

```
In [1]: !pip install -r requirements.txt
```

Enunciado do Exercicio do Modulo de Redes Neurais Profundas

Caro aluno(a) Leandro,

Chegou o momento de consolidar nosso conhecimento em Redes Profundas: 1. Realize os seguintes cursos do Kaggle:

a. Intro to Deep Learning; <https://www.kaggle.com/learn/intro-to-deep-learning>

Feito

b. Computer Vision; <https://www.kaggle.com/learn/computer-vision>

Feito

c. Machine Learning Explainability. <https://www.kaggle.com/learn/machine-learning-explainability>

Feito

2. Leia o artigo Review of deep learning: concepts, CNN architectures, challenges, applications, future directions(<https://journalofbigdata.springeropen.com/articles/10.1186/s40537-021-00444-8>) (Alzubaidi, L. 2021). Baseado no artigo, descreva os principais desafios e limitações de DL. Quais alternativas os autores dão aos problemas?

Dentro do universo das redes neurais profundas (Deep Learning) existem muitos desafios ou limitações que existem, como por exemplo nos dados de treinamento, dados desbalanceados, ajuste excessivo, interpretabilidade dos dados etc. Serão mencionados três dos principais problemas a seguir.

Limitações com dados de treinamento: A Deep Learning exige uma quantidade muito grande de dados para obter um modelo de desempenho bem comportado, ou seja, à medida que os dados aumentam, é possível obter um modelo de desempenho mais bem comportado. Na maioria dos casos, os dados disponíveis são suficientes para obter um bom modelo de desempenho. No entanto, às vezes há uma escassez de dados para usar a Deep Learning diretamente. Para abordar adequadamente esse problema, há três métodos sugeridos. O primeiro envolve o emprego do conceito de aprendizagem por transferência depois que os dados são coletados de

tarefas semelhantes. Observe que, embora os dados transferidos não aumentem diretamente os dados reais, eles ajudarão a aprimorar a representação de entrada original dos dados e sua função de mapeamento. Outra técnica envolve o emprego de um modelo bem treinado de uma tarefa semelhante e o ajuste fino do final de duas camadas ou até mesmo de uma camada com base nos dados originais limitados. No segundo método, o aumento de dados é realizado. Essa tarefa é muito útil para uso no aumento dos dados de imagem, pois a tradução, o espelhamento e a rotação da imagem geralmente não alteram o rótulo da imagem. No terceiro método, os dados simulados podem ser considerados para aumentar o volume do conjunto de treinamento. Ocasionalmente, é possível criar simuladores com base no processo físico se o problema for bem compreendido. Portanto, o resultado envolverá a simulação de tantos dados quantos forem necessários.

Dados Desbalanceados: Em uma situação com dados biológicos, tendem a ser desequilibrados, pois as amostras negativas são muito mais numerosas do que as positivas. Deve-se observar que resultados indesejáveis podem ser produzidos ao treinar um modelo de Deep Learning usando dados desequilibrados. É necessário empregar os critérios corretos para avaliar a perda, bem como o resultado da previsão. Ao considerar os dados desequilibrados, o modelo deve ter bom desempenho em classes pequenas e maiores. Assim, o modelo deve empregar a área sob a curva (AUC) como a perda resultante, assim como os critérios. Outro ponto a ser observado, ele deve empregar a perda de entropia cruzada ponderada, o que garante que o modelo terá um bom desempenho com classes pequenas se ainda preferir empregar a perda de entropia cruzada. Ao mesmo tempo, durante o treinamento do modelo, é possível reduzir a amostragem das classes grandes ou aumentar a amostragem das classes pequenas. É possível construir modelos para cada nível hierárquico, pois um sistema biológico frequentemente tem um espaço de rótulo hierárquico.

