

June 24, 2024

A. Research Question

- The posed research question, “To what extent does pre-release and early-release information such as platform, genre, developer, and initial reviews affect overall user ratings of a video game?”, is a justifiable catalyst for research within the context of the video game industry, which has significant cultural and economic impact. Understanding these factors can assist in optimizing resources and better planning for market strategies. Gaining predictive capability for a game’s reception based on early indicators can be highly beneficial to stakeholders in the industry. The hypothesis that pre-release and early-release information, such as platform, genre, developer, and initial reviews, significantly affect the overall user ratings of a video game supports the potential to achieve this predictive capability.

B. Data Collection - The publicly available dataset sourced from Kaggle contains Metacritic review data, including game titles, genres, developers, release dates, platforms, ratings, and reviews. One advantage of the dataset is that it is fairly comprehensive and structured in a manner that does not require extensive preprocessing, which facilitates easier analysis and model creation. However, a disadvantage of the dataset is its lack of the most recent video game releases, which could affect the relevance and accuracy of the predictions. A challenge that was overcome involved ensuring the data’s completeness and quality by performing thorough preprocessing and data cleaning to handle inconsistencies and missing values.

C. Data Extraction and Preparation (Summary) - - The dataset was loaded using Dask for efficient parallel processing. - - Duplicate records were dropped and missing values were either imputed or dropped - - Where necessary, data types were converted to a usable number format, and additional features such as release year, quarter, month, week, day of the week, and day of the year were extracted from the release date. - - Review texts were preprocessed (stopwords removed, casing lowered, punctuation removed), and they were tokenized in padded sequences to ensure consistent shape for the model. - - Categorical variables such as genre, platforms, game developer, and product rating were binarized using MultiLabelBinarizer, ensuring consistent shape for the model. - - Numerical variables were scaled using StandardScaler. - - Tools: Python, Dask, Pandas, Numpy, TensorFlow, Keras, sklearn - - Techniques: Data cleaning, text preprocessing, feature extraction, tokenization, scaling - These tools and techniques justifiably offer efficiency and effectiveness in handling complex computations and large datasets. While Dask allows parallel processing for faster data handling, TensorFlow and Keras are suitable for building neural network models. One advantage of using these tools and techniques is the capability to quickly and efficiently process large quantities of data. A disadvantage is the complexity involved in setting up and managing these tools, particularly parallel processing (Dask), which requires a solid understanding of their functionality and potential pitfalls.

D. Analysis (Summary) - For analysis, a neural network model using TensorFlow and Keras was

created and incrementally trained. To comprehensively capture the data present in the metacritic reviews, the model architecture included separate branches for numerical and text inputs that were later concatenated and fed into dense layers for prediction. To evaluate the model's performance, Mean Squared Error (MSE), Mean Absolute Error (MAE), and R-Squared (R2) were used. A neural network was justifiably selected for analysis due to its ability to effectively handle both numerical and text data to capture complex patterns. An advantage of using a neural network is its flexibility, while a disadvantage is the high time required and computational cost for training the model.

C. Data Extraction and Preparation / D. Analysis (Detailed) - Regex, NLTK, LangDetect, and LangID were used for text preprocessing, stopwords removal, and language detection. - Dask, Psutil were used for parallel processing of the dataset and memory usage optimization. - Pandas, Collections, and Numpy were used for data manipulation and numerical operations. - Tensflow and Keras were used for building and training the neural network model. - sklearn was used for processing and model evaluation - Pickle was used for saving and loading variables

```
[3]: import re as regex
import nltk as nltk
import langdetect as ldetect
import langid as lId
import psutil as psutil
import dask.dataframe as daskdf
import dask.distributed as daskdist
import dask.cache as DaskCache
import pandas as pd
import numpy as np
import tensorflow as tf
import tensorflow.keras.preprocessing as tfkpp
import tensorflow.keras.models as tfkm
import tensorflow.keras.layers as tfkl
import tensorflow.keras.callbacks as tfkc
import gc as gc
import io as io
import sklearn.preprocessing as skpp
import sklearn.model_selection as skms
import sklearn.metrics as skm
import collections as colls
import pickle as pkl

nltk.download("stopwords")
```

```
[nltk_data] Downloading package stopwords to
```

```
[nltk_data] C:\Users\derek\AppData\Roaming\nltk_data...
```

```
[nltk_data] Package stopwords is already up-to-date!
```

```
[3]: True
```

- The GetUniqueLabels() function extracts the unique labels within the entire dataset for the categorical variables, Genre, Platforms, Game Developer, and Product Rating. While all

unique labels are used for Genre, Platforms, and Product Rating, only Game Developers that are present within more than 100 records are kept as unique labels; this was done because the infrequent labels greatly increased the processed dataset size while not being very significant for training.

```
[4]: def GetUniqueLabels():
    mcData = daskdf.read_csv(mcPath, low_memory = False, dtype = mcDaskDT)
    mcData = mcData[["Genre", "Platforms", "Game Developer", "Product Rating"]].
    ↪dropna()
    mcData["Genre"] = mcData["Genre"].str[9:]
    devCounter = colls.Counter(list(mcData["Game Developer"].str.split(",").
    ↪explode().compute()))
    devFilter = {dev for dev, c in devCounter.items() if c > 100}
    return {
        "Genre": list(mcData["Genre"].str.split(",").explode().unique().
    ↪compute()),
        "Platforms": list(mcData["Platforms"].str.split(",").explode().unique().
    ↪compute()),
        "Game Developer": list(devFilter),
        "Product Rating": list(mcData["Product Rating"].unique().compute())
    }
```

- The GetTokenVars() function calculates the length the sequences will be and extracts all unique english words within the entire dataset.

```
[5]: def GetTokenVars():
    mcData = daskdf.read_csv(mcPath, low_memory = False, dtype = mcDaskDT)
    mcData = mcData["Review Text"].dropna()
    def GetReviewLen(rev):
        if pd.isna(rev) or not rev.strip():
            return 0, []
        rWords = regex.findall(r"\b\w+\b", rev.lower())
        rWords = [word for word in rWords if word not in langPro["nltkSW"]]
        if not rWords:
            return 0, []
        try:
            jStr = (" ".join(rWords))
            langCheck1 = langPro["ldect"](jStr)
            langCheck2 = langPro["lId"](jStr)[0]
            if langCheck1 != "en" and langCheck2 != "en":
                return 0, []
        except:
            return 0, []
        return len(rWords), rWords
    lensAndWords = mcData.apply(GetReviewLen, meta = pd.Series(dtype = object)).
    ↪compute()
    maxSeqLen = max(lensAndWords.map(lambda x: x[0]))
```

```

    allWords = [word for words in lensAndWords.map(lambda x: x[1]) for word in
↪words]
    allWords = list(set(allWords))
    return maxSeqLen, allWords

```

- The ReviewTextPrep() function preprocesses review text by removing punctuation, lowering the casing, removing stopwords, and tokenizing, or it will mark review texts for removal if they are detected as non-english or are empty after preprocessing.

```

[6]: def ReviewTextPrep(rTxt, langPro, mcTokenizer, maxSeqLen):
    try:
        langCheck1 = langPro["ldect"](rTxt)
        langCheck2 = langPro["lId"](rTxt)[0]
        if langCheck1 == "en" or langCheck2 == "en":
            rTxt = rTxt.lower()
            rTxt = regex.sub(r"[^\w\s]", "", rTxt)
            rTxt = regex.sub(r"\d+", "", rTxt)
            rTxt = rTxt.split()
            rTxt = [word for word in rTxt if word not in langPro["nltkSW"]]
            if not rTxt:
                return "~NE~"
            rTxt = mcTokenizer.texts_to_sequences([rTxt])
            rTxt = tfkpp.sequence.pad_sequences(rTxt, maxlen = maxSeqLen,
↪padding = "post")
            rTxt = np.clip(rTxt, 0, mcTokenizer.num_words - 1)
            return rTxt[0]
        else:
            return "~NE~"
    except:
        return "~NE~"

```

- The PreprocessData() function preprocesses all non-text data for the current dataset chunk by performing the following:
 - Drops duplicate records
 - Drops missing value records for most columns (“Review Text”, “Overall User Rating”, “Overall Metascore”, “Game Developer”, “Rating Given By The Reviewer”)
 - Imputes “Product Rating” missing values with its mode
 - Drops “Overall User Rating” values containing “tbd” rather than a numeric value, then converts column to numeric format
 - Feature engineers “Game Release Date” into “Release Year”, “Release Quarter”, “Release Month”, “Release Week”, “Release DayOfWeek”, and “Release DayOfYear”
 - Binarizes “Genre”, “Platforms”, “Game Developer”, and “Product Rating” with Multi-label Binarizer to ensure consistent shape during one-hot encoding

```

[7]: def PreprocessData(mcDataChunk, uniqueLabels):
    allVars = ["Game Release Date", "Game Developer", "Genre", "Platforms",
↪"Product Rating", "Overall Metascore", "Overall User Rating", "Rating Given
↪By The Reviewer", "Review Text"]

```

```

mcDataChunk = mcDataChunk[allVars]
mcDataChunk = mcDataChunk.drop_duplicates()
mcDataChunk = mcDataChunk.dropna(subset = ["Review Text", "Overall User_
↳Rating", "Overall Metascore", "Game Developer", "Rating Given By The_
↳Reviewer"])
mcDataChunk["Product Rating"] = mcDataChunk["Product Rating"].
↳fillna(mcDataChunk["Product Rating"].mode().compute()[0])
mcDataChunk = mcDataChunk[mcDataChunk["Overall User Rating"] != "tbd"]
mcDataChunk["Overall User Rating"] = mcDataChunk["Overall User Rating"].
↳astype(np.float32)
mcDataChunk["Game Release Date"] = daskdf.to_datetime(mcDataChunk["Game_
↳Release Date"], format = "%d-%b-%y", errors = "coerce")
mcDataChunk = mcDataChunk.dropna(subset = ["Game Release Date"])
mcDataChunk["Release Year"] = mcDataChunk["Game Release Date"].dt.year
mcDataChunk["Release Quarter"] = mcDataChunk["Game Release Date"].dt.quarter
mcDataChunk["Release Month"] = mcDataChunk["Game Release Date"].dt.month
mcDataChunk["Release Week"] = np.floor(mcDataChunk["Game Release Date"].dt.
↳day / 10).astype(int)
mcDataChunk["Release DayOfWeek"] = mcDataChunk["Game Release Date"].dt.
↳day_of_week
mcDataChunk["Release DayOfYear"] = mcDataChunk["Game Release Date"].dt.
↳day_of_year
mcDataChunk = mcDataChunk.drop(["Game Release Date"], axis = 1)
mcDataChunk["Genre"] = mcDataChunk["Genre"].str[9:]
mcDataChunk["Genre"] = mcDataChunk["Genre"].str.split(",")
mcDataChunk["Platforms"] = mcDataChunk["Platforms"].str.split(",")
mcDataChunk["Game Developer"] = mcDataChunk["Game Developer"].str.split(",")
mcDataChunk["Product Rating"] = mcDataChunk["Product Rating"].str.split(",")
mlbGenre = skpp.MultiLabelBinarizer(classes = uniqueLabels["Genre"])
mlbPlatforms = skpp.MultiLabelBinarizer(classes = uniqueLabels["Platforms"])
mlbDeveloper = skpp.MultiLabelBinarizer(classes = uniqueLabels["Game_
↳Developer"])
mlbRating = skpp.MultiLabelBinarizer(classes = uniqueLabels["Product_
↳Rating"])
mlbGenreData = mlbGenre.fit_transform(mcDataChunk["Genre"].compute())
mlbPlatformsData = mlbPlatforms.fit_transform(mcDataChunk["Platforms"].
↳compute())
mlbDeveloperData = mlbDeveloper.fit_transform(mcDataChunk["Game Developer"].
↳compute())
mlbRatingData = mlbRating.fit_transform(mcDataChunk["Product Rating"].
↳compute())
genrePDF = pd.DataFrame(mlbGenreData, columns = mlbGenre.classes_, index =_
↳mcDataChunk.index.compute())
platformsPDF = pd.DataFrame(mlbPlatformsData, columns = mlbPlatforms.
↳classes_, index = mcDataChunk.index.compute())

```

```

    developerPDF = pd.DataFrame(mlbDeveloperData, columns = mlbDeveloper.
↪classes_, index = mcDataChunk.index.compute())
    ratingPDF = pd.DataFrame(mlbRatingData, columns = mlbRating.classes_, index
↪= mcDataChunk.index.compute())
    mcDataChunk = mcDataChunk.drop(["Genre", "Platforms", "Game Developer",
↪"Product Rating"], axis = 1)
    mcDataChunk = mcDataChunk.join(daskdf.from_pandas(genrePDF, npartitions =
↪1))
    mcDataChunk = mcDataChunk.join(daskdf.from_pandas(platformsPDF, npartitions
↪= 1))
    mcDataChunk = mcDataChunk.join(daskdf.from_pandas(developerPDF, npartitions
↪= 1))
    mcDataChunk = mcDataChunk.join(daskdf.from_pandas(ratingPDF, npartitions =
↪1))
    daskdist.wait(mcDataChunk)
    del mlbGenre, mlbPlatforms, mlbDeveloper, mlbRating, mlbGenreData,
↪mlbPlatformsData, mlbDeveloperData, mlbRatingData, genrePDF, platformsPDF,
↪developerPDF, ratingPDF
    gc.collect()
    return mcDataChunk

```

- The FinalPreprocessAndTrain() function completes the current dataset chunk preprocessing and starts model training by performing the following:
 - – Preprocesses “Review Text” into sequences using the ReviewTextPrep() function, then drops all records marked for removal by the function
 - – Scales numerical columns
 - – Splits dataset into training and testing sets
 - – Creates TensorFlow datasets for training and testing sets
 - – Fits model with TensorFlows datasets

```

[8]: def FinalPreprocessAndTrain(mcDataChunk, langPro, mcMod, mcTokenizer,
↪maxSeqLen, mcScaler):
    mcDataChunk["Review Text"] = mcDataChunk["Review Text"].
↪map_partitions(lambda mcDF: mcDF.apply(ReviewTextPrep, langPro = langPro,
↪mcTokenizer = mcTokenizer, maxSeqLen = maxSeqLen), meta = pd.Series(dtype =
↪"object", name = "Review Text"))
    mcDataChunk = mcDataChunk[mcDataChunk["Review Text"].apply(lambda x: "~NE~"
↪not in x, meta = ("Review Text", "bool"))]
    mcDataChunk = mcDataChunk.compute()
    mcDataChunk = mcDataChunk.reset_index(drop = True)
    mcSeqs = np.stack(mcDataChunk["Review Text"].values)
    mcDataChunk = mcDataChunk.drop(["Review Text"], axis = 1)
    mcDataChunk = mcDataChunk.join(pd.DataFrame(mcSeqs, index = mcDataChunk.
↪index))
    mcY = mcDataChunk["Overall Metascore"].copy().astype(np.float32)
    mcX = mcDataChunk.copy().drop(["Overall Metascore"], axis = 1).astype(np.
↪float32)

```

```

del mcSeqs, mcDataChunk
gc.collect()
mcXTrain, mcXTest, mcYTrain, mcYTest = skms.train_test_split(mcX, mcY,
↳test_size = 0.2, random_state = 17)
numVars = ["Overall User Rating", "Release Year", "Release Quarter",
↳"Release Month", "Release Week", "Release DayOfWeek", "Release DayOfYear"]
mcXTrain[numVars] = mcScaler.transform(mcXTrain[numVars])
mcXTest[numVars] = mcScaler.transform(mcXTest[numVars])
mcXTrain = mcXTrain.to_numpy()
mcXTest = mcXTest.to_numpy()
mcTFDataTrain = tf.data.Dataset.from_tensor_slices(((mcXTrain[:, -maxSeqLen:
↳], mcXTrain[:, :-maxSeqLen]), mcYTrain.values)).batch(32)
mcTFDataTest = tf.data.Dataset.from_tensor_slices(((mcXTest[:, -maxSeqLen:
↳], mcXTest[:, :-maxSeqLen]), mcYTest.values)).batch(32)
mcMod.fit(mcTFDataTrain, validation_data = mcTFDataTest, epochs = 20,
↳callbacks = [tfkc.EarlyStopping(monitor = "val_loss", patience = 5,
↳restore_best_weights = True)])
return mcMod

```

- The SaveVar(), LoadVar(), SaveModVars(), and LoadModVars() functions are utility functions for saving and loading variables are .pkl files.

```

[9]: def SaveVar(var, fName):
    with open(f"intermediate/{fName}.pkl", "wb") as wb:
        pickle.dump(var, wb)

def LoadVar(fName):
    with open(f"intermediate/{fName}.pkl", "rb") as rb:
        return pickle.load(rb)

def SaveModVars():
    SaveVar(mcScaler, "../mcScaler")
    SaveVar(mcTokenizer, "../mcTokenizer")
    SaveVar(maxSeqLen, "../maxSeqLen")
    SaveVar(uniqueLabels, "../uniqueLabels")

def LoadModVars():
    with open("mcScaler.pkl", "rb") as rb:
        mcScaler = pickle.load(rb)
    with open("mcTokenizer.pkl", "rb") as rb:
        mcTokenizer = pickle.load(rb)
    with open("maxSeqLen.pkl", "rb") as rb:
        maxSeqLen = pickle.load(rb)
    with open("uniqueLabels.pkl", "rb") as rb:
        uniqueLabels = pickle.load(rb)
    return mcScaler, mcTokenizer, maxSeqLen, uniqueLabels

```

- The EvaluateMCModel() function generates MSE, MAE, and R2 values based on a sample

of the dataset.

```
[10]: def EvaluateMCModel(mcMod, mcScaler, mcTokenizer, maxSeqLen, uniqueLabels):
    mcDataChunk = daskdf.read_csv(mcPath, low_memory = False, dtype = mcDaskDT).
    ↪sample(frac = 0.01)
    mcDataChunk = PreprocessData(mcDataChunk, uniqueLabels)
    mcDataChunk["Review Text"] = mcDataChunk["Review Text"].
    ↪map_partitions(lambda mcDF: mcDF.apply(ReviewTextPrep, langPro = langPro,
    ↪mcTokenizer = mcTokenizer, maxSeqLen = maxSeqLen), meta = pd.Series(dtype =
    ↪"object", name = "Review Text"))
    mcDataChunk = mcDataChunk[mcDataChunk["Review Text"].apply(lambda x: "~NE~"
    ↪not in x, meta = ("Review Text", "bool"))]
    mcDataChunk = mcDataChunk.compute()
    mcDataChunk = mcDataChunk.reset_index(drop = True)
    mcSeqs = np.stack(mcDataChunk["Review Text"].values)
    mcDataChunk = mcDataChunk.drop(["Review Text"], axis = 1)
    mcDataChunk = mcDataChunk.join(pd.DataFrame(mcSeqs, index = mcDataChunk.
    ↪index))
    numVars = ["Overall User Rating", "Release Year", "Release Quarter",
    ↪"Release Month", "Release Week", "Release DayOfWeek", "Release DayOfYear"]
    mcDataChunk[numVars] = mcScaler.transform(mcDataChunk[numVars])
    mcY = mcDataChunk["Overall Metascore"].copy().astype(np.float32).to_numpy()
    mcX = mcDataChunk.copy().drop(["Overall Metascore"], axis = 1).astype(np.
    ↪float32).to_numpy()
    del mcSeqs, mcDataChunk
    gc.collect()
    mcTestText = mcX[:, -maxSeqLen:]
    mcTestNum = mcX[:, :-maxSeqLen]
    mcTestPreds = mcMod.predict([mcTestText, mcTestNum])
    mcMSE = skm.mean_squared_error(mcY, mcTestPreds)
    mcMAE = skm.mean_absolute_error(mcY, mcTestPreds)
    mcR2 = skm.r2_score(mcY, mcTestPreds)
    return mcMSE, mcMAE, mcR2
```

- The PredictMetascore() function predicts an “Overall Metascore” value using the model.

```
[11]: def PredictMetascore(mcMod, mcTokenizer, mcScaler, maxSeqLen, inData):
    inData = pd.DataFrame([inData])
    inData = PreprocessData(daskdf.from_pandas(inData, npartitions = 1),
    ↪uniqueLabels)
    inData["Review Text"] = inData["Review Text"].map_partitions(lambda mcDF:
    ↪mcDF.apply(ReviewTextPrep, langPro = langPro, mcTokenizer = mcTokenizer,
    ↪maxSeqLen = maxSeqLen), meta = pd.Series(dtype = "object", name = "Review
    ↪Text"))
    inData = inData[inData["Review Text"].apply(lambda x: "~NE~" not in x, meta
    ↪= ("Review Text", "bool"))]
    inData = inData.compute()
```



```

inData = inData.reset_index(drop = True)
mcSeqs = np.stack(inData["Review Text"].values)
inData = inData.drop(["Review Text"], axis = 1)
inData = inData.join(pd.DataFrame(mcSeqs, index = inData.index))
numVars = ["Overall User Rating", "Release Year", "Release Quarter",
↪ "Release Month", "Release Week", "Release DayOfWeek", "Release DayOfYear"]
inData[numVars] = mcScaler.transform(inData[numVars])
inX = inData.copy().drop(["Overall Metascore"], axis = 1).astype(np.
↪ float32).to_numpy()
del mcSeqs, inData
gc.collect()
inText = inX[:, -maxSeqLen:]
inNum = inX[:, :-maxSeqLen]
mcPred = mcMod.predict([inText, inNum])
return mcPred

```

- The langPro dictionary contains functions for detecting languages, as well as the set of English stopwords.
- The mcDaskDT dictionary is used for reference for the dataset dtypes while creating dask dataframes.

```

[12]: ldetect.DetectorFactory.seed = 17
langPro = {
    "ldect": ldetect.detect,
    "lId": lId.langid.classify,
    "nltkSW": set(nltk.corpus.stopwords.words("english"))
}
mcDaskDT = {
    "Review Date": "object",
    "Overall User Rating": "object"
}

```

- The number of records in the dataset is calculated and the headers are extracted

```

[13]: mcPath = "metacritic_pc_games.csv"
rootChunkSize = 10000
with io.open(mcPath, "r", encoding = "utf-8", buffering = 1024**3) as mcFile:
    mcHeaders = mcFile.readline().strip().split(",")
    mcEntryCount = sum(1 for line in mcFile) - 1

```

- Dask is initialized with a configuration optimized for initial dataset processing

```

[14]: chunkCount = psutil.cpu_count()
memUtil = 0.75
daskCache = DaskCache.Cache(2e9)
daskCache.register()

```

```
daskClient = daskdist.Client(n_workers = 2, threads_per_worker = 4,
    ↪memory_limit = f"{int(psutil.virtual_memory().total / (1024 ** 2) * memUtil /
    ↪ 2)}MB")
```

- All unique English words are extracted from the entire dataset and the maximum sequence length is calculated.

```
[15]: maxSeqLen, allWords = GetTokenVars()
SaveVar(maxSeqLen, "maxSeqLen")
SaveVar(allWords, "allWords")
```

- Dask is reinitialized with a configuration optimized for the remaining operations

```
[16]: daskClient.shutdown()
daskClient = daskdist.Client(n_workers = chunkCount, threads_per_worker = 2,
    ↪memory_limit = f"{int(psutil.virtual_memory().total / (1024 ** 2) * memUtil /
    ↪ chunkCount)}MB")
```

- Unique labels are extracted

```
[17]: uniqueLabels = GetUniqueLabels()
SaveVar(uniqueLabels, "uniqueLabels")
```

- Scaler is initialized with the numerical data of a dataset sample

```
[18]: initChunk = daskdf.read_csv(mcPath, low_memory = False, dtype = mcDaskDT)
initChunk = PreprocessData(initChunk.sample(frac = 0.01), uniqueLabels)
numVars = ["Overall User Rating", "Release Year", "Release Quarter", "Release_
    ↪Month", "Release Week", "Release DayOfWeek", "Release DayOfYear"]
mcScaler = skpp.StandardScaler().fit(initChunk[numVars].compute())
SaveVar(mcScaler, "mcScaler")
```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' 1C:Ino-Co ', ' 343 Industries ', ' Arzest', ' Atlus ', '
Balan Company ', ' Beamdog', ' Bitworks ', ' Black Sea Games ', ' BlackMuffin
Studio', ' Blitz Games ', ' Boss Key Productions ', ' Clover Bite ', ' Co. LTD
', ' Cognosphere ', ' Creative Business Unit III ', " DON'T NOD ", ' Davit
Andreasyan ', ' Digital Sun ', ' Dlala Studios ', ' Double Damage Games ', '
Drool ', ' EA Games ', ' EA Vancouver ', ' Easy Trigger Games ', ' Eighting ', '
Endnight Studios ', ' Flashback Games ', ' Florian Himsl ', ' Foreign Gnomes ',
' Goldhawk Interactive ', ' Gone North Games ', ' Grove Street Games ', ' Gun
Interactive ', ' Hopoo Games ', ' Hotta Studio ', ' Infinite Interactive ', '
Jo-Mei Games ', ' Joshua Nuernberger ', ' Katuri Interactive ', ' Lab42 ', '
LandFall ', ' Ltd. ', ' ML Enterprises ', ' MONKEYCRAFT Co. Ltd. ', ' Mandel
ArtPlains ', ' Mercenary Technologies ', ' Mobigame ', ' Monkey Moon ', '

```

Mossmouth ', ' Most Wanted Entertainment ', ' Nival ', ' Overhaul Games ', ' Planetary Annihilation Inc ', ' Polar Motion ', ' Question ', ' RA Images ', ' Rabbit & Bear Studios ', ' Red Winter Software ', ' Rockstar San Diego ', ' Russia ', ' SeithCG ', ' Slitherine Group', ' Soleil', ' Soleil Ltd. ', ' Splash Damage', ' Squad ', ' Stainless Steel Studios ', ' Sumo Digital Academy ', ' Team 6 Games Studio ', ' Team Ladybug ', ' Tribute Games Inc. ', ' Tyler Glaiel ', ' Virtuos ', ' Voidpoint', ' WSS Playground', ' iNK Stories ', '11 bit studios', '110 Industries', '1C Entertainment', '258 Productions AB ', '2K Games ', '369 Interactive ', '3D Realms', '3D Realms ', '5 Lives Studios ', 'Aarne "MekaSkull" Hunziker ', 'Abbey Games ', 'Access Games ', 'Acid Nerve ', 'Act 3 Games', 'Action Forms Ltd. ', 'Aeternum Game Studios ', 'Alawar Premium ', 'Alientrap ', 'Almost Human ', 'Alt Shift ', 'Amanita Design ', 'Angel Studios', 'Antimatter Games ', 'Apeiron ', 'Aquiris Game Studio ', 'Arc System Works', 'Arcen Games', 'Arclight Creations ', 'Argonaut Games', 'Armature Studio ', 'Artdink', 'Artifice Studio ', 'Askiisoft ', 'AtomTeam ', 'Auran ', 'Auroch Digital ', 'AurumDust ', 'Awaceb ', 'Awfully Nice Studios ', 'Backwoods Entertainment ', 'Bandai Namco Games', 'Barking Dog ', 'BattleGoat Studios ', 'Bay 12 Games ', 'Beamdog ', 'Beard Envy ', 'Beau Blyth ', 'Benjamin Rivers ', 'BestGameEver.com ', 'BetaDwarf ', 'Biart ', 'Big Ant Studios ', 'Big Red Software ', 'Bit Blot ', 'Bkom ', 'Black Isle Studios', 'Black Lab Games ', 'Black Lion Studios ', 'Black Matter ', 'Black Mesa Modification Team ', 'Black Pants ', 'Black Sea Studios', 'Black Sea Studios ', 'Blackmill Games ', 'Blackpowder Games ', 'Blue Castle Games ', 'Blue Manchu ', 'Bonus Level Entertainment ', 'BonusXP ', 'Borealis Games ', 'Boss Key', 'Bossa Studios ', 'Boxed Dream ', 'Brat Designs ', 'Browsome ', 'BreakAway Games ', 'Bright Future GmbH ', 'Broken Rules ', 'Buckshot Software ', 'Bulkhead Interactive ', 'Burut Software ', 'Cadenza ', 'Caligari Games ', 'Camel 101 ', 'Campo Santo ', 'Capricia Productions ', 'Capy Games ', 'Cardboard Computer ', 'Carlos Coronado ', 'Casus Ludi ', 'Cat Daddy Games ', 'Cavedog Entertainment ', 'Cellar Door Games ', 'Chaos Concept ', 'Chaosmonger Studio ', 'Chasing Carrots ', 'Choice Provisions ', 'Chris Nordgren', 'Chromatic Games ', 'Chucklefish', 'Chucklefish ', 'Cinemax', 'Claeys Brothers Arts ', 'Click Entertainment ', 'Clifftop Games ', 'Cococucumber ', 'Coffee Stain North ', 'Coffee Stain Studios', 'Complex Games Inc. ', 'Connor Ullmann ', 'Convict Games ', 'Cornered Rat ', 'Cosmonaut Studios ', 'Cradle Games ', 'Cranberry Studios ', 'Crate Entertainment ', 'CrazyBunch ', 'Crea-ture Studios ', 'Creat Studios ', 'Creepy Jar ', 'Crunching Koalas ', 'CyberConnect2', 'Cyberlore Studios ', 'DNS Development ', 'DONTNOD Entertainment', 'Daniel Mullins Games ', 'Darkling Room ', 'Darkworks ', 'Data Becker ', 'Davey Wreden ', 'Deadpan Games ', 'Deconstructeam ', 'Deep Shadows ', 'Demruth ', 'Denki ', 'Derek Yu', 'Devolver Digital ', 'DigiFX Interactive ', 'Digital Dialect ', 'Digital Eclipse ', 'Digital Spray Studios', 'Digixart Entertainment ', 'Dim Bulb Games ', 'Dimps Corporation ', 'Double Damage Games', 'Double Stallion Games ', 'Dramatic Labs ', 'Draw Distance ', 'Draw Me A Pixel ', 'DrinkBox Studios ', 'Dual Effect ', 'EA Black Box ', 'EA Bright Light ', 'EA Pacific ', 'EA Seattle ', 'EA Sports', 'EKO Software ', 'EXOR Studios ', 'Ebb Software ', 'Edmund McMillen', 'EggNut ', 'Eidos Interactive ', 'Enigami ', 'Enlight Software', 'Erik Svedang ', 'FIX Korea', 'FYQD-Studio ', 'Facepunch Studios ', 'Failbetter Games ', 'Fever Pitch Studios ', 'Final Form Games',

'Final Strike Games ', 'Fireglow ', 'FishTankStudio ', 'Fishcow Studio ', 'Fizz
 Factor ', 'Flaming Fowl Studios ', 'Flying Lab Software ', 'Four Quarters ',
 'Fourattic ', 'Freebird Games ', 'Funnel Entertainment', 'Funselektor Labs Inc.
 ', 'Fusionsphere Systems ', 'FuturLab ', 'Future Games ', 'GFI Russia ', 'Gabe
 Cuzzillo ', 'Gabriel Interactive ', 'Gaijin Games ', 'Galilea Multimedia ',
 'Game Grumps ', 'Game-Labs ', 'GameCo ', 'Games Workshop ', 'Gamethunks',
 'Gaming Minds Studios ', 'Gamious ', 'Gato Salvaje Studio ', 'Gazillion ',
 'Geniaware ', 'Genius Slackers ', 'Gentlymad ', 'Ghost Ship Games ', 'Ghost of a
 Tale', 'Glass Bottom Games ', 'Gloomywood ', 'GlyphX Games ', 'GoodbyeWorld
 Games ', 'Graceful Decay ', 'Greenheart Games ', 'Grinding Gear Games ', 'Grip
 Games ', 'HAKAMA ', 'HD Interactive', 'Haggard Games ', 'Hammerfall Publishing
 ', 'Harebrained Schemes LLC ', 'Hasbro Interactive', 'Headfirst Productions ',
 'Heavy Iron Studios', 'Heavy Iron Studios ', 'Hempuli Oy ', 'Heuristic Park ',
 'Hi-Bit Studios ', 'High Moon Studios', 'House House ', 'House of Tales ',
 'Housemarque ', 'Humongous Entertainment ', 'Hyperbolic Magnetism ', 'IF Games
 ', 'IGGYMOB ', 'ION LANDS ', 'ISOMETRICORP Games ', 'Iceberg Interactive', 'Idol
 FX ', 'IllFonic', 'Illusion Ray Studio ', 'Infogrames ', 'Innerloop ',
 'Interdimensional Games Inc ', 'Inti Creates ', 'Invictus ', 'Ironward ',
 'Italic Pig ', 'Ivy Games LLC ', 'Jacob Antonucci', 'Jacob Dzwinel ', 'Jagex
 Games Studio ', 'Jasozz Games ', 'Juggler Games ', 'Jumpship ', 'K-D Lab ',
 'Kaizen Game Works ', 'Kaos Studios ', 'Katauri Interactive', 'Khaeon ', 'Kite
 Games ', 'Kitfox Games ', 'Kuju Entertainment ', 'LKA ', 'Lamplight Studios ',
 'LandFall Games', 'Layopi Games ', 'League of Geeks ', 'Legend Entertainment ',
 'Lesta Studio ', 'Level 5 ', 'Lexis Numerique ', 'Light Brick ', 'Little Green
 Men ', 'Lo-Fi Games ', 'Logic Artists ', 'Lucas Pope ', 'Lucky Pause ',
 'LuckyHammers ', 'Ludeon Studios ', 'Luis Antonio ', 'Lukewarm Media ', 'Lumenox
 ehf ', 'Luxoflux', 'MINT ROCKET ', 'Mad Head Games ', 'MadMinute Games ', 'Maddy
 Makes Games ', 'Madruga Works ', 'Mandragora ', 'Marvelous Inc. ', 'Massive
 Damage', 'Matt Kap ', 'Matthias Linda ', 'MediaMobsters ', 'Mega Crit Games ',
 'Metronomik ', 'MicroProse ', 'Midway', 'Midway ', 'Mighty Polygon ', 'Mindware
 Studios ', 'Mischief ', 'Misfits Attic ', 'Mist Land ', 'Mohawk Games ',
 'Monster Games Inc. ', 'Moon Spider Studio ', 'Mooneye Studios ', 'Mossmouth',
 'Most Wanted Entertainment ', 'Mothership Entertainment ', 'Motion Twin ',
 'Mouldy Toof Studios ', 'Movie Games ', 'MuHa Games ', 'Mucky Foot Productions
 ', 'Murudai ', 'Muzzy Lane Software ', 'Mythic Entertainment ', 'N-Fusion
 Interactive Entertainment Corp.', 'NATSUME ATARI Inc.', 'NExT Studios ', 'NGD
 Studios ', 'Namco ', 'Namco Bandai Games ', 'Naughty Dog', 'Necrophone ', 'Neon
 Doctrine ', 'Neon Giant ', 'Nepos Games ', 'Nerial ', 'Neversoft Entertainment
 ', 'Nevrax ', 'New Blood Interactive ', 'Nfusion ', 'Nicalis ', 'Nicolas
 Intoxicate ', 'Night Dive Studios ', 'Nigoro ', 'Nihilistic ', 'Nival
 Interactive', 'No Brakes Games ', 'Nodding Heads Games ', 'Nolla Games ',
 'Object ', 'Old Moon ', 'Old School Games ', 'Orann ', 'Orthogonal Games ',
 'Osmotic Studios ', 'Ostrich Banditos ', 'OtherSide Entertainment ', 'Out Of The
 Park Developments ', 'OverBorder Studio ', 'Owlcat Games ', 'Owned by Gravity ',
 'Paintbucket Games ', 'Paper Cult ', 'Paranoid Interactive ', 'Passtech Games ',
 'Pathea Games ', 'Perfect World Entertainment ', 'Phantom 8 ', 'Phobia Game
 Studio ', 'Pieces Interactive ', 'Pinkerton Road Studio ', 'Pinokl Games ',
 'Piranha Games ', 'Pixel Titans ', 'Pixpil ', 'Pocketwatch Games ', 'Positech

Games ', 'PostMod Softworks ', 'Press Play ', 'Presto Studios ', 'Project Aces
 ', 'Proxima Beta Europe B.V.', 'Proxy Studios ', 'Pterodon ', 'Pulse
 Entertainment ', 'Puzzling Dream ', 'QLOC ', 'Quantic Dream', 'Queasy Games ',
 'Questionary', 'Quicksilver Software ', 'ROCKFISH Games ', 'Radiation Blue ',
 'Radical Fish Games ', 'Radon Labs ', 'RailSimulator.com ', 'Rain Games ', 'Rare
 Ltd.', 'Raw Fury', 'Rayland Interactive ', 'Ready at Dawn ', 'Reakktor Media ',
 'Rebel Act Studios ', 'Red Thread Games ', 'Red Winter Software Limited',
 'Reflections Interactive ', 'Reflexive Entertainment ', 'Reikon Games ',
 'Related Designs ', 'Render Cube ', 'Replay Games ', 'Replay Studios', 'Reply
 Game Studios ', 'Rewolf Software ', 'Robi Studios ', 'Rogue Factor ', 'Ron
 Gilbert and Gary Winnick ', 'Rooster Teeth Games ', 'Rotobee ', 'Route 59 Games
 ', 'Runewaker Entertainment ', 'Runner Duck ', 'Ryu ga Gotoku Studios', 'SEK Ost
 ', 'SKS Games', 'SQUADTeam', 'Sam Barlow ', 'Sandbox Interactive ', 'Santa
 Ragione ', 'Sanzaru ', 'Scientifically Proven ', 'Scott Cawthon ', 'Sectordub ',
 'Sever ', 'ShadowRage ', 'Shanghai FantaBlade Network Technology Co.', 'Shining
 Pixel Studios ', 'Shining Rock Software ', 'Shiro Games ', 'Sigtrap Games ',
 'Silverback Entertainment ', 'SimTex ', 'Skybound LLC', 'Skyshine Games ',
 'Slant Six ', 'Slitherine', 'Slitherine ', 'Slocap ', 'Sluggerfly ', 'Snapshot
 Games Inc. ', 'SoftWarWare ', 'Soldak Entertainment ', 'SomaSim ', 'Something
 Classic Games LLC ', 'Space Bullet Dynamics Corporation ', 'Spaces of Play ',
 'Sperasoft ', 'Spidersoft', 'Spiderweb Software ', 'Spike Chunsoft ', 'Sports
 Mogul ', 'Squad ', 'Star Gem Inc. ', 'StarWraith ', 'Steel Mantis ', 'Stormind
 Games ', 'Stormling Studios ', 'Strangelite ', 'Strategic Studies Group ',
 'Studio Drydock Pty Ltd ', 'Studio V ', 'Stunlock Studios ', 'Sukeban Games ',
 'Sumo Digital', 'Sunstorm Interactive ', 'Surreal Software ', 'Swing Swing
 Submarine ', 'Swordtales ', 'Synetic ', 'System Era Softworks ', 'Tag of Joy ',
 'Taito Corporation ', 'Taldren ', 'Tale of Tales ', 'Tamssoft ', 'Team Reptile ',
 'Team Salvato ', 'Team6 Game Studios', 'Tendershoot ', 'Terry Cavanagh ', 'The
 Bitmap Brothers ', 'The Chinese Room ', 'The Collective ', 'The Fullbright
 Company ', 'The Lordz Games Studio', 'The Molasses Flood ', 'The Outsiders ',
 'The Tiniest Shark ', 'The Wild Gentlemen ', 'Third Wave Games ', 'Thomas van
 den Berg ', 'Three Fields Entertainment ', 'Three Rings ', 'TicToc Games ',
 'Tigon ', 'Tindalos Interactive ', 'Tom Francis ', 'Tom Happ ', 'TopWare
 Interactive ', 'Total Mayhem Games ', 'Toxic Games ', 'Toys for Bob ', 'Trepang
 Studios ', 'Tri Synergy ', 'Tribute Games', 'Tribute Games ', 'Triskell
 Interactive ', 'Triternion ', 'TurtleBlaze ', 'Tuxedo Labs ', 'Two Tribes', 'Two
 Tribes ', 'TwoPM Studios ', 'Typhoon Studios ', 'U.S. Army ', 'Ublart
 Montpellier ', 'Uber Entertainment', 'Uber Entertainment ', 'Ubisoft Blue Byte
 ', 'Ultimation Inc. ', 'Ultra Ultra ', 'Unicube ', 'Unigine Corp', 'Upper One
 Games ', 'Urban Games ', 'VRESKI ', 'Vanguard', 'Variable State ', 'Vblank
 Entertainment Inc. ', 'Vicarious Visions', 'Visai Games ', 'Visiware Studios ',
 'Vlambeer ', 'Wadjet Eye Games', 'Wadjet Eye Games ', 'Wales Interactive ', 'We
 Create Stuff ', 'White Rabbit Interactive ', 'Why so serious?', 'Wide Games ',
 'Wideload Games Inc. ', 'William Chyr Studio LLC ', 'Wings Simulations ',
 'Wishfully ', 'Witch Beam ', 'Wizards of the Coast ', 'Wolcen Studio ', 'Wolf
 Brew Games ', 'Wolfeye Studios ', 'WorldForge ', 'Wormwood Studios ', 'Wube
 Software LTD. ', 'X1 Software ', 'Xilam ', 'Yippee Entertainment LTD ', 'Yuke's
 ', 'Zachtronics Industries ', 'Zeal Game Studios ', 'Zeboyd Games ', 'Zero Sum

Games ', 'Zipper Interactive ', 'ZootFly ', 'Zuxxez ', '[bracket]games ', 'adamgryu ', 'animdude ', 'drool Games', 'h.a.n.d. Inc. ', 'miHoYo', 'nDreams ', 'roll17 ', 'rose-engine ', 'straka.studio ', 'tobyfox ', 'xii games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

- Tokenizer is initialized with all unique English words in dataset

```
[19]: mcTokenizer = tfkpp.text.Tokenizer(num_words = len(allWords) + 1)
mcTokenizer.fit_on_texts(allWords)
SaveVar(mcTokenizer, "mcTokenizer")
vocabSize = len(mcTokenizer.word_index) + 1
```

- The model is built with an architecture consisting of two input branches (one text branch and one numeric branch) that are concatenated and fed into dense layers.

```
[20]: numShape = len(numVars) + initChunk.drop(["Review Text", "Overall Metascore"] +
↳ numVars, axis = 1).shape[1]
inShape = maxSeqLen + numShape
#text branch
textInLayer = tfkl.Input(shape = (maxSeqLen,), name = "textInLayer")
embedLayer = tfkl.Embedding(input_dim = vocabSize, output_dim =
↳ 128)(textInLayer)
lstmLayer = tfkl.LSTM(64)(embedLayer)
dropoutLayer = tfkl.Dropout(0.5)(lstmLayer)
#numeric branch
numInLayer = tfkl.Input(shape = (numShape,), name = "numInLayer")
dense1Layer = tfkl.Dense(64, activation = "relu")(numInLayer)
dropout1Layer = tfkl.Dropout(0.5)(dense1Layer)
#concatenated output
outLayerConcat = tfkl.concatenate([dropoutLayer, dropout1Layer])
#dense layers
dense2Layer = tfkl.Dense(32, activation = "relu")(outLayerConcat)
outLayer = tfkl.Dense(1, activation = "linear")(dense2Layer)
#compiling model
mcMod = tfkm.Model(inputs=[textInLayer, numInLayer], outputs=outLayer)
mcMod.compile(optimizer = "adam", loss = "mean_squared_error", metrics =
↳ ["mae"])
mcMod.summary()
```

Model: "model"

Layer (type)	Output Shape	Param #	Connected to
=====			
textInLayer (InputLayer)	[(None, 2171)]	0	

embedding (Embedding)	(None, 2171, 128)	32820096	
textInLayer[0][0]			

numInLayer (InputLayer)	[(None, 735)]	0	

lstm (LSTM)	(None, 64)	49408	embedding[0][0]

dense (Dense)	(None, 64)	47104	
numInLayer[0][0]			

dropout (Dropout)	(None, 64)	0	lstm[0][0]

dropout_1 (Dropout)	(None, 64)	0	dense[0][0]

concatenate (Concatenate)	(None, 128)	0	dropout[0][0] dropout_1[0][0]

dense_1 (Dense)	(None, 32)	4128	
concatenate[0][0]			

dense_2 (Dense)	(None, 1)	33	dense_1[0][0]
=====			
=====			
Total params: 32,920,769			
Trainable params: 32,920,769			
Non-trainable params: 0			

- The model is incrementally trained in chunks of a maximum of 10,000 records at a time. The model is trained on the entire dataset 3 times, with early stopping implemented to avoid overfitting.

```
[21]: trainingCycles = 3
      for trainingCycle in range(trainingCycles):
          chunkLoopCount = int(np.ceil(mcEntryCount / rootChunkSize))
          for rootChunkLoopCounter in range(chunkLoopCount):
              gc.collect()
```

```

        print(f"Chunk {rootChunkLoopCounter + 1}/{chunkLoopCount} // {np.
↪round((rootChunkLoopCounter / chunkLoopCount) * 100, 2)}% Complete // Cycle_
↪{trainingCycle + 1}/{trainingCycles}")
        if rootChunkLoopCounter != 0:
            mcDataChunk = PreprocessData(daskdf.from_pandas(pd.read_csv(mcPath,
↪names = mcHeaders, chunksize = rootChunkSize, skiprows = rootChunkSize *
↪rootChunkLoopCounter, low_memory = False).get_chunk(rootChunkSize),
↪npartitions = chunkCount), uniqueLabels)
        else:
            mcDataChunk = PreprocessData(daskdf.from_pandas(pd.read_csv(mcPath,
↪chunksize = rootChunkSize, low_memory = False).get_chunk(rootChunkSize),
↪npartitions = chunkCount), uniqueLabels)
            mcMod = FinalPreprocessAndTrain(mcDataChunk, langPro, mcMod,
↪mcTokenizer, maxSeqLen, mcScaler)
            mcMod.save("intermediate/MetacriticReviewModel_chunkCheckpoint.keras")
            mcMod.save("intermediate/MetacriticReviewModel_cycleCheckpoint.keras")
mcMod.save("MetacriticReviewModel.keras")
SaveModVars()

```

Chunk 1/52 // 0.0% Complete // Cycle 1/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Arzest', ' Atlantis Interactive Entertainment ', ' Avalanche Software ', ' Balan
Company ', ' Bird Bath Games ', ' Cape Guy ', ' Dlala Studios ', ' Eurocom ', '
Forgotten Key ', ' Gone North Games ', ' Innersloth ', ' Massive Entertainment',
' Viva Media', ' bitComposer ', ' iNK Stories ', '2K Games ', '3000AD', '3D
People ', 'A44 ', 'AGEOD ', 'AWE Games ', 'Accidental Queens ', 'Acclaim Studios
Cheltenham ', 'Acme Gamestudio ', 'Aeternum Game Studios ', 'Alan Zucconi ',
'Alientrap ', 'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Argonaut
Games ', 'Armature Studio ', 'Artematica ', 'Artisan Studios ', 'Arxel Tribe ',
'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'Auran ', 'Auroch Digital
', 'Aurogon Shanghai ', 'AurumDust ', 'Balancing Monkey Games ', 'Bedtime
Digital Games ', 'Benjamin Rivers ', 'BestGameEver.com ', 'Big Ant Studios ',
'Big Boat Interactive ', 'Bit Blot ', 'Black Element ', 'Black Lab Games ',
'Blackpowder Games ', 'Blendo Games ', 'Bojan Brbora ', 'BreakAway Games ',
'Breaking Walls ', 'Broken Rules ', 'BumbleBeast ', 'CE-Asia ', 'Capy Games ',
'Cauldron Ltd. ', 'Causal Bit Games ', 'Centauri Production ', 'Charles
University ', 'ClockStone Studio ', 'Cold Iron Studios ', 'Cosmo D Studios ',
'CreativeForge Games ', 'Cross-Product ', 'Cryo Interactive ', 'Daedalic
Entertainment', 'Daniel Wynne', 'Data Becker ', 'Dejobaan Games ', 'Demruth ',
'Denki ', 'Digital Arrow ', 'Digital Eclipse ', 'Digital Fusion Inc. ',
'Digixart Entertainment ', 'Dreampainters ', 'E-Line Media ', 'Edelweiss ',
'EggNut ', 'Eidos Interactive ', 'Elden Pixels ', 'Emobi Games ', 'Etranges
Libellules ', 'Eurocom Entertainment Software', 'Eutechnyx ', 'Exiin ',
'Exordium Games ', 'Fallen Tree Games ', 'FarmerGnome ', 'Fiction Factory Games
', 'FreakZone ', 'Freebird Games ', 'Funselektor Labs Inc. ', 'Future Games',
'GUTS Department ', 'Gabe Cuzzillo ', 'Gaijin Games ', 'GameDesignDan ', 'Gato

```


Salvaje Studio ', 'Gloomywood ', 'GlyphX Games ', 'GoodbyeWorld Games ',
 'Grundislav Games ', 'Gummy Cat ', 'Gust ', 'Halberd Studios ', 'Harebrained
 Schemes LLC ', 'Harmonix Music Systems ', 'Hazardous Software ', 'Hempuli Oy ',
 'Hi-Bit Studios ', 'Hiding Spot ', 'Himalaya Studios ', 'Hyperbolic Magnetism ',
 'INTERIOR/NIGHT ', 'Iceberg Interactive ', 'Indefatigable ', 'Innerspace VR ',
 'Investigate North ', 'Invictus ', 'Iridium Studios ', 'It's Anecdotal ', 'Jacob
 Antonucci', 'Jagex Games Studio ', 'Jankenteam ', 'Jutsu Games ', 'Khaeon ',
 'Kiro'o Games ', 'Krams Design ', 'Kubat Software ', 'Lamplight Studios ',
 'League of Geeks ', 'Lienzo ', 'Lightning Rod Games ', 'Lince Works ', 'Lost
 Toys ', 'LuckyHammers ', 'Lumenox ehf ', 'Lunar Great Wall Studios ', 'MadMinute
 Games ', 'Made by Kiddies ', 'Magnum Games ', 'Massive Development ', 'Max
 Inferno ', 'Maximum Games ', 'MidBoss ', 'Midway Studios - Austin ', 'Mischief
 ', 'Misfits Attic ', 'Mojiken Studio ', 'Mothership Entertainment ', 'MyDearest
 ', 'N-Fusion Interactive Entertainment Corp.', 'NExT Studios ', 'NHN Corporation
 ', 'NetDevil ', 'Nicolas Intoxicate ', 'Ntronium Games ', 'Overhype Studios ',
 'Oxide Games ', 'Panther Games ', 'Pathos Interactive ', 'Pencil Test Studios ',
 'Peter Stock ', 'Piccolo ', 'Pixel Crow ', 'Planet Moon Studios ', 'Plausible
 Concept ', 'Point 5 Projects ', 'Primal Software ', 'Project Aces ', 'Project
 Aces ', 'Pulse Entertainment ', 'Punch Punk Games ', 'Pure FPS ', 'RageSquid ',
 'RainDance LX ', 'Rare Ltd.', 'Rayland Interactive ', 'Realtime Worlds ',
 'Related Designs ', 'Resolution Games ', 'Revolution of Strategy ', 'Ritual
 Entertainment', 'Robot Gentleman ', 'Rogue Entertainment ', 'S&G Software ',
 'Sandbox Interactive ', 'Sanzaru ', 'Schell Games', 'Shadow Tor Studios ',
 'ShadowRage ', 'Shining Rock Software ', 'Shockwave Productions ', 'Sigma Team
 ', 'Silver Lining Studio ', 'Silvio & Gey Savarese ', 'Similis ', 'Sketchy Logic
 ', 'Skydance Interactive ', 'Sloclap ', 'Sobaka ', 'Spiderweb Software ', 'Spike
 Chunsoft ', 'Spiral House ', 'Sports Mogul ', 'Stormind Games ', 'Streko-
 Graphics Inc. ', 'Stunlock Studios ', 'Sunflowers Interactive ', 'System Era
 Softworks ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Tantalus ', 'Team Junkfish
 ', 'The Behemoth ', 'The Wandering Band LLC ', 'The Wandering Ben ',
 'ThinkingStars ', 'Third Law Interactive ', 'Threaks ', 'Three One Zero ',
 'Throw the Warped Code Out ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos
 Interactive ', 'Tom Happ ', 'Treyarch', 'Tri Synergy ', 'Turmoil Games ', 'Twice
 Circled ', 'U.S. Army ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft
 Sofia ', 'Unexpected ', 'Unspeakable Pixels ', 'Vagabond Dog ', 'Varsav Game
 Studios ', 'Vertigo Games ', 'Warsaw Film School Video Game & Film Production
 Studio ', 'Wayward Simulations ', 'Witch Beam ', 'WorldForge ', 'Yuke's ', 'Zeal
 Game Studios ', 'adamgryu ', 'bitComposer Games', 'idoz & phops ', 'inkle',
 'tiger & squid ', 'ustwo '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
 distributed.client - ERROR - Failed to reconnect to scheduler after 30.00
 seconds, closing client

Epoch 1/20

239/239 [=====] - 28s 100ms/step - loss: 800.2854 -
 mae: 19.6956 - val_loss: 59.9708 - val_mae: 6.0429

Epoch 2/20

239/239 [=====] - 24s 101ms/step - loss: 140.1887 -

mae: 9.4075 - val_loss: 52.3805 - val_mae: 5.6460
 Epoch 3/20
 239/239 [=====] - 24s 102ms/step - loss: 115.3553 -
 mae: 8.5566 - val_loss: 48.0988 - val_mae: 5.4418
 Epoch 4/20
 239/239 [=====] - 24s 100ms/step - loss: 106.8944 -
 mae: 8.1932 - val_loss: 43.1095 - val_mae: 5.0839
 Epoch 5/20
 239/239 [=====] - 24s 102ms/step - loss: 96.4165 - mae:
 7.8114 - val_loss: 45.6866 - val_mae: 5.4084
 Epoch 6/20
 239/239 [=====] - 25s 103ms/step - loss: 95.6736 - mae:
 7.7754 - val_loss: 38.7117 - val_mae: 4.8660
 Epoch 7/20
 239/239 [=====] - 24s 102ms/step - loss: 90.6066 - mae:
 7.5681 - val_loss: 34.7035 - val_mae: 4.4379
 Epoch 8/20
 239/239 [=====] - 24s 102ms/step - loss: 87.8945 - mae:
 7.4112 - val_loss: 33.6542 - val_mae: 4.3663
 Epoch 9/20
 239/239 [=====] - 23s 98ms/step - loss: 86.1758 - mae:
 7.3937 - val_loss: 35.1090 - val_mae: 4.6605
 Epoch 10/20
 239/239 [=====] - 24s 99ms/step - loss: 82.5571 - mae:
 7.2182 - val_loss: 30.3475 - val_mae: 4.1857
 Epoch 11/20
 239/239 [=====] - 23s 96ms/step - loss: 81.9458 - mae:
 7.1892 - val_loss: 30.3391 - val_mae: 4.2664
 Epoch 12/20
 239/239 [=====] - 23s 96ms/step - loss: 80.6644 - mae:
 7.1147 - val_loss: 29.1546 - val_mae: 4.1012
 Epoch 13/20
 239/239 [=====] - 24s 100ms/step - loss: 80.7401 - mae:
 7.1282 - val_loss: 30.4192 - val_mae: 4.3590
 Epoch 14/20
 239/239 [=====] - 24s 101ms/step - loss: 80.2604 - mae:
 7.0860 - val_loss: 30.8625 - val_mae: 4.3993
 Epoch 15/20
 239/239 [=====] - 24s 100ms/step - loss: 78.3768 - mae:
 6.9936 - val_loss: 25.6368 - val_mae: 3.7801
 Epoch 16/20
 239/239 [=====] - 24s 103ms/step - loss: 77.3179 - mae:
 7.0001 - val_loss: 26.1292 - val_mae: 3.9228
 Epoch 17/20
 239/239 [=====] - 25s 105ms/step - loss: 76.5317 - mae:
 6.9271 - val_loss: 24.8415 - val_mae: 3.8094
 Epoch 18/20
 239/239 [=====] - 24s 101ms/step - loss: 74.8025 - mae:

6.8447 - val_loss: 23.7000 - val_mae: 3.6590

Epoch 19/20

239/239 [=====] - 24s 102ms/step - loss: 72.1421 - mae:

6.7558 - val_loss: 24.3199 - val_mae: 3.7695

Epoch 20/20

239/239 [=====] - 24s 103ms/step - loss: 72.5328 - mae:

6.7470 - val_loss: 22.4457 - val_mae: 3.5059

Chunk 2/52 // 1.92% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es)

['Application', 'Cricket', 'Trainer'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['

10tons ', ' Cranberry Production ', ' Deep Silver Fishlabs ', ' Digital Eclipse

', ' EA Games ', ' Elbow Rocket ', ' FAKT Software ', ' FireFly Studios ', '

Funatics ', ' Funatics Software', ' ICEBOX Studios ', ' LLC', ' LandFall ', '

Moonbyte Studios ', ' Navarre Corp ', ' Nival ', ' Out of the Blue Games S.L. ',

' Overflow Games ', ' Phosphor Games ', ' Polar Motion ', ' RA Images ', '

Reality Twist ', ' Relentless Studios ', ' S.L. ', ' Sega', ' Slitherine Group',

' Ste Curran ', '10tons Entertainment', '369 Interactive ', 'A Crowd of Monsters

', 'Aarne "MekaSkull" Hunziker ', 'Access Games ', 'Action Forms Ltd. ',

'Activision ', 'Alienrap ', 'Alt Shift ', 'Amanita Design ', 'Apeiron ',

'Argonaut Games', 'Artematica ', 'Ascension Studios', 'Asylum Entertainment ',

'Atomic Games ', 'Awe Interactive ', 'Backbone Entertainment ', 'Beautiful Game

Studios ', 'Behold Studios ', 'Big Time Software ', 'Bigmoon Entertainment ',

'Black Mesa Modification Team ', 'Blooming Buds Studio ', 'Blue Manchu ', 'Blue

Omega ', 'BootdiskRevolution ', 'Boxed Dream ', 'Brace Yourself Games ', 'Brat

Designs ', 'BreakAway Games ', 'Butterscotch Shenanigans ', 'Bytten Studio ',

'Cardboard Utopia ', 'Casus Ludi ', 'Cavia Inc. ', 'Cinemax', 'ClockStone Studio

', 'Coilworks ', 'Convoy Games ', 'Corbie Games ', 'Cranberry Studios ', 'Crazy

Rocks ', 'Creative Edge Software ', 'Cygnus Entertainment ', 'D'Avekki Studios

Limited ', 'DANG! ', 'DTP Entertainment', 'Darkling Room ', 'Darkworks ', 'Data

Realms ', 'Deep Shadows ', 'Destineer ', 'Dimfrost ', 'Discord Games ', 'Double

Stallion Games ', 'Drama Drifters ', 'Dreams Uncorporated ', 'Dreamworks Games

', 'EA Bright Light ', 'EA Pacific ', 'EasyGameStation ', 'Eden Industries ',

'Elf Games ', 'Elseware Experience ', 'Erik Svedang ', 'Expansive Worlds ',

'Explosm ', 'Eyebrow Interactive ', 'FAKT Software ', 'FAKT Software GmbH',

'FYQD-Studio ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Flying

Cafe for Semianimals ', 'Focus Home Interactive ', 'Fourattic ', 'Free Lives ',

'Funatics Development GmbH', 'G5 Software ', 'Gaijin Games ', 'Gaslamp Games ',

'General Interactive Co. ', 'Greg Lobanov ', 'Gust ', 'Headfirst Productions ',

'Hibernian Workshop ', 'Hothouse Creations ', 'ION LANDS ', 'Ice-Pick Lodge ',

'InGame Studios ', 'Interceptor Entertainment ', 'Interdimensional Games Inc ',

'Inti Creates ', 'Investigate North Aps ', 'Invictus ', 'Jagex Games Studio ',

'Jason Oda ', 'Jasozz Games ', 'JoyMasher ', 'Jump Over The Age ', 'Kitfox Games

', 'Kraken Unleashed ', 'Krome Studios ', 'La Plata ', 'LandFall Games', 'Lazy 8

Studios ', 'Logic Artists ', 'Long Hat House ', 'MASA Group ', 'Mad Mimic ', 'Maddy Makes Games ', 'Mages. ', 'Marvelous First Studio ', 'Maschinen-Mensch ', 'Massive Monster ', 'Matt Kap ', 'Mattel ', 'Matthias Linda ', 'Midway Studios - Austin ', 'Mighty Kingdom ', 'Mighty Rabbit Studios ', 'Mindware Studios ', 'Momentum DMT ', 'Morteshka ', 'Mythic Entertainment ', 'NExT Studios ', 'Nerial ', 'Nival Interactive', 'Nova Production ', 'Original Fire Games ', 'Out of the Blue', 'Oxeye ', 'PETOONS STUDIO SL ', 'Paper Cult ', 'PaperSeven ', 'Paragon Studios ', 'Passtech Games ', 'Petri Purho ', 'Phobia Game Studio ', 'Phoenix Online Studios ', 'Phosphor Games Studio', 'Pixel Multimedia ', 'Playwing ', 'PortaPlay ', 'Psychodev ', 'Punchers Impact ', 'Puppy Punch Productions ', 'Puuba ', 'Pyramid ', 'Quotix Software ', 'Radical Fish Games ', 'Reality Twist GmbH', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Replay Studios', 'Richard Hofmeier ', 'Robi Studios ', 'Ronimo Games ', 'RuneHeads ', 'Runner Duck ', 'Sand Sailor Studio ', 'Scientifically Proven ', 'Serious Brew ', 'Sierra Entertainment ', 'Skilltree Studios ', 'Slitherine', 'Snapshot Games Inc. ', 'SomaSim ', 'Sonalysts ', 'Spike Chunsoft ', 'Spotlightor Interactive ', 'Spry Fox ', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ', 'Storm in a Teacup ', 'Stormcloud Creations ', 'Stunlock Studios ', 'Sumo Digital', 'Sunhead Games ', 'Sunstorm Interactive ', 'SuperScarySnakes ', 'Swing Swing Submarine ', 'Sword & Axe LLC ', 'Synetic ', 'TRAGsoft ', 'Tag of Joy ', 'Targem Games ', 'Team Reptile ', 'Teku Studios ', 'The Gentlebros ', 'The Moonwalls ', 'The Parasight ', 'The Pixel Hunt ', 'The Wild Gentlemen ', 'Thing Trunk ', 'Three Fields Entertainment ', 'Toge Productions ', 'Torus Games ', 'Toys for Bob ', 'Triangle Studios ', 'Troglobytes Games', 'Twistplay', 'Uppercut Games Pty Ltd ', 'V7 Entertainment Inc. ', 'Various ', 'Vicarious Visions', 'Vile Monarch ', 'Vogster ', 'Wadjet Eye Games', 'Weather Factory ', 'White Paper Games ', 'XXV Productions ', 'Yippee Entertainment LTD ', 'Zeboyd Games ', 'Zipper Interactive ', 'Zoetrope Interactive ', 'osao games ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 24s 100ms/step - loss: 94.3689 - mae: 7.7100 - val_loss: 39.3056 - val_mae: 4.9422

Epoch 2/20

238/238 [=====] - 25s 103ms/step - loss: 84.3888 - mae: 7.3517 - val_loss: 36.7194 - val_mae: 4.7872

Epoch 3/20

238/238 [=====] - 25s 104ms/step - loss: 81.8371 - mae: 7.2394 - val_loss: 38.8149 - val_mae: 5.0397

Epoch 4/20

238/238 [=====] - 24s 102ms/step - loss: 75.5576 - mae: 6.8854 - val_loss: 31.9870 - val_mae: 4.3556

Epoch 5/20

238/238 [=====] - 24s 101ms/step - loss: 76.7502 - mae: 6.9760 - val_loss: 34.3535 - val_mae: 4.6751

Epoch 6/20

238/238 [=====] - 24s 101ms/step - loss: 74.0961 - mae:

```

6.8318 - val_loss: 30.0747 - val_mae: 4.2472
Epoch 7/20
238/238 [=====] - 23s 98ms/step - loss: 69.2829 - mae:
6.6282 - val_loss: 31.1353 - val_mae: 4.3976
Epoch 8/20
238/238 [=====] - 25s 104ms/step - loss: 71.4034 - mae:
6.7533 - val_loss: 27.1378 - val_mae: 3.9321
Epoch 9/20
238/238 [=====] - 25s 104ms/step - loss: 69.8861 - mae:
6.6519 - val_loss: 30.4099 - val_mae: 4.3592
Epoch 10/20
238/238 [=====] - 25s 104ms/step - loss: 69.3119 - mae:
6.5900 - val_loss: 28.4586 - val_mae: 4.1655
Epoch 11/20
238/238 [=====] - 25s 103ms/step - loss: 67.1813 - mae:
6.5342 - val_loss: 31.5772 - val_mae: 4.5061
Epoch 12/20
238/238 [=====] - 24s 103ms/step - loss: 66.7460 - mae:
6.4936 - val_loss: 28.2683 - val_mae: 4.1582
Epoch 13/20
238/238 [=====] - 24s 102ms/step - loss: 64.2872 - mae:
6.3830 - val_loss: 25.2541 - val_mae: 3.6999
Epoch 14/20
238/238 [=====] - 24s 102ms/step - loss: 61.5441 - mae:
6.2334 - val_loss: 23.5459 - val_mae: 3.6297
Epoch 15/20
238/238 [=====] - 25s 105ms/step - loss: 60.5609 - mae:
6.1664 - val_loss: 23.4105 - val_mae: 3.5891
Epoch 16/20
238/238 [=====] - 25s 103ms/step - loss: 59.8818 - mae:
6.1444 - val_loss: 22.5076 - val_mae: 3.5246
Epoch 17/20
238/238 [=====] - 25s 104ms/step - loss: 58.8513 - mae:
6.1031 - val_loss: 23.5334 - val_mae: 3.6721
Epoch 18/20
238/238 [=====] - 24s 102ms/step - loss: 59.2271 - mae:
6.1067 - val_loss: 23.8392 - val_mae: 3.7332
Epoch 19/20
238/238 [=====] - 24s 99ms/step - loss: 57.7788 - mae:
6.0248 - val_loss: 21.9171 - val_mae: 3.4375
Epoch 20/20
238/238 [=====] - 23s 97ms/step - loss: 54.8396 - mae:
5.8581 - val_loss: 21.7958 - val_mae: 3.4572
Chunk 3/52 // 3.85% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored

