteration: 2891; Percent complete: 72.3%; Average loss: nan
Iteration: 2892; Percent complete: 72.3%; Average loss: nan
Iteration: 2893; Percent complete: 72.3%; Average loss: nan
Iteration: 2894; Percent complete: 72.4%; Average loss: nan
Iteration: 2895; Percent complete: 72.4%; Average loss: nan
Iteration: 2896; Percent complete: 72.4%; Average loss: nan
Iteration: 2897; Percent complete: 72.4%; Average loss: nan
Iteration: 2898; Percent complete: 72.5%; Average loss: nan
Iteration: 2899; Percent complete: 72.5%; Average loss: nan
Iteration: 2900; Percent complete: 72.5%; Average loss: nan
Iteration: 2901; Percent complete: 72.5%; Average loss: nan
Iteration: 2902; Percent complete: 72.5%; Average loss: nan
Iteration: 2903; Percent complete: 72.6%; Average loss: nan
Iteration: 2904; Percent complete: 72.6%; Average loss: nan
Iteration: 2905; Percent complete: 72.6%; Average loss: nan
Iteration: 2906; Percent complete: 72.7%; Average loss: nan
Iteration: 2907; Percent complete: 72.7%; Average loss: nan
Iteration: 2908; Percent complete: 72.7%; Average loss: nan
```

```
Iteration: 2909; Percent complete: 72.7%; Average loss: nan
Iteration: 2910; Percent complete: 72.8%; Average loss: nan
Iteration: 2911; Percent complete: 72.8%; Average loss: nan
Iteration: 2912; Percent complete: 72.8%; Average loss: nan
Iteration: 2913; Percent complete: 72.8%; Average loss: nan
Iteration: 2914; Percent complete: 72.9%; Average loss: nan
Iteration: 2915; Percent complete: 72.9%; Average loss: nan
Iteration: 2916; Percent complete: 72.9%; Average loss: nan
Iteration: 2917; Percent complete: 72.9%; Average loss: nan
Iteration: 2918; Percent complete: 73.0%; Average loss: nan
Iteration: 2919; Percent complete: 73.0%; Average loss: nan
Iteration: 2920; Percent complete: 73.0%; Average loss: nan
Iteration: 2921; Percent complete: 73.0%; Average loss: nan
Iteration: 2922; Percent complete: 73.0%; Average loss: nan
Iteration: 2923; Percent complete: 73.1%; Average loss: nan
Iteration: 2924; Percent complete: 73.1%; Average loss: nan
Iteration: 2925; Percent complete: 73.1%; Average loss: nan
Iteration: 2926; Percent complete: 73.2%; Average loss: nan
Iteration: 2927; Percent complete: 73.2%; Average loss: nan
Iteration: 2928; Percent complete: 73.2%; Average loss: nan
Iteration: 2929; Percent complete: 73.2%; Average loss: nan
Iteration: 2930; Percent complete: 73.2%; Average loss: nan
Iteration: 2931; Percent complete: 73.3%; Average loss: nan
Iteration: 2932; Percent complete: 73.3%; Average loss: nan
Iteration: 2933; Percent complete: 73.3%; Average loss: nan
Iteration: 2934; Percent complete: 73.4%; Average loss: nan
Iteration: 2935; Percent complete: 73.4%; Average loss: nan
Iteration: 2936; Percent complete: 73.4%; Average loss: nan
Iteration: 2937; Percent complete: 73.4%; Average loss: nan
Iteration: 2938; Percent complete: 73.5%; Average loss: nan
Iteration: 2939; Percent complete: 73.5%; Average loss: nan
Iteration: 2940; Percent complete: 73.5%; Average loss: nan
Iteration: 2941; Percent complete: 73.5%; Average loss: nan
Iteration: 2942; Percent complete: 73.6%; Average loss: nan
Iteration: 2943; Percent complete: 73.6%; Average loss: nan
Iteration: 2944; Percent complete: 73.6%; Average loss: nan
Iteration: 2945; Percent complete: 73.6%; Average loss: nan
Iteration: 2946; Percent complete: 73.7%; Average loss: nan
Iteration: 2947; Percent complete: 73.7%; Average loss: nan
Iteration: 2948; Percent complete: 73.7%; Average loss: nan
Iteration: 2949; Percent complete: 73.7%; Average loss: nan
Iteration: 2950; Percent complete: 73.8%; Average loss: nan
Iteration: 2951; Percent complete: 73.8%; Average loss: nan
Iteration: 2952; Percent complete: 73.8%; Average loss: nan
Iteration: 2953; Percent complete: 73.8%; Average loss: nan
Iteration: 2954; Percent complete: 73.9%; Average loss: nan
Iteration: 2955; Percent complete: 73.9%; Average loss: nan
Iteration: 2956; Percent complete: 73.9%; Average loss: nan
Iteration: 2957; Percent complete: 73.9%; Average loss: nan
Iteration: 2958; Percent complete: 74.0%; Average loss: nan
Iteration: 2959; Percent complete: 74.0%; Average loss: nan
Iteration: 2960; Percent complete: 74.0%; Average loss: nan
Iteration: 2961; Percent complete: 74.0%; Average loss: nan
Iteration: 2962; Percent complete: 74.1%; Average loss: nan
Iteration: 2963; Percent complete: 74.1%; Average loss: nan
Iteration: 2964; Percent complete: 74.1%; Average loss: nan
```