Excesso de ajuste : Os modelos de Deep Learning têm possibilidades excessivamente altas de resultar em sobreajuste dos dados no estágio de treinamento devido ao grande número de parâmetros envolvidos, que são correlacionados de forma complexa. Essas situações reduzem a capacidade do modelo de obter um bom desempenho nos dados testados. Esse problema não se limita apenas a um campo específico, mas envolve diferentes tarefas. Uma investigação dos algoritmos de Deep Learning disponíveis que amenizam o problema de sobreajuste pode categorizá-los em três classes. A primeira classe atua na arquitetura do modelo e nos parâmetros do modelo e inclui as abordagens

mais conhecidas, como decaimento de peso , normalização de lote e abandono. Na DL, a técnica padrão é o decaimento de peso, que é amplamente usado em quase todos os algoritmos de ML como um regularizador universal. A segunda classe trabalha com entradas de modelo, como corrupção de dados e aumento de dados. Um motivo para o problema de superajuste é a falta de dados de treinamento, o que faz com que a distribuição aprendida não reflita a distribuição real. O aumento de dados amplia os dados de treinamento. Por outro lado, a corrupção de dados marginalizados melhora a solução exclusiva para aumentar os dados.

3.Cite 3 aplicações de algoritmos de Deep Learning. Uma delas tem que usar uma solução com CNN e uma delas tem que usar uma solução de RNNs. Explique a aplicação e os resultados obtidos. Não deixe de citar a fonte utilizada, sendo preferencialmente artigos.

1. Reconhecimento de imagem usando CNN

Aplicação: O reconhecimento de imagem é uma das aplicações mais populares do Deep Learning. Ele pode ser usado para identificar pessoas, objetos, animais e outros itens em imagens e vídeos. Por exemplo, o Google Photos usa o Deep Learning para identificar pessoas e objetos em fotos e vídeos.

Artigo e Resultados: No Artigo "ImageNet Classification with Deep Convolutional Neural Networks" foi treinada uma rede neural convolucional grande e profunda para classificar as 1,2 milhão de imagens de alta resolução do concurso ImageNet LSVRC-2010 em 1.000 classes diferentes. Nos dados de teste, foram obtidas taxas de erro top-1 e top-5 de 37,5% e 17,0%, respectivamente, o que é consideravelmente melhor do que o estado da arte anterior. A rede neural, que tem 60 milhões de parâmetros e 650.000 neurônios, consiste em cinco camadas convolucionais, algumas das quais são seguidas por camadas de pooling máximo, e três camadas totalmente conectadas com um softmax final de 1000 vias. Para tornar o treinamento mais rápido, foram neurônios não saturados e uma implementação de GPU muito eficiente da operação de convolução. Na competição foi inscrita uma variante desse modelo na competição ILSVRC-2012, tendo como resultado uma taxa de erro de 15,3% nos cinco melhores testes, em comparação com os 26,2% obtidos pelo segundo melhor participante.

Fonte: <https://dl.acm.org/doi/10.1145/3065386>

2. Processamento de linguagem natural usando RNN

Aplicação: O processamento de linguagem natural (PLN) é outra aplicação popular do Deep Learning. Ele pode ser usado para traduzir idiomas, escrever diferentes tipos de conteúdo criativo e responder a perguntas de forma informativa. Por exemplo, o Google Translate usa o Deep Learning para traduzir idiomas.

