Submission
✖ Kernel run unsuccessful
Submitted by NinaV 13 hours ago

Public Score
0.204

Triplet Model for Hampback Whole Prediction

Outline of the Notebook

- **1.Introduction**
- **2.Data Description**
- **3.Evaluation**
- **4.Submission Format**
- **5.Required Packages**
- **6.Define Parameter**
- **7.Helping Function**
- **8.Introduction to Triplet Loss**
- **9.Model Design**
- **10.Model Training**
- **11.Image Generator**
- **12.Predict Result**

1.Introduction

About Competition

After centuries of intense whaling, recovering whale populations still have a hard time adapting to warming oceans and struggle to compete every day with the industrial fishing industry for food.

To aid whale conservation efforts, scientists use photo surveillance systems to monitor ocean activity. They use the shape of whales' tails and unique markings found in footage to identify what species of whale they're analyzing and meticulously log whale pod dynamics and movements. For the past 40 years, most of this work has been done manually by individual scientists, leaving a huge trove of data untapped and underutilized.

In this competition, you're challenged to build an algorithm to identify individual whales in images. You'll analyze Happywhale's database of over 25,000 images, gathered from research institutions and public contributors. By contributing, you'll help to open rich fields of understanding for marine mammal population dynamics around the globe.

Note, this competition is similar in nature to this competition (https://www.kaggle.com/c/whale-categorization-playground) with an expanded and updated dataset.

2.Data Description

This training data contains thousands of images of humpback whale flukes. Individual whales have been identified by researchers and given an `Id`. The challenge is to predict the whale `Id` of images in the test set. What makes this such a challenge is that there are only a few examples for each of 3,000+ whale Ids.

File descriptions

- **train.zip** - a folder containing the training images
- **train.csv** - maps the training `Image` to the appropriate whale `Id`. Whales that are not predicted to have a label identified in the training data should be labeled as `new_whale`.
- **test.zip** - a folder containing the test images to predict the whale `Id`
- **sample_submission.csv** - a sample submission file in the correct format

3.Evalution Mertics:

Submissions are evaluated according to the Mean Average Precision @ 5 (MAP@5):

[Math Processing Error]

where `U` is the number of images, `P(k)` is the precision at cutoff `k`, and `n` is the number predictions per image.

4.Submission Format

For each `Image` in the test set, you may predict up to 5 labels for the whale `Id`. Whales that are not predicted to be one of the labels in the training data should be labeled as `new_whale`. The file should contain a header and have the following format:

```
Image,Id
00028a005.jpg,new_whale w_23a388d w_9b5109b w_9c506f6 w_0369a5c
000dcf7d8.jpg,new_whale w_23a388d w_9b5109b w_9c506f6 w_0369a5c
...
```

In [1]:

```
import os
print(os.listdir("../input"))
```

```
['humpback-whale-identification', 'whales-cropped']
```

5.Required Packages

In [2]:

```
from collections import defaultdict
import pandas as pd
import numpy as np
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import normalize
from scipy.stats import logistic
from os.path import join
from tqdm import tqdm
from PIL import Image
from keras import backend as K
from keras.models import Model
from keras.optimizers import Adam
from keras.layers import Input, Dense, Dropout, Lambda, Convolution2D, MaxPooling2D, Flatten
from keras.losses import categorical_crossentropy
from keras.callbacks import Callback, ModelCheckpoint, EarlyStopping
from keras.metrics import top_k_categorical_accuracy
from keras.applications.resnet50 import ResNet50, preprocess_input
from keras.callbacks import LambdaCallback, ModelCheckpoint
# from keras.applications.inception_resnet_v2 import InceptionResNetV2, preprocess_input
# from keras.applications.inception_v3 import InceptionV3, preprocess_input
import os
import gc
import matplotlib.pyplot as plt
import seaborn as sns
plt.style.use('fivethirtyeight')
%matplotlib inline

import warnings
for i in [DeprecationWarning,FutureWarning,UserWarning]:
```

```
    warnings.filterwarnings("ignore", category = i)
```

```
Using TensorFlow backend.
```

6.Define Parameter

In [3]:

```
batch_size = 24
embedding_dim = 50
image_size = 128 #224
path_base = '../input/humpback-whale-identification/'
path_cropped = '../input/whales-cropped/'
path_train = join(path_cropped,'cropped_train/cropped_train')
path_test = join(path_cropped,'cropped_test/cropped_test')
path_model = join(path_base,'MyModel.hdf5')
path_csv = join(path_base,'train.csv')
# path_csv = '../input/train.csv'
```

7.Helping Function

In [4]:

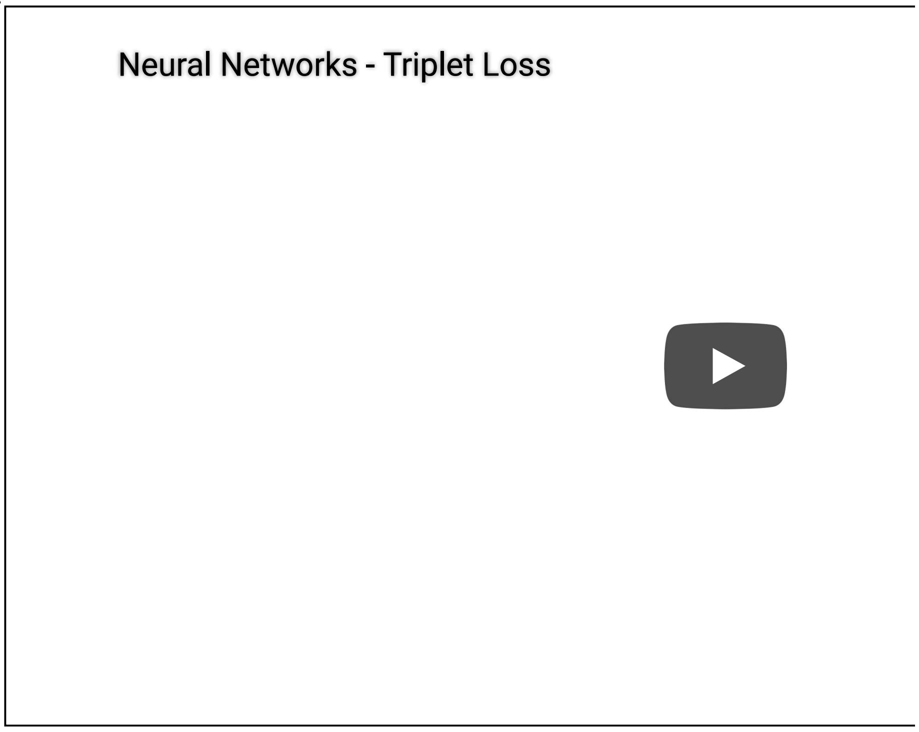
```
class sample_gen(object):
    def __init__(self, file_class_mapping, other_class = "new
_whale"):
        self.file_class_mapping= file_class_mapping
        self.class_to_list_files = defaultdict(list)
        self.list_other_class = []
        self.list_all_files = list(file_class_mapping.keys())
        self.range_all_files = list(range(len(self.list_all_f
iles)))

        for file, class_ in file_class_mapping.items():
            if class_ == other_class:
                self.list_other_class.append(file)
            else:
                self.class_to_list_files[class_].append(file)

        self.list_classes = list(set(self.file_class_mapping.
values()))
        self.range_list_classes= range(len(self.list_classes
))
        self.class_weight = np.array([len(self.class_to_list_
files[class_]) for class_ in self.list_classes])
        self.class_weight = self.class_weight/np.sum(self.cla
ss_weight)

    def get_sample(self):
        class_idx = np.random.choice(self.range_list_classes,
 1, p=self.class_weight)[0]
        examples_class_idx = np.random.choice(range(len(self.
class_to_list_files[self.list_classes[class_idx]])), 2)
        positive_example_1, positive_example_2 = \
            self.class_to_list_files[self.list_classes[class_
idx]][examples_class_idx[0]],\
            self.class_to_list_files[self.list_classes[class_
idx]][examples_class_idx[1]]


        negative_example = None
        while negative_example is None or self.file_class_map
ping[negative_example] == \
                self.file_class_mapping[positive_example_1]:
```

```
            negative_example_idx = np.random.choice(self.range_all_files, 1)[0]
            negative_example = self.list_all_files[negative_example_idx]
        return positive_example_1, negative_example, positive_example_2

def read_and_resize(filepath):
    im = Image.open((filepath)).convert('RGB')
    im = im.resize((image_size, image_size))
    return np.array(im, dtype="float32")


def augment(im_array):
    if np.random.uniform(0, 1) > 0.9:
        im_array = np.fliplr(im_array)
    return im_array

def gen(triplet_gen):
    while True:
        list_positive_examples_1 = []
        list_negative_examples = []
        list_positive_examples_2 = []

        for i in range(batch_size):
            positive_example_1, negative_example, positive_example_2 = triplet_gen.get_sample()
            path_pos1 = join(path_train, positive_example_1)
            path_neg = join(path_train, negative_example)
            path_pos2 = join(path_train, positive_example_2)

            positive_example_1_img = read_and_resize(path_pos1)
            negative_example_img = read_and_resize(path_neg)
            positive_example_2_img = read_and_resize(path_pos2)

            positive_example_1_img = augment(positive_example_1_img)
            negative_example_img = augment(negative_example_img)
            positive_example_2_img = augment(positive_example_2_img)

            list_positive_examples_1.append(positive_example_1_img)
            list_negative_examples.append(negative_example_img)
            list_positive_examples_2.append(positive_example_2_img)

        A = preprocess_input(np.array(list_positive_examples_1))
        B = preprocess_input(np.array(list_positive_examples_2))
        C = preprocess_input(np.array(list_negative_examples))

        label = None

        yield ({'anchor_input': A, 'positive_input': B, 'negative_input': C}, label)
```

8.Introduction to Triplet Loss

Code

Out[5]:

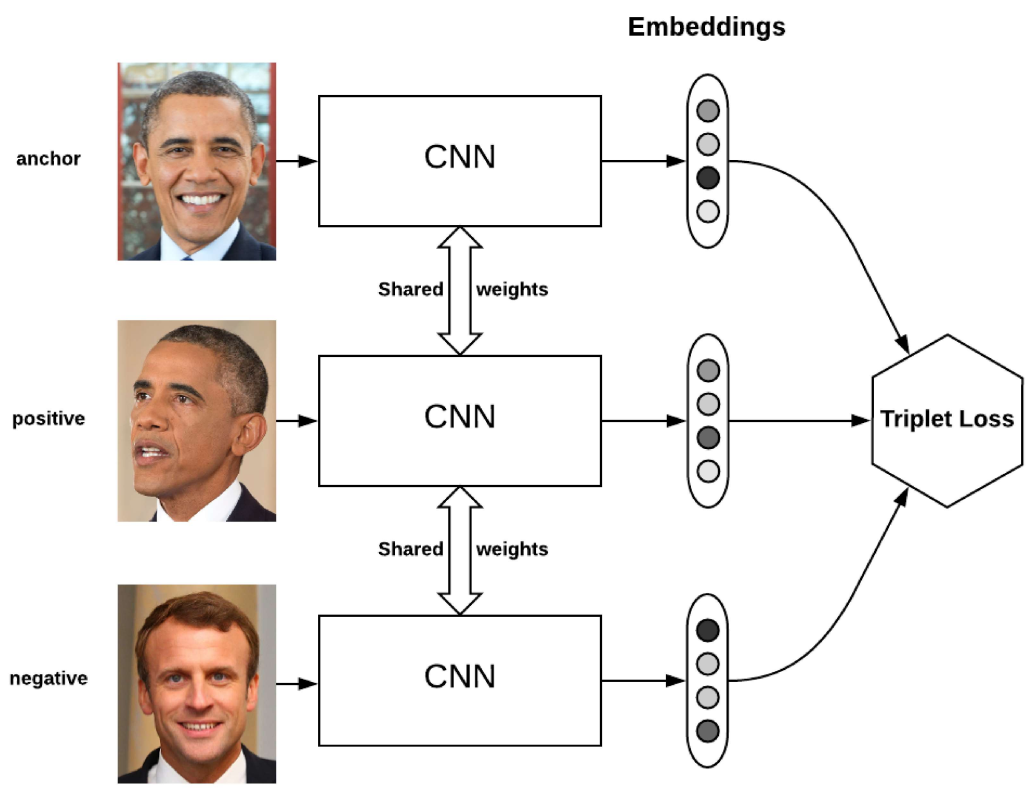


Concept of Triplet loss

References : https://omoindrot.github.io/triplet-loss (https://omoindrot.github.io/triplet-loss)

It's a loss function that is used when training a NN for face recognition/verification. Each training sample is actually composed of a "triplet" of images:

- **An anchor**
- **A positive of the same class as the anchor**
- **A negative of a different class**



Source: Triplet Loss and Online Triplet Mining in TensorFlow (https://omoindrot.github.io/assets/triplet_loss/triplet_loss.png)

1. The CNN first encodes the triplets as embeddings in some vector space.
2. You then calculate the two distances in the embedding space:
   A. The distance between the anchor and the positive - call it d(a,p)
   B. The distance between the anchor and the negative - call it d(a,n)
3. You define some margin of your choice

The triplet loss is then defined as: $L=\max(d(a,p)-d(a,n)+margin,0)$ Minimizing it both pushes d(a,p) to 0, and d(a,n) to be bigger than d(a,p)+margin.

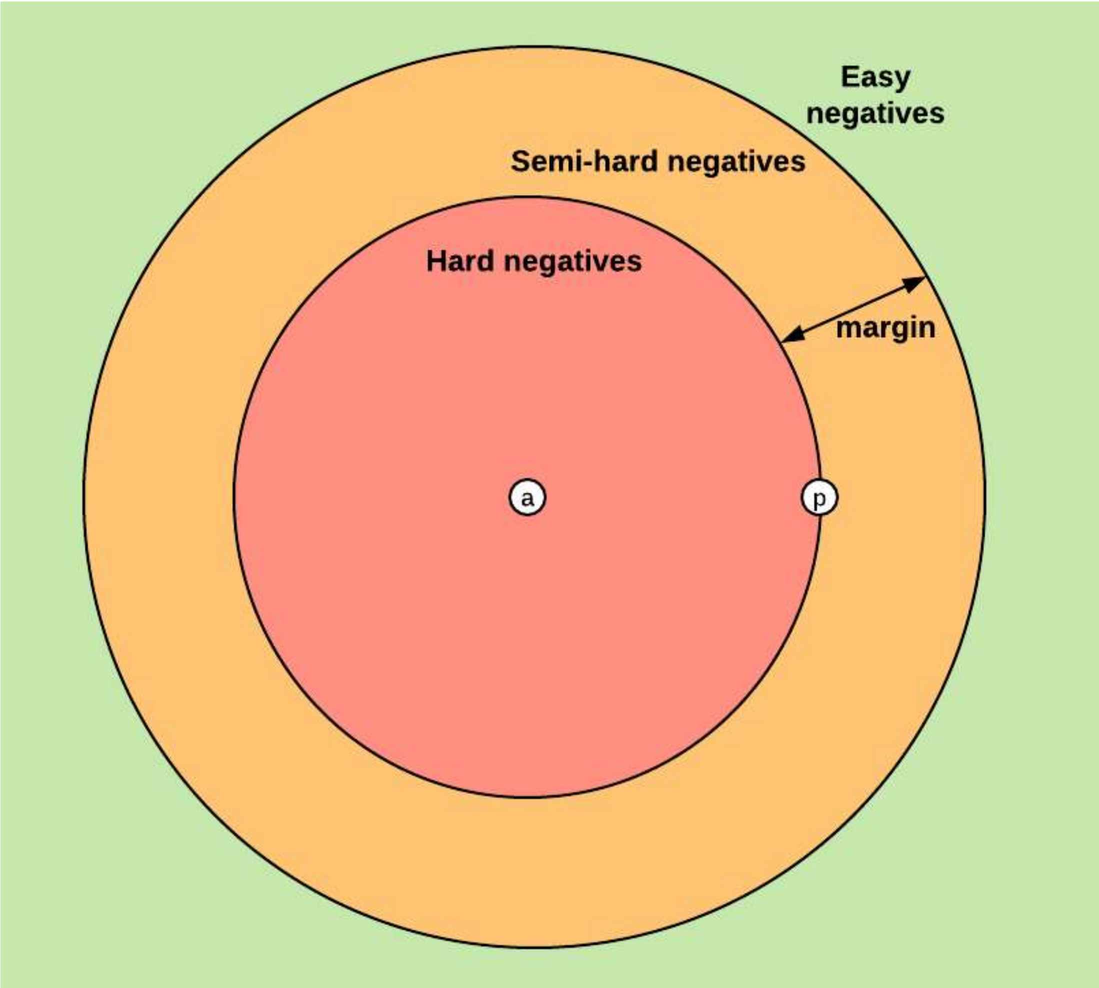
Triplet mining

Based on the definition of the loss, there are three categories of triplets:

- **easy triplets:** triplets which have a loss of 0, because $d(a,p) + margin < d(a,n)$
- **hard triplets:** triplets where the negative is closer to the anchor than the positive, i.e. $d(a,n) < d(a,p)$
- **semi-hard triplets:** triplets where the negative is not closer to the anchor than the positive, but which still have positive loss: $d(a,p) < d(a,n) < d(a,p) + margin$

Each of these definitions depend on where the negative is, relatively to the anchor and positive. We can therefore extend these three categories to the negatives: hard negatives, semi-hard negatives or easy negatives.