```
Iteration: 2965; Percent complete: 74.1%; Average loss: nan
Iteration: 2966; Percent complete: 74.2%; Average loss: nan
Iteration: 2967; Percent complete: 74.2%; Average loss: nan
Iteration: 2968; Percent complete: 74.2%; Average loss: nan
Iteration: 2969; Percent complete: 74.2%; Average loss: nan
Iteration: 2970; Percent complete: 74.2%; Average loss: nan
Iteration: 2971; Percent complete: 74.3%; Average loss: nan
Iteration: 2972; Percent complete: 74.3%; Average loss: nan
Iteration: 2973; Percent complete: 74.3%; Average loss: nan
Iteration: 2974; Percent complete: 74.4%; Average loss: nan
Iteration: 2975; Percent complete: 74.4%; Average loss: nan
Iteration: 2976; Percent complete: 74.4%; Average loss: nan
Iteration: 2977; Percent complete: 74.4%; Average loss: nan
Iteration: 2978; Percent complete: 74.5%; Average loss: nan
Iteration: 2979; Percent complete: 74.5%; Average loss: nan
Iteration: 2980; Percent complete: 74.5%; Average loss: nan
Iteration: 2981; Percent complete: 74.5%; Average loss: nan
Iteration: 2982; Percent complete: 74.6%; Average loss: nan
Iteration: 2983; Percent complete: 74.6%; Average loss: nan
Iteration: 2984; Percent complete: 74.6%; Average loss: nan
Iteration: 2985; Percent complete: 74.6%; Average loss: nan
Iteration: 2986; Percent complete: 74.7%; Average loss: nan
Iteration: 2987; Percent complete: 74.7%; Average loss: nan
Iteration: 2988; Percent complete: 74.7%; Average loss: nan
Iteration: 2989; Percent complete: 74.7%; Average loss: nan
Iteration: 2990; Percent complete: 74.8%; Average loss: nan
Iteration: 2991; Percent complete: 74.8%; Average loss: nan
Iteration: 2992; Percent complete: 74.8%; Average loss: nan
Iteration: 2993; Percent complete: 74.8%; Average loss: nan
Iteration: 2994; Percent complete: 74.9%; Average loss: nan
Iteration: 2995; Percent complete: 74.9%; Average loss: nan
Iteration: 2996; Percent complete: 74.9%; Average loss: nan
Iteration: 2997; Percent complete: 74.9%; Average loss: nan
Iteration: 2998; Percent complete: 75.0%; Average loss: nan
Iteration: 2999; Percent complete: 75.0%; Average loss: nan
Iteration: 3000; Percent complete: 75.0%; Average loss: nan
Iteration: 3001; Percent complete: 75.0%; Average loss: nan
Iteration: 3002; Percent complete: 75.0%; Average loss: nan
Iteration: 3003; Percent complete: 75.1%; Average loss: nan
Iteration: 3004; Percent complete: 75.1%; Average loss: nan
Iteration: 3005; Percent complete: 75.1%; Average loss: nan
Iteration: 3006; Percent complete: 75.1%; Average loss: nan
Iteration: 3007; Percent complete: 75.2%; Average loss: nan
Iteration: 3008; Percent complete: 75.2%; Average loss: nan
Iteration: 3009; Percent complete: 75.2%; Average loss: nan
Iteration: 3010; Percent complete: 75.2%; Average loss: nan
Iteration: 3011; Percent complete: 75.3%; Average loss: nan
Iteration: 3012; Percent complete: 75.3%; Average loss: nan
Iteration: 3013; Percent complete: 75.3%; Average loss: nan
Iteration: 3014; Percent complete: 75.3%; Average loss: nan
Iteration: 3015; Percent complete: 75.4%; Average loss: nan
Iteration: 3016; Percent complete: 75.4%; Average loss: nan
Iteration: 3017; Percent complete: 75.4%; Average loss: nan
Iteration: 3018; Percent complete: 75.4%; Average loss: nan
Iteration: 3019; Percent complete: 75.5%; Average loss: nan
Iteration: 3020; Percent complete: 75.5%; Average loss: nan
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Iteration: 3021; Percent complete: 75.5%; Average loss: nan
Iteration: 3022; Percent complete: 75.5%; Average loss: nan
Iteration: 3023; Percent complete: 75.6%; Average loss: nan
Iteration: 3024; Percent complete: 75.6%; Average loss: nan
Iteration: 3025; Percent complete: 75.6%; Average loss: nan
Iteration: 3026; Percent complete: 75.6%; Average loss: nan
Iteration: 3027; Percent complete: 75.7%; Average loss: nan
Iteration: 3028; Percent complete: 75.7%; Average loss: nan
Iteration: 3029; Percent complete: 75.7%; Average loss: nan
Iteration: 3030; Percent complete: 75.8%; Average loss: nan
Iteration: 3031; Percent complete: 75.8%; Average loss: nan
Iteration: 3032; Percent complete: 75.8%; Average loss: nan
Iteration: 3033; Percent complete: 75.8%; Average loss: nan
Iteration: 3034; Percent complete: 75.8%; Average loss: nan
Iteration: 3035; Percent complete: 75.9%; Average loss: nan
Iteration: 3036; Percent complete: 75.9%; Average loss: nan
Iteration: 3037; Percent complete: 75.9%; Average loss: nan
Iteration: 3038; Percent complete: 75.9%; Average loss: nan
Iteration: 3039; Percent complete: 76.0%; Average loss: nan
Iteration: 3040; Percent complete: 76.0%; Average loss: nan
Iteration: 3041; Percent complete: 76.0%; Average loss: nan
Iteration: 3042; Percent complete: 76.0%; Average loss: nan
Iteration: 3043; Percent complete: 76.1%; Average loss: nan
Iteration: 3044; Percent complete: 76.1%; Average loss: nan
Iteration: 3045; Percent complete: 76.1%; Average loss: nan
Iteration: 3046; Percent complete: 76.1%; Average loss: nan
Iteration: 3047; Percent complete: 76.2%; Average loss: nan
Iteration: 3048; Percent complete: 76.2%; Average loss: nan
Iteration: 3049; Percent complete: 76.2%; Average loss: nan
Iteration: 3050; Percent complete: 76.2%; Average loss: nan
Iteration: 3051; Percent complete: 76.3%; Average loss: nan
Iteration: 3052; Percent complete: 76.3%; Average loss: nan
Iteration: 3053; Percent complete: 76.3%; Average loss: nan
Iteration: 3054; Percent complete: 76.3%; Average loss: nan
Iteration: 3055; Percent complete: 76.4%; Average loss: nan
Iteration: 3056; Percent complete: 76.4%; Average loss: nan
Iteration: 3057; Percent complete: 76.4%; Average loss: nan
Iteration: 3058; Percent complete: 76.4%; Average loss: nan
Iteration: 3059; Percent complete: 76.5%; Average loss: nan
Iteration: 3060; Percent complete: 76.5%; Average loss: nan
Iteration: 3061; Percent complete: 76.5%; Average loss: nan
Iteration: 3062; Percent complete: 76.5%; Average loss: nan
Iteration: 3063; Percent complete: 76.6%; Average loss: nan
Iteration: 3064; Percent complete: 76.6%; Average loss: nan
Iteration: 3065; Percent complete: 76.6%; Average loss: nan
Iteration: 3066; Percent complete: 76.6%; Average loss: nan
Iteration: 3067; Percent complete: 76.7%; Average loss: nan
Iteration: 3068; Percent complete: 76.7%; Average loss: nan
Iteration: 3069; Percent complete: 76.7%; Average loss: nan
Iteration: 3070; Percent complete: 76.8%; Average loss: nan
Iteration: 3071; Percent complete: 76.8%; Average loss: nan
Iteration: 3072; Percent complete: 76.8%; Average loss: nan
Iteration: 3073; Percent complete: 76.8%; Average loss: nan
Iteration: 3074; Percent complete: 76.8%; Average loss: nan
Iteration: 3075; Percent complete: 76.9%; Average loss: nan
Iteration: 3076; Percent complete: 76.9%; Average loss: nan
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Iteration: 3077; Percent complete: 76.9%; Average loss: nan
Iteration: 3078; Percent complete: 77.0%; Average loss: nan
Iteration: 3079; Percent complete: 77.0%; Average loss: nan
Iteration: 3080; Percent complete: 77.0%; Average loss: nan
Iteration: 3081; Percent complete: 77.0%; Average loss: nan
Iteration: 3082; Percent complete: 77.0%; Average loss: nan
Iteration: 3083; Percent complete: 77.1%; Average loss: nan
Iteration: 3084; Percent complete: 77.1%; Average loss: nan
Iteration: 3085; Percent complete: 77.1%; Average loss: nan
Iteration: 3086; Percent complete: 77.1%; Average loss: nan
Iteration: 3087; Percent complete: 77.2%; Average loss: nan
Iteration: 3088; Percent complete: 77.2%; Average loss: nan
Iteration: 3089; Percent complete: 77.2%; Average loss: nan
Iteration: 3090; Percent complete: 77.2%; Average loss: nan
Iteration: 3091; Percent complete: 77.3%; Average loss: nan
Iteration: 3092; Percent complete: 77.3%; Average loss: nan
Iteration: 3093; Percent complete: 77.3%; Average loss: nan
Iteration: 3094; Percent complete: 77.3%; Average loss: nan
Iteration: 3095; Percent complete: 77.4%; Average loss: nan
Iteration: 3096; Percent complete: 77.4%; Average loss: nan
Iteration: 3097; Percent complete: 77.4%; Average loss: nan
Iteration: 3098; Percent complete: 77.5%; Average loss: nan
Iteration: 3099; Percent complete: 77.5%; Average loss: nan
Iteration: 3100; Percent complete: 77.5%; Average loss: nan
Iteration: 3101; Percent complete: 77.5%; Average loss: nan
Iteration: 3102; Percent complete: 77.5%; Average loss: nan
Iteration: 3103; Percent complete: 77.6%; Average loss: nan
Iteration: 3104; Percent complete: 77.6%; Average loss: nan
Iteration: 3105; Percent complete: 77.6%; Average loss: nan
Iteration: 3106; Percent complete: 77.6%; Average loss: nan
Iteration: 3107; Percent complete: 77.7%; Average loss: nan
Iteration: 3108; Percent complete: 77.7%; Average loss: nan
Iteration: 3109; Percent complete: 77.7%; Average loss: nan
Iteration: 3110; Percent complete: 77.8%; Average loss: nan
Iteration: 3111; Percent complete: 77.8%; Average loss: nan
Iteration: 3112; Percent complete: 77.8%; Average loss: nan
Iteration: 3113; Percent complete: 77.8%; Average loss: nan
Iteration: 3114; Percent complete: 77.8%; Average loss: nan
Iteration: 3115; Percent complete: 77.9%; Average loss: nan
Iteration: 3116; Percent complete: 77.9%; Average loss: nan
Iteration: 3117; Percent complete: 77.9%; Average loss: nan
Iteration: 3118; Percent complete: 78.0%; Average loss: nan
Iteration: 3119; Percent complete: 78.0%; Average loss: nan
Iteration: 3120; Percent complete: 78.0%; Average loss: nan
Iteration: 3121; Percent complete: 78.0%; Average loss: nan
Iteration: 3122; Percent complete: 78.0%; Average loss: nan
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Iteration: 3126; Percent complete: 78.1%; Average loss: nan
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Iteration: 3130; Percent complete: 78.2%; Average loss: nan
Iteration: 3131; Percent complete: 78.3%; Average loss: nan
Iteration: 3132; Percent complete: 78.3%; Average loss: nan
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Iteration: 3133; Percent complete: 78.3%; Average loss: nan
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Iteration: 3147; Percent complete: 78.7%; Average loss: nan
Iteration: 3148; Percent complete: 78.7%; Average loss: nan
Iteration: 3149; Percent complete: 78.7%; Average loss: nan
Iteration: 3150; Percent complete: 78.8%; Average loss: nan
Iteration: 3151; Percent complete: 78.8%; Average loss: nan
Iteration: 3152; Percent complete: 78.8%; Average loss: nan
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Iteration: 3154; Percent complete: 78.8%; Average loss: nan
Iteration: 3155; Percent complete: 78.9%; Average loss: nan
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Iteration: 3167; Percent complete: 79.2%; Average loss: nan
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Iteration: 3175; Percent complete: 79.4%; Average loss: nan
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Iteration: 3185; Percent complete: 79.6%; Average loss: nan
Iteration: 3186; Percent complete: 79.7%; Average loss: nan
Iteration: 3187; Percent complete: 79.7%; Average loss: nan
Iteration: 3188; Percent complete: 79.7%; Average loss: nan
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Iteration: 3189; Percent complete: 79.7%; Average loss: nan
Iteration: 3190; Percent complete: 79.8%; Average loss: nan
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Iteration: 3194; Percent complete: 79.8%; Average loss: nan
Iteration: 3195; Percent complete: 79.9%; Average loss: nan
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Iteration: 3198; Percent complete: 80.0%; Average loss: nan
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Iteration: 3211; Percent complete: 80.3%; Average loss: nan
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Iteration: 3213; Percent complete: 80.3%; Average loss: nan
Iteration: 3214; Percent complete: 80.3%; Average loss: nan
Iteration: 3215; Percent complete: 80.4%; Average loss: nan
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Iteration: 3223; Percent complete: 80.6%; Average loss: nan
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Iteration: 3226; Percent complete: 80.7%; Average loss: nan
Iteration: 3227; Percent complete: 80.7%; Average loss: nan
Iteration: 3228; Percent complete: 80.7%; Average loss: nan
Iteration: 3229; Percent complete: 80.7%; Average loss: nan
Iteration: 3230; Percent complete: 80.8%; Average loss: nan
Iteration: 3231; Percent complete: 80.8%; Average loss: nan
Iteration: 3232; Percent complete: 80.8%; Average loss: nan
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Iteration: 3235; Percent complete: 80.9%; Average loss: nan
Iteration: 3236; Percent complete: 80.9%; Average loss: nan
Iteration: 3237; Percent complete: 80.9%; Average loss: nan
Iteration: 3238; Percent complete: 81.0%; Average loss: nan
Iteration: 3239; Percent complete: 81.0%; Average loss: nan
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Iteration: 3243; Percent complete: 81.1%; Average loss: nan
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Iteration: 3245; Percent complete: 81.1%; Average loss: nan
Iteration: 3246; Percent complete: 81.2%; Average loss: nan
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Iteration: 3254; Percent complete: 81.3%; Average loss: nan
Iteration: 3255; Percent complete: 81.4%; Average loss: nan
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Iteration: 3258; Percent complete: 81.5%; Average loss: nan
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Iteration: 3265; Percent complete: 81.6%; Average loss: nan
Iteration: 3266; Percent complete: 81.7%; Average loss: nan
Iteration: 3267; Percent complete: 81.7%; Average loss: nan
Iteration: 3268; Percent complete: 81.7%; Average loss: nan
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Iteration: 3275; Percent complete: 81.9%; Average loss: nan
Iteration: 3276; Percent complete: 81.9%; Average loss: nan
Iteration: 3277; Percent complete: 81.9%; Average loss: nan
Iteration: 3278; Percent complete: 82.0%; Average loss: nan
Iteration: 3279; Percent complete: 82.0%; Average loss: nan
Iteration: 3280; Percent complete: 82.0%; Average loss: nan
Iteration: 3281; Percent complete: 82.0%; Average loss: nan
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Iteration: 3286; Percent complete: 82.2%; Average loss: nan
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Iteration: 3291; Percent complete: 82.3%; Average loss: nan
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Iteration: 3295; Percent complete: 82.4%; Average loss: nan
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Iteration: 3297; Percent complete: 82.4%; Average loss: nan
Iteration: 3298; Percent complete: 82.5%; Average loss: nan
Iteration: 3299; Percent complete: 82.5%; Average loss: nan
Iteration: 3300; Percent complete: 82.5%; Average loss: nan
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Iteration: 3302; Percent complete: 82.5%; Average loss: nan
Iteration: 3303; Percent complete: 82.6%; Average loss: nan
Iteration: 3304; Percent complete: 82.6%; Average loss: nan
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Iteration: 3306; Percent complete: 82.7%; Average loss: nan
Iteration: 3307; Percent complete: 82.7%; Average loss: nan
Iteration: 3308; Percent complete: 82.7%; Average loss: nan
Iteration: 3309; Percent complete: 82.7%; Average loss: nan
Iteration: 3310; Percent complete: 82.8%; Average loss: nan
Iteration: 3311; Percent complete: 82.8%; Average loss: nan
Iteration: 3312; Percent complete: 82.8%; Average loss: nan
Iteration: 3313; Percent complete: 82.8%; Average loss: nan
Iteration: 3314; Percent complete: 82.8%; Average loss: nan
Iteration: 3315; Percent complete: 82.9%; Average loss: nan
Iteration: 3316; Percent complete: 82.9%; Average loss: nan
Iteration: 3317; Percent complete: 82.9%; Average loss: nan
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Iteration: 3326; Percent complete: 83.2%; Average loss: nan
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Iteration: 3331; Percent complete: 83.3%; Average loss: nan
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Iteration: 3334; Percent complete: 83.4%; Average loss: nan
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Iteration: 3354; Percent complete: 83.9%; Average loss: nan
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Iteration: 3356; Percent complete: 83.9%; Average loss: nan
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Iteration: 3357; Percent complete: 83.9%; Average loss: nan
Iteration: 3358; Percent complete: 84.0%; Average loss: nan
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Iteration: 3413; Percent complete: 85.3%; Average loss: nan
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Iteration: 3439; Percent complete: 86.0%; Average loss: nan
Iteration: 3440; Percent complete: 86.0%; Average loss: nan
Iteration: 3441; Percent complete: 86.0%; Average loss: nan
Iteration: 3442; Percent complete: 86.1%; Average loss: nan
Iteration: 3443; Percent complete: 86.1%; Average loss: nan
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Iteration: 3445; Percent complete: 86.1%; Average loss: nan
Iteration: 3446; Percent complete: 86.2%; Average loss: nan
Iteration: 3447; Percent complete: 86.2%; Average loss: nan
Iteration: 3448; Percent complete: 86.2%; Average loss: nan
Iteration: 3449; Percent complete: 86.2%; Average loss: nan
Iteration: 3450; Percent complete: 86.2%; Average loss: nan
Iteration: 3451; Percent complete: 86.3%; Average loss: nan
Iteration: 3452; Percent complete: 86.3%; Average loss: nan
Iteration: 3453; Percent complete: 86.3%; Average loss: nan
Iteration: 3454; Percent complete: 86.4%; Average loss: nan
Iteration: 3455; Percent complete: 86.4%; Average loss: nan
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Iteration: 3458; Percent complete: 86.5%; Average loss: nan
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Iteration: 3460; Percent complete: 86.5%; Average loss: nan
Iteration: 3461; Percent complete: 86.5%; Average loss: nan
Iteration: 3462; Percent complete: 86.6%; Average loss: nan
Iteration: 3463; Percent complete: 86.6%; Average loss: nan
Iteration: 3464; Percent complete: 86.6%; Average loss: nan
Iteration: 3465; Percent complete: 86.6%; Average loss: nan
Iteration: 3466; Percent complete: 86.7%; Average loss: nan
Iteration: 3467; Percent complete: 86.7%; Average loss: nan
Iteration: 3468; Percent complete: 86.7%; Average loss: nan
```

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Iteration: 3469; Percent complete: 86.7%; Average loss: nan
Iteration: 3470; Percent complete: 86.8%; Average loss: nan
Iteration: 3471; Percent complete: 86.8%; Average loss: nan
Iteration: 3472; Percent complete: 86.8%; Average loss: nan
Iteration: 3473; Percent complete: 86.8%; Average loss: nan
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Iteration: 3475; Percent complete: 86.9%; Average loss: nan
Iteration: 3476; Percent complete: 86.9%; Average loss: nan
Iteration: 3477; Percent complete: 86.9%; Average loss: nan
Iteration: 3478; Percent complete: 87.0%; Average loss: nan
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Iteration: 3490; Percent complete: 87.2%; Average loss: nan
Iteration: 3491; Percent complete: 87.3%; Average loss: nan
Iteration: 3492; Percent complete: 87.3%; Average loss: nan
Iteration: 3493; Percent complete: 87.3%; Average loss: nan
Iteration: 3494; Percent complete: 87.4%; Average loss: nan
Iteration: 3495; Percent complete: 87.4%; Average loss: nan
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Iteration: 3497; Percent complete: 87.4%; Average loss: nan
Iteration: 3498; Percent complete: 87.5%; Average loss: nan
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Iteration: 3506; Percent complete: 87.6%; Average loss: nan
Iteration: 3507; Percent complete: 87.7%; Average loss: nan
Iteration: 3508; Percent complete: 87.7%; Average loss: nan
Iteration: 3509; Percent complete: 87.7%; Average loss: nan
Iteration: 3510; Percent complete: 87.8%; Average loss: nan
Iteration: 3511; Percent complete: 87.8%; Average loss: nan
Iteration: 3512; Percent complete: 87.8%; Average loss: nan
Iteration: 3513; Percent complete: 87.8%; Average loss: nan
Iteration: 3514; Percent complete: 87.8%; Average loss: nan
Iteration: 3515; Percent complete: 87.9%; Average loss: nan
Iteration: 3516; Percent complete: 87.9%; Average loss: nan
Iteration: 3517; Percent complete: 87.9%; Average loss: nan
Iteration: 3518; Percent complete: 87.9%; Average loss: nan
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Iteration: 3523; Percent complete: 88.1%; Average loss: nan
Iteration: 3524; Percent complete: 88.1%; Average loss: nan
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Iteration: 3525; Percent complete: 88.1%; Average loss: nan
Iteration: 3526; Percent complete: 88.1%; Average loss: nan
Iteration: 3527; Percent complete: 88.2%; Average loss: nan
Iteration: 3528; Percent complete: 88.2%; Average loss: nan
Iteration: 3529; Percent complete: 88.2%; Average loss: nan
Iteration: 3530; Percent complete: 88.2%; Average loss: nan
Iteration: 3531; Percent complete: 88.3%; Average loss: nan
Iteration: 3532; Percent complete: 88.3%; Average loss: nan
Iteration: 3533; Percent complete: 88.3%; Average loss: nan
Iteration: 3534; Percent complete: 88.3%; Average loss: nan
Iteration: 3535; Percent complete: 88.4%; Average loss: nan
Iteration: 3536; Percent complete: 88.4%; Average loss: nan
Iteration: 3537; Percent complete: 88.4%; Average loss: nan
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Iteration: 3540; Percent complete: 88.5%; Average loss: nan
Iteration: 3541; Percent complete: 88.5%; Average loss: nan
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Iteration: 3545; Percent complete: 88.6%; Average loss: nan
Iteration: 3546; Percent complete: 88.6%; Average loss: nan
Iteration: 3547; Percent complete: 88.7%; Average loss: nan
Iteration: 3548; Percent complete: 88.7%; Average loss: nan
Iteration: 3549; Percent complete: 88.7%; Average loss: nan
Iteration: 3550; Percent complete: 88.8%; Average loss: nan
Iteration: 3551; Percent complete: 88.8%; Average loss: nan
Iteration: 3552; Percent complete: 88.8%; Average loss: nan
Iteration: 3553; Percent complete: 88.8%; Average loss: nan
Iteration: 3554; Percent complete: 88.8%; Average loss: nan
Iteration: 3555; Percent complete: 88.9%; Average loss: nan
Iteration: 3556; Percent complete: 88.9%; Average loss: nan
Iteration: 3557; Percent complete: 88.9%; Average loss: nan
Iteration: 3558; Percent complete: 88.9%; Average loss: nan
Iteration: 3559; Percent complete: 89.0%; Average loss: nan
Iteration: 3560; Percent complete: 89.0%; Average loss: nan
Iteration: 3561; Percent complete: 89.0%; Average loss: nan
Iteration: 3562; Percent complete: 89.0%; Average loss: nan
Iteration: 3563; Percent complete: 89.1%; Average loss: nan
Iteration: 3564; Percent complete: 89.1%; Average loss: nan
Iteration: 3565; Percent complete: 89.1%; Average loss: nan
Iteration: 3566; Percent complete: 89.1%; Average loss: nan
Iteration: 3567; Percent complete: 89.2%; Average loss: nan
Iteration: 3568; Percent complete: 89.2%; Average loss: nan
Iteration: 3569; Percent complete: 89.2%; Average loss: nan
Iteration: 3570; Percent complete: 89.2%; Average loss: nan
Iteration: 3571; Percent complete: 89.3%; Average loss: nan
Iteration: 3572; Percent complete: 89.3%; Average loss: nan
Iteration: 3573; Percent complete: 89.3%; Average loss: nan
Iteration: 3574; Percent complete: 89.3%; Average loss: nan
Iteration: 3575; Percent complete: 89.4%; Average loss: nan
Iteration: 3576; Percent complete: 89.4%; Average loss: nan
Iteration: 3577; Percent complete: 89.4%; Average loss: nan
Iteration: 3578; Percent complete: 89.5%; Average loss: nan
Iteration: 3579; Percent complete: 89.5%; Average loss: nan
Iteration: 3580; Percent complete: 89.5%; Average loss: nan
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Iteration: 3581; Percent complete: 89.5%; Average loss: nan
Iteration: 3582; Percent complete: 89.5%; Average loss: nan
Iteration: 3583; Percent complete: 89.6%; Average loss: nan
Iteration: 3584; Percent complete: 89.6%; Average loss: nan
Iteration: 3585; Percent complete: 89.6%; Average loss: nan
Iteration: 3586; Percent complete: 89.6%; Average loss: nan
Iteration: 3587; Percent complete: 89.7%; Average loss: nan
Iteration: 3588; Percent complete: 89.7%; Average loss: nan
Iteration: 3589; Percent complete: 89.7%; Average loss: nan
Iteration: 3590; Percent complete: 89.8%; Average loss: nan
Iteration: 3591; Percent complete: 89.8%; Average loss: nan
Iteration: 3592; Percent complete: 89.8%; Average loss: nan
Iteration: 3593; Percent complete: 89.8%; Average loss: nan
Iteration: 3594; Percent complete: 89.8%; Average loss: nan
Iteration: 3595; Percent complete: 89.9%; Average loss: nan
Iteration: 3596; Percent complete: 89.9%; Average loss: nan
Iteration: 3597; Percent complete: 89.9%; Average loss: nan
Iteration: 3598; Percent complete: 90.0%; Average loss: nan
Iteration: 3599; Percent complete: 90.0%; Average loss: nan
Iteration: 3600; Percent complete: 90.0%; Average loss: nan
Iteration: 3601; Percent complete: 90.0%; Average loss: nan
Iteration: 3602; Percent complete: 90.0%; Average loss: nan
Iteration: 3603; Percent complete: 90.1%; Average loss: nan
Iteration: 3604; Percent complete: 90.1%; Average loss: nan
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Iteration: 3606; Percent complete: 90.1%; Average loss: nan
Iteration: 3607; Percent complete: 90.2%; Average loss: nan
Iteration: 3608; Percent complete: 90.2%; Average loss: nan
Iteration: 3609; Percent complete: 90.2%; Average loss: nan
Iteration: 3610; Percent complete: 90.2%; Average loss: nan
Iteration: 3611; Percent complete: 90.3%; Average loss: nan
Iteration: 3612; Percent complete: 90.3%; Average loss: nan
Iteration: 3613; Percent complete: 90.3%; Average loss: nan
Iteration: 3614; Percent complete: 90.3%; Average loss: nan
Iteration: 3615; Percent complete: 90.4%; Average loss: nan
Iteration: 3616; Percent complete: 90.4%; Average loss: nan
Iteration: 3617; Percent complete: 90.4%; Average loss: nan
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Iteration: 3623; Percent complete: 90.6%; Average loss: nan
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Iteration: 3626; Percent complete: 90.6%; Average loss: nan
Iteration: 3627; Percent complete: 90.7%; Average loss: nan
Iteration: 3628; Percent complete: 90.7%; Average loss: nan
Iteration: 3629; Percent complete: 90.7%; Average loss: nan
Iteration: 3630; Percent complete: 90.8%; Average loss: nan
Iteration: 3631; Percent complete: 90.8%; Average loss: nan
Iteration: 3632; Percent complete: 90.8%; Average loss: nan
Iteration: 3633; Percent complete: 90.8%; Average loss: nan
Iteration: 3634; Percent complete: 90.8%; Average loss: nan
Iteration: 3635; Percent complete: 90.9%; Average loss: nan
Iteration: 3636; Percent complete: 90.9%; Average loss: nan
```