```

```

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
A Jolly Corpse ', ' Alex May ', ' Capcom Vancouver ', ' Digital Leisure ', '
Dose', ' Dreadlocks ', ' Eighting ', ' Eurocom ', ' Foreign Gnomes ', ' FunHouse
', ' Kitty', ' Koei Tecmo Games ', ' Live Wire ', ' Ltd. ', ' Mobigame ', '
Rabbit & Bear Studios ', ' Red Winter Software ', ' Sky Fallen', ' and JW ',
'1C:Ino-Co ', '3D Realms ', '4Head Studios ', '5-Bits Games ', '7 Studios ',
'8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ',
'Afterburner Studios ', 'Allgraf ', 'Amaze Entertainment ', 'Ankama Games ',
'ArachnidGames ', 'Arc System Works', 'Artematica ', 'AtomicTorch ', 'Attention
To Detail ', 'Avalanche Software ', 'Barking Dog ', 'Bay 12 Games ', 'Bedlam
Games ', 'Ben Esposito ', 'Biart ', 'Bippinbits ', 'Bithell Games ', 'Black Salt
Games ', 'Blue Castle Games ', 'Boston Animation ', 'BreakAway Games ', 'Buka
Entertainment ', 'Byterunners Game Studio ', 'CCCP ', 'COWCAT ', 'Canal+
Multimedia ', 'Cave ', 'Chaosmonger Studio ', 'Chris Nordgren', 'Chromatic Games
', 'Code Force ', 'Coin Crew Games ', 'Cosmonaut Studios ', 'Critical Studio ',
'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'DESTINYbit ', 'DNS Development ',
'Dancing Dragon games ', 'Dark Crystal Games ', 'Digital Confectioners ',
'Digital Happiness ', 'Digital Leisure Inc.', 'Digital Lode ', 'Digitalo Studios
', 'Dimps Corporation ', 'Disney Interactive Studios ', 'DoubleBear Productions
', 'Dreadlocks Ltd', 'Dykast Lubomir ', 'Eastshade Studios ', 'Elder Games ',
'Erik Svedang ', 'Eurocom Entertainment Software', 'Fabraz ', 'Fallen Flag
Studio ', 'Fictiorama Studios ', 'Fireplace Games ', 'Fishing Cactus ',
'Foregone ', 'Frima Studio ', 'Frozen line ', 'Game Grumps ', 'Gameyus
Interactive ', 'Gaslamp Games ', 'Gentlymad ', 'Ghost Ship Games ', 'Haggard
Games ', 'Heavy Iron Studios', 'Herobeat Studios ', 'Heuristic Park ', 'Hitbox
', 'Holospark ', 'Honig Studios ', 'HyperSloth ', 'Ikarion ', 'Illwinter Design
Group ', 'Innonics ', 'Instant Kingdom ', 'Invader Studios ', 'Jesse Makkonen ',
'KUNO INTERACTIVE ', 'KillHouse Games ', 'Layopi Games ', 'Live Wire Films',
'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'MagicalTimeBean ', 'Mantra
', 'Massive Work Studio ', 'Matias Schmied ', 'Midgar Studio ', 'Mike Studios ',
'Mindware Studios ', 'Minor Key Games ', 'Misfits Attic ', 'Moppin ', 'Most
Wanted Entertainment ', 'Motion Twin ', 'Muro Studios Ltd. ', 'NATSUME ATARI
Inc.', 'Namco ', 'Namco Bandai Games ', 'Nerve Software ', 'New Blood
Interactive ', 'Nfusion ', 'Nippon Ichi Software ', 'Ocelot Society ', 'Omega
Force', 'Oscar Brittain ', 'Outrage Games ', 'Owlchemy Labs ', 'PD Design Studio
Pte Ltd ', 'Paleo Entertainment ', 'Parallax Software ', 'Pathea Games ',
'Piranha Games ', 'Pixel Night ', 'Pixpil ', 'Plastic Reality ', 'Pocket Trap ',
'Popcannibal ', 'Positech Games ', 'Propaganda Games ', 'QCF Design ', 'ROCKFISH
Games ', 'Radon Labs ', 'Rage Software ', 'RageSquid ', 'Raspina Studio ',
'Ratbag ', 'Razorworks ', 'Red Candle Games ', 'Red Thread Games ', 'Red Winter
Software Limited', 'Reflections Interactive ', 'Related Designs ', 'Resolution
Games ', 'Rudolf Kremers', 'Runewaker Entertainment ', 'Scavengers Studio ',
'Seaven Studio ', 'Secret Base ', 'Shaba Games ', 'Silent Grove Studios ',
'Sirius Games ', 'Sixteen Tons Entertainment ', 'Sky Fallen ', 'Snowhound Games
', 'Soldak Entertainment ', 'Sorath ', 'Sourcenext ', 'Stickmen Studios ',
'Storm in a Teacup ', 'Stormfront Studios ', 'Streko-Graphics Inc. ', 'Studio V

```

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', 'Sundae Month ', 'Sunstorm Interactive ', 'T19 Games ', 'Team Ninja', 'Team
Salvato ', 'Tendershoot', 'Terri', 'Terry Cavanagh ', 'Tesseract Games ',
'The Chinese Room ', 'Tindalos Interactive ', 'TopWare Interactive ', 'Toukana
Interactive ', 'Twisted Pixel Games ', 'Two Tribes', 'Ubisoft Montreal',
'Ultimation Inc. ', 'Ultra Ultra ', 'Un Je Ne Sais Quoi ', 'Unfold Games ', 'V1
Interactive ', 'ValuSoft ', 'Vicious Cycle ', 'White Paper Games ', 'White
Rabbit Interactive ', 'Z-Axis', 'Zachtronics Industries ', 'Zoetrope Interactive
', 'Zuxxez ', 'i-illusions '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

Epoch 1/20

```

238/238 [=====] - 24s 98ms/step - loss: 81.5631 - mae:
7.1614 - val_loss: 44.7426 - val_mae: 4.9936

```

Epoch 2/20

```

238/238 [=====] - 23s 98ms/step - loss: 69.8285 - mae:
6.6229 - val_loss: 34.2552 - val_mae: 4.3950

```

Epoch 3/20

```

238/238 [=====] - 24s 100ms/step - loss: 64.8095 - mae:
6.3815 - val_loss: 32.5449 - val_mae: 4.2083

```

Epoch 4/20

```

238/238 [=====] - 24s 102ms/step - loss: 61.3334 - mae:
6.2049 - val_loss: 29.4572 - val_mae: 4.0479

```

Epoch 5/20

```

238/238 [=====] - 24s 102ms/step - loss: 57.9470 - mae:
6.0254 - val_loss: 30.4307 - val_mae: 4.0687

```

Epoch 6/20

```

238/238 [=====] - 24s 101ms/step - loss: 56.2565 - mae:
5.9132 - val_loss: 27.0283 - val_mae: 3.8510

```

Epoch 7/20

```

238/238 [=====] - 24s 100ms/step - loss: 55.6194 - mae:
5.8756 - val_loss: 25.8420 - val_mae: 3.7920

```

Epoch 8/20

```

238/238 [=====] - 24s 103ms/step - loss: 52.4622 - mae:
5.7134 - val_loss: 26.3932 - val_mae: 3.7832

```

Epoch 9/20

```

238/238 [=====] - 25s 106ms/step - loss: 50.2133 - mae:
5.5783 - val_loss: 28.3228 - val_mae: 3.9740

```

Epoch 10/20

```

238/238 [=====] - 24s 102ms/step - loss: 48.8684 - mae:
5.5000 - val_loss: 24.5798 - val_mae: 3.6244

```

Epoch 11/20

```

238/238 [=====] - 25s 104ms/step - loss: 47.4611 - mae:
5.3912 - val_loss: 23.3210 - val_mae: 3.5589

```

Epoch 12/20

```

238/238 [=====] - 24s 103ms/step - loss: 46.1871 - mae:
5.3650 - val_loss: 22.4238 - val_mae: 3.4653

```

Epoch 13/20

```

238/238 [=====] - 24s 101ms/step - loss: 44.9657 - mae:

```

```

5.2730 - val_loss: 23.0970 - val_mae: 3.5381
Epoch 14/20
238/238 [=====] - 24s 101ms/step - loss: 43.1838 - mae:
5.1461 - val_loss: 22.3803 - val_mae: 3.4426
Epoch 15/20
238/238 [=====] - 24s 101ms/step - loss: 40.9823 - mae:
5.0317 - val_loss: 21.6201 - val_mae: 3.4299
Epoch 16/20
238/238 [=====] - 24s 103ms/step - loss: 40.5590 - mae:
4.9553 - val_loss: 22.2095 - val_mae: 3.4385
Epoch 17/20
238/238 [=====] - 23s 99ms/step - loss: 39.3188 - mae:
4.8968 - val_loss: 20.8982 - val_mae: 3.3375
Epoch 18/20
238/238 [=====] - 24s 103ms/step - loss: 37.6663 - mae:
4.7878 - val_loss: 23.9593 - val_mae: 3.6470
Epoch 19/20
238/238 [=====] - 24s 102ms/step - loss: 37.5579 - mae:
4.7668 - val_loss: 21.7238 - val_mae: 3.5124
Epoch 20/20
238/238 [=====] - 25s 103ms/step - loss: 37.0364 - mae:
4.7422 - val_loss: 23.2456 - val_mae: 3.5499
Chunk 4/52 // 5.77% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C:Ino-Co ', ' Acclaim Studios Manchester ', ' Ankama ', ' Atari ', ' Atari SA
', ' Black Drakkar Games ', ' Blitz Games ', ' Buried Signal ', ' Calappa Games
', ' Clover Bite ', ' Creative Business Unit III ', ' Cyan', ' EA Vancouver ', '
Endlessfluff Games ', ' Grove Street Games ', ' Gun Interactive ', ' GungHo', '
Humble Games', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio ', '
MicroProse', ' MicroProse ', ' Mixed Realms ', ' N-Game Studios ', ' Navegante
Entertainment ', ' Phosphor Games ', ' PopCap ', ' SeithCG ', ' SkyBox Labs ', '
Splash Damage', ' Team 6 Games Studio ', ' TimeGate Studios ', '10 Chambers
Collective ', '17-Bit ', '2By3 Games ', '4D Rulers ', '6 Eyes Studio ',
'@unepic_fran ', 'AGEOD ', 'Abrakam SA ', 'Acclaim', 'Alkemi Games ', 'Ankama
Games', 'Anshar Studios ', 'Antab Studio ', 'Astro Port ', 'Atari', 'Atelier
Mimina ', 'Auran ', 'Autumn Moon ', 'Awesome Games Studio ', 'Axel Fox ',
'Bandai Namco Games', 'Barking Dog ', 'Beard Envy ', 'Bedtime Digital Games ',
'Behavior Studios ', 'BetaDwarf ', 'Bits & Beasts ', 'Bonus Level Entertainment
', 'Brain Candy ', 'Brendon Chung ', 'Bright Future GmbH ', 'Bromio', 'Byte
Barrel ', 'Caged Element Inc. ', 'Camel 101 ', 'Campo Santo ', 'Cat Daddy Games
', 'Cellar Door Games ', 'ChessBase ', 'Chronic Logic ', 'Claeys Brothers Arts
', 'Clever Beans ', 'Codemasters Birmingham ', 'Coffee Stain North ',
'Covenant.dev ', 'Crate Entertainment ', 'Crazy Monkey Studios ', 'Creepy Jar ',
'Cyan Worlds', 'Cyber Rhino Studios ', 'Cypron Studios ', 'Daybreak Games ',
'Dead Mage Studio ', 'Demagog Studio ', 'Devolver Digital ', 'Doinksoft ',
'DrinkBox Studios ', 'EA Sports', 'Edge Case Games ', 'Exbleative ', 'Fallen

```


Earth', 'Fallen Leaf', 'Feral Cat Den ', 'Fishcow Studio ', 'Fishlabs ',
 'Flaming Fowl Studios ', 'Fort Triumph LTD ', 'Free Lives ', 'Freebird Games ',
 'Freedom LLC ', 'Funnel Entertainment', 'GalaxyTrail ', 'Gambrinous ', 'Game
 Arts', 'Game Arts ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of a Tale',
 'Grace Bruxner ', 'Green Lava Studios ', 'Greenheart Games ', 'Ground Shatter
 Ltd. ', 'Gust ', 'Harmonix Music Systems ', 'Hasbro Interactive', 'Heatwave
 Interactive ', 'Heavy Iron Studios ', 'Hexagon Entertainment ', 'HopFrog ',
 'Hothouse Creations ', 'Humble Bundle', 'IGGYMOB ', 'Idea Factory ', 'IllFonic',
 'IllFonic ', 'Image Space Incorporated ', 'Interactive Stone ', 'IronOak Games
 ', 'Ivy Games LLC ', 'JC Entertainment ', 'Jason Roberts', 'Johnny Dale Lonack
 ', 'Kaos Studios ', 'Kong Orange ', 'Lazy Bear Games ', 'Lead Pursuit ', 'Lexis
 Numerique ', 'Logic Artists ', 'Lucid Games ', 'Lukas Navratil ', 'Mad Orange ',
 'Massive Damage', 'MediaMobsters ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd',
 'Mode 7 Games ', 'Monolith Productions', 'Moepful Games ', 'Motiga ', 'Muse
 Games ', 'Mutant Games ', 'Nemesys ', 'Neversoft Entertainment', 'Nival
 Interactive', 'Nussoft', 'Object ', 'Okomotive ', 'Old Moon ', 'Old School Games
 ', 'Orann ', 'Owned by Gravity ', 'Paranoid Interactive ', 'Perfect World
 Entertainment ', 'Phil Hassey ', 'Phosfiend Systems ', 'Phosphor Games Studio',
 'Pinkerton Road Studio ', 'Planet Moon Studios ', 'PortaPlay ', 'Positech Games
 ', 'Prideful Sloth ', 'Proper Games ', 'Pulsatrix Studios ', 'Queasy Games ',
 'R8 Games ', 'Radiation Blue ', 'Razorworks ', 'Rebelmind ', 'Red 5 Studios ',
 'Red Redemption ', 'Refugium Games ', 'Rewolf Software ', 'Robotality ',
 'Sassybot ', 'Scott Cawthon ', 'Shiro Games ', 'Sick Puppies ', 'Sierra
 Entertainment ', 'Silent Dreams ', 'Silver Style ', 'Slitherine ', 'Smudged Cat
 Games ', 'Spaces of Play ', 'Sports Mogul ', 'StarWraith ', 'Stormfront Studios
 ', 'Stuck In Attic ', 'Sushee ', 'TALEROCK ', 'TIGAMES ', 'Team2Bit ', 'Team6
 Game Studios', 'The Chinese Room ', 'The Fullbright Company ', 'Throughline
 Games ', 'Tom Francis ', 'Tri Synergy ', 'Tribute Games ', 'Trine Games ',
 'Under the Stairs ', 'Video System ', 'Vile Monarch ', 'W!Games ', 'Wadjet Eye
 Games', 'Warner Bros. Interactive Entertainment ', 'Whalebox Studio ', 'Whole
 Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Wizarbox ', 'WorldForge ',
 'Wube Software LTD. ', 'Yukitama Creative Industries ', 'Zoink! ', 'animdude ']
 will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

240/240 [=====] - 24s 97ms/step - loss: 54.5217 - mae:
 5.7899 - val_loss: 29.2639 - val_mae: 4.0815

Epoch 2/20

240/240 [=====] - 24s 100ms/step - loss: 42.6958 - mae:
 5.1101 - val_loss: 24.3570 - val_mae: 3.6971

Epoch 3/20

240/240 [=====] - 24s 99ms/step - loss: 38.8212 - mae:
 4.8755 - val_loss: 25.9392 - val_mae: 4.0164

Epoch 4/20

240/240 [=====] - 24s 100ms/step - loss: 35.8184 - mae:
 4.6835 - val_loss: 20.1448 - val_mae: 3.3747

Epoch 5/20

240/240 [=====] - 24s 102ms/step - loss: 35.1493 - mae:
4.6099 - val_loss: 18.2836 - val_mae: 3.2083
Epoch 6/20
240/240 [=====] - 24s 101ms/step - loss: 32.1942 - mae:
4.4356 - val_loss: 17.4202 - val_mae: 3.1245
Epoch 7/20
240/240 [=====] - 24s 101ms/step - loss: 30.8819 - mae:
4.2961 - val_loss: 16.6892 - val_mae: 3.0748
Epoch 8/20
240/240 [=====] - 24s 101ms/step - loss: 29.8643 - mae:
4.1838 - val_loss: 15.5205 - val_mae: 2.9583
Epoch 9/20
240/240 [=====] - 24s 102ms/step - loss: 27.7166 - mae:
4.0587 - val_loss: 14.9897 - val_mae: 2.9079
Epoch 10/20
240/240 [=====] - 24s 99ms/step - loss: 26.6877 - mae:
3.9777 - val_loss: 13.9238 - val_mae: 2.7962
Epoch 11/20
240/240 [=====] - 24s 102ms/step - loss: 26.1829 - mae:
3.9493 - val_loss: 13.3969 - val_mae: 2.7326
Epoch 12/20
240/240 [=====] - 24s 102ms/step - loss: 24.3333 - mae:
3.8137 - val_loss: 13.1676 - val_mae: 2.7090
Epoch 13/20
240/240 [=====] - 24s 102ms/step - loss: 23.5719 - mae:
3.7252 - val_loss: 13.2976 - val_mae: 2.7768
Epoch 14/20
240/240 [=====] - 25s 103ms/step - loss: 24.9954 - mae:
3.8126 - val_loss: 13.0161 - val_mae: 2.6848
Epoch 15/20
240/240 [=====] - 24s 99ms/step - loss: 24.3563 - mae:
3.7605 - val_loss: 12.6550 - val_mae: 2.7087
Epoch 16/20
240/240 [=====] - 24s 100ms/step - loss: 22.8204 - mae:
3.6350 - val_loss: 14.8806 - val_mae: 2.9739
Epoch 17/20
240/240 [=====] - 24s 99ms/step - loss: 22.8058 - mae:
3.6170 - val_loss: 11.9863 - val_mae: 2.5849
Epoch 18/20
240/240 [=====] - 24s 101ms/step - loss: 20.9958 - mae:
3.4840 - val_loss: 11.8334 - val_mae: 2.6091
Epoch 19/20
240/240 [=====] - 25s 103ms/step - loss: 21.8377 - mae:
3.5351 - val_loss: 10.8028 - val_mae: 2.4332
Epoch 20/20
240/240 [=====] - 24s 101ms/step - loss: 20.7346 - mae:
3.4094 - val_loss: 10.8173 - val_mae: 2.4779
Chunk 5/52 // 7.69% Complete // Cycle 1/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' 343 Industries ', ' Atari SA ', ' Beamdog', ' Black Sea
Games ', ' Bloom Technology ', ' Blueside ', ' Boss Key Productions ', ' Cing ',
' Cognosphere ', ' Crema Games ', " DON'T NOD ", ' Davit Andriasyan ', ' Deck
Nine Games ', ' Easy Trigger Games ', ' Eerie Guest ', ' Hex Entertainment ', '
Ice Cold Games ', ' Infogrames', ' Jujubee S.A. ', ' Kaiko ', ' Katuri
Interactive ', ' Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' MONKEYCRAFT
Co. Ltd. ', ' Melbourne House ', ' Most Wanted Entertainment ', ' Novacore
Studios ', ' Novik & Co ', ' Overhaul Games ', ' Pine Scented Software ', '
PixelHive ', ' Psyop ', ' Slitherine Group ', ' Spike Chunsoft ', ' Squad ', '
Targem Games ', ' Team Reptile ', ' Transmission Games', ' UNKNOWN GAMES ', '
Vanguard Games ', ' Virtuos ', ' Voidpoint', ' Xaviant ', '1C Entertainment',
'1C-Softclub ', '343 Industries', '3D People ', '3D Realms', '3DClouds ', '4X
Studios', 'Action Squad Studios ', 'Activision ', 'Almost Human ', 'Amanita
Design ', 'Appaloosa Interactive ', 'Aquiris Game Studio ', 'Arclight Creations
', 'Arkedo Studio ', 'Artifact Entertainment ', 'Artifex Mundi ', 'Artificial
Mind and Movement ', 'Ascendant Studios ', 'Askiisoft ', 'Atari', 'Aterdux
Entertainment ', 'Bandai Namco Games', 'Barking Dog ', 'Behold Studios ',
'Benjamin "ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Berzerk Studio ', 'Big
Red Software ', 'Big Sandwich Games', 'Bishop Games ', 'Bitbox Ltd. ', 'Black
Isle Studios', 'Black Matter ', 'Black Sea Studios', 'Black Sea Studios ',
'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Boss Key', 'Bossa Studios
', 'Brain Slap Studio ', 'Browsome ', 'Buka Entertainment', 'Bulwark Studios ',
'Burut Software ', "ByteRockers' Games ", 'Cardboard Computer ', 'Casey
Donnellan Games LLC ', 'Cat Rabbit ', 'Cauldron Ltd. ', 'ChaosForge ', 'Choice
Provisions ', 'Cingular mMode', 'Clever-Plays ', 'CliffTop Games ', 'ClockStone
Studio ', 'Codo Games ', 'Coffee Stain Studios', 'Conifer Games ', 'Core Design
Ltd. ', 'Cradle Games ', 'CrazyBunch ', 'Creat Studios ', 'CreativeForge Games
', 'CremaGames', 'Critique Gaming ', 'Cryptozoic Entertainment', 'DONTNOD
Entertainment', 'Daniel Mullins Games ', 'Dark Energy Digital ', 'Defiant
Development ', 'DigiFX Interactive ', 'Digital Arrow ', 'Dingaling ', 'Dirigo
Games ', 'Dreadbit ', 'E-One Studio ', 'EA Bright Light ', 'EKO Software ',
'Elastic Games ', 'Empyrean ', 'Evan Todd ', 'Fiddlesticks Games ', 'Final Form
Games', 'Fluent ', 'Foam Sword ', 'Foolish Mortals Games ', 'Forge Reply ',
'Four Quarters ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ',
'GFI Russia ', 'Galilea Multimedia ', 'Gamious ', 'Geeta Games ', 'Geniaware ',
'Goblinz Studio ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'Grundislaw
Games ', 'HD Interactive', 'HandyGames ', 'Happy Ray Games ', 'Hato Moa ',
'Hidden Layer Games ', 'Hollow Ponds ', 'Hollow Ponds and Richard Hogg ',
'IMGN.PRO ', 'IR Gurus ', 'Ice Code Games', 'Ice-Pick Lodge ', 'Iceberg
Interactive', 'Impressions Games ', 'In Utero ', 'Infinite Monkeys ', 'Innerloop
', 'Joakim Sandberg', 'Joel McDonald ', 'Juice Games ', 'Jujubee', 'Jump Over
The Age ', 'Just A Pixel ', 'Kaiko ', 'Katauri Interactive', 'Koboldgames ',

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'Kuma Reality Games ', 'Kyle Thompson ', 'Kyy Games ', 'L30 Interactive ', 'Lab Zero Games ', 'Left Behind Games ', 'Lichthund ', 'Light Brick ', 'Lion Shield', 'Lo-Fi Games ', 'Love Conquers All Games ', 'Lucky Mountain Games ', 'Lucky Pause ', 'M2', 'M2H', 'MONKEYCRAFT Co. Ltd. ', 'MadCat Interactive Software ', 'Magic Design Studios ', 'Master Creating ', 'Metropolis Software ', 'Micro Application ', 'Mirage Game Studios ', 'Mission Studios ', 'Modern Dream ', 'Mojo Bones ', 'Moon Spider Studio ', 'Moonlight Games ', 'Mosaic Mask ', 'NExT Studios ', 'NVYVE Studios ', 'Namco ', 'Necrophone ', 'Nemesys ', 'Neon Studios', 'NetDevil ', 'New World Computing ', 'Nfusion ', 'Nigoro ', 'Nival Interactive', 'No Brakes Games ', 'Northway Games ', 'Novarama ', 'Nullpointer Games ', 'Numantian Games ', 'Ovosonico ', 'Palindrome Interactive ', 'Parabole ', 'Particle Systems ', 'Paul Helman ', 'Phantagram', 'Pieces Interactive ', 'PolyKnight Games ', 'Primal Software ', 'Psyop Games', 'QLOC ', 'Quantic Dream', 'Rage Software ', 'Rapid Eye Entertainment ', 'Ratbag ', 'Ratloop Games Canada ', 'Razbor Studios ', 'Ready at Dawn ', 'Red Zero Games ', 'Reflexive Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ', 'Rocket Bear Games ', 'SEMISOFT ', 'SQUADTeam', 'Saibot Studios ', 'Sam Barlow ', 'Seaven Studio ', 'Sega AM2 ', 'Shanghai FantaBlade Network Technology Co.', 'Silverback Entertainment ', 'Sir-Tech Software Inc. ', 'Size Five Games ', 'Skrollcat Studios ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Sluggerfly ', 'So Romantic ', 'Soft Enterprises ', 'Somnium Games d.o.o. ', 'Spike Chunsoft Co. Ltd.', 'Squad ', 'Square Enix Montreal ', 'Stage 2 Studios ', 'Straandlooper ', 'Studio Pixel ', 'Sumo Newcastle ', 'SumomGames ', 'Superbrothers', 'Tangrin ', 'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'Terri Vellimann ', 'The Chinese Room ', 'The Odd Gentlemen ', 'Third Law Interactive ', 'Thomas van den Berg ', 'Tokyo RPG Factory ', 'Tom Francis ', 'Tomorrow Corporation ', 'TreeFortress Games ', 'True Axis ', 'Tunnel Vision Games ', 'TurtleBlaze ', 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vanguard', 'Variable State ', 'Velan Studios ', 'Visual Concepts ', 'Vox Game Studio', 'Wales Interactive ', 'Warpzone Studios ', 'We Create Stuff ', 'Wicked Studios ', 'X1 Software ', 'Xaviant Games', 'Yakov Butuzoff ', 'Zachtronics Industries ', 'dreamfeel ', 'eBrain Studio ', 'inkle ', 'miHoYo', 'straka.studio ', 'superflat games ', 'teedoubleuGAMES ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 24s 101ms/step - loss: 57.2971 - mae: 5.7904 - val_loss: 39.6976 - val_mae: 4.8870

Epoch 2/20

238/238 [=====] - 24s 101ms/step - loss: 42.5690 - mae: 4.9742 - val_loss: 33.6738 - val_mae: 4.4024

Epoch 3/20

238/238 [=====] - 24s 100ms/step - loss: 36.0277 - mae: 4.5875 - val_loss: 29.4486 - val_mae: 4.0840

Epoch 4/20

238/238 [=====] - 24s 101ms/step - loss: 33.4967 - mae: 4.3875 - val_loss: 28.4318 - val_mae: 4.1316

Epoch 5/20

238/238 [=====] - 24s 102ms/step - loss: 31.3011 - mae:
4.2246 - val_loss: 25.2451 - val_mae: 3.6765
Epoch 6/20
238/238 [=====] - 24s 103ms/step - loss: 28.2677 - mae:
4.0051 - val_loss: 23.6275 - val_mae: 3.6091
Epoch 7/20
238/238 [=====] - 24s 102ms/step - loss: 27.4132 - mae:
3.9269 - val_loss: 21.7045 - val_mae: 3.4168
Epoch 8/20
238/238 [=====] - 25s 104ms/step - loss: 25.6632 - mae:
3.8022 - val_loss: 20.3459 - val_mae: 3.2916
Epoch 9/20
238/238 [=====] - 24s 103ms/step - loss: 24.8937 - mae:
3.7320 - val_loss: 19.0180 - val_mae: 3.1545
Epoch 10/20
238/238 [=====] - 25s 104ms/step - loss: 23.5233 - mae:
3.6206 - val_loss: 18.8604 - val_mae: 3.1466
Epoch 11/20
238/238 [=====] - 25s 105ms/step - loss: 22.8219 - mae:
3.5786 - val_loss: 17.7591 - val_mae: 3.0597
Epoch 12/20
238/238 [=====] - 25s 103ms/step - loss: 21.6050 - mae:
3.4687 - val_loss: 15.9337 - val_mae: 2.8054
Epoch 13/20
238/238 [=====] - 24s 100ms/step - loss: 20.7251 - mae:
3.3879 - val_loss: 15.0799 - val_mae: 2.7611
Epoch 14/20
238/238 [=====] - 24s 102ms/step - loss: 20.1569 - mae:
3.3290 - val_loss: 14.4518 - val_mae: 2.6614
Epoch 15/20
238/238 [=====] - 24s 101ms/step - loss: 19.2078 - mae:
3.2481 - val_loss: 13.9981 - val_mae: 2.6238
Epoch 16/20
238/238 [=====] - 24s 103ms/step - loss: 18.2815 - mae:
3.1570 - val_loss: 13.3267 - val_mae: 2.4989
Epoch 17/20
238/238 [=====] - 25s 104ms/step - loss: 18.3460 - mae:
3.1668 - val_loss: 12.2948 - val_mae: 2.4384
Epoch 18/20
238/238 [=====] - 24s 102ms/step - loss: 17.7727 - mae:
3.1001 - val_loss: 11.7915 - val_mae: 2.3384
Epoch 19/20
238/238 [=====] - 24s 103ms/step - loss: 16.9000 - mae:
3.0259 - val_loss: 11.5723 - val_mae: 2.3982
Epoch 20/20
238/238 [=====] - 24s 103ms/step - loss: 16.8872 - mae:
3.0340 - val_loss: 10.9600 - val_mae: 2.2369
Chunk 6/52 // 9.62% Complete // Cycle 1/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
10tons ', ' 1C', ' Application Systems Heidelberg ', ' BeautiFun Games ', '
BlackMuffin Studio', ' Bullets ', ' Centauri Production ', ' Char & Torfi ', '
Digital Sun ', ' Dreamworks Games ', ' EA Singapore ', ' Eyeguys ', ' Fair Play
Labs ', ' French-Bread ', ' Funatics ', ' Funatics Software', ' General Arcade
', ' Honor Code', ' Immersion Software & Graphics ', ' Ino-Co', ' Ministry of
Broadcast Studios ', ' Monkey Moon ', ' Movie Games ', ' Muutsch', ' Now
Production', ' Playsport Games Ltd ', ' Pol', ' Ravenscourt', ' Rockstar San
Diego ', ' Russia ', ' Soleil', ' Soleil Ltd. ', ' Studio Fizbin ', '
StudioInkyfox ', ' Team Reptile ', ' Thomas Brush ', ' Toylogic ', ' Tribute
Games Inc. ', ' VIS Games ', ' Varkian Empire ', '10tons Entertainment', '11 bit
studios', '1C-Softclub ', '24 Entertainment ', '3A Games ', 'Alcachofa Soft ',
'Altari Games ', 'Amanita Design ', 'Angel Studios', 'Anim-X ', 'Animation Arts
', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios', 'Arxel
Tribe ', 'Asteroid Base ', 'Avalon Style ', 'BEAUTIFUN GAMES SL', 'BLOODIOUS
GAMES ', 'Beautiful Glitch ', 'Big Ape Productions ', 'Bit Byterz ', 'Black
Mermaid ', 'Black Pants Studio ', 'Blastmode ', 'Blazing Bit Games ', 'Blazing
Griffin', 'Blue Bottle Games ', 'Bombservice ', 'Borealys Games ', 'Broken
Rules ', 'BudCat ', 'Capricia Productions ', 'Carlos Coronado ', 'Chance Agency
', 'Charybdis ', 'Cinemax', 'Coffee Powered Machine ', 'Connor Ullmann ',
'Cornfox & Bros. ', 'Crunching Koalas ', 'CyberConnect2', 'Cyberlore Studios ',
'Deep Red ', 'Deibus Studios ', 'Delphine Software International ', 'Detalion ',
'Devolver Digital ', 'Die Gute Fabrik ', 'Digital Dialect ', 'Digital Eclipse ',
'Dinosaur Polo Club ', 'Diversions Entertainment ', 'DrinkBox Studios ',
'Duckbridge ', 'EA Black Box', 'EA Black Box ', 'EA LA', 'EA Seattle ', 'Ecole',
'Eutechnyx ', 'FASA Studio ', 'Finish Line Games ', 'Fizbin', 'From Software',
'Funatics Development GmbH', 'Future Games ', 'GameSourceStudio ', 'Gazillion ',
'Geography of Robots ', 'Gojira ', 'Graceful Decay ', 'Grip Digital ', 'Guru
Games ', 'Half Asleep ', 'HappyJuice Games ', 'Harebrained Schemes LLC ',
'Hidden Fields ', 'Himalaya Studios ', 'Holistic Design', 'Homeless Unicorn',
'Housemarque ', 'Humongous Entertainment ', 'Hydravision ', 'ILCA', 'Idol FX ',
'In Utero ', 'Infinitap Games ', 'Infinite Fall ', 'InterServ International ',
'Interwave Studios ', 'Inti Creates ', 'IonFX ', 'Jacob Dzwinel ', 'John
Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games ', 'Just Add Water ', 'KCEJ
', 'KDV Games ', 'Keen Software House ', 'Kitfox Games ', 'Kuju Entertainment ',
'LCB Game Studio ', 'LKA ', 'Lantern Studio ', 'Le Cartel Studio ', 'Leaping
Lizard Software Inc. ', 'Level 5 ', 'Lexis Numerique ', 'Limasse Five ',
'Locomalito ', 'Lorenzo Redaelli', 'Ludosity Interactive', 'Max Mraz ', 'Mayhem
Studios ', 'Messhof ', 'Metronomik ', 'Minor Key Games ', 'Mithis/HD Interactive
', 'Mohawk Games ', 'Monster Games Inc. ', 'Mooneye Studios ', 'Movie Games ',
'Movie Games S.A.', 'MuHa Games ', 'MumboJumbo ', 'Muzzy Lane Software ', 'NGD
Studios ', 'NUDE MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No
Code ', 'Nolla Games ', 'NotGames ', 'Nowhere Studios ', 'Ocean Drive Studio ',
'Oddworld Inhabitants ', 'Oldblood ', 'Ossian Studios ', 'Ovid Works ', 'Panic
Barn Ltd ', 'Papyrus ', 'Paradox North ', 'Passtech Games ', 'Pathea Games ',
'Phosphor Games Studio', 'Picaresque Studio ', 'Pieces Interactive ', 'Pinkerton
Road Studio ', 'Piranha Games ', 'Pirita Studio ', 'Player First Games ',

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'Playful Corp. ', 'Playsport Games', 'Pocketwatch Games ', 'Pollux Gamelabs ',
 'Polypusher Studios ', 'Press Play ', 'Presto Studios ', 'Q-Games ',
 'Quicksilver Software ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury',
 'Reakktor Media ', 'Red Herring Labs ', 'Red Rocket Games ', 'Related Designs ',
 'Render Cube ', 'Renegade Kid ', 'Reptile', 'Rock Pocket Games ', 'Rocket
 Science Games ', 'Rockstar San Diego ', 'Rogue Factor ', 'Route 59 Games ', 'SMG
 Studio ', 'Santa Ragione ', 'Sanzaru Games ', 'Saturn+ ', 'Secret Level ',
 'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ', 'Shiro Games ', 'Shiver
 Games ', 'Sileni Studios ', 'Silver Dollar Games ', 'Silverback Studios ',
 'SimTex ', 'Skeleton Crew Studio ', 'Sketchbook Games ', 'Space Dust Studios',
 'Spearhead Games ', 'State of Play Games ', 'Still Running ', 'Studio Koba ',
 'Sunnyside Games ', 'Supersonic Software ', 'THQ', 'TKO Software ', 'TURBOGUN ',
 'Tamssoft ', 'Team Shifty ', 'Termite Games ', 'The Outsiders ', 'Thomas Moon
 Kang ', 'Tokyo RPG Factory ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic
 Inc.', 'Tribute Games', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Triternion ',
 'Turbo Tape Games ', 'Twice Circled ', 'Uber Entertainment ', 'Unigine Corp',
 'Untame ', 'Upper One Games ', 'Veewo Games ', 'Vile Monarch ', 'Virtuos ',
 'Visual Concepts ', 'Visual Imagination Software', 'Vlambeer ', 'Wales
 Interactive ', 'White Birds Productions ', 'Wild Factor ', 'William Chyr Studio
 LLC ', 'Wizards of the Coast ', 'Y.K. ', 'ZANDEL MEDIA ', 'Zoink! ', 'Zono Inc.
 ', 'machineboy ', 'roll7 ', 'tiny Build GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

237/237 [=====] - 23s 97ms/step - loss: 50.2167 - mae:
 5.4886 - val_loss: 33.8887 - val_mae: 4.4865

Epoch 2/20

237/237 [=====] - 23s 99ms/step - loss: 36.6171 - mae:
 4.6221 - val_loss: 25.5351 - val_mae: 3.7856

Epoch 3/20

237/237 [=====] - 24s 100ms/step - loss: 30.0589 - mae:
 4.1881 - val_loss: 20.9907 - val_mae: 3.4137

Epoch 4/20

237/237 [=====] - 24s 102ms/step - loss: 27.1669 - mae:
 3.9214 - val_loss: 19.1931 - val_mae: 3.2266

Epoch 5/20

237/237 [=====] - 24s 102ms/step - loss: 24.5787 - mae:
 3.7266 - val_loss: 16.3646 - val_mae: 2.9624

Epoch 6/20

237/237 [=====] - 24s 102ms/step - loss: 22.1450 - mae:
 3.5416 - val_loss: 15.0601 - val_mae: 2.8290

Epoch 7/20

237/237 [=====] - 24s 101ms/step - loss: 22.4368 - mae:
 3.5305 - val_loss: 13.9155 - val_mae: 2.7092

Epoch 8/20

237/237 [=====] - 24s 101ms/step - loss: 20.7887 - mae:
 3.4078 - val_loss: 13.2855 - val_mae: 2.6645

Epoch 9/20

```

237/237 [=====] - 23s 98ms/step - loss: 19.5886 - mae:
3.3113 - val_loss: 12.3275 - val_mae: 2.5268
Epoch 10/20
237/237 [=====] - 23s 98ms/step - loss: 19.1113 - mae:
3.2069 - val_loss: 11.7000 - val_mae: 2.4547
Epoch 11/20
237/237 [=====] - 24s 102ms/step - loss: 17.8481 - mae:
3.1243 - val_loss: 11.3734 - val_mae: 2.3802
Epoch 12/20
237/237 [=====] - 24s 103ms/step - loss: 17.9331 - mae:
3.1229 - val_loss: 10.6715 - val_mae: 2.3344
Epoch 13/20
237/237 [=====] - 24s 102ms/step - loss: 16.8192 - mae:
3.0171 - val_loss: 10.2529 - val_mae: 2.2522
Epoch 14/20
237/237 [=====] - 24s 101ms/step - loss: 16.5792 - mae:
2.9965 - val_loss: 9.5692 - val_mae: 2.1738
Epoch 15/20
237/237 [=====] - 24s 100ms/step - loss: 15.9500 - mae:
2.9395 - val_loss: 9.1307 - val_mae: 2.1439
Epoch 16/20
237/237 [=====] - 25s 104ms/step - loss: 15.2028 - mae:
2.8649 - val_loss: 8.5461 - val_mae: 2.0419
Epoch 17/20
237/237 [=====] - 25s 104ms/step - loss: 15.5168 - mae:
2.8990 - val_loss: 8.8989 - val_mae: 2.0905
Epoch 18/20
237/237 [=====] - 24s 100ms/step - loss: 14.7110 - mae:
2.8322 - val_loss: 7.8483 - val_mae: 1.9495
Epoch 19/20
237/237 [=====] - 24s 100ms/step - loss: 14.4580 - mae:
2.7833 - val_loss: 7.7105 - val_mae: 1.9399
Epoch 20/20
237/237 [=====] - 23s 97ms/step - loss: 14.8672 - mae:
2.8250 - val_loss: 7.2008 - val_mae: 1.8580
Chunk 7/52 // 11.54% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
AGEOD ', ' Awesome Games Studio ', ' Bigben Games ', ' Bigben Interactive', '
Bounding Box Games ', ' Double Damage Games ', ' Gaming Minds Studios ', ' Hi
Corp ', ' Hopoo Games ', ' KTX Software ', ' Leikir Studio ', ' MachineGames ',
' Minority Media Inc. ', ' Monstars Inc.', ' Omen ', ' Pixel Pi Games ', '
Planetary Annihilation Inc ', ' Q-Games ', ' Resonair ', ' Sproing ', '

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Stainless Steel Studios ', ' Super Awesome Hyper Dimensional Mega Team ', ' Team
 Ladybug ', ' WSS Playground', ' Xeen ', '2 Dawn Games ', '34BigThings ', '7
 Studios ', 'Abbey Games ', 'Abrakam SA ', 'Alter Games ', 'Antimatter Games ',
 'Appeal', 'Arberth Studios ', 'Atomic Motion ', 'Atomic Planet Entertainment ',
 'AwesomeGamesStudio', 'Beamdog ', 'Beatnik Games ', 'Big Star Games ', 'Black
 Rock Studio ', 'Black Shamrock ', 'Blendo Games ', 'Buckshot Software ', 'CCR',
 'Cadenza ', 'Camouflaj', 'Cellar Door Games ', 'Chasing Carrots ',
 'Chucklefish', 'Clever Plays ', 'Cloudhead Games ', 'Cococucumber ', 'Continuum
 ', 'Core Design Ltd. ', 'Creat Studios ', 'Creative Bytes ', 'CreativeForge
 Games ', 'Cyberlore Studios ', 'Daniel Mullins Games ', 'Dapper Penguin Studios
 ', 'Dark Seas Games ', 'Denby / Raze ', 'Digixart Entertainment', 'Digixart
 Entertainment ', 'Disney Online ', 'Doctor Entertainment ', 'Double Damage
 Games', 'Double Damage Games ', 'Double Eleven', 'Double Eleven ', 'DreamCatcher
 Interactive ', 'Dry Cactus ', 'EasyGameStation ', 'Ed Key and David Kanaga ',
 'Fabled Game ', 'Final Strike Games ', 'Finji ', 'Flashback Games ', 'Flippfly
 ', 'Flying Lab Software ', 'Freeform Interactive LLC ', 'Frostwood Interactive
 ', 'FuturLab ', 'Gabriel Interactive ', 'Galilea Multimedia ', 'Gaming Minds
 Studios ', 'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games
 ', 'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque',
 'Housemarque ', 'ION LANDS ', 'Ice Flames ', 'Ice-Pick Lodge ', 'IllFonic ',
 'Impressions Games ', 'Infamous Quests ', 'Innerloop ', 'Interceptor
 Entertainment ', 'Ironward ', 'IzHard ', 'Jacob Janerka ', 'Jujubee S.A. ', 'K-D
 Lab ', 'Kaizen Game Works ', 'Koei ', 'Kuju Entertainment ', 'Laura Shighihara ',
 'Lazy Bear Games ', 'Lesta Studio ', 'Lightbulb Crew ', 'Lionbite Games ',
 'Lucas Pope ', 'Ludeon Studios ', 'Lukewarm Media ', 'Mad Head Games ', 'Mages.
 ', 'Magiko Gaming ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Master
 Creating ', 'Mi-Clos Studio ', 'Midway', 'Might and Delight ', 'Mighty Polygon
 ', 'Mike and Jason', 'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist
 Land ', 'NG:DEV.TEAM', 'Naked Sky Entertainment ', 'Namco Bandai Games ', 'Nerd
 Monkeys ', 'Nerial ', 'Nexus Game Studio ', 'Nicolas Meyssonnier ', 'No Goblin
 ', 'Nodding Heads Games ', 'Now Production', 'NuClearVision ', 'Nvizzio
 Creations ', 'Object ', 'Old School Games ', 'Osmotic Studios ', 'Out Of The
 Park Developments ', 'Outrage Games ', 'Owlcat Games ', 'Owlchemy Labs ',
 'Paradox Interactive', 'Pasta Games ', 'Patrick Traynor ', 'Phantom 8 ',
 'Phantom Compass ', 'Phantomery Interactive ', 'Phigames ', 'Pieces Interactive
 ', 'Pinokl Games ', 'Pixelated Milk ', 'Plastic Piranha ', 'PolyAmorous ',
 'Polygon Treehouse ', 'Polyslash ', 'Proxy Studios ', 'Puppy Games ', 'R8 Games
 ', 'Radon Labs ', 'RailSimulator.com ', 'Recoil Games ', 'Red Ego Games ',
 'Reikon Games ', 'Revival Productions', 'RichMakeGame ', 'Rival Interactive ',
 'Robot House ', 'Robotality ', 'Running Dog ', 'SEK Ost ', 'SSI ', 'Screaming
 Games ', 'Sector D2 ', 'Sectordub ', 'Shining Pixel Studios ', 'Slant Six ',
 'Snapshot Games Inc. ', 'Sobaka ', 'SoftWarWare ', 'Softlab-NSK ', 'SomaSim ',
 'SouthPeak Games ', 'Spellbind Studios ', 'Sproing Interactive Media', 'Spry Fox
 ', 'Stormfront Studios ', 'Stormind Games ', 'Sundae Month ', 'Super Mega Team',
 'Survios ', 'Tamsoft ', 'Team Oneshot ', 'Team Pixel Pi', 'The Artistocrats ',
 'The Bae Team ', 'The Behemoth ', 'The Deep End Games ', 'The Lordz Games Studio
 ', 'The Tiniest Shark ', 'Thomas Brush ', 'Three Rings ', 'TickTock Games ',
 'Tlon Studios ', 'Tomasz Wacławek ', 'Torched Hill ', 'Torus Games ', 'Tour De

Pizza ', 'Toxic Games ', 'Tribute Games ', 'Triskell Interactive ', 'Twice Different ', 'Two Tribes ', 'Ublart Montpellier ', 'UGA', 'Uber Entertainment', 'Ultra Runaway Games ', 'Vblank Entertainment Inc. ', 'Vertical Robot ', 'Videocult ', 'Visiware Studios ', 'Vladimir Kudelka ', 'Volatile Games ', 'Voracious Games ', 'Wastelands Interactive ', 'White Birds Productions ', 'Why so serious?', 'Wishfully ', 'Wizarbox ', 'Wormwood Studios ', 'YCJY Games ', 'Yanim Studio ', 'Zeboyd Games ', 'ZootFly ', 'Zordix Racing ', 'comcept ', 'nDreams ', 'neoqb ', 'niceplay games ', 'roll7 ', 'xii games '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 24s 98ms/step - loss: 56.7914 - mae: 5.7058 - val_loss: 33.5355 - val_mae: 4.4217

Epoch 2/20

238/238 [=====] - 24s 102ms/step - loss: 41.8745 - mae: 4.9241 - val_loss: 27.4724 - val_mae: 3.9883

Epoch 3/20

238/238 [=====] - 25s 104ms/step - loss: 35.7858 - mae: 4.4948 - val_loss: 23.6319 - val_mae: 3.7146

Epoch 4/20

238/238 [=====] - 25s 104ms/step - loss: 33.9529 - mae: 4.3777 - val_loss: 21.7952 - val_mae: 3.5223

Epoch 5/20

238/238 [=====] - 25s 104ms/step - loss: 30.0642 - mae: 4.1254 - val_loss: 18.9256 - val_mae: 3.3278

Epoch 6/20

238/238 [=====] - 24s 100ms/step - loss: 27.7470 - mae: 3.9083 - val_loss: 18.1309 - val_mae: 3.2312

Epoch 7/20

238/238 [=====] - 23s 99ms/step - loss: 27.0670 - mae: 3.8636 - val_loss: 17.5720 - val_mae: 3.1848

Epoch 8/20

238/238 [=====] - 23s 99ms/step - loss: 24.6667 - mae: 3.7031 - val_loss: 16.1772 - val_mae: 3.0244

Epoch 9/20

238/238 [=====] - 24s 100ms/step - loss: 23.5392 - mae: 3.6052 - val_loss: 14.2765 - val_mae: 2.8595

Epoch 10/20

238/238 [=====] - 24s 102ms/step - loss: 23.2220 - mae: 3.5782 - val_loss: 13.6787 - val_mae: 2.8231

Epoch 11/20

238/238 [=====] - 24s 103ms/step - loss: 22.3933 - mae: 3.5065 - val_loss: 13.6060 - val_mae: 2.7415

Epoch 12/20

238/238 [=====] - 25s 103ms/step - loss: 21.7944 - mae: 3.4422 - val_loss: 14.3752 - val_mae: 2.8736

Epoch 13/20

238/238 [=====] - 24s 101ms/step - loss: 20.9369 - mae:

```

3.3916 - val_loss: 12.8606 - val_mae: 2.6721
Epoch 14/20
238/238 [=====] - 24s 101ms/step - loss: 20.4389 - mae:
3.3309 - val_loss: 12.4727 - val_mae: 2.6376
Epoch 15/20
238/238 [=====] - 24s 101ms/step - loss: 19.3795 - mae:
3.2164 - val_loss: 12.5048 - val_mae: 2.5515
Epoch 16/20
238/238 [=====] - 24s 101ms/step - loss: 18.2370 - mae:
3.1808 - val_loss: 12.2404 - val_mae: 2.5868
Epoch 17/20
238/238 [=====] - 24s 102ms/step - loss: 18.0061 - mae:
3.1072 - val_loss: 10.8004 - val_mae: 2.3850
Epoch 18/20
238/238 [=====] - 24s 102ms/step - loss: 18.4780 - mae:
3.1459 - val_loss: 11.5609 - val_mae: 2.5985
Epoch 19/20
238/238 [=====] - 24s 99ms/step - loss: 17.0328 - mae:
3.0413 - val_loss: 10.0787 - val_mae: 2.3601
Epoch 20/20
238/238 [=====] - 24s 102ms/step - loss: 17.8307 - mae:
3.0701 - val_loss: 10.8195 - val_mae: 2.4360
Chunk 8/52 // 13.46% Complete // Cycle 1/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Animation Arts ', ' Atlus ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron
Ltd. ', ' Cliffhanger Productions ', ' Coatsink Software ', ' Dead Mage ', '
Devoured Studios ', ' EA Redwood Shores ', ' Elemental Games', ' Engine Software
', ' Factor 5 ', ' Fire Face ', ' Gamasoft ', ' Games Farm s.r.o. ', ' Infinite
Interactive ', ' Introversion Software ', ' Jo-Mei Games ', ' Just Add Water', '
Kaigan Games ', ' Krome Studios ', ' Marvelous AQL ', ' Mixed Realms ', '
Mossmouth ', ' Multiverse ', ' Project Soul ', ' Red Storm Entertainment ', '
Shaba Games ', ' Studio 369 ', ' Studio Fizbin ', ' Terri Vellmann & Doseone ',
' Vlambeer ', ' d3t Ltd ', '17-Bit ', '5 Lives Studios ', '5000ft Inc. ', '5TH
Cell ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Amanita Design ',
'Animation Arts ', 'Artdink', 'Artifice Studio ', 'Artificer ', 'Arxel Tribe ',
'Asymmetric Publications ', 'Bandai Namco Games', 'Beau Blyth ', 'Big Robot Ltd
', 'Black Element ', 'Black Lab Games ', 'Black Lion Studios ', 'Black Rock
Studio ', 'Bloodirony ', 'Broken Rules ', 'Bullfrog Productions ', 'CBE software
', 'Cadenza ', 'Cat Daddy Games ', 'Choice Provisions ', 'Chucklefish ',
'Cliffhanger Productions', 'Cracked Heads Games ', 'Crackshell ', 'Crea-ture
Studios ', 'Croteam', 'DAMAGE STATE LTD ', 'DarkStar Games ', 'Dead Mage
Studio', 'Deep Red ', 'Den-Yu-Sha ', 'Derek Yu', 'Detalion ', 'DoubleDutch Games
', 'Douze Dixiemes ', 'Dramatic Labs ', 'Draw Distance ', 'Ebb Software ',
'Echodog Games ', 'Edelweiss ', 'Egidijus Bachur ', 'Enigami ', 'Enlight
Software', 'Escape ', 'Extend Interactive ', 'FASA Studio ', 'FLOW COMBINE ',
'Facepunch Studios ', 'Finish Line Games ', 'FishTankStudio ', 'Fizbin', 'Fizz

```

Factor ', 'Flying Oak Games ', 'Free Radical Design ', 'Free Reign Entertainment ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Games Farm', 'Games Farm ', 'Garage 227 ', 'Genetic Anomalies ', 'Glass Bottom Games ', 'Greylock Studio ', 'Grimlore Games ', 'HAKAMA ', 'Harebrained Schemes LLC ', 'Human Head Studios', 'IMGN.PRO ', 'Infogrames ', 'Introversion', 'Ironward ', 'Italic Pig ', 'Jesse Makkonen ', 'Jumpship ', 'Jutsu Games ', 'Kaigan Games OU', 'LGK Games ', 'MPS Labs ', 'Mad Head Games ', 'MadLightStudio ', 'Malfador Machinations ', 'Mandragora ', 'Massive Damage', 'Maxis', 'Mega Crit Games ', 'Meridian4 ', 'Meteorise ', 'Metropolis Software ', 'Might and Delight ', 'Mimimi Games ', 'MinMax Games Ltd. ', 'Mind over Matter ', 'Minds-Eye Productions ', 'Mixed Realms Pte Ltd', 'Mommy's Best Games ', 'Monomi Park ', 'Morgondag ', 'Mossmouth', 'Multiverse Games', 'Murudai ', 'Mystic Box ', 'N-Game Studios', 'Naked Sky Entertainment ', 'Nexon ', 'Night Dive Studios ', 'Nucleosys ', 'Nyamakop ', 'Okugi Studio ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ', 'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Red Blue Games ', 'Redlock Studio ', 'Reflexive Entertainment ', 'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ', 'Runewaker Entertainment ', 'Runner Duck ', 'SEGA Racing Studio ', 'SNK Corporation ', 'Sabotage Studio ', 'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Seamless Entertainment', 'Shed-Works ', 'Sidhe Interactive ', 'Silver Style ', 'Ska Studios', 'Skunkape Games ', 'Skyshine Games ', 'Slitherine ', 'Sloclap ', 'Sneaky Yak Studio ', 'Solar Sail Games ', 'Something Classic Games LLC ', 'SouthPAW Games ', 'Southend Interactive ', 'Space Bullet Dynamics Corporation ', 'Sperasoft ', 'Spiral Circus ', 'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Swing Swing Submarine ', 'Tactical Adventures ', 'Taito Corporation ', 'Taldren ', 'Tamsoft', 'Tamsoft ', 'Team Gotham ', 'Terri Vellimann', 'Totally Games ', 'Treyarch', 'Ultimation Inc. ', 'Unicube ', 'Uprising Studios ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank Entertainment Inc. ', 'Vine ', 'Vivid Games ', 'Wadjet Eye Games ', 'Wales Interactive ', 'WayForward ', 'White Birds Productions ', 'Wings Simulations ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'XYLA Entertainment ', 'Youxiland', 'Ysbryd Games ', 'Zachtronics Industries ', 'Zojoi Studios ', 'iFun4all ', 'inkle ', 'rose-engine ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

242/242 [=====] - 24s 98ms/step - loss: 47.3217 - mae: 5.3153 - val_loss: 29.1807 - val_mae: 4.1536

Epoch 2/20

242/242 [=====] - 25s 102ms/step - loss: 33.1456 - mae: 4.4000 - val_loss: 23.1261 - val_mae: 3.6421

Epoch 3/20

242/242 [=====] - 25s 102ms/step - loss: 27.6513 - mae: 4.0067 - val_loss: 19.4912 - val_mae: 3.2831

Epoch 4/20

242/242 [=====] - 25s 104ms/step - loss: 25.2577 - mae: 3.7836 - val_loss: 17.6664 - val_mae: 3.1201

Epoch 5/20
242/242 [=====] - 25s 105ms/step - loss: 23.2009 - mae: 3.6363 - val_loss: 16.0509 - val_mae: 2.9666

Epoch 6/20
242/242 [=====] - 25s 105ms/step - loss: 22.1115 - mae: 3.4994 - val_loss: 15.8326 - val_mae: 2.9410

Epoch 7/20
242/242 [=====] - 24s 101ms/step - loss: 20.5815 - mae: 3.4020 - val_loss: 14.5221 - val_mae: 2.8009

Epoch 8/20
242/242 [=====] - 24s 100ms/step - loss: 19.6405 - mae: 3.3005 - val_loss: 12.8807 - val_mae: 2.5919

Epoch 9/20
242/242 [=====] - 24s 100ms/step - loss: 18.9257 - mae: 3.2373 - val_loss: 12.4065 - val_mae: 2.5296

Epoch 10/20
242/242 [=====] - 25s 103ms/step - loss: 18.0235 - mae: 3.1591 - val_loss: 12.4884 - val_mae: 2.6058

Epoch 11/20
242/242 [=====] - 25s 102ms/step - loss: 17.7956 - mae: 3.1407 - val_loss: 11.9670 - val_mae: 2.4832

Epoch 12/20
242/242 [=====] - 24s 100ms/step - loss: 16.8786 - mae: 3.0652 - val_loss: 12.4357 - val_mae: 2.5406

Epoch 13/20
242/242 [=====] - 24s 100ms/step - loss: 17.0398 - mae: 3.0631 - val_loss: 10.6505 - val_mae: 2.3121

Epoch 14/20
242/242 [=====] - 25s 103ms/step - loss: 16.0472 - mae: 2.9356 - val_loss: 11.3134 - val_mae: 2.4472

Epoch 15/20
242/242 [=====] - 25s 103ms/step - loss: 15.0071 - mae: 2.8651 - val_loss: 9.8678 - val_mae: 2.1827

Epoch 16/20
242/242 [=====] - 25s 103ms/step - loss: 15.3188 - mae: 2.8580 - val_loss: 10.1700 - val_mae: 2.2136

Epoch 17/20
242/242 [=====] - 24s 101ms/step - loss: 14.1793 - mae: 2.7682 - val_loss: 9.1672 - val_mae: 2.1257

Epoch 18/20
242/242 [=====] - 25s 103ms/step - loss: 14.4721 - mae: 2.8016 - val_loss: 8.9944 - val_mae: 2.1091

Epoch 19/20
242/242 [=====] - 25s 102ms/step - loss: 14.3658 - mae: 2.8028 - val_loss: 9.1619 - val_mae: 2.1608

Epoch 20/20
242/242 [=====] - 25s 102ms/step - loss: 13.9318 - mae: 2.7541 - val_loss: 8.4653 - val_mae: 1.9972

Chunk 9/52 // 15.38% Complete // Cycle 1/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Deck Nine Games ', ' Digital
Eclipse ', ' Dire Wolf Digital ', ' Do My Best Games ', ' Endnight Studios ', '
Florian Himsl ', ' Fullbright ', ' Furious Bee ', ' Ishtar Games Inc. ', ' King
Art Games ', ' Koalabs ', ' Point Blank ', ' Quasar ', ' Question ', ' Ragequit
Corporation ', ' Skookum Arts ', ' Slitherine ', ' Splendy Games ', ' Studio
Fizbin ', ' Super Awesome Hyper Dimensional Mega Team ', ' Tyler Glaiel ', '
Uppercut Games Pty Ltd ', ' XPEC Entertainment Inc. ', ' YCJY Games ', '10tons
', '3D2 Entertainment ', '4Head Studios ', 'AGO Games ', 'ARS GOETIA ',
'Abstraction Games ', 'Abyss Gameworks ', 'Act 3 Games', 'Akabaka ', 'Akella',
'Arcen Games', 'Artefacts Studio ', 'Artificial Mind and Movement ', 'Arxel
Tribe ', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ', 'Awaken Realms
Digital', 'Awfully Nice Studios ', 'Bad Viking ', 'Banpresto', 'Baroque Decay ',
'BattleGoat Studios ', 'Beethoven & Dinosaur ', 'Bellular Studios ', 'Big Ant
Studios ', 'Big Finish Games ', 'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue
Tongue Entertainment ', 'BonusXP ', 'Bossa Studios ', 'Braingame ', 'Brainwash
Gang ', 'CCCP', 'Caligari Games ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats
Games ', 'Chibig ', 'Choice Provisions ', 'Cloak and Dagger Games ', 'Cockroach
Inc. ', 'Color Gray Games ', 'Convict Games ', 'Cosmo D Studios ', 'Cranberry
Production ', 'Crema Games ', 'Cryo Interactive ', 'Cultic Games ', 'Curve
Digital ', 'Curve Studios ', 'Daedalic Studio West ', 'Dancing Dragon games ',
'Daniel Benmergui ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam ',
'Destroyer Studios ', 'Dialogue Design ', 'Digital Sun ', 'Dimps Corporation ',
'Dragon Slumber ', 'DreamCatcher Interactive ', 'Droqen ', 'Echo Chamber Games
', 'Eden Studios ', 'Edmund McMillen', 'Ellipse Studios ', 'Embers ', 'Empty
Clip Studios ', 'Enhance Games ', 'Exakt ', 'FIX Korea', 'Failbetter Games ',
'Fairyrship Games ', 'Fireglow ', 'Fizbin', 'Free Lives ', 'Fury Software ',
'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'GameCo ', 'Gaming Corps
AB ', 'GhostShark Games ', 'GoldKnights Studio ', 'GolemLabs ', 'Grimorio of
Games ', 'Grip Games ', 'Happy Volcano ', 'Harvester Games ', 'Headup Games ',
'House of Tales ', 'IF Games ', 'IMC Games ', 'Illusion Ray Studio ', 'Image &
Form ', 'Inevitable Entertainment ', 'Iron Tower Studio ', 'James Interactive ',
'Jason Rohrer ', 'Joe Richardson ', 'Johamm Tael & Mihkel Tael ', 'KING Art',
'Kamehan Studios ', 'Kite Games ', 'Konami', 'Ladyluck Digital Media ', 'Leonard
Menchiari ', 'Lexis Numerique ', 'Lion's Shade ', 'Little Green Men ',
'Locomalito ', 'M2 ', 'Magic Lantern ', 'Magitech ', 'Mana Games ', 'Marvelous
Inc. ', 'Mi'pu'mi Games ', 'Microids', 'Midway ', 'Mighty Yell ', 'Minds-Eye
Productions ', 'Modern Storyteller ', 'Monochrome Paris ', 'Mouldy Toof Studios
', 'Mucky Foot Productions ', 'Neon Doctrine ', 'Neon Giant ', 'Nicalis ',
'Night Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Noumena Productions
', 'Numinous Games ', 'Odd Bug Studio ', 'Omni Creative Group ', 'Orthogonal
```

Games ', 'Over The Moon ', 'Owl Cave ', 'Paranoid Productions ', 'Paul Cuisset ', 'Pewter Games Studios ', 'Pillow Castle Games ', 'Pixel Titans ', 'Pixelogic ', 'Plot Twist ', 'Point Blank Games', 'PostMod Softworks ', 'Power Struggle Games ', 'Psyche Studios ', 'Punk Notion ', 'Puuba ', 'Question ', 'Questionary', 'RLR Training Inc ', 'Rain Games ', 'Random Potion Oy ', 'Rebelmind ', 'Rival Games Ltd ', 'Rusty Lake ', 'SKS Games', 'Sabotage Studio ', 'Sam Barlow', 'Serellan LLC ', 'Serenity Forge ', 'Sever ', 'Shark Punch ', 'Sierra Entertainment ', 'Sigtrap Games ', 'Skookum Arts LLC', 'SkyBox Labs ', 'SkyGoblin ', 'Sleepless Clinic ', 'Sleepy Sentry ', 'Slendy Interactive', 'Slitherine Software', 'Smoking Car Productions ', 'Spearhead Games ', 'Spooky Doorway ', 'Strangelite ', 'Strike Vector Team', 'Stubby Games ', 'Studio Seufz ', 'Summerfall Studios ', 'Super Mega Team', 'Surreal Software ', 'Swing Swing Submarine ', 'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia ', 'Team Gotham ', 'Technocrat ', 'Teotl Studios ', 'The Artistocrats ', 'The Bitmap Brothers ', 'The Collective ', 'The Fullbright Company', 'The Molasses Flood ', 'The Odd Gentlemen ', 'The Voxel Agents ', 'Third Wire ', 'Thunkd ', 'Tomas Sala ', 'Torpor Games ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and Mario Castaneda ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games', 'Uppercut Games Pty Ltd ', 'VRESKI ', 'ValuSoft ', 'Vertex4 ', 'Wadjet Eye Games ', 'Wales Interactive ', 'White Owls ', 'White Paper Games ', 'Wideload Games Inc. ', 'Wonderstruck Games ', 'WorldForge ', 'Wormwood Studios ', 'Xilam ', 'Xpec', 'YCJY', 'Zenimax Online Studios ', 'Zenovia ', 'Zero Sum Games ', 'Zoink! ', 'eSim Games ', 'h.a.n.d. Inc. ', 'increpare ', 'mif2000 ', 'nDreams ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

236/236 [=====] - 24s 98ms/step - loss: 49.1906 - mae: 5.3095 - val_loss: 36.8335 - val_mae: 4.5070

Epoch 2/20

236/236 [=====] - 24s 101ms/step - loss: 38.9104 - mae: 4.6815 - val_loss: 30.9271 - val_mae: 3.9711

Epoch 3/20

236/236 [=====] - 24s 102ms/step - loss: 34.7474 - mae: 4.4157 - val_loss: 27.9009 - val_mae: 3.8251

Epoch 4/20

236/236 [=====] - 24s 102ms/step - loss: 31.5765 - mae: 4.1869 - val_loss: 25.8391 - val_mae: 3.6939

Epoch 5/20

236/236 [=====] - 24s 100ms/step - loss: 29.0197 - mae: 4.0097 - val_loss: 23.7180 - val_mae: 3.4528

Epoch 6/20

236/236 [=====] - 24s 101ms/step - loss: 28.7526 - mae: 3.9472 - val_loss: 23.3865 - val_mae: 3.3763

Epoch 7/20

236/236 [=====] - 23s 99ms/step - loss: 26.8674 - mae: 3.8346 - val_loss: 21.5708 - val_mae: 3.2535