Artigo e Resultados: No artigo "Sequence to Sequence Learning with Neural Networks", é apresentado uma abordagem geral de ponta a ponta para o aprendizado de sequências que faz suposições mínimas sobre a estrutura da sequência. O método usa um LSTM (Long Short-TermMemory) de várias camadas para mapear a sequência de entrada em um vetor de dimensionalidade fixa e, em seguida, outro LSTM profundo para decodificar a sequência-alvo a partir do vetor. Nossa principal resultado é que, em uma tarefa de tradução de inglês para francês do conjunto de dados WMT'14, as traduções produzidas pelo LSTM alcançam uma pontuação BLEU de 34,8 em todo o conjunto de testes, em que a pontuação BLEU do LSTM foi penalizada em palavras fora do vocabulário. Além disso, o LSTM não teve dificuldade com frases longas. Para fins de comparação, um sistema SMT baseado em frases atinge uma pontuação BLEU de 33,3 no mesmo conjunto de dados. Quando usamos o LSTM para classificar as 1.000 hipóteses produzidas pelo sistema SMT mencionado anteriormente, sua pontuação BLEU aumenta para 36,5, que é próxima do melhor resultado anterior nessa tarefa. O LSTM também aprendeu representações sensatas de frases e sentenças que são sensíveis à ordem das palavras e são relativamente invariantes para a voz ativa e passiva.

Fonte: <https://arxiv.org/abs/1409.3215>

3. Classificação usando CNN

Aplicação: As CNNs são usadas para identificar objetos em imagens. Por exemplo, as CNNs podem ser usadas para identificar pessoas, animais e objetos, classificar texto como exemplo, e-mails como spam ou não-spam, ou para classificar artigos de notícias como relevantes ou irrelevantes para um determinado tópico. As CNNs são usadas para classificar áudio, como identificar a fala humana, ou para identificar diferentes tipos de música.

Artigos e Resultados: No artigo "Automatic Music Genre Classification and Its Relation with Music Education" considerando os resultados bem-sucedidos das redes neurais profundas no campo da classificação de gêneros musicais, o objetivo foi desenvolver um algoritmo de aprendizagem

profunda que pudesse classificar 10 gêneros musicais diferentes. Para revelar a eficiência do modelo, comparando-o com outros, foi feita a classificação usando o conjunto de dados GTZAN, que foi usado anteriormente em muitos estudos e mantém sua validade. No presente artigo, foi usada uma rede neural convolucional (CNN) para classificar gêneros musicais, levando em conta os resultados bem-sucedidos anteriores. Diferentemente de estudos anteriores em que a CNN foi usada como classificador, representando os segmentos de música no conjunto de dados por frequência melódica. Foi representando os segmentos musicais no conjunto de dados por meio de coeficientes cepstrais de frequência mel (MFCC) em vez de usar recursos ou representações visuais. Os MFCCs pré-processando as músicas do conjunto de dados e, em seguida, treinando um modelo de CNN com os MFCCs adquiridos e obtendo-se sucesso nos testes. Os resultados do estudo foram obtidos com o método de validação cruzada k-fold cross validation method, no qual os dados de teste em que os dados de teste e treinamento foram alterados para garantir uma avaliação mais precisa. A taxa de precisão do teste foi obtida como a média de cinco vezes. Nesse estudo, foi levado em consideração uma taxa de precisão de 94,5% como o estado da arte. Como resultado desse estudo, um modelo bem sucedido foi criado na classificação de gêneros musicais usando dados menores do que em estudos anteriores.

Fonte: <https://eric.ed.gov/?q=Deep+Learning+with+cnn+&id=EJ1302228>

4. Vamos fazer uma análise:

a. Utilize a base Animals-10- originalmente do Kaggle (5000 imagens de 10 animais diferentes), mas disponibilizada em uma versão menor aqui;

<https://drive.google.com/file/d/1LVGcJro5teH1LS7nZ8inOtxyZIYvkQCh/view>

b. Utilizando um modelo pré-treinado ResNet-50 (presente no Tensorflow/Keras), e realize as extrações de características, fazendo a projeção das imagens no espaço característico (penúltima camada da ResNet-50);

No notebook

c. Realize a clusterização dos vetores obtidos usando o algoritmo K-médias (K=10);

No notebook

d. Mostre exemplos de imagens dos 10 clusters obtidos;

No notebook

e.Os resultados foram satisfatórios? Justifique utilizando seus conhecimentos sobre avaliação de clusters;