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Iteration: 3637; Percent complete: 90.9%; Average loss: nan
Iteration: 3638; Percent complete: 91.0%; Average loss: nan
Iteration: 3639; Percent complete: 91.0%; Average loss: nan
Iteration: 3640; Percent complete: 91.0%; Average loss: nan
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Iteration: 3649; Percent complete: 91.2%; Average loss: nan
Iteration: 3650; Percent complete: 91.2%; Average loss: nan
Iteration: 3651; Percent complete: 91.3%; Average loss: nan
Iteration: 3652; Percent complete: 91.3%; Average loss: nan
Iteration: 3653; Percent complete: 91.3%; Average loss: nan
Iteration: 3654; Percent complete: 91.3%; Average loss: nan
Iteration: 3655; Percent complete: 91.4%; Average loss: nan
Iteration: 3656; Percent complete: 91.4%; Average loss: nan
Iteration: 3657; Percent complete: 91.4%; Average loss: nan
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Iteration: 3662; Percent complete: 91.5%; Average loss: nan
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Iteration: 3664; Percent complete: 91.6%; Average loss: nan
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Iteration: 3666; Percent complete: 91.6%; Average loss: nan
Iteration: 3667; Percent complete: 91.7%; Average loss: nan
Iteration: 3668; Percent complete: 91.7%; Average loss: nan
Iteration: 3669; Percent complete: 91.7%; Average loss: nan
Iteration: 3670; Percent complete: 91.8%; Average loss: nan
Iteration: 3671; Percent complete: 91.8%; Average loss: nan
Iteration: 3672; Percent complete: 91.8%; Average loss: nan
Iteration: 3673; Percent complete: 91.8%; Average loss: nan
Iteration: 3674; Percent complete: 91.8%; Average loss: nan
Iteration: 3675; Percent complete: 91.9%; Average loss: nan
Iteration: 3676; Percent complete: 91.9%; Average loss: nan
Iteration: 3677; Percent complete: 91.9%; Average loss: nan
Iteration: 3678; Percent complete: 92.0%; Average loss: nan
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Iteration: 3681; Percent complete: 92.0%; Average loss: nan
Iteration: 3682; Percent complete: 92.0%; Average loss: nan
Iteration: 3683; Percent complete: 92.1%; Average loss: nan
Iteration: 3684; Percent complete: 92.1%; Average loss: nan
Iteration: 3685; Percent complete: 92.1%; Average loss: nan
Iteration: 3686; Percent complete: 92.2%; Average loss: nan
Iteration: 3687; Percent complete: 92.2%; Average loss: nan
Iteration: 3688; Percent complete: 92.2%; Average loss: nan
Iteration: 3689; Percent complete: 92.2%; Average loss: nan
Iteration: 3690; Percent complete: 92.2%; Average loss: nan
Iteration: 3691; Percent complete: 92.3%; Average loss: nan
Iteration: 3692; Percent complete: 92.3%; Average loss: nan
```

```
---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
File ~/.local/lib/python3.12/site-packages/wandb/agents/pyagent.py:219, in A
gent._run_jobs_from_queue(self)
    218 self._run_status[run_id] = RunStatus.RUNNING
--> 219 thread.join()
    220 logger.debug(f"Thread joined for run {run_id}.")