Epoch 8/20

```

236/236 [=====] - 24s 101ms/step - loss: 25.6082 - mae:
3.7202 - val_loss: 21.0473 - val_mae: 3.1925
Epoch 9/20
236/236 [=====] - 24s 100ms/step - loss: 25.8317 - mae:
3.7271 - val_loss: 20.5496 - val_mae: 3.1796
Epoch 10/20
236/236 [=====] - 23s 99ms/step - loss: 23.9093 - mae:
3.5704 - val_loss: 19.1651 - val_mae: 3.0321
Epoch 11/20
236/236 [=====] - 24s 100ms/step - loss: 23.2737 - mae:
3.5381 - val_loss: 18.2782 - val_mae: 2.9271
Epoch 12/20
236/236 [=====] - 24s 100ms/step - loss: 22.5063 - mae:
3.4462 - val_loss: 20.0721 - val_mae: 3.0842
Epoch 13/20
236/236 [=====] - 24s 102ms/step - loss: 22.2107 - mae:
3.4264 - val_loss: 17.9979 - val_mae: 2.8992
Epoch 14/20
236/236 [=====] - 24s 103ms/step - loss: 21.3335 - mae:
3.3560 - val_loss: 17.5634 - val_mae: 2.8831
Epoch 15/20
236/236 [=====] - 24s 100ms/step - loss: 20.8854 - mae:
3.3191 - val_loss: 17.7880 - val_mae: 2.9000
Epoch 16/20
236/236 [=====] - 24s 102ms/step - loss: 20.6735 - mae:
3.2858 - val_loss: 18.2988 - val_mae: 2.9293
Epoch 17/20
236/236 [=====] - 24s 101ms/step - loss: 20.4620 - mae:
3.2444 - val_loss: 16.8865 - val_mae: 2.7902
Epoch 18/20
236/236 [=====] - 23s 99ms/step - loss: 20.8147 - mae:
3.2624 - val_loss: 15.9495 - val_mae: 2.6897
Epoch 19/20
236/236 [=====] - 23s 98ms/step - loss: 18.7818 - mae:
3.1114 - val_loss: 17.5779 - val_mae: 2.8455
Epoch 20/20
236/236 [=====] - 24s 100ms/step - loss: 19.6387 - mae:
3.1750 - val_loss: 15.8015 - val_mae: 2.6852
Chunk 10/52 // 17.31% Complete // Cycle 1/3

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```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' 2K Sports ', ' Atlantis Interactive Entertainment ', ' CINIC Games ', '
Cavalier Game Studios ', ' Cherrymochi ', ' Crenetic Studios ', ' Crows Crows

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Crows ', ' Drool ', ' Duality Games ', ' Hotta Studio ', ' KRAFTON Inc. ', ' Kukouri Mobile Entertainment ', ' Mercenary Technologies ', ' ONEOONE GAMES ', ' Pieces Interactive ', ' Sumo Nottingham ', ' Supergonk ', ' Team Toro ', ' Ubisoft Paris ', ' Xeen ', ' btf ', '101%', '258 Productions AB ', '2By3 Games ', '2x2 Games ', '49Games ', 'AGEOD ', 'AREA35 ', 'Acid Nerve ', 'Adeline Software ', 'Alawar Premium ', 'Alien Pixel Studios ', 'Antagonist ', 'Ares Dragonis ', 'Artdink ', 'Aspyr', 'Atlantis Interactive Entertainment\t', 'Auran ', 'Backwoods Entertainment ', 'Battlefront.com', 'Big Robot Ltd ', 'Black Pants ', 'Blendo Games ', 'BlueGiant Interactive ', 'Brainy Studio LLC ', 'BreakAway Games ', 'Bulkhead Interactive ', 'Burut Software ', 'C.I.N.I.C. Games', 'Camel 101 ', 'Can Explode ', 'Carbon Studio ', 'Cavedog Entertainment ', 'Chaos Concept ', 'Cinemaware ', 'Click Entertainment ', 'Colibri Games ', 'ComonGames ', 'Computer Artworks ', 'Core Design Ltd. ', 'Cowardly Creations ', 'DNS Development ', 'Dan Smith Studios ', 'Davey Wreden ', 'Daydream Software ', 'Deadline Games ', 'Deconstructeam ', 'Deep Red ', 'Double Zero One Zero ', 'Draw Me A Pixel ', 'Dual Effect ', 'Duality Studio', 'Dynamix ', 'EXOR Studios ', 'Echtra Games', 'Event Horizon Software ', 'Expansive Worlds ', 'Facepalm Games ', 'Falling Squirrel ', 'Feral Interactive ', 'Fireart Games ', 'Fireproof Games ', 'Flazm ', 'Freebird Games ', 'Frog City Software ', 'Frogwares', 'GRIN', 'Galactic Cafe', 'Game-Labs ', 'Gatling Goat Studios ', 'Gato Salvaje Studio ', 'Gigawatt Studios ', 'Grasshopper Manufacture ', 'Grip Games ', 'Gun Interactive', 'Headup Games', 'High Moon Studios', 'Humanature Studios ', 'HyperBole Studios ', 'ISOMETRICORP Games ', 'Ice-Pick Lodge ', 'Iceberg Interactive', 'Iridium Studios ', 'Iron Lore Entertainment', 'Ironward ', 'KT Racing ', 'Kite Games ', 'LEAP Game Studios ', 'LKA ', 'Luis Antonio ', 'Luxoflux', 'Maddy Thorson ', 'Minority Media Inc. ', 'Modern Dream ', 'Moonlight Kids ', 'Morbidware ', 'Most Wanted Entertainment ', 'MuHa Games ', 'Naughty Dog', 'Neversoft Entertainment ', 'Nevrax ', 'Nicely Crafted ', 'Night Dive Studios ', 'Norsfell ', 'Numantian Games ', 'OhNoo ', 'One Bit Beyond ', 'OtherSide Entertainment ', 'OverBorder Studio ', 'Paintbucket Games ', 'Pixwerk ', 'Playmestudio ', 'Pocketwatch Games ', 'Point of View ', 'Prograph ', 'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Puuba ', 'Puzzling Dream ', 'Rat King Entertainment ', 'Red Storm Entertainment', 'Replay Studios', 'Rogue Sun ', 'Ron Gilbert and Gary Winnick ', 'SMAC Games ', 'Shifting Tides ', 'Size Five Games ', 'Skybound LLC', 'Skydance Interactive ', 'Something We Made ', 'SpectreVision ', 'Spidersoft', 'Splashteam ', 'Spooky Squid Games ', 'Stormling Studios ', 'Streko-Graphics Inc. ', 'Stygian Software ', 'SuperPAC ', 'SuperSexySoftware ', 'Supergonk Ltd.', 'Surreal Software ', 'Survios ', 'Swordtales ', 'Terrible Posture Games ', 'The Station ', 'Timeline Computer Entertainment ', 'Tin Man Games ', 'Tragnarion Studios ', 'Trecision ', 'Trepang Studios ', 'Two Tribes ', 'TwoPM Studios ', 'Ubisoft Blue Byte ', 'Ubisoft Milan ', 'Ubisoft Singapore ', 'Urban Games ', 'Urnique Studio ', 'Vicarious Visions ', 'Vitamin G Studios ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Yukon Wainczak ', 'Zombie Cow Studios ', '[bracket]games ', 'btf GmbH', 'damiansommer ', 'dietzribi ', 'drool Games', 'fragOut Studio', 'neo Software ', 'tobyfox '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
242/242 [=====] - 24s 99ms/step - loss: 44.2604 - mae: 5.0101 - val_loss: 28.2274 - val_mae: 3.9710

Epoch 2/20
242/242 [=====] - 25s 103ms/step - loss: 34.5026 - mae: 4.3896 - val_loss: 23.0067 - val_mae: 3.5102

Epoch 3/20
242/242 [=====] - 24s 100ms/step - loss: 29.3555 - mae: 4.0764 - val_loss: 20.5658 - val_mae: 3.3079

Epoch 4/20
242/242 [=====] - 24s 97ms/step - loss: 26.5313 - mae: 3.8531 - val_loss: 17.8839 - val_mae: 3.0889

Epoch 5/20
242/242 [=====] - 24s 98ms/step - loss: 24.4844 - mae: 3.6783 - val_loss: 16.3504 - val_mae: 2.9685

Epoch 6/20
242/242 [=====] - 24s 100ms/step - loss: 22.6628 - mae: 3.5368 - val_loss: 15.2236 - val_mae: 2.7850

Epoch 7/20
242/242 [=====] - 24s 101ms/step - loss: 22.0901 - mae: 3.4872 - val_loss: 15.0545 - val_mae: 2.7988

Epoch 8/20
242/242 [=====] - 24s 99ms/step - loss: 20.9579 - mae: 3.3767 - val_loss: 14.9306 - val_mae: 2.7963

Epoch 9/20
242/242 [=====] - 24s 101ms/step - loss: 19.6595 - mae: 3.2873 - val_loss: 13.0113 - val_mae: 2.6304

Epoch 10/20
242/242 [=====] - 24s 101ms/step - loss: 19.6441 - mae: 3.2795 - val_loss: 13.0431 - val_mae: 2.5841

Epoch 11/20
242/242 [=====] - 25s 102ms/step - loss: 19.1817 - mae: 3.2603 - val_loss: 11.3338 - val_mae: 2.4511

Epoch 12/20
242/242 [=====] - 24s 101ms/step - loss: 17.8966 - mae: 3.1238 - val_loss: 11.3437 - val_mae: 2.4476

Epoch 13/20
242/242 [=====] - 25s 103ms/step - loss: 17.0890 - mae: 3.0491 - val_loss: 11.7209 - val_mae: 2.5181

Epoch 14/20
242/242 [=====] - 25s 103ms/step - loss: 16.8616 - mae: 3.0087 - val_loss: 10.5872 - val_mae: 2.3337

Epoch 15/20
242/242 [=====] - 25s 103ms/step - loss: 15.8344 - mae: 2.9465 - val_loss: 11.6703 - val_mae: 2.4992

Epoch 16/20
242/242 [=====] - 25s 103ms/step - loss: 15.8371 - mae: 2.9205 - val_loss: 9.7760 - val_mae: 2.2689

Epoch 17/20
 242/242 [=====] - 25s 103ms/step - loss: 15.6577 - mae: 2.9145 - val_loss: 10.6031 - val_mae: 2.3694
 Epoch 18/20
 242/242 [=====] - 25s 103ms/step - loss: 15.5184 - mae: 2.8965 - val_loss: 9.3660 - val_mae: 2.1974
 Epoch 19/20
 242/242 [=====] - 25s 102ms/step - loss: 15.0804 - mae: 2.8418 - val_loss: 10.2992 - val_mae: 2.2983
 Epoch 20/20
 242/242 [=====] - 25s 103ms/step - loss: 14.8277 - mae: 2.7978 - val_loss: 8.7227 - val_mae: 2.0303
 Chunk 11/52 // 19.23% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['3DClouds ', 'Avalanche Software ', 'Behaviour Interactive ', 'Blackmill Games ', 'Cape Guy ', 'Eurocom ', 'Flashback Games ', 'Forever Entertainment ', 'Goldhawk Interactive ', 'Gone North Games ', 'In Images ', 'KADOKAWA CORPORATION ', 'Lab42 ', 'ML Enterprises ', 'Mandel ArtPlains ', 'Persha Studio ', 'Reborn Games Inc. ', 'Revistronic ', 'Soleil Ltd. ', 'Sumo Digital Academy ', 'Talawa Games ', 'Toylogic ', 'Visual Concepts ', 'comcept ', 'iNK Stories ', '110 Industries', '1P2P ', '2x2 Games ', '3000AD', '3DClouds.it', '5 Lives Studios ', 'Accidental Queens ', 'Ackkstudios ', 'Acquire ', 'Action Button Entertainment ', 'Alientrap ', 'Arcen Games', 'Asymmetric Publications ', 'Auroch Digital ', 'B-Alive ', 'Baroque Decay ', 'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Black Sea Studios ', 'Blue Manchu ', 'Bojan Brbora ', 'Brave at Night ', 'BreakAway Games ', 'Bulwark Studios ', 'Celeris ', 'Chucklefish ', 'Clifftop Games ', 'Coldwood Interactive ', 'Complex Games Inc. ', 'Cordens Interactive ', 'Cornered Rat ', 'Crazy Viking Studios ', 'Crocodile Entertainment ', 'Deadline Games ', 'Deadpan Games ', 'Deep Red ', 'Dejobaan Games ', 'Devespresso Games ', 'Different Tales ', 'Digital Spray Studios', 'Digixart Entertainment ', 'Dim Bulb Games ', 'Direct Action Games ', 'DotEmu ', 'Draw Distance ', 'Dream Execution ', 'Dumb and Fat Games ', 'EVC ', 'EXOR Studios ', 'Eden Industries ', 'Emobi Games ', 'Endless Fluff ', 'Eurocom Entertainment Software', 'FarmerGnome ', 'Fast Travel Games ', 'Fatbot Games ', 'Fatshark AB ', 'Forever Entertainment S.A.', 'Fragment Production Ltd', 'Freebird Games ', 'Funomena ', 'G5 Software ', 'GabberGames ', 'GameDesignDan ', 'Gamedust ', 'Games Farm ', 'Games Workshop ', 'Gamethunks', 'Gameyus Interactive ', 'Gasket Games ', 'Genius Slackers ', 'Ghost Pattern ', 'Giant Sparrow ', 'Glass Heart Games ', 'Gloomywood ', 'GrIN Multimedia ', 'Grundislav Games ', 'Guild Software ', 'Halberd Studios ', 'Hammerfall Publishing ', 'Heuristic Park ', 'Hi-Bit Studios ', 'House House ', 'Impressions Games ', 'Innerspace VR ', 'Invictus ', 'It's Anecdotal ', 'Jacob Antonucci', 'Jagex Games Studio ', 'Jason Oda ', 'Jellyvision ', 'JoyMasher ', 'Jutsu Games ', 'KT Racing ', 'Kadokawa', 'Knuist & Perzik ', 'Kuju Entertainment ', 'Legend Entertainment ', 'Lightning Rod Games ', 'Livesay Technologies ', 'Lumenox ehf ', 'M2H', 'Magic Design Studios ', 'Masque

Publishing ', 'Max Inferno ', 'Mega Cat Studios ', 'MicroProse ', 'MidBoss ',
'Misfits Attic ', 'Mojiken Studio ', 'Monokel ', 'Moonbite Games ', 'Moonshark
', 'N-Fusion Interactive Entertainment Corp.', 'Night Light Interactive ',
'Nihilistic ', 'Nine Rocks Games ', 'NoClip ', 'OSome Studio ', 'Ostrich
Banditos ', 'Ota Imon Studios ', 'Outsider Games ', 'Owlchemy Labs ', 'Paradox
Interactive', 'Pixelated Milk ', 'PlayMagic Ltd ', 'Playwood Project ',
'Polyslash ', 'Prideful Sloth ', 'Project Aces ', 'Project Aces ', 'Proxy
Studios ', 'Pterodon ', 'Pyrodactyl Games ', 'Ratbag ', 'Reflexive Entertainment
', 'Related Designs ', 'Replay Studios', 'Revivestonic', 'Rimlight Studios ',
'Ritual Entertainment', 'Robot Gentleman ', 'Rodeo Games ', 'Rooster Teeth Games
', 'Ruud Koorevaar ', 'Ryu ga Gotoku Studios', 'Sad Owl Studios ', 'SadSquare
Studio ', 'Santa Ragione ', 'Shiro Games ', 'Silver Wish Games ', 'Silvio & Gey
Savarese ', 'Simogo ', 'Sir-Tech Software Inc. ', 'Sky Machine Studios ',
'Slocap ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Sobaka ', 'Spark
Unlimited', 'Spike Chunsoft ', 'Steel Mantis ', 'Strange Loop Games ',
'Strategic Studies Group ', 'Straylight Entertainment ', 'Studio Drydock Pty
Ltd ', 'Studio Pixel Punk ', 'Subterranean Games ', 'Sukeban Games ', 'Sumo
Digital', 'Sunflowers Interactive ', 'Super X Studios ', 'Sylum Entertainment ',
'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment ', 'Tate Multimedia
', 'Team OFK ', 'Teotl Studios', 'Terry Cavanagh ', 'The Bitmap Brothers ', 'The
Lordz Games Studio', 'The Wandering Ben ', 'Theta Division ', 'Third Wave Games
', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ', 'Toylogic Inc.', 'Trapdoor ',
'Treyarch', 'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ',
'Unicorn Games Studio ', 'Upstream Arcade ', 'Variable State ', 'Vile Monarch ',
'Villa Gorilla ', 'Visai Games ', 'WXP ', 'Warcave ', 'Wastelands Interactive ',
'Whale Rock Games ', 'Wide Games ', 'Winning Streak Games ', 'Witch Beam ',
'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker Games ', 'Zeal Game Studios
', 'Zuxxez', 'adamgryu ', 'frecle ApS ', 'imaginarylab ', 'inkle', 'poncle ',
'timesymmetry '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

234/234 [=====] - 23s 99ms/step - loss: 42.4547 - mae:
4.8498 - val_loss: 29.0241 - val_mae: 3.7816

Epoch 2/20

234/234 [=====] - 24s 103ms/step - loss: 30.9583 - mae:
4.0646 - val_loss: 23.2097 - val_mae: 3.3563

Epoch 3/20

234/234 [=====] - 23s 98ms/step - loss: 27.2493 - mae:
3.8178 - val_loss: 19.9414 - val_mae: 3.1360

Epoch 4/20

234/234 [=====] - 24s 103ms/step - loss: 25.1334 - mae:
3.6383 - val_loss: 17.8114 - val_mae: 2.9503

Epoch 5/20

234/234 [=====] - 24s 103ms/step - loss: 22.7109 - mae:
3.4372 - val_loss: 17.2970 - val_mae: 2.8537

Epoch 6/20

234/234 [=====] - 24s 101ms/step - loss: 20.9881 - mae:

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3.3129 - val_loss: 16.3851 - val_mae: 2.8079
Epoch 7/20
234/234 [=====] - 24s 103ms/step - loss: 20.1893 - mae:
3.2377 - val_loss: 15.5619 - val_mae: 2.7672
Epoch 8/20
234/234 [=====] - 24s 104ms/step - loss: 19.1902 - mae:
3.1560 - val_loss: 15.0092 - val_mae: 2.6822
Epoch 9/20
234/234 [=====] - 24s 103ms/step - loss: 18.8495 - mae:
3.1348 - val_loss: 13.5049 - val_mae: 2.5735
Epoch 10/20
234/234 [=====] - 24s 104ms/step - loss: 17.9744 - mae:
3.0448 - val_loss: 13.4250 - val_mae: 2.5697
Epoch 11/20
234/234 [=====] - 24s 105ms/step - loss: 17.0952 - mae:
2.9709 - val_loss: 12.2128 - val_mae: 2.3954
Epoch 12/20
234/234 [=====] - 23s 100ms/step - loss: 16.9868 - mae:
2.9381 - val_loss: 12.5877 - val_mae: 2.4652
Epoch 13/20
234/234 [=====] - 24s 101ms/step - loss: 16.8351 - mae:
2.9174 - val_loss: 11.8208 - val_mae: 2.3819
Epoch 14/20
234/234 [=====] - 24s 101ms/step - loss: 16.0354 - mae:
2.8645 - val_loss: 14.8534 - val_mae: 2.6730
Epoch 15/20
234/234 [=====] - 24s 102ms/step - loss: 15.9720 - mae:
2.8398 - val_loss: 11.5540 - val_mae: 2.3587
Epoch 16/20
234/234 [=====] - 24s 101ms/step - loss: 14.6330 - mae:
2.7408 - val_loss: 11.9210 - val_mae: 2.3762
Epoch 17/20
234/234 [=====] - 24s 104ms/step - loss: 15.1760 - mae:
2.7505 - val_loss: 10.7494 - val_mae: 2.2542
Epoch 18/20
234/234 [=====] - 24s 104ms/step - loss: 14.4580 - mae:
2.6878 - val_loss: 10.7154 - val_mae: 2.2579
Epoch 19/20
234/234 [=====] - 24s 101ms/step - loss: 15.0314 - mae:
2.7099 - val_loss: 11.1020 - val_mae: 2.3364
Epoch 20/20
234/234 [=====] - 24s 101ms/step - loss: 13.5927 - mae:
2.6232 - val_loss: 10.1175 - val_mae: 2.1981
Chunk 12/52 // 21.15% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Forgotten Key ', ' Innersloth ', ' Viva Media', ' bitComposer ', 'AWE Games ',

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'Acclaim Studios Cheltenham ', 'Aeternum Game Studios ', 'Alientrap ',
 'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Arxel Tribe ', 'Auroch
 Digital ', 'Aurogon Shanghai ', 'Big Ant Studios ', 'Bit Blot ', 'Black Element
 ', 'Broken Rules ', 'Centauri Production ', 'Cold Iron Studios ', 'CreativeForge
 Games ', 'Cross-Product ', 'Daedalic Entertainment', 'Data Becker ', 'Demruth ',
 'Digital Arrow ', 'Dreampainters ', 'Elden Pixels ', 'Fallen Tree Games ',
 'Fiction Factory Games ', 'FreakZone ', 'Future Games', 'GUTS Department ',
 'Gabe Cuzzillo ', 'Gato Salvaje Studio ', 'GlyphX Games ', 'Hazardous Software
 ', 'Himalaya Studios ', 'Iceberg Interactive ', 'Indefatigable ', 'Investigate
 North ', 'Jagex Games Studio ', 'Jankenteam ', 'Khaeon ', 'Krams Design ',
 'Kubat Software ', 'Lince Works ', 'MadMinute Games ', 'Made by Kiddies ',
 'Massive Development ', 'Maximum Games ', 'Mischief ', 'MyDearest ', 'Nicolas
 Intoxicate ', 'Panther Games ', 'Piccolo ', 'Punch Punk Games ', 'Pure FPS ',
 'RageSquid ', 'Realtime Worlds ', 'Resolution Games ', 'Revolution of Strategy
 ', 'Rogue Entertainment ', 'S&G Software ', 'Sandbox Interactive ', 'Schell
 Games', 'Sigma Team ', 'Skydance Interactive ', 'Spike Chunsoft ', 'Spiral House
 ', 'Tantalus ', 'The Wandering Band LLC ', 'ThinkingStars ', 'Third Law
 Interactive ', 'Three One Zero ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos
 Interactive ', 'Turmoil Games ', 'U.S. Army ', 'Vagabond Dog ', 'Vertigo Games
 ', 'WorldForge ', 'Yuke's ', 'bitComposer Games', 'ustwo '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

230/230 [=====] - 23s 98ms/step - loss: 32.5294 - mae:
 3.7731 - val_loss: 15.1013 - val_mae: 2.1571

Epoch 2/20

230/230 [=====] - 24s 103ms/step - loss: 17.3351 - mae:
 2.6530 - val_loss: 12.5820 - val_mae: 1.9623

Epoch 3/20

230/230 [=====] - 23s 102ms/step - loss: 13.9858 - mae:
 2.3350 - val_loss: 11.6995 - val_mae: 1.8647

Epoch 4/20

230/230 [=====] - 23s 101ms/step - loss: 11.9626 - mae:
 2.1558 - val_loss: 11.2966 - val_mae: 1.9204

Epoch 5/20

230/230 [=====] - 23s 102ms/step - loss: 10.3176 - mae:
 1.9522 - val_loss: 10.5670 - val_mae: 1.8063

Epoch 6/20

230/230 [=====] - 24s 103ms/step - loss: 9.6660 - mae:
 1.8533 - val_loss: 10.5430 - val_mae: 1.8314

Epoch 7/20

230/230 [=====] - 23s 100ms/step - loss: 8.1414 - mae:
 1.7376 - val_loss: 10.0839 - val_mae: 1.7435

Epoch 8/20

230/230 [=====] - 23s 102ms/step - loss: 7.5996 - mae:
 1.6497 - val_loss: 10.4597 - val_mae: 1.8321

Epoch 9/20

230/230 [=====] - 23s 100ms/step - loss: 7.5409 - mae:

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1.6497 - val_loss: 9.7392 - val_mae: 1.7593
Epoch 10/20
230/230 [=====] - 23s 102ms/step - loss: 6.6642 - mae:
1.5275 - val_loss: 9.8574 - val_mae: 1.7159
Epoch 11/20
230/230 [=====] - 24s 103ms/step - loss: 6.2981 - mae:
1.4932 - val_loss: 10.4275 - val_mae: 1.7817
Epoch 12/20
230/230 [=====] - 24s 103ms/step - loss: 6.4893 - mae:
1.4564 - val_loss: 10.4302 - val_mae: 1.8187
Epoch 13/20
230/230 [=====] - 23s 100ms/step - loss: 5.7024 - mae:
1.4197 - val_loss: 9.2427 - val_mae: 1.6195
Epoch 14/20
230/230 [=====] - 23s 100ms/step - loss: 5.3855 - mae:
1.3793 - val_loss: 9.9351 - val_mae: 1.7701
Epoch 15/20
230/230 [=====] - 24s 105ms/step - loss: 5.1324 - mae:
1.3358 - val_loss: 9.5948 - val_mae: 1.6542
Epoch 16/20
230/230 [=====] - 24s 105ms/step - loss: 5.0819 - mae:
1.3018 - val_loss: 9.6034 - val_mae: 1.6686
Epoch 17/20
230/230 [=====] - 23s 102ms/step - loss: 5.1060 - mae:
1.2815 - val_loss: 9.9643 - val_mae: 1.7990
Epoch 18/20
230/230 [=====] - 24s 105ms/step - loss: 4.9696 - mae:
1.2850 - val_loss: 10.1746 - val_mae: 1.8153
Chunk 13/52 // 23.08% Complete // Cycle 1/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Atlantis Interactive Entertainment ', ' Bird Bath Games ', ' Massive
Entertainment', '3D People ', 'A44 ', 'Acme Gamestudio ', 'Artisan Studios ',
'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'AurumDust ',
'BestGameEver.com ', 'Blendo Games ', 'Breaking Walls ', 'Charles University ',
'ClockStone Studio ', 'Daniel Wynne', 'Denki ', 'Digital Eclipse ', 'Edelweiss
', 'Etranges Libellules ', 'Exiin ', 'Funselektor Labs Inc. ', 'Gust ', 'Hempuli
Oy ', 'INTERIOR/NIGHT ', "Kiro'o Games ", 'League of Geeks ', 'Lienzo ',
' LuckyHammers ', 'Midway Studios - Austin ', 'Mothership Entertainment ', 'NHN
Corporation ', 'NetDevil ', 'Ntronium Games ', 'Pencil Test Studios ', 'Peter
Stock ', 'Piccolo ', 'Planet Moon Studios ', 'Sanzaru ', 'Sketchy Logic ',
'Spiderweb Software ', 'Streko-Graphics Inc. ', 'System Era Softworks ', 'Team
Junkfish ', 'Tom Happ ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft
Sofia ', 'Unexpected ', 'Wayward Simulations ', 'Witch Beam ', 'idoz & phops ']
will be ignored

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    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

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Epoch 1/20

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213/213 [=====] - 22s 103ms/step - loss: 15.3421 - mae:
2.4414 - val_loss: 4.7341 - val_mae: 1.4088
Epoch 2/20
213/213 [=====] - 22s 106ms/step - loss: 7.3530 - mae:
1.5603 - val_loss: 3.5083 - val_mae: 1.2708
Epoch 3/20
213/213 [=====] - 22s 104ms/step - loss: 6.3179 - mae:
1.4237 - val_loss: 3.2821 - val_mae: 1.1342
Epoch 4/20
213/213 [=====] - 22s 105ms/step - loss: 5.8427 - mae:
1.3290 - val_loss: 3.5341 - val_mae: 1.2833
Epoch 5/20
213/213 [=====] - 22s 103ms/step - loss: 5.4418 - mae:
1.2721 - val_loss: 3.0474 - val_mae: 1.0709
Epoch 6/20
213/213 [=====] - 22s 103ms/step - loss: 4.7299 - mae:
1.1788 - val_loss: 3.2276 - val_mae: 1.1264
Epoch 7/20
213/213 [=====] - 22s 104ms/step - loss: 4.1098 - mae:
1.1468 - val_loss: 2.7549 - val_mae: 0.9566
Epoch 8/20
213/213 [=====] - 22s 103ms/step - loss: 4.2671 - mae:
1.1562 - val_loss: 2.6186 - val_mae: 0.9656
Epoch 9/20
213/213 [=====] - 22s 104ms/step - loss: 4.0651 - mae:
1.1051 - val_loss: 2.8047 - val_mae: 1.0123
Epoch 10/20
213/213 [=====] - 21s 100ms/step - loss: 3.7738 - mae:
1.0384 - val_loss: 2.9120 - val_mae: 1.0158
Epoch 11/20
213/213 [=====] - 21s 101ms/step - loss: 3.8508 - mae:
1.0230 - val_loss: 2.8005 - val_mae: 0.9952
Epoch 12/20
213/213 [=====] - 21s 101ms/step - loss: 3.5901 - mae:
1.0011 - val_loss: 2.9039 - val_mae: 1.0029
Epoch 13/20
213/213 [=====] - 22s 105ms/step - loss: 3.1983 - mae:
0.9408 - val_loss: 3.0647 - val_mae: 1.0192
Chunk 14/52 // 25.0% Complete // Cycle 1/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Arzest', 'Balan Company ', '3000AD', 'Armature Studio ', 'Bedtime Digital Games
', 'CE-Asia ', 'Cauldron Ltd. ', 'Causal Bit Games ', 'EggNut ', 'Lost Toys ',
'Overhype Studios ', 'Pathos Interactive ', 'Plausible Concept ', 'Point 5
Projects ', 'Pulse Entertainment ', 'Rayland Interactive ', 'Shadow Tor Studios
', 'Shining Rock Software ', 'Shockwave Productions ', 'Sports Mogul ',
'Stormind Games ', 'The Behemoth ', 'Throw the Warped Code Out ', 'Unspeakable

```


Pixels ']' will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

225/225 [=====] - 23s 100ms/step - loss: 17.0627 - mae: 2.3670 - val_loss: 7.7789 - val_mae: 1.3154

Epoch 2/20

225/225 [=====] - 23s 103ms/step - loss: 6.9870 - mae: 1.4533 - val_loss: 6.7221 - val_mae: 1.3761

Epoch 3/20

225/225 [=====] - 23s 102ms/step - loss: 5.6713 - mae: 1.2500 - val_loss: 6.4335 - val_mae: 1.3464

Epoch 4/20

225/225 [=====] - 23s 103ms/step - loss: 6.5360 - mae: 1.2310 - val_loss: 6.1967 - val_mae: 1.4522

Epoch 5/20

225/225 [=====] - 23s 103ms/step - loss: 4.7458 - mae: 1.1089 - val_loss: 6.0004 - val_mae: 1.3506

Epoch 6/20

225/225 [=====] - 23s 101ms/step - loss: 4.1298 - mae: 0.9958 - val_loss: 6.4227 - val_mae: 1.3381

Epoch 7/20

225/225 [=====] - 23s 100ms/step - loss: 4.9933 - mae: 1.0341 - val_loss: 6.8717 - val_mae: 1.4208

Epoch 8/20

225/225 [=====] - 23s 101ms/step - loss: 4.7284 - mae: 0.9919 - val_loss: 7.1228 - val_mae: 1.4717

Epoch 9/20

225/225 [=====] - 24s 105ms/step - loss: 4.6030 - mae: 0.9471 - val_loss: 7.4349 - val_mae: 1.5823

Epoch 10/20

225/225 [=====] - 23s 104ms/step - loss: 4.6912 - mae: 0.9189 - val_loss: 7.1291 - val_mae: 1.4427

Chunk 15/52 // 26.92% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Dlala Studios ', 'Eurocom ', 'Argonaut Games ', 'Artematica ', 'Auran ', 'Balancing Monkey Games ', 'Big Boat Interactive ', 'Black Lab Games ', 'Blackpowder Games ', 'BumbleBeast ', 'Capy Games ', 'Cryo Interactive ', 'Digital Fusion Inc. ', 'Eidos Interactive ', 'Eurocom Entertainment Software', 'Eutechnyx ', 'GoodbyeWorld Games ', 'Gummy Cat ', 'Harebrained Schemes LLC ', 'Hiding Spot ', 'Hyperbolic Magnetism ', 'Iridium Studios ', 'Magnum Games ', 'Pixel Crow ', 'Rare Ltd.', 'ShadowRage ', 'Silver Lining Studio ', 'Similis ', 'Stunlock Studios ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Threaks ', 'Tindalos Interactive ', 'Tri Synergy ', 'Twice Circled ', 'Varsav Game Studios ', 'Warsaw Film School Video Game & Film Production Studio ', 'tiger & squid '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
228/228 [=====] - 23s 102ms/step - loss: 17.1018 - mae: 2.4383 - val_loss: 10.6457 - val_mae: 1.8385

Epoch 2/20
228/228 [=====] - 23s 103ms/step - loss: 9.7557 - mae: 1.7543 - val_loss: 10.2405 - val_mae: 1.8111

Epoch 3/20
228/228 [=====] - 23s 102ms/step - loss: 8.7246 - mae: 1.5909 - val_loss: 8.1747 - val_mae: 1.5733

Epoch 4/20
228/228 [=====] - 24s 104ms/step - loss: 7.2724 - mae: 1.4272 - val_loss: 7.9547 - val_mae: 1.6966

Epoch 5/20
228/228 [=====] - 24s 104ms/step - loss: 6.7323 - mae: 1.3569 - val_loss: 7.1128 - val_mae: 1.5393

Epoch 6/20
228/228 [=====] - 24s 104ms/step - loss: 5.7852 - mae: 1.2759 - val_loss: 6.9733 - val_mae: 1.5644

Epoch 7/20
228/228 [=====] - 24s 104ms/step - loss: 5.5015 - mae: 1.2607 - val_loss: 6.8359 - val_mae: 1.4549

Epoch 8/20
228/228 [=====] - 23s 102ms/step - loss: 5.6095 - mae: 1.2039 - val_loss: 7.2579 - val_mae: 1.5112

Epoch 9/20
228/228 [=====] - 24s 103ms/step - loss: 4.9376 - mae: 1.1789 - val_loss: 6.7618 - val_mae: 1.4885

Epoch 10/20
228/228 [=====] - 23s 103ms/step - loss: 4.1714 - mae: 1.0868 - val_loss: 6.5996 - val_mae: 1.4757

Epoch 11/20
228/228 [=====] - 24s 103ms/step - loss: 4.2812 - mae: 1.0714 - val_loss: 6.5512 - val_mae: 1.4285

Epoch 12/20
228/228 [=====] - 23s 101ms/step - loss: 3.5961 - mae: 1.0037 - val_loss: 6.7443 - val_mae: 1.4803

Epoch 13/20
228/228 [=====] - 23s 102ms/step - loss: 4.4446 - mae: 1.0540 - val_loss: 6.8513 - val_mae: 1.5535

Epoch 14/20
228/228 [=====] - 23s 99ms/step - loss: 3.8466 - mae: 1.0073 - val_loss: 7.5439 - val_mae: 1.6148

Epoch 15/20
228/228 [=====] - 24s 105ms/step - loss: 3.3054 - mae: 0.9431 - val_loss: 6.4765 - val_mae: 1.5047

Epoch 16/20
228/228 [=====] - 24s 105ms/step - loss: 3.8974 - mae: 0.9611 - val_loss: 6.2097 - val_mae: 1.4611

```

Epoch 17/20
228/228 [=====] - 24s 105ms/step - loss: 3.0506 - mae:
0.8978 - val_loss: 6.3919 - val_mae: 1.5131
Epoch 18/20
228/228 [=====] - 23s 103ms/step - loss: 3.2287 - mae:
0.8990 - val_loss: 6.1949 - val_mae: 1.4272
Epoch 19/20
228/228 [=====] - 24s 106ms/step - loss: 3.1925 - mae:
0.8626 - val_loss: 5.8955 - val_mae: 1.4347
Epoch 20/20
228/228 [=====] - 23s 101ms/step - loss: 2.6747 - mae:
0.8187 - val_loss: 5.9692 - val_mae: 1.5064
Chunk 16/52 // 28.85% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Cricket'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cranberry Production ', ' Digital Eclipse ', ' Nival ', ' Polar Motion ', ' S.L.
', ' Slitherine Group', '2K Games ', 'A Crowd of Monsters ', 'AGEOD ', 'Amanita
Design ', 'Apeiron ', 'Atomic Games ', 'Awe Interactive ', 'Black Mesa
Modification Team ', 'Blooming Buds Studio ', 'BootdiskRevolution ', 'Brat
Designs ', 'Cavia Inc. ', 'ClockStone Studio ', 'Corbie Games ', 'Cranberry
Studios ', 'DANG! ', 'DTP Entertainment', 'Deep Shadows ', 'Dimfrost ', 'Drama
Drifters ', 'Elseware Experience ', 'Erik Svedang ', 'FYQD-Studio ', 'Free Lives
', 'Gaijin Games ', 'Gust ', 'Headfirst Productions ', 'Interceptor
Entertainment ', 'Inti Creates ', 'Jagex Games Studio ', 'JoyMasher ', 'Kitfox
Games ', 'Krome Studios ', 'La Plata ', 'Midway Studios - Austin ', 'Mighty
Rabbit Studios ', 'Morteshka ', 'NExT Studios ', 'Nival Interactive', 'Nova
Production ', 'Paper Cult ', 'PaperSeven ', 'Pixel Multimedia ', 'PortaPlay ',
'Quotix Software ', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Robi Studios
', 'Runner Duck ', 'Sand Sailor Studio ', 'Scientifically Proven ',
'Slitherine', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ',
'Stunlock Studios ', 'SuperScarySnakes ', 'Swing Swing Submarine ', 'Targem
Games ', 'Team Reptile ', 'The Moonwalls ', 'The Parasight ', 'The Pixel Hunt ',
'Thing Trunk ', 'Troglobytes Games', 'V7 Entertainment Inc. ', 'stillalive
studios '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 23s 104ms/step - loss: 26.8284 - mae:
3.2308 - val_loss: 14.3471 - val_mae: 2.0695
Epoch 2/20
224/224 [=====] - 23s 105ms/step - loss: 16.2755 - mae:
2.3298 - val_loss: 11.6729 - val_mae: 1.9401
Epoch 3/20
224/224 [=====] - 23s 104ms/step - loss: 12.3595 - mae:

```

```

2.0141 - val_loss: 10.4549 - val_mae: 1.8551
Epoch 4/20
224/224 [=====] - 23s 101ms/step - loss: 11.9457 - mae:
1.8971 - val_loss: 9.6488 - val_mae: 1.9129
Epoch 5/20
224/224 [=====] - 23s 101ms/step - loss: 10.3135 - mae:
1.7733 - val_loss: 9.3192 - val_mae: 1.7677
Epoch 6/20
224/224 [=====] - 23s 104ms/step - loss: 9.2847 - mae:
1.6552 - val_loss: 9.0987 - val_mae: 1.8588
Epoch 7/20
224/224 [=====] - 24s 105ms/step - loss: 8.9856 - mae:
1.6129 - val_loss: 9.5278 - val_mae: 1.9131
Epoch 8/20
224/224 [=====] - 23s 102ms/step - loss: 8.1807 - mae:
1.5014 - val_loss: 9.8054 - val_mae: 1.9507
Epoch 9/20
224/224 [=====] - 23s 101ms/step - loss: 8.5791 - mae:
1.5543 - val_loss: 9.5161 - val_mae: 1.9091
Epoch 10/20
224/224 [=====] - 23s 102ms/step - loss: 7.9897 - mae:
1.4898 - val_loss: 9.3983 - val_mae: 1.9766
Epoch 11/20
224/224 [=====] - 23s 101ms/step - loss: 7.7514 - mae:
1.4599 - val_loss: 10.3146 - val_mae: 2.0490
Chunk 17/52 // 30.77% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Out of the Blue Games S.L. ', 'Action Forms Ltd. ', 'Activision ', 'Alientrap ',
'Blue Manchu ', 'Bytten Studio ', 'Expansive Worlds ', 'Hothouse Creations ',
'Ice-Pick Lodge ', 'Matt Kap ', 'Nerial ', 'Out of the Blue', 'Phobia Game
Studio ', 'Richard Hofmeier ', 'Serious Brew ', 'Sierra Entertainment ',
'Spotlightor Interactive ', 'Sunhead Games ', 'Sunstorm Interactive ', 'Teku
Studios ', 'Torus Games '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
220/220 [=====] - 23s 101ms/step - loss: 17.8681 - mae:
2.9014 - val_loss: 7.7494 - val_mae: 1.8019
Epoch 2/20
220/220 [=====] - 23s 104ms/step - loss: 8.1155 - mae:
1.8953 - val_loss: 6.7668 - val_mae: 1.7907
Epoch 3/20
220/220 [=====] - 22s 102ms/step - loss: 6.4367 - mae:

```

```

1.6433 - val_loss: 6.4040 - val_mae: 1.8528
Epoch 4/20
220/220 [=====] - 22s 101ms/step - loss: 5.5066 - mae:
1.4399 - val_loss: 6.2193 - val_mae: 1.8296
Epoch 5/20
220/220 [=====] - 22s 101ms/step - loss: 4.5139 - mae:
1.3145 - val_loss: 5.2464 - val_mae: 1.7133
Epoch 6/20
220/220 [=====] - 23s 105ms/step - loss: 4.2880 - mae:
1.2246 - val_loss: 5.8551 - val_mae: 1.8385
Epoch 7/20
220/220 [=====] - 23s 103ms/step - loss: 4.0603 - mae:
1.1548 - val_loss: 5.9309 - val_mae: 1.8711
Epoch 8/20
220/220 [=====] - 21s 98ms/step - loss: 3.4704 - mae:
1.0926 - val_loss: 5.3062 - val_mae: 1.7570
Epoch 9/20
220/220 [=====] - 22s 101ms/step - loss: 3.2401 - mae:
1.0166 - val_loss: 4.8066 - val_mae: 1.6754
Epoch 10/20
220/220 [=====] - 22s 99ms/step - loss: 2.7888 - mae:
0.9556 - val_loss: 6.1234 - val_mae: 1.9015
Epoch 11/20
220/220 [=====] - 23s 103ms/step - loss: 3.1113 - mae:
0.9498 - val_loss: 5.4535 - val_mae: 1.8155
Epoch 12/20
220/220 [=====] - 22s 101ms/step - loss: 2.6782 - mae:
0.9008 - val_loss: 5.2852 - val_mae: 1.7332
Epoch 13/20
220/220 [=====] - 22s 102ms/step - loss: 2.4012 - mae:
0.8500 - val_loss: 6.2183 - val_mae: 1.9477
Epoch 14/20
220/220 [=====] - 22s 102ms/step - loss: 2.4616 - mae:
0.8484 - val_loss: 5.9191 - val_mae: 1.8997
Chunk 18/52 // 32.69% Complete // Cycle 1/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Application', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Deep Silver Fishlabs ', ' EA Games ', ' FireFly Studios ', ' LLC', ' LandFall ',
' Navarre Corp ', ' Overflow Games ', ' Phosphor Games ', ' Reality Twist ', '
Sega', ' Ste Curran ', 'Amanita Design ', 'Argonaut Games', 'Ascension Studios',
'Atomic Games ', 'Backbone Entertainment ', 'Beautiful Game Studios ', 'Behold
Studios ', 'Big Time Software ', 'Boxed Dream ', 'BreakAway Games ', 'Convoy
Games ', 'Crazy Rocks ', 'Cygnus Entertainment ', 'Darkworks ', 'Data Realms ',

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'Destineer ', 'Discord Games ', 'Double Stallion Games ', 'Dreamworks Games ',
'EA Pacific ', 'EasyGameStation ', 'Eden Industries ', 'Elf Games ', 'Eyebrow
Interactive ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Focus Home
Interactive ', 'Gaslamp Games ', 'Greg Lobanov ', 'ION LANDS ',
'Interdimensional Games Inc ', 'Investigate North Aps ', 'Jason Oda ', 'Jump
Over The Age ', 'LandFall Games', 'Lazy 8 Studios ', 'Logic Artists ', 'MASA
Group ', 'Maddy Makes Games ', 'Mages. ', 'Matthias Linda ', 'Mighty Kingdom ',
'Mindware Studios ', 'Original Fire Games ', 'Oxeye ', 'Paragon Studios ',
'Phoenix Online Studios ', 'Phosphor Games Studio', 'Playwing ', 'Puuba ',
'Reality Twist GmbH', 'Snapshot Games Inc. ', 'SomaSim ', 'Storm in a Teacup ',
'TRAGsoft ', 'The Gentlebros ', 'The Wild Gentlemen ', 'Toge Productions ',
'Twistplay', 'Two Star Games ', 'Uppercut Games Pty Ltd ', 'Various ', 'White
Paper Games ', 'Yippee Entertainment LTD ', 'Zeboyd Games ', 'Zoetrope
Interactive ', 'osao games '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
224/224 [=====] - 23s 102ms/step - loss: 29.3828 - mae:
3.4635 - val_loss: 18.7413 - val_mae: 2.5206
```

Epoch 2/20

```
224/224 [=====] - 23s 103ms/step - loss: 15.9760 - mae:
2.3326 - val_loss: 15.5941 - val_mae: 2.3593
```

Epoch 3/20

```
224/224 [=====] - 24s 107ms/step - loss: 12.8633 - mae:
2.0644 - val_loss: 14.9164 - val_mae: 2.4273
```

Epoch 4/20

```
224/224 [=====] - 23s 104ms/step - loss: 11.3993 - mae:
1.8794 - val_loss: 13.8755 - val_mae: 2.2340
```

Epoch 5/20

```
224/224 [=====] - 23s 105ms/step - loss: 10.3400 - mae:
1.8017 - val_loss: 14.8856 - val_mae: 2.3907
```

Epoch 6/20

```
224/224 [=====] - 23s 102ms/step - loss: 9.5625 - mae:
1.6781 - val_loss: 14.2265 - val_mae: 2.2817
```

Epoch 7/20

```
224/224 [=====] - 23s 105ms/step - loss: 9.6021 - mae:
1.6486 - val_loss: 14.2530 - val_mae: 2.3605
```

Epoch 8/20

```
224/224 [=====] - 23s 105ms/step - loss: 8.6655 - mae:
1.5842 - val_loss: 14.4818 - val_mae: 2.3401
```

Epoch 9/20

```
224/224 [=====] - 24s 107ms/step - loss: 7.6509 - mae:
1.4998 - val_loss: 15.0514 - val_mae: 2.4587
```

Chunk 19/52 // 34.62% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
10tons ', ' Elbow Rocket ', ' FAKT Software ', ' Funatics ', ' Funatics
Software', ' Moonbyte Studios ', ' Relentless Studios ', '10tons Entertainment',
```

'369 Interactive ', 'Aarne "MekaSkull" Hunziker ', 'Action Forms Ltd. ', 'Alt Shift ', 'Amanita Design ', 'Artematica ', 'Asylum Entertainment ', 'Brace Yourself Games ', 'Butterscotch Shenanigans ', 'Dreams Uncorporated ', 'EA Bright Light ', 'Explosm ', 'FAKT Software ', 'FAKT Software GmbH', 'Flying Cafe for Semianimals ', 'Fourattic ', 'Funatics Development GmbH', 'G5 Software ', 'InGame Studios ', 'Invictus ', 'Jasozz Games ', 'Kraken Unleashed ', 'Maschinen-Mensch ', 'Massive Monster ', 'Momentum DMT ', 'NExT Studios ', 'PETOONS STUDIO SL ', 'Passtech Games ', 'Petri Purho ', 'Punchers Impact ', 'Radical Fish Games ', 'Replay Studios', 'Skilltree Studios ', 'Spry Fox ', 'Sumo Digital', 'Tag of Joy ', 'Toys for Bob ', 'Triangle Studios ', 'Vicarious Visions', 'Vile Monarch ', 'Vogster ', 'Weather Factory ', 'Zipper Interactive ']
 ']' will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

209/209 [=====] - 22s 103ms/step - loss: 13.5237 - mae: 1.9088 - val_loss: 7.3108 - val_mae: 0.8775

Epoch 2/20

209/209 [=====] - 22s 105ms/step - loss: 7.8708 - mae: 1.2074 - val_loss: 6.2060 - val_mae: 0.7895

Epoch 3/20

209/209 [=====] - 22s 105ms/step - loss: 7.0851 - mae: 1.0869 - val_loss: 5.9192 - val_mae: 0.6981

Epoch 4/20

209/209 [=====] - 22s 106ms/step - loss: 6.3836 - mae: 0.9865 - val_loss: 5.5513 - val_mae: 0.6398

Epoch 5/20

209/209 [=====] - 22s 106ms/step - loss: 6.6646 - mae: 0.9997 - val_loss: 5.5297 - val_mae: 0.6176

Epoch 6/20

209/209 [=====] - 23s 108ms/step - loss: 6.0768 - mae: 0.9128 - val_loss: 5.0128 - val_mae: 0.6385

Epoch 7/20

209/209 [=====] - 22s 107ms/step - loss: 5.4183 - mae: 0.8161 - val_loss: 5.0829 - val_mae: 0.6352

Epoch 8/20

209/209 [=====] - 22s 105ms/step - loss: 5.1039 - mae: 0.7948 - val_loss: 4.7988 - val_mae: 0.6515

Epoch 9/20

209/209 [=====] - 21s 102ms/step - loss: 5.3257 - mae: 0.7975 - val_loss: 5.0191 - val_mae: 0.6382

Epoch 10/20

209/209 [=====] - 21s 99ms/step - loss: 5.1414 - mae: 0.7727 - val_loss: 4.8503 - val_mae: 0.5351

Epoch 11/20

209/209 [=====] - 21s 101ms/step - loss: 4.9542 - mae: 0.7507 - val_loss: 4.6900 - val_mae: 0.5627

Epoch 12/20

```

209/209 [=====] - 21s 103ms/step - loss: 4.2189 - mae:
0.7251 - val_loss: 2.8915 - val_mae: 0.5997
Epoch 13/20
209/209 [=====] - 22s 103ms/step - loss: 3.8835 - mae:
0.6917 - val_loss: 2.5040 - val_mae: 0.4794
Epoch 14/20
209/209 [=====] - 21s 101ms/step - loss: 3.9046 - mae:
0.6552 - val_loss: 2.3146 - val_mae: 0.4840
Epoch 15/20
209/209 [=====] - 22s 103ms/step - loss: 3.3416 - mae:
0.6161 - val_loss: 2.5758 - val_mae: 0.4992
Epoch 16/20
209/209 [=====] - 22s 105ms/step - loss: 3.1232 - mae:
0.5741 - val_loss: 2.4278 - val_mae: 0.4802
Epoch 17/20
209/209 [=====] - 22s 103ms/step - loss: 3.5822 - mae:
0.6182 - val_loss: 2.3964 - val_mae: 0.5352
Epoch 18/20
209/209 [=====] - 22s 104ms/step - loss: 3.2978 - mae:
0.5802 - val_loss: 2.2792 - val_mae: 0.4647
Epoch 19/20
209/209 [=====] - 22s 104ms/step - loss: 2.9452 - mae:
0.5632 - val_loss: 2.0584 - val_mae: 0.4940
Epoch 20/20
209/209 [=====] - 22s 103ms/step - loss: 2.5253 - mae:
0.5899 - val_loss: 2.3892 - val_mae: 0.4678
Chunk 20/52 // 36.54% Complete // Cycle 1/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
ICEBOX Studios ', ' RA Images ', 'Access Games ', 'Bigmoon Entertainment ',
'Blue Omega ', 'Cinemax', 'Creative Edge Software ', 'D'Avekki Studios Limited
', 'Darkling Room ', 'Hibernian Workshop ', 'Long Hat House ', 'Mad Mimic ',
'Marvelous First Studio ', 'Mythic Entertainment ', 'Namco Bandai Games ',
'Pyramid ', 'Sonalysts ', 'Spike Chunsoft ', 'Sword & Axe LLC ', 'Three Fields
Entertainment ', 'Wadjet Eye Games', 'XXV Productions '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20
203/203 [=====] - 21s 103ms/step - loss: 6.5149 - mae:
0.9862 - val_loss: 3.1868 - val_mae: 0.5751
Epoch 2/20
203/203 [=====] - 21s 103ms/step - loss: 3.1612 - mae:
0.6774 - val_loss: 3.3284 - val_mae: 0.7409
Epoch 3/20
203/203 [=====] - 21s 103ms/step - loss: 2.2316 - mae:
0.6005 - val_loss: 2.9822 - val_mae: 0.6237
Epoch 4/20
203/203 [=====] - 20s 101ms/step - loss: 1.9484 - mae:

```



```

0.5235 - val_loss: 3.1448 - val_mae: 0.6307
Epoch 5/20
203/203 [=====] - 20s 99ms/step - loss: 1.9422 - mae:
0.5110 - val_loss: 3.0118 - val_mae: 0.6832
Epoch 6/20
203/203 [=====] - 21s 104ms/step - loss: 1.7848 - mae:
0.4968 - val_loss: 3.1636 - val_mae: 0.6790
Epoch 7/20
203/203 [=====] - 21s 105ms/step - loss: 1.5412 - mae:
0.4231 - val_loss: 3.2015 - val_mae: 0.6583
Epoch 8/20
203/203 [=====] - 21s 104ms/step - loss: 1.3640 - mae:
0.4214 - val_loss: 3.6002 - val_mae: 0.6824
Chunk 21/52 // 38.46% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Capcom Vancouver ', ' Koei Tecmo Games ', ' Ltd. ', ' Sky Fallen', '5-Bits Games
', '8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ',
'Allgraf ', 'Biart ', 'Blue Castle Games ', 'Boston Animation ', 'CCCP ',
'COWCAT ', 'Cave ', 'DNS Development ', 'Digital Confectioners ', 'DoubleBear
Productions ', 'Dykast Lubomir ', 'Fabraz ', 'Fictiorama Studios ', 'Frozen line
', 'Ghost Ship Games ', 'Haggard Games ', 'Ikarion ', 'Invader Studios ', 'KUNO
INTERACTIVE ', 'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'Most Wanted
Entertainment ', 'Motion Twin ', 'Nfusion ', 'Oscar Brittain ', 'Outrage Games
', 'Parallax Software ', 'Positech Games ', 'QCF Design ', 'RageSquid ',
'Related Designs ', 'Resolution Games ', 'Scavengers Studio ', 'Silent Grove
Studios ', 'Sky Fallen ', 'Snowhound Games ', 'Streko-Graphics Inc. ', 'Team
Ninja', 'The Chinese Room ', 'Twisted Pixel Games ', 'Unfold Games ', 'White
Rabbit Interactive ', 'Z-Axis', 'Zoetrope Interactive '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 23s 101ms/step - loss: 26.9024 - mae:
3.4847 - val_loss: 19.2758 - val_mae: 2.9848
Epoch 2/20
224/224 [=====] - 23s 103ms/step - loss: 15.2336 - mae:
2.4340 - val_loss: 15.9077 - val_mae: 2.6737
Epoch 3/20
224/224 [=====] - 23s 104ms/step - loss: 12.6308 - mae:
2.1341 - val_loss: 15.6565 - val_mae: 2.6123
Epoch 4/20
224/224 [=====] - 23s 104ms/step - loss: 12.2426 - mae:
2.0134 - val_loss: 14.2156 - val_mae: 2.5978
Epoch 5/20
224/224 [=====] - 23s 103ms/step - loss: 10.4687 - mae:
1.8508 - val_loss: 14.7686 - val_mae: 2.7129
Epoch 6/20
224/224 [=====] - 24s 106ms/step - loss: 9.5241 - mae:

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1.7083 - val_loss: 14.3369 - val_mae: 2.6048
Epoch 7/20
224/224 [=====] - 24s 106ms/step - loss: 9.1730 - mae:
1.6785 - val_loss: 13.8631 - val_mae: 2.6154
Epoch 8/20
224/224 [=====] - 23s 101ms/step - loss: 8.6935 - mae:
1.6217 - val_loss: 14.1485 - val_mae: 2.6921
Epoch 9/20
224/224 [=====] - 24s 106ms/step - loss: 8.7076 - mae:
1.6099 - val_loss: 13.7515 - val_mae: 2.6187
Epoch 10/20
224/224 [=====] - 24s 106ms/step - loss: 8.0548 - mae:
1.5156 - val_loss: 14.4223 - val_mae: 2.6736
Epoch 11/20
224/224 [=====] - 23s 104ms/step - loss: 7.9123 - mae:
1.4819 - val_loss: 15.1743 - val_mae: 2.7142
Epoch 12/20
224/224 [=====] - 23s 105ms/step - loss: 8.5286 - mae:
1.5157 - val_loss: 14.9755 - val_mae: 2.7212
Epoch 13/20
224/224 [=====] - 23s 105ms/step - loss: 7.4450 - mae:
1.4374 - val_loss: 16.1086 - val_mae: 2.8923
Epoch 14/20
224/224 [=====] - 23s 104ms/step - loss: 7.4418 - mae:
1.4107 - val_loss: 15.5096 - val_mae: 2.8085
Chunk 22/52 // 40.38% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dreadlocks ', 'Digitalo Studios ', 'Dreadlocks Ltd', 'Foregone ', 'Layopi Games
', 'Red Candle Games ', 'Sorath ', 'Sourcenext ', 'Ultimation Inc. '] will be
ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
231/231 [=====] - 24s 100ms/step - loss: 22.6419 - mae:
2.5920 - val_loss: 15.4531 - val_mae: 2.8806
Epoch 2/20
231/231 [=====] - 24s 106ms/step - loss: 7.9665 - mae:
1.3739 - val_loss: 14.0545 - val_mae: 2.9332
Epoch 3/20
231/231 [=====] - 25s 106ms/step - loss: 5.5762 - mae:
1.1268 - val_loss: 13.1866 - val_mae: 2.9399
Epoch 4/20
231/231 [=====] - 24s 104ms/step - loss: 5.9269 - mae:
1.0540 - val_loss: 12.0311 - val_mae: 2.8597
Epoch 5/20
231/231 [=====] - 24s 103ms/step - loss: 4.7221 - mae:
0.9624 - val_loss: 12.9502 - val_mae: 3.0348

```

```

Epoch 6/20
231/231 [=====] - 24s 103ms/step - loss: 3.5240 - mae:
0.8314 - val_loss: 12.7662 - val_mae: 3.0604
Epoch 7/20
231/231 [=====] - 24s 104ms/step - loss: 3.3151 - mae:
0.7560 - val_loss: 12.8731 - val_mae: 3.1182
Epoch 8/20
231/231 [=====] - 24s 103ms/step - loss: 3.1275 - mae:
0.7030 - val_loss: 13.9982 - val_mae: 3.2370
Epoch 9/20
231/231 [=====] - 24s 103ms/step - loss: 3.0391 - mae:
0.7035 - val_loss: 13.6067 - val_mae: 3.1998
Chunk 23/52 // 42.31% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dose', ' Kitty', ' and JW ', 'ArachnidGames ', 'AtomicTorch ', 'DESTINYbit ',
'Frima Studio ', 'Innonics ', 'Nippon Ichi Software ', 'Piranha Games ', 'Ratbag
', 'Soldak Entertainment ', 'Sundae Month ', 'Terri', 'Terry Cavanagh ', 'V1
Interactive '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
231/231 [=====] - 23s 99ms/step - loss: 11.2066 - mae:
1.7411 - val_loss: 12.5196 - val_mae: 2.3070
Epoch 2/20
231/231 [=====] - 23s 101ms/step - loss: 5.4546 - mae:
1.1578 - val_loss: 10.0797 - val_mae: 2.0727
Epoch 3/20
231/231 [=====] - 24s 105ms/step - loss: 5.4560 - mae:
1.0988 - val_loss: 9.7852 - val_mae: 2.0986
Epoch 4/20
231/231 [=====] - 24s 105ms/step - loss: 3.9850 - mae:
0.9536 - val_loss: 8.4657 - val_mae: 2.0015
Epoch 5/20
231/231 [=====] - 24s 105ms/step - loss: 3.8245 - mae:
0.9007 - val_loss: 8.0139 - val_mae: 1.9254
Epoch 6/20
231/231 [=====] - 24s 106ms/step - loss: 3.7809 - mae:
0.8837 - val_loss: 6.8112 - val_mae: 1.8175
Epoch 7/20
231/231 [=====] - 24s 104ms/step - loss: 3.3555 - mae:
0.8202 - val_loss: 6.8631 - val_mae: 1.8658
Epoch 8/20
231/231 [=====] - 23s 102ms/step - loss: 2.5392 - mae:
0.7700 - val_loss: 6.9950 - val_mae: 1.9498
Epoch 9/20
231/231 [=====] - 25s 107ms/step - loss: 3.6786 - mae:
0.8250 - val_loss: 7.0992 - val_mae: 1.8839

```

Epoch 10/20
 231/231 [=====] - 24s 106ms/step - loss: 3.4068 - mae: 0.8331 - val_loss: 6.1389 - val_mae: 1.7199
 Epoch 11/20
 231/231 [=====] - 24s 104ms/step - loss: 2.0194 - mae: 0.6798 - val_loss: 6.4679 - val_mae: 1.8124
 Epoch 12/20
 231/231 [=====] - 24s 103ms/step - loss: 2.4164 - mae: 0.7028 - val_loss: 6.6059 - val_mae: 1.8657
 Epoch 13/20
 231/231 [=====] - 24s 103ms/step - loss: 2.6472 - mae: 0.7017 - val_loss: 6.3115 - val_mae: 1.7540
 Epoch 14/20
 231/231 [=====] - 24s 103ms/step - loss: 2.3256 - mae: 0.6971 - val_loss: 7.3509 - val_mae: 1.9400
 Epoch 15/20
 231/231 [=====] - 24s 103ms/step - loss: 2.0012 - mae: 0.6451 - val_loss: 6.2171 - val_mae: 1.7604
 Chunk 24/52 // 44.23% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Digital Leisure ', ' Eighting ', ' Eurocom ', 'Ankama Games ', 'Arc System Works', 'Avalanche Software ', 'Barking Dog ', 'Ben Esposito ', 'Bippinbits ', 'Canal+ Multimedia ', 'Code Force ', 'Digital Leisure Inc.', 'Disney Interactive Studios ', 'Eurocom Entertainment Software', 'Heavy Iron Studios', 'Illwinter Design Group ', 'Jesse Makkonen ', 'KillHouse Games ', 'Massive Work Studio ', 'Moppin ', 'Muro Studios Ltd. ', 'Nerve Software ', 'Pocket Trap ', 'Propaganda Games ', 'Secret Base ', 'Stickmen Studios ', 'Team Salvato ', 'Toukana Interactive ', 'Un Je Ne Sais Quoi ', 'V1 Interactive '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
 212/212 [=====] - 22s 100ms/step - loss: 11.2563 - mae: 1.8150 - val_loss: 5.1178 - val_mae: 1.1886
 Epoch 2/20
 212/212 [=====] - 22s 102ms/step - loss: 5.2815 - mae: 1.1863 - val_loss: 4.5297 - val_mae: 0.9160
 Epoch 3/20
 212/212 [=====] - 22s 104ms/step - loss: 3.9007 - mae: 1.0143 - val_loss: 3.9096 - val_mae: 0.8294
 Epoch 4/20
 212/212 [=====] - 22s 105ms/step - loss: 3.4459 - mae: 0.9194 - val_loss: 3.8714 - val_mae: 0.9066
 Epoch 5/20
 212/212 [=====] - 22s 106ms/step - loss: 3.5267 - mae: 0.9163 - val_loss: 3.8026 - val_mae: 0.8648
 Epoch 6/20
 212/212 [=====] - 22s 103ms/step - loss: 3.0501 - mae:

```

0.8035 - val_loss: 3.3738 - val_mae: 0.8261
Epoch 7/20
212/212 [=====] - 22s 103ms/step - loss: 2.3860 - mae:
0.7692 - val_loss: 3.3122 - val_mae: 0.8416
Epoch 8/20
212/212 [=====] - 22s 104ms/step - loss: 2.6154 - mae:
0.7387 - val_loss: 3.0723 - val_mae: 0.8021
Epoch 9/20
212/212 [=====] - 22s 106ms/step - loss: 2.3399 - mae:
0.7406 - val_loss: 3.0845 - val_mae: 0.8334
Epoch 10/20
212/212 [=====] - 21s 102ms/step - loss: 1.9973 - mae:
0.6681 - val_loss: 3.1582 - val_mae: 0.8336
Epoch 11/20
212/212 [=====] - 22s 103ms/step - loss: 1.9993 - mae:
0.6805 - val_loss: 3.4431 - val_mae: 0.9251
Epoch 12/20
212/212 [=====] - 21s 101ms/step - loss: 2.2459 - mae:
0.6607 - val_loss: 3.3276 - val_mae: 0.8338
Epoch 13/20
212/212 [=====] - 22s 105ms/step - loss: 1.7025 - mae:
0.6012 - val_loss: 3.0291 - val_mae: 0.8318
Epoch 14/20
212/212 [=====] - 22s 104ms/step - loss: 1.5606 - mae:
0.5964 - val_loss: 3.0756 - val_mae: 0.8440
Epoch 15/20
212/212 [=====] - 22s 105ms/step - loss: 1.6104 - mae:
0.5841 - val_loss: 3.2761 - val_mae: 0.8879
Epoch 16/20
212/212 [=====] - 22s 106ms/step - loss: 1.7545 - mae:
0.6051 - val_loss: 3.5960 - val_mae: 0.8627
Epoch 17/20
212/212 [=====] - 22s 105ms/step - loss: 2.4024 - mae:
0.6985 - val_loss: 3.5175 - val_mae: 0.9849
Epoch 18/20
212/212 [=====] - 22s 104ms/step - loss: 1.9269 - mae:
0.6254 - val_loss: 3.4739 - val_mae: 0.9075
Chunk 25/52 // 46.15% Complete // Cycle 1/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
A Jolly Corpse ', ' FunHouse ', ' Koei Tecmo Games ', ' Mobigame ', ' Rabbit &
Bear Studios ', ' Red Winter Software ', '3D Realms ', '7 Studios ',
'Afterburner Studios ', 'Amaze Entertainment ', 'Artematica ', 'Bay 12 Games ',
'Bedlam Games ', 'Black Salt Games ', 'Buka Entertainment ', 'Byterunners Game
Studio ', 'Critical Studio ', 'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'Dancing
Dragon games ', 'Digital Happiness ', 'Dimps Corporation ', 'Eastshade Studios
', 'Game Grumps ', 'Gaslamp Games ', 'Heuristic Park ', 'Hitbox ', 'Holospark

```

```
, 'Honig Studios ', 'HyperSloth ', 'Instant Kingdom ', 'Midgar Studio ', 'Mike Studios ', 'Mindware Studios ', 'Misfits Attic ', 'NATSUME ATARI Inc.', 'New Blood Interactive ', 'Omega Force', 'Owlchemy Labs ', 'PD Design Studio Pte Ltd ', 'Paleo Entertainment ', 'Pixpil ', 'Plastic Reality ', 'Radon Labs ', 'Raspina Studio ', 'Red Thread Games ', 'Red Winter Software Limited', 'Reflections Interactive ', 'Runewaker Entertainment ', 'Snowbird Game Studios ', 'Soldak Entertainment ', 'Studio V ', 'Sunstorm Interactive ', 'T19 Games ', 'Tendershoot', 'TopWare Interactive ', 'Two Tribes', 'Ubisoft Montreal', 'Ultra Ultra ', 'Vicious Cycle ', 'Zuxxez '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

```
Epoch 1/20
```

```
232/232 [=====] - 24s 100ms/step - loss: 28.5175 - mae: 3.2585 - val_loss: 24.2852 - val_mae: 3.9613
```

```
Epoch 2/20
```

```
232/232 [=====] - 24s 102ms/step - loss: 15.8997 - mae: 2.3143 - val_loss: 23.2486 - val_mae: 3.7960
```

```
Epoch 3/20
```

```
232/232 [=====] - 24s 103ms/step - loss: 13.5411 - mae: 2.0682 - val_loss: 23.1653 - val_mae: 3.7655
```

```
Epoch 4/20
```

```
232/232 [=====] - 24s 103ms/step - loss: 10.6727 - mae: 1.8666 - val_loss: 22.4772 - val_mae: 3.7375
```

```
Epoch 5/20
```

```
232/232 [=====] - 24s 102ms/step - loss: 9.2641 - mae: 1.6534 - val_loss: 25.6197 - val_mae: 4.0572
```

```
Epoch 6/20
```

```
232/232 [=====] - 24s 102ms/step - loss: 8.3017 - mae: 1.5424 - val_loss: 23.9993 - val_mae: 3.8176
```

```
Epoch 7/20
```

```
232/232 [=====] - 24s 106ms/step - loss: 8.0256 - mae: 1.5336 - val_loss: 25.7847 - val_mae: 3.9164
```

```
Epoch 8/20
```

```
232/232 [=====] - 24s 102ms/step - loss: 7.5614 - mae: 1.4452 - val_loss: 25.1738 - val_mae: 3.9492
```

```
Epoch 9/20
```

```
232/232 [=====] - 24s 105ms/step - loss: 7.6330 - mae: 1.4110 - val_loss: 24.7624 - val_mae: 3.8398
```

```
Chunk 26/52 // 48.08% Complete // Cycle 1/3
```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
```

```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
```

```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['Alex May ', ' Endlessfluff Games ', ' Foreign Gnomes ', ' Humble Games', ' Live Wire ', ' MicroProse ', ' TimeGate Studios ', '1C:Ino-Co ', '4Head Studios ', 'Abrakam SA ', 'Atari', 'BreakAway Games ', 'Chaosmonger Studio ', 'Chris
```

Nordgren', 'Codemasters Birmingham ', 'Coin Crew Games ', 'DESTINYbit ', 'Dark Crystal Games ', 'Digital Lode ', 'Elder Games ', 'Erik Svedang ', 'Exbleative ', 'Fallen Earth', 'Fallen Flag Studio ', 'Fireplace Games ', 'Fishing Cactus ', 'Gameyus Interactive ', 'Gentlymad ', 'Gust ', 'Heavy Iron Studios ', 'Herobeat Studios ', 'Humble Bundle', 'Idea Factory ', 'Image Space Incorporated ', 'Lead Pursuit ', 'Lexis Numerique ', 'Live Wire Films', 'Logic Artists ', 'Mad Orange ', 'MagicalTimeBean ', 'Mantra ', 'Matias Schmied ', 'Minor Key Games ', 'Monolith Productions', 'Nfusion ', 'Ocelot Society ', 'Pathea Games ', 'Popcannibal ', 'Queasy Games ', 'ROCKFISH Games ', 'Rage Software ', 'Razorworks ', 'Rudolf Kremers', 'Shiro Games ', 'Sixteen Tons Entertainment ', 'StarWraith ', 'Storm in a Teacup ', 'Stormfront Studios ', 'TIGAMES ', 'Tesseractaction Games ', 'The Chinese Room ', 'Tindalos Interactive ', 'ValuSoft ', 'Video System ', 'White Paper Games ', 'Wube Software LTD. ', 'Zachtronics Industries ', 'i-illusions '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

229/229 [=====] - 23s 101ms/step - loss: 34.7249 - mae: 4.0932 - val_loss: 24.2078 - val_mae: 3.6833

Epoch 2/20

229/229 [=====] - 23s 103ms/step - loss: 20.8789 - mae: 2.9944 - val_loss: 22.2421 - val_mae: 3.6115

Epoch 3/20

229/229 [=====] - 23s 102ms/step - loss: 18.7939 - mae: 2.6881 - val_loss: 21.6504 - val_mae: 3.5086

Epoch 4/20

229/229 [=====] - 23s 101ms/step - loss: 15.6172 - mae: 2.4122 - val_loss: 21.1296 - val_mae: 3.5204

Epoch 5/20

229/229 [=====] - 24s 105ms/step - loss: 13.1572 - mae: 2.1537 - val_loss: 19.6238 - val_mae: 3.3442

Epoch 6/20

229/229 [=====] - 24s 106ms/step - loss: 12.6978 - mae: 2.0869 - val_loss: 18.7882 - val_mae: 3.2528

Epoch 7/20

229/229 [=====] - 24s 104ms/step - loss: 11.8291 - mae: 1.9785 - val_loss: 18.9351 - val_mae: 3.3110

Epoch 8/20

229/229 [=====] - 24s 104ms/step - loss: 11.3221 - mae: 1.9318 - val_loss: 18.6434 - val_mae: 3.3072

Epoch 9/20

229/229 [=====] - 24s 106ms/step - loss: 10.5269 - mae: 1.8130 - val_loss: 18.4993 - val_mae: 3.3248

Epoch 10/20

229/229 [=====] - 24s 105ms/step - loss: 10.5405 - mae: 1.7700 - val_loss: 19.2185 - val_mae: 3.4578

Epoch 11/20

229/229 [=====] - 24s 105ms/step - loss: 10.4278 - mae:

```

1.7478 - val_loss: 18.5605 - val_mae: 3.4125
Epoch 12/20
229/229 [=====] - 24s 105ms/step - loss: 9.5387 - mae:
1.6703 - val_loss: 18.5753 - val_mae: 3.4240
Epoch 13/20
229/229 [=====] - 24s 104ms/step - loss: 9.9062 - mae:
1.6895 - val_loss: 19.5097 - val_mae: 3.5141
Epoch 14/20
229/229 [=====] - 24s 105ms/step - loss: 8.9570 - mae:
1.6001 - val_loss: 18.2389 - val_mae: 3.3804
Epoch 15/20
229/229 [=====] - 24s 104ms/step - loss: 9.1598 - mae:
1.5957 - val_loss: 19.0783 - val_mae: 3.4656
Epoch 16/20
229/229 [=====] - 24s 106ms/step - loss: 9.0613 - mae:
1.5677 - val_loss: 19.7156 - val_mae: 3.5378
Epoch 17/20
229/229 [=====] - 24s 105ms/step - loss: 9.3338 - mae:
1.5967 - val_loss: 19.2860 - val_mae: 3.5294
Epoch 18/20
229/229 [=====] - 24s 106ms/step - loss: 8.5984 - mae:
1.5360 - val_loss: 18.1137 - val_mae: 3.3739
Epoch 19/20
229/229 [=====] - 24s 103ms/step - loss: 8.8350 - mae:
1.5467 - val_loss: 17.9248 - val_mae: 3.4000
Epoch 20/20
229/229 [=====] - 24s 106ms/step - loss: 8.7279 - mae:
1.5046 - val_loss: 18.7137 - val_mae: 3.4194
Chunk 27/52 // 50.0% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C:Ino-Co ', 'Owned by Gravity '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 23s 103ms/step - loss: 11.9393 - mae:
2.2772 - val_loss: 30.7445 - val_mae: 4.2489
Epoch 2/20
224/224 [=====] - 23s 104ms/step - loss: 5.6562 - mae:
1.5844 - val_loss: 31.7672 - val_mae: 4.1263
Epoch 3/20
224/224 [=====] - 23s 104ms/step - loss: 4.4378 - mae:
1.3538 - val_loss: 32.1262 - val_mae: 4.2316
Epoch 4/20
224/224 [=====] - 24s 107ms/step - loss: 3.6420 - mae:
1.2243 - val_loss: 31.5768 - val_mae: 4.1599
Epoch 5/20
224/224 [=====] - 24s 105ms/step - loss: 3.0490 - mae:

```


1.1262 - val_loss: 32.4347 - val_mae: 4.1592

Epoch 6/20

224/224 [=====] - 23s 105ms/step - loss: 3.3713 - mae:

1.0859 - val_loss: 35.0757 - val_mae: 4.3845

Chunk 28/52 // 51.92% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Ankama ', ' Black Drakkar Games ', ' Blitz Games ', ' Calappa Games ', ' Creative Business Unit III ', ' Cyan', ' EA Vancouver ', ' Gun Interactive ', ' Team 6 Games Studio ', '17-Bit ', '2By3 Games ', '6 Eyes Studio ', 'AGEOD ', 'Ankama Games', 'Anshar Studios ', 'Antab Studio ', 'Auran ', 'Awesome Games Studio ', 'Axel Fox ', 'Beard Envy ', 'Bedtime Digital Games ', 'BetaDwarf ', 'Bits & Beasts ', 'Bonus Level Entertainment ', 'Brain Candy ', 'Brendon Chung ', 'Bright Future GmbH ', 'Byte Barrel ', 'Campo Santo ', 'Cellar Door Games ', 'ChessBase ', 'Cyan Worlds', 'Dead Mage Studio ', 'EA Sports', 'Edge Case Games ', 'Fallen Leaf', 'Fishlabs ', 'Fort Triumph LTD ', 'Freebird Games ', 'Freedom LLC ', 'GalaxyTrail ', 'Gamepires ', 'Grace Bruxner ', 'Green Lava Studios ', 'Greenheart Games ', 'Ground Shatter Ltd. ', 'Harmonix Music Systems ', 'Hasbro Interactive', 'Hexagon Entertainment ', 'HopFrog ', 'Hothouse Creations ', 'IllFonic', 'IronOak Games ', 'JC Entertainment ', 'Kaos Studios ', 'Kong Orange ', 'Lukas Navratil ', 'MediaMobsters ', 'Mode 7 Games ', 'Mopeful Games ', 'Mutant Games ', 'Nemesys ', 'Nussoft', 'Object ', 'Okomotive ', 'Paranoid Interactive ', 'Perfect World Entertainment ', 'Phil Hassey ', 'Phosfiend Systems ', 'Pinkerton Road Studio ', 'Proper Games ', 'Pulsatrix Studios ', 'R8 Games ', 'Razorworks ', 'Red 5 Studios ', 'Red Redemption ', 'Sassybot ', 'Scott Cawthon ', 'Sierra Entertainment ', 'Spaces of Play ', 'Sports Mogul ', 'Stormfront Studios ', 'Sushee ', 'Team2Bit ', 'Team6 Game Studios', 'Throughline Games ', 'Tri Synergy ', 'Tribute Games ', 'Vile Monarch ', 'Whole Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Zoink! ', 'animdude '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

225/225 [=====] - 23s 101ms/step - loss: 30.6332 - mae:

3.7253 - val_loss: 23.9556 - val_mae: 3.4519

Epoch 2/20

225/225 [=====] - 24s 105ms/step - loss: 14.4798 - mae:

2.5015 - val_loss: 23.1798 - val_mae: 3.3573

Epoch 3/20

225/225 [=====] - 23s 104ms/step - loss: 12.6592 - mae:

2.2557 - val_loss: 21.7977 - val_mae: 3.2741

Epoch 4/20

225/225 [=====] - 24s 106ms/step - loss: 11.4816 - mae:

2.1322 - val_loss: 21.9393 - val_mae: 3.2489

Epoch 5/20

225/225 [=====] - 23s 102ms/step - loss: 10.0085 - mae:

2.0064 - val_loss: 20.6226 - val_mae: 3.1524

Epoch 6/20

```

225/225 [=====] - 24s 105ms/step - loss: 8.9419 - mae:
1.9077 - val_loss: 23.2854 - val_mae: 3.3337
Epoch 7/20
225/225 [=====] - 24s 105ms/step - loss: 8.6766 - mae:
1.8283 - val_loss: 22.6033 - val_mae: 3.2550
Epoch 8/20
225/225 [=====] - 24s 105ms/step - loss: 7.5789 - mae:
1.7152 - val_loss: 22.4959 - val_mae: 3.3156
Epoch 9/20
225/225 [=====] - 24s 107ms/step - loss: 7.5195 - mae:
1.6987 - val_loss: 19.9219 - val_mae: 3.1642
Epoch 10/20
225/225 [=====] - 23s 102ms/step - loss: 6.9666 - mae:
1.6535 - val_loss: 22.1193 - val_mae: 3.1730
Epoch 11/20
225/225 [=====] - 23s 102ms/step - loss: 6.9339 - mae:
1.6274 - val_loss: 20.2204 - val_mae: 3.1687
Epoch 12/20
225/225 [=====] - 24s 105ms/step - loss: 7.0129 - mae:
1.6027 - val_loss: 20.6502 - val_mae: 3.1462
Epoch 13/20
225/225 [=====] - 23s 103ms/step - loss: 6.7047 - mae:
1.5755 - val_loss: 20.9209 - val_mae: 3.1571
Epoch 14/20
225/225 [=====] - 23s 104ms/step - loss: 6.5669 - mae:
1.5652 - val_loss: 20.5075 - val_mae: 3.0393
Chunk 29/52 // 53.85% Complete // Cycle 1/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Acclaim Studios Manchester ', ' Atari ', ' Atari SA ', ' Buried Signal ', '
Grove Street Games ', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio
', ' MicroProse', ' Mixed Realms ', ' Phosphor Games ', ' SeithCG ', ' Splash
Damage', '4D Rulers ', '@unepic_fran ', 'Acclaim', 'AggroCrab ', 'Astro Port ',
'Atari', 'Atelier Mimina ', 'Bandai Namco Games', 'Barking Dog ', 'Behavior
Studios ', 'Camel 101 ', 'Cat Daddy Games ', 'Chronic Logic ', 'Clever Beans ',
'Coffee Stain North ', 'Covenant.dev ', 'Cypron Studios ', 'Demagog Studio ',
'Devolver Digital ', 'Doinksoft ', 'Feral Cat Den ', 'Fishcow Studio ', 'Flaming
Fowl Studios ', 'Free Lives ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of
a Tale', 'Hasbro Interactive', 'Heatwave Interactive ', 'IllFonic ', 'Jason
Roberts', 'Lucid Games ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd', 'Motiga
', 'Old Moon ', 'Old School Games ', 'Phosphor Games Studio', 'Planet Moon
Studios ', 'PortaPlay ', 'Radiation Blue ', 'Sick Puppies ', 'Silver Style ',
'Smudged Cat Games ', 'Stuck In Attic ', 'Sushee ', 'The Fullbright Company ',
'Trine Games ', 'Wadjet Eye Games', 'Warner Bros. Interactive Entertainment ',
'Whalebox Studio '] will be ignored

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    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20

```

```

210/210 [=====] - 21s 97ms/step - loss: 36.2109 - mae:
4.0613 - val_loss: 33.2583 - val_mae: 4.4705
Epoch 2/20
210/210 [=====] - 21s 101ms/step - loss: 17.2227 - mae:
2.6602 - val_loss: 32.2733 - val_mae: 4.5100
Epoch 3/20
210/210 [=====] - 21s 101ms/step - loss: 13.6552 - mae:
2.3127 - val_loss: 31.1071 - val_mae: 4.4678
Epoch 4/20
210/210 [=====] - 21s 102ms/step - loss: 12.9689 - mae:
2.1568 - val_loss: 31.6575 - val_mae: 4.4814
Epoch 5/20
210/210 [=====] - 22s 103ms/step - loss: 11.3987 - mae:
1.9900 - val_loss: 31.0917 - val_mae: 4.4238
Epoch 6/20
210/210 [=====] - 21s 100ms/step - loss: 10.8979 - mae:
1.8780 - val_loss: 31.3235 - val_mae: 4.4497
Epoch 7/20
210/210 [=====] - 22s 105ms/step - loss: 10.9329 - mae:
1.8270 - val_loss: 32.2584 - val_mae: 4.4996
Epoch 8/20
210/210 [=====] - 22s 105ms/step - loss: 11.3251 - mae:
1.8167 - val_loss: 33.4876 - val_mae: 4.6299
Epoch 9/20
210/210 [=====] - 21s 102ms/step - loss: 10.5988 - mae:
1.7448 - val_loss: 33.8766 - val_mae: 4.6663
Epoch 10/20
210/210 [=====] - 21s 102ms/step - loss: 8.4575 - mae:
1.5710 - val_loss: 31.4710 - val_mae: 4.4617
Chunk 30/52 // 55.77% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Clover Bite ', ' Grove Street Games ', ' GungHo', ' Navegante Entertainment ', '
PopCap ', ' SkyBox Labs ', '10 Chambers Collective ', 'Bromio', 'Caged Element
Inc. ', 'Claeys Brothers Arts ', 'Crate Entertainment ', 'Crazy Monkey Studios
', 'Creepy Jar ', 'Cyber Rhino Studios ', 'Daybreak Games ', 'DrinkBox Studios
', 'Funnel Entertainment', 'Gambrinous ', 'Game Arts', 'Game Arts ', 'IGGYMOB ',
'Interactive Stone ', 'Ivy Games LLC ', 'Johnny Dale Lonack ', 'Lazy Bear Games
', 'Massive Damage', 'Muse Games ', 'Neversoft Entertainment', 'Orann ',
'Positech Games ', 'Prideful Sloth ', 'Rebelmind ', 'Rewolf Software ', 'Silent
Dreams ', 'TALEROCK ', 'Tom Francis ', 'W!Games ', 'Wizarbox ', 'WorldForge ',
'Yukitama Creative Industries '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20
221/221 [=====] - 22s 100ms/step - loss: 13.7385 - mae:
2.5208 - val_loss: 24.7661 - val_mae: 3.7897
Epoch 2/20

```

221/221 [=====] - 23s 102ms/step - loss: 7.4114 - mae: 1.7666 - val_loss: 25.9700 - val_mae: 3.9950

Epoch 3/20

221/221 [=====] - 23s 104ms/step - loss: 6.1698 - mae: 1.5958 - val_loss: 26.2123 - val_mae: 4.0368

Epoch 4/20

221/221 [=====] - 23s 104ms/step - loss: 5.7867 - mae: 1.5108 - val_loss: 24.9008 - val_mae: 3.8133

Epoch 5/20

221/221 [=====] - 23s 103ms/step - loss: 5.0703 - mae: 1.4182 - val_loss: 25.2988 - val_mae: 3.9002

Epoch 6/20

221/221 [=====] - 23s 105ms/step - loss: 4.4946 - mae: 1.3452 - val_loss: 24.8875 - val_mae: 3.8655

Chunk 31/52 // 57.69% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['343 Industries ', ' Atari SA ', ' Cognosphere ', ' DON'T NOD ', ' Eerie Guest ', ' Hex Entertainment ', ' Ice Cold Games ', ' Novik & Co ', ' Psyop ', ' Targem Games ', ' Transmission Games', ' Vanguard Games ', ' Virtuos ', '343 Industries', '3D People ', 'Amanita Design ', 'Aquiris Game Studio ', 'Arclight Creations ', 'Arkedo Studio ', 'Atari', 'Barking Dog ', 'Benjamin "ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Big Sandwich Games', 'Black Matter ', 'Brain Slap Studio ', 'Buka Entertainment', 'Burut Software ', 'Cat Rabbit ', 'Choice Provisions ', 'Cradle Games ', 'CreativeForge Games ', 'Cryptozoic Entertainment', 'DONTNOD Entertainment', 'Defiant Development ', 'DigiFX Interactive ', 'E-One Studio ', 'EA Bright Light ', 'GFI Russia ', 'Hato Moa ', 'IR Gurus ', 'Ice Code Games', 'Joel Mcdonald ', 'Lucky Pause ', 'Magic Design Studios ', 'Moon Spider Studio ', 'Mosaic Mask ', 'New World Computing ', 'Nival Interactive', 'Paul Helman ', 'Psyop Games', 'Quantic Dream', 'Red Zero Games ', 'Robotality ', 'Saibot Studios ', 'Sam Barlow ', 'Sega AM2 ', 'Silverback Entertainment ', 'Skrollcat Studios ', 'Sluggerfly ', 'Soft Enterprises ', 'Square Enix Montreal ', 'Straandlooper ', 'Sumo Newcastle ', 'Terri Vellimann ', 'Tom Francis ', 'Vanguard', 'Warpzone Studios ', 'inkle ', 'miHoYo', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

216/216 [=====] - 22s 100ms/step - loss: 34.0748 - mae: 3.8100 - val_loss: 20.1077 - val_mae: 3.1303

Epoch 2/20

216/216 [=====] - 22s 104ms/step - loss: 15.1673 - mae: 2.5094 - val_loss: 18.9270 - val_mae: 3.0572

Epoch 3/20

216/216 [=====] - 22s 103ms/step - loss: 13.3896 - mae: 2.2594 - val_loss: 20.0358 - val_mae: 3.0650

Epoch 4/20

216/216 [=====] - 22s 103ms/step - loss: 12.3246 - mae:

2.1374 - val_loss: 20.7189 - val_mae: 3.1594
Epoch 5/20
216/216 [=====] - 22s 101ms/step - loss: 9.9550 - mae:
1.9381 - val_loss: 20.1977 - val_mae: 3.1896
Epoch 6/20
216/216 [=====] - 22s 102ms/step - loss: 10.8903 - mae:
1.9049 - val_loss: 21.4241 - val_mae: 3.1571
Epoch 7/20
216/216 [=====] - 22s 102ms/step - loss: 10.1998 - mae:
1.8117 - val_loss: 21.1122 - val_mae: 3.2170
Chunk 32/52 // 59.62% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' Beamdog', ' Bloom Technology ', ' Blueside ', ' Crema
Games ', ' Davit Andreasyan ', ' Easy Trigger Games ', ' Katuri Interactive ', '
Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' Most Wanted Entertainment ', '
Overhaul Games ', ' Pine Scented Software ', ' PixelHive ', ' Spike Chunsoft ',
' Squad ', ' Voidpoint', '1C Entertainment', '1C-Softclub ', '3D Realms', '4X
Studios ', 'Action Squad Studios ', 'Appaloosa Interactive ', 'Artifact
Entertainment ', 'Artifex Mundi ', 'Artificial Mind and Movement ', 'Ascendant
Studios ', 'Askiisoft ', 'Berzerk Studio ', 'Big Red Software ', 'Black Isle
Studios', 'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Bossa Studios
', 'Browsome ', 'Bulwark Studios ', 'ByteRockers' Games ', 'Cardboard Box
Entertainment ', 'Cardboard Computer ', 'Casey Donnellan Games LLC ',
'ChaosForge ', 'Clifftop Games ', 'Coffee Stain Studios', 'Conifer Games ',
'CremaGames', 'Critique Gaming ', 'Daniel Mullins Games ', 'Dark Energy Digital
', 'Digital Arrow ', 'Dirigo Games ', 'Dreadbit ', 'EKO Software ', 'Empyrean ',
'Fiddlesticks Games ', 'Final Form Games', 'Foolish Mortals Games ', 'Forge
Reply ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ', 'Galilea
Multimedia ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'HD Interactive',
'HandyGames ', 'Happy Ray Games ', 'Hidden Layer Games ', 'Hollow Ponds and
Richard Hogg ', 'IMGN.PRO ', 'Iceberg Interactive', 'In Utero ', 'Innerloop ',
'Joakim Sandberg', 'Juice Games ', 'Jump Over The Age ', 'Kaiko ', 'Katauri
Interactive', 'Koboldgames ', 'Kyle Thompson ', 'L30 Interactive ', 'Lab Zero
Games ', 'Lion Shield', 'Lo-Fi Games ', 'Lucky Mountain Games ', 'M2H',
'MONKEYCRAFT Co. Ltd. ', 'Metropolis Software ', 'Micro Application ', 'Mission
Studios ', 'Mojo Bones ', 'Moonlight Games ', 'NExT Studios ', 'Namco ',
'Necrophone ', 'Nemesys ', 'No Brakes Games ', 'Northway Games ', 'Nullpointer
Games ', 'Palindrome Interactive ', 'Particle Systems ', 'Phantagram',
'PolyKnight Games ', 'Primal Software ', 'QLOC ', 'Rage Software ', 'Rocket Bear
Games ', 'SQUADTeam', 'Sam Barlow ', 'Shanghai FantaBlade Network Technology
Co.', 'Sir-Tech Software Inc. ', 'So Romantic ', 'Somnium Games d.o.o. ', 'Spike
Chunsoft Co. Ltd.', 'Squad ', 'Studio Pixel ', 'SumomGames ', 'Superbrothers',
'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'The Odd Gentlemen ',
'Tokyo RPG Factory ', 'Tomorrow Corporation ', 'TreeFortress Games ', 'True Axis
', 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vox Game Studio', 'We
Create Stuff ', 'Wicked Studios ', 'X1 Software ', 'Zachtronics Industries ',

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'dreamfeel ']) will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
225/225 [=====] - 23s 99ms/step - loss: 36.9336 - mae:
4.0628 - val_loss: 63.0580 - val_mae: 5.6249
Epoch 2/20
225/225 [=====] - 23s 104ms/step - loss: 20.3105 - mae:
2.8912 - val_loss: 56.3120 - val_mae: 5.3808
Epoch 3/20
225/225 [=====] - 23s 104ms/step - loss: 16.1967 - mae:
2.5474 - val_loss: 58.6155 - val_mae: 5.4093
Epoch 4/20
225/225 [=====] - 23s 104ms/step - loss: 14.3224 - mae:
2.3088 - val_loss: 63.5447 - val_mae: 5.5990
Epoch 5/20
225/225 [=====] - 24s 107ms/step - loss: 12.2628 - mae:
2.1410 - val_loss: 63.8703 - val_mae: 5.6551
Epoch 6/20
225/225 [=====] - 23s 104ms/step - loss: 11.3550 - mae:
2.0068 - val_loss: 65.6537 - val_mae: 5.7912
Epoch 7/20
225/225 [=====] - 23s 102ms/step - loss: 11.4504 - mae:
1.9937 - val_loss: 68.2773 - val_mae: 5.8694
Chunk 33/52 // 61.54% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Black Sea Games ', ' Boss Key Productions ', ' Deck Nine Games ', ' Infogrames',
' Jujubee S.A. ', ' Kaiko ', ' MONKEYCRAFT Co. Ltd. ', ' Melbourne House ', '
Movie Games ', ' Novacore Studios ', ' Slitherine Group ', ' Team Reptile ', '
UNKNOWN GAMES ', ' Xaviant ', 'Activision ', 'Almost Human ', 'Altari Games ',
'Amanita Design ', 'Animation Arts ', 'Asteroid Base ', 'Atari', 'Aterdux
Entertainment ', 'BLOODIOUS GAMES ', 'Bandai Namco Games', 'Behold Studios ',
'Bishop Games ', 'Bitbox Ltd. ', 'Black Sea Studios', 'Black Sea Studios ',
'Boss Key', 'BudCat ', 'Cauldron Ltd. ', 'Clever-Plays ', 'ClockStone Studio ',
'Codo Games ', 'Core Design Ltd. ', 'CrazyBunch ', 'DONTNOD Entertainment',
'Dingaling ', 'Duckbridge ', 'Elastic Games ', 'Evan Todd ', 'Foam Sword ',
'Four Quarters ', 'Gamious ', 'Geeta Games ', 'Geniaware ', 'Goblinz Studio ',
'Grundislav Games ', 'HappyJuice Games ', 'Hollow Ponds ', 'Ice-Pick Lodge ',
'Impressions Games ', 'Infinite Monkeys ', 'Jujubee', 'Just A Pixel ', 'KDV
Games ', 'Kuma Reality Games ', 'Kyy Games ', 'Lantern Studio ', 'Left Behind
Games ', 'Lichthund ', 'Light Brick ', 'Love Conquers All Games ', 'M2', 'Master
Creating ', 'Mirage Game Studios ', 'Modern Dream ', 'Mooneye Studios ', 'Movie
Games ', 'Movie Games S.A.', 'Neon Studios', 'NetDevil ', 'Nfusion ', 'Nigoro ',

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'Numantian Games ', 'Ocean Drive Studio ', 'Ovosonico ', 'Parabole ', 'Pieces Interactive ', 'Playful Corp. ', 'Pollux Gamelabs ', 'Rapid Eye Entertainment ', 'Ratbag ', 'Ratloop Games Canada ', 'Razbor Studios ', 'Ready at Dawn ', 'Reflexive Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ', 'SEMISOFT ', 'Shiver Games ', 'Silverback Studios ', 'Size Five Games ', 'Sketchbook Games ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Stage 2 Studios ', 'State of Play Games ', 'Tangrin ', 'The Chinese Room ', 'Third Law Interactive ', 'Thomas van den Berg ', 'Tokyo RPG Factory ', 'Tomorrow Corporation ', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Tunnel Vision Games ', 'TurtleBlaze ', 'Variable State ', 'Velan Studios ', 'Visual Concepts ', 'Vlambeer ', 'Wild Factor ', 'Xaviant Games', 'Yakov Butuzoff ', 'Zoink! ', 'eBrain Studio ', 'straka.studio ', 'superflat games '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

220/220 [=====] - 22s 98ms/step - loss: 32.9506 - mae: 3.6824 - val_loss: 26.8696 - val_mae: 3.5824

Epoch 2/20

220/220 [=====] - 22s 100ms/step - loss: 21.2816 - mae: 2.8083 - val_loss: 23.9101 - val_mae: 3.2996

Epoch 3/20

220/220 [=====] - 23s 103ms/step - loss: 17.3394 - mae: 2.4408 - val_loss: 23.8253 - val_mae: 3.4212

Epoch 4/20

220/220 [=====] - 23s 103ms/step - loss: 15.4008 - mae: 2.2795 - val_loss: 21.1802 - val_mae: 3.2778

Epoch 5/20

220/220 [=====] - 22s 101ms/step - loss: 14.1167 - mae: 2.1610 - val_loss: 21.1266 - val_mae: 3.2489

Epoch 6/20

220/220 [=====] - 22s 102ms/step - loss: 12.9069 - mae: 2.0289 - val_loss: 19.8605 - val_mae: 3.1673

Epoch 7/20

220/220 [=====] - 23s 103ms/step - loss: 12.1091 - mae: 1.9396 - val_loss: 19.4815 - val_mae: 3.1933

Epoch 8/20

220/220 [=====] - 23s 103ms/step - loss: 11.7015 - mae: 1.8638 - val_loss: 19.7455 - val_mae: 3.1456

Epoch 9/20

220/220 [=====] - 23s 102ms/step - loss: 11.6111 - mae: 1.8487 - val_loss: 19.9252 - val_mae: 3.1966

Epoch 10/20

220/220 [=====] - 23s 103ms/step - loss: 10.8523 - mae: 1.7724 - val_loss: 19.7954 - val_mae: 3.2330

Epoch 11/20

220/220 [=====] - 22s 101ms/step - loss: 10.4807 - mae: 1.7226 - val_loss: 19.0672 - val_mae: 3.0788

Epoch 12/20

```

220/220 [=====] - 23s 103ms/step - loss: 9.4696 - mae:
1.6603 - val_loss: 17.9351 - val_mae: 3.0192
Epoch 13/20
220/220 [=====] - 23s 103ms/step - loss: 10.1144 - mae:
1.6814 - val_loss: 19.1605 - val_mae: 3.1544
Epoch 14/20
220/220 [=====] - 23s 104ms/step - loss: 9.2073 - mae:
1.6084 - val_loss: 19.5154 - val_mae: 3.1980
Epoch 15/20
220/220 [=====] - 22s 100ms/step - loss: 9.8220 - mae:
1.6586 - val_loss: 19.4919 - val_mae: 3.2128
Epoch 16/20
220/220 [=====] - 22s 101ms/step - loss: 9.1351 - mae:
1.5948 - val_loss: 18.2097 - val_mae: 3.0672
Epoch 17/20
220/220 [=====] - 22s 100ms/step - loss: 8.7947 - mae:
1.5655 - val_loss: 18.6583 - val_mae: 3.1174
Chunk 34/52 // 63.46% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Ino-Co', 'Anim-X ', 'Borealis Games ', 'Charybdis ', 'Cyberlore Studios ', 'FASA
Studio ', 'Finish Line Games ', 'GameSourceStudio ', 'Gazillion ', 'Graceful
Decay ', 'Guru Games ', 'Himalaya Studios ', 'Holistic Design', 'InterServ
International ', 'LKA ', 'Leaping Lizard Software Inc. ', 'Locomalito ', 'MuHa
Games ', 'Muzzy Lane Software ', 'NGD Studios ', 'Oldblood ', 'Paradox North ',
'Passtech Games ', 'Pieces Interactive ', 'Piranha Games ', 'Press Play ',
'Quicksilver Software ', 'Sanzaru Games ', 'Secret Level ', 'Sileni Studios ',
'SimTex ', 'Wales Interactive ', 'William Chyr Studio LLC ', 'Wizards of the
Coast '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
227/227 [=====] - 23s 99ms/step - loss: 30.7530 - mae:
3.6126 - val_loss: 18.2053 - val_mae: 3.2496
Epoch 2/20
227/227 [=====] - 24s 104ms/step - loss: 17.4162 - mae:
2.3827 - val_loss: 17.1390 - val_mae: 3.1483
Epoch 3/20
227/227 [=====] - 24s 104ms/step - loss: 16.3058 - mae:
2.1550 - val_loss: 15.1810 - val_mae: 3.0348
Epoch 4/20
227/227 [=====] - 24s 105ms/step - loss: 14.4949 - mae:
2.0073 - val_loss: 14.7972 - val_mae: 3.1063
Epoch 5/20
227/227 [=====] - 23s 102ms/step - loss: 13.3278 - mae:
1.8598 - val_loss: 14.0803 - val_mae: 3.0380
Epoch 6/20
227/227 [=====] - 23s 100ms/step - loss: 12.4376 - mae:

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1.7655 - val_loss: 13.2749 - val_mae: 2.9826
Epoch 7/20
227/227 [=====] - 23s 99ms/step - loss: 12.2001 - mae:
1.7238 - val_loss: 12.4963 - val_mae: 2.9185
Epoch 8/20
227/227 [=====] - 23s 101ms/step - loss: 12.5311 - mae:
1.7006 - val_loss: 12.7676 - val_mae: 2.9235
Epoch 9/20
227/227 [=====] - 23s 101ms/step - loss: 11.2661 - mae:
1.5923 - val_loss: 12.9066 - val_mae: 2.9788
Epoch 10/20
227/227 [=====] - 24s 104ms/step - loss: 11.3687 - mae:
1.5742 - val_loss: 11.9485 - val_mae: 2.8282
Epoch 11/20
227/227 [=====] - 24s 105ms/step - loss: 11.6379 - mae:
1.5694 - val_loss: 13.2462 - val_mae: 2.9813
Epoch 12/20
227/227 [=====] - 23s 101ms/step - loss: 10.8033 - mae:
1.4749 - val_loss: 13.5480 - val_mae: 3.0977
Epoch 13/20
227/227 [=====] - 24s 104ms/step - loss: 11.3083 - mae:
1.4944 - val_loss: 12.7653 - val_mae: 3.0106
Epoch 14/20
227/227 [=====] - 23s 100ms/step - loss: 10.0649 - mae:
1.3750 - val_loss: 12.6285 - val_mae: 3.0120
Epoch 15/20
227/227 [=====] - 23s 102ms/step - loss: 10.3078 - mae:
1.3648 - val_loss: 12.3169 - val_mae: 2.9772
Chunk 35/52 // 65.38% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' Bullets ', ' Centauri Production ', ' Dreamworks Games ', ' Eyeguys ', '
French-Bread ', ' General Arcade ', ' Ministry of Broadcast Studios ', ' Now
Production', ' Rockstar San Diego ', ' Studio Fizbin ', ' Team Reptile ', '
Tribute Games Inc. ', '1C-Softclub ', 'Angel Studios', 'Bit Byterz ', 'Blastmode
', 'Bombservice ', 'Carlos Coronado ', 'Cinemax', 'Devolver Digital ', 'Digital
Dialect ', 'Digital Eclipse ', 'Dinosaur Polo Club ', 'EA LA', 'Ecole',
'Fizbin', 'From Software', 'Half Asleep ', 'Homeless Unicorn', 'Inti Creates ',
'IonFX ', 'Jacob Dzwinel ', 'KCEJ ', 'Keen Software House ', 'Kuju Entertainment
', 'Lorenzo Redaelli', 'Piranha Games ', 'Red Rocket Games ', 'Render Cube ',
'Reptile', 'Rockstar San Diego ', 'Saturn+ ', 'Supersonic Software ', 'THQ',
'TKO Software ', 'The Outsiders ', 'Tribute Games', 'Twice Circled ', 'Virtuos
', 'Zono Inc. '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
210/210 [=====] - 21s 96ms/step - loss: 23.3054 - mae:
3.3439 - val_loss: 17.5568 - val_mae: 3.0349

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Epoch 2/20
 210/210 [=====] - 21s 99ms/step - loss: 11.1852 - mae: 2.1745 - val_loss: 16.2713 - val_mae: 2.9295
 Epoch 3/20
 210/210 [=====] - 21s 102ms/step - loss: 8.5398 - mae: 1.8553 - val_loss: 17.7510 - val_mae: 3.0900
 Epoch 4/20
 210/210 [=====] - 22s 103ms/step - loss: 8.0407 - mae: 1.7037 - val_loss: 17.1718 - val_mae: 3.1983
 Epoch 5/20
 210/210 [=====] - 21s 100ms/step - loss: 6.7044 - mae: 1.5745 - val_loss: 18.8241 - val_mae: 3.3185
 Epoch 6/20
 210/210 [=====] - 21s 101ms/step - loss: 6.1959 - mae: 1.4934 - val_loss: 17.9689 - val_mae: 3.1591
 Epoch 7/20
 210/210 [=====] - 21s 101ms/step - loss: 6.1853 - mae: 1.4626 - val_loss: 17.9441 - val_mae: 3.1541
 Chunk 36/52 // 67.31% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['10tons ', ' Application Systems Heidelberg ', ' Awesome Games Studio ', ' BeautiFun Games ', ' BlackMuffin Studio', ' Char & Torfi ', ' Digital Sun ', ' EA Singapore ', ' Fair Play Labs ', ' Funatics ', ' Funatics Software', ' Honor Code', ' Immersion Software & Graphics ', ' Monkey Moon ', ' Muutsch', ' Playsport Games Ltd ', ' Pol', ' Russia ', ' Soleil', ' Soleil Ltd. ', ' StudioInkyfox ', ' Thomas Brush ', ' Toylogic ', ' Varkian Empire ', '10tons Entertainment', '11 bit studios', '24 Entertainment ', '3A Games ', 'Alcachofa Soft ', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios', 'Arxel Tribe ', 'Avalon Style ', 'AwesomeGamesStudio', 'BEAUTIFUN GAMES SL', 'Beautiful Glitch ', 'Big Ape Productions ', 'Black Mermaid ', 'Black Pants Studio ', 'Blazing Bit Games ', 'Blazing Griffin ', 'Blue Bottle Games ', 'Broken Rules ', 'Capricia Productions ', 'Chance Agency ', 'Coffee Powered Machine ', 'Connor Ullmann ', 'Cornfox & Bros. ', 'Crunching Koalas ', 'CyberConnect2', 'Deep Red ', 'Delphine Software International ', 'Detalion ', 'Die Gute Fabrik ', 'Diversions Entertainment ', 'DrinkBox Studios ', 'EA Black Box', 'EA Seattle ', 'Eutechnyx ', 'Funatics Development GmbH', 'Future Games ', 'Geography of Robots ', 'Gojira ', 'Grip Digital ', 'Harebrained Schemes LLC ', 'Hidden Fields ', 'Housemarque ', 'Humongous Entertainment ', 'Hydravision ', 'ILCA', 'Idol FX ', 'In Utero ', 'InfiniTap Games ', 'Infinite Fall ', 'Interwave Studios ', 'John Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games ', 'Just Add Water ', 'Kitfox Games ', 'Kuju Entertainment ', 'LCB Game Studio ', 'Le Cartel Studio ', 'Level 5 ', 'Lexis Numerique ', 'Limasse Five ', 'Ludosity Interactive', 'Max Mraz ', 'Mayhem Studios ', 'Messhof ', 'Metronomik ', 'Mithis/HD Interactive ', 'Mohawk Games ', 'Monster Games Inc. ', 'NUDE MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No Code ', 'Nolla Games ', 'NotGames ', 'Nowhere Studios ', 'Oddworld Inhabitants ', 'Ossian

Studios ', 'Panic Barn Ltd ', 'Papyrus ', 'Pathea Games ', 'Phosphor Games Studio', 'Picaresque Studio ', 'Pinkerton Road Studio ', 'Player First Games ', 'Playsport Games', 'Pocketwatch Games ', 'Polypusher Studios ', 'Presto Studios ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury', 'Red Herring Labs ', 'Related Designs ', 'Renegade Kid ', 'Rock Pocket Games ', 'Rocket Science Games ', 'Rogue Factor ', 'Route 59 Games ', 'SMG Studio ', 'Santa Ragione ', 'Screaming Games ', 'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ', 'Shiro Games ', 'Silver Dollar Games ', 'Skeleton Crew Studio ', 'Space Dust Studios', 'Spearhead Games ', 'Still Running ', 'Studio Koba ', 'Sunnyside Games ', 'Tamssoft ', 'Team Oneshot ', 'Team Shifty ', 'Termite Games ', 'Thomas Moon Kang ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic Inc.', 'Triternion ', 'Turbo Tape Games ', 'Uber Entertainment ', 'Unigine Corp', 'Untame ', 'Upper One Games ', 'Veewo Games ', 'Vile Monarch ', 'Visual Concepts ', 'Vlambeer ', 'White Birds Productions ', 'Y.K. ', 'ZANDEL MEDIA ', 'roll7 ', 'tiny Build GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

220/220 [=====] - 21s 93ms/step - loss: 39.0130 - mae: 4.3640 - val_loss: 34.8679 - val_mae: 4.4173

Epoch 2/20

220/220 [=====] - 21s 98ms/step - loss: 22.6509 - mae: 3.1753 - val_loss: 26.9957 - val_mae: 3.8571

Epoch 3/20

220/220 [=====] - 22s 99ms/step - loss: 18.8849 - mae: 2.8333 - val_loss: 25.5098 - val_mae: 3.7429

Epoch 4/20

220/220 [=====] - 21s 95ms/step - loss: 16.8032 - mae: 2.5905 - val_loss: 23.7667 - val_mae: 3.6218

Epoch 5/20

220/220 [=====] - 22s 98ms/step - loss: 14.7568 - mae: 2.4130 - val_loss: 23.4192 - val_mae: 3.5985

Epoch 6/20

220/220 [=====] - 21s 95ms/step - loss: 14.0533 - mae: 2.3223 - val_loss: 22.6745 - val_mae: 3.5843

Epoch 7/20

220/220 [=====] - 21s 97ms/step - loss: 13.2633 - mae: 2.2151 - val_loss: 20.7847 - val_mae: 3.4012

Epoch 8/20

220/220 [=====] - 21s 95ms/step - loss: 11.7514 - mae: 2.0885 - val_loss: 22.0365 - val_mae: 3.4977

Epoch 9/20

220/220 [=====] - 20s 92ms/step - loss: 11.5961 - mae: 2.0459 - val_loss: 22.0590 - val_mae: 3.5238

Epoch 10/20

220/220 [=====] - 21s 96ms/step - loss: 11.8473 - mae: 2.0346 - val_loss: 22.0259 - val_mae: 3.4996

Epoch 11/20

```

220/220 [=====] - 22s 98ms/step - loss: 11.2200 - mae:
1.9695 - val_loss: 22.0205 - val_mae: 3.4779
Epoch 12/20
220/220 [=====] - 21s 97ms/step - loss: 10.6804 - mae:
1.9181 - val_loss: 20.9228 - val_mae: 3.4263
Chunk 37/52 // 69.23% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Bigben Games ', ' Bigben Interactive', ' Minority Media Inc. ', ' Sproing ', '
Xeen ', 'Alter Games ', 'Appeal', 'Black Shamrock ', 'Clever Plays ', 'Continuum
', 'Finji ', 'Flashback Games ', 'Galilea Multimedia ', 'Gaming Minds Studios ',
'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games ',
'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque', 'Ice-
Pick Lodge ', 'IzHard ', 'Jacob Janerka ', 'Kaizen Game Works ', 'Lesta Studio
', 'Lightbulb Crew ', 'Lucas Pope ', 'Mad Head Games ', 'Mi-Clos Studio ',
'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist Land ', 'Namco Bandai
Games ', 'Nerd Monkeys ', 'Nerial ', 'Now Production', 'Osmotic Studios ', 'Out
Of The Park Developments ', 'Owlcat Games ', 'Patrick Traynor ', 'Phantom 8 ',
'Phantomery Interactive ', 'Pinokl Games ', 'PolyAmorous ', 'Proxy Studios ',
'R8 Games ', 'Revival Productions', 'Robotality ', 'SEK Ost ', 'SSI ', 'Shining
Pixel Studios ', 'Sproing Interactive Media', 'The Artistocrats ', 'The Lordz
Games Studio ', 'Tribute Games ', 'Ultra Runaway Games ', 'White Birds
Productions ', 'Zordix Racing '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
223/223 [=====] - 22s 99ms/step - loss: 30.5064 - mae:
3.2107 - val_loss: 16.0518 - val_mae: 2.7656
Epoch 2/20
223/223 [=====] - 23s 103ms/step - loss: 12.5183 - mae:
1.8838 - val_loss: 17.0261 - val_mae: 2.8121
Epoch 3/20
223/223 [=====] - 23s 103ms/step - loss: 11.4557 - mae:
1.7208 - val_loss: 16.1506 - val_mae: 2.6648
Epoch 4/20
223/223 [=====] - 23s 105ms/step - loss: 8.5204 - mae:
1.5249 - val_loss: 16.3998 - val_mae: 2.7865
Epoch 5/20
223/223 [=====] - 23s 105ms/step - loss: 8.6544 - mae:
1.4975 - val_loss: 17.0956 - val_mae: 2.8543
Epoch 6/20
223/223 [=====] - 23s 105ms/step - loss: 8.1878 - mae:
1.4039 - val_loss: 17.9368 - val_mae: 2.9820

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 38/52 // 71.15% Complete // Cycle 1/3

```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
AGEOD ', ' Gaming Minds Studios ', ' Planetary Annihilation Inc ', ' Q-Games ',
'7 Studios ', 'Adrian Lazar ', 'Beamdog ', 'Beatnik Games ', 'Chasing Carrots ',
'Cloudhead Games ', 'CreativeForge Games ', 'Cyberlore Studios ', 'Daniel
Mullins Games ', 'Disney Online ', 'Double Eleven', 'Double Eleven ', 'Dry
Cactus ', 'Fabled Game ', 'Flying Lab Software ', 'FuturLab ', 'Gaming Minds
Studios ', 'ION LANDS ', 'IllFonic ', 'Impressions Games ', 'K-D Lab ',
'Lukewarm Media ', 'Mages. ', 'Might and Delight ', 'Object ', 'Paradox
Interactive', 'Pasta Games ', 'Polyslash ', 'RichMakeGame ', 'Running Dog ',
'Sectordub ', 'Snapshot Games Inc. ', 'SoftWarWare ', 'Stormfront Studios ',
'The Behemoth ', 'The Deep End Games ', 'Thomas Brush ', 'Tlon Studios ', 'Torus
Games ', 'Tour De Pizza ', 'Triskell Interactive ', 'Uber Entertainment',
'Visiware Studios ', 'Voracious Games ', 'Wastelands Interactive ', 'Wishfully
', 'Wormwood Studios ', 'YCJY Games ', 'Zeboyd Games ', 'ZootFly ', 'nDreams ',
'niceplay games '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

Epoch 1/20

```
230/230 [=====] - 23s 101ms/step - loss: 28.2344 - mae:
3.1882 - val_loss: 20.3338 - val_mae: 3.0237
```

Epoch 2/20

```
230/230 [=====] - 24s 105ms/step - loss: 17.2184 - mae:
2.3816 - val_loss: 17.4881 - val_mae: 2.8129
```

Epoch 3/20

```
230/230 [=====] - 24s 103ms/step - loss: 15.8469 - mae:
2.1533 - val_loss: 17.6120 - val_mae: 3.0366
```

Epoch 4/20

```
230/230 [=====] - 23s 102ms/step - loss: 14.3369 - mae:
1.9861 - val_loss: 19.9540 - val_mae: 3.2109
```

Epoch 5/20

```
230/230 [=====] - 23s 100ms/step - loss: 13.3039 - mae:
1.8725 - val_loss: 19.3740 - val_mae: 3.1562
```

Epoch 6/20

```
230/230 [=====] - 23s 100ms/step - loss: 10.5538 - mae:
1.7418 - val_loss: 19.5792 - val_mae: 3.1823
```

Epoch 7/20

```
230/230 [=====] - 23s 99ms/step - loss: 10.1308 - mae:
1.6637 - val_loss: 21.2997 - val_mae: 3.4015
```

```
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

Chunk 39/52 // 73.08% Complete // Cycle 1/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
```

```

packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Bounding Box Games ', ' Double Damage Games ', ' Hi Corp ', ' KTX Software ', '
MachineGames ', ' Pixel Pi Games ', ' Team Ladybug ', ' WSS Playground', '2 Dawn
Games ', '34BigThings ', 'Abbey Games ', 'Atomic Motion ', 'Big Star Games ',
'Black Rock Studio ', 'Blendo Games ', 'Buckshot Software ', 'Camouflaj',
'Cococucumber ', 'Core Design Ltd. ', 'Creat Studios ', 'Doctor Entertainment ',
'Double Damage Games', 'Double Damage Games ', 'EasyGameStation ', 'Ed Key and
David Kanaga ', 'Flippfly ', 'Flying Lab Software ', 'Freeform Interactive LLC
', 'Frostwood Interactive ', 'Gaming Minds Studios ', 'Ice Flames ', 'Infamous
Quests ', 'Innerloop ', 'Interceptor Entertainment ', 'Ironward ', 'Jujubee S.A.
', 'Kuju Entertainment ', 'Laura Shigihara ', 'Lazy Bear Games ', 'Lionbite
Games ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Mighty Polygon ',
'Mike and Jason', 'NG:DEV.TEAM', 'Nerial ', 'Nexus Game Studio ', 'Nicolas
Meyssonnier ', 'Nodding Heads Games ', 'NuClearVision ', 'Old School Games ',
'Outrage Games ', 'Phigames ', 'Pixelated Milk ', 'Plastic Piranha ', 'Radon
Labs ', 'RailSimulator.com ', 'Rival Interactive ', 'Sector D2 ', 'Sobaka ',
'SomaSim ', 'Stormind Games ', 'Sundae Month ', 'Survios ', 'Team Pixel Pi',
'The Bae Team ', 'The Tiniest Shark ', 'Three Rings ', 'Toxic Games ', 'Ublart
Montpellier ', 'Vertical Robot ', 'Videocult ', 'Vladimir Kudelka ', 'Volatile
Games ', 'Why so serious?', 'Wizarbox ', 'Yanim Studio ', 'comcept '] will be
ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
212/212 [=====] - 21s 97ms/step - loss: 34.1440 - mae:
3.7876 - val_loss: 23.3266 - val_mae: 3.2944
Epoch 2/20
212/212 [=====] - 21s 101ms/step - loss: 20.2770 - mae:
2.6976 - val_loss: 20.9543 - val_mae: 2.9863
Epoch 3/20
212/212 [=====] - 22s 102ms/step - loss: 16.1165 - mae:
2.3047 - val_loss: 20.8885 - val_mae: 3.1980
Epoch 4/20
212/212 [=====] - 22s 103ms/step - loss: 14.5947 - mae:
2.1533 - val_loss: 19.6151 - val_mae: 3.0462
Epoch 5/20
212/212 [=====] - 21s 101ms/step - loss: 13.6360 - mae:
2.0418 - val_loss: 19.9710 - val_mae: 3.1637
Epoch 6/20
212/212 [=====] - 22s 103ms/step - loss: 13.2518 - mae:

```

```

2.0323 - val_loss: 20.9183 - val_mae: 3.2577
Epoch 7/20
212/212 [=====] - 21s 101ms/step - loss: 10.5618 - mae:
1.7986 - val_loss: 19.3329 - val_mae: 3.2068
Epoch 8/20
212/212 [=====] - 21s 100ms/step - loss: 9.1787 - mae:
1.6824 - val_loss: 19.8285 - val_mae: 3.2636
Epoch 9/20
212/212 [=====] - 21s 100ms/step - loss: 9.8818 - mae:
1.7069 - val_loss: 18.6851 - val_mae: 3.1296
Epoch 10/20
212/212 [=====] - 21s 98ms/step - loss: 9.1182 - mae:
1.6369 - val_loss: 20.1569 - val_mae: 3.3173
Epoch 11/20
212/212 [=====] - 21s 99ms/step - loss: 9.2703 - mae:
1.6488 - val_loss: 21.3386 - val_mae: 3.3274
Epoch 12/20
212/212 [=====] - 21s 99ms/step - loss: 7.9947 - mae:
1.5322 - val_loss: 20.8570 - val_mae: 3.3294
Epoch 13/20
212/212 [=====] - 21s 101ms/step - loss: 8.9803 - mae:
1.5805 - val_loss: 20.7295 - val_mae: 3.3185
Epoch 14/20
212/212 [=====] - 21s 98ms/step - loss: 8.4691 - mae:
1.5043 - val_loss: 20.5987 - val_mae: 3.3458

```

```

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

```

```

Chunk 40/52 // 75.0% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Animation Arts ', ' Devoured Studios ', ' Engine Software ', ' Gamasoft ', '
Hopoo Games ', ' Introversion Software ', ' Jo-Mei Games ', ' Leikir Studio ', '
Mixed Realms ', ' Monstars Inc.', ' Omen ', ' Resonair ', ' Stainless Steel
Studios ', ' Studio 369 ', ' Studio Fizbin ', ' Super Awesome Hyper Dimensional
Mega Team ', '5 Lives Studios ', '5TH Cell ', 'Abbey Games ', 'Abrakam SA ',
'Amanita Design ', 'Animation Arts ', 'Antimatter Games ', 'Arberth Studios ',
'Artifice Studio ', 'Atomic Planet Entertainment ', 'Beau Blyth ', 'Broken Rules
', 'CCR', 'Cadenza ', 'Cellar Door Games ', 'Chucklefish', 'Creative Bytes ',
'DAMAGE STATE LTD ', 'Dapper Penguin Studios ', 'Dark Seas Games ', 'Denby /
Raze ', 'Digixart Entertainment', 'Digixart Entertainment ', 'DreamCatcher
Interactive ', 'Ebb Software ', 'Edelweiss ', 'Egidijus Bachur ', 'Facepunch
Studios ', 'Final Strike Games ', 'Fizbin', 'Flying Oak Games ', 'Free Radical
Design ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Gabriel Interactive
', 'HAKAMA ', 'Housemarque ', 'Human Head Studios', 'Introversion', 'Italic Pig
', 'Jutsu Games ', 'Koei ', 'LGK Games ', 'Lucas Pope ', 'Ludeon Studios ', 'Mad
Head Games ', 'Master Creating ', 'Midway', 'Mixed Realms Pte Ltd', 'Morgondag

```

', 'Mystic Box ', 'Naked Sky Entertainment ', 'No Goblin ', 'Nucleosys ',
'Nvizzio Creations ', 'Owlchemy Labs ', 'Phantom Compass ', 'Polygon Treehouse
' , 'Puppy Games ', 'Recoil Games ', 'Red Ego Games ', 'Reikon Games ', 'Robot
House ', 'Runewaker Entertainment ', 'SNK Corporation ', 'Sabotage Studio ',
'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Shed-Works ', 'Ska
Studios', 'Skunkape Games ', 'Slant Six ', 'Softlab-NSK ', 'SouthPeak Games ',
'Southend Interactive ', 'Spellbind Studios ', 'Sperasoft ', 'Spry Fox ', 'Super
Mega Team', 'Swing Swing Submarine ', 'TickTock Games ', 'Tomasz Wacławek ',
'Torched Hill ', 'Totally Games ', 'Twice Different ', 'Two Tribes ', 'UGA',
'Uprising Studios ', 'Vblank Entertainment Inc. ', 'XYLA Entertainment ',
'Youxiland', 'neoqb ', 'roll7 ', 'xii games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20

221/221 [=====] - 22s 97ms/step - loss: 37.0091 - mae:
4.1649 - val_loss: 38.1869 - val_mae: 4.2294

Epoch 2/20

221/221 [=====] - 22s 99ms/step - loss: 21.6966 - mae:
3.0587 - val_loss: 33.0750 - val_mae: 3.9920

Epoch 3/20

221/221 [=====] - 22s 99ms/step - loss: 16.6290 - mae:
2.6420 - val_loss: 32.6502 - val_mae: 3.8457

Epoch 4/20

221/221 [=====] - 22s 98ms/step - loss: 15.4273 - mae:
2.4844 - val_loss: 29.9683 - val_mae: 3.8909

Epoch 5/20

221/221 [=====] - 22s 99ms/step - loss: 13.7028 - mae:
2.3419 - val_loss: 29.5232 - val_mae: 3.7957

Epoch 6/20

221/221 [=====] - 22s 100ms/step - loss: 12.3045 - mae:
2.2341 - val_loss: 29.2848 - val_mae: 3.8121

Epoch 7/20

221/221 [=====] - 23s 103ms/step - loss: 10.3520 - mae:
2.0875 - val_loss: 28.0853 - val_mae: 3.7876

Epoch 8/20

221/221 [=====] - 22s 100ms/step - loss: 11.2645 - mae:
2.0584 - val_loss: 28.0066 - val_mae: 3.6416

Epoch 9/20

221/221 [=====] - 23s 103ms/step - loss: 9.6785 - mae:
1.9704 - val_loss: 28.5991 - val_mae: 3.6959

Epoch 10/20

221/221 [=====] - 22s 102ms/step - loss: 9.8283 - mae:
1.9338 - val_loss: 26.3934 - val_mae: 3.6117

Epoch 11/20


```

221/221 [=====] - 22s 102ms/step - loss: 9.3257 - mae:
1.8980 - val_loss: 28.6465 - val_mae: 3.7259
Epoch 12/20
221/221 [=====] - 23s 104ms/step - loss: 8.3405 - mae:
1.7936 - val_loss: 27.9098 - val_mae: 3.6114
Epoch 13/20
221/221 [=====] - 23s 102ms/step - loss: 9.6484 - mae:
1.8598 - val_loss: 30.5849 - val_mae: 3.8225
Epoch 14/20
221/221 [=====] - 23s 104ms/step - loss: 8.6531 - mae:
1.7964 - val_loss: 31.0364 - val_mae: 3.8070
Epoch 15/20
221/221 [=====] - 23s 104ms/step - loss: 8.4200 - mae:
1.7692 - val_loss: 28.4182 - val_mae: 3.7003

```

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 41/52 // 76.92% Complete // Cycle 1/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cliffhanger Productions ', ' Dead Mage ', ' Games Farm s.r.o. ', ' Infinite
Interactive ', ' Kaigan Games ', ' Marvelous AQL ', ' Multiverse ', ' Terri
Vellmann & Doseone ', ' Vlambeer ', ' d3t Ltd ', 'Artificer ', 'Arxel Tribe ',
'Asymmetric Publications ', 'Big Robot Ltd ', 'Black Element ', 'Black Lion
Studios ', 'Bloodirony ', 'Cliffhanger Productions', 'Cracked Heads Games ',
'Crackshell ', 'Crea-ture Studios ', 'Croteam', 'DarkStar Games ', 'Dead Mage
Studio', 'Den-Yu-Sha ', 'Detalion ', 'Douze Dixiemes ', 'Draw Distance ',
'Echodog Games ', 'Enigami ', 'Enlight Software', 'FASA Studio ', 'Finish Line
Games ', 'FishTankStudio ', 'Free Reign Entertainment ', 'Games Farm', 'Games
Farm ', 'Garage 227 ', 'Glass Bottom Games ', 'Greylock Studio ', 'Harebrained
Schemes LLC ', 'IMGN.PRO ', 'Jesse Makkonen ', 'Kaigan Games OU', 'MPS Labs ',
'MadLightStudio ', 'Mandragora ', 'Mega Crit Games ', 'Meteorise ', 'Might and
Delight ', 'Mimimi Games ', 'Minds-Eye Productions ', 'Mommy's Best Games ',
'Monomi Park ', 'Multiverse Games', 'Nexon ', 'Night Dive Studios ', 'Okugi
Studio ', 'Redlock Studio ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ',
'SEGA Racing Studio ', 'Sidhe Interactive ', 'Skyshine Games ', 'Sloclap ',
'Something Classic Games LLC ', 'SouthPAW Games ', 'Space Bullet Dynamics
Corporation ', 'Spiral Circus ', 'Tamsoft', 'Tamsoft ', 'Terri Vellmann',
'Ultimation Inc. ', 'Unicube ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank
Entertainment Inc. ', 'Vine ', 'Wadjet Eye Games ', 'WayForward ', 'White Birds
Productions ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'Ysbryd Games ', 'Zojoi
Studios ', 'iFun4all ', 'rose-engine '] will be ignored

```

```

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

```

```

Epoch 1/20
232/232 [=====] - 24s 100ms/step - loss: 23.1270 - mae:
3.1766 - val_loss: 22.9531 - val_mae: 3.6050
Epoch 2/20
232/232 [=====] - 24s 105ms/step - loss: 12.1791 - mae:
2.2167 - val_loss: 20.7497 - val_mae: 3.5138
Epoch 3/20
232/232 [=====] - 24s 103ms/step - loss: 10.4472 - mae:
1.9943 - val_loss: 18.0737 - val_mae: 3.2873
Epoch 4/20
232/232 [=====] - 25s 106ms/step - loss: 8.5617 - mae:
1.8031 - val_loss: 17.7045 - val_mae: 3.2453
Epoch 5/20
232/232 [=====] - 24s 106ms/step - loss: 7.6420 - mae:
1.6912 - val_loss: 18.0516 - val_mae: 3.3339
Epoch 6/20
232/232 [=====] - 24s 104ms/step - loss: 8.0381 - mae:
1.6688 - val_loss: 17.8858 - val_mae: 3.2599
Epoch 7/20
232/232 [=====] - 24s 103ms/step - loss: 7.2183 - mae:
1.6011 - val_loss: 16.5955 - val_mae: 3.1989
Epoch 8/20
232/232 [=====] - 24s 102ms/step - loss: 6.9623 - mae:
1.5250 - val_loss: 18.0895 - val_mae: 3.3832
Epoch 9/20
232/232 [=====] - 23s 98ms/step - loss: 6.6316 - mae:
1.4956 - val_loss: 17.7480 - val_mae: 3.3484
Epoch 10/20
232/232 [=====] - 22s 95ms/step - loss: 5.9886 - mae:
1.4131 - val_loss: 16.7827 - val_mae: 3.3285
Epoch 11/20
232/232 [=====] - 23s 100ms/step - loss: 6.0789 - mae:
1.4047 - val_loss: 18.2751 - val_mae: 3.4542
Epoch 12/20
232/232 [=====] - 22s 96ms/step - loss: 6.2438 - mae:
1.3937 - val_loss: 17.1895 - val_mae: 3.3572
Chunk 42/52 // 78.85% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Atlas ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron Ltd. ', ' Coatsink
Software ', ' EA Redwood Shores ', ' Elemental Games', ' Factor 5 ', ' Fire Face
', ' Just Add Water', ' Krome Studios ', ' Mossmouth ', ' Project Soul ', ' Red
Storm Entertainment ', ' Shaba Games ', ' Terri Vellmann & Doseone ', '17-Bit ',
'5000ft Inc. ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Artdink', 'Bandai
Namco Games', 'Black Lab Games ', 'Black Rock Studio ', 'CBE software ',
'Cadenza ', 'Cat Daddy Games ', 'Deep Red ', 'Derek Yu', 'DoubleDutch Games ',
'Dramatic Labs ', 'Escape ', 'Extend Interactive ', 'Fizz Factor ', 'Grimlore

```

Games ', 'Infogrames ', 'Ironward ', 'Jumpship ', 'Malfador Machinations ',
'Massive Damage', 'Maxis', 'Meridian4 ', 'Metropolis Software ', 'MinMax Games
Ltd. ', 'Mind over Matter ', 'Mossmouth', 'Murudai ', 'N-Game Studios', 'Naked
Sky Entertainment ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ',
'Panic Barn Ltd ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ',
'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Reflexive Entertainment ',
'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Runner Duck ',
'Seamless Entertainment', 'Silver Style ', 'Slitherine ', 'Sneaky Yak Studio ',
'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Tactical
Adventures ', 'Taldren ', 'Terri Vellimann', 'Totally Games ', 'Treyarch',
'Vivid Games ', 'Wales Interactive ', 'Wings Simulations ', 'Zachtronics
Industries ', 'inkle ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

224/224 [=====] - 22s 97ms/step - loss: 33.0670 - mae:
3.9383 - val_loss: 24.0220 - val_mae: 3.1009

Epoch 2/20

224/224 [=====] - 22s 100ms/step - loss: 18.7782 - mae:
2.8268 - val_loss: 19.9250 - val_mae: 3.1031

Epoch 3/20

224/224 [=====] - 22s 100ms/step - loss: 14.7615 - mae:
2.4278 - val_loss: 19.7535 - val_mae: 2.9933

Epoch 4/20

224/224 [=====] - 23s 101ms/step - loss: 12.6654 - mae:
2.1575 - val_loss: 19.7896 - val_mae: 3.0616

Epoch 5/20

224/224 [=====] - 23s 101ms/step - loss: 12.2840 - mae:
2.1317 - val_loss: 19.2224 - val_mae: 3.0096

Epoch 6/20

224/224 [=====] - 22s 96ms/step - loss: 11.1970 - mae:
1.9794 - val_loss: 18.9852 - val_mae: 2.9978

Epoch 7/20

224/224 [=====] - 22s 100ms/step - loss: 9.9166 - mae:
1.8635 - val_loss: 19.0174 - val_mae: 2.9558

Epoch 8/20

224/224 [=====] - 22s 99ms/step - loss: 10.1699 - mae:
1.8358 - val_loss: 16.9517 - val_mae: 2.7633

Epoch 9/20

224/224 [=====] - 22s 97ms/step - loss: 9.5478 - mae:
1.7711 - val_loss: 17.9819 - val_mae: 2.9072

Epoch 10/20

224/224 [=====] - 22s 98ms/step - loss: 8.8080 - mae:
1.7217 - val_loss: 18.6706 - val_mae: 3.0117

Epoch 11/20

224/224 [=====] - 22s 100ms/step - loss: 8.3186 - mae:
1.6387 - val_loss: 19.2031 - val_mae: 3.0856

Epoch 12/20

224/224 [=====] - 22s 99ms/step - loss: 8.1796 - mae: 1.5983 - val_loss: 18.4176 - val_mae: 3.0293

Epoch 13/20

224/224 [=====] - 21s 95ms/step - loss: 7.8773 - mae: 1.5648 - val_loss: 18.3130 - val_mae: 3.0221

Chunk 43/52 // 80.77% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Fullbright ', ' Koalabs ', ' Point Blank ', ' Quasar ', ' Ragequit Corporation ', ' Uppercut Games Pty Ltd ', 'Akabaka ', 'Akella', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ', 'Awaken Realms Digital', 'Bad Viking ', 'Banpresto', 'BattleGoat Studios ', 'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue Tongue Entertainment ', 'Boss Studios ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats Games ', 'Chibig ', 'Chucklefish ', 'Cosmo D Studios ', 'Cultic Games ', 'Curve Digital ', 'Curve Studios ', 'Dancing Dragon games ', 'Daniel Benmergui ', 'Destroyer Studios ', 'Dialogue Design ', 'Dimps Corporation ', 'Droqen ', 'Echo Chamber Games ', 'Ellipse Studios ', 'Embers ', 'Empty Clip Studios ', 'Exakt ', 'FIX Korea', 'Failbetter Games ', 'Fireglow ', 'Fury Software ', 'GameCo ', 'GolemLabs ', 'IMC Games ', 'Image & Form ', 'Kamehan Studios ', 'Kite Games ', 'Little Green Men ', 'M2 ', 'Magic Lantern ', 'Marvelous Inc. ', 'Microids', 'Midway ', 'Minds-Eye Productions ', 'Monochrome Paris ', 'Mucky Foot Productions ', 'Night Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Odd Bug Studio ', 'Paul Cuisset ', 'Pillow Castle Games ', 'Pixel Titans ', 'Point Blank Games', 'Psyche Studios ', 'RLR Training Inc ', 'Serellan LLC ', 'Sierra Entertainment ', 'Sigtrap Games ', 'SkyBox Labs ', 'Sleepless Clinic ', 'Sleepy Sentry ', 'Spearhead Games ', 'Strangelite ', 'Strike Vector Team', 'Summerfall Studios ', 'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia ', 'The Artistocrats ', 'The Bitmap Brothers ', 'The Fullbright Company', 'Third Wire ', 'Torpor Games ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games', 'Uppercut Games Pty Ltd ', 'Vertex4 ', 'Wideload Games Inc. ', 'Wormwood Studios ', 'Xilam ', 'Zenovia ', 'Zero Sum Games ', 'Zoink! ', 'eSim Games ', 'increpare '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

231/231 [=====] - 21s 90ms/step - loss: 39.1932 - mae: 4.1049 - val_loss: 34.9221 - val_mae: 4.1760

Epoch 2/20

231/231 [=====] - 22s 94ms/step - loss: 24.6690 - mae: 3.0785 - val_loss: 29.7593 - val_mae: 3.7456

Epoch 3/20

231/231 [=====] - 22s 94ms/step - loss: 21.0954 - mae: 2.7963 - val_loss: 28.9565 - val_mae: 3.8943