The figure below shows the three corresponding regions of the embedding space for the negative.



In [6]:

```
def triplet_loss(inputs, dist='sqeuclidean', margin='maxplus'
):
    anchor, positive, negative = inputs
    positive_distance = K.square(anchor - positive)
    negative_distance = K.square(anchor - negative)
    if dist == 'euclidean':
        positive_distance = K.sqrt(K.sum(positive_distance, a
xis=-1, keepdims=True))
        negative_distance = K.sqrt(K.sum(negative_distance, a
xis=-1, keepdims=True))
    elif dist == 'sqeuclidean':
        positive_distance = K.sum(positive_distance, axis=-1,
 keepdims=True)
        negative_distance = K.sum(negative_distance, axis=-1,
 keepdims=True)
    loss = positive_distance - negative_distance
    if margin == 'maxplus':
        loss = K.maximum(0.0, 1 + loss)
    elif margin == 'softplus':
        loss = K.log(1 + K.exp(loss))
    return K.mean(loss)

def triplet_loss_np(inputs, dist='sqeuclidean', margin='maxpl
us'):
    anchor, positive, negative = inputs
    positive_distance = np.square(anchor - positive)
```

```
    negative_distance = np.square(anchor - negative)
    if dist == 'euclidean':
        positive_distance = np.sqrt(np.sum(positive_distance,
 axis=-1, keepdims=True))
        negative_distance = np.sqrt(np.sum(negative_distance,
 axis=-1, keepdims=True))
    elif dist == 'sqeuclidean':
        positive_distance = np.sum(positive_distance, axis=-1
, keepdims=True)
        negative_distance = np.sum(negative_distance, axis=-1
, keepdims=True)
    loss = positive_distance - negative_distance
    if margin == 'maxplus':
        loss = np.maximum(0.0, 1 + loss)
    elif margin == 'softplus':
        loss = np.log(1 + np.exp(loss))
    return np.mean(loss)

def check_loss():
    batch_size = 10
    shape = (batch_size, 4096)

    p1 = normalize(np.random.random(shape))
    n = normalize(np.random.random(shape))
    p2 = normalize(np.random.random(shape))

    input_tensor = [K.variable(p1), K.variable(n), K.variable
(p2)]
    out1 = K.eval(triplet_loss(input_tensor))
    input_np = [p1, n, p2]
    out2 = triplet_loss_np(input_np)

    assert out1.shape == out2.shape
    print(np.linalg.norm(out1))
    print(np.linalg.norm(out2))
    print(np.linalg.norm(out1-out2))
```

In [7]:

```
check_loss()
```

```
0.99798566
0.9979856508261784
1.0203637268446641e-08
```

9.Model Design

In [8]:

```
def GetModel():
    base_model = ResNet50(weights='imagenet', include_top=Fal
se, pooling='max')
    for layer in base_model.layers:
        layer.trainable = False

    x = base_model.output
    x = Dropout(0.6)(x)
    x = Dense(embedding_dim)(x)
    x = Lambda(lambda  x: K.l2_normalize(x,axis=1))(x)
    embedding_model = Model(base_model.input, x, name="embedd
ing")

    input_shape = (image_size, image_size, 3)
    anchor_input = Input(input_shape, name='anchor_input')
    positive_input = Input(input_shape, name='positive_input'
```

```
)
    negative_input = Input(input_shape, name='negative_input'
)
    anchor_embedding = embedding_model(anchor_input)
    positive_embedding = embedding_model(positive_input)
    negative_embedding = embedding_model(negative_input)

    inputs = [anchor_input, positive_input, negative_input]
    outputs = [anchor_embedding, positive_embedding, negative
_embedding]

    triplet_model = Model(inputs, outputs)
    triplet_model.add_loss(K.mean(triplet_loss(outputs)))

    return embedding_model, triplet_model
```

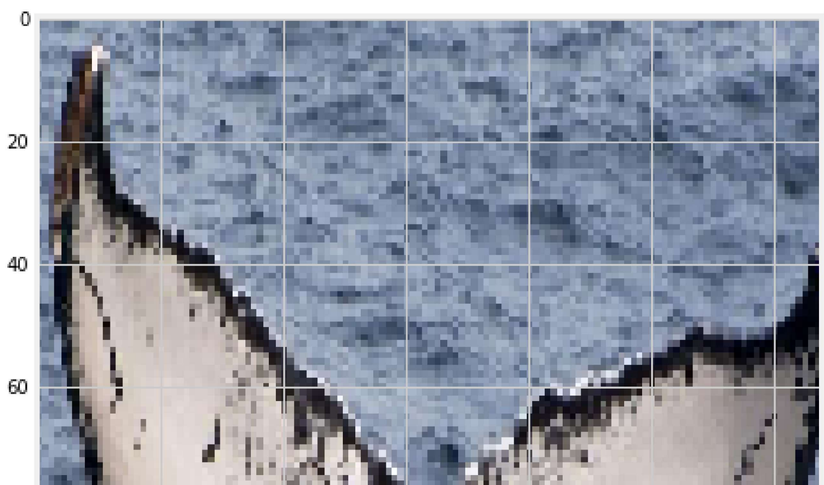
In [9]:

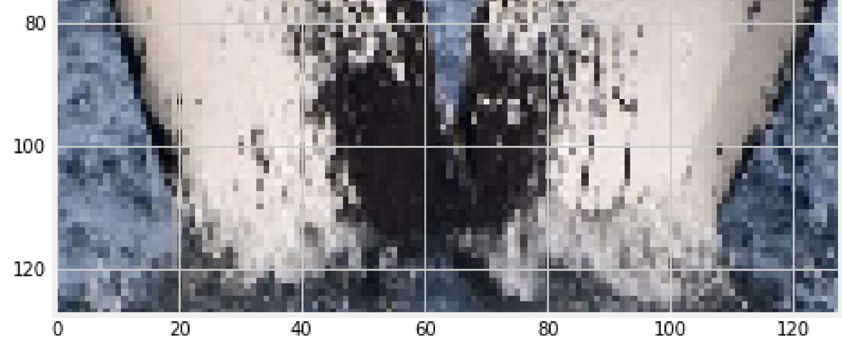
```
data = pd.read_csv(path_csv)
train, test = train_test_split(data, train_size=0.7, random_s
tate=1337)
file_id_mapping_train = {k: v for k, v in zip(train.Image.val
ues, train.Id.values)}
file_id_mapping_test = {k: v for k, v in zip(test.Image.value
s, test.Id.values)}
gen_tr = gen(sample_gen(file_id_mapping_train))
gen_te = gen(sample_gen(file_id_mapping_test))

checkpoint = ModelCheckpoint(path_model, monitor='loss', verb
ose=1, save_best_only=True, mode='min')
early = EarlyStopping(monitor="val_loss", mode="min", patienc
e=2)
callbacks_list = [checkpoint, early]  # early
```

In [10]:

```
def ShowImg(img):
    plt.figure(figsize=(15,8))
    plt.imshow(img.astype('uint8'))
    plt.show()
    plt.close()

batch_gen = next(gen_tr)

img = batch_gen[0]['anchor_input'][0]
print(img.shape)
mean = [103.939, 116.779, 123.68]
img[..., 0] += mean[0]
img[..., 1] += mean[1]
img[..., 2] += mean[2]
img = img[..., ::-1]
ShowImg(img)
```

```
(128, 128, 3)
```





Installation of Resnet 50 Weight to keras

In [11]:

```
embedding_model, triplet_model = GetModel()
```

```
Downloading data from https://github.com/fchollet/deep-learni
ng-models/releases/download/v0.2/resnet50_weights_tf_dim_orde
ring_tf_kernels_notop.h5
94658560/94653016 [==============================] - 7s 0us/s
tep
```

In [12]:

```
for i, layer in enumerate(embedding_model.layers):
    print(i, layer.name, layer.trainable)
```

```
0 input_1 False
1 conv1_pad False
2 conv1 False
3 bn_conv1 False
4 activation_1 False
5 pool1_pad False
6 max_pooling2d_1 False
7 res2a_branch2a False
8 bn2a_branch2a False
9 activation_2 False
10 res2a_branch2b False
11 bn2a_branch2b False
12 activation_3 False
13 res2a_branch2c False
14 res2a_branch1 False
15 bn2a_branch2c False
16 bn2a_branch1 False
17 add_1 False
18 activation_4 False
19 res2b_branch2a False
20 bn2b_branch2a False
21 activation_5 False
22 res2b_branch2b False
23 bn2b_branch2b False
24 activation_6 False
25 res2b_branch2c False
26 bn2b_branch2c False
27 add_2 False
28 activation_7 False
29 res2c_branch2a False
30 bn2c_branch2a False
31 activation_8 False
32 res2c_branch2b False
33 bn2c_branch2b False
34 activation_9 False
35 res2c_branch2c False
36 bn2c_branch2c False
37 add_3 False
```

```
38 activation_10 False
39 res3a_branch2a False
40 bn3a_branch2a False
41 activation_11 False
42 res3a_branch2b False
43 bn3a_branch2b False
44 activation_12 False
45 res3a_branch2c False
46 res3a_branch1 False
47 bn3a_branch2c False
48 bn3a_branch1 False
49 add_4 False
50 activation_13 False
51 res3b_branch2a False
52 bn3b_branch2a False
53 activation_14 False
54 res3b_branch2b False
55 bn3b_branch2b False
56 activation_15 False
57 res3b_branch2c False
58 bn3b_branch2c False
59 add_5 False
60 activation_16 False
61 res3c_branch2a False
62 bn3c_branch2a False
63 activation_17 False
64 res3c_branch2b False
65 bn3c_branch2b False
66 activation_18 False
67 res3c_branch2c False
68 bn3c_branch2c False
69 add_6 False
70 activation_19 False
71 res3d_branch2a False
72 bn3d_branch2a False
73 activation_20 False
74 res3d_branch2b False
75 bn3d_branch2b False
76 activation_21 False
77 res3d_branch2c False
78 bn3d_branch2c False
79 add_7 False
80 activation_22 False
81 res4a_branch2a False
82 bn4a_branch2a False
83 activation_23 False
84 res4a_branch2b False
85 bn4a_branch2b False
86 activation_24 False
87 res4a_branch2c False
88 res4a_branch1 False
89 bn4a_branch2c False
90 bn4a_branch1 False
91 add_8 False
92 activation_25 False
93 res4b_branch2a False
94 bn4b_branch2a False
95 activation_26 False
96 res4b_branch2b False
97 bn4b_branch2b False
98 activation_27 False
99 res4b_branch2c False
100 bn4b_branch2c False
101 add_9 False
102 activation_28 False
103 res4c_branch2a False
```

```
104 bn4c_branch2a False
105 activation_29 False
106 res4c_branch2b False
107 bn4c_branch2b False
108 activation_30 False
109 res4c_branch2c False
110 bn4c_branch2c False
111 add_10 False
112 activation_31 False
113 res4d_branch2a False
114 bn4d_branch2a False
115 activation_32 False
116 res4d_branch2b False
117 bn4d_branch2b False
118 activation_33 False
119 res4d_branch2c False
120 bn4d_branch2c False
121 add_11 False
122 activation_34 False
123 res4e_branch2a False
124 bn4e_branch2a False
125 activation_35 False
126 res4e_branch2b False
127 bn4e_branch2b False
128 activation_36 False
129 res4e_branch2c False
130 bn4e_branch2c False
131 add_12 False
132 activation_37 False
133 res4f_branch2a False
134 bn4f_branch2a False
135 activation_38 False
136 res4f_branch2b False
137 bn4f_branch2b False
138 activation_39 False
139 res4f_branch2c False
140 bn4f_branch2c False
141 add_13 False
142 activation_40 False
143 res5a_branch2a False
144 bn5a_branch2a False
145 activation_41 False
146 res5a_branch2b False
147 bn5a_branch2b False
148 activation_42 False
149 res5a_branch2c False
150 res5a_branch1 False
151 bn5a_branch2c False
152 bn5a_branch1 False
153 add_14 False
154 activation_43 False
155 res5b_branch2a False
156 bn5b_branch2a False
157 activation_44 False
158 res5b_branch2b False
159 bn5b_branch2b False
160 activation_45 False
161 res5b_branch2c False
162 bn5b_branch2c False
163 add_15 False
164 activation_46 False
165 res5c_branch2a False
166 bn5c_branch2a False
167 activation_47 False
168 res5c_branch2b False
169 bn5c_branch2b False
170 activation_48 False
```

```
170 activation_48 False
171 res5c_branch2c False
172 bn5c_branch2c False
173 add_16 False
174 activation_49 False
175 global_max_pooling2d_1 False
176 dropout_1 True
177 dense_1 True
178 lambda_1 True
```

In [13]:

```
for layer in embedding_model.layers[178:]:
    layer.trainable = True
for layer in embedding_model.layers[:178]:
    layer.trainable = False
```

In [14]:

```
gc.collect()

def top_5_accuracy(y_true, y_pred):
    return top_k_categorical_accuracy(y_true, y_pred, k=5)
```

In [15]:

```
import keras.backend as K
from keras.callbacks import Callback

class GcCollectors(Callback):
    def __init__(self):
        super().__init__()

    def on_epoch_end(self, ep, logs=None):
        gc.collect()

    def on_epoch_begin(self, ep, logs=None):
        gc.collect()

#     def on_batch_end(self, bach, logs=None):
#         gc.collect()

#     def on_batch_begin(self, bach, logs=None):
#         gc.collect()

    def on_train_begin(self, logs=None):
        gc.collect()

    def on_train_end(self, logs=None):
        gc.collect()
```