File /ext3/miniforge3/lib/python3.12/threading.py:1149, in Thread.join(self,
timeout)
   1148 if timeout is None:
-> 1149     self._wait_for_tstate_lock()
   1150 else:
   1151     # the behavior of a negative timeout isn't documented, but
   1152     # historically .join(timeout=x) for x<0 has acted as if timeout=
0

File /ext3/miniforge3/lib/python3.12/threading.py:1169, in Thread._wait_for_
tstate_lock(self, block, timeout)
   1168 try:
-> 1169     if lock.acquire(block, timeout):
   1170         lock.release()

KeyboardInterrupt:

During handling of the above exception, another exception occurred:

KeyError                                  Traceback (most recent call last)
File /ext3/miniforge3/lib/python3.12/logging/__init__.py:1798, in Logger.isE
nabledFor(self, level)
   1797 try:
-> 1798     return self._cache[level]
   1799 except KeyError:

KeyError: 10

During handling of the above exception, another exception occurred:

KeyboardInterrupt                         Traceback (most recent call last)
Cell In[38], line 268
    265 sweep_id = wandb.sweep(sweep_config, project="hw2")
    267 # Start the sweep
--> 268 wandb.agent(sweep_id, train_with_wandb, count=10)  # Run 10 trials

File ~/.local/lib/python3.12/site-packages/wandb/wandb_agent.py:570, in agen
t(sweep_id, function, entity, project, count)
    568 wandb_sdk.wandb_login._login(_silent=True)
    569 if function:
--> 570     return pyagent(sweep_id, function, entity, project, count)
    571 in_jupyter = wandb.wandb_sdk.lib.ipython._get_python_type() != "pyth
on"
    572 return run_agent(
    573     sweep_id,
    574     function=function,
   (...)
    578     count=count,
```

```
    579 )

File ~/.local/lib/python3.12/site-packages/wandb/agents/pyagent.py:356, in p
yagent(sweep_id, function, entity, project, count)
    348     raise Exception("function parameter must be callable!")
    349 agent = Agent(
    350     sweep_id,
    351     function=function,
   (...)
    354     count=count,
    355 )
--> 356 agent.run()

File ~/.local/lib/python3.12/site-packages/wandb/agents/pyagent.py:334, in A
gent.run(self)
    332 self._heartbeat_thread.start()
    333 # self._main_thread.join()
--> 334 self._run_jobs_from_queue()

File ~/.local/lib/python3.12/site-packages/wandb/agents/pyagent.py:271, in A
gent._run_jobs_from_queue(self)
    269         return
    270 except KeyboardInterrupt:
--> 271     logger.debug("Ctrl + C detected. Stopping sweep.")
    272     wandb.termlog("Ctrl + C detected. Stopping sweep.")
    273     self._exit()

File /ext3/miniforge3/lib/python3.12/logging/__init__.py:1526, in Logger.deb
ug(self, msg, *args, **kwargs)
   1517 def debug(self, msg, *args, **kwargs):
   1518     """
   1519     Log 'msg % args' with severity 'DEBUG'.
   1520 
   (...)
   1524     logger.debug("Houston, we have a %s", "thorny problem", exc_info
=True)
   1525     """
-> 1526     if self.isEnabledFor(DEBUG):
   1527         self._log(DEBUG, msg, args, **kwargs)

File /ext3/miniforge3/lib/python3.12/logging/__init__.py:1800, in Logger.isE
nabledFor(self, level)
   1798     return self._cache[level]
   1799 except KeyError:
-> 1800     _acquireLock()
   1801     try:
   1802         if self.manager.disable >= level:

File /ext3/miniforge3/lib/python3.12/logging/__init__.py:234, in _acquireLoc
k()
    220 #---------------------------------------------------------------------------
--------
    221 #   Thread-related stuff
    222 #---------------------------------------------------------------------------
--------
   (...)
```

```
    230 #The same argument applies to Loggers and Manager.loggerDict.
    231 #
    232 _lock = threading.RLock()
--> 234 def _acquireLock():
    235     """
    236     Acquire the module-level lock for serializing access to shared d
ata.
    237 
    238     This should be released with _releaseLock().
    239     """
    240     if _lock:

KeyboardInterrupt: 
Iteration: 3693; Percent complete: 92.3%; Average loss: nan
Iteration: 3694; Percent complete: 92.3%; Average loss: nan
Iteration: 3695; Percent complete: 92.4%; Average loss: nan
Iteration: 3696; Percent complete: 92.4%; Average loss: nan
Iteration: 3697; Percent complete: 92.4%; Average loss: nan
Iteration: 3698; Percent complete: 92.5%; Average loss: nan
```

```
Traceback (most recent call last):
Exception in thread Thread-46 (_run_job):
Traceback (most recent call last):
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
210, in train_with_wandb
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
80, in trainIters
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/lib/redi
rect.py", line 645, in write
    self._old_write(data)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 694, in write
    self._schedule_flush()
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 590, in _schedule_flush
    self.pub_thread.schedule(_schedule_in_thread)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 267, in schedule
    self._event_pipe.send(b"")
  File "/ext3/miniforge3/lib/python3.12/site-packages/zmq/sugar/socket.py",
line 701, in send
    return super().send(data, flags=flags, copy=copy, track=track)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "_zmq.py", line 1092, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1134, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1209, in zmq.backend.cython._zmq._check_closed
zmq.error.ZMQError: Socket operation on non-socket

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/agents/pyage
nt.py", line 306, in _run_job
    self._function()
  File "/state/partition1/job-52408168/ipykernel_4015321/602687067.py", line
174, in train_with_wandb
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 3626, in __exit__
    traceback.print_exception(exc_type, exc_val, exc_tb)
  File "/ext3/miniforge3/lib/python3.12/traceback.py", line 125, in print_ex
ception
    te.print(file=file, chain=chain)
  File "/ext3/miniforge3/lib/python3.12/traceback.py", line 1050, in print
    print(line, file=file, end="")
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/lib/redi
rect.py", line 645, in write
    self._old_write(data)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 694, in write
    self._schedule_flush()
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 590, in _schedule_flush
    self.pub_thread.schedule(_schedule_in_thread)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 267, in schedule
    self._event_pipe.send(b"")
```

```
  File "/ext3/miniforge3/lib/python3.12/site-packages/zmq/sugar/socket.py",
line 701, in send
    return super().send(data, flags=flags, copy=copy, track=track)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "_zmq.py", line 1092, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1134, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1209, in zmq.backend.cython._zmq._check_closed
zmq.error.ZMQError: Socket operation on non-socket

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/ext3/miniforge3/lib/python3.12/threading.py", line 1075, in _bootst
rap_inner
    self.run()
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/ipkernel.p
y", line 766, in run_closure
    _threading_Thread_run(self)
  File "/ext3/miniforge3/lib/python3.12/threading.py", line 1012, in run
    self._target(*self._args, **self._kwargs)
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/agents/pyage
nt.py", line 311, in _run_job
    wandb.finish(exit_code=1)
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 4243, in finish
    wandb.run.finish(exit_code=exit_code, quiet=quiet)
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 452, in wrapper
    return func(self, *args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 393, in wrapper
    return func(self, *args, **kwargs)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 2157, in finish
    return self._finish(exit_code, quiet)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 2191, in _finish
    self._atexit_cleanup(exit_code=exit_code)
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 2453, in _atexit_cleanup
    Run._footer(
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 3821, in _footer
    Run._footer_history_summary_info(
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/wandb_ru
n.py", line 4102, in _footer_history_summary_info
    printer.display(printer.panel(panel))
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/lib/prin
ter.py", line 68, in display
    self._display(text, level=level, default_text=default_text)
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/lib/prin
ter.py", line 248, in _display
    self._display_fn_mapping(level)(text)
```

```
  File "/home/poh2005/.local/lib/python3.12/site-packages/wandb/sdk/lib/ipyt
hon.py", line 81, in display_html
    return display(HTML(html))
           ^^^^^^^^^^^^^^^^^^^
  File "/ext3/miniforge3/lib/python3.12/site-packages/IPython/core/display_f
unctions.py", line 305, in display
    publish_display_data(data=format_dict, metadata=md_dict, **kwargs)
  File "/ext3/miniforge3/lib/python3.12/site-packages/IPython/core/display_f
unctions.py", line 93, in publish_display_data
    display_pub.publish(
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/zmqshell.p
y", line 103, in publish
    self._flush_streams()
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/zmqshell.p
y", line 66, in _flush_streams
    sys.stdout.flush()
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 604, in flush
    self.pub_thread.schedule(self._flush)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 267, in schedule
    self._event_pipe.send(b"")
  File "/ext3/miniforge3/lib/python3.12/site-packages/zmq/sugar/socket.py",
line 701, in send
    return super().send(data, flags=flags, copy=copy, track=track)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "_zmq.py", line 1092, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1134, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1209, in zmq.backend.cython._zmq._check_closed
zmq.error.ZMQError: Socket operation on non-socket
Exception in threading.excepthook:
Exception ignored in thread started by: <bound method Thread._bootstrap of <
Thread(Thread-46 (_run_job), stopped 22383702304320)>>
Traceback (most recent call last):
  File "/ext3/miniforge3/lib/python3.12/threading.py", line 1032, in _bootst
rap
    self._bootstrap_inner()
  File "/ext3/miniforge3/lib/python3.12/threading.py", line 1077, in _bootst
rap_inner
    self._invoke_excepthook(self)
  File "/ext3/miniforge3/lib/python3.12/threading.py", line 1391, in invoke_
excepthook
    local_print("Exception in threading.excepthook:",
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 604, in flush
    self.pub_thread.schedule(self._flush)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 267, in schedule
    self._event_pipe.send(b"")
  File "/ext3/miniforge3/lib/python3.12/site-packages/zmq/sugar/socket.py",
line 701, in send
    return super().send(data, flags=flags, copy=copy, track=track)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "_zmq.py", line 1092, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1134, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1209, in zmq.backend.cython._zmq._check_closed
```

```
zmq.error.ZMQError: Socket operation on non-socket
Exception ignored in sys.unraisablehook: <built-in function unraisablehook>
Traceback (most recent call last):
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 604, in flush
    self.pub_thread.schedule(self._flush)
  File "/ext3/miniforge3/lib/python3.12/site-packages/ipykernel/iostream.p
y", line 267, in schedule
    self._event_pipe.send(b"")
  File "/ext3/miniforge3/lib/python3.12/site-packages/zmq/sugar/socket.py",
line 701, in send
    return super().send(data, flags=flags, copy=copy, track=track)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "_zmq.py", line 1092, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1134, in zmq.backend.cython._zmq.Socket.send
  File "_zmq.py", line 1209, in zmq.backend.cython._zmq._check_closed
zmq.error.ZMQError: Socket operation on non-socket
```

Run Evaluation

To chat with your model, run the following block.

In [19]:
```
# Set dropout layers to ``eval`` mode
encoder.eval()
decoder.eval()