Sim. Após a extração de características e projetando no espaço característico, fazendo a clusterização, usando o algoritmo Kmeans para a clusterização, observou-se que das 5000 mil imagens de 10 animais diferentes, o agrupamento na maior parte das vezes foi acertiva mostrando os animais corretos nos 10 clusters, e erros na minoria das vezes mostrando imagens que não tinha haver com os animais esperados oqe faz parte da margem de erro tanto do modelo resnet50, como na clusterização.

das vezes correspondeu com o esperado que é f. Disponibilize os códigos, bem como o relatório final no Github;

GITHUB

g.O projeto deve estar na organização proposta pela TDSP (Microsoft).

GITHUB

5.Utilizando a biblioteca sklearn-llm (você necessitará de uma chave de acesso da openai), crie um classificador de sentimentos usando a classe ZeroShotGPTClassifier com o modelo gpt-3.5-turmo. (use o datasetget_classification_dataset, com os labels ["positive", "negative", "neutral"]). Apresente o código realizado.

Em outro Notebook chamado "Análise de Sentimento com CHATGPT 3.5".

Boa Sorte.

Assim que terminar, salve o seu arquivo PDF e poste no Moodle. Utilize o seu nome para nomear o arquivo, identificando também a disciplina no seguinte formato:
"nomedoaluno_nomedadisciplina_pd.pdf".

b.Utilizando um modelo pré-treinado ResNet-50 (presente no Tensorflow/Keras), e realize as extrações de características, fazendo a projeção das imagens no espaço característico (penúltima camada da ResNet-50);

```
In [9]: # Carregamento de bibliotecas necessárias para desenvolver o projeto.
import tensorflow as tf
from tensorflow import keras
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
import sklearn
import random
import os
from tensorflow.keras.applications.resnet50 import ResNet50, preprocess_input
```

```
from tensorflow.keras.preprocessing import image
from sklearn.cluster import KMeans
from tqdm import tqdm
from os.path import join
```

In [10]:

```
'''Configura a GPU para funcionar com o TensorFlow de forma que a GPU seja utilizada auxiliar do processador entrando aos poucos e otimizando o processamento'''

physical_devices = tf.config.list_physical_devices('GPU')
tf.config.experimental.set_memory_growth(physical_devices[0], True)
print("Mostrando o dispositivo de otimização de processamento:")
print()
print(physical_devices)
print("Número de GPU's : ", len(tf.config.list_physical_devices("GPU")))
```

Mostrando o dispositivo de otimização de processamento:

```
[PhysicalDevice(name='/physical_device:GPU:0', device_type='GPU')]
Número de GPU's : 1
```

In [11]:

```
# Carregamento da base de dados com as figuras de todos os 10 animais
base_dir = r'C:\BottCamp_Data_Science\Rede Neurais Profundas( Deep Learning)\dados animais = ['butterfly','cat','chicken','cow','dogs','elephant','horse','sheep','sp':
```

In [12]:

```
#Carregar o modelo ResNet-50 pré-treinado
model = ResNet50(weights='imagenet', include_top=False, pooling='avg')
```

In [6]:

```
# Pré processamento e a extração de características das imagens
features = []
```

```
for animal in animais:
    animal_dir = os.path.join(base_dir, animal)
    for img_file in os.listdir(animal_dir):

        img_path = os.path.join(animal_dir, img_file)
        img = image.load_img(img_path, target_size=(224, 224))
        img_array = image.img_to_array(img)
        img_array = np.expand_dims(img_array, axis=0)
        img_array = preprocess_input(img_array)
        features.append(model.predict(img_array).flatten())
```

#Transforma a lista de características em arranjo numpy

```
features_array = np.array(features)
print(f'Características extraídas: {features_array.shape}')
```

dl cnr

```
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 39ms/step
```

dl cnr

```
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
```

dl cnr

dl cnr

```
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 65ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
```

dl cnr

1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step

```
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 33ms/step
```

```
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 50ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 55ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 35ms/step
```

```
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
```