In [16]:

```
triplet_model.compile(loss=None, optimizer=Adam(0.01), metric
s=['accuracy', top_5_accuracy])

gc.collect()
gc_collectors = GcCollectors()

history = triplet_model.fit_generator(gen_tr,
                                      validation_data=gen_te,

                                      epochs=4,
                                      verbose=1,
                                      workers=4,
                                      steps_per_epoch=200,
                                      validation_steps=20,
                                      use_multiprocessing=Tru
e,
```

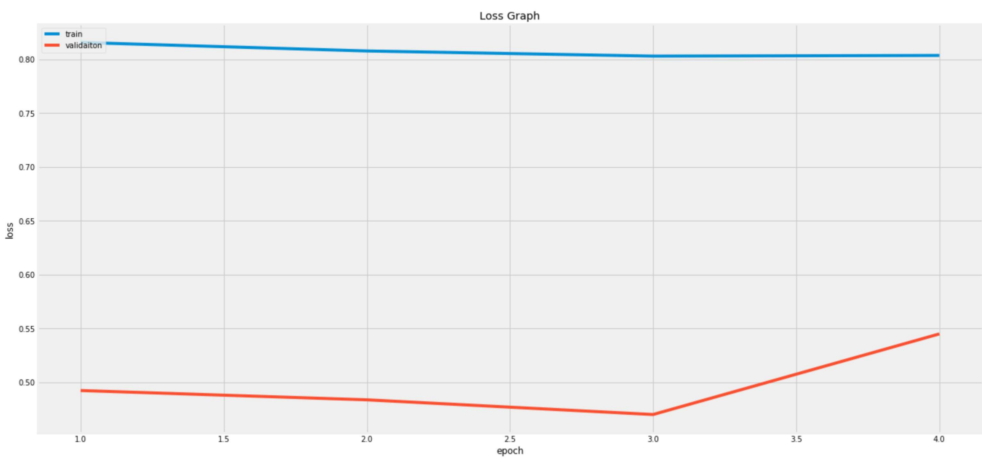
```
                                        callbacks = [gc_collect
ors])
```

```
Epoch 1/4
200/200 [==============================] - 106s 528ms/step -
loss: 0.8156 - val_loss: 0.4925
Epoch 2/4
200/200 [==============================] - 92s 458ms/step - l
oss: 0.8077 - val_loss: 0.4838
Epoch 3/4
200/200 [==============================] - 93s 463ms/step - l
oss: 0.8029 - val_loss: 0.4702
Epoch 4/4
200/200 [==============================] - 120s 601ms/step -
loss: 0.8035 - val_loss: 0.5450
```

In [17]:

```
# plt.plot(history.history['loss'], label='loss')
# plt.legend()
# plt.show()
def eva_plot(History, epoch_i):
    plt.figure(figsize=(20,10))
#     sns.lineplot(range(1, epoch+1), History.history['acc'],
 label='Train Accuracy')
#     sns.lineplot(range(1, epoch+1), History.history['val_ac
c'], label='Test Accuracy')
#     plt.legend(['train', 'validaiton'], loc='upper left')
#     plt.ylabel('accuracy')
#     plt.xlabel('epoch')
#     plt.show()
    plt.figure(figsize=(20,10))
    sns.lineplot(range(1, epoch_i+1), History.history['loss'
], label='Train loss')
    sns.lineplot(range(1, epoch_i+1), History.history['val_lo
ss'], label='Test loss')
    plt.legend(['train', 'validaiton'], loc='upper left')
    plt.ylabel('loss')
    plt.xlabel('epoch')
    plt.title("Loss Graph")
    plt.show()

eva_plot(history, 4)
```

```
<Figure size 1440x720 with 0 Axes>
```




```
gc.collect()

for layer in embedding_model.layers[150:]:
    layer.trainable = True
for layer in embedding_model.layers[:150]:
```

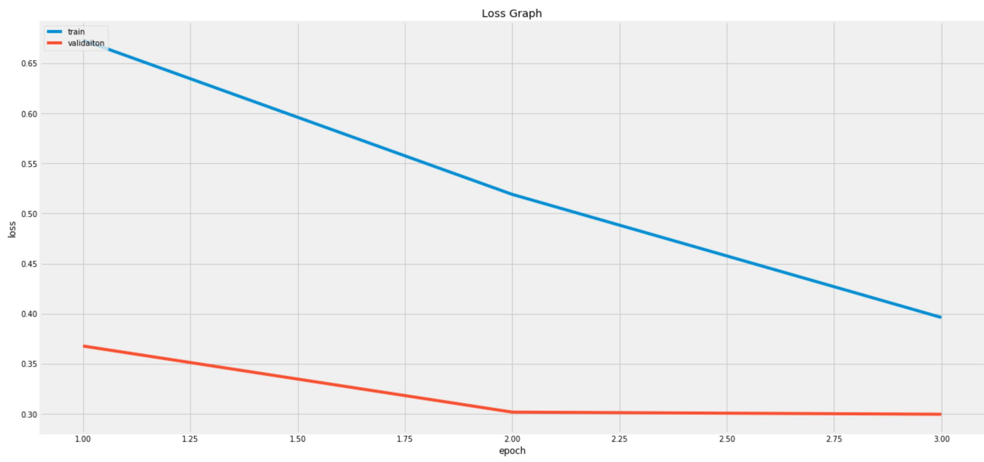
```
        layer.trainable = False
triplet_model.compile(loss=None, optimizer=Adam(0.0001), metr
ics=['accuracy', top_5_accuracy])

gc.collect()

history = triplet_model.fit_generator(gen_tr,
                                      validation_data=gen_te,

                                      epochs=3,
                                      verbose=1,
                                      workers=4,
                                      steps_per_epoch=70,
                                      validation_steps=30,
                                      use_multiprocessing=Tru
e,
                                      callbacks = [gc_collect
ors])
```

```
Epoch 1/3
70/70 [==============================] - 59s 841ms/step - los
s: 0.6730 - val_loss: 0.3678
Epoch 2/3
70/70 [==============================] - 42s 596ms/step - los
s: 0.5191 - val_loss: 0.3018
Epoch 3/3
70/70 [==============================] - 41s 589ms/step - los
s: 0.3963 - val_loss: 0.2997
```

In [19]:

```
eva_plot(history, 3)
```

```
<Figure size 1440x720 with 0 Axes>
```



In [20]:

```
def data_generator(fpaths, batch_i=16):
    i = 0
    imgs = []
    fnames = []
    for path in fpaths:
        if i == 0:
```

Notebook Data Output Log Comments

```
        img = read_and_resize(path)
        imgs.append(img)
        fnames.append(os.path.basename(path))
        if i == batch_i:
            i = 0
            imgs = np.array(imgs)
            yield fnames, imgs
```

```
    if i != 0:
        imgs = np.array(imgs)
        yield fnames, imgs

    raise StopIteration()
```

In [21]:

```
data = pd.read_csv(path_csv)
file_id_mapping = {k: v for k, v in zip(data.Image.values, da
ta.Id.values)}
import glob
train_files = glob.glob(join(path_train, '*.jpg'))
test_files = glob.glob(join(path_test, '*.jpg'))
```

In [22]:

```
train_preds  = []
train_file_names = []
for fnames, imgs in tqdm(data_generator(train_files, batch_i=
32)):
    predicts = embedding_model.predict(imgs)
    predicts = predicts.tolist()
    train_preds += predicts
    train_file_names += fnames
train_preds = np.array(train_preds)
```

```
793it [03:33,  2.60it/s]
```

In [23]:

```
test_preds = []
test_file_names = []
for fnames, imgs in tqdm(data_generator(test_files, batch_i=3
2)) :
    predicts = embedding_model.predict(imgs)
    predicts = predicts.tolist()
    test_preds += predicts
    test_file_names += fnames
test_preds = np.array(test_preds)
```

```
249it [01:07,  4.05it/s]
```

In [24]:

```
from sklearn.neighbors import NearestNeighbors
neigh = NearestNeighbors(n_neighbors=6)
neigh.fit(train_preds)
```

Out[24]:

```
NearestNeighbors(algorithm='auto', leaf_size=30, metric='mink
owski',
         metric_params=None, n_jobs=None, n_neighbors=6, p=2,
radius=1.0)
```

In [25]:

```
distances_test, neighbors_test = neigh.kneighbors(test_preds)
distances_test, neighbors_test = distances_test.tolist(), nei
ghbors_test.tolist()
```

In [26]:

```
preds_str = []

for filepath, distance, neighbour_ in zip(test_file_names, di
stances_test, neighbors_test):
    sample_result = []
    sample_classes = []
```

```
    for d, n in zip(distance, neighbour_):
        train_file = train_files[n].split(os.sep)[-1]
        class_train = file_id_mapping[train_file]
        sample_classes.append(class_train)
        sample_result.append((class_train, d))

    if "new_whale" not in sample_classes:
        sample_result.append(("new_whale", 0.1))
    sample_result.sort(key=lambda x: x[1])
    sample_result = sample_result[:5]
    preds_str.append(" ".join([x[0] for x in sample_result]))
```