# Initialize search module
searcher = GreedySearchDecoder(encoder, decoder)

# Begin chatting (uncomment and run the following line to begin)
evaluateInput(encoder, decoder, searcher, voc)
```

```
>  how are you?
Bot: relationship jus receiving facilities hamilton riding worm tells rhymes
jus
>  quit
>  quit
```

2. Create a sweep configuration using the using the W&B Random Search (5 points)

Install W&B and import the W&B Python SDK into your notebook:

1. Install with `!pip install`:

In [35]:
```
!pip install wandb -Uq
```

```
ERROR: Could not install packages due to an OSError: [Errno 122] Disk quota
exceeded: '/home/poh2005/.local/lib/python3.12/site-packages/smmap'
```

2. Import W&B:

In [20]:
```python
import wandb
```

3. Log in to W&B and provide your API key when prompted:

In [21]:
```python
wandb.login()
```

```
Failed to detect the name of this notebook, you can set it manually with the
WANDB_NOTEBOOK_NAME environment variable to enable code saving.
wandb: Using wandb-core as the SDK backend. Please refer to https://wandb.m
e/wandb-core for more information.
wandb: Logging into wandb.ai. (Learn how to deploy a W&B server locally: htt
ps://wandb.me/wandb-server)
wandb: You can find your API key in your browser here: https://wandb.ai/auth
orize
wandb: Paste an API key from your profile and hit enter, or press ctrl+c to
quit:
 ········
wandb: Appending key for api.wandb.ai to your netrc file: /home/poh2005/.net
rc
```

Out[21]: True

Define a sweep

In [22]:
```python
sweep_config = {
    'method': 'random'
    }
```

In [23]:
```python
metric = {
    'name': 'loss',
    'goal': 'minimize'
    }

sweep_config['metric'] = metric
```

In [24]:
```python
parameters_dict = {
    'learning_rate': {'min': 0.0001, 'max': 0.1},
    'batch_size': {'values': [32, 64, 128, 256]},
    'hidden_size': {'values': [256, 512, 1024]},
    'dropout': {'min': 0.1, 'max': 0.5},
    'n_layers': {'min': 1, 'max': 4}
    }

sweep_config['parameters'] = parameters_dict
```

In [25]:
```python
import pprint
pprint.pprint(sweep_config)
```

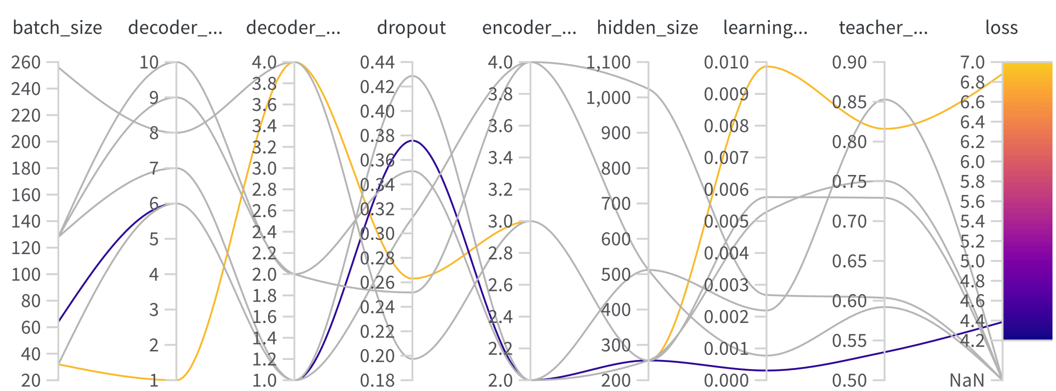
```
{'method': 'random',
 'metric': {'goal': 'minimize', 'name': 'loss'},
 'parameters': {'batch_size': {'values': [32, 64, 128, 256]},
                'dropout': {'max': 0.5, 'min': 0.1},
                'hidden_size': {'values': [256, 512, 1024]},
                'learning_rate': {'max': 0.1, 'min': 0.0001},
                'n_layers': {'max': 4, 'min': 1}}}
```

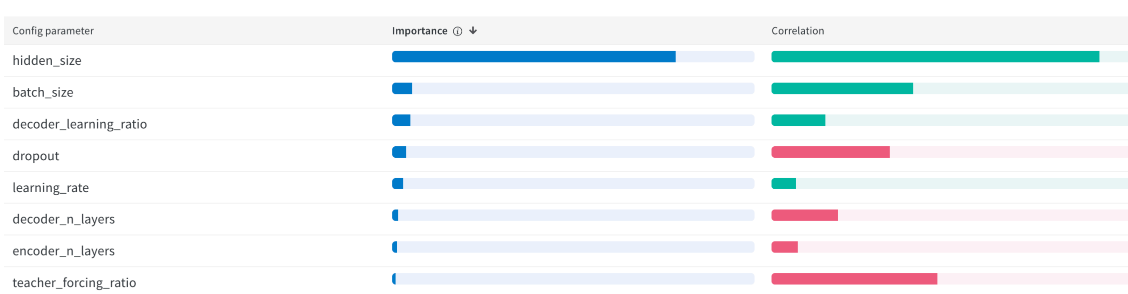
3. Run your hyperparameter sweeps (5 points)

Modify `train` function to support a W&B sweep

4. Extract best hyperparameters & feature importance tool (10 points)

The hyperparameter importance plot surfaces which hyperparameters were the best predictors of your metrics.





5. Serving and Scaling the Chatbot Model

Setup: Installing Required Libraries

Before we begin, let's install the necessary libraries. Run the following cells to install the required packages:

In [ ]:
```
!pip install torch torchvision torchaudio
!pip install flask
!pip install ray
!pip install torchx
```

If all libraries are installed correctly, you should see their versions printed without any errors.

Problem 3 (30 points)

In this notebook, we'll implement serving and scaling techniques for the chatbot model developed in Problem 2. We'll cover three main tasks:

1. Implementing a Flask API to serve the model
2. Using Ray for batch prediction
3. Leveraging TorchX and Ray for distributed inference

Let's get started!

1. Implementing a Flask API (10 points)

In this section, we'll create a Flask server to serve our trained chatbot model.

Step 1: Import necessary libraries

In [80]:
```
# Import your model classes
# Import your utility functions
from flask import Flask, request, jsonify
import torch

from threading import Thread
app = Flask(__name__)
```

In [81]:
```
import torch
import torch.nn as nn
import os
```

```
from chatbot_model import Voc, EncoderRNN, LuongAttnDecoderRNN, GreedySearch

# Configure models
model_name = 'cb_model'
attn_model = 'dot'
hidden_size = 500
encoder_n_layers = 2
decoder_n_layers = 2
dropout = 0.1
batch_size = 64

# Set checkpoint to load from
save_dir = 'data/save'
corpus_name = 'movie-corpus'
checkpoint_iter = 4000  # or whatever your last checkpoint iteration was

# Construct the full path to the checkpoint file
loadFilename = os.path.join(save_dir, model_name, corpus_name,
                    '{}-{}_{}'.format(encoder_n_layers, decoder_n_layers, hi
                    '{}_checkpoint.tar'.format(checkpoint_iter))

# Load the checkpoint
checkpoint = torch.load(loadFilename)

# Load the vocabulary
voc = Voc(corpus_name)
voc.__dict__ = checkpoint['voc_dict']

# Build the models
embedding = nn.Embedding(voc.num_words, hidden_size)
embedding.load_state_dict(checkpoint['embedding'])

encoder = EncoderRNN(hidden_size, embedding, encoder_n_layers, dropout)
decoder = LuongAttnDecoderRNN(attn_model, embedding, hidden_size, voc.num_wo

# Load model states
encoder.load_state_dict(checkpoint['en'])
decoder.load_state_dict(checkpoint['de'])

# Use appropriate device
device = torch.device("cuda" if torch.cuda.is_available() else "cpu")
encoder = encoder.to(device)
decoder = decoder.to(device)

# Set dropout layers to eval mode
encoder.eval()
decoder.eval()

# Initialize search module
searcher = GreedySearchDecoder(encoder, decoder)

print("Models loaded successfully!")
```

```
/state/partition1/job-52363350/ipykernel_821315/577908851.py:26: FutureWarni
ng: You are using `torch.load` with `weights_only=False` (the current defaul
t value), which uses the default pickle module implicitly. It is possible to
construct malicious pickle data which will execute arbitrary code during unp
ickling (See https://github.com/pytorch/pytorch/blob/main/SECURITY.md#untrus
ted-models for more details). In a future release, the default value for `we
ights_only` will be flipped to `True`. This limits the functions that could
be executed during unpickling. Arbitrary objects will no longer be allowed t
o be loaded via this mode unless they are explicitly allowlisted by the user
via `torch.serialization.add_safe_globals`. We recommend you start setting `
weights_only=True` for any use case where you don't have full control of the
loaded file. Please open an issue on GitHub for any issues related to this e
xperimental feature.
  checkpoint = torch.load(loadFilename)
Models loaded successfully!
```

Step 2: Set up the Flask app and load the model

In [ ]:

```
# # Load the trained model
# encoder = EncoderRNN(hidden_size, embedding, n_layers, dropout)
# decoder = LuongAttnDecoderRNN(attn_model, embedding, hidden_size, voc.num_
```

Step 3: Implement the chat endpoint

In [82]:

```
@app.route('/chat', methods=['POST'])
def chat():
    data = request.json
    input_sentence = data['message']
    # Preprocess input
    input_sentence = normalizeString(input_sentence)

    # Generate response
    output_words = evaluate(encoder, decoder, searcher, voc, input_sentence)
    response = ' '.join(output_words)
    return jsonify({'response': response})

def run_app():
    app.run(host='0.0.0.0', port=5000, debug=True, use_reloader=False)
```

Step 4: Run the Flask app

In [83]:

```
if __name__ == '__main__':
    Thread(target=run_app).start()
```

```
 * Serving Flask app '__main__'
 * Debug mode: on
Address already in use
Port 5000 is in use by another program. Either identify and stop that progra
m, or start the server with a different port.
```

In [84]:

```
import requests
```

```
response = requests.post('http://0.0.0.0:5000/chat', json={'message': 'how a
print(response.json())
```

```
{'response': 'fine . EOS . EOS . EOS . EOS .'}
```

Note: To score full points (10) for this section, ensure that:

- The Flask server correctly loads the trained model
- The `/chat` endpoint properly handles POST requests
- Input is correctly preprocessed and passed through the model
- The response is correctly formatted and returned as JSON
- Error handling and input validation are implemented (not shown in this basic example)

2. Implementing Batch Prediction with Ray (10 points)

Now, let's use Ray to implement efficient batch prediction for our chatbot.

Step 1: Import Ray and set up the environment

In [85]:

```
import ray
ray.shutdown()
ray.init()
```

```
2024-10-18 00:36:43,130 INFO worker.py:1786 -- Started a local Ray instance.
```

Out[85]:

Python version:	**3.12.6**
Ray version:	**2.37.0**