```

Epoch 4/20
231/231 [=====] - 23s 98ms/step - loss: 18.0539 - mae:
2.5660 - val_loss: 27.5147 - val_mae: 3.6565
Epoch 5/20
231/231 [=====] - 23s 98ms/step - loss: 15.8358 - mae:
2.3737 - val_loss: 26.4460 - val_mae: 3.6642
Epoch 6/20
231/231 [=====] - 22s 96ms/step - loss: 14.4116 - mae:
2.2078 - val_loss: 22.6965 - val_mae: 3.4059
Epoch 7/20
231/231 [=====] - 22s 97ms/step - loss: 13.9976 - mae:
2.1495 - val_loss: 25.5169 - val_mae: 3.6974
Epoch 8/20
231/231 [=====] - 22s 97ms/step - loss: 12.5667 - mae:
2.0359 - val_loss: 24.8236 - val_mae: 3.6044
Epoch 9/20
231/231 [=====] - 23s 99ms/step - loss: 13.2183 - mae:
2.0591 - val_loss: 24.4332 - val_mae: 3.5868
Epoch 10/20
231/231 [=====] - 23s 98ms/step - loss: 12.0415 - mae:
1.9529 - val_loss: 24.6975 - val_mae: 3.7350
Epoch 11/20
231/231 [=====] - 23s 98ms/step - loss: 12.4005 - mae:
1.9365 - val_loss: 25.6121 - val_mae: 3.6895
Chunk 44/52 // 82.69% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Digital Eclipse ', ' Florian Himsel ', ' Furious Bee ', ' King Art Games ', '
Lancarse ', ' Splendy Games ', ' YCJY Games ', '3D2 Entertainment ', 'AGO Games
', 'ARS GOETIA ', 'Abstraction Games ', 'Artefacts Studio ', 'Awfully Nice
Studios ', 'Baroque Decay ', 'Beethoven & Dinosaur ', 'Big Ant Studios ', 'Big
Finish Games ', 'BonusXP ', 'Bossa Studios ', 'Choice Provisions ', 'Cockroach
Inc. ', 'Color Gray Games ', 'Crema Games ', 'Cryo Interactive ', 'Davey Wreden
', 'Deconstructeam ', 'Dragon Slumber ', 'DreamCatcher Interactive ', 'Eden
Studios ', 'Edmund McMillen', 'Enhance Games ', 'Fairyrship Games ', 'Free Lives
', 'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'Gaming Corps AB ',
'Harvester Games ', 'Illusion Ray Studio ', 'Iron Tower Studio ', 'Jason Rohrer
', 'Johann Tael & Mihkel Tael ', 'KING Art', 'Konami', 'Ladyluck Digital Media
', 'Lion's Shade ', 'Mighty Yell ', 'Neon Giant ', 'Nicalis ', 'Noumena
Productions ', 'Numinous Games ', 'Owl Cave ', 'Question ', 'Rain Games ',
'Random Potion Oy ', 'Rebelmind ', 'Rival Games Ltd ', 'Sam Barlow', 'Slendy
Interactive', 'Spooky Doorway ', 'Swing Swing Submarine ', 'Technocrat ', 'Teotl
Studios ', 'The Collective ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and

```

Mario Castaneda ', 'Wadjet Eye Games ', 'Wales Interactive ', 'YCJY', 'Zenimax Online Studios ', 'h.a.n.d. Inc. ', 'nDreams '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

232/232 [=====] - 22s 94ms/step - loss: 18.7861 - mae: 2.6874 - val_loss: 14.1088 - val_mae: 3.2102

Epoch 2/20

232/232 [=====] - 23s 100ms/step - loss: 11.2320 - mae: 1.9208 - val_loss: 14.2489 - val_mae: 3.1942

Epoch 3/20

232/232 [=====] - 23s 100ms/step - loss: 10.0058 - mae: 1.7491 - val_loss: 11.6193 - val_mae: 2.9117

Epoch 4/20

232/232 [=====] - 23s 101ms/step - loss: 8.9471 - mae: 1.6366 - val_loss: 11.8135 - val_mae: 2.9460

Epoch 5/20

232/232 [=====] - 23s 99ms/step - loss: 7.6782 - mae: 1.5033 - val_loss: 11.1745 - val_mae: 2.8395

Epoch 6/20

232/232 [=====] - 22s 97ms/step - loss: 7.9385 - mae: 1.4795 - val_loss: 11.5111 - val_mae: 2.9292

Epoch 7/20

232/232 [=====] - 23s 99ms/step - loss: 7.3729 - mae: 1.4188 - val_loss: 10.9655 - val_mae: 2.8382

Epoch 8/20

232/232 [=====] - 23s 99ms/step - loss: 6.6394 - mae: 1.3537 - val_loss: 11.8679 - val_mae: 3.0451

Epoch 9/20

232/232 [=====] - 23s 98ms/step - loss: 6.9343 - mae: 1.3781 - val_loss: 12.2757 - val_mae: 3.1346

Epoch 10/20

232/232 [=====] - 23s 100ms/step - loss: 6.8996 - mae: 1.3417 - val_loss: 11.9118 - val_mae: 3.0343

Epoch 11/20

232/232 [=====] - 23s 101ms/step - loss: 6.6706 - mae: 1.3287 - val_loss: 11.2856 - val_mae: 2.9256

Epoch 12/20

232/232 [=====] - 23s 99ms/step - loss: 6.2211 - mae: 1.2750 - val_loss: 11.4467 - val_mae: 2.9781

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 45/52 // 84.62% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cavalier Game Studios ', ' Crows Crows Crows ', ' Deck Nine Games ', ' Dire Wolf
Digital ', ' Do My Best Games ', ' Endnight Studios ', ' Ishtar Games Inc. ', '
ONEOONE GAMES ', ' Question ', ' Skookum Arts ', ' Slitherine ', ' Studio Fizbin
', ' Sumo Nottingham ', ' Super Awesome Hyper Dimensional Mega Team ', ' Tyler
Glaiel ', '101%', '4Head Studios ', 'Act 3 Games', 'Arcen Games', 'Ares
Dragonis ', 'Arxel Tribe ', 'Bellular Studios ', 'Big Robot Ltd ', 'Braingame ',
'Brainwash Gang ', 'Bulkhead Interactive ', 'CCCP', 'Caligari Games ', 'Cloak
and Dagger Games ', 'Colibri Games ', 'Computer Artworks ', 'Daedalic Studio
West ', 'Dan Smith Studios ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam
', 'Digital Sun ', 'EXOR Studios ', 'Edmund McMillen', 'Facepalm Games ',
'Fireproof Games ', 'Fizbin', 'Frogwares', 'Galactic Cafe', 'GoldKnights Studio
', 'Grasshopper Manufacture ', 'Grip Games ', 'Gun Interactive', 'Headup Games
', 'House of Tales ', 'IF Games ', 'Image & Form ', 'Inevitable Entertainment ',
'Ironward ', 'James Interactive ', 'Joe Richardson ', 'LKA ', 'Leonard Menchiari
', 'Lexis Numerique ', 'Mana Games ', 'Mi'pu'mi Games ', 'Modern Storyteller ',
'Morbidware ', 'Mouldy Toof Studios ', 'Neon Doctrine ', 'Nevrax ', 'Omni
Creative Group ', 'One Bit Beyond ', 'Orthogonal Games ', 'Over The Moon ',
'Pewter Games Studios ', 'Pixelogic ', 'Playmestudio ', 'Plot Twist ', 'Point of
View ', 'PostMod Softworks ', 'Power Struggle Games ', 'Puuba ', 'Questionary',
'Rusty Lake ', 'SKS Games', 'Sabotage Studio ', 'Serenity Forge ', 'Sever ',
'Shark Punch ', 'Shifting Tides ', 'Size Five Games ', 'Skookum Arts LLC',
'SkyGoblin ', 'Slitherine Software', 'Smoking Car Productions ', 'Spidersoft',
'Streko-Graphics Inc. ', 'Stubby Games ', 'Studio Seufz ', 'Super Mega Team',
'SuperSexySoftware ', 'Surreal Software ', 'Tale of Tales ', 'Team Gotham ',
'The Molasses Flood ', 'The Odd Gentlemen ', 'The Station ', 'The Voxel Agents
', 'Thunkd ', 'Tomas Sala ', 'Tragnarion Studios ', 'TwoPM Studios ', 'Ubisoft
Blue Byte ', 'VRESKI ', 'ValuSoft ', 'White Owls ', 'White Paper Games ',
'Wonderstruck Games ', 'mif2000 ', 'neo Software ', 'tinyBuild'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
224/224 [=====] - 22s 96ms/step - loss: 26.9039 - mae:
3.5020 - val_loss: 23.7659 - val_mae: 3.5740
Epoch 2/20
224/224 [=====] - 22s 97ms/step - loss: 17.9510 - mae:
2.6994 - val_loss: 21.7842 - val_mae: 3.4016
Epoch 3/20
224/224 [=====] - 21s 95ms/step - loss: 14.7278 - mae:
2.3265 - val_loss: 19.8973 - val_mae: 3.2205
Epoch 4/20
224/224 [=====] - 21s 94ms/step - loss: 12.2355 - mae:
2.1318 - val_loss: 20.0185 - val_mae: 3.3085

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```

Epoch 5/20
224/224 [=====] - 21s 94ms/step - loss: 12.0763 - mae:
2.0606 - val_loss: 20.7422 - val_mae: 3.3715
Epoch 6/20
224/224 [=====] - 21s 94ms/step - loss: 11.8867 - mae:
1.9565 - val_loss: 19.6000 - val_mae: 3.2751
Epoch 7/20
224/224 [=====] - 22s 97ms/step - loss: 10.5375 - mae:
1.9182 - val_loss: 19.3919 - val_mae: 3.1757
Epoch 8/20
224/224 [=====] - 22s 97ms/step - loss: 9.8690 - mae:
1.8407 - val_loss: 19.4403 - val_mae: 3.2778
Epoch 9/20
224/224 [=====] - 22s 97ms/step - loss: 9.3850 - mae:
1.7869 - val_loss: 19.4523 - val_mae: 3.2999
Epoch 10/20
224/224 [=====] - 21s 95ms/step - loss: 9.4663 - mae:
1.7728 - val_loss: 19.1294 - val_mae: 3.2440
Epoch 11/20
224/224 [=====] - 21s 95ms/step - loss: 9.4507 - mae:
1.7463 - val_loss: 18.4251 - val_mae: 3.2563
Epoch 12/20
224/224 [=====] - 21s 96ms/step - loss: 7.9799 - mae:
1.6396 - val_loss: 18.9294 - val_mae: 3.2833
Epoch 13/20
224/224 [=====] - 22s 97ms/step - loss: 8.2952 - mae:
1.6369 - val_loss: 18.3115 - val_mae: 3.2099
Epoch 14/20
224/224 [=====] - 21s 95ms/step - loss: 8.5358 - mae:
1.6304 - val_loss: 18.8987 - val_mae: 3.3374
Epoch 15/20
224/224 [=====] - 21s 94ms/step - loss: 8.2566 - mae:
1.6185 - val_loss: 18.4208 - val_mae: 3.2621
Epoch 16/20
224/224 [=====] - 22s 96ms/step - loss: 8.1399 - mae:
1.5760 - val_loss: 19.3567 - val_mae: 3.3409
Epoch 17/20
224/224 [=====] - 21s 94ms/step - loss: 7.5466 - mae:
1.5592 - val_loss: 18.6587 - val_mae: 3.2739
Epoch 18/20
224/224 [=====] - 21s 92ms/step - loss: 7.6586 - mae:
1.5334 - val_loss: 18.4714 - val_mae: 3.2912
Chunk 46/52 // 86.54% Complete // Cycle 1/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```



```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' CINIC Games ', ' Drool ', ' KRAFTON Inc. ', ' Kukouri Mobile
Entertainment ', 'AREA35 ', 'Adeline Software ', 'Alawar Premium ', 'Antagonist
', 'Battlefront.com', 'Black Pants ', 'Blendo Games ', 'Bulkhead Interactive ',
'C.I.N.I.C. Games', 'Camel 101 ', 'Can Explode ', 'Carbon Studio ', 'Click
Entertainment ', 'ComonGames ', 'Double Zero One Zero ', 'Draw Me A Pixel ',
'Expansive Worlds ', 'Falling Squirrel ', 'Flazm ', 'Gato Salvaje Studio ',
'HyperBole Studios ', 'Ice-Pick Lodge ', 'Iceberg Interactive', 'Iridium Studios
', 'Kite Games ', 'Minority Media Inc. ', 'Modern Dream ', 'Moonlight Kids ',
'Most Wanted Entertainment ', 'MuHa Games ', 'Numantian Games ', 'OverBorder
Studio ', 'Paintbucket Games ', 'Puuba ', 'Puzzling Dream ', 'Rogue Sun ', 'Ron
Gilbert and Gary Winnick ', 'Skybound LLC', 'Skydance Interactive ', 'Splashteam
', 'Spooky Squid Games ', 'SuperPAC ', 'Tin Man Games ', 'Trecision ', 'Urnique
Studio ', 'Zombie Cow Studios ', '[bracket]games ', 'damiansommer ', 'drool
Games', 'fragOut Studio'] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
222/222 [=====] - 20s 90ms/step - loss: 14.5283 - mae:
2.4405 - val_loss: 10.1765 - val_mae: 2.0781
```

Epoch 2/20

```
222/222 [=====] - 20s 92ms/step - loss: 8.4462 - mae:
1.7889 - val_loss: 9.8795 - val_mae: 2.2102
```

Epoch 3/20

```
222/222 [=====] - 21s 93ms/step - loss: 7.0642 - mae:
1.5953 - val_loss: 9.4026 - val_mae: 2.1417
```

Epoch 4/20

```
222/222 [=====] - 20s 91ms/step - loss: 6.0192 - mae:
1.4694 - val_loss: 9.3802 - val_mae: 2.2842
```

Epoch 5/20

```
222/222 [=====] - 21s 93ms/step - loss: 5.6029 - mae:
1.3990 - val_loss: 8.9256 - val_mae: 2.2435
```

Epoch 6/20

```
222/222 [=====] - 21s 93ms/step - loss: 5.2096 - mae:
1.3183 - val_loss: 9.7753 - val_mae: 2.4391
```

Epoch 7/20

```
222/222 [=====] - 20s 92ms/step - loss: 4.7171 - mae:
1.2084 - val_loss: 8.8092 - val_mae: 2.2288
```

Epoch 8/20

```
222/222 [=====] - 20s 92ms/step - loss: 4.7380 - mae:
1.2098 - val_loss: 8.7582 - val_mae: 2.2036
```

Epoch 9/20

```
222/222 [=====] - 21s 94ms/step - loss: 4.5144 - mae:
1.1853 - val_loss: 9.3276 - val_mae: 2.3485
```

Epoch 10/20

```
222/222 [=====] - 20s 92ms/step - loss: 4.1991 - mae:
1.1381 - val_loss: 9.9500 - val_mae: 2.4700
```

```

Epoch 11/20
222/222 [=====] - 21s 93ms/step - loss: 3.9583 - mae:
1.0986 - val_loss: 10.0942 - val_mae: 2.4987
Epoch 12/20
222/222 [=====] - 21s 93ms/step - loss: 3.6758 - mae:
1.0574 - val_loss: 9.5626 - val_mae: 2.4167
Epoch 13/20
222/222 [=====] - 21s 94ms/step - loss: 3.9973 - mae:
1.0609 - val_loss: 10.5444 - val_mae: 2.5910
Chunk 47/52 // 88.46% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
2K Sports ', ' Cherrymochi ', ' Pieces Interactive ', ' Ubisoft Paris ',
'49Games ', 'AGEOD ', 'Acid Nerve ', 'Aspyr', 'Cavedog Entertainment ',
'Cinemaware ', 'Core Design Ltd. ', 'Deadline Games ', 'Dual Effect ', 'Echtra
Games', 'Fireart Games ', 'Freebird Games ', 'GRIN', 'Humanature Studios ',
'Iron Lore Entertainment', 'Neversoft Entertainment ', 'OhNoo ', 'Pocketwatch
Games ', 'Red Storm Entertainment', 'SMAC Games ', 'Something We Made ',
'Swordtales ', 'Two Tribes ', 'Ubisoft Milan ', 'Ubisoft Singapore ', 'Vicarious
Visions ', 'dietzribi '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
228/228 [=====] - 20s 88ms/step - loss: 23.0345 - mae:
3.0200 - val_loss: 18.2092 - val_mae: 3.0397
Epoch 2/20
228/228 [=====] - 20s 90ms/step - loss: 9.5433 - mae:
1.7670 - val_loss: 15.7885 - val_mae: 2.8483
Epoch 3/20
228/228 [=====] - 21s 91ms/step - loss: 8.8883 - mae:
1.5668 - val_loss: 15.0115 - val_mae: 2.8264
Epoch 4/20
228/228 [=====] - 20s 89ms/step - loss: 7.9431 - mae:
1.4456 - val_loss: 15.3495 - val_mae: 2.8996
Epoch 5/20
228/228 [=====] - 21s 90ms/step - loss: 7.0226 - mae:
1.3497 - val_loss: 14.7390 - val_mae: 2.8858
Epoch 6/20
228/228 [=====] - 21s 91ms/step - loss: 6.4075 - mae:
1.2376 - val_loss: 14.1398 - val_mae: 2.7958
Epoch 7/20
228/228 [=====] - 21s 92ms/step - loss: 5.7281 - mae:
1.1513 - val_loss: 14.3833 - val_mae: 2.8411
Epoch 8/20
228/228 [=====] - 20s 90ms/step - loss: 5.6683 - mae:
1.1173 - val_loss: 14.6832 - val_mae: 2.8834
Epoch 9/20
228/228 [=====] - 20s 89ms/step - loss: 5.4775 - mae:

```

```

1.1216 - val_loss: 14.0068 - val_mae: 2.8356
Epoch 10/20
228/228 [=====] - 20s 90ms/step - loss: 4.8220 - mae:
1.0392 - val_loss: 14.2024 - val_mae: 2.9099
Epoch 11/20
228/228 [=====] - 20s 89ms/step - loss: 5.2513 - mae:
1.0481 - val_loss: 13.8298 - val_mae: 2.8304
Epoch 12/20
228/228 [=====] - 20s 89ms/step - loss: 5.0304 - mae:
1.0096 - val_loss: 13.9232 - val_mae: 2.8751
Epoch 13/20
228/228 [=====] - 21s 91ms/step - loss: 4.7464 - mae:
0.9834 - val_loss: 14.6320 - val_mae: 2.9383
Epoch 14/20
228/228 [=====] - 21s 91ms/step - loss: 4.5405 - mae:
0.9662 - val_loss: 14.6476 - val_mae: 2.9674
Epoch 15/20
228/228 [=====] - 20s 88ms/step - loss: 4.4863 - mae:
0.9566 - val_loss: 14.3304 - val_mae: 2.9283
Epoch 16/20
228/228 [=====] - 21s 92ms/step - loss: 4.2913 - mae:
0.9573 - val_loss: 14.6422 - val_mae: 2.9754
Chunk 48/52 // 90.38% Complete // Cycle 1/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Blackmill Games ', ' Crenetic Studios ', ' Duality Games ', ' Eurocom ', '
Forever Entertainment ', ' Hotta Studio ', ' ML Enterprises ', ' Mercenary
Technologies ', ' Reborn Games Inc. ', ' Revistronic ', ' Soleil Ltd. ', '
Supergonk ', ' Talawa Games ', ' Team Toro ', ' Xeen ', ' btf ', '110
Industries', '258 Productions AB ', '2By3 Games ', '2x2 Games ', '3000AD',
'Action Button Entertainment ', 'Alien Pixel Studios ', 'Artdink ', 'Auran ',
'Backwoods Entertainment ', 'Blue Manchu ', 'BlueGiant Interactive ', 'Brainy
Studio LLC ', 'BreakAway Games ', 'Burut Software ', 'Celeris ', 'Chaos Concept
', 'Coldwood Interactive ', 'Cordens Interactive ', 'Cowardly Creations ',
'Crazy Viking Studios ', 'DNS Development ', 'Daydream Software ', 'Deep Red ',
'Devespresso Games ', 'Draw Distance ', 'Duality Studio', 'Dumb and Fat Games ',
'Dynamix ', 'Endless Fluff ', 'Eurocom Entertainment Software', 'Event Horizon
Software ', 'Fatbot Games ', 'Feral Interactive ', 'Forever Entertainment S.A.',
'Fragment Production Ltd', 'Frog City Software ', 'Game-Labs ', 'Games Farm ',
'Gatling Goat Studios ', 'Gigawatt Studios ', 'Glass Heart Games ', 'Guild
Software ', 'Headup Games', 'High Moon Studios', 'House House ', 'ISOMETRICORP
Games ', 'JoyMasher ', 'KT Racing ', 'LEAP Game Studios ', 'Legend Entertainment
', 'Luis Antonio ', 'Luxoflux', 'M2H', 'Maddy Thorson ', 'Magic Design Studios
', 'Naughty Dog', 'Night Dive Studios ', 'Nihilistic ', 'Norsfell ', 'OhNoo ',
'OtherSide Entertainment ', 'Outsider Games ', 'Owlchemy Labs ', 'Pixwerk ',
'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Pterodon ', 'Pyrodactyl Games
', 'Rat King Entertainment ', 'Replay Studios', 'Revistonic', 'Rooster Teeth

```

Games ', 'Sad Owl Studios ', 'SadSquare Studio ', 'SpectreVision ', 'Steel Mantis ', 'Stormling Studios ', 'Strange Loop Games ', 'Studio Pixel Punk ', 'Stygian Software ', 'Subterranean Games ', 'Sukeban Games ', 'Supergonk Ltd.', 'Tate Multimedia ', 'Teotl Studios', 'Terrible Posture Games ', 'Terry Cavanagh ', 'Theta Division ', 'Trepang Studios ', 'Urban Games ', 'Variable State ', 'Visai Games ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Witch Beam ', 'Yukon Wainczak ', 'btf GmbH', 'poncle ', 'timesymmetry ', 'tobyfox '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

224/224 [=====] - 19s 84ms/step - loss: 29.3631 - mae: 3.6445 - val_loss: 20.0853 - val_mae: 2.9576

Epoch 2/20

224/224 [=====] - 20s 89ms/step - loss: 16.7056 - mae: 2.5979 - val_loss: 16.4096 - val_mae: 2.6667

Epoch 3/20

224/224 [=====] - 20s 90ms/step - loss: 13.8591 - mae: 2.3301 - val_loss: 16.2444 - val_mae: 2.7408

Epoch 4/20

224/224 [=====] - 20s 88ms/step - loss: 12.1709 - mae: 2.1345 - val_loss: 17.4564 - val_mae: 2.8877

Epoch 5/20

224/224 [=====] - 20s 89ms/step - loss: 10.5678 - mae: 1.9736 - val_loss: 16.9609 - val_mae: 2.9567

Epoch 6/20

224/224 [=====] - 20s 88ms/step - loss: 9.4854 - mae: 1.8251 - val_loss: 16.7395 - val_mae: 2.9513

Epoch 7/20

224/224 [=====] - 19s 87ms/step - loss: 8.5620 - mae: 1.7435 - val_loss: 17.2356 - val_mae: 3.0474

Epoch 8/20

224/224 [=====] - 20s 88ms/step - loss: 8.6668 - mae: 1.6995 - val_loss: 17.0190 - val_mae: 3.0286

Chunk 49/52 // 92.31% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Dream Execution ', 'Fatshark AB ', 'GabberGames ', 'Third Wave Games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

212/212 [=====] - 18s 84ms/step - loss: 10.2845 - mae: 1.6578 - val_loss: 59.6892 - val_mae: 7.4697

Epoch 2/20

212/212 [=====] - 18s 86ms/step - loss: 3.9350 - mae: 0.8968 - val_loss: 57.8926 - val_mae: 7.4536

Epoch 3/20

212/212 [=====] - 19s 87ms/step - loss: 3.4999 - mae:

```

0.7879 - val_loss: 61.1658 - val_mae: 7.6714
Epoch 4/20
212/212 [=====] - 18s 87ms/step - loss: 3.6152 - mae:
0.7246 - val_loss: 62.4964 - val_mae: 7.7611
Epoch 5/20
212/212 [=====] - 19s 88ms/step - loss: 3.0850 - mae:
0.6347 - val_loss: 61.9917 - val_mae: 7.7153
Epoch 6/20
212/212 [=====] - 19s 89ms/step - loss: 3.2284 - mae:
0.5926 - val_loss: 65.1766 - val_mae: 7.9305
Epoch 7/20
212/212 [=====] - 18s 87ms/step - loss: 3.2298 - mae:
0.5501 - val_loss: 68.1084 - val_mae: 8.1198
Chunk 50/52 // 94.23% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Behaviour Interactive ', ' Flashback Games ', ' Toylogic ', 'Auroch Digital ',
'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Bulwark
Studios ', 'Chucklefish ', 'Complex Games Inc. ', 'Games Workshop ', 'Gasket
Games ', 'Hammerfall Publishing ', 'Kuju Entertainment ', 'Paradox Interactive',
'Pixelated Milk ', 'Playwood Project ', 'Proxy Studios ', 'Rodeo Games ', 'Shiro
Games ', 'Strategic Studies Group ', 'Strayllight Entertainment ', 'The Lordz
Games Studio', 'Toylogic Inc.', 'Trapdoor '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
213/213 [=====] - 18s 83ms/step - loss: 9.5232 - mae:
1.7084 - val_loss: 36.2917 - val_mae: 5.0338
Epoch 2/20
213/213 [=====] - 18s 86ms/step - loss: 4.3980 - mae:
1.1036 - val_loss: 34.3926 - val_mae: 4.8087
Epoch 3/20
213/213 [=====] - 17s 82ms/step - loss: 3.4941 - mae:
0.9545 - val_loss: 34.2906 - val_mae: 4.8204
Epoch 4/20
213/213 [=====] - 18s 86ms/step - loss: 3.3032 - mae:
0.9106 - val_loss: 34.7235 - val_mae: 4.8916
Epoch 5/20
213/213 [=====] - 18s 84ms/step - loss: 2.9892 - mae:
0.8334 - val_loss: 35.4342 - val_mae: 4.9111
Epoch 6/20
213/213 [=====] - 19s 88ms/step - loss: 3.0219 - mae:
0.8296 - val_loss: 35.7207 - val_mae: 4.9281
Epoch 7/20
213/213 [=====] - 19s 88ms/step - loss: 2.9044 - mae:
0.8001 - val_loss: 36.5207 - val_mae: 5.0247
Epoch 8/20
213/213 [=====] - 18s 85ms/step - loss: 2.8846 - mae:

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0.8075 - val_loss: 35.0051 - val_mae: 4.9111

Chunk 51/52 // 96.15% Complete // Cycle 1/3

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packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['In Images ', ' Persha Studia ', ' Visual Concepts ', '5 Lives Studios ', 'Alientrap ', 'Asymmetric Publications ', 'B-Alive ', 'Clifftop Games ', 'Cornered Rat ', 'Deadline Games ', 'Deadpan Games ', 'Different Tales ', 'Dim Bulb Games ', 'Direct Action Games ', 'DotEmu ', 'EVC ', 'Eden Industries ', 'Fast Travel Games ', 'Funomena ', 'G5 Software ', 'Gameyus Interactive ', 'Genius Slackers ', 'Ghost Pattern ', 'Giant Sparrow ', 'GriN Multimedia ', 'Heuristic Park ', 'KT Racing ', 'Knuist & Perzik ', 'Masque Publishing ', 'Mega Cat Studios ', 'Mojiken Studio ', 'Monokel ', 'Moonshark ', 'Night Light Interactive ', 'Nine Rocks Games ', 'OSome Studio ', 'Ostrich Banditos ', 'Ota Imon Studios ', 'Polyslash ', 'Ratbag ', 'Santa Ragione ', 'Silver Wish Games ', 'Sir-Tech Software Inc. ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Studio Drydock Pty Ltd ', 'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment ', 'The Bitmap Brothers ', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ', 'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ', 'Upstream Arcade ', 'Vile Monarch ', 'Wastelands Interactive ', 'Whale Rock Games ', 'Wide Games ', 'Winning Streak Games ', 'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker Games ', 'Zuxxez', 'imaginarylab '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

228/228 [=====] - 19s 81ms/step - loss: 24.7611 - mae: 3.2592 - val_loss: 19.9282 - val_mae: 3.2007

Epoch 2/20

228/228 [=====] - 19s 81ms/step - loss: 13.8782 - mae: 2.3191 - val_loss: 18.8241 - val_mae: 3.1562

Epoch 3/20

228/228 [=====] - 19s 82ms/step - loss: 11.1718 - mae: 2.0352 - val_loss: 19.8323 - val_mae: 3.1974

Epoch 4/20

228/228 [=====] - 19s 81ms/step - loss: 10.3389 - mae: 1.9257 - val_loss: 17.4181 - val_mae: 3.0849

Epoch 5/20

228/228 [=====] - 19s 82ms/step - loss: 9.4484 - mae: 1.8267 - val_loss: 18.2032 - val_mae: 3.1628

Epoch 6/20

228/228 [=====] - 19s 81ms/step - loss: 8.9509 - mae: 1.7382 - val_loss: 18.2729 - val_mae: 3.2286

Epoch 7/20

228/228 [=====] - 18s 79ms/step - loss: 7.7062 - mae: 1.6284 - val_loss: 18.5628 - val_mae: 3.2445

Epoch 8/20

228/228 [=====] - 18s 80ms/step - loss: 7.1181 - mae: 1.5658 - val_loss: 18.8094 - val_mae: 3.2685

Epoch 9/20

228/228 [=====] - 18s 80ms/step - loss: 7.7153 - mae:
1.5601 - val_loss: 18.8883 - val_mae: 3.2946
Chunk 52/52 // 98.08% Complete // Cycle 1/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['
Goldhawk Interactive ', ' KADOKAWA CORPORATION ', ' Lab42 ', ' Mandel ArtPlains
, ' Sumo Digital Academy ', ' comcept ', '1P2P ', 'Ackkstudios ', 'Baroque
Decay ', 'Brave at Night ', 'Crocodile Entertainment ', 'Digital Spray Studios',
'EXOR Studios ', 'Gamedust ', 'Gamethunks', 'Impressions Games ', 'Jellyvision
, 'Kadokawa', 'Livesay Technologies ', 'MicroProse ', 'Moonbite Games ',
'NoClip ', 'PlayMagic Ltd ', 'Prideful Sloth ', 'Rimlight Studios ', 'Ruud
Koorevaar ', 'Ryu ga Gotoku Studios', 'Simogo ', 'Spark Unlimited', 'Spike
Chunsoft ', 'Sumo Digital', 'Unicorn Games Studio ', 'Villa Gorilla ', 'WXP ',
'frecle ApS '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

77/77 [=====] - 7s 82ms/step - loss: 36.3095 - mae:
3.5955 - val_loss: 54.0826 - val_mae: 5.2537

Epoch 2/20

77/77 [=====] - 6s 82ms/step - loss: 20.8335 - mae:
2.5803 - val_loss: 49.0664 - val_mae: 5.0302

Epoch 3/20

77/77 [=====] - 6s 79ms/step - loss: 21.3664 - mae:
2.4760 - val_loss: 45.6960 - val_mae: 4.9295

Epoch 4/20

77/77 [=====] - 6s 82ms/step - loss: 15.4885 - mae:
2.2594 - val_loss: 48.4645 - val_mae: 5.1834

Epoch 5/20

77/77 [=====] - 6s 81ms/step - loss: 11.1403 - mae:
1.8713 - val_loss: 48.0068 - val_mae: 5.2155

Epoch 6/20

77/77 [=====] - 6s 79ms/step - loss: 12.7592 - mae:
1.9331 - val_loss: 48.0492 - val_mae: 4.9769

Epoch 7/20

77/77 [=====] - 6s 80ms/step - loss: 12.1077 - mae:
1.8325 - val_loss: 47.3631 - val_mae: 5.1321

Epoch 8/20

77/77 [=====] - 6s 83ms/step - loss: 11.2719 - mae:
1.7643 - val_loss: 45.5230 - val_mae: 4.9532

Epoch 9/20

77/77 [=====] - 6s 83ms/step - loss: 9.8534 - mae:
1.6292 - val_loss: 47.0752 - val_mae: 5.0555

Epoch 10/20

77/77 [=====] - 6s 81ms/step - loss: 8.4849 - mae:
1.5636 - val_loss: 45.7811 - val_mae: 5.0012

Epoch 11/20

77/77 [=====] - 6s 79ms/step - loss: 10.3808 - mae:

1.6134 - val_loss: 47.7151 - val_mae: 5.0757

Epoch 12/20

77/77 [=====] - 6s 78ms/step - loss: 10.6863 - mae:

1.6497 - val_loss: 46.9306 - val_mae: 4.9453

Epoch 13/20

77/77 [=====] - 6s 81ms/step - loss: 10.5763 - mae:

1.5526 - val_loss: 47.1458 - val_mae: 5.0797

Chunk 1/52 // 0.0% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Arzest', ' Atlantis Interactive Entertainment ', ' Avalanche Software ', ' Balan Company ', ' Bird Bath Games ', ' Cape Guy ', ' Dlala Studios ', ' Eurocom ', ' Forgotten Key ', ' Gone North Games ', ' Innersloth ', ' Massive Entertainment', ' Viva Media', ' bitComposer ', ' iNK Stories ', '2K Games ', '3000AD', '3D People ', 'A44 ', 'AGEOD ', 'AWE Games ', 'Accidental Queens ', 'Acclaim Studios Cheltenham ', 'Acme Gamestudio ', 'Aeternum Game Studios ', 'Alan Zucconi ', 'Alientrap ', 'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Argonaut Games ', 'Armature Studio ', 'Artematica ', 'Artisan Studios ', 'Arxel Tribe ', 'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'Auran ', 'Auroch Digital ', 'Aurogon Shanghai ', 'AurumDust ', 'Balancing Monkey Games ', 'Bedtime Digital Games ', 'Benjamin Rivers ', 'BestGameEver.com ', 'Big Ant Studios ', 'Big Boat Interactive ', 'Bit Blot ', 'Black Element ', 'Black Lab Games ', 'Blackpowder Games ', 'Blendo Games ', 'Bojan Brbora ', 'BreakAway Games ', 'Breaking Walls ', 'Broken Rules ', 'BumbleBeast ', 'CE-Asia ', 'Capy Games ', 'Cauldron Ltd. ', 'Causal Bit Games ', 'Centauri Production ', 'Charles University ', 'ClockStone Studio ', 'Cold Iron Studios ', 'Cosmo D Studios ', 'CreativeForge Games ', 'Cross-Product ', 'Cryo Interactive ', 'Daedalic Entertainment', 'Daniel Wynne', 'Data Becker ', 'Dejobaan Games ', 'Demruth ', 'Denki ', 'Digital Arrow ', 'Digital Eclipse ', 'Digital Fusion Inc. ', 'Digixart Entertainment ', 'Dreampainters ', 'E-Line Media ', 'Edelweiss ', 'EggNut ', 'Eidos Interactive ', 'Elden Pixels ', 'Emobi Games ', 'Etranges Libellules ', 'Eurocom Entertainment Software', 'Eutechnyx ', 'Exiin ', 'Exordium Games ', 'Fallen Tree Games ', 'FarmerGnome ', 'Fiction Factory Games ', 'FreakZone ', 'Freebird Games ', 'Funselektor Labs Inc. ', 'Future Games', 'GUTS Department ', 'Gabe Cuzzillo ', 'Gaijin Games ', 'GameDesignDan ', 'Gato Salvaje Studio ', 'Gloomywood ', 'GlyphX Games ', 'GoodbyeWorld Games ', 'Grundislav Games ', 'Gummy Cat ', 'Gust ', 'Halberd Studios ', 'Harebrained Schemes LLC ', 'Harmonix Music Systems ', 'Hazardous Software ', 'Hempuli Oy ', 'Hi-Bit Studios ', 'Hiding Spot ', 'Himalaya Studios ', 'Hyperbolic Magnetism ', 'INTERIOR/NIGHT ', 'Iceberg Interactive ', 'Indefatigable ', 'Innerspace VR ', 'Investigate North ', 'Invictus ', 'Iridium Studios ', 'It's Anecdotal ', 'Jacob Antonucci', 'Jagex Games Studio ', 'Jankenteam ', 'Jutsu Games ', 'Khaeon ', 'Kiro'o Games ', 'Krams Design ', 'Kubat Software ', 'Lamplight Studios ', 'League of Geeks ', 'Lienzo ', 'Lightning Rod Games ', 'Lince Works ', 'Lost Toys ', 'LuckyHammers ', 'Lumenox ehf ', 'Lunar Great Wall Studios ', 'MadMinute Games ', 'Made by Kiddies ', 'Magnum Games ', 'Massive Development ', 'Max Inferno ', 'Maximum Games ', 'MidBoss ', 'Midway Studios - Austin ', 'Mischief

, 'Misfits Attic ', 'Mojiken Studio ', 'Mothership Entertainment ', 'MyDearest ', 'N-Fusion Interactive Entertainment Corp.', 'NExT Studios ', 'NHN Corporation ', 'NetDevil ', 'Nicolas Intoxicate ', 'Ntronium Games ', 'Overhype Studios ', 'Oxide Games ', 'Panther Games ', 'Pathos Interactive ', 'Pencil Test Studios ', 'Peter Stock ', 'Piccolo ', 'Pixel Crow ', 'Planet Moon Studios ', 'Plausible Concept ', 'Point 5 Projects ', 'Primal Software ', 'Project Aces ', 'Project Aces ', 'Pulse Entertainment ', 'Punch Punk Games ', 'Pure FPS ', 'RageSquid ', 'RainDance LX ', 'Rare Ltd.', 'Rayland Interactive ', 'Realtime Worlds ', 'Related Designs ', 'Resolution Games ', 'Revolution of Strategy ', 'Ritual Entertainment', 'Robot Gentleman ', 'Rogue Entertainment ', 'S&G Software ', 'Sandbox Interactive ', 'Sanzaru ', 'Schell Games', 'Shadow Tor Studios ', 'ShadowRage ', 'Shining Rock Software ', 'Shockwave Productions ', 'Sigma Team ', 'Silver Lining Studio ', 'Silvio & Gey Savarese ', 'Similis ', 'Sketchy Logic ', 'Skydance Interactive ', 'Slocap ', 'Sobaka ', 'Spiderweb Software ', 'Spike Chunsoft ', 'Spiral House ', 'Sports Mogul ', 'Stormind Games ', 'Streko- Graphics Inc. ', 'Stunlock Studios ', 'Sunflowers Interactive ', 'System Era Softworks ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Tantalus ', 'Team Junkfish ', 'The Behemoth ', 'The Wandering Band LLC ', 'The Wandering Ben ', 'ThinkingStars ', 'Third Law Interactive ', 'Threaks ', 'Three One Zero ', 'Throw the Warped Code Out ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos Interactive ', 'Tom Happ ', 'Treyarch', 'Tri Synergy ', 'Turmoil Games ', 'Twice Circled ', 'U.S. Army ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft Sofia ', 'Unexpected ', 'Unspeakable Pixels ', 'Vagabond Dog ', 'Varsav Game Studios ', 'Vertigo Games ', 'Warsaw Film School Video Game & Film Production Studio ', 'Wayward Simulations ', 'Witch Beam ', 'WorldForge ', 'Yuke's ', 'Zeal Game Studios ', 'adamgryu ', 'bitComposer Games', 'idoz & phops ', 'inkle', 'tiger & squid ', 'ustwo '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

239/239 [=====] - 19s 78ms/step - loss: 61.1549 - mae: 5.8510 - val_loss: 41.6913 - val_mae: 4.8846

Epoch 2/20

239/239 [=====] - 19s 79ms/step - loss: 43.2347 - mae: 4.9803 - val_loss: 38.9529 - val_mae: 4.6095

Epoch 3/20

239/239 [=====] - 19s 80ms/step - loss: 37.8453 - mae: 4.6886 - val_loss: 33.8180 - val_mae: 4.4344

Epoch 4/20

239/239 [=====] - 19s 80ms/step - loss: 34.4377 - mae: 4.4584 - val_loss: 29.2589 - val_mae: 4.0159

Epoch 5/20

239/239 [=====] - 19s 81ms/step - loss: 33.4366 - mae: 4.3357 - val_loss: 28.8330 - val_mae: 4.0721

Epoch 6/20

239/239 [=====] - 19s 79ms/step - loss: 32.1656 - mae: 4.2796 - val_loss: 29.3981 - val_mae: 3.9545

Epoch 7/20

```

239/239 [=====] - 19s 79ms/step - loss: 30.0705 - mae:
4.1033 - val_loss: 28.7495 - val_mae: 3.9074
Epoch 8/20
239/239 [=====] - 19s 79ms/step - loss: 28.2111 - mae:
3.9692 - val_loss: 29.0266 - val_mae: 3.9299
Epoch 9/20
239/239 [=====] - 19s 81ms/step - loss: 28.4239 - mae:
3.9673 - val_loss: 29.5166 - val_mae: 3.9755
Epoch 10/20
239/239 [=====] - 19s 80ms/step - loss: 26.7442 - mae:
3.8278 - val_loss: 26.5298 - val_mae: 3.7642
Epoch 11/20
239/239 [=====] - 19s 78ms/step - loss: 26.5034 - mae:
3.8278 - val_loss: 27.2156 - val_mae: 3.7983
Epoch 12/20
239/239 [=====] - 19s 78ms/step - loss: 25.6950 - mae:
3.7559 - val_loss: 27.0608 - val_mae: 3.8034
Epoch 13/20
239/239 [=====] - 19s 81ms/step - loss: 24.7968 - mae:
3.6821 - val_loss: 26.5926 - val_mae: 3.7724
Epoch 14/20
239/239 [=====] - 19s 80ms/step - loss: 24.0580 - mae:
3.5734 - val_loss: 25.5145 - val_mae: 3.6164
Epoch 15/20
239/239 [=====] - 19s 80ms/step - loss: 24.0435 - mae:
3.6261 - val_loss: 24.7606 - val_mae: 3.5992
Epoch 16/20
239/239 [=====] - 19s 79ms/step - loss: 24.3351 - mae:
3.5948 - val_loss: 25.9180 - val_mae: 3.6770
Epoch 17/20
239/239 [=====] - 19s 81ms/step - loss: 22.9687 - mae:
3.4885 - val_loss: 24.8171 - val_mae: 3.6327
Epoch 18/20
239/239 [=====] - 18s 77ms/step - loss: 21.9387 - mae:
3.4322 - val_loss: 26.9010 - val_mae: 3.7193
Epoch 19/20
239/239 [=====] - 19s 81ms/step - loss: 21.6837 - mae:
3.4203 - val_loss: 24.6366 - val_mae: 3.6682
Epoch 20/20
239/239 [=====] - 19s 78ms/step - loss: 20.6008 - mae:
3.3337 - val_loss: 22.8247 - val_mae: 3.3666
Chunk 2/52 // 1.92% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Application', 'Cricket', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-

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packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
10tons ', ' Cranberry Production ', ' Deep Silver Fishlabs ', ' Digital Eclipse
', ' EA Games ', ' Elbow Rocket ', ' FAKT Software ', ' FireFly Studios ', '
Funatics ', ' Funatics Software', ' ICEBOX Studios ', ' LLC', ' LandFall ', '
Moonbyte Studios ', ' Navarre Corp ', ' Nival ', ' Out of the Blue Games S.L. ',
' Overflow Games ', ' Phosphor Games ', ' Polar Motion ', ' RA Images ', '
Reality Twist ', ' Relentless Studios ', ' S.L. ', ' Sega', ' Slitherine Group',
' Ste Curran ', '10tons Entertainment', '369 Interactive ', 'A Crowd of Monsters
', 'Aarne "MekaSkull" Hunziker ', 'Access Games ', 'Action Forms Ltd. ',
'Activision ', 'Alientrap ', 'Alt Shift ', 'Amanita Design ', 'Apeiron ',
'Argonaut Games', 'Artematica ', 'Ascension Studios', 'Asylum Entertainment ',
'Atomic Games ', 'Awe Interactive ', 'Backbone Entertainment ', 'Beautiful Game
Studios ', 'Behold Studios ', 'Big Time Software ', 'Bigmoon Entertainment ',
'Black Mesa Modification Team ', 'Blooming Buds Studio ', 'Blue Manchu ', 'Blue
Omega ', 'BootdiskRevolution ', 'Boxed Dream ', 'Brace Yourself Games ', 'Brat
Designs ', 'BreakAway Games ', 'Butterscotch Shenanigans ', 'Bytten Studio ',
'Cardboard Utopia ', 'Casus Ludi ', 'Cavia Inc. ', 'Cinemax', 'ClockStone Studio
', 'Coilworks ', 'Convoy Games ', 'Corbie Games ', 'Cranberry Studios ', 'Crazy
Rocks ', 'Creative Edge Software ', 'Cygnus Entertainment ', 'D'Avekki Studios
Limited ', 'DANG! ', 'DTP Entertainment', 'Darkling Room ', 'Darkworks ', 'Data
Realms ', 'Deep Shadows ', 'Destineer ', 'Dimfrost ', 'Discord Games ', 'Double
Stallion Games ', 'Drama Drifters ', 'Dreams Uncorporated ', 'Dreamworks Games
', 'EA Bright Light ', 'EA Pacific ', 'EasyGameStation ', 'Eden Industries ',
'Elf Games ', 'Elseware Experience ', 'Erik Svedang ', 'Expansive Worlds ',
'Explosm ', 'Eyebrow Interactive ', 'FAKT Software ', 'FAKT Software GmbH',
'FYQD-Studio ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Flying
Cafe for Semianimals ', 'Focus Home Interactive ', 'Fourattic ', 'Free Lives ',
'Funatics Development GmbH', 'G5 Software ', 'Gaijin Games ', 'Gaslamp Games ',
'General Interactive Co. ', 'Greg Lobanov ', 'Gust ', 'Headfirst Productions ',
'Hibernian Workshop ', 'Hothouse Creations ', 'ION LANDS ', 'Ice-Pick Lodge ',
'InGame Studios ', 'Interceptor Entertainment ', 'Interdimensional Games Inc ',
'Inti Creates ', 'Investigate North Aps ', 'Invictus ', 'Jagex Games Studio ',
'Jason Oda ', 'Jasozz Games ', 'JoyMasher ', 'Jump Over The Age ', 'Kitfox Games
', 'Kraken Unleashed ', 'Krome Studios ', 'La Plata ', 'LandFall Games', 'Lazy 8
Studios ', 'Logic Artists ', 'Long Hat House ', 'MASA Group ', 'Mad Mimic ',
'Maddy Makes Games ', 'Mages. ', 'Marvelous First Studio ', 'Maschinen-Mensch ',
'Massive Monster ', 'Matt Kap ', 'Mattel ', 'Matthias Linda ', 'Midway Studios -
Austin ', 'Mighty Kingdom ', 'Mighty Rabbit Studios ', 'Mindware Studios ',
'Momentum DMT ', 'Morteshka ', 'Mythic Entertainment ', 'NExT Studios ', 'Nerial
', 'Nival Interactive', 'Nova Production ', 'Original Fire Games ', 'Out of the
Blue', 'Oxeye ', 'PETOONS STUDIO SL ', 'Paper Cult ', 'PaperSeven ', 'Paragon
Studios ', 'Passtech Games ', 'Petri Purho ', 'Phobia Game Studio ', 'Phoenix
Online Studios ', 'Phosphor Games Studio', 'Pixel Multimedia ', 'Playwing ',
'PortaPlay ', 'Psychodev ', 'Punchers Impact ', 'Puppy Punch Productions ',
'Puuba ', 'Pyramid ', 'Quotix Software ', 'Radical Fish Games ', 'Reality Twist
GmbH', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Replay Studios', 'Richard
Hofmeier ', 'Robi Studios ', 'Ronimo Games ', 'RuneHeads ', 'Runner Duck ',
'Sand Sailor Studio ', 'Scientifically Proven ', 'Serious Brew ', 'Sierra

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Entertainment ', 'Skilltree Studios ', 'Slitherine', 'Snapshot Games Inc. ', 'SomaSim ', 'Sonalysts ', 'Spike Chunsoft ', 'Spotlightor Interactive ', 'Spry Fox ', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ', 'Storm in a Teacup ', 'Stormcloud Creations ', 'Stunlock Studios ', 'Sumo Digital', 'Sunhead Games ', 'Sunstorm Interactive ', 'SuperScarySnakes ', 'Swing Swing Submarine ', 'Sword & Axe LLC ', 'Synetic ', 'TRAGsoft ', 'Tag of Joy ', 'Targem Games ', 'Team Reptile ', 'Teku Studios ', 'The Gentlebros ', 'The Moonwalls ', 'The Parasight ', 'The Pixel Hunt ', 'The Wild Gentlemen ', 'Thing Trunk ', 'Three Fields Entertainment ', 'Toge Productions ', 'Torus Games ', 'Toys for Bob ', 'Triangle Studios ', 'Troglobytes Games', 'Twistplay', 'Uppercut Games Pty Ltd ', 'V7 Entertainment Inc. ', 'Various ', 'Vicarious Visions', 'Vile Monarch ', 'Vogster ', 'Wadjet Eye Games', 'Weather Factory ', 'White Paper Games ', 'XXV Productions ', 'Yippee Entertainment LTD ', 'Zeboyd Games ', 'Zipper Interactive ', 'Zoetrope Interactive ', 'osao games ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 19s 79ms/step - loss: 44.5365 - mae: 5.1600 - val_loss: 43.7520 - val_mae: 5.3897

Epoch 2/20

238/238 [=====] - 19s 80ms/step - loss: 35.9184 - mae: 4.6446 - val_loss: 38.1270 - val_mae: 5.0025

Epoch 3/20

238/238 [=====] - 19s 81ms/step - loss: 32.7898 - mae: 4.3585 - val_loss: 34.9062 - val_mae: 4.7813

Epoch 4/20

238/238 [=====] - 19s 80ms/step - loss: 30.7624 - mae: 4.2304 - val_loss: 33.2317 - val_mae: 4.6183

Epoch 5/20

238/238 [=====] - 19s 80ms/step - loss: 28.9082 - mae: 4.0679 - val_loss: 30.7268 - val_mae: 4.4867

Epoch 6/20

238/238 [=====] - 19s 79ms/step - loss: 26.8626 - mae: 3.9207 - val_loss: 30.2847 - val_mae: 4.3650

Epoch 7/20

238/238 [=====] - 19s 81ms/step - loss: 26.0631 - mae: 3.8338 - val_loss: 26.6506 - val_mae: 4.0878

Epoch 8/20

238/238 [=====] - 19s 81ms/step - loss: 24.7624 - mae: 3.7348 - val_loss: 25.6017 - val_mae: 3.9618

Epoch 9/20

238/238 [=====] - 19s 80ms/step - loss: 25.4125 - mae: 3.7466 - val_loss: 27.1093 - val_mae: 4.1093

Epoch 10/20

238/238 [=====] - 18s 78ms/step - loss: 23.9058 - mae: 3.6592 - val_loss: 25.4731 - val_mae: 3.9950

Epoch 11/20

```

238/238 [=====] - 19s 80ms/step - loss: 22.8390 - mae:
3.5617 - val_loss: 23.3165 - val_mae: 3.7424
Epoch 12/20
238/238 [=====] - 19s 79ms/step - loss: 21.5052 - mae:
3.4541 - val_loss: 22.9192 - val_mae: 3.7944
Epoch 13/20
238/238 [=====] - 19s 79ms/step - loss: 21.3243 - mae:
3.4368 - val_loss: 22.7897 - val_mae: 3.7402
Epoch 14/20
238/238 [=====] - 18s 77ms/step - loss: 21.1128 - mae:
3.4089 - val_loss: 23.2444 - val_mae: 3.7554
Epoch 15/20
238/238 [=====] - 19s 79ms/step - loss: 21.3118 - mae:
3.4368 - val_loss: 22.1657 - val_mae: 3.6555
Epoch 16/20
238/238 [=====] - 19s 79ms/step - loss: 20.1476 - mae:
3.3165 - val_loss: 20.9137 - val_mae: 3.4943
Epoch 17/20
238/238 [=====] - 19s 79ms/step - loss: 19.2618 - mae:
3.2434 - val_loss: 21.6227 - val_mae: 3.6482
Epoch 18/20
238/238 [=====] - 19s 79ms/step - loss: 19.1799 - mae:
3.2376 - val_loss: 22.1776 - val_mae: 3.6415
Epoch 19/20
238/238 [=====] - 19s 78ms/step - loss: 19.1511 - mae:
3.2217 - val_loss: 20.9458 - val_mae: 3.5540
Epoch 20/20
238/238 [=====] - 19s 78ms/step - loss: 18.8927 - mae:
3.2188 - val_loss: 21.4840 - val_mae: 3.5919
Chunk 3/52 // 3.85% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
A Jolly Corpse ', ' Alex May ', ' Capcom Vancouver ', ' Digital Leisure ', '
Dose', ' Dreadlocks ', ' Eighting ', ' Eurocom ', ' Foreign Gnomes ', ' FunHouse
', ' Kitty', ' Koei Tecmo Games ', ' Live Wire ', ' Ltd. ', ' Mobigame ', '
Rabbit & Bear Studios ', ' Red Winter Software ', ' Sky Fallen', ' and JW ',
'1C:Ino-Co ', '3D Realms ', '4Head Studios ', '5-Bits Games ', '7 Studios ',
'8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ',
'Afterburner Studios ', 'Allgraf ', 'Amaze Entertainment ', 'Ankama Games ',
'ArachnidGames ', 'Arc System Works', 'Artematica ', 'AtomicTorch ', 'Attention
To Detail ', 'Avalanche Software ', 'Barking Dog ', 'Bay 12 Games ', 'Bedlam
Games ', 'Ben Esposito ', 'Biart ', 'Bippinbits ', 'Bithell Games ', 'Black Salt
Games ', 'Blue Castle Games ', 'Boston Animation ', 'BreakAway Games ', 'Buka

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Entertainment ', 'Byterunners Game Studio ', 'CCCP ', 'COWCAT ', 'Canal+ Multimedia ', 'Cave ', 'Chaosmonger Studio ', 'Chris Nordgren', 'Chromatic Games ', 'Code Force ', 'Coin Crew Games ', 'Cosmonaut Studios ', 'Critical Studio ', 'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'DESTINYbit ', 'DNS Development ', 'Dancing Dragon games ', 'Dark Crystal Games ', 'Digital Confectioners ', 'Digital Happiness ', 'Digital Leisure Inc.', 'Digital Lode ', 'Digitalo Studios ', 'Dimps Corporation ', 'Disney Interactive Studios ', 'DoubleBear Productions ', 'Dreadlocks Ltd', 'Dykast Lubomir ', 'Eastshade Studios ', 'Elder Games ', 'Erik Svedang ', 'Eurocom Entertainment Software', 'Fabraz ', 'Fallen Flag Studio ', 'Fictiorama Studios ', 'Fireplace Games ', 'Fishing Cactus ', 'Foregone ', 'Frima Studio ', 'Frozen line ', 'Game Grumps ', 'Gameyus Interactive ', 'Gaslamp Games ', 'Gentlymad ', 'Ghost Ship Games ', 'Haggard Games ', 'Heavy Iron Studios', 'Herobeat Studios ', 'Heuristic Park ', 'Hitbox ', 'Holospark ', 'Honig Studios ', 'HyperSloth ', 'Ikarion ', 'Illwinter Design Group ', 'Innonics ', 'Instant Kingdom ', 'Invader Studios ', 'Jesse Makkonen ', 'KUNO INTERACTIVE ', 'KillHouse Games ', 'Layopi Games ', 'Live Wire Films', 'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'MagicalTimeBean ', 'Mantra ', 'Massive Work Studio ', 'Matias Schmied ', 'Midgar Studio ', 'Mike Studios ', 'Mindware Studios ', 'Minor Key Games ', 'Misfits Attic ', 'Moppin ', 'Most Wanted Entertainment ', 'Motion Twin ', 'Muro Studios Ltd. ', 'NATSUME ATARI Inc.', 'Namco ', 'Namco Bandai Games ', 'Nerve Software ', 'New Blood Interactive ', 'Nfusion ', 'Nippon Ichi Software ', 'Ocelot Society ', 'Omega Force', 'Oscar Brittain ', 'Outrage Games ', 'Owlchemy Labs ', 'PD Design Studio Pte Ltd ', 'Paleo Entertainment ', 'Parallax Software ', 'Pathea Games ', 'Piranha Games ', 'Pixel Night ', 'Pixpil ', 'Plastic Reality ', 'Pocket Trap ', 'Popcannibal ', 'Positech Games ', 'Propaganda Games ', 'QCF Design ', 'ROCKFISH Games ', 'Radon Labs ', 'Rage Software ', 'RageSquid ', 'Raspina Studio ', 'Ratbag ', 'Razorworks ', 'Red Candle Games ', 'Red Thread Games ', 'Red Winter Software Limited', 'Reflections Interactive ', 'Related Designs ', 'Resolution Games ', 'Rudolf Kremers', 'Runewaker Entertainment ', 'Scavengers Studio ', 'Seaven Studio ', 'Secret Base ', 'Shaba Games ', 'Silent Grove Studios ', 'Sirius Games ', 'Sixteen Tons Entertainment ', 'Sky Fallen ', 'Snowhound Games ', 'Soldak Entertainment ', 'Sorath ', 'Sourcenext ', 'Stickmen Studios ', 'Storm in a Teacup ', 'Stormfront Studios ', 'Streko-Graphics Inc. ', 'Studio V ', 'Sundae Month ', 'Sunstorm Interactive ', 'T19 Games ', 'Team Ninja', 'Team Salvato ', 'Tendershoot', 'Terri', 'Terry Cavanagh ', 'Tesseract Games ', 'The Chinese Room ', 'Tindalos Interactive ', 'TopWare Interactive ', 'Toukana Interactive ', 'Twisted Pixel Games ', 'Two Tribes', 'Ubisoft Montreal', 'Ultimation Inc. ', 'Ultra Ultra ', 'Un Je Ne Sais Quoi ', 'Unfold Games ', 'V1 Interactive ', 'ValuSoft ', 'Vicious Cycle ', 'White Paper Games ', 'White Rabbit Interactive ', 'Z-Axis', 'Zachtronics Industries ', 'Zoetrope Interactive ', 'Zuxxez ', 'i-illusions '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 19s 77ms/step - loss: 47.0155 - mae: 5.2068 - val_loss: 49.0509 - val_mae: 5.6263

Epoch 2/20

238/238 [=====] - 19s 78ms/step - loss: 38.6563 - mae: 4.6966 - val_loss: 42.8730 - val_mae: 5.1945
Epoch 3/20
238/238 [=====] - 19s 80ms/step - loss: 35.0634 - mae: 4.4523 - val_loss: 39.4760 - val_mae: 5.0525
Epoch 4/20
238/238 [=====] - 21s 90ms/step - loss: 32.7364 - mae: 4.2780 - val_loss: 42.3225 - val_mae: 5.3092
Epoch 5/20
238/238 [=====] - 19s 78ms/step - loss: 30.7464 - mae: 4.1034 - val_loss: 35.4016 - val_mae: 4.7871
Epoch 6/20
238/238 [=====] - 19s 79ms/step - loss: 29.9847 - mae: 4.0671 - val_loss: 37.7903 - val_mae: 4.9815
Epoch 7/20
238/238 [=====] - 18s 78ms/step - loss: 28.0453 - mae: 3.9172 - val_loss: 33.7120 - val_mae: 4.5889
Epoch 8/20
238/238 [=====] - 19s 79ms/step - loss: 27.3650 - mae: 3.8413 - val_loss: 33.0576 - val_mae: 4.6459
Epoch 9/20
238/238 [=====] - 19s 78ms/step - loss: 25.7683 - mae: 3.7681 - val_loss: 33.7237 - val_mae: 4.6869
Epoch 10/20
238/238 [=====] - 18s 77ms/step - loss: 24.9401 - mae: 3.6836 - val_loss: 32.1622 - val_mae: 4.5456
Epoch 11/20
238/238 [=====] - 19s 79ms/step - loss: 24.0809 - mae: 3.5973 - val_loss: 30.8950 - val_mae: 4.4479
Epoch 12/20
238/238 [=====] - 18s 77ms/step - loss: 24.4840 - mae: 3.6223 - val_loss: 30.3301 - val_mae: 4.3891
Epoch 13/20
238/238 [=====] - 19s 78ms/step - loss: 22.9167 - mae: 3.4932 - val_loss: 32.7740 - val_mae: 4.5828
Epoch 14/20
238/238 [=====] - 19s 78ms/step - loss: 22.5206 - mae: 3.4630 - val_loss: 30.9296 - val_mae: 4.4128
Epoch 15/20
238/238 [=====] - 18s 77ms/step - loss: 22.1896 - mae: 3.4135 - val_loss: 28.2384 - val_mae: 4.2714
Epoch 16/20
238/238 [=====] - 18s 76ms/step - loss: 22.2491 - mae: 3.4439 - val_loss: 28.5687 - val_mae: 4.2658
Epoch 17/20
238/238 [=====] - 18s 76ms/step - loss: 22.0741 - mae: 3.4042 - val_loss: 31.7794 - val_mae: 4.5330
Epoch 18/20

238/238 [=====] - 19s 78ms/step - loss: 21.3805 - mae: 3.3582 - val_loss: 31.4272 - val_mae: 4.5526

Epoch 19/20

238/238 [=====] - 19s 79ms/step - loss: 22.0155 - mae: 3.4089 - val_loss: 30.4132 - val_mae: 4.3342

Epoch 20/20

238/238 [=====] - 18s 78ms/step - loss: 20.3787 - mae: 3.2869 - val_loss: 28.7512 - val_mae: 4.3274

Chunk 4/52 // 5.77% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['1C:Ino-Co ', ' Acclaim Studios Manchester ', ' Ankama ', ' Atari ', ' Atari SA ', ' Black Drakkar Games ', ' Blitz Games ', ' Buried Signal ', ' Calappa Games ', ' Clover Bite ', ' Creative Business Unit III ', ' Cyan', ' EA Vancouver ', ' Endlessfluff Games ', ' Grove Street Games ', ' Gun Interactive ', ' GungHo', ' Humble Games', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio ', ' MicroProse', ' MicroProse ', ' Mixed Realms ', ' N-Game Studios ', ' Navegante Entertainment ', ' Phosphor Games ', ' PopCap ', ' SeithCG ', ' SkyBox Labs ', ' Splash Damage', ' Team 6 Games Studio ', ' TimeGate Studios ', '10 Chambers Collective ', '17-Bit ', '2By3 Games ', '4D Rulers ', '6 Eyes Studio ', '@unepic_fran ', 'AGEOD ', 'Abrakam SA ', 'Acclaim', 'Alkemi Games ', 'Ankama Games', 'Anshar Studios ', 'Antab Studio ', 'Astro Port ', 'Atari', 'Atelier Mimina ', 'Auran ', 'Autumn Moon ', 'Awesome Games Studio ', 'Axel Fox ', 'Bandai Namco Games', 'Barking Dog ', 'Beard Envy ', 'Bedtime Digital Games ', 'Behavior Studios ', 'BetaDwarf ', 'Bits & Beasts ', 'Bonus Level Entertainment ', 'Brain Candy ', 'Brendon Chung ', 'Bright Future GmbH ', 'Bromio', 'Byte Barrel ', 'Caged Element Inc. ', 'Camel 101 ', 'Campo Santo ', 'Cat Daddy Games ', 'Cellar Door Games ', 'ChessBase ', 'Chronic Logic ', 'Claeys Brothers Arts ', 'Clever Beans ', 'Codemasters Birmingham ', 'Coffee Stain North ', 'Covenant.dev ', 'Crate Entertainment ', 'Crazy Monkey Studios ', 'Creepy Jar ', 'Cyan Worlds', 'Cyber Rhino Studios ', 'Cypron Studios ', 'Daybreak Games ', 'Dead Mage Studio ', 'Demagog Studio ', 'Devolver Digital ', 'Doinksoft ', 'DrinkBox Studios ', 'EA Sports', 'Edge Case Games ', 'Exbleative ', 'Fallen Earth', 'Fallen Leaf', 'Feral Cat Den ', 'Fishcow Studio ', 'Fishlabs ', 'Flaming Fowl Studios ', 'Fort Triumph LTD ', 'Free Lives ', 'Freebird Games ', 'Freedom LLC ', 'Funnel Entertainment', 'GalaxyTrail ', 'Gambrinous ', 'Game Arts', 'Game Arts ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of a Tale', 'Grace Bruxner ', 'Green Lava Studios ', 'Greenheart Games ', 'Ground Shatter Ltd. ', 'Gust ', 'Harmonix Music Systems ', 'Hasbro Interactive', 'Heatwave Interactive ', 'Heavy Iron Studios ', 'Hexagon Entertainment ', 'HopFrog ', 'Hothouse Creations ', 'Humble Bundle', 'IGGYMOB ', 'Idea Factory ', 'IllFonic', 'IllFonic ', 'Image Space Incorporated ', 'Interactive Stone ', 'IronOak Games ', 'Ivy Games LLC ', 'JC Entertainment ', 'Jason Roberts', 'Johnny Dale Lonack ', 'Kaos Studios ', 'Kong Orange ', 'Lazy Bear Games ', 'Lead Pursuit ', 'Lexis Numerique ', 'Logic Artists ', 'Lucid Games ', 'Lukas Navratil ', 'Mad Orange ', 'Massive Damage', 'MediaMobsters ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd', 'Mode 7 Games ', 'Monolith Productions', 'Moepful Games ', 'Motiga ', 'Muse

Games ', 'Mutant Games ', 'Nemesys ', 'Neversoft Entertainment', 'Nival Interactive', 'Nussoft', 'Object ', 'Okomotive ', 'Old Moon ', 'Old School Games ', 'Orann ', 'Owned by Gravity ', 'Paranoid Interactive ', 'Perfect World Entertainment ', 'Phil Hassey ', 'Phosfiend Systems ', 'Phosphor Games Studio', 'Pinkerton Road Studio ', 'Planet Moon Studios ', 'PortaPlay ', 'Positech Games ', 'Prideful Sloth ', 'Proper Games ', 'Pulsatrix Studios ', 'Queasy Games ', 'R8 Games ', 'Radiation Blue ', 'Razorworks ', 'Rebelmind ', 'Red 5 Studios ', 'Red Redemption ', 'Refugium Games ', 'Rewolf Software ', 'Robotality ', 'Sassybot ', 'Scott Cawthon ', 'Shiro Games ', 'Sick Puppies ', 'Sierra Entertainment ', 'Silent Dreams ', 'Silver Style ', 'Slitherine ', 'Smudged Cat Games ', 'Spaces of Play ', 'Sports Mogul ', 'StarWraith ', 'Stormfront Studios ', 'Stuck In Attic ', 'Sushee ', 'TALEROCK ', 'TIGAMES ', 'Team2Bit ', 'Team6 Game Studios', 'The Chinese Room ', 'The Fullbright Company ', 'Throughline Games ', 'Tom Francis ', 'Tri Synergy ', 'Tribute Games ', 'Trine Games ', 'Under the Stairs ', 'Video System ', 'Vile Monarch ', 'W!Games ', 'Wadjet Eye Games', 'Warner Bros. Interactive Entertainment ', 'Whalebox Studio ', 'Whole Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Wizarbox ', 'WorldForge ', 'Wube Software LTD. ', 'Yukitama Creative Industries ', 'Zoink! ', 'animdude ']

will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

240/240 [=====] - 19s 78ms/step - loss: 36.7330 - mae: 4.6342 - val_loss: 39.3627 - val_mae: 5.1244

Epoch 2/20

240/240 [=====] - 19s 78ms/step - loss: 30.7498 - mae: 4.1914 - val_loss: 44.1867 - val_mae: 5.5648

Epoch 3/20

240/240 [=====] - 18s 77ms/step - loss: 29.0968 - mae: 4.0453 - val_loss: 36.8108 - val_mae: 4.9936

Epoch 4/20

240/240 [=====] - 19s 78ms/step - loss: 26.6972 - mae: 3.8816 - val_loss: 38.6574 - val_mae: 5.2103

Epoch 5/20

240/240 [=====] - 19s 78ms/step - loss: 23.7434 - mae: 3.6459 - val_loss: 32.7333 - val_mae: 4.7240

Epoch 6/20

240/240 [=====] - 19s 78ms/step - loss: 22.5753 - mae: 3.5713 - val_loss: 33.5527 - val_mae: 4.8572

Epoch 7/20

240/240 [=====] - 18s 77ms/step - loss: 22.4199 - mae: 3.5433 - val_loss: 29.4277 - val_mae: 4.4693

Epoch 8/20

240/240 [=====] - 18s 76ms/step - loss: 20.8903 - mae: 3.4228 - val_loss: 31.7850 - val_mae: 4.6488

Epoch 9/20

240/240 [=====] - 18s 77ms/step - loss: 20.7260 - mae: 3.4040 - val_loss: 30.2704 - val_mae: 4.5156

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Epoch 10/20
240/240 [=====] - 18s 76ms/step - loss: 19.2601 - mae:
3.2651 - val_loss: 24.9325 - val_mae: 4.0481
Epoch 11/20
240/240 [=====] - 18s 76ms/step - loss: 19.4624 - mae:
3.2505 - val_loss: 29.3298 - val_mae: 4.4041
Epoch 12/20
240/240 [=====] - 19s 79ms/step - loss: 18.9125 - mae:
3.2280 - val_loss: 26.1317 - val_mae: 4.1783
Epoch 13/20
240/240 [=====] - 19s 78ms/step - loss: 18.3209 - mae:
3.1571 - val_loss: 25.4188 - val_mae: 4.0752
Epoch 14/20
240/240 [=====] - 19s 78ms/step - loss: 17.9647 - mae:
3.1355 - val_loss: 29.7276 - val_mae: 4.5102
Epoch 15/20
240/240 [=====] - 19s 78ms/step - loss: 17.7065 - mae:
3.1172 - val_loss: 25.7229 - val_mae: 4.0736
Chunk 5/52 // 7.69% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' 343 Industries ', ' Atari SA ', ' Beamdog', ' Black Sea
Games ', ' Bloom Technology ', ' Blueside ', ' Boss Key Productions ', ' Cing ',
' Cognosphere ', ' Crema Games ', " DON'T NOD ", ' Davit Andreasyan ', ' Deck
Nine Games ', ' Easy Trigger Games ', ' Eerie Guest ', ' Hex Entertainment ', '
Ice Cold Games ', ' Infogrames', ' Jujubee S.A. ', ' Kaiko ', ' Katuri
Interactive ', ' Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' MONKEYCRAFT
Co. Ltd. ', ' Melbourne House ', ' Most Wanted Entertainment ', ' Novacore
Studios ', ' Novik & Co ', ' Overhaul Games ', ' Pine Scented Software ', '
PixelHive ', ' Psyop ', ' Slitherine Group ', ' Spike Chunsoft ', ' Squad ', '
Targem Games ', ' Team Reptile ', ' Transmission Games', ' UNKNOWN GAMES ', '
Vanguard Games ', ' Virtuos ', ' Voidpoint', ' Xaviant ', '1C Entertainment',
'1C-Softclub ', '343 Industries', '3D People ', '3D Realms', '3DClouds ', '4X
Studios ', 'Action Squad Studios ', 'Activision ', 'Almost Human ', 'Amanita
Design ', 'Appaloosa Interactive ', 'Aquiris Game Studio ', 'Arclight Creations
', 'Arkedo Studio ', 'Artifact Entertainment ', 'Artifex Mundi ', 'Artificial
Mind and Movement ', 'Ascendant Studios ', 'Askiisoft ', 'Atari', 'Aterdux
Entertainment ', 'Bandai Namco Games', 'Barking Dog ', 'Behold Studios ',
'Benjamin "ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Berzerk Studio ', 'Big
Red Software ', 'Big Sandwich Games', 'Bishop Games ', 'Bitbox Ltd. ', 'Black
Isle Studios', 'Black Matter ', 'Black Sea Studios', 'Black Sea Studios ',
'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Boss Key', 'Bossa Studios
', 'Brain Slap Studio ', 'Browsome ', 'Buka Entertainment', 'Bulwark Studios ',