In [27]:

```
preds_str
```

Out[27]:

```
['w_c178f34 w_cdf834e new_whale w_fd3e556 new_whale',
 'w_bfe77d0 w_8141e4e w_d405854 new_whale w_7fe4082',
 'new_whale w_502e72f new_whale w_d8cb231 w_fbcd329',
 'new_whale new_whale w_5823d7b w_5773c71 w_3d72a96',
 'w_be28cde new_whale w_8193215 new_whale new_whale',
 'new_whale new_whale new_whale new_whale new_whale',
 'new_whale w_7e579dd w_d3b1733 w_1032bb6 w_754cc34',
 'w_5d8ee24 new_whale new_whale new_whale new_whale',
 'new_whale w_d236b51 w_dced3f2 w_b441850 new_whale',
 'new_whale w_6e6307e w_22d96e7 w_0189b6d w_84c23bb',
 'new_whale w_3fe2251 w_0b1e4a6 new_whale w_af48048',
 'new_whale new_whale new_whale new_whale new_whale',
 'w_fdc6e6d w_f497e3f new_whale w_c1b34d2 w_0c80c53',
 'new_whale w_9a91c1e w_f119baa w_71d5ba2 w_2b069ba',
 'w_88e4537 new_whale new_whale w_b3cc7b3 w_b6ad668',
 'w_5b870e8 w_0f56fb2 w_0f25e6b new_whale w_b9e5911',
 'w_c1efffb w_5b5b849 w_ab7c369 new_whale w_d6aa3f3',
 'new_whale w_c1b34d2 w_71d5ba2 w_34ecf36 w_733f661',
 'w_cefd512 w_23a388d w_bff3c3b new_whale new_whale',
 'w_e19a641 w_f992eae w_093d284 w_ac97190 new_whale',
 'w_fd6a3ad new_whale w_17dd986 w_e71f9c7 w_66168f1',
 'new_whale new_whale w_d16eb60 w_450fccf w_4441671',
 'new_whale new_whale w_e2a09d4 new_whale w_72aa314',
 'w_990921b w_9c506f6 w_8be8406 w_7ab2120 w_b6ad668',
 'new_whale w_d72771c w_df27de9 w_34d7623 w_7ae20cf',
 'new_whale w_0027efa w_d6f61cb w_04003e9 w_a491df7',
 'w_f8511e9 w_5510cf3 new_whale new_whale w_0027efa',
 'w_61d48c9 w_8bc8a32 new_whale w_6dbfd7a w_6071978',
 'new_whale new_whale w_08b0eac new_whale w_13937e4',
 'w_08630fd w_9490369 new_whale new_whale new_whale',
 'new_whale w_6c3ec2d new_whale w_3da0eae w_cd4cb49',
 'new_whale w_cde1082 new_whale w_f992eae w_dd6dddf',
 'w_61b9586 w_69b5ace new_whale w_71d5ba2 w_1ca9ab1',
 'w_615a631 new_whale new_whale new_whale new_whale',
 'w_3e4b155 w_72f3685 w_1217536 w_f48451c w_776a885',
 'new_whale new_whale w_c7bd8e7 w_1b4b202 new_whale',
 'new_whale w_e6325d7 w_af48048 w_9c68fe8 w_5e8e218',
 'new_whale w_02c7e9d w_d405854 w_9fc06d4 w_f62bcba',
 'new_whale w_093d284 w_72afa97 new_whale new_whale',
 'new_whale new_whale w_0c5f019 w_cef693e w_8799716',
 'w_8ed7da3 new_whale w_d6f61cb w_bfcad53 w_9a5bb2d',
 'w_1472271 new_whale w_e3956f5 w_789c969 new_whale',
 'w_6e97efe w_a08f3cd w_c73e8e9 w_88e4537 new_whale',
 'w_83d1ab6 new_whale new_whale w_5ff2049 w_71ec6d4',
 'w_46796cc w_d3b1733 w_218fe4a new_whale w_8ed7da3',
 'w_726c717 new_whale w_fa3a41f w_61cbbc3 new_whale',
 'w_c8bbb43 w_bd18f3c w_640a24a new_whale w_e2372d6',
 'new_whale w_5f20f03 new_whale new_whale new_whale',
 'new_whale w_f5bf6df w_f5bf6df w_d72771c w_d72771c',
 'new_whale w_cdc4a40 new_whale w_90abfeb w_5d1b1a7',
```

```
'new_whale w_3e89f09 new_whale w_23a388d new_whale',
'w_d73c048 w_55ef07b new_whale w_79cfcab new_whale',
'new_whale w_5e8e218 w_937830e w_07125ed w_81eb375',
'new_whale w_d494351 w_a8b34a0 w_efc0825 w_e73d9a5',
'new_whale w_81f8d47 w_9c506f6 w_d140497 w_9d56f22',
'w_1d0830e w_efa6b4a w_e6d5621 w_a4140a6 w_cee684e',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_e71f9c7 new_whale w_07768b0 new_whale',
'w_c0f1e04 w_b53bfb7 new_whale new_whale new_whale',
'w_2df37cc w_7cb0e92 new_whale new_whale w_921cdae',
'w_c563492 w_b0cadc0 w_f351d4b new_whale w_f648d33',
'new_whale w_53ce2e1 new_whale w_564a34b new_whale',
'new_whale w_51fc1fc w_51fc1fc w_2db0644 w_51fc1fc',
'w_adb1dff new_whale w_afcf807 w_6c886f0 w_d9405b3',
'w_77d1d8a new_whale new_whale w_cb0aaf0 w_5778858',
'new_whale new_whale w_ae7887b new_whale w_a4162d6',
'w_d77337e w_cbb15d2 new_whale w_343f088 w_48619b3',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_c0f1e04 new_whale w_7e56d66 w_b3197c6',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'w_aa32f70 w_fc10c15 w_dea40e2 w_b037216 w_2f74ff3',
'w_1344da3 new_whale w_36bbd71 w_fdd3687 w_83cc0ec',
'new_whale new_whale w_5f5f9ae new_whale w_69c06ad',
'w_4d06559 w_1920193 new_whale w_bfbf205 new_whale',
'w_17c9df5 new_whale w_63f5740 w_7432816 new_whale',
'new_whale w_29c88c2 w_b5e6c80 w_700ebb4 new_whale',
'new_whale new_whale w_c5260b8 new_whale new_whale',
'w_14330a0 new_whale w_4adc1c0 new_whale new_whale',
'new_whale new_whale new_whale w_fdcaaa8 w_11d8c70',
'w_334d7eb w_9109577 new_whale new_whale new_whale',
'new_whale w_e36b021 new_whale new_whale new_whale',
'w_21666ad w_2f94559 new_whale new_whale w_c200e52',
'new_whale w_3bf2653 w_4b4f9b7 new_whale w_60cf87c',
'w_9fb95f6 w_2694603 new_whale new_whale w_b02ac52',
'w_82e7319 w_bc285a6 w_b5e6c80 new_whale new_whale',
'new_whale w_564a34b w_fbc7895 w_3f21fed new_whale',
'new_whale new_whale w_b2bc537 new_whale w_c2c1e28',
'new_whale w_67a270c new_whale w_ea05006 w_4f3dc75',
'w_325f8d2 new_whale w_14330a0 w_59052ad w_32da935',
'new_whale w_7648ac1 w_e13f4e8 w_dfdfeeb w_8c8c45a',
'w_01fc429 w_13aa123 w_f5aadde new_whale new_whale',
'new_whale w_d97c490 new_whale new_whale w_e2a09d4',
'new_whale w_c1d2fbe w_5e8e218 w_4516ff1 w_8431ae8',
'new_whale w_d1e0f06 w_5ae026a new_whale w_e64c432',
'w_d8de44c new_whale new_whale w_d22e12a w_bfe6992',
'new_whale new_whale w_eaaa42f new_whale w_72f3685',
'new_whale w_faf5287 new_whale w_1e283bb w_a7757d4',
'w_8d80478 new_whale new_whale w_ab2f0eb w_564a34b',
'new_whale w_fe59266 new_whale new_whale w_3de579a',
'new_whale w_2362d7f new_whale new_whale w_da08395',
'w_dc651ad w_eb13108 w_74f384b new_whale w_dfbf100',
'w_0cfae04 w_91005b3 w_817d53c new_whale new_whale',
'new_whale w_aa3489d w_d236b51 w_5be4e45 w_85d9229',
'new_whale w_0bfdcca w_c058057 w_c058057 w_c6b05f1',
'w_65ffd7d new_whale w_06d2e72 w_2a7f00f w_d4661be',
'w_40a8585 w_1f0cf0a new_whale w_b4396ae w_3de579a',
'w_db1f3de w_17a3a21 new_whale w_564a34b w_07cb113',
'new_whale w_0f00df0 new_whale w_4f6b509 w_01cbbbd',
'new_whale w_f6b8ccb w_789c969 w_789c969 w_89f6097',
'w_576026e w_07125ed new_whale w_1faaf06 new_whale',
'new_whale w_2592960 w_deb9471 new_whale new_whale',
'w_eafeccd w_eee296c new_whale new_whale new_whale',
'w_42388df w_2b4b82e w_f201548 w_c684a38 w_d980663',
'new_whale new_whale w_8a4618d w_9b171a8 w_4f62735',
'w_eae373b new_whale w_e2372d6 w_b51a226 new_whale',
'w_07768b0 new_whale w_a933a19 w_f648d33 w_671b041',
```

```
'new_whale w_bb2c919 w_c55c51d w_a9304b9 w_88445b2',
'w_94f41dc w_bfbf205 w_2137c6f w_8b813a5 new_whale',
'new_whale w_a26cf66 w_8b8dca8 w_45e277d w_1275240',
'new_whale w_aee1ccf w_5116e7e w_8fd3810 w_2e706fc',
'w_71a1a08 w_77c86af new_whale w_2ec0a71 new_whale',
'w_c0e27e9 new_whale w_5a2634c w_307e5e9 new_whale',
'w_c11f9d8 w_9b5109b w_c11f9d8 w_c6d918a w_9eb9853',
'new_whale w_ab8af2b new_whale w_68c4ecf w_7b989fb',
'w_9c506f6 new_whale new_whale w_e26eb46 new_whale',
'w_10f67bb w_8eae2c3 w_79b8562 w_ab2ac77 new_whale',
'w_6e97ef4 w_2b4b82e w_990921b w_6f22173 new_whale',
'w_cda3971 w_f47f214 w_1cb0ffc new_whale w_a6067a9',
'w_cd6743e w_ebddbfb w_51fc1fc w_f0fe284 new_whale',
'w_4d61be5 new_whale w_9f02ca1 w_4cc050e new_whale',
'w_3584852 w_4fdb4c1 new_whale w_5841fb9 w_dcd9088',
'new_whale new_whale new_whale new_whale new_whale',
'w_090c801 new_whale w_0815d2c w_9884e90 new_whale',
'new_whale new_whale new_whale w_cbd5013 new_whale',
'w_966f46a w_1d9592f new_whale new_whale w_3de579a',
'w_2d5492b new_whale w_e26eb46 w_803ad0d w_f75ed58',
'w_0f5d895 new_whale new_whale new_whale new_whale',
'w_ef83760 w_d77337e new_whale new_whale w_62c78f3',
'new_whale new_whale w_3bf2653 w_0369a5c new_whale',
'new_whale new_whale w_19fb122 new_whale w_d05fc81',
'new_whale new_whale new_whale w_4fa0ba1 w_1419d90',
'w_97ba78a w_8041789 w_97ba78a w_3de579a new_whale',
'new_whale new_whale new_whale w_8075847 new_whale',
'w_0369a5c w_03670aa w_ff3efba w_0bc078c w_0369a5c',
'w_555dcb4 w_2c7deff new_whale w_83d1ab6 w_8f424c5',
'new_whale w_e9b4719 w_c73e8e9 w_d05fc81 w_9be308e',
'new_whale w_2dd6b62 w_59052ad w_9c506f6 w_488865e',
'w_260b2ac w_b128587 w_5793f1c new_whale w_e1ffbe2',
'w_0ce537a w_7a427f2 w_9bedea6 w_67153b4 new_whale',
'new_whale w_377ef2c w_fccccec new_whale w_a421b77',
'new_whale w_f497e3f w_ca66b79 w_2df85e7 new_whale',
'new_whale w_46ccc6f new_whale new_whale w_e2a09d4',
'w_5f0fcab w_3132fce new_whale new_whale new_whale',
'w_be4f189 w_4e73055 w_ab7c369 new_whale w_cde1082',
'w_fe881f2 new_whale new_whale new_whale w_d405854',
'w_c63fd83 new_whale w_08c7d09 w_4d61be5 w_e8e08e6',
'w_647da1f w_3b71107 w_75f6ffa w_75f6ffa new_whale',
'w_cd4cb49 new_whale w_f9aab0c w_ae8982d w_cd4cb49',
'new_whale w_700ebb4 w_29af733 w_5821157 w_97ba78a',
'w_6f7611c w_cac9bdb w_36bbd71 new_whale w_5c51475',
'w_0a155b9 new_whale w_007fefa w_c16cb2c w_877de07',
'new_whale new_whale new_whale new_whale w_dfe485f',
'new_whale w_2858e46 w_83cc0ec w_6e76427 w_58bae95',
'w_fd6a3ad w_21b2790 w_bb2c919 w_21b2790 new_whale',
'new_whale w_0c80c53 new_whale w_0fdf741 new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_d0475b2 new_whale w_e0b6a42 w_cd6743e',
'w_e19a641 w_27a6304 w_343f088 new_whale w_8799716',
'new_whale new_whale w_5773c71 w_bc285a6 new_whale',
'w_5871dfd w_e8b82f6 new_whale new_whale w_88065f2',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_6cb656d new_whale new_whale w_ecad2c9',
'new_whale w_c1acf72 w_c734fa4 w_4c218b5 w_010f858',
'new_whale w_b423e9b w_3bf2653 w_f765256 w_edf43c1',
'w_2ec0a71 w_ec4bcf9 w_5360e39 w_8003858 new_whale',
'w_d236b51 new_whale w_3e9dc66 new_whale new_whale',
'new_whale new_whale w_4b66b5f new_whale w_640a24a',
'new_whale new_whale w_7e0659e new_whale w_2623921',
'new_whale w_e97509e new_whale new_whale w_f35e494',
'new_whale w_700ebb4 w_ae8982d new_whale w_8a235b6',
'w_34ecf36 w_d73c048 new_whale w_efe3a39 w_84f9ab0',
'w_308c7b6 w_5966e55 new_whale w_2db0644 w_518a722',
```

```
'new_whale w_9c506f6 w_f497e3f w_0135f5f w_1275240',
'w_42c1a3c new_whale w_f1d2222 new_whale w_694a615',
'new_whale new_whale w_60ce6fc w_625e590 w_fd3e556',
'w_93ef4fa w_f47f214 w_a589923 new_whale new_whale',
'new_whale w_5841fb9 w_90a7b56 w_04713fd new_whale',
'w_2009f8b w_a8276b4 new_whale new_whale new_whale',
'new_whale new_whale w_e79b4d0 w_1788910 new_whale',
'new_whale w_07125ed w_e71f9c7 new_whale w_a6a732d',
'w_3815890 new_whale w_0fdf741 w_ea902fb w_ef83760',
'w_c178f34 new_whale new_whale w_564a34b w_db68456',
'w_14b1427 new_whale w_0f03c44 new_whale w_2b4b82e',
'new_whale w_7e0659e w_8f4b1c4 new_whale w_60aa749',
'w_ae393cd w_733f661 w_f3a12bc w_cde1082 new_whale',
'new_whale w_f3887f1 w_ac51301 w_e8c5ff0 w_778e474',
'w_8a7071c new_whale w_b3cc7b3 new_whale w_2ff0834',
'new_whale new_whale w_7b703d1 new_whale w_9712235',
'new_whale w_6e76427 w_871decc w_1bd2d91 w_0369a5c',
'w_c2426a1 w_625e590 new_whale new_whale w_c6b4d61',
'new_whale w_8d9d59a w_19f507e w_d4661be w_190375b',
'new_whale w_fad9574 w_9614e63 w_eb13108 w_581ba42',
'new_whale new_whale w_b747aeb w_987fb30 w_51e7506',
'w_f765256 w_f765256 w_bb2c919 w_f765256 new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'w_de1dc14 new_whale new_whale new_whale w_454df60',
'w_9eb2d2a new_whale new_whale new_whale new_whale',
'w_b9c99cc new_whale w_be776c7 w_c6d918a new_whale',
'new_whale w_f0fe284 new_whale w_f0fe284 new_whale',
'new_whale w_0182687 w_191bce3 w_520731e w_2b65b34',
'new_whale new_whale w_7c27fbd w_4f62735 w_65ffd7d',
'new_whale w_68f23a1 w_712b916 w_9c506f6 w_0815d2c',
'w_07019f4 w_584e1dc w_ad672ce w_d40e29c w_efa100e',
'w_7918564 new_whale w_b00d1a7 new_whale new_whale',
'w_2db0644 w_51fc1fc w_d066f46 w_3de579a w_910831a',
'w_d6aa3f3 new_whale w_c25d2d1 w_8b86b95 w_396c07d',
'w_218fe4a w_01cbbbd w_e6325d7 new_whale w_23852a0',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_ba62b79 w_7656c1a w_d0528f6 w_fd906cc',
'new_whale w_aa0dacc w_bdded04 w_6f3a3ec w_4bf625b',
'new_whale new_whale new_whale w_37d2f3a w_633ead1',
'new_whale w_7c6e8f0 new_whale w_336e046 w_5823d7b',
'new_whale w_c058057 new_whale w_c058057 new_whale',
'new_whale w_5e8e218 w_2c7deff w_cfeb24b w_2c29146',
'new_whale w_c815410 w_5597026 w_b38f64b new_whale',
'w_b60e861 w_700ebb4 new_whale w_343f088 w_49afbc9',
'new_whale w_a491df7 w_14330a0 w_1f7c696 w_cf88f4b',
'w_94e136e w_4846b27 w_8d9af77 w_83b2336 w_ae53e45',
'new_whale w_63b91aa new_whale w_eddd5b4 w_7d09141',
'w_c875e45 w_94f41dc new_whale w_8da30ad w_4c07458',
'new_whale w_0a155b9 w_36bbd71 w_5d67caa w_95f78f6',
'new_whale w_fa8c44c new_whale new_whale w_d6d89ed',
'w_73d71d2 new_whale new_whale w_d875f4d new_whale',
'w_7206ab2 new_whale w_b4841bd w_171794e w_5d2dac8',
'new_whale w_4f9c015 w_e27bbf6 w_d0528f6 new_whale',
'w_33aaa44 new_whale new_whale w_988d0aa new_whale',
'new_whale w_090c801 w_f61b957 w_75f6ffa w_6caff0f',
'new_whale w_6f74177 new_whale new_whale new_whale',
'w_2e29743 new_whale w_0abdaf4 w_553d3d0 new_whale',
'new_whale new_whale w_5e2589b w_8936c44 w_4ea4f59',
'new_whale w_60a54be w_c0d11da w_d0528f6 w_581ba42',
'w_c59d924 new_whale w_51fc1fc new_whale new_whale',
'w_972e51e w_c6b4d61 new_whale w_83a4279 w_f0eddab',
'w_56a96ed w_db2d591 w_77c86af w_b72cdc1 new_whale',
'w_2745292 w_27b7295 w_5116e7e w_555dcb4 w_88e4537',