```
(ChatbotModel pid=1269525) /state/partition1/job-52363350/ipykernel_821315/2
968353711.py:20: FutureWarning: You are using `torch.load` with `weights_onl
y=False` (the current default value), which uses the default pickle module i
mplicitly. It is possible to construct malicious pickle data which will exec
ute arbitrary code during unpickling (See https://github.com/pytorch/pytorc
h/blob/main/SECURITY.md#untrusted-models for more details). In a future rele
ase, the default value for `weights_only` will be flipped to `True`. This li
mits the functions that could be executed during unpickling. Arbitrary objec
ts will no longer be allowed to be loaded via this mode unless they are expl
icitly allowlisted by the user via `torch.serialization.add_safe_globals`. W
e recommend you start setting `weights_only=True` for any use case where you
don't have full control of the loaded file. Please open an issue on GitHub f
or any issues related to this experimental feature.
(ChatbotModel pid=1269596) /state/partition1/job-52363350/ipykernel_821315/2
92448151.py:20: FutureWarning: You are using `torch.load` with `weights_only
=False` (the current default value), which uses the default pickle module im
plicitly. It is possible to construct malicious pickle data which will execu
te arbitrary code during unpickling (See https://github.com/pytorch/pytorch/
blob/main/SECURITY.md#untrusted-models for more details). In a future releas
e, the default value for `weights_only` will be flipped to `True`. This limi
ts the functions that could be executed during unpickling. Arbitrary objects
will no longer be allowed to be loaded via this mode unless they are explici
tly allowlisted by the user via `torch.serialization.add_safe_globals`. We r
ecommend you start setting `weights_only=True` for any use case where you do
n't have full control of the loaded file. Please open an issue on GitHub for
any issues related to this experimental feature.
(ChatbotModel pid=1269554) /state/partition1/job-52363350/ipykernel_821315/1
026825506.py:21: FutureWarning: You are using `torch.load` with `weights_onl
y=False` (the current default value), which uses the default pickle module i
mplicitly. It is possible to construct malicious pickle data which will exec
ute arbitrary code during unpickling (See https://github.com/pytorch/pytorc
h/blob/main/SECURITY.md#untrusted-models for more details). In a future rele
ase, the default value for `weights_only` will be flipped to `True`. This li
mits the functions that could be executed during unpickling. Arbitrary objec
ts will no longer be allowed to be loaded via this mode unless they are expl
icitly allowlisted by the user via `torch.serialization.add_safe_globals`. W
e recommend you start setting `weights_only=True` for any use case where you
don't have full control of the loaded file. Please open an issue on GitHub f
or any issues related to this experimental feature.
(ChatbotModel pid=1269507) /state/partition1/job-52363350/ipykernel_821315/4
53454406.py:21: FutureWarning: You are using `torch.load` with `weights_only
=False` (the current default value), which uses the default pickle module im
plicitly. It is possible to construct malicious pickle data which will execu
te arbitrary code during unpickling (See https://github.com/pytorch/pytorch/
blob/main/SECURITY.md#untrusted-models for more details). In a future releas
e, the default value for `weights_only` will be flipped to `True`. This limi
ts the functions that could be executed during unpickling. Arbitrary objects
will no longer be allowed to be loaded via this mode unless they are explici
tly allowlisted by the user via `torch.serialization.add_safe_globals`. We r
ecommend you start setting `weights_only=True` for any use case where you do
n't have full control of the loaded file. Please open an issue on GitHub for
any issues related to this experimental feature.
(ChatbotModel pid=1269123) /state/partition1/job-52363350/ipykernel_821315/1
038099824.py:24: FutureWarning: You are using `torch.load` with `weights_onl
y=False` (the current default value), which uses the default pickle module i
mplicitly. It is possible to construct malicious pickle data which will exec
```

```
ute arbitrary code during unpickling (See https://github.com/pytorch/pytorc
h/blob/main/SECURITY.md#untrusted-models for more details). In a future rele
ase, the default value for `weights_only` will be flipped to `True`. This li
mits the functions that could be executed during unpickling. Arbitrary objec
ts will no longer be allowed to be loaded via this mode unless they are expl
icitly allowlisted by the user via `torch.serialization.add_safe_globals`. W
e recommend you start setting `weights_only=True` for any use case where you
don't have full control of the loaded file. Please open an issue on GitHub f
or any issues related to this experimental feature.
(autoscaler +1h2s) Tip: use `ray status` to view detailed cluster status. To
disable these messages, set RAY_SCHEDULER_EVENTS=0.
(autoscaler +1h2s) Warning: The following resource request cannot be schedul
ed right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster re
sources being claimed by actors. Consider creating fewer actors or adding mo
re nodes to this Ray cluster.
(autoscaler +1h37s) Warning: The following resource request cannot be schedu
led right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster r
esources being claimed by actors. Consider creating fewer actors or adding m
ore nodes to this Ray cluster.
(autoscaler +1h1m12s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h1m47s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h2m22s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(ChatbotModel pid=1269067) /state/partition1/job-52363350/ipykernel_821315/1
038099824.py:24: FutureWarning: You are using `torch.load` with `weights_onl
y=False` (the current default value), which uses the default pickle module i
mplicitly. It is possible to construct malicious pickle data which will exec
ute arbitrary code during unpickling (See https://github.com/pytorch/pytorc
h/blob/main/SECURITY.md#untrusted-models for more details). In a future rele
ase, the default value for `weights_only` will be flipped to `True`. This li
mits the functions that could be executed during unpickling. Arbitrary objec
ts will no longer be allowed to be loaded via this mode unless they are expl
icitly allowlisted by the user via `torch.serialization.add_safe_globals`. W
e recommend you start setting `weights_only=True` for any use case where you
don't have full control of the loaded file. Please open an issue on GitHub f
or any issues related to this experimental feature.
```

```
(autoscaler +1h2m57s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h3m32s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h4m7s) Warning: The following resource request cannot be sched
uled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h4m43s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h5m18s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h5m53s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h6m28s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h7m3s) Warning: The following resource request cannot be sched
uled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h7m38s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h8m14s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h8m49s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h9m24s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h9m59s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h10m35s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
```

```
(autoscaler +1h11m9s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h11m45s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h12m20s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h12m55s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h13m30s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h14m5s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h14m40s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h15m15s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h15m51s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h16m26s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h17m1s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h17m36s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h18m11s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h18m47s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
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(autoscaler +1h19m22s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h19m57s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h20m32s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h21m7s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h21m42s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h22m18s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h22m53s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h23m28s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h24m3s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h26m24s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h26m59s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h27m34s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h28m9s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h28m45s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
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(autoscaler +1h29m20s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h29m55s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h30m30s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h31m5s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h31m40s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h32m16s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h32m51s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h33m26s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h34m1s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h34m36s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h35m12s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h35m46s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h36m22s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h36m57s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
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(autoscaler +1h38m43s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h39m18s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h39m53s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h40m28s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h41m3s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h41m38s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h42m14s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h42m49s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h43m24s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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(autoscaler +1h43m59s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h44m35s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h45m10s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h45m45s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h46m20s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
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(autoscaler +1h46m55s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h47m30s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h48m6s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h48m41s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h49m16s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h49m51s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h50m26s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h51m1s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h51m37s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h52m12s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h52m47s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h53m22s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h53m57s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h54m32s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
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(autoscaler +1h55m8s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h55m43s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h56m18s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h56m53s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h57m28s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
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g more nodes to this Ray cluster.
(autoscaler +1h58m3s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +1h58m39s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h59m14s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +1h59m49s) Warning: The following resource request cannot be sch
eduled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluste
r resources being claimed by actors. Consider creating fewer actors or addin
g more nodes to this Ray cluster.
(autoscaler +2h24s) Warning: The following resource request cannot be schedu
led right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster r
esources being claimed by actors. Consider creating fewer actors or adding m
ore nodes to this Ray cluster.
(autoscaler +2h59s) Warning: The following resource request cannot be schedu
led right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster r
esources being claimed by actors. Consider creating fewer actors or adding m
ore nodes to this Ray cluster.
(autoscaler +2h1m34s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h2m9s) Warning: The following resource request cannot be sched
uled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h2m45s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
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(autoscaler +2h3m20s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h3m55s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h4m30s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h5m5s) Warning: The following resource request cannot be sched
uled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h5m40s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h6m15s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h6m50s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h7m26s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h8m1s) Warning: The following resource request cannot be sched
uled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h8m36s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h9m12s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
(autoscaler +2h9m46s) Warning: The following resource request cannot be sche
duled right now: {'CPU': 2.0, 'GPU': 0.5}. This is likely due to all cluster
resources being claimed by actors. Consider creating fewer actors or adding
more nodes to this Ray cluster.
```

Step 2: Create a Ray actor for the chatbot model

In [120…

```python
import ray

# Initialize Ray (if not already initialized)
ray.init(ignore_reinit_error=True)
```

```
# Get available resources
resources = ray.available_resources()
print(resources)
```

```
2024-10-18 00:43:30,256 INFO worker.py:1619 -- Calling ray.init() again afte
r it has already been called.
{'accelerator_type:A100': 1.0, 'CPU': 159.0, 'memory': 764916354048.0, 'nod
e:__internal_head__': 1.0, 'object_store_memory': 200000000000.0, 'node:10.3
2.35.191': 1.0}
```

In [ ]:

```
from typing import List

@ray.remote(num_gpus=0.5, num_cpus=2)
class ChatbotModel:
    def __init__(self):
        # Load models and configurations
        self.model_name = 'cb_model'
        self.attn_model = 'dot'
        self.hidden_size = 500
        self.encoder_n_layers = 2
        self.decoder_n_layers = 2
        self.dropout = 0.1
        self.batch_size = 64

        # Load checkpoint
        save_dir = 'data/save'
        corpus_name = 'movie-corpus'
        checkpoint_iter = 4000
        loadFilename = os.path.join(save_dir, self.model_name, corpus_name,
                                    '{}-{}_{}'.format(self.encoder_n_layers,
                                    '{}_checkpoint.tar'.format(checkpoint_it
        checkpoint = torch.load(loadFilename, map_location=torch.device("cud

        # Load vocabulary
        self.voc = Voc(corpus_name)
        self.voc.__dict__ = checkpoint['voc_dict']

        # Build models
        self.embedding = nn.Embedding(self.voc.num_words, self.hidden_size)
        self.embedding.load_state_dict(checkpoint['embedding'])
        self.encoder = EncoderRNN(self.hidden_size, self.embedding, self.enc
        self.decoder = LuongAttnDecoderRNN(self.attn_model, self.embedding,

        # Load model states
        self.encoder.load_state_dict(checkpoint['en'])
        self.decoder.load_state_dict(checkpoint['de'])

        # Use appropriate device
        self.device = torch.device("cuda" if torch.cuda.is_available() else
        self.encoder = self.encoder.to(self.device)
        self.decoder = self.decoder.to(self.device)

        # Set dropout layers to eval mode
        self.encoder.eval()
        self.decoder.eval()
```

```
        # Initialize search module
        self.searcher = GreedySearchDecoder(self.encoder, self.decoder)

    def predict_batch(self, input_sentences: List[str]) -> List[str]:
        responses = []
        for sentence in input_sentences:
            input_sentence = normalizeString(sentence)
            # Filter out unknown words
            input_words = input_sentence.split()
            known_words = [word for word in input_words if word in self.voc.
            if not known_words:
                responses.append("I'm sorry, I didn't understand that.")
                continue
            input_sentence = ' '.join(known_words)
            output_words = evaluate(self.encoder, self.decoder, self.searche
            responses.append(' '.join(output_words))
        return responses

# Create Ray actors based on available resources
available_resources = ray.available_resources()
num_cpus = int(available_resources.get("CPU", 1))
cpu_per_actor = 1  # Define CPUs allocated per actor
num_actors = num_cpus // cpu_per_actor
print(f"Total CPUs: {num_cpus}, CPUs per actor: {cpu_per_actor}, Number of a

chatbot_actors = [ChatbotModel.remote() for _ in range(num_actors)]
```

Step 3: Implement batch prediction function

In [ ]:

```
import math

def batch_predict(input_sentences: List[str], batch_size: int = 16) -> List[

    num_sentences = len(input_sentences)
    num_batches = math.ceil(num_sentences / batch_size)
    futures = []
    for i in range(num_batches):
        batch = input_sentences[i*batch_size : (i+1)*batch_size]
        actor = chatbot_actors[i % len(chatbot_actors)]
        futures.append(actor.predict_batch.remote(batch))
    # Collect results
    results = ray.get(futures)
    # Flatten the list of lists
    flattened_results = [response for batch_response in results for response
    return flattened_results
```

In [161…