1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
```

dl cnr

1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step

```
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 32ms/step
```

```
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
```

dl cnr

1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step

```
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
```

dl cnr

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
```

dl cnr

1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step

```
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
```

dl cnr

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
```

```
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
```

```
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
```

```
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 48ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 51ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
```

```
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
```

```
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
```

```
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
```

```
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 33ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 19ms/step
```

```
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 19ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 51ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 43ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 48ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 48ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 53ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 81ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
```

```
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 43ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 52ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 86ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 52ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 80ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 59ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 48ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
```

```
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 60ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 55ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 58ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 50ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
```

```
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 59ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 91ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 52ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 41ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 43ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 56ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 25ms/step
```

```
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
```

```
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 24ms/step
```

```
1/1 [=====] - 0s 50ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 45ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 44ms/step
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 51ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 21ms/step
```

```
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 47ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 20ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 30ms/step
1/1 [=====] - 0s 30ms/step
```

```
1/1 [=====] - 0s 34ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 48ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 36ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 37ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 35ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 49ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 42ms/step
1/1 [=====] - 0s 26ms/step
1/1 [=====] - 0s 46ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 39ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 22ms/step
1/1 [=====] - 0s 21ms/step
1/1 [=====] - 0s 40ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 23ms/step
1/1 [=====] - 0s 32ms/step
1/1 [=====] - 0s 33ms/step
1/1 [=====] - 0s 24ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 31ms/step
```

```
1/1 [=====] - 0s 38ms/step
1/1 [=====] - 0s 27ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 29ms/step
1/1 [=====] - 0s 28ms/step
1/1 [=====] - 0s 31ms/step
1/1 [=====] - 0s 25ms/step
1/1 [=====] - 0s 28ms/step
Características extraídas: (5000, 2048)
```

c. Realize a clusterização dos vetores obtidos usando o algoritmo K-médias (K=10);

```
In [7]: # Criar um objeto KMeans com k=10
kmeans = KMeans(n_clusters=10, random_state=42)

# Aplicar o algoritmo K-means nas características
kmeans.fit(features_array)

#predição do arranjo
predictions=kmeans.predict(features_array)

c:\BottCamp_Data_Science\Rede Neurais Profundas( Deep Learning)\deeplearning\lib\site-packages\sklearn\cluster\_kmeans.py:870: FutureWarning: The default value of `n_init` will change from 10 to 'auto' in 1.4. Set the value of `n_init` explicitly to suppress the warning
warnings.warn(
```

d. Mostre exemplos de imagens dos 10 clusters obtidos;

```
In [25]: #função para plotagem de figuras após a clusterização
def plotagem():
    # Mostrar imagens de exemplo de cada cluster
    for i in range(10):
        print(f'Cluster {i}')
        # Acessa o indice da predição e faz escolha aleatória do indice para colher uma
        indices = np.where(predictions==i)[0]
        sample = np.random.choice(indices)

        fig, axs = plt.subplots(1, 1, figsize=(10, 10))
        img = plt.imread(join(base_dir, animais[sample//500]), os.listdir(join(base_dir
        plt.imshow(img)
        plt.show()