'new_whale new_whale new_whale new_whale w_06ffb30',
'new_whale w_0369a5c w_cbb15d2 w_0f1cf57 w_cd4cb49',
'new_whale w_7c5b20d w_29d806a new_whale new_whale',
```

```
 'w_de657c1 w_f1b6eea new_whale new_whale w_dee1053',
 'new_whale new_whale w_c6fe966 w_0788c36 new_whale',
 'new_whale w_78de8f7 w_b128587 w_685115a new_whale',
 'new_whale w_0d5fa2c new_whale w_7e1ce0a w_6ae4956',
 'w_270f505 w_db96784 new_whale new_whale w_5157259',
 'new_whale w_5773c71 new_whale w_a6eaf8d w_5773c71',
 'new_whale w_0f73f48 new_whale new_whale new_whale',
 'new_whale w_8a06b46 w_51b4749 w_71d5ba2 w_8a06b46',
 'w_99e4fe2 new_whale w_58f3fd4 new_whale w_b805777',
 'new_whale w_0027efa w_bd1c3d5 new_whale w_a94ea72',
 'w_91b96c1 w_15951db w_abf193d w_3de579a new_whale',
 'w_cda3971 w_700ebb4 w_b950c88 w_d66d8f4 w_48619b3',
 'new_whale new_whale w_ac0f6c4 w_11e75bf new_whale',
 'w_7f762d8 new_whale new_whale w_7e61174 w_f773fbe',
 'new_whale w_fb9392c w_9be308e new_whale w_c01c1f4',
 'w_fb02461 new_whale new_whale new_whale new_whale',
 'new_whale w_d494351 w_c262606 w_af48048 w_e27bbf6',
 'new_whale w_0ee7878 w_412b5ad w_fbcfe74 w_b472b26',
 'new_whale w_fbf7d73 new_whale new_whale w_6525e6b',
 'w_02c7e9d w_07768b0 w_1133530 w_78e229f w_6c6ff4f',
 'new_whale w_5a2634c w_a404c77 w_659bdb8 w_234713b',
 'new_whale w_b7b0ad7 w_1574bd1 w_f5fcb45 w_190375b',
 'w_2f5caa9 new_whale new_whale new_whale new_whale',
 'w_60aa749 w_8e88f4f w_9438119 new_whale w_e2372d6',
 'new_whale w_dadaa2e w_59052ad w_88e4537 w_0350bf4',
 'new_whale w_dc651ad w_eccd505 new_whale w_b71ac68',
 'w_8c25681 new_whale new_whale w_34120de new_whale',
 'new_whale new_whale new_whale new_whale new_whale',
 'new_whale new_whale w_ec98537 w_443afc0 new_whale',
 'new_whale w_6920fb7 w_d829778 w_5823d7b new_whale',
 'new_whale w_dc27ce9 new_whale w_564a34b new_whale',
 'new_whale w_9b16b48 w_d6aa3f3 w_aea4301 w_9037ac5',
 'w_8a9e295 new_whale new_whale new_whale w_1fc4625',
 'new_whale new_whale w_ce44322 new_whale w_7860ed5',
 'new_whale w_2d7c2dd w_20dfb69 w_31154fa w_9b46d56',
 'w_d0ce152 new_whale w_6d8519e new_whale w_0a619af',
 'w_04acf95 w_d8fb98d w_b708e98 w_a933a19 w_afdac76',
 'w_b66e1a5 w_3b71107 w_9c506f6 new_whale w_af367c3',
 'w_27597ff w_048bc73 w_23852a0 w_456646a new_whale',
 'w_a92e68e new_whale new_whale new_whale new_whale',
 'new_whale w_edf0164 w_6caff0f new_whale new_whale',
 'w_f61b957 new_whale w_bc677de new_whale w_1e85eea',
 'new_whale new_whale w_700ebb4 w_4b04d0f new_whale',
 'new_whale new_whale w_aaf3463 new_whale new_whale',
 'w_8f0c6ed w_3bf2653 w_a69f0ee w_42d6484 new_whale',
 'new_whale new_whale new_whale w_4dbf0ad w_89f521e',
 'new_whale new_whale w_6b00c91 w_8a4618d new_whale',
 'new_whale w_e493834 new_whale new_whale w_04ebfe8',
 'w_04c9b23 new_whale new_whale new_whale new_whale',
 'new_whale w_714f89f w_1289b63 w_bfcad53 w_a059841',
 'w_b1d49c5 new_whale w_a05181b w_a8ebc69 w_03670aa',
 'w_85222f9 w_32da935 w_b7b0ad7 w_8431ae8 new_whale',
 'new_whale w_6310ac7 w_a9304b9 w_9a1f31b new_whale',
 'w_1531bf5 new_whale w_f077a03 w_56ed74d new_whale',
 'new_whale new_whale new_whale new_whale w_3132fce',
 'new_whale w_61e136d new_whale new_whale new_whale',
 'new_whale new_whale w_d9a3c6e new_whale w_da40b39',
 'w_b86917d w_54fd73d w_4d06559 w_f2f7550 w_700ebb4',
 'w_93fcf89 new_whale new_whale new_whale new_whale',
 'w_564a34b w_3976c05 w_9d86594 new_whale new_whale',
 'w_efc0825 w_317c071 w_1032bb6 new_whale w_6cda039',
 'new_whale w_9800d65 w_972e51e w_8c25681 w_936aa13',
 'new_whale w_4c07458 w_8041789 w_81d1ff9 w_24c76d8',
 'w_1d532b4 new_whale w_c1d2fbe w_59052ad new_whale',
 'w_3d972c9 new_whale new_whale w_7769d46 w_44e59c7',
 'new_whale w_4846b27 w_4776fc5 w_a70b90b new_whale',
 'w_1419d90 w_2c94198 w_c4faf7d new_whale new_whale',
```

```
'new_whale new_whale w_7d4d7cd w_01ed442 w_4a61e0a',
'w_feb4051 w_51fc1fc w_51fc1fc new_whale w_0c5f019',
'new_whale w_12ce4f8 new_whale new_whale new_whale',
'new_whale w_688590b new_whale w_70fa383 new_whale',
'new_whale new_whale w_cda3971 new_whale w_e2372d6',
'w_fd3e556 w_9d86594 w_3904956 new_whale w_3f21fed',
'w_d22e12a w_d8de44c new_whale new_whale w_e2a09d4',
'w_08d62ee w_af8df07 new_whale w_9ffc9aa new_whale',
'w_df27de9 w_7e56d66 new_whale w_c59d924 w_a6f9d33',
'new_whale w_d066c0a new_whale w_112d2f8 w_c0f1e04',
'w_75f6ffa new_whale new_whale w_b128587 w_9490369',
'new_whale w_1b3c3a4 w_c01c1f4 w_2b069ba w_488865e',
'w_755fc10 w_f7193ed new_whale w_26c0ffd new_whale',
'new_whale w_c4f01e2 w_ab2ac77 new_whale w_77f9c5f',
'new_whale new_whale w_454df60 w_f2075ef new_whale',
'new_whale w_d405854 w_62c78f3 w_49e0d44 w_16b5050',
'w_34ecf36 w_a780b2d w_778e474 w_900c68f w_5485228',
'w_d6aa3f3 w_a32898d w_691f2f6 new_whale new_whale',
'new_whale w_6cda039 w_6441130 w_3224f68 w_9eb2d2a',
'w_dec3c84 new_whale w_f57140c w_8d9af77 w_4ea4f59',
'new_whale w_5f20f03 new_whale new_whale w_3e9dc66',
'w_c38eb22 w_3584852 w_396c12b w_e54d8f6 new_whale',
'new_whale new_whale w_88065f2 new_whale w_2b47174',
'new_whale new_whale w_f082806 new_whale new_whale',
'w_c2677ee new_whale w_f573d1d w_8cfabed new_whale',
'new_whale w_4c62681 w_34ecf36 w_9d86594 w_95c7a6f',
'w_1e3e9a7 new_whale new_whale w_8075847 new_whale',
'new_whale new_whale w_60b027a w_0fdf741 w_d15dd0b',
'new_whale new_whale w_a8b34a0 w_003bae6 new_whale',
'w_0baf946 new_whale new_whale new_whale w_4132bb8',
'w_260b2ac w_f351d4b w_0cbf1b3 new_whale w_d2b440e',
'w_5d67caa w_0da34d3 new_whale new_whale w_30f2f0f',
'new_whale w_0b1e4a6 w_6cf6bf4 w_93fddcb w_fa955f1',
'new_whale new_whale new_whale w_f47f214 new_whale',
'w_bc101a3 w_b3ca4b7 w_8ef82e2 w_0f00df0 new_whale',
'w_0a7a37c w_ecb61a0 w_e99e430 new_whale w_18f9d19',
'new_whale w_a2f8488 w_6071978 w_48fa708 w_eacf981',
'new_whale new_whale w_2b4b82e new_whale w_a689d7a',
'w_b5e13cd new_whale w_9c506f6 w_054162a w_4c62681',
'w_dcee281 w_e0b6a42 new_whale new_whale new_whale',
'new_whale new_whale w_6e97ef4 new_whale new_whale',
'new_whale w_7ae9946 new_whale new_whale new_whale',
'w_0886321 new_whale new_whale new_whale w_281a8cd',
'w_b805777 new_whale w_78fbecd w_d6283ba new_whale',
'new_whale w_64f4963 new_whale new_whale new_whale',
'new_whale w_966f46a w_c59d4b1 w_e8c45dd new_whale',
'new_whale w_e819d10 w_1887b5a w_60cf87c w_0fc3e41',
'new_whale w_8c25681 w_213fb07 w_d4661be w_72ab123',
'new_whale w_27a6304 new_whale w_b70c09f new_whale',
'new_whale w_3feca90 new_whale w_88065f2 new_whale',
'w_40a8585 w_ec16cc4 new_whale w_1fc42e2 w_840061a',
'w_5a7e338 w_a0f456b new_whale new_whale w_b02ac52',
'new_whale w_0cfdaa5 w_d33bc7f new_whale new_whale',
'w_640a24a new_whale w_ac33bfe new_whale new_whale',
'w_90f0cd0 w_f082806 w_343f088 w_0bc078c w_e1f57e7',
'new_whale w_1e283bb w_22f2567 w_7a320a3 w_715b1b5',
'w_b9d5945 new_whale new_whale w_036dbd0 w_836e895',
'w_b21cfe4 w_2df37cc new_whale new_whale w_2b65b34',
'new_whale new_whale new_whale w_ecf39ca new_whale',
'w_6caff0f w_ec4bcf9 new_whale w_84f9ab0 w_efaba3b',
'w_53215c6 w_b5e6c80 w_63f5740 w_9d6c63d new_whale',
'new_whale w_00289b1 w_f351d4b w_fdd3687 w_db38863',
'new_whale new_whale new_whale w_20eeb29 w_6555d06',
'new_whale w_dee1053 w_d72771c w_d72771c w_1b77e4f',
'new_whale w_e5203ea w_e51c0e9 w_6aab519 w_dc651ad',
'new_whale w_27597ff w_d0528f6 w_fee1e3e w_972e51e',
```

```
'new_whale w_d6f61cb w_5793f1c w_1ca9ab1 w_67a9841',
'w_57db059 new_whale new_whale w_43d8db4 w_2b069ba',
'new_whale w_0369a5c w_9b5109b w_a9304b9 w_a9304b9',
'new_whale w_72f3685 w_fe59266 new_whale w_eca61e6',
'w_01cbbbd w_1e85eea w_0fdf741 new_whale new_whale',
'w_bc285a6 w_8da30ad w_bc285a6 w_bc285a6 w_bc285a6',
'new_whale w_2c94198 w_74b6ca2 w_60cf87c w_86f3e45',
'w_91cc02c w_e71f9c7 new_whale w_2de1c5c w_d6f0be4',
'w_b6e4761 w_0abdaf4 w_2c94198 new_whale w_90c9763',
'w_e20ff88 new_whale new_whale w_ad072b0 w_d3b48ef',
'w_f0708c8 new_whale new_whale new_whale w_832917d',
'new_whale w_00656c0 w_4c218b5 new_whale new_whale',
'w_1de6148 new_whale w_e906edd w_5796069 new_whale',
'new_whale new_whale new_whale new_whale w_fb52b93',
'w_5a2634c new_whale new_whale w_3e89f09 new_whale',
'w_2f8895a w_a491df7 w_1f7c696 w_958b730 w_778e474',
'new_whale w_9be951c w_09de1a5 new_whale new_whale',
'new_whale w_8fd3810 w_efbdcbc w_d9cdc09 w_c2a1bc4',
'w_dec7ffd w_3fb99a3 new_whale w_c875e45 w_bb2c919',
'w_02d138d w_5a2634c w_446a02d w_8a6a8d5 new_whale',
'w_ec4b5d4 w_e8b5980 new_whale new_whale new_whale',
'new_whale w_3de579a w_37d2f3a w_9ece6cb w_3180b48',
'w_a86c082 w_d74498b w_1de6148 w_564a34b w_a8b34a0',
'w_68f23a1 w_b330c85 new_whale w_fad9574 w_0db234e',
'w_70d0b3c w_454f511 new_whale new_whale new_whale',
'new_whale w_1d0830e new_whale new_whale w_a4140a6',
'w_ae8982d new_whale new_whale w_4fdff73 w_88445b2',
'new_whale new_whale w_f35e494 new_whale new_whale',
'new_whale w_59052ad w_68eaf36 w_4af7c01 w_2b069ba',
'w_60c073b new_whale w_db0c7fd w_12aae3e w_12cc52d',
'new_whale w_0e9f07a w_c63c580 w_df86a42 w_93ef4fa',
'new_whale w_5a2634c w_e2e7384 w_f0fe284 w_a3d2008',
'w_533f9ea new_whale w_db484db w_f24a55c w_8f1069a',
'w_2a98962 w_d7bfad6 new_whale w_074530d new_whale',
'new_whale w_bc5dbf9 w_240cbf9 w_9db1fb1 w_3de579a',
'w_8e04a78 w_c4bb2c6 w_0dfc1eb new_whale w_506f894',
'new_whale w_ad672ce w_488865e w_f74a89e w_564a34b',
'new_whale w_64404ac w_0d7b050 w_5c742ec w_1ca9ab1',
'w_ff2157c new_whale w_07125ed new_whale w_5bac7bb',
'w_88e4537 new_whale w_a6703dd new_whale w_c25d2d1',
'w_ecc8d6c w_68c4ecf new_whale new_whale w_fea5f70',
'w_0118bab new_whale new_whale w_b9d732d new_whale',
'new_whale new_whale w_d875f4d new_whale new_whale',
'new_whale w_f58da65 w_bc101a3 w_5babd8c w_f773fbe',
'w_72f3685 new_whale w_77d1d8a w_277d911 new_whale',
'new_whale w_9712235 w_42e0e40 w_465d9c7 new_whale',
'new_whale new_whale new_whale new_whale w_6332313',
'w_d6aa3f3 new_whale w_003bae6 w_07019f4 w_c2c1e28',
'new_whale w_8e88f4f w_4d06559 w_51e7506 w_bc285a6',
'w_d006897 w_f0eddab w_51fe22f w_a32898d new_whale',
'new_whale new_whale new_whale w_fa8c44c w_cc00be9',
'w_2a7603f w_d10d0c5 new_whale new_whale new_whale',
'new_whale new_whale w_9bebed8 w_13c8177 new_whale',
'w_9fecf9d new_whale w_f4af291 w_e9605ca new_whale',
'w_3b03149 new_whale w_1efbb8e w_778e474 w_04003e9',
'w_80f481f new_whale w_698fcbe w_0887d9b w_16b5050',
'w_180e241 w_cdd2642 w_23ce00e w_625e590 new_whale',
'new_whale w_8d0d921 w_6caff0f w_760c469 w_cf35076',
'new_whale w_a79e00d w_1d0830e w_60cf87c w_038e5c3',
'new_whale new_whale w_f765256 new_whale new_whale',
'w_06292cd new_whale w_df27de9 new_whale new_whale',
'new_whale new_whale w_99e4fe2 new_whale w_d48dfda',
'w_3180b48 w_37d2f3a new_whale w_f636f80 w_ec0e6ed',
'new_whale w_62f10a4 new_whale new_whale w_be65810',
'w_fa11a3f new_whale new_whale new_whale w_7f1f285',
'new_whale new_whale new_whale new_whale new_whale',
'w_1faaf06 w_c6a96e1 new_whale w_9c506f6 w_80b474e',
```

```
'new_whale w_fc0cb69 new_whale new_whale w_396c07d',
'new_whale new_whale new_whale new_whale new_whale',
'w_6fb7fe9 w_cac9bdb w_8f1069a w_8a6a8d5 w_bc733ec',
'new_whale new_whale new_whale w_d1f35d6 new_whale',
'new_whale w_cd4cb49 w_b04e97f w_9b5109b w_8da30ad',
'new_whale w_11ff425 w_11ff425 new_whale new_whale',
'w_db96784 w_1b4b202 new_whale new_whale w_2137c6f',
'new_whale new_whale new_whale new_whale w_15951db',
'new_whale w_94e136e w_cef693e new_whale w_8f1069a',
'w_022b708 w_13aa123 w_b9d5945 w_9fecf9d w_104d305',
'new_whale new_whale new_whale w_d0475b2 new_whale',
'w_bc7de9f w_2f6d4a8 new_whale w_08630fd new_whale',
'new_whale w_cf8ce56 new_whale new_whale w_6e209a8',
'w_6c2aa5f w_13c1b55 w_a94396f new_whale new_whale',
'new_whale w_c1b34d2 w_c0bf8f8 new_whale w_625e590',
'w_5910d78 w_efbdcbc w_1275240 new_whale w_2b069ba',
'new_whale w_1c63738 w_997cda5 w_8a06b46 w_1f1cee1',
'w_4cc62b9 w_3ae4d85 new_whale new_whale w_c5ee28a',
'w_c371f0d w_ec4b5d4 new_whale new_whale new_whale',
'new_whale w_9a9a2c8 w_2efa6ab w_f829227 w_ce8aa12',
'new_whale w_6301785 w_91cc02c w_f765256 new_whale',
'new_whale w_b330c85 w_7938c79 w_45c5396 w_b311fb6',
'w_40acf40 w_fbf7d73 w_44a3ca5 new_whale w_9490369',
'new_whale w_733e9cc w_f1ec368 w_b9c99cc w_68c4ecf',
'w_97ba78a new_whale new_whale new_whale w_ee64de3',
'w_244e953 new_whale new_whale w_700ebb4 w_8193215',
'new_whale w_d24ae04 w_b3197c6 w_7b92cc8 new_whale',
'new_whale w_c1d2fbe new_whale w_a87ec7e w_a94ea72',
'new_whale new_whale new_whale new_whale w_15f43ea',
'w_7ae9946 new_whale w_0bc078c w_c509e1e new_whale',
'new_whale new_whale w_e07b79f w_57acd97 new_whale',
'new_whale new_whale w_51fc1fc new_whale w_05081a8',
'new_whale w_34053b9 w_778e474 new_whale new_whale',
'w_f128a4d new_whale new_whale w_9d29561 w_7d8c37c',
'new_whale new_whale new_whale new_whale new_whale',
'w_6822dbc w_9d86594 w_6cda039 w_4f9c015 new_whale',
'w_6cb7724 w_11bd416 new_whale new_whale w_05d52d0',
'w_0e7ec27 new_whale w_e97509e new_whale w_bd9f354',
'w_28218e1 new_whale w_f201548 w_e27bbf6 new_whale',
'w_2c94198 w_a71d6bf w_8bc8a32 new_whale new_whale',
'new_whale w_98a87a6 w_0369a5c new_whale new_whale',