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'Burut Software ', 'ByteRockers' Games ', 'Cardboard Computer ', 'Casey
 Donnellan Games LLC ', 'Cat Rabbit ', 'Cauldron Ltd. ', 'ChaosForge ', 'Choice
 Provisions ', 'Cingular mMode', 'Clever-Plays ', 'Clifftop Games ', 'ClockStone
 Studio ', 'Codo Games ', 'Coffee Stain Studios', 'Conifer Games ', 'Core Design
 Ltd. ', 'Cradle Games ', 'CrazyBunch ', 'Creat Studios ', 'CreativeForge Games
 ', 'CremaGames', 'Critique Gaming ', 'Cryptozoic Entertainment', 'DONTNOD
 Entertainment', 'Daniel Mullins Games ', 'Dark Energy Digital ', 'Defiant
 Development ', 'DigiFX Interactive ', 'Digital Arrow ', 'Dingaling ', 'Dirigo
 Games ', 'Dreadbit ', 'E-One Studio ', 'EA Bright Light ', 'EKO Software ',
 'Elastic Games ', 'Empyrean ', 'Evan Todd ', 'Fiddlesticks Games ', 'Final Form
 Games', 'Fluent ', 'Foam Sword ', 'Foolish Mortals Games ', 'Forge Reply ',
 'Four Quarters ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ',
 'GFI Russia ', 'Galilea Multimedia ', 'Gamious ', 'Geeta Games ', 'Geniaware ',
 'Goblinz Studio ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'Grundislav
 Games ', 'HD Interactive', 'HandyGames ', 'Happy Ray Games ', 'Hato Moa ',
 'Hidden Layer Games ', 'Hollow Ponds ', 'Hollow Ponds and Richard Hogg ',
 'IMGN.PRO ', 'IR Gurus ', 'Ice Code Games', 'Ice-Pick Lodge ', 'Iceberg
 Interactive', 'Impressions Games ', 'In Utero ', 'Infinite Monkeys ', 'Innerloop
 ', 'Joakim Sandberg', 'Joel Mcdonald ', 'Juice Games ', 'Jujubee', 'Jump Over
 The Age ', 'Just A Pixel ', 'Kaiko ', 'Katauri Interactive', 'Koboldgames ',
 'Kuma Reality Games ', 'Kyle Thompson ', 'Kyy Games ', 'L30 Interactive ', 'Lab
 Zero Games ', 'Left Behind Games ', 'Lichthund ', 'Light Brick ', 'Lion Shield',
 'Lo-Fi Games ', 'Love Conquers All Games ', 'Lucky Mountain Games ', 'Lucky
 Pause ', 'M2', 'M2H', 'MONKEYCRAFT Co. Ltd. ', 'MadCat Interactive Software ',
 'Magic Design Studios ', 'Master Creating ', 'Metropolis Software ', 'Micro
 Application ', 'Mirage Game Studios ', 'Mission Studios ', 'Modern Dream ',
 'Mojo Bones ', 'Moon Spider Studio ', 'Moonlight Games ', 'Mosaic Mask ', 'NExT
 Studios ', 'NVYVE Studios ', 'Namco ', 'Necrophone ', 'Nemesys ', 'Neon
 Studios', 'NetDevil ', 'New World Computing ', 'Nfusion ', 'Nigoro ', 'Nival
 Interactive', 'No Brakes Games ', 'Northway Games ', 'Novarama ', 'Nullpointer
 Games ', 'Numantian Games ', 'Ovosonico ', 'Palindrome Interactive ', 'Parabole
 ', 'Particle Systems ', 'Paul Helman ', 'Phantagram', 'Pieces Interactive ',
 'PolyKnight Games ', 'Primal Software ', 'Psyop Games', 'QLOC ', 'Quantic
 Dream', 'Rage Software ', 'Rapid Eye Entertainment ', 'Ratbag ', 'Ratloop Games
 Canada ', 'Razbor Studios ', 'Ready at Dawn ', 'Red Zero Games ', 'Reflexive
 Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ', 'Rocket Bear
 Games ', 'SEMISOFT ', 'SQUADTeam', 'Saibot Studios ', 'Sam Barlow ', 'Seaven
 Studio ', 'Sega AM2 ', 'Shanghai FantaBlade Network Technology Co.', 'Silverback
 Entertainment ', 'Sir-Tech Software Inc. ', 'Size Five Games ', 'Skrollcat
 Studios ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Sluggerfly ', 'So
 Romantic ', 'Soft Enterprises ', 'Somnium Games d.o.o. ', 'Spike Chunsoft Co.
 Ltd.', 'Squad ', 'Square Enix Montreal ', 'Stage 2 Studios ', 'Straandlooper ',
 'Studio Pixel ', 'Sumo Newcastle ', 'SumomGames ', 'Superbrothers', 'Tangrin ',
 'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'Terri Vellimann ', 'The
 Chinese Room ', 'The Odd Gentlemen ', 'Third Law Interactive ', 'Thomas van den
 Berg ', 'Tokyo RPG Factory ', 'Tom Francis ', 'Tomorrow Corporation ',
 'TreeFortress Games ', 'True Axis ', 'Tunnel Vision Games ', 'TurtleBlaze ',
 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vanguard', 'Variable State ',

'Velan Studios ', 'Visual Concepts ', 'Vox Game Studio', 'Wales Interactive ',
'Warpzone Studios ', 'We Create Stuff ', 'Wicked Studios ', 'X1 Software ',
'Xaviant Games', 'Yakov Butuzoff ', 'Zachtronics Industries ', 'dreamfeel ',
'eBrain Studio ', 'inkle ', 'miHoYo', 'straka.studio ', 'superflat games ',
'teedoubleuGAMES ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 19s 77ms/step - loss: 47.5962 - mae:
5.2209 - val_loss: 52.4565 - val_mae: 5.9000

Epoch 2/20

238/238 [=====] - 18s 76ms/step - loss: 40.4239 - mae:
4.8129 - val_loss: 48.8692 - val_mae: 5.7381

Epoch 3/20

238/238 [=====] - 18s 77ms/step - loss: 36.8051 - mae:
4.5718 - val_loss: 42.8114 - val_mae: 5.3062

Epoch 4/20

238/238 [=====] - 18s 77ms/step - loss: 33.6128 - mae:
4.3441 - val_loss: 39.4185 - val_mae: 5.0537

Epoch 5/20

238/238 [=====] - 18s 77ms/step - loss: 32.0268 - mae:
4.2571 - val_loss: 39.3741 - val_mae: 5.0765

Epoch 6/20

238/238 [=====] - 18s 76ms/step - loss: 30.9343 - mae:
4.1413 - val_loss: 35.3703 - val_mae: 4.7566

Epoch 7/20

238/238 [=====] - 18s 77ms/step - loss: 29.1964 - mae:
4.0393 - val_loss: 36.4667 - val_mae: 4.8697

Epoch 8/20

238/238 [=====] - 18s 76ms/step - loss: 27.9421 - mae:
3.9302 - val_loss: 35.6512 - val_mae: 4.7930

Epoch 9/20

238/238 [=====] - 18s 77ms/step - loss: 26.9628 - mae:
3.8844 - val_loss: 33.0685 - val_mae: 4.5569

Epoch 10/20

238/238 [=====] - 19s 78ms/step - loss: 26.7962 - mae:
3.8901 - val_loss: 33.7212 - val_mae: 4.6575

Epoch 11/20

238/238 [=====] - 18s 77ms/step - loss: 26.2803 - mae:
3.8232 - val_loss: 35.2188 - val_mae: 4.8149

Epoch 12/20

238/238 [=====] - 19s 78ms/step - loss: 25.4178 - mae:
3.7756 - val_loss: 35.8400 - val_mae: 4.8553

Epoch 13/20

238/238 [=====] - 18s 77ms/step - loss: 25.8315 - mae:
3.7838 - val_loss: 32.6924 - val_mae: 4.5958

Epoch 14/20

238/238 [=====] - 19s 79ms/step - loss: 25.4554 - mae:

3.7392 - val_loss: 30.5377 - val_mae: 4.4214
Epoch 15/20
238/238 [=====] - 19s 79ms/step - loss: 23.1406 - mae: 3.5892 - val_loss: 32.7373 - val_mae: 4.6180
Epoch 16/20
238/238 [=====] - 18s 78ms/step - loss: 23.7058 - mae: 3.6170 - val_loss: 32.8806 - val_mae: 4.6795
Epoch 17/20
238/238 [=====] - 18s 77ms/step - loss: 23.1885 - mae: 3.5621 - val_loss: 32.4623 - val_mae: 4.5661
Epoch 18/20
238/238 [=====] - 18s 76ms/step - loss: 22.8748 - mae: 3.5226 - val_loss: 29.1363 - val_mae: 4.2441
Epoch 19/20
238/238 [=====] - 18s 78ms/step - loss: 21.4724 - mae: 3.4204 - val_loss: 29.2115 - val_mae: 4.2969
Epoch 20/20
238/238 [=====] - 18s 77ms/step - loss: 21.9076 - mae: 3.4554 - val_loss: 30.7490 - val_mae: 4.4873
Chunk 6/52 // 9.62% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['10tons ', '1C', 'Application Systems Heidelberg ', 'BeautiFun Games ', 'BlackMuffin Studio', 'Bullets ', 'Centauri Production ', 'Char & Torfi ', 'Digital Sun ', 'Dreamworks Games ', 'EA Singapore ', 'Eyeguys ', 'Fair Play Labs ', 'French-Bread ', 'Funatics ', 'Funatics Software', 'General Arcade ', 'Honor Code', 'Immersion Software & Graphics ', 'Ino-Co', 'Ministry of Broadcast Studios ', 'Monkey Moon ', 'Movie Games ', 'Muutsch', 'Now Production', 'Playsport Games Ltd ', 'Pol', 'Ravenscourt', 'Rockstar San Diego ', 'Russia ', 'Soleil', 'Soleil Ltd. ', 'Studio Fizbin ', 'StudioInkyfox ', 'Team Reptile ', 'Thomas Brush ', 'Toylogic ', 'Tribute Games Inc. ', 'VIS Games ', 'Varkian Empire ', '10tons Entertainment', '11 bit studios', '1C-Softclub ', '24 Entertainment ', '3A Games ', 'Alcachofa Soft ', 'Altari Games ', 'Amanita Design ', 'Angel Studios', 'Anim-X ', 'Animation Arts ', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios', 'Arxel Tribe ', 'Asteroid Base ', 'Avalon Style ', 'BEAUTIFUN GAMES SL', 'BLOODIOUS GAMES ', 'Beautiful Glitch ', 'Big Ape Productions ', 'Bit Byterz ', 'Black Mermaid ', 'Black Pants Studio ', 'Blastmode ', 'Blazing Bit Games ', 'Blazing Griffin ', 'Blue Bottle Games ', 'Bombservice ', 'Borealys Games ', 'Broken Rules ', 'BudCat ', 'Capricia Productions ', 'Carlos Coronado ', 'Chance Agency ', 'Charybdis ', 'Cinemax', 'Coffee Powered Machine ', 'Connor Ullmann ', 'Cornfox & Bros. ', 'Crunching Koalas ', 'CyberConnect2', 'Cyberlore Studios ', 'Deep Red ', 'Deibus Studios ', 'Delphine Software International ', 'Detalion ', 'Devolver Digital ', 'Die Gute Fabrik ', 'Digital Dialect ', 'Digital Eclipse ', 'Dinosaur Polo Club ', 'Diversions Entertainment ', 'DrinkBox Studios ', 'Duckbridge ', 'EA Black Box', 'EA Black Box ', 'EA LA', 'EA Seattle ', 'Ecole', 'Eutechnyx ', 'FASA Studio ', 'Finish Line Games ', 'Fizbin', 'From Software',

'Funatics Development GmbH', 'Future Games ', 'GameSourceStudio ', 'Gazillion ', 'Geography of Robots ', 'Gojira ', 'Graceful Decay ', 'Grip Digital ', 'Guru Games ', 'Half Asleep ', 'HappyJuice Games ', 'Harebrained Schemes LLC ', 'Hidden Fields ', 'Himalaya Studios ', 'Holistic Design', 'Homeless Unicorn', 'Housemarque ', 'Humongous Entertainment ', 'Hydravision ', 'ILCA', 'Idol FX ', 'In Utero ', 'Infinitap Games ', 'Infinite Fall ', 'InterServ International ', 'Interwave Studios ', 'Inti Creates ', 'IonFX ', 'Jacob Dzwinel ', 'John Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games ', 'Just Add Water ', 'KCEJ ', 'KDV Games ', 'Keen Software House ', 'Kitfox Games ', 'Kuju Entertainment ', 'LCB Game Studio ', 'LKA ', 'Lantern Studio ', 'Le Cartel Studio ', 'Leaping Lizard Software Inc. ', 'Level 5 ', 'Lexis Numerique ', 'Limasse Five ', 'Locomalito ', 'Lorenzo Redaelli', 'Ludosity Interactive', 'Max Mraz ', 'Mayhem Studios ', 'Messhof ', 'Metronomik ', 'Minor Key Games ', 'Mithis/HD Interactive ', 'Mohawk Games ', 'Monster Games Inc. ', 'Mooneye Studios ', 'Movie Games ', 'Movie Games S.A.', 'MuHa Games ', 'MumboJumbo ', 'Muzzy Lane Software ', 'NGD Studios ', 'NUDE MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No Code ', 'Nolla Games ', 'NotGames ', 'Nowhere Studios ', 'Ocean Drive Studio ', 'Oddworld Inhabitants ', 'Oldblood ', 'Ossian Studios ', 'Ovid Works ', 'Panic Barn Ltd ', 'Papyrus ', 'Paradox North ', 'Passtech Games ', 'Pathea Games ', 'Phosphor Games Studio', 'Picaresque Studio ', 'Pieces Interactive ', 'Pinkerton Road Studio ', 'Piranha Games ', 'Pirita Studio ', 'Player First Games ', 'Playful Corp. ', 'Playsport Games', 'Pocketwatch Games ', 'Pollux Gamelabs ', 'Polypusher Studios ', 'Press Play ', 'Presto Studios ', 'Q-Games ', 'Quicksilver Software ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury', 'Reakktor Media ', 'Red Herring Labs ', 'Red Rocket Games ', 'Related Designs ', 'Render Cube ', 'Renegade Kid ', 'Reptile', 'Rock Pocket Games ', 'Rocket Science Games ', 'Rockstar San Diego ', 'Rogue Factor ', 'Route 59 Games ', 'SMG Studio ', 'Santa Ragione ', 'Sanzaru Games ', 'Saturn+ ', 'Secret Level ', 'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ', 'Shiro Games ', 'Shiver Games ', 'Sileni Studios ', 'Silver Dollar Games ', 'Silverback Studios ', 'SimTex ', 'Skeleton Crew Studio ', 'Sketchbook Games ', 'Space Dust Studios', 'Spearhead Games ', 'State of Play Games ', 'Still Running ', 'Studio Koba ', 'Sunnyside Games ', 'Supersonic Software ', 'THQ', 'TKO Software ', 'TURBOGUN ', 'Tamsoft ', 'Team Shifty ', 'Termite Games ', 'The Outsiders ', 'Thomas Moon Kang ', 'Tokyo RPG Factory ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic Inc.', 'Tribute Games', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Triternion ', 'Turbo Tape Games ', 'Twice Circled ', 'Uber Entertainment ', 'Unigine Corp', 'Untame ', 'Upper One Games ', 'Veewo Games ', 'Vile Monarch ', 'Virtuos ', 'Visual Concepts ', 'Visual Imagination Software', 'Vlambeer ', 'Wales Interactive ', 'White Birds Productions ', 'Wild Factor ', 'William Chyr Studio LLC ', 'Wizards of the Coast ', 'Y.K. ', 'ZANDEL MEDIA ', 'Zoink! ', 'Zono Inc. ', 'machineboy ', 'roll7 ', 'tiny Build GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

237/237 [=====] - 18s 76ms/step - loss: 44.1028 - mae: 5.0137 - val_loss: 62.5561 - val_mae: 6.6304

Epoch 2/20

237/237 [=====] - 18s 78ms/step - loss: 35.6519 - mae: 4.5280 - val_loss: 54.8916 - val_mae: 6.2241
Epoch 3/20
237/237 [=====] - 18s 76ms/step - loss: 32.0790 - mae: 4.2366 - val_loss: 61.5002 - val_mae: 6.6896
Epoch 4/20
237/237 [=====] - 18s 75ms/step - loss: 30.4148 - mae: 4.1258 - val_loss: 54.5509 - val_mae: 6.2638
Epoch 5/20
237/237 [=====] - 18s 77ms/step - loss: 28.3898 - mae: 3.9726 - val_loss: 54.7458 - val_mae: 6.3741
Epoch 6/20
237/237 [=====] - 18s 77ms/step - loss: 26.9707 - mae: 3.8432 - val_loss: 51.5754 - val_mae: 6.1846
Epoch 7/20
237/237 [=====] - 18s 77ms/step - loss: 25.8123 - mae: 3.7518 - val_loss: 50.3703 - val_mae: 6.0742
Epoch 8/20
237/237 [=====] - 18s 77ms/step - loss: 25.5400 - mae: 3.7374 - val_loss: 45.0711 - val_mae: 5.6283
Epoch 9/20
237/237 [=====] - 18s 77ms/step - loss: 24.0669 - mae: 3.6293 - val_loss: 42.2409 - val_mae: 5.4765
Epoch 10/20
237/237 [=====] - 18s 76ms/step - loss: 23.5066 - mae: 3.5345 - val_loss: 42.0616 - val_mae: 5.5017
Epoch 11/20
237/237 [=====] - 18s 77ms/step - loss: 23.3839 - mae: 3.5739 - val_loss: 38.7607 - val_mae: 5.2380
Epoch 12/20
237/237 [=====] - 18s 77ms/step - loss: 22.5826 - mae: 3.4848 - val_loss: 39.2530 - val_mae: 5.3162
Epoch 13/20
237/237 [=====] - 18s 77ms/step - loss: 21.4757 - mae: 3.4245 - val_loss: 43.5052 - val_mae: 5.6012
Epoch 14/20
237/237 [=====] - 18s 77ms/step - loss: 21.8834 - mae: 3.4022 - val_loss: 41.0750 - val_mae: 5.4651
Epoch 15/20
237/237 [=====] - 18s 77ms/step - loss: 22.0078 - mae: 3.4247 - val_loss: 45.0914 - val_mae: 5.7036
Epoch 16/20
237/237 [=====] - 18s 76ms/step - loss: 20.9951 - mae: 3.3232 - val_loss: 38.0154 - val_mae: 5.2219
Epoch 17/20
237/237 [=====] - 18s 76ms/step - loss: 20.8445 - mae: 3.3336 - val_loss: 36.8256 - val_mae: 5.1403
Epoch 18/20

237/237 [=====] - 18s 77ms/step - loss: 20.5325 - mae: 3.3096 - val_loss: 37.0479 - val_mae: 5.0823

Epoch 19/20

237/237 [=====] - 18s 77ms/step - loss: 20.4925 - mae: 3.2912 - val_loss: 41.4115 - val_mae: 5.5509

Epoch 20/20

237/237 [=====] - 18s 76ms/step - loss: 19.9417 - mae: 3.2443 - val_loss: 31.7686 - val_mae: 4.7581

Chunk 7/52 // 11.54% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['AGEOD ', ' Awesome Games Studio ', ' Bigben Games ', ' Bigben Interactive', ' Bounding Box Games ', ' Double Damage Games ', ' Gaming Minds Studios ', ' Hi Corp ', ' Hopoo Games ', ' KTX Software ', ' Leikir Studio ', ' MachineGames ', ' Minority Media Inc. ', ' Monstars Inc.', ' Omen ', ' Pixel Pi Games ', ' Planetary Annihilation Inc ', ' Q-Games ', ' Resonair ', ' Sproing ', ' Stainless Steel Studios ', ' Super Awesome Hyper Dimensional Mega Team ', ' Team Ladybug ', ' WSS Playground', ' Xeen ', '2 Dawn Games ', '34BigThings ', '7 Studios ', 'Abbey Games ', 'Abrakam SA ', 'Alter Games ', 'Antimatter Games ', 'Appeal', 'Arberth Studios ', 'Atomic Motion ', 'Atomic Planet Entertainment ', 'AwesomeGamesStudio', 'Beamdog ', 'Beatnik Games ', 'Big Star Games ', 'Black Rock Studio ', 'Black Shamrock ', 'Blendo Games ', 'Buckshot Software ', 'CCR', 'Cadenza ', 'Camouflaj', 'Cellar Door Games ', 'Chasing Carrots ', 'Chucklefish', 'Clever Plays ', 'Cloudhead Games ', 'Cococucumber ', 'Continuum ', 'Core Design Ltd. ', 'Creat Studios ', 'Creative Bytes ', 'CreativeForge Games ', 'Cyberlore Studios ', 'Daniel Mullins Games ', 'Dapper Penguin Studios ', 'Dark Seas Games ', 'Denby / Raze ', 'Digixart Entertainment', 'Digixart Entertainment ', 'Disney Online ', 'Doctor Entertainment ', 'Double Damage Games', 'Double Damage Games ', 'Double Eleven', 'Double Eleven ', 'DreamCatcher Interactive ', 'Dry Cactus ', 'EasyGameStation ', 'Ed Key and David Kanaga ', 'Fabled Game ', 'Final Strike Games ', 'Finji ', 'Flashback Games ', 'Flippfly ', 'Flying Lab Software ', 'Freeform Interactive LLC ', 'Frostwood Interactive ', 'FuturLab ', 'Gabriel Interactive ', 'Galilea Multimedia ', 'Gaming Minds Studios ', 'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games ', 'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque', 'Housemarque ', 'ION LANDS ', 'Ice Flames ', 'Ice-Pick Lodge ', 'IllFonic ', 'Impressions Games ', 'Infamous Quests ', 'Innerloop ', 'Interceptor Entertainment ', 'Ironward ', 'IzHard ', 'Jacob Janerka ', 'Jujubee S.A. ', 'K-D Lab ', 'Kaizen Game Works ', 'Koei ', 'Kuju Entertainment ', 'Laura Shigihara ', 'Lazy Bear Games ', 'Lesta Studio ', 'Lightbulb Crew ', 'Lionbite Games ', 'Lucas Pope ', 'Ludeon Studios ', 'Lukewarm Media ', 'Mad Head Games ', 'Mages. ', 'Magiko Gaming ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Master Creating ', 'Mi-Clos Studio ', 'Midway', 'Might and Delight ', 'Mighty Polygon

, 'Mike and Jason', 'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist Land ', 'NG:DEV.TEAM', 'Naked Sky Entertainment ', 'Namco Bandai Games ', 'Nerd Monkeys ', 'Nerial ', 'Nexus Game Studio ', 'Nicolas Meyssonnier ', 'No Goblin ', 'Nodding Heads Games ', 'Now Production', 'NuClearVision ', 'Nvizzio Creations ', 'Object ', 'Old School Games ', 'Osmotic Studios ', 'Out Of The Park Developments ', 'Outrage Games ', 'Owlcat Games ', 'Owlchemy Labs ', 'Paradox Interactive', 'Pasta Games ', 'Patrick Traynor ', 'Phantom 8 ', 'Phantom Compass ', 'Phantomery Interactive ', 'Phigames ', 'Pieces Interactive ', 'Pinokl Games ', 'Pixelated Milk ', 'Plastic Piranha ', 'PolyAmorous ', 'Polygon Treehouse ', 'Polyslash ', 'Proxy Studios ', 'Puppy Games ', 'R8 Games ', 'Radon Labs ', 'RailSimulator.com ', 'Recoil Games ', 'Red Ego Games ', 'Reikon Games ', 'Revival Productions', 'RichMakeGame ', 'Rival Interactive ', 'Robot House ', 'Robotality ', 'Running Dog ', 'SEK Ost ', 'SSI ', 'Screaming Games ', 'Sector D2 ', 'Sectordub ', 'Shining Pixel Studios ', 'Slant Six ', 'Snapshot Games Inc. ', 'Sobaka ', 'SoftWarWare ', 'Softlab-NSK ', 'SomaSim ', 'SouthPeak Games ', 'Spellbind Studios ', 'Sproing Interactive Media', 'Spry Fox ', 'Stormfront Studios ', 'Stormind Games ', 'Sundae Month ', 'Super Mega Team', 'Survios ', 'Tamsoft ', 'Team Oneshot ', 'Team Pixel Pi', 'The Artistocrats ', 'The Bae Team ', 'The Behemoth ', 'The Deep End Games ', 'The Lordz Games Studio ', 'The Tiniest Shark ', 'Thomas Brush ', 'Three Rings ', 'TickTock Games ', 'Tlon Studios ', 'Tomasz Wacławek ', 'Torched Hill ', 'Torus Games ', 'Tour De Pizza ', 'Toxic Games ', 'Tribute Games ', 'Triskell Interactive ', 'Twice Different ', 'Two Tribes ', 'Ublart Montpellier ', 'UGA', 'Uber Entertainment', 'Ultra Runaway Games ', 'Vblank Entertainment Inc. ', 'Vertical Robot ', 'Videocult ', 'Visiware Studios ', 'Vladimir Kudelka ', 'Volatile Games ', 'Voracious Games ', 'Wastelands Interactive ', 'White Birds Productions ', 'Why so serious?', 'Wishfully ', 'Wizarbox ', 'Wormwood Studios ', 'YCJY Games ', 'Yanim Studio ', 'Zeboyd Games ', 'ZootFly ', 'Zordix Racing ', 'comcept ', 'nDreams ', 'neoqb ', 'niceplay games ', 'roll7 ', 'xii games '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 18s 76ms/step - loss: 47.2078 - mae: 5.1035 - val_loss: 73.3070 - val_mae: 7.3419

Epoch 2/20

238/238 [=====] - 18s 77ms/step - loss: 40.1709 - mae: 4.6959 - val_loss: 64.3891 - val_mae: 6.8853

Epoch 3/20

238/238 [=====] - 18s 76ms/step - loss: 36.6427 - mae: 4.4974 - val_loss: 67.4417 - val_mae: 7.1165

Epoch 4/20

238/238 [=====] - 18s 77ms/step - loss: 34.0056 - mae: 4.3648 - val_loss: 69.3825 - val_mae: 7.2454

Epoch 5/20

238/238 [=====] - 18s 77ms/step - loss: 31.4706 - mae: 4.1676 - val_loss: 63.9328 - val_mae: 6.9576

Epoch 6/20

238/238 [=====] - 18s 76ms/step - loss: 30.5185 - mae:

```

4.0719 - val_loss: 70.3037 - val_mae: 7.3650
Epoch 7/20
238/238 [=====] - 18s 77ms/step - loss: 29.9823 - mae:
4.0439 - val_loss: 61.0103 - val_mae: 6.7901
Epoch 8/20
238/238 [=====] - 18s 76ms/step - loss: 29.1383 - mae:
4.0029 - val_loss: 62.3051 - val_mae: 6.7840
Epoch 9/20
238/238 [=====] - 18s 76ms/step - loss: 27.5508 - mae:
3.8906 - val_loss: 62.6890 - val_mae: 6.7944
Epoch 10/20
238/238 [=====] - 18s 76ms/step - loss: 26.7343 - mae:
3.8011 - val_loss: 56.8808 - val_mae: 6.5142
Epoch 11/20
238/238 [=====] - 18s 77ms/step - loss: 25.0713 - mae:
3.6918 - val_loss: 60.3954 - val_mae: 6.6650
Epoch 12/20
238/238 [=====] - 18s 76ms/step - loss: 25.0140 - mae:
3.6677 - val_loss: 57.7759 - val_mae: 6.6260
Epoch 13/20
238/238 [=====] - 18s 77ms/step - loss: 24.5025 - mae:
3.6340 - val_loss: 60.9710 - val_mae: 6.7552
Epoch 14/20
238/238 [=====] - 18s 77ms/step - loss: 24.3381 - mae:
3.5977 - val_loss: 50.7074 - val_mae: 6.0866
Epoch 15/20
238/238 [=====] - 18s 77ms/step - loss: 23.3895 - mae:
3.5469 - val_loss: 53.6663 - val_mae: 6.2774
Epoch 16/20
238/238 [=====] - 18s 76ms/step - loss: 23.5880 - mae:
3.5325 - val_loss: 56.6863 - val_mae: 6.4774
Epoch 17/20
238/238 [=====] - 18s 76ms/step - loss: 23.1132 - mae:
3.5072 - val_loss: 52.7406 - val_mae: 6.1732
Epoch 18/20
238/238 [=====] - 18s 76ms/step - loss: 22.0640 - mae:
3.4073 - val_loss: 57.4329 - val_mae: 6.5649
Epoch 19/20
238/238 [=====] - 18s 76ms/step - loss: 21.5818 - mae:
3.3486 - val_loss: 51.2815 - val_mae: 6.1198
Chunk 8/52 // 13.46% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Animation Arts ', ' Atlus ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron
Ltd. ', ' Cliffhanger Productions ', ' Coatsink Software ', ' Dead Mage ', '
Devoured Studios ', ' EA Redwood Shores ', ' Elemental Games', ' Engine Software
', ' Factor 5 ', ' Fire Face ', ' Gamasoft ', ' Games Farm s.r.o. ', ' Infinite

```

Interactive ', ' Introversion Software ', ' Jo-Mei Games ', ' Just Add Water', ' Kaigan Games ', ' Krome Studios ', ' Marvelous AQL ', ' Mixed Realms ', ' Mossmouth ', ' Multiverse ', ' Project Soul ', ' Red Storm Entertainment ', ' Shaba Games ', ' Studio 369 ', ' Studio Fizbin ', ' Terri Vellmann & Doseone ', ' Vlambeer ', ' d3t Ltd ', '17-Bit ', '5 Lives Studios ', '5000ft Inc. ', '5TH Cell ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Amanita Design ', 'Animation Arts ', 'Artdink', 'Artifice Studio ', 'Artificer ', 'Arxel Tribe ', 'Asymmetric Publications ', 'Bandai Namco Games', 'Beau Blyth ', 'Big Robot Ltd ', 'Black Element ', 'Black Lab Games ', 'Black Lion Studios ', 'Black Rock Studio ', 'Bloodirony ', 'Broken Rules ', 'Bullfrog Productions ', 'CBE software ', 'Cadenza ', 'Cat Daddy Games ', 'Choice Provisions ', 'Chucklefish ', 'Cliffhanger Productions', 'Cracked Heads Games ', 'Crackshell ', 'Crea-ture Studios ', 'Croteam', 'DAMAGE STATE LTD ', 'DarkStar Games ', 'Dead Mage Studio', 'Deep Red ', 'Den-Yu-Sha ', 'Derek Yu', 'Detalion ', 'DoubleDutch Games ', 'Douze Dixiemes ', 'Dramatic Labs ', 'Draw Distance ', 'Ebb Software ', 'Echodog Games ', 'Edelweiss ', 'Egidijus Bachur ', 'Enigami ', 'Enlight Software', 'Escape ', 'Extend Interactive ', 'FASA Studio ', 'FLOW COMBINE ', 'Facepunch Studios ', 'Finish Line Games ', 'FishTankStudio ', 'Fizbin', 'Fizz Factor ', 'Flying Oak Games ', 'Free Radical Design ', 'Free Reign Entertainment ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Games Farm', 'Games Farm ', 'Garage 227 ', 'Genetic Anomalies ', 'Glass Bottom Games ', 'Greylock Studio ', 'Grimlore Games ', 'HAKAMA ', 'Harebrained Schemes LLC ', 'Human Head Studios', 'IMGN.PRO ', 'Infogrames ', 'Introversion', 'Ironward ', 'Italic Pig ', 'Jesse Makkonen ', 'Jumpship ', 'Jutsu Games ', 'Kaigan Games OU', 'LGK Games ', 'MPS Labs ', 'Mad Head Games ', 'MadLightStudio ', 'Malfador Machinations ', 'Mandragora ', 'Massive Damage', 'Maxis', 'Mega Crit Games ', 'Meridian4 ', 'Meteorise ', 'Metropolis Software ', 'Might and Delight ', 'Mimimi Games ', 'MinMax Games Ltd. ', 'Mind over Matter ', 'Minds-Eye Productions ', 'Mixed Realms Pte Ltd', 'Mommy's Best Games ', 'Monomi Park ', 'Morgondag ', 'Mossmouth', 'Multiverse Games', 'Murudai ', 'Mystic Box ', 'N-Game Studios', 'Naked Sky Entertainment ', 'Nexon ', 'Night Dive Studios ', 'Nucleosys ', 'Nyamakop ', 'Okugi Studio ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ', 'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Red Blue Games ', 'Redlock Studio ', 'Reflexive Entertainment ', 'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ', 'Runewaker Entertainment ', 'Runner Duck ', 'SEGA Racing Studio ', 'SNK Corporation ', 'Sabotage Studio ', 'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Seamless Entertainment', 'Shed-Works ', 'Sidhe Interactive ', 'Silver Style ', 'Ska Studios', 'Skunkape Games ', 'Skyshine Games ', 'Slitherine ', 'Sloclap ', 'Sneaky Yak Studio ', 'Solar Sail Games ', 'Something Classic Games LLC ', 'SouthPAW Games ', 'Southend Interactive ', 'Space Bullet Dynamics Corporation ', 'Sperasoft ', 'Spiral Circus ', 'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Swing Swing Submarine ', 'Tactical Adventures ', 'Taito Corporation ', 'Taldren ', 'Tamsoft', 'Tamsoft ', 'Team Gotham ', 'Terri Vellimann', 'Totally Games ', 'Treyarch', 'Ultimation Inc. ', 'Unicube ', 'Uprising Studios ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank Entertainment Inc. ', 'Vine ', 'Vivid Games ', 'Wadjet Eye Games ', 'Wales Interactive ',

'WayForward ', 'White Birds Productions ', 'Wings Simulations ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'XYLA Entertainment ', 'Youxiland', 'Ysbryd Games ', 'Zachtronics Industries ', 'Zojoi Studios ', 'iFun4all ', 'inkle ', 'rose-engine ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

242/242 [=====] - 19s 76ms/step - loss: 38.7907 - mae: 4.8167 - val_loss: 70.3543 - val_mae: 7.1670

Epoch 2/20

242/242 [=====] - 18s 76ms/step - loss: 32.0641 - mae: 4.3408 - val_loss: 63.1414 - val_mae: 6.8142

Epoch 3/20

242/242 [=====] - 19s 77ms/step - loss: 28.9428 - mae: 4.1062 - val_loss: 61.8341 - val_mae: 6.7121

Epoch 4/20

242/242 [=====] - 19s 77ms/step - loss: 26.5133 - mae: 3.8847 - val_loss: 57.9647 - val_mae: 6.5350

Epoch 5/20

242/242 [=====] - 18s 76ms/step - loss: 24.9097 - mae: 3.7695 - val_loss: 55.3476 - val_mae: 6.2870

Epoch 6/20

242/242 [=====] - 19s 77ms/step - loss: 23.7172 - mae: 3.6562 - val_loss: 56.6204 - val_mae: 6.4003

Epoch 7/20

242/242 [=====] - 18s 76ms/step - loss: 22.5701 - mae: 3.5664 - val_loss: 50.3764 - val_mae: 6.0328

Epoch 8/20

242/242 [=====] - 18s 76ms/step - loss: 21.2705 - mae: 3.4378 - val_loss: 49.3058 - val_mae: 5.9862

Epoch 9/20

242/242 [=====] - 19s 77ms/step - loss: 20.3555 - mae: 3.3575 - val_loss: 46.4052 - val_mae: 5.7620

Epoch 10/20

242/242 [=====] - 18s 76ms/step - loss: 19.7592 - mae: 3.3203 - val_loss: 44.8576 - val_mae: 5.6799

Epoch 11/20

242/242 [=====] - 18s 76ms/step - loss: 19.3984 - mae: 3.2743 - val_loss: 45.4093 - val_mae: 5.7229

Epoch 12/20

242/242 [=====] - 19s 77ms/step - loss: 18.9737 - mae: 3.2347 - val_loss: 39.0722 - val_mae: 5.2209

Epoch 13/20

242/242 [=====] - 18s 76ms/step - loss: 17.8926 - mae: 3.1386 - val_loss: 39.7182 - val_mae: 5.2843

Epoch 14/20

242/242 [=====] - 19s 77ms/step - loss: 17.7885 - mae: 3.0924 - val_loss: 36.3413 - val_mae: 5.0233

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Epoch 15/20
242/242 [=====] - 18s 76ms/step - loss: 17.4350 - mae:
3.0542 - val_loss: 35.4743 - val_mae: 4.9333
Epoch 16/20
242/242 [=====] - 19s 78ms/step - loss: 17.1428 - mae:
3.0278 - val_loss: 36.4819 - val_mae: 5.0740
Epoch 17/20
242/242 [=====] - 19s 77ms/step - loss: 17.3243 - mae:
3.0506 - val_loss: 30.0597 - val_mae: 4.4741
Epoch 18/20
242/242 [=====] - 18s 76ms/step - loss: 16.8227 - mae:
2.9757 - val_loss: 36.6970 - val_mae: 5.0279
Epoch 19/20
242/242 [=====] - 19s 77ms/step - loss: 15.8888 - mae:
2.9287 - val_loss: 31.9376 - val_mae: 4.7199
Epoch 20/20
242/242 [=====] - 18s 75ms/step - loss: 16.2967 - mae:
2.9570 - val_loss: 36.0497 - val_mae: 5.0405
Chunk 9/52 // 15.38% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Deck Nine Games ', ' Digital
Eclipse ', ' Dire Wolf Digital ', ' Do My Best Games ', ' Endnight Studios ', '
Florian Himsl ', ' Fullbright ', ' Furious Bee ', ' Ishtar Games Inc. ', ' King
Art Games ', ' Koalabs ', ' Point Blank ', ' Quasar ', ' Question ', ' Ragequit
Corporation ', ' Skookum Arts ', ' Slitherine ', ' Splendy Games ', ' Studio
Fizbin ', ' Super Awesome Hyper Dimensional Mega Team ', ' Tyler Glaiel ', '
Uppercut Games Pty Ltd ', ' XPEC Entertainment Inc. ', ' YCJY Games ', '10tons
', '3D2 Entertainment ', '4Head Studios ', 'AGO Games ', 'ARS GOETIA ',
'Abstraction Games ', 'Abyss Gameworks ', 'Act 3 Games', 'Akabaka ', 'Akella',
'Arcen Games', 'Artefacts Studio ', 'Artificial Mind and Movement ', 'Arxel
Tribe ', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ', 'Awaken Realms
Digital', 'Awfully Nice Studios ', 'Bad Viking ', 'Banpresto', 'Baroque Decay ',
'BattleGoat Studios ', 'Beethoven & Dinosaur ', 'Bellular Studios ', 'Big Ant
Studios ', 'Big Finish Games ', 'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue
Tongue Entertainment ', 'BonusXP ', 'Bossa Studios ', 'Braingame ', 'Brainwash
Gang ', 'CCCP', 'Caligari Games ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats
Games ', 'Chibig ', 'Choice Provisions ', 'Cloak and Dagger Games ', 'Cockroach
Inc. ', 'Color Gray Games ', 'Convict Games ', 'Cosmo D Studios ', 'Cranberry
Production ', 'Crema Games ', 'Cryo Interactive ', 'Cultic Games ', 'Curve
Digital ', 'Curve Studios ', 'Daedalic Studio West ', 'Dancing Dragon games ',
'Daniel Benmergui ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam ',
'Destroyer Studios ', 'Dialogue Design ', 'Digital Sun ', 'Dimps Corporation ',

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'Dragon Slumber ', 'DreamCatcher Interactive ', 'Droqen ', 'Echo Chamber Games ', 'Eden Studios ', 'Edmund McMillen', 'Ellipse Studios ', 'Embers ', 'Empty Clip Studios ', 'Enhance Games ', 'Exakt ', 'FIX Korea', 'Failbetter Games ', 'Fairyrship Games ', 'Fireglow ', 'Fizbin', 'Free Lives ', 'Fury Software ', 'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'GameCo ', 'Gaming Corps AB ', 'GhostShark Games ', 'GoldKnights Studio ', 'GolemLabs ', 'Grimorio of Games ', 'Grip Games ', 'Happy Volcano ', 'Harvester Games ', 'Headup Games ', 'House of Tales ', 'IF Games ', 'IMC Games ', 'Illusion Ray Studio ', 'Image & Form ', 'Inevitable Entertainment ', 'Iron Tower Studio ', 'James Interactive ', 'Jason Rohrer ', 'Joe Richardson ', 'Johamm Tael & Mihkel Tael ', 'KING Art', 'Kamehan Studios ', 'Kite Games ', 'Konami', 'Ladyluck Digital Media ', 'Leonard Menchiari ', 'Lexis Numerique ', 'Lion's Shade ', 'Little Green Men ', 'Locomalito ', 'M2 ', 'Magic Lantern ', 'Magitech ', 'Mana Games ', 'Marvelous Inc. ', 'Mi'pu'mi Games ', 'Microids', 'Midway ', 'Mighty Yell ', 'Minds-Eye Productions ', 'Modern Storyteller ', 'Monochrome Paris ', 'Mouldy Toof Studios ', 'Mucky Foot Productions ', 'Neon Doctrine ', 'Neon Giant ', 'Nicalis ', 'Night Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Noumena Productions ', 'Numinous Games ', 'Odd Bug Studio ', 'Omni Creative Group ', 'Orthogonal Games ', 'Over The Moon ', 'Owl Cave ', 'Paranoid Productions ', 'Paul Cuisset ', 'Pewter Games Studios ', 'Pillow Castle Games ', 'Pixel Titans ', 'Pixelogic ', 'Plot Twist ', 'Point Blank Games', 'PostMod Softworks ', 'Power Struggle Games ', 'Psyche Studios ', 'Punk Notion ', 'Puuba ', 'Question ', 'Questionary', 'RLR Training Inc ', 'Rain Games ', 'Random Potion Oy ', 'Rebelmind ', 'Rival Games Ltd ', 'Rusty Lake ', 'SKS Games', 'Sabotage Studio ', 'Sam Barlow', 'Serellan LLC ', 'Serenity Forge ', 'Sever ', 'Shark Punch ', 'Sierra Entertainment ', 'Sigtrap Games ', 'Skookum Arts LLC', 'SkyBox Labs ', 'SkyGoblin ', 'Sleepless Clinic ', 'Sleepy Sentry ', 'Slendy Interactive', 'Slitherine Software', 'Smoking Car Productions ', 'Spearhead Games ', 'Spooky Doorway ', 'Strangelite ', 'Strike Vector Team', 'Stubby Games ', 'Studio Seufz ', 'Summerfall Studios ', 'Super Mega Team', 'Surreal Software ', 'Swing Swing Submarine ', 'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia ', 'Team Gotham ', 'Technocrat ', 'Teotl Studios ', 'The Artistocrats ', 'The Bitmap Brothers ', 'The Collective ', 'The Fullbright Company', 'The Molasses Flood ', 'The Odd Gentlemen ', 'The Voxel Agents ', 'Third Wire ', 'Thunkd ', 'Tomas Sala ', 'Torpor Games ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and Mario Castaneda ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games', 'Uppercut Games Pty Ltd ', 'VRESKI ', 'ValuSoft ', 'Vertex4 ', 'Wadjet Eye Games ', 'Wales Interactive ', 'White Owls ', 'White Paper Games ', 'Wideload Games Inc. ', 'Wonderstruck Games ', 'WorldForge ', 'Wormwood Studios ', 'Xilam ', 'Xpec', 'YCJY', 'Zenimax Online Studios ', 'Zenovia ', 'Zero Sum Games ', 'Zoink! ', 'eSim Games ', 'h.a.n.d. Inc. ', 'increpare ', 'mif2000 ', 'nDreams ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

236/236 [=====] - 18s 76ms/step - loss: 42.2504 - mae: 4.8257 - val_loss: 65.1929 - val_mae: 6.8000

Epoch 2/20

236/236 [=====] - 18s 75ms/step - loss: 36.1643 - mae: 4.4506 - val_loss: 56.7945 - val_mae: 6.3442
Epoch 3/20
236/236 [=====] - 18s 76ms/step - loss: 33.9191 - mae: 4.2852 - val_loss: 59.0650 - val_mae: 6.5146
Epoch 4/20
236/236 [=====] - 18s 76ms/step - loss: 32.2962 - mae: 4.1787 - val_loss: 60.3421 - val_mae: 6.6701
Epoch 5/20
236/236 [=====] - 18s 76ms/step - loss: 30.7357 - mae: 4.0966 - val_loss: 60.5925 - val_mae: 6.6654
Epoch 6/20
236/236 [=====] - 18s 76ms/step - loss: 29.1512 - mae: 3.9911 - val_loss: 66.0227 - val_mae: 7.0200
Epoch 7/20
236/236 [=====] - 18s 76ms/step - loss: 28.0070 - mae: 3.9073 - val_loss: 55.7188 - val_mae: 6.3601
Epoch 8/20
236/236 [=====] - 18s 75ms/step - loss: 27.1685 - mae: 3.8402 - val_loss: 52.3428 - val_mae: 6.1452
Epoch 9/20
236/236 [=====] - 18s 77ms/step - loss: 26.2249 - mae: 3.7663 - val_loss: 49.8060 - val_mae: 5.9489
Epoch 10/20
236/236 [=====] - 18s 76ms/step - loss: 26.6972 - mae: 3.7790 - val_loss: 52.5113 - val_mae: 6.1659
Epoch 11/20
236/236 [=====] - 18s 76ms/step - loss: 25.2135 - mae: 3.6733 - val_loss: 53.1874 - val_mae: 6.2235
Epoch 12/20
236/236 [=====] - 18s 76ms/step - loss: 25.0234 - mae: 3.6450 - val_loss: 46.5049 - val_mae: 5.7376
Epoch 13/20
236/236 [=====] - 18s 76ms/step - loss: 25.0099 - mae: 3.6359 - val_loss: 45.7289 - val_mae: 5.7009
Epoch 14/20
236/236 [=====] - 18s 76ms/step - loss: 25.0165 - mae: 3.6297 - val_loss: 43.4850 - val_mae: 5.4950
Epoch 15/20
236/236 [=====] - 18s 76ms/step - loss: 24.2760 - mae: 3.5637 - val_loss: 52.4499 - val_mae: 6.1917
Epoch 16/20
236/236 [=====] - 18s 75ms/step - loss: 24.3300 - mae: 3.5459 - val_loss: 43.4841 - val_mae: 5.5427
Epoch 17/20
236/236 [=====] - 18s 77ms/step - loss: 22.8036 - mae: 3.4353 - val_loss: 44.0515 - val_mae: 5.5950
Epoch 18/20

236/236 [=====] - 18s 75ms/step - loss: 21.6095 - mae: 3.3870 - val_loss: 44.4452 - val_mae: 5.6165

Epoch 19/20

236/236 [=====] - 18s 76ms/step - loss: 21.8935 - mae: 3.3819 - val_loss: 43.4188 - val_mae: 5.5829

Epoch 20/20

236/236 [=====] - 18s 76ms/step - loss: 22.8013 - mae: 3.4411 - val_loss: 46.6174 - val_mae: 5.7571

Chunk 10/52 // 17.31% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es)

['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['

1C', ' 2K Sports ', ' Atlantis Interactive Entertainment ', ' CINIC Games ', ' Cavalier Game Studios ', ' Cherrymochi ', ' Crenetic Studios ', ' Crows Crows Crows ', ' Drool ', ' Duality Games ', ' Hotta Studio ', ' KRAFTON Inc. ', ' Kukouri Mobile Entertainment ', ' Mercenary Technologies ', ' ONEOONE GAMES ', ' Pieces Interactive ', ' Sumo Nottingham ', ' Supergonk ', ' Team Toro ', ' Ubisoft Paris ', ' Xeen ', ' btf ', '101%', '258 Productions AB ', '2By3 Games ', '2x2 Games ', '49Games ', 'AGEOD ', 'AREA35 ', 'Acid Nerve ', 'Adeline Software ', 'Alawar Premium ', 'Alien Pixel Studios ', 'Antagonist ', 'Ares Dragonis ', 'Artdink ', 'Aspyr', 'Atlantis Interactive Entertainment\t', 'Auran ', 'Backwoods Entertainment ', 'Battlefront.com', 'Big Robot Ltd ', 'Black Pants ', 'Blendo Games ', 'BlueGiant Interactive ', 'Brainy Studio LLC ', 'BreakAway Games ', 'Bulkhead Interactive ', 'Burut Software ', 'C.I.N.I.C. Games', 'Camel 101 ', 'Can Explode ', 'Carbon Studio ', 'Cavedog Entertainment ', 'Chaos Concept ', 'Cinemaware ', 'Click Entertainment ', 'Colibri Games ', 'ComonGames ', 'Computer Artworks ', 'Core Design Ltd. ', 'Cowardly Creations ', 'DNS Development ', 'Dan Smith Studios ', 'Davey Wreden ', 'Daydream Software ', 'Deadline Games ', 'Deconstructeam ', 'Deep Red ', 'Double Zero One Zero ', 'Draw Me A Pixel ', 'Dual Effect ', 'Duality Studio', 'Dynamix ', 'EXOR Studios ', 'Echtra Games', 'Event Horizon Software ', 'Expansive Worlds ', 'Facepalm Games ', 'Falling Squirrel ', 'Feral Interactive ', 'Fireart Games ', 'Fireproof Games ', 'Flazm ', 'Freebird Games ', 'Frog City Software ', 'Frogwares', 'GRIN', 'Galactic Cafe', 'Game-Labs ', 'Gatling Goat Studios ', 'Gato Salvaje Studio ', 'Gigawatt Studios ', 'Grasshopper Manufacture ', 'Grip Games ', 'Gun Interactive', 'Headup Games', 'High Moon Studios', 'Humanature Studios ', 'HyperBole Studios ', 'ISOMETRICORP Games ', 'Ice-Pick Lodge ', 'Iceberg Interactive', 'Iridium Studios ', 'Iron Lore Entertainment', 'Ironward ', 'KT Racing ', 'Kite Games ', 'LEAP Game Studios ', 'LKA ', 'Luis Antonio ', 'Luxoflux', 'Maddy Thorson ', 'Minority Media Inc. ', 'Modern Dream ', 'Moonlight Kids ', 'Morbidware ', 'Most Wanted Entertainment ', 'MuHa Games ', 'Naughty Dog', 'Neversoft Entertainment ', 'Nevrax ', 'Nicely Crafted ', 'Night Dive Studios ', 'Norsfell ', 'Numantian Games ', 'OhNoo ', 'One Bit Beyond ', 'OtherSide Entertainment ', 'OverBorder Studio ', 'Paintbucket Games ', 'Pixwerk

, 'Playmestudio ', 'Pocketwatch Games ', 'Point of View ', 'Prograph ',
 'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Puuba ', 'Puzzling Dream ',
 'Rat King Entertainment ', 'Red Storm Entertainment', 'Replay Studios', 'Rogue
 Sun ', 'Ron Gilbert and Gary Winnick ', 'SMAC Games ', 'Shifting Tides ', 'Size
 Five Games ', 'Skybound LLC', 'Skydance Interactive ', 'Something We Made ',
 'SpectreVision ', 'Spidersoft', 'Splashteam ', 'Spooky Squid Games ', 'Stormling
 Studios ', 'Streko-Graphics Inc. ', 'Stygian Software ', 'SuperPAC ',
 'SuperSexySoftware ', 'Supergonk Ltd.', 'Surreal Software ', 'Survios ',
 'Swordtales ', 'Terrible Posture Games ', 'The Station ', 'Timeline Computer
 Entertainment ', 'Tin Man Games ', 'Tragnarion Studios ', 'Trecision ', 'Trepang
 Studios ', 'Two Tribes ', 'TwoPM Studios ', 'Ubisoft Blue Byte ', 'Ubisoft Milan
 ', 'Ubisoft Singapore ', 'Urban Games ', 'Urnique Studio ', 'Vicarious Visions
 ', 'Vitamin G Studios ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Yukon Wainczak
 ', 'Zombie Cow Studios ', '[bracket]games ', 'btf GmbH', 'damiansommer ',
 'dietzribi ', 'drool Games', 'fragOut Studio', 'neo Software ', 'tobyfox '] will
 be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

242/242 [=====] - 19s 76ms/step - loss: 38.3587 - mae:
 4.6944 - val_loss: 74.4005 - val_mae: 7.4992

Epoch 2/20

242/242 [=====] - 18s 75ms/step - loss: 31.2096 - mae:
 4.2288 - val_loss: 66.8306 - val_mae: 7.1207

Epoch 3/20

242/242 [=====] - 18s 76ms/step - loss: 28.7885 - mae:
 4.0233 - val_loss: 61.2050 - val_mae: 6.8493

Epoch 4/20

242/242 [=====] - 18s 75ms/step - loss: 26.3527 - mae:
 3.8422 - val_loss: 60.2695 - val_mae: 6.7781

Epoch 5/20

242/242 [=====] - 18s 76ms/step - loss: 26.2362 - mae:
 3.8096 - val_loss: 55.2848 - val_mae: 6.4834

Epoch 6/20

242/242 [=====] - 18s 76ms/step - loss: 24.4471 - mae:
 3.6653 - val_loss: 57.2190 - val_mae: 6.6472

Epoch 7/20

242/242 [=====] - 18s 76ms/step - loss: 23.3928 - mae:
 3.5659 - val_loss: 52.1755 - val_mae: 6.3260

Epoch 8/20

242/242 [=====] - 19s 77ms/step - loss: 22.1461 - mae:
 3.4809 - val_loss: 54.3579 - val_mae: 6.4684

Epoch 9/20

242/242 [=====] - 18s 76ms/step - loss: 21.9427 - mae:
 3.4415 - val_loss: 57.1890 - val_mae: 6.6864

Epoch 10/20

242/242 [=====] - 19s 77ms/step - loss: 21.2509 - mae:
 3.3974 - val_loss: 52.6523 - val_mae: 6.3709

Epoch 11/20
242/242 [=====] - 19s 77ms/step - loss: 20.9706 - mae: 3.3382 - val_loss: 52.0653 - val_mae: 6.3907
Epoch 12/20
242/242 [=====] - 19s 78ms/step - loss: 20.0926 - mae: 3.2899 - val_loss: 50.9397 - val_mae: 6.2944
Epoch 13/20
242/242 [=====] - 18s 75ms/step - loss: 19.3954 - mae: 3.2117 - val_loss: 51.4427 - val_mae: 6.3649
Epoch 14/20
242/242 [=====] - 18s 75ms/step - loss: 18.3029 - mae: 3.1379 - val_loss: 47.0739 - val_mae: 6.0551
Epoch 15/20
242/242 [=====] - 19s 77ms/step - loss: 18.3106 - mae: 3.1362 - val_loss: 50.7528 - val_mae: 6.3045
Epoch 16/20
242/242 [=====] - 19s 77ms/step - loss: 18.3518 - mae: 3.1041 - val_loss: 50.9085 - val_mae: 6.3700
Epoch 17/20
242/242 [=====] - 19s 77ms/step - loss: 18.4373 - mae: 3.1001 - val_loss: 49.6662 - val_mae: 6.2704
Epoch 18/20
242/242 [=====] - 18s 76ms/step - loss: 18.3620 - mae: 3.1187 - val_loss: 50.3544 - val_mae: 6.3162
Epoch 19/20
242/242 [=====] - 18s 76ms/step - loss: 18.0497 - mae: 3.0821 - val_loss: 49.0783 - val_mae: 6.2458
Chunk 11/52 // 19.23% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['3DClouds ', ' Avalanche Software ', ' Behaviour Interactive ', ' Blackmill Games ', ' Cape Guy ', ' Eurocom ', ' Flashback Games ', ' Forever Entertainment ', ' Goldhawk Interactive ', ' Gone North Games ', ' In Images ', ' KADOKAWA CORPORATION ', ' Lab42 ', ' ML Enterprises ', ' Mandel ArtPlains ', ' Persha Studio ', ' Reborn Games Inc. ', ' Revistronic ', ' Soleil Ltd. ', ' Sumo Digital Academy ', ' Talawa Games ', ' Toylogic ', ' Visual Concepts ', ' comcept ', ' iNK Stories ', '110 Industries', '1P2P ', '2x2 Games ', '3000AD', '3DClouds.it', '5 Lives Studios ', 'Accidental Queens ', 'Ackkstudios ', 'Acquire ', 'Action Button Entertainment ', 'Alientrap ', 'Arcen Games', 'Asymmetric Publications ', 'Auroch Digital ', 'B-Alive ', 'Baroque Decay ', 'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Black Sea Studios ', 'Blue Manchu ', 'Bojan Brbora ', 'Brave at Night ', 'BreakAway Games ', 'Bulwark Studios ', 'Celeris ', 'Chucklefish ', 'Clifftop Games ', 'Coldwood Interactive ', 'Complex Games Inc. ', 'Cordens Interactive ', 'Cornered Rat ', 'Crazy Viking Studios ', 'Crocodile Entertainment ', 'Deadline Games ', 'Deadpan Games ', 'Deep Red ', 'Dejobaan Games ', 'Devespresso Games ', 'Different Tales ', 'Digital Spray Studios', 'Digixart Entertainment ', 'Dim Bulb Games ',

'Direct Action Games ', 'DotEmu ', 'Draw Distance ', 'Dream Execution ', 'Dumb and Fat Games ', 'EVC ', 'EXOR Studios ', 'Eden Industries ', 'Emobi Games ', 'Endless Fluff ', 'Eurocom Entertainment Software', 'FarmerGnome ', 'Fast Travel Games ', 'Fatbot Games ', 'Fatshark AB ', 'Forever Entertainment S.A.', 'Fragment Production Ltd', 'Freebird Games ', 'Funomena ', 'G5 Software ', 'GabberGames ', 'GameDesignDan ', 'Gamedust ', 'Games Farm ', 'Games Workshop ', 'Gamethunks', 'Gameyus Interactive ', 'Gasket Games ', 'Genius Slackers ', 'Ghost Pattern ', 'Giant Sparrow ', 'Glass Heart Games ', 'Gloomywood ', 'GriN Multimedia ', 'Grundislav Games ', 'Guild Software ', 'Halberd Studios ', 'Hammerfall Publishing ', 'Heuristic Park ', 'Hi-Bit Studios ', 'House House ', 'Impressions Games ', 'Innerspace VR ', 'Invictus ', 'It's Anecdotal ', 'Jacob Antonucci', 'Jagex Games Studio ', 'Jason Oda ', 'Jellyvision ', 'JoyMasher ', 'Jutsu Games ', 'KT Racing ', 'Kadokawa', 'Knuist & Perzik ', 'Kuju Entertainment ', 'Legend Entertainment ', 'Lightning Rod Games ', 'Livesay Technologies ', 'Lumenox ehf ', 'M2H', 'Magic Design Studios ', 'Masque Publishing ', 'Max Inferno ', 'Mega Cat Studios ', 'MicroProse ', 'MidBoss ', 'Misfits Attic ', 'Mojiken Studio ', 'Monokel ', 'Moonbite Games ', 'Moonshark ', 'N-Fusion Interactive Entertainment Corp.', 'Night Light Interactive ', 'Nihilistic ', 'Nine Rocks Games ', 'NoClip ', 'OSome Studio ', 'Ostrich Banditos ', 'Ota Imon Studios ', 'Outsider Games ', 'Owlchemy Labs ', 'Paradox Interactive', 'Pixelated Milk ', 'PlayMagic Ltd ', 'Playwood Project ', 'Polyslash ', 'Prideful Sloth ', 'Project Aces ', 'Project Aces ', 'Proxy Studios ', 'Pterodon ', 'Pyrodactyl Games ', 'Ratbag ', 'Reflexive Entertainment ', 'Related Designs ', 'Replay Studios', 'Revistonic', 'Rimlight Studios ', 'Ritual Entertainment', 'Robot Gentleman ', 'Rodeo Games ', 'Rooster Teeth Games ', 'Ruud Koorevaar ', 'Ryu ga Gotoku Studios', 'Sad Owl Studios ', 'SadSquare Studio ', 'Santa Ragione ', 'Shiro Games ', 'Silver Wish Games ', 'Silvio & Gey Savarese ', 'Simogo ', 'Sir-Tech Software Inc. ', 'Sky Machine Studios ', 'Sloclap ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Sobaka ', 'Spark Unlimited', 'Spike Chunsoft ', 'Steel Mantis ', 'Strange Loop Games ', 'Strategic Studies Group ', 'Strayllight Entertainment ', 'Studio Drydock Pty Ltd ', 'Studio Pixel Punk ', 'Subterranean Games ', 'Sukeban Games ', 'Sumo Digital', 'Sunflowers Interactive ', 'Super X Studios ', 'Sylum Entertainment ', 'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment ', 'Tate Multimedia ', 'Team OFK ', 'Teotl Studios', 'Terry Cavanagh ', 'The Bitmap Brothers ', 'The Lordz Games Studio', 'The Wandering Ben ', 'Theta Division ', 'Third Wave Games ', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ', 'Toylogic Inc.', 'Trapdoor ', 'Treyarch', 'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ', 'Unicorn Games Studio ', 'Upstream Arcade ', 'Variable State ', 'Vile Monarch ', 'Villa Gorilla ', 'Visai Games ', 'WXP ', 'Warcave ', 'Wastelands Interactive ', 'Whale Rock Games ', 'Wide Games ', 'Winning Streak Games ', 'Witch Beam ', 'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker Games ', 'Zeal Game Studios ', 'Zuxxez', 'adamgryu ', 'frecle ApS ', 'imaginarylab ', 'inkle', 'poncle ', 'timesymmetry '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

234/234 [=====] - 18s 77ms/step - loss: 41.4967 - mae:

4.7956 - val_loss: 46.0341 - val_mae: 5.4660
Epoch 2/20
234/234 [=====] - 18s 77ms/step - loss: 31.8437 - mae: 4.1373 - val_loss: 39.1008 - val_mae: 5.0506
Epoch 3/20
234/234 [=====] - 18s 75ms/step - loss: 28.0426 - mae: 3.8807 - val_loss: 37.6674 - val_mae: 4.8784
Epoch 4/20
234/234 [=====] - 17s 75ms/step - loss: 26.1871 - mae: 3.7152 - val_loss: 34.1312 - val_mae: 4.6236
Epoch 5/20
234/234 [=====] - 18s 76ms/step - loss: 23.9341 - mae: 3.5087 - val_loss: 32.5082 - val_mae: 4.4554
Epoch 6/20
234/234 [=====] - 18s 76ms/step - loss: 23.3280 - mae: 3.4755 - val_loss: 34.0426 - val_mae: 4.7075
Epoch 7/20
234/234 [=====] - 18s 76ms/step - loss: 21.8767 - mae: 3.3367 - val_loss: 30.1564 - val_mae: 4.3216
Epoch 8/20
234/234 [=====] - 18s 77ms/step - loss: 21.6514 - mae: 3.3470 - val_loss: 31.6636 - val_mae: 4.3882
Epoch 9/20
234/234 [=====] - 18s 75ms/step - loss: 20.7074 - mae: 3.2465 - val_loss: 28.2221 - val_mae: 4.1335
Epoch 10/20
234/234 [=====] - 18s 76ms/step - loss: 19.9860 - mae: 3.1649 - val_loss: 27.5417 - val_mae: 4.1466
Epoch 11/20
234/234 [=====] - 18s 75ms/step - loss: 20.3633 - mae: 3.2141 - val_loss: 26.5859 - val_mae: 4.0310
Epoch 12/20
234/234 [=====] - 18s 76ms/step - loss: 19.3518 - mae: 3.1210 - val_loss: 29.5969 - val_mae: 4.3802
Epoch 13/20
234/234 [=====] - 18s 76ms/step - loss: 17.7748 - mae: 2.9900 - val_loss: 26.6488 - val_mae: 4.1237
Epoch 14/20
234/234 [=====] - 18s 77ms/step - loss: 18.8186 - mae: 3.0881 - val_loss: 27.9497 - val_mae: 4.2308
Epoch 15/20
234/234 [=====] - 18s 76ms/step - loss: 17.0434 - mae: 2.9513 - val_loss: 25.8434 - val_mae: 3.9963
Epoch 16/20
234/234 [=====] - 18s 77ms/step - loss: 17.1408 - mae: 2.9172 - val_loss: 26.4823 - val_mae: 4.1416
Epoch 17/20
234/234 [=====] - 18s 76ms/step - loss: 17.7105 - mae:

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2.9511 - val_loss: 28.3919 - val_mae: 4.3095
Epoch 18/20
234/234 [=====] - 18s 76ms/step - loss: 17.6028 - mae:
2.9320 - val_loss: 24.1072 - val_mae: 3.8899
Epoch 19/20
234/234 [=====] - 18s 76ms/step - loss: 15.9833 - mae:
2.8122 - val_loss: 30.0535 - val_mae: 4.4062
Epoch 20/20
234/234 [=====] - 17s 75ms/step - loss: 16.4386 - mae:
2.8270 - val_loss: 24.7109 - val_mae: 3.9688
Chunk 12/52 // 21.15% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Forgotten Key ', ' Innersloth ', ' Viva Media', ' bitComposer ', 'AWE Games ',
'Acclaim Studios Cheltenham ', 'Aeternum Game Studios ', 'Alientrap ',
'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Arxel Tribe ', 'Auroch
Digital ', 'Aurogon Shanghai ', 'Big Ant Studios ', 'Bit Blot ', 'Black Element
', 'Broken Rules ', 'Centauri Production ', 'Cold Iron Studios ', 'CreativeForge
Games ', 'Cross-Product ', 'Daedalic Entertainment', 'Data Becker ', 'Demruth ',
'Digital Arrow ', 'Dreampainters ', 'Elden Pixels ', 'Fallen Tree Games ',
'Fiction Factory Games ', 'FreakZone ', 'Future Games', 'GUTS Department ',
'Gabe Cuzzillo ', 'Gato Salvaje Studio ', 'GlyphX Games ', 'Hazardous Software
', 'Himalaya Studios ', 'Iceberg Interactive ', 'Indefatigable ', 'Investigate
North ', 'Jagex Games Studio ', 'Jankenteam ', 'Khaeon ', 'Krams Design ',
'Kubat Software ', 'Lince Works ', 'MadMinute Games ', 'Made by Kiddies ',
'Massive Development ', 'Maximum Games ', 'Mischief ', 'MyDearest ', 'Nicolas
Intoxicate ', 'Panther Games ', 'Piccolo ', 'Punch Punk Games ', 'Pure FPS ',
'RageSquid ', 'Realtime Worlds ', 'Resolution Games ', 'Revolution of Strategy
', 'Rogue Entertainment ', 'S&G Software ', 'Sandbox Interactive ', 'Schell
Games', 'Sigma Team ', 'Skydance Interactive ', 'Spike Chunsoft ', 'Spiral House
', 'Tantalus ', 'The Wandering Band LLC ', 'ThinkingStars ', 'Third Law
Interactive ', 'Three One Zero ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos
Interactive ', 'Turmoil Games ', 'U.S. Army ', 'Vagabond Dog ', 'Vertigo Games
', 'WorldForge ', 'Yuke's ', 'bitComposer Games', 'ustwo '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
230/230 [=====] - 18s 77ms/step - loss: 35.1173 - mae:
4.1525 - val_loss: 28.9241 - val_mae: 3.9793
Epoch 2/20
230/230 [=====] - 17s 76ms/step - loss: 19.3511 - mae:
2.8872 - val_loss: 27.4379 - val_mae: 4.0138
Epoch 3/20
230/230 [=====] - 18s 77ms/step - loss: 15.3378 - mae:
2.4859 - val_loss: 25.0444 - val_mae: 3.8588
Epoch 4/20
230/230 [=====] - 18s 76ms/step - loss: 14.3702 - mae:
2.3437 - val_loss: 24.9164 - val_mae: 3.8619

```

Epoch 5/20
230/230 [=====] - 17s 76ms/step - loss: 11.7656 - mae: 2.0955 - val_loss: 24.7961 - val_mae: 3.8726
Epoch 6/20
230/230 [=====] - 17s 76ms/step - loss: 10.9727 - mae: 2.0005 - val_loss: 23.3449 - val_mae: 3.8515
Epoch 7/20
230/230 [=====] - 17s 76ms/step - loss: 10.1859 - mae: 1.9016 - val_loss: 24.0776 - val_mae: 3.8761
Epoch 8/20
230/230 [=====] - 17s 75ms/step - loss: 8.9066 - mae: 1.7612 - val_loss: 24.9664 - val_mae: 3.9198
Epoch 9/20
230/230 [=====] - 18s 77ms/step - loss: 8.5657 - mae: 1.7298 - val_loss: 24.5365 - val_mae: 3.8631
Epoch 10/20
230/230 [=====] - 18s 76ms/step - loss: 8.3951 - mae: 1.6935 - val_loss: 23.7582 - val_mae: 3.8504
Epoch 11/20
230/230 [=====] - 17s 75ms/step - loss: 8.3436 - mae: 1.6365 - val_loss: 22.8720 - val_mae: 3.7693
Epoch 12/20
230/230 [=====] - 17s 75ms/step - loss: 8.0660 - mae: 1.6037 - val_loss: 24.4335 - val_mae: 3.9060
Epoch 13/20
230/230 [=====] - 17s 76ms/step - loss: 7.5774 - mae: 1.5463 - val_loss: 24.5237 - val_mae: 3.9569
Epoch 14/20
230/230 [=====] - 17s 75ms/step - loss: 7.7479 - mae: 1.5283 - val_loss: 25.1748 - val_mae: 3.9193
Epoch 15/20
230/230 [=====] - 18s 76ms/step - loss: 7.6156 - mae: 1.5558 - val_loss: 26.8318 - val_mae: 4.0875
Epoch 16/20
230/230 [=====] - 17s 75ms/step - loss: 7.3480 - mae: 1.5199 - val_loss: 25.4856 - val_mae: 3.9946
Chunk 13/52 // 23.08% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Atlantis Interactive Entertainment ', ' Bird Bath Games ', ' Massive Entertainment', '3D People ', 'A44 ', 'Acme Gamestudio ', 'Artisan Studios ', 'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'AurumDust ', 'BestGameEver.com ', 'Blendo Games ', 'Breaking Walls ', 'Charles University ', 'ClockStone Studio ', 'Daniel Wynne', 'Denki ', 'Digital Eclipse ', 'Edelweiss ', 'Etranges Libellules ', 'Exiin ', 'Funselektor Labs Inc. ', 'Gust ', 'Hempuli Oy ', 'INTERIOR/NIGHT ', 'Kiro'o Games ', 'League of Geeks ', 'Lienzo ', 'LuckyHammers ', 'Midway Studios - Austin ', 'Mothership Entertainment ', 'NHN

Corporation ', 'NetDevil ', 'Ntronium Games ', 'Pencil Test Studios ', 'Peter Stock ', 'Piccolo ', 'Planet Moon Studios ', 'Sanzaru ', 'Sketchy Logic ', 'Spiderweb Software ', 'Streko-Graphics Inc. ', 'System Era Softworks ', 'Team Junkfish ', 'Tom Happ ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft Sofia ', 'Unexpected ', 'Wayward Simulations ', 'Witch Beam ', 'idoz & phops ']
will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

213/213 [=====] - 17s 76ms/step - loss: 16.9966 - mae: 2.6519 - val_loss: 12.0721 - val_mae: 2.6013

Epoch 2/20

213/213 [=====] - 16s 76ms/step - loss: 9.3096 - mae: 1.8118 - val_loss: 9.1889 - val_mae: 2.2224

Epoch 3/20

213/213 [=====] - 16s 76ms/step - loss: 7.6273 - mae: 1.6133 - val_loss: 8.6088 - val_mae: 2.1988

Epoch 4/20

213/213 [=====] - 16s 77ms/step - loss: 6.3810 - mae: 1.4756 - val_loss: 7.6089 - val_mae: 2.0419

Epoch 5/20

213/213 [=====] - 16s 77ms/step - loss: 6.3844 - mae: 1.4344 - val_loss: 8.3248 - val_mae: 2.1743

Epoch 6/20

213/213 [=====] - 16s 76ms/step - loss: 5.6967 - mae: 1.3383 - val_loss: 8.9910 - val_mae: 2.3572

Epoch 7/20

213/213 [=====] - 16s 77ms/step - loss: 5.4654 - mae: 1.2693 - val_loss: 8.6595 - val_mae: 2.2155

Epoch 8/20

213/213 [=====] - 16s 75ms/step - loss: 5.1633 - mae: 1.2444 - val_loss: 8.1212 - val_mae: 2.1617

Epoch 9/20

213/213 [=====] - 16s 77ms/step - loss: 4.8359 - mae: 1.1697 - val_loss: 8.8898 - val_mae: 2.2013

Chunk 14/52 // 25.0% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Arzest', 'Balan Company ', '3000AD', 'Armature Studio ', 'Bedtime Digital Games ', 'CE-Asia ', 'Cauldron Ltd. ', 'Causal Bit Games ', 'EggNut ', 'Lost Toys ', 'Overhype Studios ', 'Pathos Interactive ', 'Plausible Concept ', 'Point 5 Projects ', 'Pulse Entertainment ', 'Rayland Interactive ', 'Shadow Tor Studios ', 'Shining Rock Software ', 'Shockwave Productions ', 'Sports Mogul ', 'Stormind Games ', 'The Behemoth ', 'Throw the Warped Code Out ', 'Unspeakable Pixels '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

```

225/225 [=====] - 17s 76ms/step - loss: 19.0587 - mae:
2.6620 - val_loss: 10.1444 - val_mae: 2.0631
Epoch 2/20
225/225 [=====] - 17s 76ms/step - loss: 9.6121 - mae:
1.7350 - val_loss: 9.1047 - val_mae: 2.0850
Epoch 3/20
225/225 [=====] - 17s 75ms/step - loss: 6.7042 - mae:
1.4627 - val_loss: 9.8766 - val_mae: 2.2988
Epoch 4/20
225/225 [=====] - 17s 76ms/step - loss: 5.4102 - mae:
1.2800 - val_loss: 8.8264 - val_mae: 2.1316
Epoch 5/20
225/225 [=====] - 17s 76ms/step - loss: 6.0076 - mae:
1.2297 - val_loss: 10.4930 - val_mae: 2.4491
Epoch 6/20
225/225 [=====] - 17s 77ms/step - loss: 5.6082 - mae:
1.1727 - val_loss: 11.6074 - val_mae: 2.6741
Epoch 7/20
225/225 [=====] - 17s 76ms/step - loss: 4.8989 - mae:
1.0908 - val_loss: 11.2490 - val_mae: 2.6747
Epoch 8/20
225/225 [=====] - 17s 76ms/step - loss: 5.5201 - mae:
1.0644 - val_loss: 11.4349 - val_mae: 2.6994
Epoch 9/20
225/225 [=====] - 17s 77ms/step - loss: 4.9922 - mae:
1.0021 - val_loss: 13.0142 - val_mae: 2.9592
Chunk 15/52 // 26.92% Complete // Cycle 2/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dlala Studios ', ' Eurocom ', 'Argonaut Games ', 'Artematica ', 'Auran ',
'Balancing Monkey Games ', 'Big Boat Interactive ', 'Black Lab Games ',
'Blackpowder Games ', 'BumbleBeast ', 'Capy Games ', 'Cryo Interactive ',
'Digital Fusion Inc. ', 'Eidos Interactive ', 'Eurocom Entertainment Software',
'Eutechnyx ', 'GoodbyeWorld Games ', 'Gummy Cat ', 'Harebrained Schemes LLC ',
'Hiding Spot ', 'Hyperbolic Magnetism ', 'Iridium Studios ', 'Magnum Games ',
'Pixel Crow ', 'Rare Ltd.', 'ShadowRage ', 'Silver Lining Studio ', 'Similis ',
'Stunlock Studios ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Threaks ', 'Tindalos
Interactive ', 'Tri Synergy ', 'Twice Circled ', 'Varsav Game Studios ', 'Warsaw
Film School Video Game & Film Production Studio ', 'tiger & squid '] will be
ignored

```

```

    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20
228/228 [=====] - 18s 76ms/step - loss: 18.6809 - mae:
2.7088 - val_loss: 13.9907 - val_mae: 2.8739
Epoch 2/20
228/228 [=====] - 17s 76ms/step - loss: 10.2687 - mae:
1.8691 - val_loss: 12.9900 - val_mae: 2.8303

```


Epoch 3/20
228/228 [=====] - 18s 77ms/step - loss: 8.9879 - mae: 1.6975 - val_loss: 12.0437 - val_mae: 2.6628

Epoch 4/20
228/228 [=====] - 17s 76ms/step - loss: 8.9658 - mae: 1.6475 - val_loss: 12.4492 - val_mae: 2.5929

Epoch 5/20
228/228 [=====] - 17s 76ms/step - loss: 7.4098 - mae: 1.5006 - val_loss: 11.4739 - val_mae: 2.5771

Epoch 6/20
228/228 [=====] - 17s 75ms/step - loss: 7.5611 - mae: 1.4510 - val_loss: 11.7657 - val_mae: 2.7043

Epoch 7/20
228/228 [=====] - 17s 75ms/step - loss: 6.6726 - mae: 1.3525 - val_loss: 11.0824 - val_mae: 2.5843

Epoch 8/20
228/228 [=====] - 17s 75ms/step - loss: 6.4730 - mae: 1.3427 - val_loss: 11.1765 - val_mae: 2.6028

Epoch 9/20
228/228 [=====] - 17s 76ms/step - loss: 5.9073 - mae: 1.2694 - val_loss: 10.7239 - val_mae: 2.5355

Epoch 10/20
228/228 [=====] - 17s 77ms/step - loss: 5.6841 - mae: 1.2456 - val_loss: 10.7535 - val_mae: 2.5836

Epoch 11/20
228/228 [=====] - 17s 76ms/step - loss: 6.2824 - mae: 1.2872 - val_loss: 10.6274 - val_mae: 2.5674

Epoch 12/20
228/228 [=====] - 17s 75ms/step - loss: 5.3010 - mae: 1.1897 - val_loss: 10.5401 - val_mae: 2.4980

Epoch 13/20
228/228 [=====] - 17s 75ms/step - loss: 5.7844 - mae: 1.2381 - val_loss: 10.1256 - val_mae: 2.4498

Epoch 14/20
228/228 [=====] - 17s 76ms/step - loss: 5.9235 - mae: 1.2381 - val_loss: 10.4257 - val_mae: 2.5574

Epoch 15/20
228/228 [=====] - 17s 75ms/step - loss: 4.7584 - mae: 1.1287 - val_loss: 9.9718 - val_mae: 2.4962

Epoch 16/20
228/228 [=====] - 17s 76ms/step - loss: 4.7132 - mae: 1.1037 - val_loss: 10.3618 - val_mae: 2.5643

Epoch 17/20
228/228 [=====] - 18s 77ms/step - loss: 5.1963 - mae: 1.1305 - val_loss: 10.7412 - val_mae: 2.6629

Epoch 18/20
228/228 [=====] - 17s 76ms/step - loss: 5.2080 - mae: 1.1023 - val_loss: 10.3574 - val_mae: 2.5772

```

Epoch 19/20
228/228 [=====] - 17s 76ms/step - loss: 4.8062 - mae:
1.0885 - val_loss: 10.4034 - val_mae: 2.5819
Epoch 20/20
228/228 [=====] - 17s 75ms/step - loss: 5.0814 - mae:
1.1162 - val_loss: 9.9553 - val_mae: 2.5288
Chunk 16/52 // 28.85% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Cricket'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cranberry Production ', ' Digital Eclipse ', ' Nival ', ' Polar Motion ', ' S.L.
', ' Slitherine Group', '2K Games ', 'A Crowd of Monsters ', 'AGEOD ', 'Amanita
Design ', 'Apeiron ', 'Atomic Games ', 'Awe Interactive ', 'Black Mesa
Modification Team ', 'Blooming Buds Studio ', 'BootdiskRevolution ', 'Brat
Designs ', 'Cavia Inc. ', 'ClockStone Studio ', 'Corbie Games ', 'Cranberry
Studios ', 'DANG! ', 'DTP Entertainment', 'Deep Shadows ', 'Dimfrost ', 'Drama
Drifters ', 'Elseware Experience ', 'Erik Svedang ', 'FYQD-Studio ', 'Free Lives
', 'Gaijin Games ', 'Gust ', 'Headfirst Productions ', 'Interceptor
Entertainment ', 'Inti Creates ', 'Jagex Games Studio ', 'JoyMasher ', 'Kitfox
Games ', 'Krome Studios ', 'La Plata ', 'Midway Studios - Austin ', 'Mighty
Rabbit Studios ', 'Morteshka ', 'NExT Studios ', 'Nival Interactive', 'Nova
Production ', 'Paper Cult ', 'PaperSeven ', 'Pixel Multimedia ', 'PortaPlay ',
'Quotix Software ', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Robi Studios
', 'Runner Duck ', 'Sand Sailor Studio ', 'Scientifically Proven ',
'Slitherine', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ',
'Stunlock Studios ', 'SuperScarySnakes ', 'Swing Swing Submarine ', 'Targem
Games ', 'Team Reptile ', 'The Moonwalls ', 'The Parasight ', 'The Pixel Hunt ',
'Thing Trunk ', 'Troglobytes Games', 'V7 Entertainment Inc. ', 'stillalive
studios '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 17s 77ms/step - loss: 25.5147 - mae:
3.2111 - val_loss: 15.6723 - val_mae: 2.6344
Epoch 2/20
224/224 [=====] - 17s 76ms/step - loss: 14.8147 - mae:
2.3652 - val_loss: 13.2854 - val_mae: 2.5931
Epoch 3/20
224/224 [=====] - 17s 76ms/step - loss: 13.0980 - mae:
2.1230 - val_loss: 12.4203 - val_mae: 2.5176
Epoch 4/20
224/224 [=====] - 17s 75ms/step - loss: 10.5426 - mae:
1.8444 - val_loss: 11.8767 - val_mae: 2.4855
Epoch 5/20
224/224 [=====] - 17s 75ms/step - loss: 9.7448 - mae:

```

```

1.7997 - val_loss: 11.3450 - val_mae: 2.5416
Epoch 6/20
224/224 [=====] - 17s 75ms/step - loss: 10.5171 - mae:
1.7854 - val_loss: 11.9336 - val_mae: 2.5641
Epoch 7/20
224/224 [=====] - 17s 75ms/step - loss: 8.6358 - mae:
1.6417 - val_loss: 12.2029 - val_mae: 2.7302
Epoch 8/20
224/224 [=====] - 17s 75ms/step - loss: 9.2789 - mae:
1.6624 - val_loss: 12.2667 - val_mae: 2.6909
Epoch 9/20
224/224 [=====] - 17s 76ms/step - loss: 8.1685 - mae:
1.5588 - val_loss: 12.0841 - val_mae: 2.7731
Epoch 10/20
224/224 [=====] - 17s 76ms/step - loss: 7.7582 - mae:
1.4772 - val_loss: 12.1584 - val_mae: 2.6979
Chunk 17/52 // 30.77% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Out of the Blue Games S.L. ', 'Action Forms Ltd. ', 'Activision ', 'Alientrap ',
'Blue Manchu ', 'Bytten Studio ', 'Expansive Worlds ', 'Hothouse Creations ',
'Ice-Pick Lodge ', 'Matt Kap ', 'Nerial ', 'Out of the Blue', 'Phobia Game
Studio ', 'Richard Hofmeier ', 'Serious Brew ', 'Sierra Entertainment ',
'Spotlightor Interactive ', 'Sunhead Games ', 'Sunstorm Interactive ', 'Teku
Studios ', 'Torus Games '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
220/220 [=====] - 17s 76ms/step - loss: 24.6264 - mae:
3.3364 - val_loss: 15.4953 - val_mae: 3.0617
Epoch 2/20
220/220 [=====] - 17s 76ms/step - loss: 10.1061 - mae:
2.0511 - val_loss: 15.4492 - val_mae: 3.0671
Epoch 3/20
220/220 [=====] - 17s 77ms/step - loss: 8.4690 - mae:
1.8371 - val_loss: 14.2709 - val_mae: 2.9492
Epoch 4/20
220/220 [=====] - 17s 76ms/step - loss: 6.0465 - mae:
1.5466 - val_loss: 12.6270 - val_mae: 2.7372
Epoch 5/20
220/220 [=====] - 17s 76ms/step - loss: 6.5265 - mae:
1.4856 - val_loss: 12.6507 - val_mae: 2.8331
Epoch 6/20
220/220 [=====] - 17s 77ms/step - loss: 5.3662 - mae:

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1.3597 - val_loss: 13.6806 - val_mae: 2.9062
Epoch 7/20
220/220 [=====] - 17s 76ms/step - loss: 5.1575 - mae:
1.3052 - val_loss: 13.3785 - val_mae: 2.8933
Epoch 8/20
220/220 [=====] - 17s 75ms/step - loss: 4.7282 - mae:
1.2503 - val_loss: 13.2260 - val_mae: 2.9178
Epoch 9/20
220/220 [=====] - 17s 77ms/step - loss: 4.7164 - mae:
1.2151 - val_loss: 12.9295 - val_mae: 2.8640
Chunk 18/52 // 32.69% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Application', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Deep Silver Fishlabs ', ' EA Games ', ' FireFly Studios ', ' LLC', ' LandFall ',
' Navarre Corp ', ' Overflow Games ', ' Phosphor Games ', ' Reality Twist ', '
Sega', ' Ste Curran ', 'Amanita Design ', 'Argonaut Games', 'Ascension Studios',
'Atomic Games ', 'Backbone Entertainment ', 'Beautiful Game Studios ', 'Behold
Studios ', 'Big Time Software ', 'Boxed Dream ', 'BreakAway Games ', 'Convoy
Games ', 'Crazy Rocks ', 'Cygnus Entertainment ', 'Darkworks ', 'Data Realms ',
'Destineer ', 'Discord Games ', 'Double Stallion Games ', 'Dreamworks Games ',
'EA Pacific ', 'EasyGameStation ', 'Eden Industries ', 'Elf Games ', 'Eyebrow
Interactive ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Focus Home
Interactive ', 'Gaslamp Games ', 'Greg Lobanov ', 'ION LANDS ',
'Interdimensional Games Inc ', 'Investigate North Aps ', 'Jason Oda ', 'Jump
Over The Age ', 'LandFall Games', 'Lazy 8 Studios ', 'Logic Artists ', 'MASA
Group ', 'Maddy Makes Games ', 'Mages. ', 'Matthias Linda ', 'Mighty Kingdom ',
'Mindware Studios ', 'Original Fire Games ', 'Oxeye ', 'Paragon Studios ',
'Phoenix Online Studios ', 'Phosphor Games Studio', 'Playwing ', 'Puuba ',
'Reality Twist GmbH', 'Snapshot Games Inc. ', 'SomaSim ', 'Storm in a Teacup ',
'TRAGsoft ', 'The Gentlebros ', 'The Wild Gentlemen ', 'Toge Productions ',
'Twistplay', 'Two Star Games ', 'Uppercut Games Pty Ltd ', 'Various ', 'White
Paper Games ', 'Yippee Entertainment LTD ', 'Zeboyd Games ', 'Zoetrope
Interactive ', 'osao games '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 18s 76ms/step - loss: 32.4693 - mae:
3.6370 - val_loss: 23.3536 - val_mae: 3.2784
Epoch 2/20
224/224 [=====] - 17s 77ms/step - loss: 18.7122 - mae:
2.5921 - val_loss: 18.9239 - val_mae: 2.9514
Epoch 3/20
224/224 [=====] - 17s 75ms/step - loss: 16.3255 - mae:
2.3658 - val_loss: 18.3993 - val_mae: 3.0020

```

Epoch 4/20
224/224 [=====] - 17s 77ms/step - loss: 14.8143 - mae: 2.2026 - val_loss: 17.5858 - val_mae: 3.0690
Epoch 5/20
224/224 [=====] - 17s 75ms/step - loss: 13.9620 - mae: 2.0810 - val_loss: 16.9553 - val_mae: 2.9437
Epoch 6/20
224/224 [=====] - 17s 77ms/step - loss: 12.5502 - mae: 1.9602 - val_loss: 16.5140 - val_mae: 3.0101
Epoch 7/20
224/224 [=====] - 17s 76ms/step - loss: 11.9983 - mae: 1.8955 - val_loss: 15.0002 - val_mae: 2.8108
Epoch 8/20
224/224 [=====] - 17s 76ms/step - loss: 12.1874 - mae: 1.8921 - val_loss: 14.9639 - val_mae: 2.8722
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 11.1505 - mae: 1.7820 - val_loss: 15.3427 - val_mae: 2.9114
Epoch 10/20
224/224 [=====] - 17s 76ms/step - loss: 11.5788 - mae: 1.8025 - val_loss: 14.6394 - val_mae: 2.8425
Epoch 11/20
224/224 [=====] - 17s 76ms/step - loss: 10.4013 - mae: 1.7169 - val_loss: 14.0923 - val_mae: 2.7732
Epoch 12/20
224/224 [=====] - 17s 76ms/step - loss: 10.1649 - mae: 1.6841 - val_loss: 13.6805 - val_mae: 2.7138
Epoch 13/20
224/224 [=====] - 17s 75ms/step - loss: 9.5252 - mae: 1.6155 - val_loss: 14.0173 - val_mae: 2.8144
Epoch 14/20
224/224 [=====] - 17s 77ms/step - loss: 10.5042 - mae: 1.6335 - val_loss: 13.9748 - val_mae: 2.7127
Epoch 15/20
224/224 [=====] - 17s 76ms/step - loss: 10.2749 - mae: 1.6637 - val_loss: 14.0548 - val_mae: 2.7180
Epoch 16/20
224/224 [=====] - 17s 75ms/step - loss: 9.1441 - mae: 1.5243 - val_loss: 12.8928 - val_mae: 2.6117
Epoch 17/20
224/224 [=====] - 17s 76ms/step - loss: 8.6364 - mae: 1.5053 - val_loss: 14.2175 - val_mae: 2.7272
Epoch 18/20
224/224 [=====] - 17s 76ms/step - loss: 9.3406 - mae: 1.5422 - val_loss: 13.5267 - val_mae: 2.6808
Epoch 19/20
224/224 [=====] - 17s 76ms/step - loss: 8.5479 - mae: 1.4798 - val_loss: 13.4571 - val_mae: 2.6348

```

Epoch 20/20
224/224 [=====] - 17s 76ms/step - loss: 8.2859 - mae:
1.4298 - val_loss: 13.5749 - val_mae: 2.6871
Chunk 19/52 // 34.62% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
10tons ', ' Elbow Rocket ', ' FAKT Software ', ' Funatics ', ' Funatics
Software', ' Moonbyte Studios ', ' Relentless Studios ', '10tons Entertainment',
'369 Interactive ', 'Aarne "MekaSkull" Hunziker ', 'Action Forms Ltd. ', 'Alt
Shift ', 'Amanita Design ', 'Artematica ', 'Asylum Entertainment ', 'Brace
Yourself Games ', 'Butterscotch Shenanigans ', 'Dreams Uncorporated ', 'EA
Bright Light ', 'Explosm ', 'FAKT Software ', 'FAKT Software GmbH', 'Flying Cafe
for Semianimals ', 'Fourattic ', 'Funatics Development GmbH', 'G5 Software ',
'InGame Studios ', 'Invictus ', 'Jasozz Games ', 'Kraken Unleashed ',
'Maschinen-Mensch ', 'Massive Monster ', 'Momentum DMT ', 'NExT Studios ',
'PETOONS STUDIO SL ', 'Passtech Games ', 'Petri Purho ', 'Punchers Impact ',
'Radical Fish Games ', 'Replay Studios', 'Skilltree Studios ', 'Spry Fox ',
'Sumo Digital', 'Tag of Joy ', 'Toys for Bob ', 'Triangle Studios ', 'Vicarious
Visions', 'Vile Monarch ', 'Vogster ', 'Weather Factory ', 'Zipper Interactive
'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
209/209 [=====] - 16s 76ms/step - loss: 11.5199 - mae:
1.8000 - val_loss: 9.4969 - val_mae: 2.0606
Epoch 2/20
209/209 [=====] - 16s 77ms/step - loss: 7.0034 - mae:
1.2169 - val_loss: 8.8433 - val_mae: 2.1474
Epoch 3/20
209/209 [=====] - 16s 76ms/step - loss: 5.3012 - mae:
1.0794 - val_loss: 8.1717 - val_mae: 2.1342
Epoch 4/20
209/209 [=====] - 16s 75ms/step - loss: 4.6401 - mae:
0.9438 - val_loss: 7.0963 - val_mae: 2.1301
Epoch 5/20
209/209 [=====] - 16s 76ms/step - loss: 4.5581 - mae:
0.9234 - val_loss: 6.8933 - val_mae: 2.0262
Epoch 6/20
209/209 [=====] - 16s 75ms/step - loss: 3.7104 - mae:
0.8818 - val_loss: 6.6599 - val_mae: 2.0138
Epoch 7/20
209/209 [=====] - 16s 76ms/step - loss: 3.5105 - mae:
0.8397 - val_loss: 6.8853 - val_mae: 2.0621
Epoch 8/20
209/209 [=====] - 16s 77ms/step - loss: 3.0642 - mae:
0.7763 - val_loss: 6.2960 - val_mae: 1.9692
Epoch 9/20
209/209 [=====] - 16s 76ms/step - loss: 3.3039 - mae:

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0.7943 - val_loss: 6.1345 - val_mae: 1.9078
Epoch 10/20
209/209 [=====] - 16s 75ms/step - loss: 3.4791 - mae:
0.7748 - val_loss: 6.0639 - val_mae: 1.9111
Epoch 11/20
209/209 [=====] - 16s 77ms/step - loss: 3.0067 - mae:
0.7547 - val_loss: 6.1205 - val_mae: 1.9591
Epoch 12/20
209/209 [=====] - 16s 76ms/step - loss: 2.7176 - mae:
0.7176 - val_loss: 6.5593 - val_mae: 2.0529
Epoch 13/20
209/209 [=====] - 16s 76ms/step - loss: 2.2691 - mae:
0.6855 - val_loss: 6.0838 - val_mae: 1.9510
Epoch 14/20
209/209 [=====] - 16s 75ms/step - loss: 2.8641 - mae:
0.7396 - val_loss: 6.2018 - val_mae: 1.9331
Epoch 15/20
209/209 [=====] - 16s 75ms/step - loss: 2.4131 - mae:
0.6960 - val_loss: 6.1060 - val_mae: 1.9720
Chunk 20/52 // 36.54% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
ICEBOX Studios ', ' RA Images ', 'Access Games ', 'Bigmoon Entertainment ',
'Blue Omega ', 'Cinemax', 'Creative Edge Software ', "D'Avekki Studios Limited
", 'Darkling Room ', 'Hibernian Workshop ', 'Long Hat House ', 'Mad Mimic ',
'Marvelous First Studio ', 'Mythic Entertainment ', 'Namco Bandai Games ',
'Pyramid ', 'Sonalysts ', 'Spike Chunsoft ', 'Sword & Axe LLC ', 'Three Fields
Entertainment ', 'Wadjet Eye Games', 'XXV Productions '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
203/203 [=====] - 16s 75ms/step - loss: 9.0027 - mae:
1.4889 - val_loss: 10.3075 - val_mae: 2.9858
Epoch 2/20
203/203 [=====] - 15s 75ms/step - loss: 4.7895 - mae:
1.0556 - val_loss: 11.3024 - val_mae: 3.1143
Epoch 3/20
203/203 [=====] - 15s 76ms/step - loss: 4.1348 - mae:
0.9069 - val_loss: 11.8503 - val_mae: 3.2508
Epoch 4/20
203/203 [=====] - 15s 75ms/step - loss: 3.8683 - mae:
0.8384 - val_loss: 12.7125 - val_mae: 3.4132
Epoch 5/20
203/203 [=====] - 16s 76ms/step - loss: 3.2279 - mae:
0.7536 - val_loss: 11.8802 - val_mae: 3.2510
Epoch 6/20
203/203 [=====] - 15s 76ms/step - loss: 2.9749 - mae:
0.6956 - val_loss: 11.6377 - val_mae: 3.2255

```

Chunk 21/52 // 38.46% Complete // Cycle 2/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['  
Capcom Vancouver ', ' Koei Tecmo Games ', ' Ltd. ', ' Sky Fallen', '5-Bits Games  
, '8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ',  
'Allgraf ', 'Biart ', 'Blue Castle Games ', 'Boston Animation ', 'CCCP ',  
'COWCAT ', 'Cave ', 'DNS Development ', 'Digital Confectioners ', 'DoubleBear  
Productions ', 'Dykast Lubomir ', 'Fabraz ', 'Fictiorama Studios ', 'Frozen line  
, 'Ghost Ship Games ', 'Haggard Games ', 'Ikarion ', 'Invader Studios ', 'KUNO  
INTERACTIVE ', 'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'Most Wanted  
Entertainment ', 'Motion Twin ', 'Nfusion ', 'Oscar Brittain ', 'Outrage Games  
, 'Parallax Software ', 'Positech Games ', 'QCF Design ', 'RageSquid ',  
'Related Designs ', 'Resolution Games ', 'Scavengers Studio ', 'Silent Grove  
Studios ', 'Sky Fallen ', 'Snowhound Games ', 'Streko-Graphics Inc. ', 'Team  
Ninja', 'The Chinese Room ', 'Twisted Pixel Games ', 'Unfold Games ', 'White  
Rabbit Interactive ', 'Z-Axis', 'Zoetrope Interactive '] will be ignored  
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

224/224 [=====] - 17s 76ms/step - loss: 28.0254 - mae:
3.6523 - val_loss: 18.6920 - val_mae: 2.9684

Epoch 2/20

224/224 [=====] - 17s 76ms/step - loss: 17.8224 - mae:
2.6759 - val_loss: 15.4178 - val_mae: 2.6932

Epoch 3/20

224/224 [=====] - 17s 76ms/step - loss: 13.7683 - mae:
2.3219 - val_loss: 14.4862 - val_mae: 2.5154

Epoch 4/20

224/224 [=====] - 17s 76ms/step - loss: 12.2682 - mae:
2.0944 - val_loss: 13.3731 - val_mae: 2.4063

Epoch 5/20

224/224 [=====] - 17s 76ms/step - loss: 12.0481 - mae:
2.0113 - val_loss: 12.0644 - val_mae: 2.2923

Epoch 6/20

224/224 [=====] - 17s 75ms/step - loss: 10.3397 - mae:
1.8639 - val_loss: 12.0356 - val_mae: 2.2512

Epoch 7/20

224/224 [=====] - 17s 77ms/step - loss: 10.3861 - mae:
1.8197 - val_loss: 12.0733 - val_mae: 2.1924

Epoch 8/20

224/224 [=====] - 17s 76ms/step - loss: 9.8113 - mae:
1.7805 - val_loss: 12.0532 - val_mae: 2.2803

Epoch 9/20

224/224 [=====] - 17s 76ms/step - loss: 9.4452 - mae:
1.7100 - val_loss: 12.5940 - val_mae: 2.3658

Epoch 10/20

224/224 [=====] - 17s 76ms/step - loss: 9.7095 - mae:
1.7274 - val_loss: 12.1820 - val_mae: 2.2150


```

Epoch 11/20
224/224 [=====] - 17s 77ms/step - loss: 8.8709 - mae:
1.6690 - val_loss: 12.6134 - val_mae: 2.3052
Chunk 22/52 // 40.38% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dreadlocks ', 'Digitalo Studios ', 'Dreadlocks Ltd', 'Foregone ', 'Layopi Games
', 'Red Candle Games ', 'Sorath ', 'Sourcenext ', 'Ultimation Inc. '] will be
ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
231/231 [=====] - 18s 75ms/step - loss: 15.0540 - mae:
2.2541 - val_loss: 9.4637 - val_mae: 1.7201
Epoch 2/20
231/231 [=====] - 17s 75ms/step - loss: 6.5568 - mae:
1.3235 - val_loss: 8.0211 - val_mae: 1.6520
Epoch 3/20
231/231 [=====] - 17s 75ms/step - loss: 5.9931 - mae:
1.1475 - val_loss: 8.0733 - val_mae: 1.7284
Epoch 4/20
231/231 [=====] - 17s 75ms/step - loss: 4.4949 - mae:
1.0128 - val_loss: 8.0697 - val_mae: 1.8050
Epoch 5/20
231/231 [=====] - 18s 76ms/step - loss: 4.7488 - mae:
0.9658 - val_loss: 7.4526 - val_mae: 1.7920
Epoch 6/20
231/231 [=====] - 18s 76ms/step - loss: 4.1114 - mae:
0.8790 - val_loss: 8.0400 - val_mae: 1.8607
Epoch 7/20
231/231 [=====] - 18s 76ms/step - loss: 4.1626 - mae:
0.8552 - val_loss: 7.2531 - val_mae: 1.8017
Epoch 8/20
231/231 [=====] - 17s 75ms/step - loss: 3.6198 - mae:
0.7810 - val_loss: 8.4594 - val_mae: 1.9998
Epoch 9/20
231/231 [=====] - 18s 76ms/step - loss: 3.8039 - mae:
0.7638 - val_loss: 8.5735 - val_mae: 1.9792
Epoch 10/20
231/231 [=====] - 17s 75ms/step - loss: 3.6323 - mae:
0.7278 - val_loss: 8.5143 - val_mae: 2.0942
Epoch 11/20
231/231 [=====] - 17s 75ms/step - loss: 4.0640 - mae:
0.7241 - val_loss: 7.9175 - val_mae: 2.0152
Epoch 12/20
231/231 [=====] - 18s 76ms/step - loss: 3.5591 - mae:
0.6980 - val_loss: 7.7344 - val_mae: 1.9750
Chunk 23/52 // 42.31% Complete // Cycle 2/3

```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dose', ' Kitty', ' and JW ', 'ArachnidGames ', 'AtomicTorch ', 'DESTINYbit ',
'Frima Studio ', 'Innonics ', 'Nippon Ichi Software ', 'Piranha Games ', 'Ratbag
', 'Soldak Entertainment ', 'Sundae Month ', 'Terri', 'Terry Cavanagh ', 'V1
Interactive '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
231/231 [=====] - 18s 75ms/step - loss: 9.8167 - mae:
1.6710 - val_loss: 22.2369 - val_mae: 3.0842
```

Epoch 2/20

```
231/231 [=====] - 18s 76ms/step - loss: 6.2642 - mae:
1.2458 - val_loss: 20.4890 - val_mae: 2.9557
```

Epoch 3/20

```
231/231 [=====] - 17s 75ms/step - loss: 4.9328 - mae:
1.1107 - val_loss: 19.1733 - val_mae: 2.9559
```

Epoch 4/20

```
231/231 [=====] - 17s 75ms/step - loss: 3.9758 - mae:
0.9456 - val_loss: 18.9821 - val_mae: 3.0520
```

Epoch 5/20

```
231/231 [=====] - 17s 75ms/step - loss: 3.4530 - mae:
0.8698 - val_loss: 19.0228 - val_mae: 2.9491
```

Epoch 6/20

```
231/231 [=====] - 17s 75ms/step - loss: 3.7697 - mae:
0.8147 - val_loss: 20.1386 - val_mae: 3.1341
```

Epoch 7/20

```
231/231 [=====] - 17s 76ms/step - loss: 4.2082 - mae:
0.8298 - val_loss: 20.2860 - val_mae: 3.1599
```

Epoch 8/20

```
231/231 [=====] - 17s 76ms/step - loss: 3.0281 - mae:
0.7463 - val_loss: 19.4761 - val_mae: 3.0749
```

Epoch 9/20

```
231/231 [=====] - 17s 76ms/step - loss: 3.2455 - mae:
0.7169 - val_loss: 20.8482 - val_mae: 3.1417
```

```
Chunk 24/52 // 44.23% Complete // Cycle 2/3
```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Digital Leisure ', ' Eighting ', ' Eurocom ', 'Ankama Games ', 'Arc System
Works', 'Avalanche Software ', 'Barking Dog ', 'Ben Esposito ', 'Bippinbits ',
'Canal+ Multimedia ', 'Code Force ', 'Digital Leisure Inc.', 'Disney Interactive
Studios ', 'Eurocom Entertainment Software', 'Heavy Iron Studios', 'Illwinter
Design Group ', 'Jesse Makkonen ', 'KillHouse Games ', 'Massive Work Studio ',
'Moppin ', 'Muro Studios Ltd. ', 'Nerve Software ', 'Pocket Trap ', 'Propaganda
Games ', 'Secret Base ', 'Stickmen Studios ', 'Team Salvato ', 'Toukana
Interactive ', 'Un Je Ne Sais Quoi ', 'V1 Interactive '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

```

Epoch 1/20
212/212 [=====] - 16s 75ms/step - loss: 12.3614 - mae:
1.9865 - val_loss: 14.5356 - val_mae: 3.0575
Epoch 2/20
212/212 [=====] - 16s 76ms/step - loss: 7.1485 - mae:
1.3719 - val_loss: 14.6123 - val_mae: 3.0671
Epoch 3/20
212/212 [=====] - 16s 76ms/step - loss: 6.5473 - mae:
1.2231 - val_loss: 14.6662 - val_mae: 3.1464
Epoch 4/20
212/212 [=====] - 16s 76ms/step - loss: 5.8089 - mae:
1.0995 - val_loss: 14.5902 - val_mae: 3.1347
Epoch 5/20
212/212 [=====] - 16s 76ms/step - loss: 5.9230 - mae:
1.1011 - val_loss: 14.6405 - val_mae: 3.2166
Epoch 6/20
212/212 [=====] - 16s 75ms/step - loss: 4.6570 - mae:
0.9544 - val_loss: 14.3143 - val_mae: 3.2304
Epoch 7/20
212/212 [=====] - 16s 75ms/step - loss: 3.9928 - mae:
0.8883 - val_loss: 13.4775 - val_mae: 3.1611
Epoch 8/20
212/212 [=====] - 16s 76ms/step - loss: 3.9446 - mae:
0.8943 - val_loss: 12.8804 - val_mae: 3.0757
Epoch 9/20
212/212 [=====] - 16s 76ms/step - loss: 3.9357 - mae:
0.8462 - val_loss: 13.0651 - val_mae: 3.1280
Epoch 10/20
212/212 [=====] - 16s 75ms/step - loss: 3.6913 - mae:
0.8160 - val_loss: 13.9624 - val_mae: 3.3248
Epoch 11/20
212/212 [=====] - 16s 75ms/step - loss: 4.0404 - mae:
0.8653 - val_loss: 14.5114 - val_mae: 3.3984
Epoch 12/20
212/212 [=====] - 16s 75ms/step - loss: 3.9857 - mae:
0.8290 - val_loss: 14.4296 - val_mae: 3.3963
Epoch 13/20
212/212 [=====] - 16s 76ms/step - loss: 3.8214 - mae:
0.7576 - val_loss: 14.6192 - val_mae: 3.4287
Chunk 25/52 // 46.15% Complete // Cycle 2/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
A Jolly Corpse ', ' FunHouse ', ' Koei Tecmo Games ', ' Mobigame ', ' Rabbit &
Bear Studios ', ' Red Winter Software ', '3D Realms ', '7 Studios ',
'Afterburner Studios ', 'Amaze Entertainment ', 'Artematica ', 'Bay 12 Games ',
'Bedlam Games ', 'Black Salt Games ', 'Buka Entertainment ', 'Byterunners Game
Studio ', 'Critical Studio ', 'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'Dancing

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Dragon games ', 'Digital Happiness ', 'Dimps Corporation ', 'Eastshade Studios ', 'Game Grumps ', 'Gaslamp Games ', 'Heuristic Park ', 'Hitbox ', 'Holospark ', 'Honig Studios ', 'HyperSloth ', 'Instant Kingdom ', 'Midgar Studio ', 'Mike Studios ', 'Mindware Studios ', 'Misfits Attic ', 'NATSUME ATARI Inc.', 'New Blood Interactive ', 'Omega Force', 'Owlchemy Labs ', 'PD Design Studio Pte Ltd ', 'Paleo Entertainment ', 'Pixpil ', 'Plastic Reality ', 'Radon Labs ', 'Raspina Studio ', 'Red Thread Games ', 'Red Winter Software Limited', 'Reflections Interactive ', 'Runewaker Entertainment ', 'Snowbird Game Studios ', 'Soldak Entertainment ', 'Studio V ', 'Sunstorm Interactive ', 'T19 Games ', 'Tendershoot', 'TopWare Interactive ', 'Two Tribes', 'Ubisoft Montreal', 'Ultra Ultra ', 'Vicious Cycle ', 'Zuxxez '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

232/232 [=====] - 18s 76ms/step - loss: 23.5495 - mae: 2.9233 - val_loss: 21.5691 - val_mae: 3.4205

Epoch 2/20

232/232 [=====] - 17s 75ms/step - loss: 12.7254 - mae: 2.0028 - val_loss: 21.5021 - val_mae: 3.4933

Epoch 3/20

232/232 [=====] - 18s 76ms/step - loss: 12.0205 - mae: 1.7930 - val_loss: 21.6655 - val_mae: 3.6185

Epoch 4/20

232/232 [=====] - 18s 76ms/step - loss: 10.8270 - mae: 1.6013 - val_loss: 21.2783 - val_mae: 3.4924

Epoch 5/20

232/232 [=====] - 18s 76ms/step - loss: 9.3165 - mae: 1.4963 - val_loss: 19.5710 - val_mae: 3.2613

Epoch 6/20

232/232 [=====] - 18s 77ms/step - loss: 8.1978 - mae: 1.4319 - val_loss: 19.1591 - val_mae: 3.3565

Epoch 7/20

232/232 [=====] - 18s 76ms/step - loss: 7.7485 - mae: 1.3443 - val_loss: 20.2388 - val_mae: 3.4358

Epoch 8/20

232/232 [=====] - 18s 77ms/step - loss: 6.8800 - mae: 1.3358 - val_loss: 19.8491 - val_mae: 3.3433

Epoch 9/20

232/232 [=====] - 18s 76ms/step - loss: 6.9209 - mae: 1.2073 - val_loss: 19.6685 - val_mae: 3.4718

Epoch 10/20

232/232 [=====] - 17s 75ms/step - loss: 6.4543 - mae: 1.1598 - val_loss: 20.4469 - val_mae: 3.4080

Epoch 11/20

232/232 [=====] - 18s 76ms/step - loss: 6.9450 - mae: 1.1854 - val_loss: 20.3277 - val_mae: 3.4244

Chunk 26/52 // 48.08% Complete // Cycle 2/3

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packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Alex May ', ' Endlessfluff Games ', ' Foreign Gnomes ', ' Humble Games', ' Live
Wire ', ' MicroProse ', ' TimeGate Studios ', '1C:Ino-Co ', '4Head Studios ',
'Abraham SA ', 'Atari', 'BreakAway Games ', 'Chaosmonger Studio ', 'Chris
Nordgren', 'Codemasters Birmingham ', 'Coin Crew Games ', 'DESTINYbit ', 'Dark
Crystal Games ', 'Digital Lode ', 'Elder Games ', 'Erik Svedang ', 'Exbleative
', 'Fallen Earth', 'Fallen Flag Studio ', 'Fireplace Games ', 'Fishing Cactus ',
'Gameyus Interactive ', 'Gentlymad ', 'Gust ', 'Heavy Iron Studios ', 'Herobeat
Studios ', 'Humble Bundle', 'Idea Factory ', 'Image Space Incorporated ', 'Lead
Pursuit ', 'Lexis Numerique ', 'Live Wire Films', 'Logic Artists ', 'Mad Orange
', 'MagicalTimeBean ', 'Mantra ', 'Matias Schmied ', 'Minor Key Games ',
'Monolith Productions', 'Nfusion ', 'Ocelot Society ', 'Pathea Games ',
'Popcannibal ', 'Queasy Games ', 'ROCKFISH Games ', 'Rage Software ',
'Razorworks ', 'Rudolf Kremers', 'Shiro Games ', 'Sixteen Tons Entertainment ',
'StarWraith ', 'Storm in a Teacup ', 'Stormfront Studios ', 'TIGAMES ',
'Tesseract Games ', 'The Chinese Room ', 'Tindalos Interactive ', 'ValuSoft
', 'Video System ', 'White Paper Games ', 'Wube Software LTD. ', 'Zachtronics
Industries ', 'i-illusions '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
229/229 [=====] - 18s 77ms/step - loss: 30.1364 - mae:
3.6890 - val_loss: 27.2577 - val_mae: 3.9129
Epoch 2/20
229/229 [=====] - 17s 76ms/step - loss: 19.7471 - mae:
2.7023 - val_loss: 25.3953 - val_mae: 3.9324
Epoch 3/20
229/229 [=====] - 17s 75ms/step - loss: 16.7228 - mae:
2.4229 - val_loss: 24.1648 - val_mae: 3.8886
Epoch 4/20
229/229 [=====] - 17s 75ms/step - loss: 14.4332 - mae:
2.1971 - val_loss: 24.8392 - val_mae: 3.9159
Epoch 5/20
229/229 [=====] - 17s 75ms/step - loss: 13.9257 - mae:
2.1237 - val_loss: 24.4338 - val_mae: 3.8784
Epoch 6/20
229/229 [=====] - 17s 75ms/step - loss: 13.1096 - mae:
2.0996 - val_loss: 22.6750 - val_mae: 3.6276
Epoch 7/20
229/229 [=====] - 17s 75ms/step - loss: 12.3643 - mae:
1.9627 - val_loss: 22.4335 - val_mae: 3.6927
Epoch 8/20
229/229 [=====] - 17s 76ms/step - loss: 11.8665 - mae:
1.9560 - val_loss: 22.9889 - val_mae: 3.7089

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Epoch 9/20
229/229 [=====] - 17s 75ms/step - loss: 12.1748 - mae:
1.9699 - val_loss: 23.9946 - val_mae: 3.7476
Epoch 10/20
229/229 [=====] - 17s 76ms/step - loss: 11.1592 - mae:
1.8375 - val_loss: 24.1869 - val_mae: 3.8850
Epoch 11/20
229/229 [=====] - 17s 75ms/step - loss: 11.5269 - mae:
1.8721 - val_loss: 22.6380 - val_mae: 3.6855
Epoch 12/20
229/229 [=====] - 17s 76ms/step - loss: 11.3791 - mae:
1.8134 - val_loss: 23.3392 - val_mae: 3.6986
Chunk 27/52 // 50.0% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C:Ino-Co ', 'Owned by Gravity '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 17s 76ms/step - loss: 15.4276 - mae:
2.3203 - val_loss: 31.4885 - val_mae: 4.5407
Epoch 2/20
224/224 [=====] - 17s 76ms/step - loss: 8.3756 - mae:
1.5452 - val_loss: 29.0649 - val_mae: 4.3219
Epoch 3/20
224/224 [=====] - 17s 75ms/step - loss: 7.4710 - mae:
1.4069 - val_loss: 30.3713 - val_mae: 4.4305
Epoch 4/20
224/224 [=====] - 17s 76ms/step - loss: 7.3081 - mae:
1.3173 - val_loss: 29.1199 - val_mae: 4.3751
Epoch 5/20
224/224 [=====] - 17s 75ms/step - loss: 6.4885 - mae:
1.2372 - val_loss: 29.5703 - val_mae: 4.3376
Epoch 6/20
224/224 [=====] - 17s 75ms/step - loss: 5.7457 - mae:
1.1457 - val_loss: 30.0885 - val_mae: 4.4025
Epoch 7/20
224/224 [=====] - 17s 75ms/step - loss: 6.0664 - mae:
1.1351 - val_loss: 28.9721 - val_mae: 4.2861
Epoch 8/20
224/224 [=====] - 17s 76ms/step - loss: 5.6170 - mae:
1.0869 - val_loss: 29.7686 - val_mae: 4.3573
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 6.6085 - mae:
1.1113 - val_loss: 30.4885 - val_mae: 4.4007
Epoch 10/20
224/224 [=====] - 17s 75ms/step - loss: 6.5236 - mae:
1.0891 - val_loss: 28.3408 - val_mae: 4.2695

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Epoch 11/20
 224/224 [=====] - 17s 75ms/step - loss: 5.0847 - mae: 0.9974 - val_loss: 30.5939 - val_mae: 4.3998
 Epoch 12/20
 224/224 [=====] - 17s 76ms/step - loss: 5.7839 - mae: 1.0135 - val_loss: 29.7002 - val_mae: 4.2855
 Epoch 13/20
 224/224 [=====] - 17s 76ms/step - loss: 5.2209 - mae: 0.9648 - val_loss: 29.0318 - val_mae: 4.2514
 Epoch 14/20
 224/224 [=====] - 17s 76ms/step - loss: 6.0478 - mae: 0.9899 - val_loss: 28.9244 - val_mae: 4.2617
 Epoch 15/20
 224/224 [=====] - 17s 75ms/step - loss: 5.1374 - mae: 0.9180 - val_loss: 29.9204 - val_mae: 4.3354
 Chunk 28/52 // 51.92% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Ankama ', ' Black Drakkar Games ', ' Blitz Games ', ' Calappa Games ', ' Creative Business Unit III ', ' Cyan', ' EA Vancouver ', ' Gun Interactive ', ' Team 6 Games Studio ', '17-Bit ', '2By3 Games ', '6 Eyes Studio ', 'AGEOD ', 'Ankama Games', 'Anshar Studios ', 'Antab Studio ', 'Auran ', 'Awesome Games Studio ', 'Axel Fox ', 'Beard Envy ', 'Bedtime Digital Games ', 'BetaDwarf ', 'Bits & Beasts ', 'Bonus Level Entertainment ', 'Brain Candy ', 'Brendon Chung ', 'Bright Future GmbH ', 'Byte Barrel ', 'Campo Santo ', 'Cellar Door Games ', 'ChessBase ', 'Cyan Worlds', 'Dead Mage Studio ', 'EA Sports', 'Edge Case Games ', 'Fallen Leaf', 'Fishlabs ', 'Fort Triumph LTD ', 'Freebird Games ', 'Freedom LLC ', 'GalaxyTrail ', 'Gamepires ', 'Grace Bruxner ', 'Green Lava Studios ', 'Greenheart Games ', 'Ground Shatter Ltd. ', 'Harmonix Music Systems ', 'Hasbro Interactive', 'Hexagon Entertainment ', 'HopFrog ', 'Hothouse Creations ', 'IllFonic', 'IronOak Games ', 'JC Entertainment ', 'Kaos Studios ', 'Kong Orange ', 'Lukas Navratil ', 'MediaMobsters ', 'Mode 7 Games ', 'Mopeful Games ', 'Mutant Games ', 'Nemesys ', 'Nussoft', 'Object ', 'Okomotive ', 'Paranoid Interactive ', 'Perfect World Entertainment ', 'Phil Hassey ', 'Phosfiend Systems ', 'Pinkerton Road Studio ', 'Proper Games ', 'Pulsatrix Studios ', 'R8 Games ', 'Razorworks ', 'Red 5 Studios ', 'Red Redemption ', 'Sassybot ', 'Scott Cawthon ', 'Sierra Entertainment ', 'Spaces of Play ', 'Sports Mogul ', 'Stormfront Studios ', 'Sushee ', 'Team2Bit ', 'Team6 Game Studios', 'Throughline Games ', 'Tri Synergy ', 'Tribute Games ', 'Vile Monarch ', 'Whole Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Zoink! ', 'animdude '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
 225/225 [=====] - 17s 76ms/step - loss: 30.9630 - mae: 3.8328 - val_loss: 25.5748 - val_mae: 3.7724
 Epoch 2/20
 225/225 [=====] - 17s 77ms/step - loss: 16.2546 - mae:

2.6117 - val_loss: 23.2761 - val_mae: 3.5429
Epoch 3/20
225/225 [=====] - 17s 76ms/step - loss: 12.6503 - mae:
2.3024 - val_loss: 23.0228 - val_mae: 3.4258
Epoch 4/20
225/225 [=====] - 17s 77ms/step - loss: 10.9876 - mae:
2.0771 - val_loss: 22.1054 - val_mae: 3.3495
Epoch 5/20
225/225 [=====] - 17s 76ms/step - loss: 9.1895 - mae:
1.9313 - val_loss: 21.2173 - val_mae: 3.3267
Epoch 6/20
225/225 [=====] - 17s 77ms/step - loss: 9.1888 - mae:
1.8961 - val_loss: 21.2504 - val_mae: 3.3352
Epoch 7/20
225/225 [=====] - 17s 75ms/step - loss: 8.6753 - mae:
1.8406 - val_loss: 22.8347 - val_mae: 3.4081
Epoch 8/20
225/225 [=====] - 17s 76ms/step - loss: 8.3521 - mae:
1.7761 - val_loss: 20.3732 - val_mae: 3.1656
Epoch 9/20
225/225 [=====] - 17s 76ms/step - loss: 7.9153 - mae:
1.7464 - val_loss: 20.7305 - val_mae: 3.2832
Epoch 10/20
225/225 [=====] - 17s 76ms/step - loss: 7.7715 - mae:
1.6917 - val_loss: 21.5979 - val_mae: 3.3186
Epoch 11/20
225/225 [=====] - 17s 75ms/step - loss: 7.4310 - mae:
1.6369 - val_loss: 21.3402 - val_mae: 3.3537
Epoch 12/20
225/225 [=====] - 17s 75ms/step - loss: 7.2705 - mae:
1.6347 - val_loss: 21.0588 - val_mae: 3.2143
Epoch 13/20
225/225 [=====] - 17s 76ms/step - loss: 6.9886 - mae:
1.5810 - val_loss: 21.0836 - val_mae: 3.2488
Chunk 29/52 // 53.85% Complete // Cycle 2/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Acclaim Studios Manchester ', ' Atari ', ' Atari SA ', ' Buried Signal ', '
Grove Street Games ', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio
', ' MicroProse', ' Mixed Realms ', ' Phosphor Games ', ' SeithCG ', ' Splash
Damage', '4D Rulers ', '@unepic_fran ', 'Acclaim', 'AggroCrab ', 'Astro Port ',
'Atari', 'Atelier Mimina ', 'Bandai Namco Games', 'Barking Dog ', 'Behavior
Studios ', 'Camel 101 ', 'Cat Daddy Games ', 'Chronic Logic ', 'Clever Beans ',
'Coffee Stain North ', 'Covenant.dev ', 'Cypron Studios ', 'Demagog Studio ',
'Devolver Digital ', 'Doinksoft ', 'Feral Cat Den ', 'Fishcow Studio ', 'Flaming
Fowl Studios ', 'Free Lives ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of
a Tale', 'Hasbro Interactive', 'Heatwave Interactive ', 'IllFonic ', 'Jason
```


Roberts', 'Lucid Games ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd', 'Motiga ', 'Old Moon ', 'Old School Games ', 'Phosphor Games Studio', 'Planet Moon Studios ', 'PortaPlay ', 'Radiation Blue ', 'Sick Puppies ', 'Silver Style ', 'Smudged Cat Games ', 'Stuck In Attic ', 'Sushee ', 'The Fullbright Company ', 'Trine Games ', 'Wadjet Eye Games', 'Warner Bros. Interactive Entertainment ', 'Whalebox Studio '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

210/210 [=====] - 16s 76ms/step - loss: 36.6633 - mae: 4.0946 - val_loss: 39.6744 - val_mae: 4.8453

Epoch 2/20

210/210 [=====] - 16s 76ms/step - loss: 22.0169 - mae: 2.8342 - val_loss: 43.4290 - val_mae: 5.2706

Epoch 3/20

210/210 [=====] - 16s 75ms/step - loss: 18.6245 - mae: 2.4763 - val_loss: 44.8137 - val_mae: 5.4928

Epoch 4/20

210/210 [=====] - 16s 75ms/step - loss: 15.6685 - mae: 2.2406 - val_loss: 44.9931 - val_mae: 5.2842

Epoch 5/20

210/210 [=====] - 16s 77ms/step - loss: 14.7666 - mae: 2.0600 - val_loss: 48.1937 - val_mae: 5.6255

Epoch 6/20

210/210 [=====] - 16s 76ms/step - loss: 15.3123 - mae: 2.0690 - val_loss: 48.7602 - val_mae: 5.7829

Chunk 30/52 // 55.77% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Clover Bite ', ' Grove Street Games ', ' GungHo', ' Navegante Entertainment ', ' PopCap ', ' SkyBox Labs ', '10 Chambers Collective ', 'Bromio', 'Caged Element Inc. ', 'Claeys Brothers Arts ', 'Crate Entertainment ', 'Crazy Monkey Studios ', 'Creepy Jar ', 'Cyber Rhino Studios ', 'Daybreak Games ', 'DrinkBox Studios ', 'Funnel Entertainment', 'Gambrinous ', 'Game Arts', 'Game Arts ', 'IGGYMOB ', 'Interactive Stone ', 'Ivy Games LLC ', 'Johnny Dale Lonack ', 'Lazy Bear Games ', 'Massive Damage', 'Muse Games ', 'Neversoft Entertainment', 'Orann ', 'Positech Games ', 'Prideful Sloth ', 'Rebelmind ', 'Rewolf Software ', 'Silent Dreams ', 'TALEROCK ', 'Tom Francis ', 'W!Games ', 'Wizarbox ', 'WorldForge ', 'Yukitama Creative Industries '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

221/221 [=====] - 17s 76ms/step - loss: 18.1283 - mae: 2.9718 - val_loss: 32.9132 - val_mae: 4.0529

Epoch 2/20

221/221 [=====] - 17s 75ms/step - loss: 9.5112 - mae: 2.0865 - val_loss: 39.0300 - val_mae: 4.6481

Epoch 3/20

221/221 [=====] - 17s 76ms/step - loss: 8.2433 - mae: 1.8245 - val_loss: 41.5597 - val_mae: 4.8349

Epoch 4/20

221/221 [=====] - 17s 76ms/step - loss: 6.3257 - mae: 1.6086 - val_loss: 41.1418 - val_mae: 4.9188

Epoch 5/20

221/221 [=====] - 17s 76ms/step - loss: 6.3742 - mae: 1.5258 - val_loss: 42.6595 - val_mae: 4.9236

Epoch 6/20

221/221 [=====] - 17s 77ms/step - loss: 5.8739 - mae: 1.4361 - val_loss: 43.9943 - val_mae: 5.0788

Chunk 31/52 // 57.69% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['343 Industries ', ' Atari SA ', ' Cognosphere ', ' DON'T NOD ', ' Eerie Guest ', ' Hex Entertainment ', ' Ice Cold Games ', ' Novik & Co ', ' Psyop ', ' Targem Games ', ' Transmission Games', ' Vanguard Games ', ' Virtuos ', '343 Industries', '3D People ', 'Amanita Design ', 'Aquiris Game Studio ', 'Arclight Creations ', 'Arkedo Studio ', 'Atari', 'Barking Dog ', 'Benjamin "ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Big Sandwich Games', 'Black Matter ', 'Brain Slap Studio ', 'Buka Entertainment', 'Burut Software ', 'Cat Rabbit ', 'Choice Provisions ', 'Cradle Games ', 'CreativeForge Games ', 'Cryptozoic Entertainment', 'DONTNOD Entertainment', 'Defiant Development ', 'DigiFX Interactive ', 'E-One Studio ', 'EA Bright Light ', 'GFI Russia ', 'Hato Moa ', 'IR Gurus ', 'Ice Code Games', 'Joel Mcdonald ', 'Lucky Pause ', 'Magic Design Studios ', 'Moon Spider Studio ', 'Mosaic Mask ', 'New World Computing ', 'Nival Interactive', 'Paul Helman ', 'Psyop Games', 'Quantic Dream', 'Red Zero Games ', 'Robotality ', 'Saibot Studios ', 'Sam Barlow ', 'Sega AM2 ', 'Silverback Entertainment ', 'Skrollcat Studios ', 'Sluggerfly ', 'Soft Enterprises ', 'Square Enix Montreal ', 'Straandlooper ', 'Sumo Newcastle ', 'Terri Vellimann ', 'Tom Francis ', 'Vanguard', 'Warpzone Studios ', 'inkle ', 'miHoYo', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

216/216 [=====] - 17s 76ms/step - loss: 33.4931 - mae: 3.7399 - val_loss: 25.8747 - val_mae: 3.6927

Epoch 2/20

216/216 [=====] - 17s 76ms/step - loss: 20.1112 - mae: 2.7430 - val_loss: 22.0248 - val_mae: 3.3924

Epoch 3/20

216/216 [=====] - 16s 76ms/step - loss: 18.6239 - mae: 2.4824 - val_loss: 22.6432 - val_mae: 3.4880

Epoch 4/20

216/216 [=====] - 16s 76ms/step - loss: 15.4319 - mae: 2.2464 - val_loss: 22.3915 - val_mae: 3.5691

Epoch 5/20

216/216 [=====] - 16s 75ms/step - loss: 15.0282 - mae:

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2.1431 - val_loss: 22.7539 - val_mae: 3.5128
Epoch 6/20
216/216 [=====] - 16s 76ms/step - loss: 13.4345 - mae:
2.0060 - val_loss: 23.5006 - val_mae: 3.7239
Epoch 7/20
216/216 [=====] - 16s 76ms/step - loss: 14.0053 - mae:
1.9881 - val_loss: 21.8191 - val_mae: 3.4377
Epoch 8/20
216/216 [=====] - 16s 75ms/step - loss: 13.7317 - mae:
1.9373 - val_loss: 24.0376 - val_mae: 3.7659
Epoch 9/20
216/216 [=====] - 16s 75ms/step - loss: 12.6434 - mae:
1.8076 - val_loss: 24.9450 - val_mae: 3.8731
Epoch 10/20
216/216 [=====] - 16s 76ms/step - loss: 11.8363 - mae:
1.7606 - val_loss: 24.4853 - val_mae: 3.8944
Epoch 11/20
216/216 [=====] - 16s 76ms/step - loss: 10.8858 - mae:
1.7079 - val_loss: 24.3063 - val_mae: 3.8163
Epoch 12/20
216/216 [=====] - 16s 76ms/step - loss: 11.7841 - mae:
1.7362 - val_loss: 24.2167 - val_mae: 3.8274
Chunk 32/52 // 59.62% Complete // Cycle 2/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' Beamdog', ' Bloom Technology ', ' Blueside ', ' Crema
Games ', ' Davit Andreasyan ', ' Easy Trigger Games ', ' Katuri Interactive ', '
Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' Most Wanted Entertainment ', '
Overhaul Games ', ' Pine Scented Software ', ' PixelHive ', ' Spike Chunsoft ',
' Squad ', ' Voidpoint', '1C Entertainment', '1C-Softclub ', '3D Realms', '4X
Studios ', 'Action Squad Studios ', 'Appaloosa Interactive ', 'Artifact
Entertainment ', 'Artifex Mundi ', 'Artificial Mind and Movement ', 'Ascendant
Studios ', 'Askiiisoft ', 'Berzerk Studio ', 'Big Red Software ', 'Black Isle
Studios', 'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Bossa Studios
', 'Browsome ', 'Bulwark Studios ', 'ByteRockers' Games ', 'Cardboard Box
Entertainment ', 'Cardboard Computer ', 'Casey Donnellan Games LLC ',
'ChaosForge ', 'Clifftop Games ', 'Coffee Stain Studios', 'Conifer Games ',
'CremaGames', 'Critique Gaming ', 'Daniel Mullins Games ', 'Dark Energy Digital
', 'Digital Arrow ', 'Dirigo Games ', 'Dreadbit ', 'EKO Software ', 'Empyrean ',
'Fiddlesticks Games ', 'Final Form Games', 'Foolish Mortals Games ', 'Forge
Reply ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ', 'Galilea
Multimedia ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'HD Interactive',
'HandyGames ', 'Happy Ray Games ', 'Hidden Layer Games ', 'Hollow Ponds and
Richard Hogg ', 'IMGN.PRO ', 'Iceberg Interactive', 'In Utero ', 'Innerloop ',
'Joakim Sandberg', 'Juice Games ', 'Jump Over The Age ', 'Kaiko ', 'Katauri
Interactive', 'Koboldgames ', 'Kyle Thompson ', 'L30 Interactive ', 'Lab Zero
Games ', 'Lion Shield', 'Lo-Fi Games ', 'Lucky Mountain Games ', 'M2H',

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'MONKEYCRAFT Co. Ltd. ', 'Metropolis Software ', 'Micro Application ', 'Mission Studios ', 'Mojo Bones ', 'Moonlight Games ', 'NExT Studios ', 'Namco ', 'Necrophone ', 'Nemesys ', 'No Brakes Games ', 'Northway Games ', 'Nullpointer Games ', 'Palindrome Interactive ', 'Particle Systems ', 'Phantagram', 'PolyKnight Games ', 'Primal Software ', 'QLOC ', 'Rage Software ', 'Rocket Bear Games ', 'SQUADTeam', 'Sam Barlow ', 'Shanghai FantaBlade Network Technology Co.', 'Sir-Tech Software Inc. ', 'So Romantic ', 'Somnium Games d.o.o. ', 'Spike Chunsoft Co. Ltd.', 'Squad ', 'Studio Pixel ', 'SumomGames ', 'Superbrothers', 'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'The Odd Gentlemen ', 'Tokyo RPG Factory ', 'Tomorrow Corporation ', 'TreeFortress Games ', 'True Axis ', 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vox Game Studio', 'We Create Stuff ', 'Wicked Studios ', 'X1 Software ', 'Zachtronics Industries ', 'dreamfeel '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

225/225 [=====] - 18s 77ms/step - loss: 36.2867 - mae: 4.0853 - val_loss: 57.4792 - val_mae: 5.5512

Epoch 2/20

225/225 [=====] - 17s 76ms/step - loss: 21.0722 - mae: 2.9949 - val_loss: 61.0886 - val_mae: 5.6283

Epoch 3/20

225/225 [=====] - 17s 76ms/step - loss: 17.9824 - mae: 2.7142 - val_loss: 61.9226 - val_mae: 5.6982

Epoch 4/20

225/225 [=====] - 17s 76ms/step - loss: 15.8732 - mae: 2.5432 - val_loss: 64.1494 - val_mae: 5.7219

Epoch 5/20

225/225 [=====] - 17s 76ms/step - loss: 16.3045 - mae: 2.4577 - val_loss: 62.7967 - val_mae: 5.6548

Epoch 6/20

225/225 [=====] - 17s 75ms/step - loss: 15.6703 - mae: 2.3528 - val_loss: 63.5966 - val_mae: 5.7056

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 33/52 // 61.54% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

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packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Black Sea Games ', ' Boss Key Productions ', ' Deck Nine Games ', ' Infogrames', ' Jujubee S.A. ', ' Kaiko ', ' MONKEYCRAFT Co. Ltd. ', ' Melbourne House ', ' Movie Games ', ' Novacore Studios ', ' Slitherine Group ', ' Team Reptile ', ' UNKNOWN GAMES ', ' Xaviant ', ' Activision ', ' Almost Human ', ' Altari Games ', ' Amanita Design ', ' Animation Arts ', ' Asteroid Base ', ' Atari', ' Aterdux