print("Impressão com 2 sequencias de imagens dos 10 clusters:")
print(''')
-----
#####
*****
```

Impressão com 2 sequencias de imagens dos 10 clusters:

#####

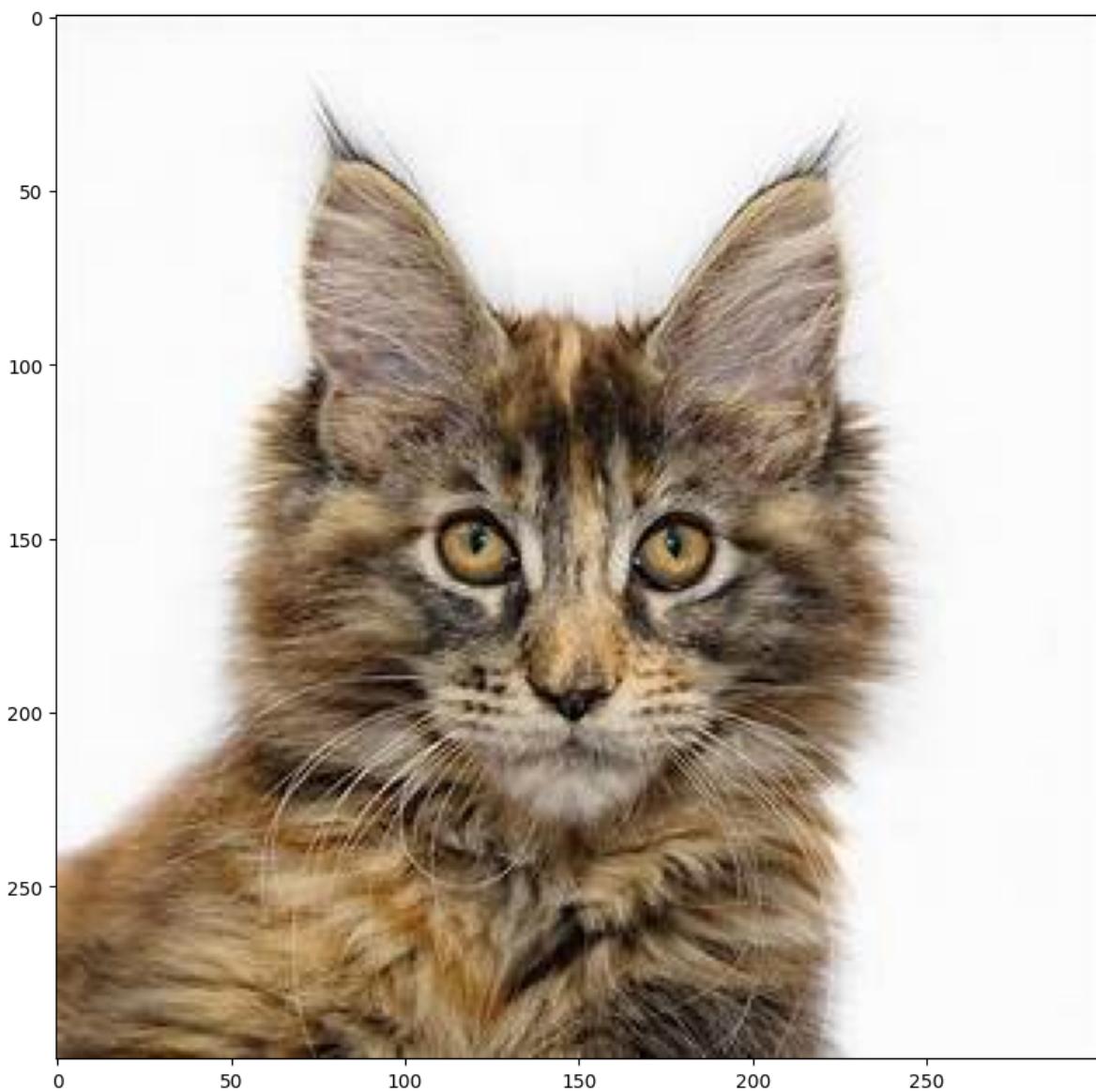
Cluster 0



Cluster 1



Cluster 2



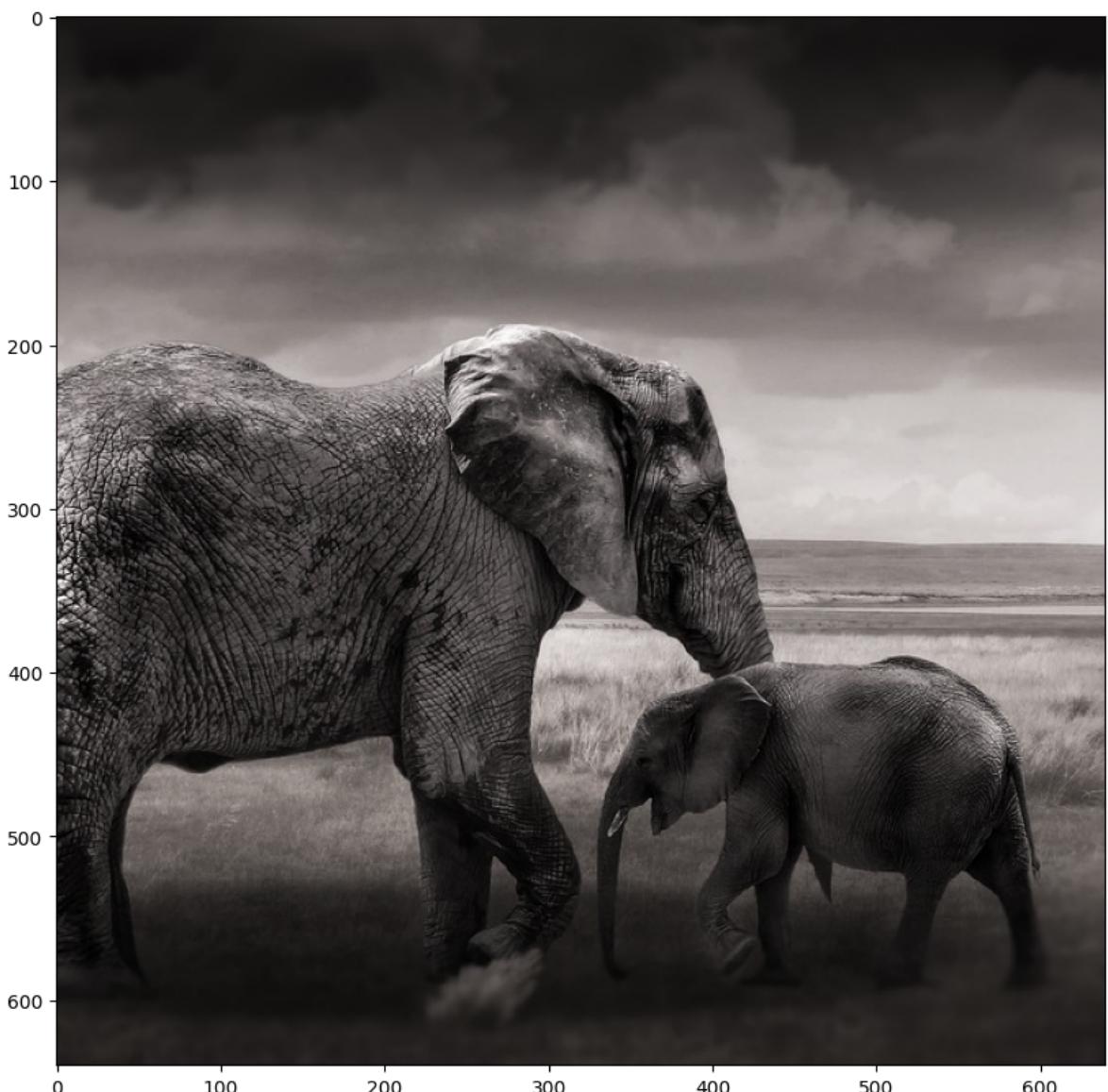
Cluster 3



Cluster 4



Cluster 5



Cluster 6



Cluster 7



Cluster 8



Cluster 9



None

Segunda Sequencia de imagens dos 10 clusters:

```
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
+++++
Cluster 0
```



Cluster 1



Cluster 2



Cluster 3



Cluster 4



Cluster 5



Cluster 6



Cluster 7



Cluster 8



Cluster 9



None

Fim do Exercicio