'w_efa100e w_addd610 w_f3d2e31 w_715ceba new_whale',
'w_75f6ffa new_whale w_34434d1 w_6caff0f w_c16cb2c',
'w_700ebb4 w_5a3cd6d w_16df050 w_11ce746 new_whale',
'new_whale new_whale w_3e89f09 new_whale new_whale',
'new_whale w_fe87282 new_whale w_9aacaa0 w_67a9841',
'new_whale w_bee8a00 w_384e3b2 w_e07b79f w_e07b79f',
'w_f2e561e new_whale w_32da935 w_c6b4d61 new_whale',
'new_whale w_72ab123 w_f4af291 w_86220e0 w_fd3e556',
'new_whale w_3ae4d85 new_whale w_3f915dc new_whale',
'new_whale new_whale new_whale new_whale w_be2ce29',
'new_whale w_8aae94b w_91037a7 w_e22b55f w_a7067d1',
'w_44479bb new_whale w_6545943 new_whale w_d892cd9',
'new_whale w_263fcb0 new_whale new_whale new_whale',
'new_whale new_whale w_240cbf9 w_0718183 w_f082806',
'new_whale w_651236e w_0f5d895 w_163b2b8 w_f636f80',
'w_6e209a8 w_691b684 w_88e4537 new_whale w_990921b',
'w_939423d w_be4f189 new_whale w_db68456 w_c0bf8f8',
'new_whale w_5e8e218 w_50193ae w_04003e9 w_2f8895a',
'w_d72771c w_811c3a3 new_whale new_whale w_1f1cee1',
'new_whale w_3da0eae w_f91aeec w_00d50c9 new_whale',
'w_a5e6557 w_818f08c new_whale w_2c1a562 new_whale',
'w_9634512 w_e07b79f new_whale new_whale new_whale',
'new_whale w_0470377 w_1417bc8 w_74f384b w_67a9841',
'new_whale w_2f8895a w_04003e9 w_778e474 w_f459442',
'w_a05181b new_whale new_whale w_be5615a w_2a2bcf1',
```

```
'new_whale w_85a2285 w_21ae2d7 w_966f46a new_whale',
'new_whale new_whale new_whale new_whale w_87e5b68',
'w_a8a52de new_whale w_bb9497e new_whale new_whale',
'new_whale w_3057209 w_a6067a9 w_d307d9d new_whale',
'w_030e2cf w_ae8982d w_b950c88 w_90c9763 new_whale',
'w_7e2eb3d w_902f8b0 w_8c25681 w_f6c5343 w_fbf7d73',
'w_fdf618d w_8a9e295 new_whale new_whale new_whale',
'new_whale new_whale new_whale w_0369a5c w_cb622a2',
'new_whale w_16362a6 w_6189444 w_2d6596f w_ed95d33',
'new_whale new_whale w_c4faf7d w_80a59e6 w_53feb91',
'new_whale w_778e474 w_778e474 w_3b03149 w_04003e9',
'w_d94fa7a new_whale w_45246db w_9c506f6 w_483947b',
'w_4f8332a w_fbcd329 w_502e72f new_whale new_whale',
'w_551165a w_94e8c02 new_whale new_whale w_fad9574',
'new_whale w_d72771c w_d72771c w_d72771c w_7b06e7e',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'w_e71f9c7 new_whale new_whale w_2ff0834 w_53feb91',
'new_whale w_75f6ffa w_07768b0 w_b99f945 w_5e8e218',
'w_03670aa w_23a388d new_whale w_d602efb w_5e94510',
'w_8e74601 new_whale w_0b10e7c w_b9d5945 new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_f11cbbc w_22f46ab new_whale w_4441671',
'new_whale new_whale w_dc651ad w_e99ed06 w_9a5bb2d',
'new_whale new_whale new_whale new_whale new_whale',
'w_89f6097 new_whale new_whale new_whale w_8c28a3c',
'new_whale w_736cca3 w_fb02461 w_05bf34e new_whale',
'new_whale new_whale new_whale w_da08395 new_whale',
'w_72288ee new_whale new_whale new_whale new_whale',
'new_whale new_whale new_whale new_whale w_1788910',
'new_whale w_fd906cc w_bb6217a w_f3887f1 w_f0e9af7',
'new_whale new_whale new_whale new_whale new_whale',
'w_714f89f w_0ef790d w_518a722 new_whale w_ae70500',
'w_cdc55a8 new_whale w_94f41dc w_789c969 w_7d79c77',
'new_whale new_whale new_whale new_whale w_ebfbdda',
'new_whale w_7b098ce w_958b730 w_7656c1a new_whale',
'w_163b2b8 new_whale w_88e4cbf new_whale w_b524f96',
'new_whale w_e19a641 w_9b3076d w_ef83760 w_ac97190',
'w_12cc52d new_whale new_whale w_d405854 w_d4e9763',
'w_d055e5f new_whale w_e010426 new_whale new_whale',
'w_f8b4ea9 new_whale w_a6de601 new_whale w_ed50c26',
'w_e99ed06 new_whale new_whale new_whale w_3b970db',
'new_whale w_4cbf396 new_whale w_5e8e218 new_whale',
'w_0fedd59 new_whale w_3584852 w_a05181b w_d602efb',
'w_0cdca97 new_whale w_ab629bb new_whale w_502e72f',
'w_15805cd w_76ad1d2 new_whale w_50e8d58 w_6f0cbe3',
'w_60cf87c new_whale w_8d4c9f7 w_52162eb w_990921b',
'w_bd4e5dd new_whale w_9da1811 w_990921b w_8be8406',
'w_867569a new_whale w_6189444 w_a933a19 w_b128587',
'w_71dfca3 new_whale w_e014c37 new_whale w_a190a88',
'w_0369a5c new_whale new_whale w_77f9c5f new_whale',
'new_whale new_whale w_6cb1ff1 w_c815410 w_da15b9b',
'new_whale w_797b34c new_whale new_whale new_whale',
'new_whale w_fd3e556 w_564a34b w_17b0d3a w_6caff0f',
'w_af367c3 w_066ddc5 w_012678c w_eba33fb new_whale',
'w_1fe6c6e new_whale new_whale w_75f6ffa new_whale',
'new_whale w_0fdf741 w_6dbfd7a w_6cb1ff1 w_d49d4d7',
'w_f773fbe w_aa9f4b2 w_59052ad w_60a54be w_60ce6fc',
'new_whale w_13ca7e8 w_40a1403 w_d573a68 new_whale',
'w_5d8ee24 w_fec331a new_whale new_whale w_f6c5343',
'w_85a2285 new_whale w_fbcfe1a new_whale new_whale',
'new_whale new_whale w_f3d2e31 w_5a90eff new_whale',
'w_47098f8 w_69bb761 new_whale w_5773c71 w_77f9c5f',
'new_whale w_653099f w_edf43c1 new_whale w_5ff2049',
'w_9aacaa0 new_whale new_whale new_whale new_whale',
'w_163b2b8 new_whale w_6cb656d w_854c18e new_whale',
```

```
 'new_whale w_d10cf66 w_d573a68 new_whale w_ae83a65',
 'w_c63fd83 new_whale w_bace126 w_fbcfe74 w_b330c85',
 'new_whale w_d48dfda w_bd488f9 new_whale new_whale',
 'new_whale w_23d4815 w_1f0cf0a new_whale new_whale',
 'w_75d0e61 new_whale w_e71f9c7 w_1b3c3a4 w_820e136',
 'w_dee1053 w_f5bf6df w_83cc0ec w_1a70f3a new_whale',
 'new_whale new_whale w_518a722 new_whale new_whale',
 'new_whale w_d494351 w_ca11f46 w_d588fb4 w_9d56f22',
 'w_5793f1c w_f353d20 w_e142c82 new_whale new_whale',
 'w_d90a890 new_whale w_1d7fd7d w_281a8cd new_whale',
 'w_4ab3420 w_3815890 w_e1ffbe2 new_whale w_2b069ba',
 'new_whale new_whale new_whale new_whale w_94e136e',
 'new_whale w_b938e96 w_fd906cc w_6cda039 w_6cda039',
 'w_8b5a2e4 new_whale w_e1ffbe2 w_dcefb3f new_whale',
 'new_whale w_927f345 w_0369a5c w_0630c3e w_a2f8488',
 'w_03670aa w_a08f3cd new_whale w_50fd107 w_17b0d3a',
 'new_whale w_f2571bd w_3b90ba7 w_af367c3 new_whale',
 'w_776f336 new_whale new_whale w_af520bd new_whale',
 'new_whale w_88b3466 w_f2e561e w_fd3e556 w_e819d10',
 'w_ea05006 new_whale new_whale new_whale new_whale',
 'new_whale w_ecad2c9 new_whale w_1286f9e new_whale',
 'new_whale w_733f661 w_9c506f6 w_a933a19 w_0887d9b',
 'w_cefd512 w_16def42 new_whale new_whale new_whale',
 'w_c73e8e9 w_564a34b w_7bbf268 w_8c25681 w_8c8f8b6',
 'new_whale w_d6c1d80 new_whale new_whale new_whale',
 'new_whale w_2f87cc7 new_whale w_d405854 new_whale',
 'new_whale new_whale new_whale new_whale w_749dffd',
 'w_8c28a3c w_e0d3a78 w_f9b13d2 new_whale w_3de579a',
 'w_817d53c w_26ba5fd w_72e3fa4 w_e9ef5e9 new_whale',
 'new_whale w_6caff0f w_c6b4d61 w_eaed433 w_3a241cf',
 'w_7938c79 w_c1d2fbe new_whale w_5e8e218 w_9d86594',
 'w_06e4776 w_5773c71 new_whale w_be2ce29 w_d573a68',
 'new_whale new_whale new_whale new_whale new_whale',
 'w_d1e0f06 new_whale w_84dadae new_whale new_whale',
 'w_fa8c44c new_whale w_f773fbe new_whale w_37f260a',
 'w_b397217 new_whale new_whale new_whale w_db0c461',
 'new_whale new_whale w_42388df w_2c7deff w_6b1d160',
 'new_whale new_whale new_whale new_whale new_whale',
 'new_whale w_8cb5e04 w_7d724a2 w_fe87282 w_3002b59',
 'new_whale w_f2075ef w_1b77e4f w_02d138d w_2972f31',
 'w_60cf87c w_329c19c w_ab2ac77 w_4f62735 new_whale',
 'new_whale w_4846b27 w_0b7ce1e w_df86a42 w_f648d33',
 'w_0886321 new_whale new_whale w_533fe25 new_whale',
 'w_f812227 new_whale w_b2e75dc w_e54d8f6 w_01cbbbd',
 'w_1220336 new_whale new_whale new_whale w_70d0b3c',
 'w_2b4b82e w_e1ffbe2 w_2b4b82e w_488865e w_0f03c44',
 'w_dc651ad new_whale w_6189444 w_2d6596f new_whale',
 'w_cb4182e new_whale w_c4232a3 new_whale new_whale',
 'new_whale w_accb0cb w_7537a43 w_9c506f6 w_7938c79',
 'new_whale w_0f25e6b w_5116e7e w_e4a9205 w_179c9f0',
 'new_whale new_whale w_c875e45 w_f1d2222 w_a283c8c',
 'new_whale new_whale w_ebdad2e new_whale w_4a61e0a',
 'w_0a619af new_whale w_8c25681 w_6822dbc w_3904956',
 'new_whale new_whale new_whale new_whale new_whale',
 'new_whale w_0b1e4a6 w_c262606 w_8b8dca8 w_23a388d',
 'new_whale w_3002b59 w_a6a732d w_7fe4082 new_whale',
 'new_whale w_3c966be new_whale w_2645f4d new_whale',
 'w_a10e633 w_da08395 new_whale new_whale new_whale',
 'w_2694603 w_f6b8ccb w_9748a78 w_0369a5c w_d0bfef3',
 'w_27b7295 w_e71f9c7 new_whale w_60ce6fc w_78e7020',
 'w_0718183 w_0c5f019 w_df5bf3d w_dbf7f76 w_95a5270',
 'new_whale w_6e6307e new_whale w_0e9f07a new_whale',
 'w_8beb9f1 w_d9a3c6e w_c2de607 new_whale new_whale',
 'new_whale w_d2a35ca w_1531bf5 w_d892cd9 w_2b069ba',
 'w_4e01dd9 w_0f73f48 new_whale w_50260e7 new_whale',
 'w_2972f31 new_whale new_whale w_0d5a672 w_ab44ae4',
 'w_60ce6fc new_whale w_1d0830e new_whale w_234713b',
```

```
'w_d573a68 w_5cf0e37 w_2fe1c3f w_d9a3c6e new_whale',
'new_whale new_whale w_c55c51d w_6041acb new_whale',
'new_whale w_3815890 w_0655608 new_whale w_760c469',
'new_whale w_562b227 new_whale w_5793f1c new_whale',
'w_c82dafb new_whale w_478d73b w_c2677ee w_245ac74',
'w_f48451c new_whale w_4776fc5 new_whale new_whale',
'new_whale w_27b7295 new_whale w_23a388d new_whale',
'w_57db059 new_whale w_c9b4607 w_af367c3 w_accb0cb',
'w_17a4a41 w_c20b4e0 new_whale new_whale new_whale',
'new_whale new_whale w_00a41ba w_40a1403 w_6e0e2ae',
'new_whale w_f3f23d6 new_whale w_e5c28c9 w_1faaf06',
'w_2645f4d new_whale w_92a47eb new_whale w_b569e70',
'w_c73e8e9 w_b475feb w_d0fd41c new_whale w_27b7295',
'w_f1b6eea w_c073f96 w_2645f4d new_whale new_whale',
'w_6e6307e w_1fecb34 w_c63c580 w_3e4b155 new_whale',
'w_f1ec368 new_whale w_28c330c w_69bb761 w_003bae6',
'new_whale w_83d10c1 new_whale new_whale w_77f9c5f',
'w_ac90846 w_71df35a w_6f3a3ec w_6afdf63 new_whale',
'w_f459442 w_e70a3d0 new_whale w_99d53a9 new_whale',
'w_ac6aee2 new_whale new_whale w_72afa97 w_adb1dff',
'w_f24a55c w_d9c78ee new_whale new_whale w_a8276b4',
'w_7342df0 w_af367c3 new_whale w_c01c1f4 w_9c506f6',
'w_f459442 w_dec7ffd new_whale w_a9304b9 w_a9304b9',
'new_whale w_fad9574 w_9fc06d4 w_af367c3 w_d980663',
'new_whale new_whale w_cb0aaf0 w_620dffe new_whale',
'w_101990d w_3bb142c new_whale new_whale w_68c4ecf',
'w_00d50c9 w_bc285a6 new_whale w_c6c60c8 new_whale',
'new_whale w_5bf792a w_c3d896a w_2a7c1af w_57a546c',
'new_whale new_whale w_b3e445e new_whale new_whale',
'new_whale new_whale new_whale new_whale w_b3196aa',
'w_8c25681 new_whale w_3378e77 w_3976c05 w_3976c05',
'new_whale new_whale new_whale w_a7e3d55 w_7203b68',
'w_4f3dc75 w_6279534 w_990921b new_whale w_e08506c',
'new_whale w_cafe0d0 w_08630fd w_a63cd8d w_10f67bb',
'w_c5dbf98 w_0655a0d new_whale w_7150989 w_0135f5f',
'w_3de579a new_whale new_whale new_whale new_whale',
'new_whale w_3bf2653 w_f276da3 w_d8a47de w_4ff2f4a',
'w_29d806a w_ec4b5d4 new_whale w_deda5f7 new_whale',
'w_ef83760 new_whale w_bfe77d0 w_ef83760 w_1d0830e',
'new_whale w_fec5547 w_99545ba w_8b86b95 w_c0bf8f8',
'w_62fc862 new_whale w_6b90e54 w_a8f7906 w_9544084',
'w_d066f46 w_51fc1fc w_51fc1fc new_whale new_whale',
'new_whale w_e21b629 w_e966f36 new_whale w_003bae6',
'new_whale w_e1c5b57 w_8b86b95 w_28218e1 w_4adc1c0',
'new_whale w_bb9497e w_a8a52de new_whale new_whale',
'w_75f6ffa w_260a2e7 w_0a155b9 w_02aa597 new_whale',
'w_336e046 new_whale new_whale new_whale new_whale',
'w_7d44896 w_90c9763 new_whale new_whale new_whale',
'w_fbf7d73 new_whale new_whale w_9af8eba new_whale',
'w_f77e282 new_whale w_6b25530 new_whale new_whale',
'w_59052ad new_whale w_f437f82 w_b82d0eb new_whale',
'w_50260e7 new_whale w_f652809 w_c98aaad w_242fb46',
'w_263fcb0 new_whale w_02c7e9d new_whale w_1e85eea',
'w_2ec0a71 new_whale w_8003858 w_519a081 w_f437f82',
'w_f765256 new_whale w_733a794 w_5a8902d w_f765256',
'w_f3b2948 w_91cc02c new_whale w_be3f623 new_whale',
'w_579e5f0 w_94a7669 w_0a619af new_whale w_d6aa3f3',
'w_e54d8f6 w_1cfebce w_242fb46 new_whale w_2a6d5ee',
'new_whale w_955bfe2 w_2b069ba w_9d86594 w_57db059',
'w_a059841 w_4b1a9b1 w_0b1e4a6 w_88e4537 w_28589bc',
'w_b2af5eb new_whale w_fd3e556 new_whale new_whale',
'new_whale w_bd1c3d5 w_ca11f46 w_04f5f55 w_2e706fc',
'w_bbfce38 w_f5baf10 w_0f56fb2 w_814a1cc new_whale',
'w_6b1d160 new_whale w_60cf87c w_e08506c w_2e374c0',
'w_917cc49 w_52b60a6 new_whale new_whale w_917cc49',
'w_6aff5b1 w_f6e5311 w_2926c77 new_whale new_whale',
```

```
'new_whale w_9c506f6 w_e71f9c7 w_07125ed w_57db059',
'new_whale w_5d1b1a7 w_90c9763 new_whale w_3c8f7da',
'new_whale w_614b549 w_13c1b55 w_40be8d6 w_0f466a5',
'w_a08f3cd w_fa70157 w_c11f9d8 new_whale new_whale',
'w_520731e w_a7757d4 new_whale w_3b03149 new_whale',
'w_90c9763 w_72aa314 w_3962169 w_a6703dd w_714f89f',
'new_whale w_2ff0834 w_917cc49 w_b3afb40 w_bc1519b',
'w_df86a42 new_whale w_0b7ce1e w_f276da3 w_a4d7e8f',
'w_e6d5621 new_whale w_445cc76 w_73d71d2 w_8b86b95',
'w_1fe6c6e w_0350bf4 new_whale w_b9e5911 new_whale',
'new_whale w_8d09425 new_whale w_71df35a new_whale',
'w_6822dbc w_955bfe2 w_6822dbc w_96985c1 new_whale',
'new_whale w_7938c79 w_1032bb6 w_f9112ac w_e27bbf6',
'new_whale w_3f7d5f5 w_6189444 new_whale new_whale',
'new_whale new_whale new_whale w_0f73f48 new_whale',
'new_whale new_whale w_f66ec54 w_d3e5689 new_whale',
'new_whale new_whale w_c6d918a new_whale new_whale',
'w_cfe7928 new_whale w_5597026 new_whale w_452d137',
'w_9ad3551 w_2e9d1b5 w_3643be7 w_23a388d new_whale',
'new_whale new_whale new_whale w_58ddf90 w_20eeb29',
'w_336e046 w_ad343a6 w_8a1786f new_whale w_e79b4d0',
'w_51fc1fc new_whale w_ab10c70 new_whale new_whale',