```
def sequential_predict(input_sentences: List[str]) -> List[str]:
    results = []
    for sentence in input_sentences:
        try:
            input_sentence = normalizeString(sentence)
            input_words = input_sentence.split()
            known_words = [word for word in input_words if word in voc.word2
```

```
            if not known_words:
                results.append("I'm sorry, I didn't understand that.")
            else:
                input_sentence = ' '.join(known_words)
                output_words = evaluate(encoder, decoder, searcher, voc, inp
                results.append(' '.join(output_words))
        except Exception as e:
            results.append(f"Error: {str(e)}")
    return results

import time
```

In [162…

```
def compare_execution(input_sentences: List[str]):
    start_time = time.time()
    sequential_results = sequential_predict(input_sentences)
    sequential_time = time.time() - start_time

    start_time = time.time()
    parallel_results = batch_predict(input_sentences, batch_size=16)
    parallel_time = time.time() - start_time

    print(f"Sequential execution time: {sequential_time:.2f} seconds")
    print(f"Parallel execution time: {parallel_time:.2f} seconds")
    speedup = sequential_time / parallel_time if parallel_time > 0 else floa
    print(f"Speedup: {speedup:.2f}x")

    if sequential_results == parallel_results:
        print("Results are identical.")
    else:
        print("Results differ. This could be due to non-deterministic behavi

    return sequential_results, parallel_results
```

Step 4: Test the batch prediction

In [165…

```
test_sentences = [
    "Hello, how are you?",
    "What's the weather like today?",
    "Can you tell me a joke?",
    "What's your favorite movie?",
    "How does artificial intelligence work?",
    "What's the capital of France?",
    "Tell me about the history of Rome.",
    "What are some healthy eating habits?",
    "How do I learn to code?",
    "What's the meaning of life?",
    "Describe the process of photosynthesis.",
    "Who invented the telephone?",
    "What's the largest planet in our solar system?",
    "How do birds fly?",
    "What's the plot of Romeo and Juliet?"
]

sequential_results, parallel_results = compare_execution(test_sentences)
```

```python
for i in range(min(5, len(test_sentences))):
    print(f"\nInput: {test_sentences[i]}")
    print(f"Sequential output: {sequential_results[i]}")
    print(f"Parallel output: {parallel_results[i]}")
```

```
Sequential execution time: 1.29 seconds
Parallel execution time: 0.16 seconds
Speedup: 8.01x
Results are identical.

Input: Hello, how are you?
Sequential output: hello . EOS . EOS . EOS . EOS .
Parallel output: hello . EOS . EOS . EOS . EOS .

Input: What's the weather like today?
Sequential output: it s a whale . EOS . EOS . EOS
Parallel output: it s a whale . EOS . EOS . EOS

Input: Can you tell me a joke?
Sequential output: no . EOS . EOS . EOS . EOS .
Parallel output: no . EOS . EOS . EOS . EOS .

Input: What's your favorite movie?
Sequential output: he s in my room . EOS . EOS .
Parallel output: he s in my room . EOS . EOS .

Input: How does artificial intelligence work?
Sequential output: i don t know . EOS . EOS . EOS
Parallel output: i don t know . EOS . EOS . EOS
```

In [153…

```python
test_sentences = [
    "Hello, how are you?",
    "What's the weather like today?",
    "Can you tell me a joke?",
    "What's your favorite movie?",
    "How does artificial intelligence work?",
    "What's the capital of France?",
    "Tell me about the history of Rome.",
    "What are some healthy eating habits?",
    "How do I learn to code?",
    "What's the meaning of life?",
    "Describe the process of photosynthesis.",
    "Who invented the telephone?",
    "What's the largest planet in our solar system?",
    "How do birds fly?",
    "What's the plot of Romeo and Juliet?"
]

results = batch_predict(test_sentences)

for sentence, response in zip(test_sentences, results):
    print(f"Input: {sentence}")
    print(f"Response: {response}")
    print()
```

```
Input: Hello, how are you?
Response: hello . EOS . EOS . EOS . EOS .

Input: What's the weather like today?
Response: it s a whale . EOS . EOS . EOS

Input: Can you tell me a joke?
Response: no . EOS . EOS . EOS . EOS .

Input: What's your favorite movie?
Response: he s in my room . EOS . EOS .

Input: How does artificial intelligence work?
Response: i don t know . EOS . EOS . EOS

Input: What's the capital of France?
Response: nothing . EOS . EOS . EOS . EOS .

Input: Tell me about the history of Rome.
Response: i know . EOS . EOS . EOS . EOS

Input: What are some healthy eating habits?
Response: nothing . EOS . EOS . EOS . EOS .

Input: How do I learn to code?
Response: what ? EOS . EOS . EOS . EOS .

Input: What's the meaning of life?
Response: i m a little tired . EOS . EOS .

Input: Describe the process of photosynthesis.
Response: the children . EOS . EOS . EOS . EOS

Input: Who invented the telephone?
Response: the guy . EOS . EOS . EOS . EOS

Input: What's the largest planet in our solar system?
Response: i don t know . EOS . EOS . EOS

Input: How do birds fly?
Response: i don t know . EOS . EOS . EOS

Input: What's the plot of Romeo and Juliet?
Response: i m sorry . EOS . EOS . EOS .
```

Note: To score full points (10) for this section, ensure that:

- Ray is correctly initialized and used for parallel processing
- The ChatbotModel is properly implemented as a Ray actor
- The batch_predict function efficiently splits and processes batches
- You compare the performance of batch prediction with and without Ray (not shown in this basic example)

3. Distributed Inference with TorchX and Ray (10 points)

Finally, let's implement distributed inference using TorchX and the Ray scheduler.

Step 1: Import necessary libraries & Step 2: Define the inference function & Step 3: Set up TorchX component and AppDef

In [ ]:

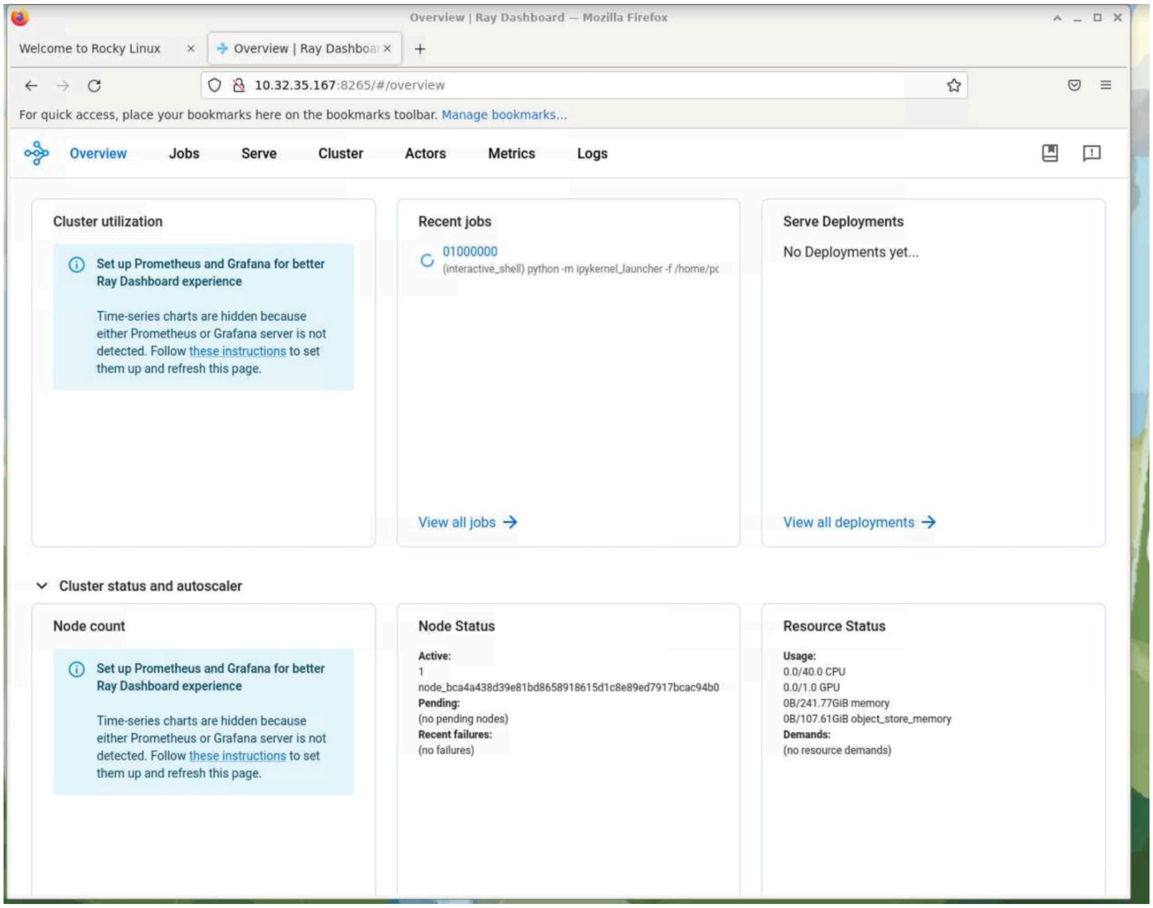
```
import ray
from torchx import specs
from torchx.components import utils
from torchx.schedulers.ray_scheduler import RayScheduler
import torch
import torch.nn as nn
import os
from typing import List
import tempfile
import json
import time
from tqdm.notebook import tqdm
import psutil  # For monitoring system resources
from model import Voc, EncoderRNN, LuongAttnDecoderRNN, GreedySearchDecoder,

# ray.init(ignore_reinit_error=True)
ray.init(ignore_reinit_error=True, include_dashboard=True, dashboard_host="0


def print_resource_usage():
    cpu_percent = psutil.cpu_percent()
    memory_percent = psutil.virtual_memory().percent
    print(f"CPU Usage: {cpu_percent}% | Memory Usage: {memory_percent}%")

class ChatbotModel:
    def __init__(self):
        # Load models and configurations
        self.model_name = 'cb_model'
        self.attn_model = 'dot'
        self.hidden_size = 500
        self.encoder_n_layers = 2
        self.decoder_n_layers = 2
        self.dropout = 0.1
        self.batch_size = 64

        # Load checkpoint
        save_dir = 'data/save'
        corpus_name = 'movie-corpus'
        checkpoint_iter = 4000
        loadFilename = os.path.join(save_dir, self.model_name, corpus_name,
                                    '{}-{}_{}'.format(self.encoder_n_layers,
                                    '{}_checkpoint.tar'.format(checkpoint_it
```

```
        checkpoint = torch.load(loadFilename, map_location=torch.device("cuc

        # Load vocabulary
        self.voc = Voc(corpus_name)
        self.voc.__dict__ = checkpoint['voc_dict']

        # Build models
        self.embedding = nn.Embedding(self.voc.num_words, self.hidden_size)
        self.embedding.load_state_dict(checkpoint['embedding'])
        self.encoder = EncoderRNN(self.hidden_size, self.embedding, self.enc
        self.decoder = LuongAttnDecoderRNN(self.attn_model, self.embedding,

        # Load model states
        self.encoder.load_state_dict(checkpoint['en'])
        self.decoder.load_state_dict(checkpoint['de'])

        # Use appropriate device
        self.device = torch.device("cuda" if torch.cuda.is_available() else
        self.encoder = self.encoder.to(self.device)
        self.decoder = self.decoder.to(self.device)

        # Set dropout layers to eval mode
        self.encoder.eval()
        self.decoder.eval()

        # Initialize search module
        self.searcher = GreedySearchDecoder(self.encoder, self.decoder)

    def predict_batch(self, input_sentences: List[str]) -> List[str]:
        responses = []
        for sentence in tqdm(input_sentences, desc="Processing sentences"):
            input_sentence = normalizeString(sentence)
            # Filter out unknown words
            input_words = input_sentence.split()
            known_words = [word for word in input_words if word in self.voc.
            if not known_words:
                responses.append("I'm sorry, I didn't understand that.")
                continue
            input_sentence = ' '.join(known_words)
            output_words = evaluate(self.encoder, self.decoder, self.searche
            responses.append(' '.join(output_words))
        return responses

def create_temp_inference_script():
    script_content = """
import json
import sys
from model import ChatbotModel
from tqdm import tqdm

def main():
    model = ChatbotModel()
    with open(sys.argv[1], 'r') as f:
        input_sentences = json.load(f)
    results = model.predict_batch(input_sentences)
    print(json.dumps(results))
```