'new_whale w_f854d6b w_1032bb6 w_0135f5f w_1032bb6',
'w_a7757d4 w_5841fb9 new_whale new_whale new_whale',
'new_whale w_0369a5c new_whale new_whale new_whale',
'new_whale new_whale w_cb0aaf0 w_5072c08 new_whale',
'w_9bedea6 new_whale w_4a61e0a new_whale new_whale',
'new_whale w_a3ce1d5 w_83869d3 w_022b708 w_555dcb4',
'new_whale w_ab41d9b new_whale new_whale w_0e35358',
'w_0369a5c w_cd4cb49 w_92cb6d9 w_0718183 new_whale',
'new_whale w_564a34b w_d4d46bf w_bf41c21 w_ec32fa6',
'new_whale w_e4d326a w_3137898 w_fa8c44c new_whale',
'new_whale w_2b069ba w_5010896 w_accb0cb w_e21b629',
'w_60ce6fc w_f6c5343 new_whale w_03a82c1 new_whale',
'w_7677b27 w_900c68f w_40a1403 new_whale new_whale',
'new_whale w_c7e2a65 w_04713fd new_whale new_whale',
'w_0a87ea4 w_15951db w_e79b4d0 new_whale w_3de579a',
'new_whale w_8799716 w_8a6a8d5 w_792ffd7 w_1efbb8e',
'new_whale w_8b647d4 w_3ad0f37 w_210caac w_f71100b',
'new_whale w_63d6920 new_whale w_8f1069a w_0f73f48',
'new_whale w_34434d1 w_07768b0 w_305456a new_whale',
'new_whale w_d73c048 w_2b069ba w_4516ff1 w_0135f5f',
'w_a3dc2bd w_06619ff new_whale w_f35e494 w_5ae026a',
'w_d405854 w_9fe60cd w_87e5b68 w_5c2c1a1 new_whale',
'w_f648d33 w_b54f70f w_26c0ffd w_dc651ad w_f648d33',
'w_a94396f w_04003e9 new_whale w_74f9ede w_71d5ba2',
'new_whale w_e19c1d6 w_e27bbf6 new_whale w_9593412',
'w_5b3289c w_2b069ba new_whale w_114a297 w_bfcad53',
'w_0887d9b w_b128587 new_whale w_88445b2 w_c9b4607',
'new_whale w_d6c1d80 new_whale new_whale new_whale',
'new_whale new_whale w_f0fe284 w_b5e6c80 new_whale',
'new_whale w_2b069ba w_6cda039 w_34120de w_488865e',
'new_whale w_dc642b6 w_bfcad53 w_29c88c2 w_e3956f5',
'new_whale w_c058057 w_51fc1fc new_whale new_whale',
'w_186d294 w_62c78f3 w_7087c88 w_d405854 new_whale',
'new_whale w_5a3cd6d w_f5bf6df w_928ec6c w_d72771c',
'new_whale w_191bce3 w_f128a4d new_whale w_88bb921',
'new_whale new_whale w_f971ecb new_whale new_whale',
'w_6fe5b8e new_whale new_whale new_whale w_1217536',
'w_46ea040 w_1ca9ab1 w_242fb46 new_whale w_fe8aee2',
'w_2b069ba w_6189444 new_whale new_whale new_whale',
'w_691b684 w_428ca58 w_7769d46 w_7ffc63c new_whale',
'new_whale new_whale new_whale w_0cbf1b3 new_whale',
'w_d49d4d7 w_c9fc1f5 new_whale new_whale w_60ce6fc',
'w_3a34d6f w_356b5b7 w_2059146 w_0e7ec27 w_551f361',
'w_591a2c5 new_whale w_a4162d6 w_50e8d58 w_568e9fd',
'w_9eacf8f w_0f466a5 w_f765256 new_whale w_95e7e6f',
```

```
 'w_9eaef8f w_0f466a5 w_f765256 new_whale w_95c7a6f',
 'w_e9a2c15 w_ea05006 w_438dd0b new_whale w_3079e26',
 'w_aa9f4b2 w_0fe6fbb new_whale w_c61a67b w_1ca9ab1',
 'new_whale w_c11f9d8 new_whale new_whale new_whale',
 'w_29d806a w_38c0639 w_ec4b5d4 w_ac33bfe w_0e7aae1',
 'new_whale w_d4d46bf w_60ce6fc w_564a34b w_f408b56',
 'new_whale w_69ce621 w_6684eea w_778e474 w_5e8e218',
 'w_31154fa new_whale new_whale new_whale w_00904a7',
 'new_whale w_c1b34d2 w_8e74601 w_564a34b w_c01c1f4',
 'w_8c25681 w_bb08804 new_whale w_be3f623 w_effbe89',
 'w_06e4776 w_5a2634c w_ae53e45 new_whale w_6fe5b8e',
 'new_whale new_whale new_whale w_93fcf89 w_cbd5013',
 'new_whale w_db96784 w_1472271 w_1b4b202 w_eddd5b4',
 'new_whale w_ab7c369 new_whale new_whale w_ab7c369',
 'w_cffd90e w_817d53c w_b21cfe4 w_ad88c85 new_whale',
 'w_75f6ffa new_whale w_600bf1b w_95c932d w_f61b957',
 'w_f573d1d new_whale w_ecad2c9 new_whale new_whale',
 'new_whale w_efbdcbc w_5116e7e w_c2a1bc4 w_d494351',
 'new_whale w_9b5109b new_whale w_9b5109b w_3c8f7da',
 'new_whale new_whale w_a190a88 new_whale new_whale',
 'w_343f088 new_whale w_b86917d new_whale w_343f088',
 'new_whale w_41a2f20 w_6e97ef4 w_5a2634c new_whale',
 'new_whale new_whale w_51b4749 w_e27bbf6 new_whale',
 'w_ce44322 new_whale w_cfa9fb2 new_whale w_9a5bb2d',
 'w_d066f46 new_whale w_51fc1fc new_whale w_69bb761',
 'w_5773c71 new_whale w_bd18f3c new_whale w_9109577',
 'w_8b8dcf5 new_whale w_73d71d2 new_whale new_whale',
 'w_9c08fc2 new_whale new_whale w_0532483 new_whale',
 'w_ecad2c9 w_3de579a new_whale w_99383ac new_whale',
 'new_whale new_whale new_whale w_f2d26f2 w_16def42',
 'w_ef83760 w_35863c5 new_whale w_efa6b4a w_a6703dd',
 'new_whale w_733f661 w_bfcad53 new_whale new_whale',
 'w_98d094e w_9da1811 w_77c86af w_d12f2a0 w_df71327',
 'new_whale new_whale w_334d7eb new_whale w_5823d7b',
 'new_whale w_5585ecf new_whale new_whale new_whale',
 'w_b950c88 w_32015c2 new_whale new_whale w_ae8982d',
 'new_whale w_d72771c w_d72771c w_025911c w_f648d33',
 'w_b860053 new_whale new_whale new_whale new_whale',
 'w_4a28f21 w_2f87cc7 new_whale w_44c1eef new_whale',
 'w_0b1e4a6 new_whale w_7d8b00d w_d1f35d6 w_5a8902d',
 'w_8d9af77 w_775504f w_dc56028 w_b19f2f9 new_whale',
 'new_whale w_bbfce38 new_whale new_whale w_5e8e218',
 'w_3584852 w_f0eddab new_whale w_c566a3d new_whale',
 'w_317c071 w_3b71107 w_6525e6b new_whale w_9c506f6',
 'new_whale w_a71d6bf w_584e1dc new_whale w_7d458aa',
 'w_2858e46 new_whale w_2df37cc new_whale new_whale',
 'w_8c25681 w_4f3dc75 w_6279534 new_whale w_5665c80',
 'w_bf960fa new_whale w_ae6ac74 new_whale w_94f41dc',
 'new_whale new_whale w_6658081 w_4dfeafc w_06e4776',
 'w_580ba51 w_d05fc81 w_b5f7e89 new_whale w_9da1811',
 'w_41dd026 new_whale w_4562f42 new_whale w_e64c432',
 'w_456646a w_234713b new_whale w_8b5a2e4 w_659bdb8',
 'new_whale w_d3e4d19 w_02e8199 w_0027efa w_51b4749',
 'w_97ba78a w_2972f31 new_whale w_7e56d66 w_4e902c2',
 'w_a6703dd w_bfcad53 new_whale w_74c924a new_whale',
 'w_2365d55 new_whale w_9b3076d w_47d86e8 w_263fcb0',
 'new_whale w_e244fc3 w_abfccb7 w_7d296e9 w_4adc1c0',
 'w_d869993 new_whale new_whale new_whale w_d9a3c6e',
 'w_c8bbb43 w_66e8565 w_bc28a13 new_whale new_whale',
 'w_9d86594 w_83e0076 new_whale w_bb2c919 w_55ef07b',
 'w_3584852 new_whale w_101990d w_eafeccd new_whale',
 'w_f8511e9 w_90fb95b new_whale w_b7babc0 w_14330a0',
 'w_22e82fa w_4f9c015 new_whale new_whale new_whale',
 'new_whale w_d405854 w_f6c5343 w_15a9ec1 w_9be308e',
 'new_whale w_91037a7 w_722a04a new_whale new_whale',
 'w_454f511 w_f0fe284 new_whale w_e0d3a78 w_89f6097',
 'new_whale w_7488eec new_whale new_whale new_whale',
```

```
'new_whale w_2f5caa9 new_whale w_9f02ca1 new_whale',
'w_c62ac72 w_9f13096 new_whale w_2b1b04e w_7ffc63c',
'new_whale w_bef54e9 new_whale new_whale w_8f38839',
'w_d980663 w_b74c24a w_8e74601 new_whale w_abc5af2',
'new_whale w_b93105d new_whale w_c59d4b1 new_whale',
'w_9b5109b new_whale w_c9cf75d w_08630fd w_23a388d',
'w_63f5740 w_ae8982d w_fb02461 new_whale w_52464e6',
'w_609529a new_whale new_whale w_5b870e8 w_a8276b4',
'new_whale new_whale w_1887b5a w_08630fd w_27597ff',
'w_2623b69 new_whale w_14f15a0 new_whale w_fdf618d',
'new_whale w_990921b w_00904a7 w_234713b w_180e241',
'w_3584852 new_whale w_e2a09d4 w_9236fb3 new_whale',
'new_whale new_whale new_whale w_e8b5980 w_29d806a',
'w_1e1e5d9 new_whale new_whale w_7c6e8f0 w_1e1e5d9',
'w_b93105d new_whale new_whale new_whale new_whale',
'new_whale w_3ec7fa2 new_whale new_whale new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale new_whale w_da2cf74 new_whale new_whale',
'new_whale new_whale w_d3baa35 w_ad072b0 w_ce5c5eb',
'w_8799716 new_whale w_025911c w_13937e4 new_whale',
'new_whale w_03670aa w_6ca173f new_whale new_whale',
'w_52182de w_66b4513 w_5d3f521 new_whale w_0f8b8e2',
'w_2009f8b w_f765256 w_ae393cd new_whale w_fec331a',
'w_c63c580 new_whale w_0a31a3a w_ccf3551 w_c70fbcd',
'w_aa0dacc w_72ab123 w_1ff111d new_whale w_84dbd14',
'w_5ad70f3 new_whale w_f3b2948 w_0fe6fbb new_whale',
'w_327175f new_whale new_whale new_whale new_whale',
'w_867569a new_whale w_92cb156 new_whale new_whale',
'new_whale new_whale new_whale new_whale w_57aeea3',
'new_whale w_6e209a8 w_007fefa w_a6a732d w_966b510',
'w_de03861 new_whale w_10bb1ba new_whale new_whale',
'new_whale w_46796cc w_9a91c1e w_9aa9809 w_59088ff',
'new_whale w_270f505 new_whale new_whale w_0d9ddce',
'new_whale new_whale w_5a2634c w_2f0416b w_69c8945',
'new_whale w_9438119 w_d0475b2 new_whale new_whale',
'w_0369a5c w_70e9661 w_b1d49c5 new_whale new_whale',
'w_fb02461 w_a7067d1 w_b30acf8 w_7e56d66 new_whale',
'w_c6b4d61 w_ec4bcf9 w_5ff2049 new_whale w_bd1c3d5',
'new_whale w_efbdcbc w_5510cf3 w_6f1f6b3 w_addd610',
'new_whale w_91cc02c new_whale w_d0589c5 w_5e2589b',
'w_b7cf3f5 w_53215c6 w_c59d924 w_74e6a59 w_53215c6',
'w_7918564 w_3de579a w_b805777 w_fdf618d new_whale',
'new_whale w_50fd107 new_whale w_d33bc7f new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'w_5781883 new_whale new_whale w_38fc953 new_whale',
'w_698fcbe w_2f1488c w_e966f36 w_5510cf3 w_611d18b',
'new_whale w_12fe3a8 w_d8fb98d w_6f9f759 w_68ed1f9',
'w_5ad1ac9 w_2757c07 new_whale w_efbdcbc w_2e706fc',
'new_whale w_6e97ef4 w_3879fa0 w_2f74ff3 w_748290a',
'new_whale w_45e277d w_335a58c w_9f13096 w_56c9d4e',
'w_6fd2888 w_c3c0d22 w_23a388d w_efe3a39 w_9c506f6',
'w_e73cce3 w_27272a5 w_c875e45 w_9bd2794 new_whale',
'w_cd4cb49 w_cdc55a8 w_00d50c9 new_whale new_whale',
'new_whale new_whale new_whale w_af8df07 w_cf18ab7',
'w_da15b9b w_8157927 new_whale w_15bf4be w_972e51e',
'w_8a1786f w_181ab06 w_b1abd47 new_whale w_971d191',
'w_72c56cc w_15951db w_c0f1e04 new_whale w_8f4d879',
'w_b5e6c80 w_6aab519 w_16def42 new_whale w_13edc47',
'w_8dcdb19 new_whale new_whale new_whale new_whale',
'new_whale w_41a2f20 w_bc733ec w_9645aa9 new_whale',
'w_f3a12bc new_whale w_00904a7 w_12fe3a8 new_whale',
'w_e568f47 w_92f4498 w_378bf61 w_d573a68 w_8ea9f68',
'new_whale w_67a9841 w_2c94198 w_efe3a39 w_23ce00e',
'w_f992eae w_11d8c70 w_9b69214 w_fdcaaa8 new_whale',
'w_bf41c21 new_whale w_6f7667a new_whale w_6cda039',
'w_7066887 new_whale w_6189444 w_867569a new_whale',
```

```
'w_98d094e new_whale w_bc2369c w_817d53c w_564a34b',
'w_8431ae8 w_025911c w_cc1784d w_8e74601 w_2365d55',
'new_whale new_whale w_778e474 w_5e8e218 w_c684a38',
'new_whale new_whale new_whale w_1e3e9a7 new_whale',
'w_f787e93 new_whale w_59052ad w_f459442 new_whale',
'w_966b510 w_e3956f5 new_whale new_whale new_whale',
'w_ffa6d42 w_8cafcf5 w_aabdf8c w_ea902fb new_whale',
'new_whale w_fccccec w_f57140c w_0d052c1 w_9c506f6',
'w_aeabde9 new_whale w_82479e4 w_9eb2d2a new_whale',
'w_1f85037 new_whale w_40a8585 w_3bd976e w_fa887d3',
'new_whale new_whale new_whale w_fb02461 w_548a268',
'new_whale new_whale new_whale w_b950c88 w_fdcaaa8',
'new_whale w_64055b4 w_4a61e0a new_whale new_whale',
'w_c6d918a w_38c6a8d w_c6d918a w_4fadedd new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_ebdad2e w_277d911 w_ac2df91 w_5778858',
'w_bc7de9f w_fe881f2 new_whale new_whale new_whale',
'w_343f088 new_whale w_f1b6eea w_d066f46 w_cf1e889',
'w_8b647d4 w_685115a new_whale w_009c9c5 new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_f6c5343 w_234713b w_c4faf7d w_abc82c3',
'new_whale new_whale w_75d0e61 new_whale new_whale',
'new_whale new_whale new_whale new_whale w_a6703dd',
'w_3309cbd w_9e52d87 w_d7aad03 w_d9f8641 new_whale',
'w_bd18f3c new_whale new_whale new_whale new_whale',
'new_whale new_whale w_16dba74 w_cc85af7 w_e486063',
'w_c92d4a9 new_whale w_2b1b04e w_db68456 w_625e590',
'new_whale w_ead1f5a w_787af6b w_23a388d w_733f661',
'w_df32eec w_d0475b2 w_e0cf908 new_whale w_b9c99cc',
'new_whale w_c875e45 new_whale w_6643fe8 new_whale',
'w_fbf7d73 w_9e020d1 w_da15b9b new_whale w_d05fc81',
'w_f459442 w_75d0e61 w_2d0cfc1 new_whale new_whale',
'new_whale w_0718183 w_c734fa4 new_whale new_whale',
'w_cc1784d w_580ba51 new_whale new_whale new_whale',
'w_80a59e6 w_fd3e556 w_1ff111d w_f4af291 new_whale',
'new_whale w_dbf651b new_whale w_1f85037 w_1e3e9a7',
'w_abf193d new_whale new_whale new_whale w_86726bc',
'w_13c8177 w_11ff425 new_whale w_17b0d3a w_f3252ff',
'w_c0bf8f8 w_1c6465a w_b2606f3 new_whale w_fd3e556',
'new_whale w_5d3f521 w_b037216 new_whale new_whale',
'new_whale w_d494351 w_ca11f46 w_733f661 w_452d137',
'new_whale w_872f131 new_whale w_df3b4cf w_07768b0',
'w_fdd3687 new_whale w_5d6ba39 w_ab2ac77 w_193f83c',
'w_625e590 new_whale w_60ce6fc w_60ce6fc w_972e51e',
'new_whale w_b9e5911 w_9c68fe8 w_d4661be w_dc23fbc',
'new_whale w_169a302 new_whale w_99e43ae w_71df35a',
'new_whale w_d76f21b w_62c78f3 w_cffd90e w_cb622a2',
'new_whale w_c0e2505 w_cff6c83 w_40dc8f2 w_8f0c6ed',
'new_whale w_494c72d w_0e9f07a w_ef62b09 w_4fd7b80',
'new_whale w_80124ae w_df54dcb w_bcb2fe3 w_733f661',
'w_a42c505 new_whale w_48aa237 w_f3addb7 new_whale',
'w_49ce813 w_02c7e9d w_55a34c7 new_whale w_88e4537',
'new_whale w_2a2bcf1 w_10f67bb new_whale w_e99ed06',
'w_4dbf0ad w_d066f46 new_whale w_37d2f3a new_whale',
'w_f74a89e w_e1c9a18 w_f74a89e w_9c506f6 new_whale',
'new_whale new_whale new_whale new_whale new_whale',
'new_whale w_1f7e291 new_whale new_whale new_whale',
'new_whale w_cfeb24b w_5e8e218 w_9b16b48 w_415f090',
'new_whale new_whale new_whale new_whale w_bc28a13',
'w_7307591 w_edf0164 new_whale new_whale w_f61b957',
'w_67a270c new_whale new_whale w_6b1d160 w_625e590',
'w_9b5109b w_454f511 new_whale w_ac2c28e new_whale',
'w_5e2589b w_0369a5c w_ab2ac77 w_c2c1e28 w_cf4178c',
'w_df27de9 w_c734fa4 new_whale w_d066f46 w_ac2c28e',
'w_003bae6 w_df34804 w_483947b w_ec4bcf9 new_whale',
'new_whale w_2c3c217 w_f150d99 w_872f131 w_07e0c3c',
'w_609529a w_9b69214 w_8a1b71c w_a8276b4 w_bfe77d0',
```