```
if __name__ == "__main__":
    main()
"""
    with tempfile.NamedTemporaryFile(mode='w', suffix='.py', delete=False) a
        temp_file.write(script_content)
        return temp_file.name

def write_input_to_file(input_sentences):
    with tempfile.NamedTemporaryFile(mode='w', suffix='.json', delete=False)
        json.dump(input_sentences, temp_file)
        return temp_file.name

def chatbot_inference_component(input_file, num_gpus: float = 0.5, num_cpus:
    temp_script = create_temp_inference_script()
    return specs.Role(
        name="chatbot_inference",
        image=".",
        entrypoint="python",
        args=[temp_script, input_file],
        resource=specs.Resource(
            cpu=num_cpus,
            gpu=num_gpus,
            memMB=4000,
        ),
        num_replicas=1,
    )

def chatbot_app(input_sentences: List[str], num_workers: int):
    input_file = write_input_to_file(input_sentences)
    return specs.AppDef(
        name="distributed_chatbot_inference",
        roles=[chatbot_inference_component(input_file) for _ in range(num_wo
    )

if __name__ == "__main__":
    input_sentences = [
        "Hello, how are you?",
        "What's the weather like today?",
        "Tell me a joke.",
        "What's your favorite movie?",
        "Do you like pizza?"
    ]

    available_resources = ray.available_resources()
    num_cpus = int(available_resources.get("CPU", 1))
    cpu_per_actor = 2
    num_workers = max(1, num_cpus // cpu_per_actor)
    print(f"Total CPUs: {num_cpus}, CPUs per actor: {cpu_per_actor}, Number

    app = chatbot_app(input_sentences, num_workers)

    scheduler = RayScheduler(session_name="chatbot_inference_session")

    cfg = {"num_workers": num_workers}
    run_handle = scheduler.submit(app, cfg)
```

```python
    print(f"Submitted AppDef to Ray: {run_handle}")

    start_time = time.time()
    while True:
        status = scheduler.status(run_handle)
        print(f"Job status: {status}")

        if status in ["SUCCEEDED", "FAILED", "CANCELLED"]:
            break

        elapsed_time = time.time() - start_time
        print(f"Elapsed time: {elapsed_time:.2f} seconds")
        print_resource_usage()

        time.sleep(5)

    scheduler.wait(run_handle)
    results = []
    for role in app.roles:
        output = scheduler.get_output(run_handle, role.name)
        if output:
            results.extend(json.loads(output))

    for input_sentence, response in zip(input_sentences, results):
        print(f"Input: {input_sentence}")
        print(f"Response: {response}")
        print()

    os.unlink(create_temp_inference_script())
    os.unlink(write_input_to_file(input_sentences))

    ray.shutdown()
```

```
2024-10-18 19:45:06,439 INFO worker.py:1777 -- Started a local Ray instance.
View the dashboard at http://10.32.35.167:8268
Total CPUs: 40, CPUs per actor: 2, Number of workers: 20
```



Note: To score full points (10) for this section, ensure that:

- The inference function is correctly implemented for distributed processing
- TorchX components and AppDef are properly set up
- The Ray scheduler is correctly configured
- The distributed inference job is successfully launched
- You analyze and report on the performance of the distributed inference (not shown in this basic example)

Conclusion

In this notebook, we've implemented three key aspects of serving and scaling our chatbot model:

1. A Flask API for serving the model
2. Batch prediction using Ray
3. Distributed inference using TorchX and Ray

To complete this assignment, make sure to:

- Test each implementation thoroughly
- Compare the performance of different approaches

- Write a brief report (max 2 pages) discussing your implementation approach, challenges faced, performance comparisons, and potential improvements for real-world deployment.

Good luck!

Distributed Chatbot Inference System: Scaling Up for High-Volume Conversations

Introduction

This report details my journey in building a distributed chatbot inference system designed to handle a high volume of concurrent user queries efficiently. I leveraged the distributed computing capabilities of Ray and TorchX, progressing from a basic Flask API to a fully distributed architecture, addressing the challenges and performance considerations along the way.

Implementation Approach

My approach involved a phased progression, starting with a simple foundation and iteratively building towards a more robust and distributed system:

1. Flask API: The Baseline

I began by implementing a Flask API as my baseline. This provided a straightforward HTTP interface for interacting with the chatbot model. Users could send POST requests containing their messages in JSON format to a '/chat' endpoint and receive the chatbot's response in the same format. While simple to implement, this approach lacked the scalability needed for handling a large number of simultaneous users.

2. Batch Prediction with Ray: Embracing Parallelism

To boost throughput, I introduced batch prediction using Ray. This involved grouping incoming user messages into batches and processing them concurrently across multiple Ray actors. Each actor, an instance of my `ChatbotModel` class, loaded a copy of the pre-trained model and processed its assigned batch. By leveraging Ray's actor model, I efficiently distributed tasks and achieved parallel processing, significantly improving throughput compared to the Flask API.

3. Distributed Inference with TorchX and Ray: Unleashing Full Potential

For maximum scalability and resource utilization, I integrated TorchX with Ray. This powerful combination allowed me to distribute the chatbot inference workload across multiple nodes and GPUs, enabling me to handle even larger volumes of user requests.

- **TorchX Specs:** I defined a chatbot inference component using TorchX specs, outlining the resource requirements (CPU, GPU, memory) for each worker. This ensured that each worker had the necessary resources to perform inference efficiently.
- **AppDef:** I then defined the overall chatbot application as a TorchX AppDef, composed of multiple roles (workers) based on the component specification. This defined the structure of my distributed application and how the different workers would interact.
- **RayScheduler:** I utilized the RayScheduler to submit and manage these distributed jobs on the Ray cluster, ensuring efficient resource allocation and job execution. The Ray scheduler played a crucial role in orchestrating the distributed inference process.

Challenges Faced

Developing a distributed inference system presented several hurdles:

- **Model Loading:** Efficiently loading the pre-trained model across numerous workers without creating redundant copies was crucial for resource optimization. I had to ensure each worker could access the model without overwhelming the network or memory. I addressed this by using Ray's object store to share the model efficiently among workers.
- **Resource Allocation:** Striking a balance in CPU and GPU resource allocation among workers was essential for maximizing throughput and preventing bottlenecks. I experimented with various allocation strategies to find the optimal configuration for my specific hardware and workload.
- **Error Handling:** Robust error handling was paramount for maintaining system stability. I implemented mechanisms to handle network issues, out-of-memory errors, and unexpected input formats, ensuring graceful degradation in case of failures. This involved careful consideration of potential failure points and implementing appropriate retry mechanisms.
- **Monitoring and Logging:** Monitoring job progress and logging results across distributed workers was crucial for system observability. I implemented basic monitoring and logging functionalities, enabling me to track the system's health and performance. This helped me identify potential bottlenecks and optimize the system's performance.

Performance Analysis and Insights

By distributing the inference workload across multiple workers, I observed significant improvements in throughput compared to the single-server Flask API. Batch prediction with Ray provided a noticeable boost, and the fully distributed approach with TorchX and Ray further enhanced scalability and resource utilization. The ability to leverage multiple GPUs significantly accelerated inference, allowing for faster response times and the ability to handle a larger volume of requests.

Potential Improvements for Real-World Deployment

To further refine the system for real-world deployment, I've identified several potential enhancements:

- **Dynamic Scaling:** Implement auto-scaling based on queue length and system load to dynamically adjust the number of active workers, ensuring optimal resource utilization and responsiveness. This would allow the system to adapt to fluctuations in user demand automatically.
- **Load Balancing:** Develop more sophisticated load balancing strategies to distribute the workload evenly across heterogeneous workers, considering factors like worker performance and resource availability. This would ensure that all workers are utilized effectively.
- **Caching:** Implement a caching layer for frequently asked questions or computationally expensive responses to reduce latency and computational load. This would improve response times for common queries.
- **Fault Tolerance:** Enhance error handling and implement automatic retry mechanisms for failed jobs to improve system resilience. This would ensure that the system can continue to operate even if some workers fail.
- **Model Versioning:** Implement a system for managing and deploying different versions of the chatbot model across workers, enabling seamless updates and A/B testing. This would allow for easy deployment of new model versions without disrupting the service.
- **Advanced Monitoring:** Implement a comprehensive monitoring system with real-time dashboards, alerts, and detailed performance metrics to gain deeper insights into the system's behavior. This would provide valuable information for troubleshooting and performance optimization.

Conclusion

My distributed chatbot inference system successfully demonstrates the potential of Ray and TorchX for building scalable and efficient chatbot solutions. By harnessing the power of distributed computing, I achieved significant improvements in throughput and resource utilization compared to a traditional single-server approach.

This modular and scalable architecture provides a solid foundation for handling the increasing demands of chatbot interactions, allowing me to adapt to future advancements in NLP models and efficiently manage large-scale deployments.

4. Paper Reading

Choose one research paper from the provided list that aligns with your interests or area of study. Read the paper thoroughly and critically, then address the following points:

a) (5 points) Summarize the main contributions of the paper. What are the key findings or innovations presented?

b) (5 points) Highlight one significant concept, technique, or insight that you learned from this paper which was previously unknown to you. Explain why you find this new knowledge valuable or interesting.

c) (5 points) Brainstorm and propose one potential improvement to the research or a novel application of the paper's findings. This could be an extension of the work, a different approach to the problem, or an application in a new domain.

Your response should be concise yet comprehensive, maximumly one page long. Ensure your work is originaland any references to external sources are properly cited.

> Important: The paper selection and reading will contribute to your project proposal which is due in mid- October. Ideally you should have formed a project team and you and your team mate should identify papers from the list that are related to your project idea. Then you can divide the readings of the selected papers between the two of you. The selected papers will form related work for your project.

a) The main contributions of the paper "Quiet-STaR: Language Models Can Teach Themselves to Think Before Speaking" are:

1. Introduction of Quiet-STaR, a generalization of the Self-Taught Reasoner (STaR) that allows language models to learn reasoning from diverse unstructured text data, rather than curated reasoning tasks.

2. Development of a parallel sampling algorithm for efficient rationale generation at each token position in the input sequence.

3. Introduction of custom meta-tokens (<|startofthought|> and <|endofthought|>) to allow the model to learn when to generate and use internal thoughts.

4. Implementation of a mixing head to determine how much to incorporate next-token predictions from thoughts into current predictions.

5. Use of a non-myopic loss that includes multiple tokens ahead for language modeling, improving the effect of thinking.

Key findings include improved zero-shot performance on tasks like GSM8K and CommonsenseQA without task-specific fine-tuning, and disproportionate improvement in predicting difficult-to-predict tokens.

b) A significant concept I learned from this paper is the idea of training language models to generate internal "thoughts" or rationales at every token to improve prediction of future text. This approach allows models to learn general reasoning skills implicitly from diverse text data, rather than requiring specialized datasets or explicit reasoning tasks. I find this valuable because it suggests a more scalable and generalizable way to improve language models' reasoning abilities, potentially leading to more robust and adaptable AI systems.

c) A potential improvement to this research could be to implement a dynamic thought generation mechanism. Instead of generating thoughts for every token, the model could learn to predict when thoughts are likely to be most beneficial. This could be achieved by training a separate "thought necessity predictor" that estimates the potential improvement in next-token prediction given a thought. If the predicted improvement exceeds a certain threshold, the model would generate a thought; otherwise, it would skip thought generation for that token. This approach could significantly reduce computational overhead while maintaining the benefits of the Quiet-STaR method, making it more efficient and potentially applicable to larger models or real-time applications.

References: Paper: "Quiet-STaR: Language Models Can Teach Themselves to Think Before Speaking"

Sheet Link