Did you find this Kernel useful?
Show your appreciation with an upvote

0

Data

Data Sources

- Humpback Whale I...
  - sa... 7960 x 2
  - trai... 25.4k x 2
  - test.zip
    - 0027089a4.jpg
    - 00313e2d2.jpg
    - 004344e9f.jpg
    - 008a4bc86.jpg
    - 00ac0fca6.jpg
    - 00ff45291.jpg
    - 012dbdb59.jpg
    - 0169cec0e.jpg
    - 01830c9cf.jpg
    - 01b1ecf7b.jpg
    - 1000+ more
  - train.zip
    - 002b4615d.jpg
    - 00600ce17.jpg
    - 00d641885.jpg
    - 00eaedfab.jpg
    - 00fee3975.jpg
    - 010a1f0eb.jpg
    - 01237f1ce.jpg
    - 01dcb420f.jpg
    - 0202dfb29.jpg
    - 020ab0f9b.jpg
    - 1000+ more

Humpback Whale Identification

Can you identify a whale by its tail?

Last Updated: 2 months ago

About this Competition

This training data contains thousands of images of humpback whale flukes. Individual whales have been identified by researchers and given an `Id`. The challenge is to predict the whale `Id` of images in the test set. What makes this such a challenge is that there are only a few examples for each of 3,000+ whale Ids.

File descriptions

- **train.zip** - a folder containing the training images
- **train.csv** - maps the training `Image` to the appropriate whale `Id`. Whales that are not predicted to have a label identified in the training data should be labeled as `new_whale`.
- **test.zip** - a folder containing the test images to predict the whale `Id`
- **sample_submission.csv** - a sample submission file in the correct format

Output Files

New Dataset New Kernel Download All

Output Files

- sub_humpback.csv

About this file

Submit to Competition

This file was created from a Kernel, it does not have a description.

sub_humpback.csv

1	Id	Image
2	w_c178f34 w_cdf834e new_whale w_fd3e556 new_whale	aabc5cf3b .jpg
3	w_bfe77d0 w_8141e4e w_d405854 new_whale w_7fe4082	7917b34f8 .jpg
4	new_whale w_502e72f new_whale w_d8cb231 w_fbcd329	b82051bad. jpg
5	new_whale new_whale w_5823d7b w_5773c71 w_3d72a96	2a2c4a661. jpg
6	w_be28cde new_whale w_8193215 new_whale new_whale	3ab77e041. jpg
7	new_whale new_whale new_whale new_whale new_whale	50a4d8475. jpg
8	new_whale w_7e579dd w_d3b1733 w_1032bb6 w_754cc34	c02d5e7b0. jpg
9	w_5d8ee24 new_whale new_whale new_whale new_whale	22ef3c6bd .jpg
10	new_whale w_d236b51 w_dced3f2	c2c4f4ad6 .jpg

Run Info

Succeeded	False	Run Time	921.3 seconds
Exit Code	0	Queue Time	0 seconds
Docker Image Name	/python(Dockerfile)	Output Size	0
Timeout Exceeded	False	Used All Space	False
Failure Message	The kernel was killed for trying to exceed the memory limit of 13958643712		

Log

Download Log

Time	Line #	Log Message
2.8s	1	[NbConvertApp] Converting notebook __notebook__.ipynb to notebook
2.9s	2	[NbConvertApp] Executing notebook with kernel: python3
8.1s	3	2019-02-01 22:35:20.620831: I tensorflow/stream_executor/cuda/cuda_gpu_executor.cc:964] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero
8.1s	4	2019-02-01 22:35:20.621495: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1432] Found device 0 with properties: name: Tesla K80 major: 3 minor: 7 memoryClockRate(GHz): 0.8235 pciBusID: 0000:00:04.0 totalMemory: 11.17GiB freeMemory: 11.10GiB 2019-02-01 22:35:20.621525: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1511] Adding visible gpu devices: 0
8.4s	5	2019-02-01 22:35:20.944669: I tensorflow/core/common_runtime/gpu/gpu_device.cc:982] Device interconnect StreamExecutor with strength 1 edge matrix:

```
                 2019-02-01 22:35:20.944720: I
                 tensorflow/core/common_runtime/gpu/gpu_device.cc:988]      0
                 2019-02-01 22:35:20.944734: I
                 tensorflow/core/common_runtime/gpu/gpu_device.cc:1001] 0:   N
8.4s        6    2019-02-01 22:35:20.947279: I
                 tensorflow/core/common_runtime/gpu/gpu_device.cc:1115] Created
                 TensorFlow device
                 (/job:localhost/replica:0/task:0/device:GPU:0 with 10758 MB
                 memory) -> physical GPU (device: 0, name: Tesla K80, pci bus
                 id: 0000:00:04.0, compute capability: 3.7)
915.5s      7    [NbConvertApp] Writing 297211 bytes to __notebook__.ipynb
919.9s      8    [NbConvertApp] Converting notebook __notebook__.ipynb to html
920.7s      9    [NbConvertApp] Support files will be in __results___files/
                 [NbConvertApp] Making directory __results___files
920.7s      10   [NbConvertApp] Making directory __results___files
                 [NbConvertApp] Making directory __results___files
920.7s      11   [NbConvertApp] Making directory __results___files
                 [NbConvertApp] Writing 423610 bytes to __results__.html
920.7s      12
920.7s      14   Complete. Exited with code 0.
```

Comments (0)

Click here to enter a comment...