Entertainment ', 'BLOODIOUS GAMES ', 'Bandai Namco Games', 'Behold Studios ',
 'Bishop Games ', 'Bitbox Ltd. ', 'Black Sea Studios', 'Black Sea Studios ',
 'Boss Key', 'BudCat ', 'Cauldron Ltd. ', 'Clever-Plays ', 'ClockStone Studio ',
 'Codo Games ', 'Core Design Ltd. ', 'CrazyBunch ', 'DONTNOD Entertainment',
 'Dingaling ', 'Duckbridge ', 'Elastic Games ', 'Evan Todd ', 'Foam Sword ',
 'Four Quarters ', 'Gamious ', 'Geeta Games ', 'Geniaware ', 'Goblinz Studio ',
 'Grundislav Games ', 'HappyJuice Games ', 'Hollow Ponds ', 'Ice-Pick Lodge ',
 'Impressions Games ', 'Infinite Monkeys ', 'Jujubee', 'Just A Pixel ', 'KDV
 Games ', 'Kuma Reality Games ', 'Kyy Games ', 'Lantern Studio ', 'Left Behind
 Games ', 'Lichthund ', 'Light Brick ', 'Love Conquers All Games ', 'M2', 'Master
 Creating ', 'Mirage Game Studios ', 'Modern Dream ', 'Mooneye Studios ', 'Movie
 Games ', 'Movie Games S.A.', 'Neon Studios', 'NetDevil ', 'Nfusion ', 'Nigoro ',
 'Numantian Games ', 'Ocean Drive Studio ', 'Ovosonico ', 'Parabole ', 'Pieces
 Interactive ', 'Playful Corp. ', 'Pollux Gamelabs ', 'Rapid Eye Entertainment ',
 'Ratbag ', 'Ratloop Games Canada ', 'Razbor Studios ', 'Ready at Dawn ',
 'Reflexive Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ',
 'SEMISOFT ', 'Shiver Games ', 'Silverback Studios ', 'Size Five Games ',
 'Sketchbook Games ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Stage 2
 Studios', 'State of Play Games ', 'Tangrin ', 'The Chinese Room ', 'Third Law
 Interactive ', 'Thomas van den Berg ', 'Tokyo RPG Factory ', 'Tomorrow
 Corporation ', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Tunnel Vision Games ',
 'TurtleBlaze ', 'Variable State ', 'Velan Studios ', 'Visual Concepts ',
 'Vlambeer ', 'Wild Factor ', 'Xaviant Games', 'Yakov Butuzoff ', 'Zoink! ',
 'eBrain Studio ', 'straka.studio ', 'superflat games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
 distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
 recently (threshold: 10%)
 distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
 recently (threshold: 10%)

Epoch 1/20

220/220 [=====] - 17s 75ms/step - loss: 32.6904 - mae:
 3.6904 - val_loss: 29.7953 - val_mae: 4.2400

Epoch 2/20

220/220 [=====] - 17s 76ms/step - loss: 22.7474 - mae:
 2.9237 - val_loss: 28.3252 - val_mae: 4.2041

Epoch 3/20

220/220 [=====] - 17s 77ms/step - loss: 19.5149 - mae:
 2.6412 - val_loss: 27.0805 - val_mae: 4.1625

Epoch 4/20

220/220 [=====] - 17s 76ms/step - loss: 18.2117 - mae:
 2.4582 - val_loss: 26.2811 - val_mae: 4.1435

Epoch 5/20

220/220 [=====] - 17s 75ms/step - loss: 17.1360 - mae:
 2.3556 - val_loss: 25.9670 - val_mae: 4.0967

Epoch 6/20

220/220 [=====] - 17s 75ms/step - loss: 15.4993 - mae:
 2.2412 - val_loss: 25.2457 - val_mae: 4.0959

```

Epoch 7/20
220/220 [=====] - 17s 76ms/step - loss: 15.4011 - mae:
2.2011 - val_loss: 25.6263 - val_mae: 4.1045
Epoch 8/20
220/220 [=====] - 17s 76ms/step - loss: 14.0062 - mae:
2.0957 - val_loss: 24.9562 - val_mae: 4.1391
Epoch 9/20
220/220 [=====] - 17s 77ms/step - loss: 13.4843 - mae:
2.0544 - val_loss: 24.3364 - val_mae: 4.0299
Epoch 10/20
220/220 [=====] - 17s 75ms/step - loss: 13.4092 - mae:
1.9998 - val_loss: 23.6186 - val_mae: 3.9013
Epoch 11/20
220/220 [=====] - 17s 75ms/step - loss: 13.6278 - mae:
2.0110 - val_loss: 24.2479 - val_mae: 4.0542
Epoch 12/20
220/220 [=====] - 17s 77ms/step - loss: 12.6151 - mae:
1.9493 - val_loss: 23.4617 - val_mae: 3.9656
Epoch 13/20
220/220 [=====] - 17s 75ms/step - loss: 12.6180 - mae:
1.9083 - val_loss: 22.8736 - val_mae: 3.8839
Epoch 14/20
220/220 [=====] - 17s 76ms/step - loss: 12.0919 - mae:
1.8751 - val_loss: 22.3465 - val_mae: 3.8518
Epoch 15/20
220/220 [=====] - 16s 75ms/step - loss: 11.2318 - mae:
1.8037 - val_loss: 23.1647 - val_mae: 3.9025
Epoch 16/20
220/220 [=====] - 16s 75ms/step - loss: 11.8025 - mae:
1.8032 - val_loss: 22.1017 - val_mae: 3.8379
Epoch 17/20
220/220 [=====] - 17s 76ms/step - loss: 11.5917 - mae:
1.7879 - val_loss: 22.2780 - val_mae: 3.8539
Epoch 18/20
220/220 [=====] - 17s 76ms/step - loss: 10.7093 - mae:
1.7116 - val_loss: 20.0512 - val_mae: 3.6246
Epoch 19/20
220/220 [=====] - 17s 75ms/step - loss: 9.8966 - mae:
1.6444 - val_loss: 21.7321 - val_mae: 3.7942
Epoch 20/20
220/220 [=====] - 17s 76ms/step - loss: 10.9995 - mae:
1.7176 - val_loss: 21.3182 - val_mae: 3.7619
Chunk 34/52 // 63.46% Complete // Cycle 2/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Ino-Co', 'Anim-X ', 'Borealis Games ', 'Charybdis ', 'Cyberlore Studios ', 'FASA
Studio ', 'Finish Line Games ', 'GameSourceStudio ', 'Gazillion ', 'Graceful

```

Decay ', 'Guru Games ', 'Himalaya Studios ', 'Holistic Design', 'InterServ International ', 'LKA ', 'Leaping Lizard Software Inc. ', 'Locomalito ', 'MuHa Games ', 'Muzzy Lane Software ', 'NGD Studios ', 'Oldblood ', 'Paradox North ', 'Passtech Games ', 'Pieces Interactive ', 'Piranha Games ', 'Press Play ', 'Quicksilver Software ', 'Sanzaru Games ', 'Secret Level ', 'Sileni Studios ', 'SimTex ', 'Wales Interactive ', 'William Chyr Studio LLC ', 'Wizards of the Coast ']' will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

227/227 [=====] - 17s 75ms/step - loss: 29.2934 - mae: 3.4257 - val_loss: 21.2205 - val_mae: 3.9563

Epoch 2/20

227/227 [=====] - 17s 75ms/step - loss: 17.1838 - mae: 2.3465 - val_loss: 19.3599 - val_mae: 3.8085

Epoch 3/20

227/227 [=====] - 17s 76ms/step - loss: 14.2801 - mae: 2.0196 - val_loss: 18.1456 - val_mae: 3.7532

Epoch 4/20

227/227 [=====] - 17s 76ms/step - loss: 13.7210 - mae: 1.8729 - val_loss: 17.4661 - val_mae: 3.6472

Epoch 5/20

227/227 [=====] - 17s 77ms/step - loss: 13.0063 - mae: 1.7788 - val_loss: 17.0276 - val_mae: 3.6068

Epoch 6/20

227/227 [=====] - 17s 76ms/step - loss: 13.6537 - mae: 1.7633 - val_loss: 16.4927 - val_mae: 3.4906

Epoch 7/20

227/227 [=====] - 17s 75ms/step - loss: 12.0931 - mae: 1.6565 - val_loss: 17.1670 - val_mae: 3.6127

Epoch 8/20

227/227 [=====] - 17s 75ms/step - loss: 11.9258 - mae: 1.5674 - val_loss: 17.4651 - val_mae: 3.6318

Epoch 9/20

227/227 [=====] - 17s 75ms/step - loss: 12.1284 - mae: 1.5892 - val_loss: 16.6303 - val_mae: 3.5279

Epoch 10/20

227/227 [=====] - 17s 76ms/step - loss: 12.1354 - mae: 1.5921 - val_loss: 15.9737 - val_mae: 3.4056

Epoch 11/20

227/227 [=====] - 17s 75ms/step - loss: 12.7790 - mae: 1.6063 - val_loss: 16.2335 - val_mae: 3.4468

Epoch 12/20

227/227 [=====] - 17s 76ms/step - loss: 10.7824 - mae: 1.4608 - val_loss: 15.9559 - val_mae: 3.3473

Epoch 13/20

227/227 [=====] - 17s 76ms/step - loss: 11.6307 - mae: 1.4910 - val_loss: 15.7566 - val_mae: 3.3844

```

Epoch 14/20
227/227 [=====] - 17s 75ms/step - loss: 11.4872 - mae:
1.4559 - val_loss: 14.9189 - val_mae: 3.2770
Epoch 15/20
227/227 [=====] - 17s 75ms/step - loss: 12.0988 - mae:
1.4745 - val_loss: 15.6432 - val_mae: 3.4237
Epoch 16/20
227/227 [=====] - 17s 75ms/step - loss: 11.7905 - mae:
1.4809 - val_loss: 15.8135 - val_mae: 3.3391
Epoch 17/20
227/227 [=====] - 17s 75ms/step - loss: 11.2715 - mae:
1.4283 - val_loss: 15.0141 - val_mae: 3.2743
Epoch 18/20
227/227 [=====] - 17s 75ms/step - loss: 10.9338 - mae:
1.4032 - val_loss: 16.5242 - val_mae: 3.4151
Epoch 19/20
227/227 [=====] - 17s 75ms/step - loss: 10.6986 - mae:
1.3848 - val_loss: 16.7747 - val_mae: 3.4772
Chunk 35/52 // 65.38% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' Bullets ', ' Centauri Production ', ' Dreamworks Games ', ' Eyeguys ', '
French-Bread ', ' General Arcade ', ' Ministry of Broadcast Studios ', ' Now
Production', ' Rockstar San Diego ', ' Studio Fizbin ', ' Team Reptile ', '
Tribute Games Inc. ', '1C-Softclub ', 'Angel Studios', 'Bit Byterz ', 'Blastmode
', 'Bombservice ', 'Carlos Coronado ', 'Cinemax', 'Devolver Digital ', 'Digital
Dialect ', 'Digital Eclipse ', 'Dinosaur Polo Club ', 'EA LA', 'Ecole',
'Fizbin', 'From Software', 'Half Asleep ', 'Homeless Unicorn', 'Inti Creates ',
'IonFX ', 'Jacob Dzwinel ', 'KCEJ ', 'Keen Software House ', 'Kuju Entertainment
', 'Lorenzo Redaelli', 'Piranha Games ', 'Red Rocket Games ', 'Render Cube ',
'Reptile', 'Rockstar San Diego ', 'Saturn+ ', 'Supersonic Software ', 'THQ',
'TKO Software ', 'The Outsiders ', 'Tribute Games', 'Twice Circled ', 'Virtuos
', 'Zono Inc. '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
210/210 [=====] - 16s 75ms/step - loss: 19.1958 - mae:
2.9257 - val_loss: 16.6982 - val_mae: 3.3257
Epoch 2/20
210/210 [=====] - 16s 75ms/step - loss: 10.3853 - mae:
2.0180 - val_loss: 17.3685 - val_mae: 3.5216
Epoch 3/20
210/210 [=====] - 16s 75ms/step - loss: 8.2728 - mae:
1.7326 - val_loss: 18.1751 - val_mae: 3.5346
Epoch 4/20
210/210 [=====] - 16s 76ms/step - loss: 7.1689 - mae:
1.5413 - val_loss: 17.5075 - val_mae: 3.4806
Epoch 5/20

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210/210 [=====] - 16s 75ms/step - loss: 6.8569 - mae: 1.4627 - val_loss: 17.7300 - val_mae: 3.5546

Epoch 6/20

210/210 [=====] - 16s 76ms/step - loss: 6.7511 - mae: 1.4149 - val_loss: 17.9455 - val_mae: 3.5181

Chunk 36/52 // 67.31% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['10tons ', ' Application Systems Heidelberg ', ' Awesome Games Studio ', ' BeautiFun Games ', ' BlackMuffin Studio', ' Char & Torfi ', ' Digital Sun ', ' EA Singapore ', ' Fair Play Labs ', ' Funatics ', ' Funatics Software', ' Honor Code', ' Immersion Software & Graphics ', ' Monkey Moon ', ' Muutsch', ' Playsport Games Ltd ', ' Pol', ' Russia ', ' Soleil', ' Soleil Ltd. ', ' StudioInkyfox ', ' Thomas Brush ', ' Toylogic ', ' Varkian Empire ', '10tons Entertainment', '11 bit studios', '24 Entertainment ', '3A Games ', 'Alcachofa Soft ', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios', 'Arxel Tribe ', 'Avalon Style ', 'AwesomeGamesStudio', 'BEAUTIFUN GAMES SL', 'Beautiful Glitch ', 'Big Ape Productions ', 'Black Mermaid ', 'Black Pants Studio ', 'Blazing Bit Games ', 'Blazing Griffin ', 'Blue Bottle Games ', 'Broken Rules ', 'Capricia Productions ', 'Chance Agency ', 'Coffee Powered Machine ', 'Connor Ullmann ', 'Cornfox & Bros. ', 'Crunching Koalas ', 'CyberConnect2', 'Deep Red ', 'Delphine Software International ', 'Detalion ', 'Die Gute Fabrik ', 'Diversions Entertainment ', 'DrinkBox Studios ', 'EA Black Box', 'EA Seattle ', 'Eutechnyx ', 'Funatics Development GmbH', 'Future Games ', 'Geography of Robots ', 'Gojira ', 'Grip Digital ', 'Harebrained Schemes LLC ', 'Hidden Fields ', 'Housemarque ', 'Humongous Entertainment ', 'Hydravision ', 'ILCA', 'Idol FX ', 'In Utero ', 'Infinitap Games ', 'Infinite Fall ', 'Interwave Studios ', 'John Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games ', 'Just Add Water ', 'Kitfox Games ', 'Kuju Entertainment ', 'LCB Game Studio ', 'Le Cartel Studio ', 'Level 5 ', 'Lexis Numerique ', 'Limasse Five ', 'Ludosity Interactive', 'Max Mraz ', 'Mayhem Studios ', 'Messhof ', 'Metronomik ', 'Mithis/HD Interactive ', 'Mohawk Games ', 'Monster Games Inc. ', 'NUDE MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No Code ', 'Nolla Games ', 'NotGames ', 'Nowhere Studios ', 'Oddworld Inhabitants ', 'Ossian Studios ', 'Panic Barn Ltd ', 'Papyrus ', 'Pathea Games ', 'Phosphor Games Studio', 'Picaresque Studio ', 'Pinkerton Road Studio ', 'Player First Games ', 'Playsport Games', 'Pocketwatch Games ', 'Polypusher Studios ', 'Presto Studios ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury', 'Red Herring Labs ', 'Related Designs ', 'Renegade Kid ', 'Rock Pocket Games ', 'Rocket Science Games ', 'Rogue Factor ', 'Route 59 Games ', 'SMG Studio ', 'Santa Ragione ', 'Screaming Games ', 'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ', 'Shiro Games ', 'Silver Dollar Games ', 'Skeleton Crew Studio ', 'Space Dust Studios', 'Spearhead Games ', 'Still Running ', 'Studio Koba ', 'Sunnyside Games ', 'Tamssoft ', 'Team Oneshot ', 'Team Shifty ', 'Termite Games ', 'Thomas Moon Kang ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic Inc.', 'Triternion ', 'Turbo Tape Games ', 'Uber Entertainment ', 'Unigine Corp', 'Untame ', 'Upper One Games ', 'Veewo Games ', 'Vile Monarch ', 'Visual Concepts ', 'Vlambeer ',

'White Birds Productions ', 'Y.K. ', 'ZANDEL MEDIA ', 'roll7 ', 'tiny Build GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

220/220 [=====] - 17s 76ms/step - loss: 32.8850 - mae: 3.9869 - val_loss: 29.2054 - val_mae: 4.2657

Epoch 2/20

220/220 [=====] - 17s 76ms/step - loss: 22.1940 - mae: 3.1718 - val_loss: 25.8302 - val_mae: 3.9581

Epoch 3/20

220/220 [=====] - 17s 76ms/step - loss: 19.0207 - mae: 2.8597 - val_loss: 24.5280 - val_mae: 3.8456

Epoch 4/20

220/220 [=====] - 17s 75ms/step - loss: 16.6370 - mae: 2.6755 - val_loss: 24.2017 - val_mae: 3.7999

Epoch 5/20

220/220 [=====] - 17s 75ms/step - loss: 14.8499 - mae: 2.4963 - val_loss: 23.1550 - val_mae: 3.7496

Epoch 6/20

220/220 [=====] - 17s 75ms/step - loss: 13.8587 - mae: 2.3570 - val_loss: 21.4052 - val_mae: 3.5763

Epoch 7/20

220/220 [=====] - 17s 76ms/step - loss: 13.2269 - mae: 2.2648 - val_loss: 22.7301 - val_mae: 3.6497

Epoch 8/20

220/220 [=====] - 16s 75ms/step - loss: 13.0653 - mae: 2.2227 - val_loss: 22.7706 - val_mae: 3.7155

Epoch 9/20

220/220 [=====] - 16s 75ms/step - loss: 12.3654 - mae: 2.2094 - val_loss: 22.7098 - val_mae: 3.6873

Epoch 10/20

220/220 [=====] - 17s 75ms/step - loss: 13.6425 - mae: 2.2166 - val_loss: 22.8360 - val_mae: 3.7314

Epoch 11/20

220/220 [=====] - 17s 75ms/step - loss: 11.6213 - mae: 2.0714 - val_loss: 22.4147 - val_mae: 3.6395

Chunk 37/52 // 69.23% Complete // Cycle 2/3

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packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Bigben Games ', ' Bigben Interactive', ' Minority Media Inc. ', ' Sproing ', ' Xeen ', 'Alter Games ', 'Appeal', 'Black Shamrock ', 'Clever Plays ', 'Continuum ', 'Finji ', 'Flashback Games ', 'Galilea Multimedia ', 'Gaming Minds Studios ', 'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games ', 'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque', 'Ice-Pick Lodge ', 'IzHard ', 'Jacob Janerka ', 'Kaizen Game Works ', 'Lesta Studio ', 'Lightbulb Crew ', 'Lucas Pope ', 'Mad Head Games ', 'Mi-Clos Studio ', 'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist Land ', 'Namco Bandai

Games ', 'Nerd Monkeys ', 'Nerial ', 'Now Production', 'Osmotic Studios ', 'Out Of The Park Developments ', 'Owlcat Games ', 'Patrick Traynor ', 'Phantom 8 ', 'Phantomery Interactive ', 'Pinokl Games ', 'PolyAmorous ', 'Proxy Studios ', 'R8 Games ', 'Revival Productions', 'Robotality ', 'SEK Ost ', 'SSI ', 'Shining Pixel Studios ', 'Sproing Interactive Media', 'The Artistocrats ', 'The Lordz Games Studio ', 'Tribute Games ', 'Ultra Runaway Games ', 'White Birds Productions ', 'Zordix Racing '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

223/223 [=====] - 17s 76ms/step - loss: 24.0535 - mae: 2.8668 - val_loss: 18.4385 - val_mae: 2.9101

Epoch 2/20

223/223 [=====] - 17s 75ms/step - loss: 12.5538 - mae: 1.9583 - val_loss: 16.9838 - val_mae: 2.8027

Epoch 3/20

223/223 [=====] - 17s 76ms/step - loss: 9.7986 - mae: 1.7055 - val_loss: 16.2188 - val_mae: 2.8841

Epoch 4/20

223/223 [=====] - 17s 75ms/step - loss: 8.4127 - mae: 1.5344 - val_loss: 17.7451 - val_mae: 2.8843

Epoch 5/20

223/223 [=====] - 17s 75ms/step - loss: 7.4901 - mae: 1.4126 - val_loss: 17.3586 - val_mae: 2.9655

Epoch 6/20

223/223 [=====] - 17s 76ms/step - loss: 7.0197 - mae: 1.3220 - val_loss: 17.6161 - val_mae: 2.9407

Epoch 7/20

223/223 [=====] - 17s 75ms/step - loss: 6.7963 - mae: 1.3073 - val_loss: 17.1905 - val_mae: 2.9090

Epoch 8/20

223/223 [=====] - 17s 75ms/step - loss: 6.2665 - mae: 1.2512 - val_loss: 16.7825 - val_mae: 2.8916

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 38/52 // 71.15% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['AGEOD ', ' Gaming Minds Studios ', ' Planetary Annihilation Inc ', ' Q-Games ', '7 Studios ', 'Adrian Lazar ', 'Beamdog ', 'Beatnik Games ', 'Chasing Carrots ', 'Cloudhead Games ', 'CreativeForge Games ', 'Cyberlore Studios ', 'Daniel Mullins Games ', 'Disney Online ', 'Double Eleven', 'Double Eleven ', 'Dry Cactus ', 'Fabled Game ', 'Flying Lab Software ', 'FuturLab ', 'Gaming Minds Studios ', 'ION LANDS ', 'IllFonic ', 'Impressions Games ', 'K-D Lab ', 'Lukewarm Media ', 'Mages. ', 'Might and Delight ', 'Object ', 'Paradox Interactive', 'Pasta Games ', 'Polyslash ', 'RichMakeGame ', 'Running Dog ', 'Sectordub ', 'Snapshot Games Inc. ', 'SoftWarWare ', 'Stormfront Studios ',

'The Behemoth ', 'The Deep End Games ', 'Thomas Brush ', 'Tlon Studios ', 'Torus Games ', 'Tour De Pizza ', 'Triskell Interactive ', 'Uber Entertainment', 'Visiware Studios ', 'Voracious Games ', 'Wastelands Interactive ', 'Wishfully ', 'Wormwood Studios ', 'YCJY Games ', 'Zeboyd Games ', 'ZootFly ', 'nDreams ', 'niceplay games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

230/230 [=====] - 18s 77ms/step - loss: 25.8715 - mae: 3.1304 - val_loss: 23.0633 - val_mae: 3.3892

Epoch 2/20

230/230 [=====] - 17s 75ms/step - loss: 15.0349 - mae: 2.1399 - val_loss: 24.0324 - val_mae: 3.8549

Epoch 3/20

230/230 [=====] - 17s 76ms/step - loss: 12.1276 - mae: 1.9042 - val_loss: 24.7124 - val_mae: 3.9444

Epoch 4/20

230/230 [=====] - 17s 76ms/step - loss: 10.8525 - mae: 1.7973 - val_loss: 24.4485 - val_mae: 3.9422

Epoch 5/20

230/230 [=====] - 17s 74ms/step - loss: 9.6000 - mae: 1.6801 - val_loss: 23.7984 - val_mae: 3.9944

Epoch 6/20

230/230 [=====] - 17s 76ms/step - loss: 9.4174 - mae: 1.5886 - val_loss: 23.1121 - val_mae: 3.9997

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 39/52 // 73.08% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Bounding Box Games ', ' Double Damage Games ', ' Hi Corp ', ' KTX Software ', ' MachineGames ', ' Pixel Pi Games ', ' Team Ladybug ', ' WSS Playground', '2 Dawn Games ', '34BigThings ', 'Abbey Games ', 'Atomic Motion ', 'Big Star Games ', 'Black Rock Studio ', 'Blendo Games ', 'Buckshot Software ', 'Camouflaj', 'Cococucumber ', 'Core Design Ltd. ', 'Creat Studios ', 'Doctor Entertainment ', 'Double Damage Games', 'Double Damage Games ', 'EasyGameStation ', 'Ed Key and David Kanaga ', 'Flippfly ', 'Flying Lab Software ', 'Freeform Interactive LLC ', 'Frostwood Interactive ', 'Gaming Minds Studios ', 'Ice Flames ', 'Infamous Quests ', 'Innerloop ', 'Interceptor Entertainment ', 'Ironward ', 'Jujubee S.A.

', 'Kuju Entertainment ', 'Laura Shigihara ', 'Lazy Bear Games ', 'Lionbite Games ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Mighty Polygon ', 'Mike and Jason', 'NG:DEV.TEAM', 'Nerial ', 'Nexus Game Studio ', 'Nicolas Meyssonnier ', 'Nodding Heads Games ', 'NuClearVision ', 'Old School Games ', 'Outrage Games ', 'Phigames ', 'Pixelated Milk ', 'Plastic Piranha ', 'Radon Labs ', 'RailSimulator.com ', 'Rival Interactive ', 'Sector D2 ', 'Sobaka ', 'SomaSim ', 'Stormind Games ', 'Sundae Month ', 'Survios ', 'Team Pixel Pi', 'The Bae Team ', 'The Tiniest Shark ', 'Three Rings ', 'Toxic Games ', 'Ublart Montpellier ', 'Vertical Robot ', 'Videocult ', 'Vladimir Kudelka ', 'Volatile Games ', 'Why so serious?', 'Wizarbox ', 'Yanim Studio ', 'comcept '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

212/212 [=====] - 16s 76ms/step - loss: 30.2932 - mae: 3.5739 - val_loss: 23.8039 - val_mae: 3.5248

Epoch 2/20

212/212 [=====] - 16s 75ms/step - loss: 18.5467 - mae: 2.6924 - val_loss: 19.0998 - val_mae: 3.1413

Epoch 3/20

212/212 [=====] - 16s 75ms/step - loss: 16.1652 - mae: 2.3551 - val_loss: 17.6320 - val_mae: 2.8958

Epoch 4/20

212/212 [=====] - 16s 76ms/step - loss: 13.2682 - mae: 2.1362 - val_loss: 19.8518 - val_mae: 3.2894

Epoch 5/20

212/212 [=====] - 16s 76ms/step - loss: 11.7066 - mae: 1.9128 - val_loss: 17.7455 - val_mae: 3.1284

Epoch 6/20

212/212 [=====] - 16s 76ms/step - loss: 10.8026 - mae: 1.8041 - val_loss: 17.5395 - val_mae: 3.1003

Epoch 7/20

212/212 [=====] - 16s 75ms/step - loss: 10.7172 - mae: 1.7696 - val_loss: 18.4042 - val_mae: 3.2501

Epoch 8/20

212/212 [=====] - 16s 76ms/step - loss: 9.2409 - mae: 1.6473 - val_loss: 18.6105 - val_mae: 3.2435

Epoch 9/20

212/212 [=====] - 16s 77ms/step - loss: 9.1375 - mae: 1.6076 - val_loss: 16.1127 - val_mae: 3.0011

Epoch 10/20

212/212 [=====] - 16s 75ms/step - loss: 8.9816 - mae: 1.5986 - val_loss: 17.4686 - val_mae: 3.0942

Epoch 11/20

212/212 [=====] - 16s 75ms/step - loss: 8.9481 - mae: 1.5562 - val_loss: 17.2961 - val_mae: 3.1134

Epoch 12/20

212/212 [=====] - 16s 76ms/step - loss: 7.7905 - mae: 1.4821 - val_loss: 15.9176 - val_mae: 2.9723

Epoch 13/20

212/212 [=====] - 16s 75ms/step - loss: 8.4274 - mae: 1.5309 - val_loss: 17.1555 - val_mae: 3.1265

Epoch 14/20

212/212 [=====] - 16s 76ms/step - loss: 8.0223 - mae: 1.4565 - val_loss: 17.0057 - val_mae: 3.1905

Epoch 15/20

212/212 [=====] - 16s 76ms/step - loss: 6.9581 - mae: 1.3985 - val_loss: 17.9038 - val_mae: 3.2478

Epoch 16/20

212/212 [=====] - 16s 75ms/step - loss: 7.0743 - mae: 1.3777 - val_loss: 18.0687 - val_mae: 3.2454

Epoch 17/20

212/212 [=====] - 16s 75ms/step - loss: 7.0169 - mae: 1.3849 - val_loss: 18.4976 - val_mae: 3.2439

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Chunk 40/52 // 75.0% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Animation Arts ', ' Devoured Studios ', ' Engine Software ', ' Gamasoft ', ' Hopoo Games ', ' Introversion Software ', ' Jo-Mei Games ', ' Leikir Studio ', ' Mixed Realms ', ' Monstars Inc.', ' Omen ', ' Resonair ', ' Stainless Steel Studios ', ' Studio 369 ', ' Studio Fizbin ', ' Super Awesome Hyper Dimensional Mega Team ', '5 Lives Studios ', '5TH Cell ', 'Abbey Games ', 'Abrakam SA ', 'Amanita Design ', 'Animation Arts ', 'Antimatter Games ', 'Arberth Studios ', 'Artifice Studio ', 'Atomic Planet Entertainment ', 'Beau Blyth ', 'Broken Rules ', 'CCR', 'Cadenza ', 'Cellar Door Games ', 'Chucklefish', 'Creative Bytes ', 'DAMAGE STATE LTD ', 'Dapper Penguin Studios ', 'Dark Seas Games ', 'Denby / Raze ', 'Digixart Entertainment', 'Digixart Entertainment ', 'DreamCatcher Interactive ', 'Ebb Software ', 'Edelweiss ', 'Egidijus Bachur ', 'Facepunch Studios ', 'Final Strike Games ', 'Fizbin', 'Flying Oak Games ', 'Free Radical Design ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Gabriel Interactive ', 'HAKAMA ', 'Housemarque ', 'Human Head Studios', 'Introversion', 'Italic Pig ', 'Jutsu Games ', 'Koei ', 'LGK Games ', 'Lucas Pope ', 'Ludeon Studios ', 'Mad Head Games ', 'Master Creating ', 'Midway', 'Mixed Realms Pte Ltd', 'Morgondag ', 'Mystic Box ', 'Naked Sky Entertainment ', 'No Goblin ', 'Nucleosys ', 'Nvizzio Creations ', 'Owlchemy Labs ', 'Phantom Compass ', 'Polygon Treehouse ', 'Puppy Games ', 'Recoil Games ', 'Red Ego Games ', 'Reikon Games ', 'Robot House ', 'Runewaker Entertainment ', 'SNK Corporation ', 'Sabotage Studio ', 'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Shed-Works ', 'Ska

Studios', 'Skunkape Games ', 'Slant Six ', 'Softlab-NSK ', 'SouthPeak Games ', 'Southend Interactive ', 'Spellbind Studios ', 'Sperasoft ', 'Spry Fox ', 'Super Mega Team', 'Swing Swing Submarine ', 'TickTock Games ', 'Tomasz Wacławek ', 'Torched Hill ', 'Totally Games ', 'Twice Different ', 'Two Tribes ', 'UGA', 'Uprising Studios ', 'Vblank Entertainment Inc. ', 'XYLA Entertainment ', 'Youxiland', 'neoqb ', 'roll7 ', 'xii games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

221/221 [=====] - 17s 76ms/step - loss: 31.8752 - mae: 3.9094 - val_loss: 29.2675 - val_mae: 4.0163

Epoch 2/20

221/221 [=====] - 17s 76ms/step - loss: 20.4190 - mae: 2.9792 - val_loss: 27.7541 - val_mae: 4.0439

Epoch 3/20

221/221 [=====] - 16s 74ms/step - loss: 18.1993 - mae: 2.7260 - val_loss: 25.8905 - val_mae: 3.8383

Epoch 4/20

221/221 [=====] - 17s 76ms/step - loss: 15.3487 - mae: 2.4763 - val_loss: 23.6607 - val_mae: 3.5902

Epoch 5/20

221/221 [=====] - 17s 76ms/step - loss: 15.5386 - mae: 2.4185 - val_loss: 23.7624 - val_mae: 3.6213

Epoch 6/20

221/221 [=====] - 17s 75ms/step - loss: 13.8299 - mae: 2.2933 - val_loss: 22.6064 - val_mae: 3.6201

Epoch 7/20

221/221 [=====] - 17s 75ms/step - loss: 12.7990 - mae: 2.2013 - val_loss: 24.4646 - val_mae: 3.6594

Epoch 8/20

221/221 [=====] - 17s 76ms/step - loss: 12.8331 - mae: 2.1814 - val_loss: 24.3556 - val_mae: 3.8174

Epoch 9/20

221/221 [=====] - 17s 75ms/step - loss: 11.8753 - mae: 2.0979 - val_loss: 21.7623 - val_mae: 3.5368

Epoch 10/20

221/221 [=====] - 16s 74ms/step - loss: 12.6065 - mae: 2.1102 - val_loss: 22.5269 - val_mae: 3.5888

Epoch 11/20

221/221 [=====] - 17s 75ms/step - loss: 11.9669 - mae: 2.0156 - val_loss: 22.5920 - val_mae: 3.6193

Epoch 12/20

221/221 [=====] - 17s 76ms/step - loss: 11.1030 - mae: 2.0347 - val_loss: 23.9609 - val_mae: 3.7655

Epoch 13/20
221/221 [=====] - 17s 76ms/step - loss: 10.3573 - mae:
1.9346 - val_loss: 22.9531 - val_mae: 3.6826

Epoch 14/20
221/221 [=====] - 17s 75ms/step - loss: 10.5352 - mae:
1.9279 - val_loss: 23.1078 - val_mae: 3.6757
Chunk 41/52 // 76.92% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['
Cliffhanger Productions ', ' Dead Mage ', ' Games Farm s.r.o. ', ' Infinite
Interactive ', ' Kaigan Games ', ' Marvelous AQL ', ' Multiverse ', ' Terri
Vellmann & Doseone ', ' Vlambeer ', ' d3t Ltd ', 'Artificer ', 'Arxel Tribe ',
'Asymmetric Publications ', 'Big Robot Ltd ', 'Black Element ', 'Black Lion
Studios ', 'Bloodirony ', 'Cliffhanger Productions', 'Cracked Heads Games ',
'Crackshell ', 'Crea-ture Studios ', 'Croteam', 'DarkStar Games ', 'Dead Mage
Studio', 'Den-Yu-Sha ', 'Detalion ', 'Douze Dixiemes ', 'Draw Distance ',
'Echodog Games ', 'Enigami ', 'Enlight Software', 'FASA Studio ', 'Finish Line
Games ', 'FishTankStudio ', 'Free Reign Entertainment ', 'Games Farm', 'Games
Farm ', 'Garage 227 ', 'Glass Bottom Games ', 'Greylock Studio ', 'Harebrained
Schemes LLC ', 'IMGN.PRO ', 'Jesse Makkonen ', 'Kaigan Games OU', 'MPS Labs ',
'MadLightStudio ', 'Mandragora ', 'Mega Crit Games ', 'Meteorise ', 'Might and
Delight ', 'Mimimi Games ', 'Minds-Eye Productions ', 'Mommy's Best Games ',
'Monomi Park ', 'Multiverse Games', 'Nexon ', 'Night Dive Studios ', 'Okugi
Studio ', 'Redlock Studio ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ',
'SEGA Racing Studio ', 'Sidhe Interactive ', 'Skyshine Games ', 'Sloclap ',
'Something Classic Games LLC ', 'SouthPAW Games ', 'Space Bullet Dynamics
Corporation ', 'Spiral Circus ', 'Tamsoft', 'Tamsoft ', 'Terri Vellmann',
'Ultimation Inc. ', 'Unicube ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank
Entertainment Inc. ', 'Vine ', 'Wadjet Eye Games ', 'WayForward ', 'White Birds
Productions ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'Ysbryd Games ', 'Zojoi
Studios ', 'iFun4all ', 'rose-engine '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
232/232 [=====] - 18s 75ms/step - loss: 23.5397 - mae:
3.3164 - val_loss: 30.6118 - val_mae: 4.5283

Epoch 2/20
232/232 [=====] - 18s 75ms/step - loss: 13.3977 - mae:
2.2761 - val_loss: 29.4196 - val_mae: 4.6703

Epoch 3/20
232/232 [=====] - 18s 76ms/step - loss: 11.0919 - mae:
2.0561 - val_loss: 27.5365 - val_mae: 4.4576

Epoch 4/20
232/232 [=====] - 17s 74ms/step - loss: 9.9569 - mae:
1.9031 - val_loss: 26.7323 - val_mae: 4.4520

Epoch 5/20
232/232 [=====] - 18s 76ms/step - loss: 8.7117 - mae:
1.7638 - val_loss: 25.5028 - val_mae: 4.2829

Epoch 6/20
 232/232 [=====] - 17s 75ms/step - loss: 8.8310 - mae: 1.7248 - val_loss: 26.3053 - val_mae: 4.4294
 Epoch 7/20
 232/232 [=====] - 17s 75ms/step - loss: 8.4935 - mae: 1.6673 - val_loss: 26.3097 - val_mae: 4.4129
 Epoch 8/20
 232/232 [=====] - 18s 76ms/step - loss: 7.5117 - mae: 1.5693 - val_loss: 26.1699 - val_mae: 4.4109
 Epoch 9/20
 232/232 [=====] - 17s 75ms/step - loss: 7.7166 - mae: 1.5801 - val_loss: 25.7701 - val_mae: 4.3540
 Epoch 10/20
 232/232 [=====] - 17s 75ms/step - loss: 8.1011 - mae: 1.5630 - val_loss: 26.6681 - val_mae: 4.4766
 Chunk 42/52 // 78.85% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Atlus ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron Ltd. ', ' Coatsink Software ', ' EA Redwood Shores ', ' Elemental Games', ' Factor 5 ', ' Fire Face ', ' Just Add Water', ' Krome Studios ', ' Mossmouth ', ' Project Soul ', ' Red Storm Entertainment ', ' Shaba Games ', ' Terri Vellmann & Doseone ', '17-Bit ', '5000ft Inc. ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Artdink', 'Bandai Namco Games', 'Black Lab Games ', 'Black Rock Studio ', 'CBE software ', 'Cadenza ', 'Cat Daddy Games ', 'Deep Red ', 'Derek Yu', 'DoubleDutch Games ', 'Dramatic Labs ', 'Escape ', 'Extend Interactive ', 'Fizz Factor ', 'Grimlore Games ', 'Infogrames ', 'Ironward ', 'Jumpship ', 'Malfador Machinations ', 'Massive Damage', 'Maxis', 'Meridian4 ', 'Metropolis Software ', 'MinMax Games Ltd. ', 'Mind over Matter ', 'Mossmouth', 'Murudai ', 'N-Game Studios', 'Naked Sky Entertainment ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ', 'Panic Barn Ltd ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ', 'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Reflexive Entertainment ', 'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Runner Duck ', 'Seamless Entertainment', 'Silver Style ', 'Slitherine ', 'Sneaky Yak Studio ', 'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Tactical Adventures ', 'Taldren ', 'Terri Vellimann', 'Totally Games ', 'Treyarch', 'Vivid Games ', 'Wales Interactive ', 'Wings Simulations ', 'Zachtronics Industries ', 'inkle ', 'stillalive studios '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
 224/224 [=====] - 17s 75ms/step - loss: 31.4882 - mae: 3.8207 - val_loss: 22.9471 - val_mae: 3.3996
 Epoch 2/20
 224/224 [=====] - 17s 75ms/step - loss: 18.3808 - mae: 2.7139 - val_loss: 22.0785 - val_mae: 3.5022
 Epoch 3/20
 224/224 [=====] - 17s 74ms/step - loss: 15.3226 - mae:

2.4734 - val_loss: 19.5444 - val_mae: 3.3943
 Epoch 4/20
 224/224 [=====] - 17s 76ms/step - loss: 13.2242 - mae: 2.2371 - val_loss: 17.4891 - val_mae: 3.2606
 Epoch 5/20
 224/224 [=====] - 17s 74ms/step - loss: 12.0639 - mae: 2.0839 - val_loss: 18.5907 - val_mae: 3.3951
 Epoch 6/20
 224/224 [=====] - 17s 76ms/step - loss: 11.2402 - mae: 1.9345 - val_loss: 18.2164 - val_mae: 3.3726
 Epoch 7/20
 224/224 [=====] - 17s 75ms/step - loss: 10.2910 - mae: 1.8359 - val_loss: 17.8575 - val_mae: 3.3252
 Epoch 8/20
 224/224 [=====] - 17s 74ms/step - loss: 9.7619 - mae: 1.8096 - val_loss: 17.2476 - val_mae: 3.2773
 Epoch 9/20
 224/224 [=====] - 17s 75ms/step - loss: 9.2395 - mae: 1.7710 - val_loss: 17.6442 - val_mae: 3.3338
 Epoch 10/20
 224/224 [=====] - 17s 74ms/step - loss: 9.0387 - mae: 1.6968 - val_loss: 17.2226 - val_mae: 3.2942
 Epoch 11/20
 224/224 [=====] - 17s 76ms/step - loss: 9.1789 - mae: 1.6843 - val_loss: 17.6987 - val_mae: 3.3158
 Epoch 12/20
 224/224 [=====] - 17s 75ms/step - loss: 8.4143 - mae: 1.6313 - val_loss: 17.7986 - val_mae: 3.3612
 Epoch 13/20
 224/224 [=====] - 17s 75ms/step - loss: 7.9645 - mae: 1.6015 - val_loss: 16.8656 - val_mae: 3.2127
 Epoch 14/20
 224/224 [=====] - 17s 75ms/step - loss: 8.2951 - mae: 1.5847 - val_loss: 16.9878 - val_mae: 3.2697
 Epoch 15/20
 224/224 [=====] - 17s 75ms/step - loss: 7.1079 - mae: 1.4744 - val_loss: 17.3027 - val_mae: 3.3234
 Epoch 16/20
 224/224 [=====] - 17s 74ms/step - loss: 7.5863 - mae: 1.5054 - val_loss: 17.3412 - val_mae: 3.3389
 Epoch 17/20
 224/224 [=====] - 17s 74ms/step - loss: 7.1511 - mae: 1.4650 - val_loss: 16.9543 - val_mae: 3.3080
 Epoch 18/20
 224/224 [=====] - 17s 76ms/step - loss: 6.9791 - mae: 1.4169 - val_loss: 17.8158 - val_mae: 3.3874
 Chunk 43/52 // 80.77% Complete // Cycle 2/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Fullbright ', ' Koalabs ', '
Point Blank ', ' Quasar ', ' Ragequit Corporation ', ' Uppercut Games Pty Ltd ',
'Akabaka ', 'Akella', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ',
'Awaken Realms Digital', 'Bad Viking ', 'Banpresto', 'BattleGoat Studios ',
'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue Tongue Entertainment ', 'Bossa
Studios ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats Games ', 'Chibig ',
'Chucklefish ', 'Cosmo D Studios ', 'Cultic Games ', 'Curve Digital ', 'Curve
Studios ', 'Dancing Dragon games ', 'Daniel Benmergui ', 'Destroyer Studios ',
'Dialogue Design ', 'Dimps Corporation ', 'Droqen ', 'Echo Chamber Games ',
'Ellipse Studios ', 'Embers ', 'Empty Clip Studios ', 'Exakt ', 'FIX Korea',
'Failbetter Games ', 'Fireglow ', 'Fury Software ', 'GameCo ', 'GolemLabs ',
'IMC Games ', 'Image & Form ', 'Kamehan Studios ', 'Kite Games ', 'Little Green
Men ', 'M2 ', 'Magic Lantern ', 'Marvelous Inc. ', 'Microids', 'Midway ',
'Minds-Eye Productions ', 'Monochrome Paris ', 'Mucky Foot Productions ', 'Night
Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Odd Bug Studio ', 'Paul
Cuisset ', 'Pillow Castle Games ', 'Pixel Titans ', 'Point Blank Games', 'Psyche
Studios ', 'RLR Training Inc ', 'Serellan LLC ', 'Sierra Entertainment ',
'Sigtrap Games ', 'SkyBox Labs ', 'Sleepless Clinic ', 'Sleepy Sentry ',
'Spearhead Games ', 'Strangelite ', 'Strike Vector Team', 'Summerfall Studios ',
'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia ', 'The
Artistocrats ', 'The Bitmap Brothers ', 'The Fullbright Company', 'Third Wire ',
'Torpor Games ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games',
'Uppercut Games Pty Ltd ', 'Vertex4 ', 'Wideload Games Inc. ', 'Wormwood Studios
', 'Xilam ', 'Zenovia ', 'Zero Sum Games ', 'Zoink! ', 'eSim Games ', 'increate
'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
231/231 [=====] - 18s 75ms/step - loss: 32.3466 - mae:
3.7202 - val_loss: 31.5919 - val_mae: 4.4437
Epoch 2/20
231/231 [=====] - 17s 75ms/step - loss: 19.3598 - mae:
2.7337 - val_loss: 27.2632 - val_mae: 4.2280
Epoch 3/20
231/231 [=====] - 17s 75ms/step - loss: 16.5351 - mae:
2.4520 - val_loss: 28.0237 - val_mae: 4.3038
Epoch 4/20
231/231 [=====] - 17s 75ms/step - loss: 14.3609 - mae:
2.2488 - val_loss: 26.2160 - val_mae: 4.1183
Epoch 5/20
231/231 [=====] - 17s 74ms/step - loss: 13.7423 - mae:
2.1727 - val_loss: 25.8182 - val_mae: 4.1807

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Epoch 6/20
231/231 [=====] - 17s 75ms/step - loss: 12.3131 - mae:
2.0630 - val_loss: 25.5955 - val_mae: 4.0698
Epoch 7/20
231/231 [=====] - 17s 74ms/step - loss: 11.7874 - mae:
1.9887 - val_loss: 25.2769 - val_mae: 4.0614
Epoch 8/20
231/231 [=====] - 17s 75ms/step - loss: 11.5727 - mae:
1.9179 - val_loss: 25.1867 - val_mae: 4.1081
Epoch 9/20
231/231 [=====] - 17s 75ms/step - loss: 11.7131 - mae:
1.9358 - val_loss: 25.8164 - val_mae: 4.1315
Epoch 10/20
231/231 [=====] - 17s 75ms/step - loss: 10.1561 - mae:
1.8275 - val_loss: 24.1407 - val_mae: 3.9947
Epoch 11/20
231/231 [=====] - 17s 75ms/step - loss: 11.0911 - mae:
1.8282 - val_loss: 23.4598 - val_mae: 3.9411
Epoch 12/20
231/231 [=====] - 17s 75ms/step - loss: 10.0969 - mae:
1.7631 - val_loss: 24.4134 - val_mae: 4.0390
Epoch 13/20
231/231 [=====] - 18s 76ms/step - loss: 9.9737 - mae:
1.7569 - val_loss: 23.4737 - val_mae: 3.9322
Epoch 14/20
231/231 [=====] - 17s 75ms/step - loss: 9.6175 - mae:
1.7289 - val_loss: 22.1588 - val_mae: 3.7858
Epoch 15/20
231/231 [=====] - 17s 75ms/step - loss: 10.0892 - mae:
1.7568 - val_loss: 24.2280 - val_mae: 4.0326
Epoch 16/20
231/231 [=====] - 17s 75ms/step - loss: 9.7573 - mae:
1.7105 - val_loss: 23.9071 - val_mae: 3.9632
Epoch 17/20
231/231 [=====] - 18s 76ms/step - loss: 9.2497 - mae:
1.6639 - val_loss: 24.0493 - val_mae: 4.0123
Epoch 18/20
231/231 [=====] - 17s 75ms/step - loss: 9.1532 - mae:
1.6554 - val_loss: 24.5699 - val_mae: 4.0279
Epoch 19/20
231/231 [=====] - 17s 75ms/step - loss: 9.1545 - mae:
1.6462 - val_loss: 23.5493 - val_mae: 4.0021
Chunk 44/52 // 82.69% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text', 'Trainer'] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Digital Eclipse ', ' Florian Himsl ', ' Furious Bee ', ' King Art Games ', '
Lancarse ', ' Splendy Games ', ' YCJY Games ', '3D2 Entertainment ', 'AGO Games
', 'ARS GOETIA ', 'Abstraction Games ', 'Artefacts Studio ', 'Awfully Nice
Studios ', 'Baroque Decay ', 'Beethoven & Dinosaur ', 'Big Ant Studios ', 'Big
Finish Games ', 'BonusXP ', 'Bossa Studios ', 'Choice Provisions ', 'Cockroach
Inc. ', 'Color Gray Games ', 'Crema Games ', 'Cryo Interactive ', 'Davey Wreden
', 'Deconstructeam ', 'Dragon Slumber ', 'DreamCatcher Interactive ', 'Eden
Studios ', 'Edmund McMillen', 'Enhance Games ', 'Fairyrship Games ', 'Free Lives
', 'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'Gaming Corps AB ',
'Harvester Games ', 'Illusion Ray Studio ', 'Iron Tower Studio ', 'Jason Rohrer
', 'Johamm Tael & Mihkel Tael ', 'KING Art', 'Konami', 'Ladyluck Digital Media
', 'Lion's Shade ', 'Mighty Yell ', 'Neon Giant ', 'Nicalis ', 'Noumena
Productions ', 'Numinous Games ', 'Owl Cave ', 'Question ', 'Rain Games ',
'Random Potion Oy ', 'Rebelmind ', 'Rival Games Ltd ', 'Sam Barlow', 'Slendy
Interactive', 'Spooky Doorway ', 'Swing Swing Submarine ', 'Technocrat ', 'Teotl
Studios ', 'The Collective ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and
Mario Castaneda ', 'Wadjet Eye Games ', 'Wales Interactive ', 'YCJY', 'Zenimax
Online Studios ', 'h.a.n.d. Inc. ', 'nDreams '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

Epoch 1/20

232/232 [=====] - 18s 75ms/step - loss: 17.8585 - mae: 2.4875 - val_loss: 19.3693 - val_mae: 3.6282

Epoch 2/20

232/232 [=====] - 17s 75ms/step - loss: 12.2991 - mae: 1.9744 - val_loss: 19.9093 - val_mae: 3.8082

Epoch 3/20

232/232 [=====] - 17s 75ms/step - loss: 10.7285 - mae: 1.7447 - val_loss: 20.3740 - val_mae: 3.8995

Epoch 4/20

232/232 [=====] - 17s 75ms/step - loss: 8.6071 - mae: 1.6151 - val_loss: 17.3265 - val_mae: 3.5822

Epoch 5/20

232/232 [=====] - 17s 75ms/step - loss: 7.9375 - mae: 1.5266 - val_loss: 18.3247 - val_mae: 3.6777

Epoch 6/20

232/232 [=====] - 18s 76ms/step - loss: 7.5753 - mae: 1.4657 - val_loss: 18.3582 - val_mae: 3.6921

Epoch 7/20

232/232 [=====] - 17s 75ms/step - loss: 7.4713 - mae: 1.4046 - val_loss: 17.7223 - val_mae: 3.6516

Epoch 8/20

232/232 [=====] - 18s 76ms/step - loss: 7.2609 - mae: 1.3777 - val_loss: 19.7765 - val_mae: 3.8905

Epoch 9/20

232/232 [=====] - 17s 75ms/step - loss: 6.6916 - mae:

1.2930 - val_loss: 17.9226 - val_mae: 3.6686

Chunk 45/52 // 84.62% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Cavalier Game Studios ', 'Crows Crows Crows ', 'Deck Nine Games ', 'Dire Wolf Digital ', 'Do My Best Games ', 'Endnight Studios ', 'Ishtar Games Inc. ', 'ONEOONE GAMES ', 'Question ', 'Skookum Arts ', 'Slitherine ', 'Studio Fizbin ', 'Sumo Nottingham ', 'Super Awesome Hyper Dimensional Mega Team ', 'Tyler Glaiel ', '101%', '4Head Studios ', 'Act 3 Games', 'Arcen Games', 'Ares Dragonis ', 'Arxel Tribe ', 'Bellular Studios ', 'Big Robot Ltd ', 'Braingame ', 'Brainwash Gang ', 'Bulkhead Interactive ', 'CCCP', 'Caligari Games ', 'Cloak and Dagger Games ', 'Colibri Games ', 'Computer Artworks ', 'Daedalic Studio West ', 'Dan Smith Studios ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam ', 'Digital Sun ', 'EXOR Studios ', 'Edmund McMillen', 'Facepalm Games ', 'Fireproof Games ', 'Fizbin', 'Frogwares', 'Galactic Cafe', 'GoldKnights Studio ', 'Grasshopper Manufacture ', 'Grip Games ', 'Gun Interactive', 'Headup Games ', 'House of Tales ', 'IF Games ', 'Image & Form ', 'Inevitable Entertainment ', 'Ironward ', 'James Interactive ', 'Joe Richardson ', 'LKA ', 'Leonard Menchiari ', 'Lexis Numerique ', 'Mana Games ', 'Mi'pu'mi Games ', 'Modern Storyteller ', 'Morbidware ', 'Mouldy Toof Studios ', 'Neon Doctrine ', 'Nevrax ', 'Omni Creative Group ', 'One Bit Beyond ', 'Orthogonal Games ', 'Over The Moon ', 'Pewter Games Studios ', 'Pixelogic ', 'Playmestudio ', 'Plot Twist ', 'Point of View ', 'PostMod Softworks ', 'Power Struggle Games ', 'Puuba ', 'Questionary', 'Rusty Lake ', 'SKS Games', 'Sabotage Studio ', 'Serenity Forge ', 'Sever ', 'Shark Punch ', 'Shifting Tides ', 'Size Five Games ', 'Skookum Arts LLC', 'SkyGoblin ', 'Slitherine Software', 'Smoking Car Productions ', 'Spidersoft', 'Streko-Graphics Inc. ', 'Stubby Games ', 'Studio Seufz ', 'Super Mega Team', 'SuperSexySoftware ', 'Surreal Software ', 'Tale of Tales ', 'Team Gotham ', 'The Molasses Flood ', 'The Odd Gentlemen ', 'The Station ', 'The Voxel Agents ', 'Thunkd ', 'Tomas Sala ', 'Tragnarion Studios ', 'TwoPM Studios ', 'Ubisoft Blue Byte ', 'VRESKI ', 'ValuSoft ', 'White Owls ', 'White Paper Games ', 'Wonderstruck Games ', 'mif2000 ', 'neo Software ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

224/224 [=====] - 17s 75ms/step - loss: 32.3915 - mae: 3.9577 - val_loss: 23.6790 - val_mae: 3.8189

Epoch 2/20

224/224 [=====] - 17s 75ms/step - loss: 18.6566 - mae: 2.8235 - val_loss: 20.8350 - val_mae: 3.5341

Epoch 3/20

224/224 [=====] - 17s 74ms/step - loss: 15.9975 - mae: 2.5005 - val_loss: 21.1714 - val_mae: 3.6448

Epoch 4/20

224/224 [=====] - 17s 74ms/step - loss: 14.0689 - mae:
2.2948 - val_loss: 20.3638 - val_mae: 3.5711
Epoch 5/20
224/224 [=====] - 17s 76ms/step - loss: 12.6694 - mae:
2.1533 - val_loss: 19.7391 - val_mae: 3.5134
Epoch 6/20
224/224 [=====] - 17s 76ms/step - loss: 12.6426 - mae:
2.0990 - val_loss: 20.8809 - val_mae: 3.6774
Epoch 7/20
224/224 [=====] - 17s 74ms/step - loss: 11.7790 - mae:
1.9897 - val_loss: 19.9919 - val_mae: 3.6642
Epoch 8/20
224/224 [=====] - 17s 74ms/step - loss: 10.4778 - mae:
1.9010 - val_loss: 20.4296 - val_mae: 3.6594
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 10.6578 - mae:
1.8792 - val_loss: 20.8923 - val_mae: 3.7067
Epoch 10/20
224/224 [=====] - 17s 75ms/step - loss: 10.0411 - mae:
1.8285 - val_loss: 18.9912 - val_mae: 3.4529
Epoch 11/20
224/224 [=====] - 17s 75ms/step - loss: 10.4592 - mae:
1.8344 - val_loss: 20.0089 - val_mae: 3.5833
Epoch 12/20
224/224 [=====] - 17s 75ms/step - loss: 9.7623 - mae:
1.7718 - val_loss: 20.3679 - val_mae: 3.6255
Epoch 13/20
224/224 [=====] - 17s 75ms/step - loss: 9.1911 - mae:
1.7132 - val_loss: 19.5629 - val_mae: 3.5778
Epoch 14/20
224/224 [=====] - 17s 75ms/step - loss: 9.3404 - mae:
1.7242 - val_loss: 18.5163 - val_mae: 3.4743
Epoch 15/20
224/224 [=====] - 17s 75ms/step - loss: 9.1841 - mae:
1.7104 - val_loss: 21.1001 - val_mae: 3.8296
Epoch 16/20
224/224 [=====] - 17s 74ms/step - loss: 9.0767 - mae:
1.6862 - val_loss: 21.2552 - val_mae: 3.7770
Epoch 17/20
224/224 [=====] - 17s 75ms/step - loss: 9.3585 - mae:
1.6847 - val_loss: 20.0685 - val_mae: 3.5845
Epoch 18/20
224/224 [=====] - 17s 76ms/step - loss: 9.3423 - mae:
1.7177 - val_loss: 20.1334 - val_mae: 3.6179
Epoch 19/20
224/224 [=====] - 17s 75ms/step - loss: 8.3282 - mae:
1.6246 - val_loss: 19.1012 - val_mae: 3.5270
Chunk 46/52 // 86.54% Complete // Cycle 2/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' CINIC Games ', ' Drool ', ' KRAFTON Inc. ', ' Kukouri Mobile
Entertainment ', 'AREA35 ', 'Adeline Software ', 'Alawar Premium ', 'Antagonist
', 'Battlefront.com', 'Black Pants ', 'Blendo Games ', 'Bulkhead Interactive ',
'C.I.N.I.C. Games', 'Camel 101 ', 'Can Explode ', 'Carbon Studio ', 'Click
Entertainment ', 'ComonGames ', 'Double Zero One Zero ', 'Draw Me A Pixel ',
'Expansive Worlds ', 'Falling Squirrel ', 'Flazm ', 'Gato Salvaje Studio ',
'HyperBole Studios ', 'Ice-Pick Lodge ', 'Iceberg Interactive', 'Iridium Studios
', 'Kite Games ', 'Minority Media Inc. ', 'Modern Dream ', 'Moonlight Kids ',
'Most Wanted Entertainment ', 'MuHa Games ', 'Numantian Games ', 'OverBorder
Studio ', 'Paintbucket Games ', 'Puuba ', 'Puzzling Dream ', 'Rogue Sun ', 'Ron
Gilbert and Gary Winnick ', 'Skybound LLC', 'Skydance Interactive ', 'Splashteam
', 'Spooky Squid Games ', 'SuperPAC ', 'Tin Man Games ', 'Trecision ', 'Urnique
Studio ', 'Zombie Cow Studios ', '[bracket]games ', 'damiansommer ', 'drool
Games', 'fragOut Studio'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
222/222 [=====] - 17s 76ms/step - loss: 16.7608 - mae:
2.6173 - val_loss: 26.2241 - val_mae: 4.6096
Epoch 2/20
222/222 [=====] - 17s 75ms/step - loss: 10.7697 - mae:
1.9550 - val_loss: 22.9717 - val_mae: 4.2971
Epoch 3/20
222/222 [=====] - 17s 75ms/step - loss: 8.8551 - mae:
1.7055 - val_loss: 24.0800 - val_mae: 4.4331
Epoch 4/20
222/222 [=====] - 17s 76ms/step - loss: 8.2403 - mae:
1.5819 - val_loss: 23.5288 - val_mae: 4.4179
Epoch 5/20
222/222 [=====] - 17s 76ms/step - loss: 7.9548 - mae:
1.5009 - val_loss: 23.0307 - val_mae: 4.3686
Epoch 6/20
222/222 [=====] - 17s 75ms/step - loss: 6.8918 - mae:
1.4047 - val_loss: 22.0711 - val_mae: 4.2783
Epoch 7/20
222/222 [=====] - 17s 75ms/step - loss: 6.6390 - mae:
1.3703 - val_loss: 20.9503 - val_mae: 4.1670
Epoch 8/20
222/222 [=====] - 17s 75ms/step - loss: 6.1513 - mae:
1.3355 - val_loss: 21.8607 - val_mae: 4.3189
Epoch 9/20
222/222 [=====] - 17s 75ms/step - loss: 5.6563 - mae:

```



```

1.3129 - val_loss: 23.0808 - val_mae: 4.4709
Epoch 10/20
222/222 [=====] - 17s 75ms/step - loss: 6.0764 - mae:
1.3215 - val_loss: 21.4944 - val_mae: 4.2800
Epoch 11/20
222/222 [=====] - 17s 76ms/step - loss: 6.0286 - mae:
1.3191 - val_loss: 23.7273 - val_mae: 4.5358
Epoch 12/20
222/222 [=====] - 17s 75ms/step - loss: 5.6729 - mae:
1.2737 - val_loss: 21.9279 - val_mae: 4.3412
Chunk 47/52 // 88.46% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
2K Sports ', ' Cherrymochi ', ' Pieces Interactive ', ' Ubisoft Paris ',
'49Games ', 'AGEOD ', 'Acid Nerve ', 'Aspyr', 'Cavedog Entertainment ',
'Cinemaware ', 'Core Design Ltd. ', 'Deadline Games ', 'Dual Effect ', 'Echtra
Games', 'Fireart Games ', 'Freebird Games ', 'GRIN', 'Humanature Studios ',
'Iron Lore Entertainment', 'Neversoft Entertainment ', 'OhNoo ', 'Pocketwatch
Games ', 'Red Storm Entertainment', 'SMAC Games ', 'Something We Made ',
'Swordtales ', 'Two Tribes ', 'Ubisoft Milan ', 'Ubisoft Singapore ', 'Vicarious
Visions ', 'dietzribi '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
228/228 [=====] - 17s 75ms/step - loss: 19.4308 - mae:
2.8193 - val_loss: 20.1126 - val_mae: 3.8444
Epoch 2/20
228/228 [=====] - 17s 75ms/step - loss: 8.7486 - mae:
1.7931 - val_loss: 17.2954 - val_mae: 3.5777
Epoch 3/20
228/228 [=====] - 17s 75ms/step - loss: 7.2203 - mae:
1.5659 - val_loss: 17.2968 - val_mae: 3.5843
Epoch 4/20
228/228 [=====] - 17s 75ms/step - loss: 6.6484 - mae:
1.4523 - val_loss: 15.7815 - val_mae: 3.4350
Epoch 5/20
228/228 [=====] - 17s 75ms/step - loss: 6.2539 - mae:
1.3610 - val_loss: 16.0121 - val_mae: 3.4613
Epoch 6/20
228/228 [=====] - 17s 75ms/step - loss: 5.6504 - mae:
1.2712 - val_loss: 16.3485 - val_mae: 3.5256
Epoch 7/20
228/228 [=====] - 17s 75ms/step - loss: 5.3452 - mae:
1.1928 - val_loss: 16.3179 - val_mae: 3.5303
Epoch 8/20
228/228 [=====] - 17s 74ms/step - loss: 5.4566 - mae:
1.1734 - val_loss: 16.5408 - val_mae: 3.5773
Epoch 9/20

```

228/228 [=====] - 17s 75ms/step - loss: 5.1995 - mae:
1.1203 - val_loss: 16.9504 - val_mae: 3.6262
Chunk 48/52 // 90.38% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['
Blackmill Games ', ' Crenetic Studios ', ' Duality Games ', ' Eurocom ', '
Forever Entertainment ', ' Hotta Studio ', ' ML Enterprises ', ' Mercenary
Technologies ', ' Reborn Games Inc. ', ' Revistronic ', ' Soleil Ltd. ', '
Supergonk ', ' Talawa Games ', ' Team Toro ', ' Xeen ', ' btf ', '110
Industries', '258 Productions AB ', '2By3 Games ', '2x2 Games ', '3000AD',
'Action Button Entertainment ', 'Alien Pixel Studios ', 'Artdink ', 'Auran ',
'Backwoods Entertainment ', 'Blue Manchu ', 'BlueGiant Interactive ', 'Brainy
Studio LLC ', 'BreakAway Games ', 'Burut Software ', 'Celeris ', 'Chaos Concept
, 'Coldwood Interactive ', 'Cordens Interactive ', 'Cowardly Creations ',
'Crazy Viking Studios ', 'DNS Development ', 'Daydream Software ', 'Deep Red ',
'Devespresso Games ', 'Draw Distance ', 'Duality Studio', 'Dumb and Fat Games ',
'Dynamix ', 'Endless Fluff ', 'Eurocom Entertainment Software', 'Event Horizon
Software ', 'Fatbot Games ', 'Feral Interactive ', 'Forever Entertainment S.A.',
'Fragment Production Ltd', 'Frog City Software ', 'Game-Labs ', 'Games Farm ',
'Gatling Goat Studios ', 'Gigawatt Studios ', 'Glass Heart Games ', 'Guild
Software ', 'Headup Games', 'High Moon Studios', 'House House ', 'ISOMETRICORP
Games ', 'JoyMasher ', 'KT Racing ', 'LEAP Game Studios ', 'Legend Entertainment
, 'Luis Antonio ', 'Luxoflux', 'M2H', 'Maddy Thorson ', 'Magic Design Studios
, 'Naughty Dog', 'Night Dive Studios ', 'Nihilistic ', 'Norsfell ', 'OhNoo ',
'OtherSide Entertainment ', 'Outsider Games ', 'Owlchemy Labs ', 'Pixwerk ',
'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Pterodon ', 'Pyrodactyl Games
, 'Rat King Entertainment ', 'Replay Studios', 'Revistronic', 'Rooster Teeth
Games ', 'Sad Owl Studios ', 'SadSquare Studio ', 'SpectreVision ', 'Steel
Mantis ', 'Stormling Studios ', 'Strange Loop Games ', 'Studio Pixel Punk ',
'Stygian Software ', 'Subterranean Games ', 'Sukeban Games ', 'Supergonk Ltd.',
'Tate Multimedia ', 'Teotl Studios', 'Terrible Posture Games ', 'Terry Cavanagh
, 'Theta Division ', 'Trepang Studios ', 'Urban Games ', 'Variable State ',
'Visai Games ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Witch Beam ', 'Yukon
Wainczak ', 'btf GmbH', 'poncle ', 'timesymmetry ', 'tobyfox '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

224/224 [=====] - 17s 75ms/step - loss: 23.7510 - mae:
3.2908 - val_loss: 24.7118 - val_mae: 4.2873

Epoch 2/20

224/224 [=====] - 17s 74ms/step - loss: 14.7430 - mae:
2.4436 - val_loss: 23.8738 - val_mae: 4.2682

Epoch 3/20

224/224 [=====] - 17s 76ms/step - loss: 13.4024 - mae:
2.2176 - val_loss: 23.8933 - val_mae: 4.2647

Epoch 4/20

224/224 [=====] - 17s 75ms/step - loss: 11.9455 - mae:
2.0970 - val_loss: 21.7748 - val_mae: 4.0679

Epoch 5/20
224/224 [=====] - 17s 74ms/step - loss: 10.9319 - mae: 1.9505 - val_loss: 23.2879 - val_mae: 4.2456

Epoch 6/20
224/224 [=====] - 17s 76ms/step - loss: 10.1427 - mae: 1.8761 - val_loss: 22.1694 - val_mae: 4.1154

Epoch 7/20
224/224 [=====] - 17s 76ms/step - loss: 10.1767 - mae: 1.8479 - val_loss: 22.6354 - val_mae: 4.1427

Epoch 8/20
224/224 [=====] - 17s 75ms/step - loss: 9.2553 - mae: 1.7445 - val_loss: 20.5177 - val_mae: 3.9238

Epoch 9/20
224/224 [=====] - 17s 74ms/step - loss: 8.9923 - mae: 1.7192 - val_loss: 20.5199 - val_mae: 3.9295

Epoch 10/20
224/224 [=====] - 17s 76ms/step - loss: 8.5480 - mae: 1.6732 - val_loss: 19.8602 - val_mae: 3.8644

Epoch 11/20
224/224 [=====] - 17s 76ms/step - loss: 8.4697 - mae: 1.6382 - val_loss: 19.5781 - val_mae: 3.8476

Epoch 12/20
224/224 [=====] - 17s 76ms/step - loss: 8.5943 - mae: 1.6227 - val_loss: 20.7439 - val_mae: 3.9781

Epoch 13/20
224/224 [=====] - 17s 75ms/step - loss: 8.2632 - mae: 1.6112 - val_loss: 19.9199 - val_mae: 3.8686

Epoch 14/20
224/224 [=====] - 17s 75ms/step - loss: 8.6499 - mae: 1.6279 - val_loss: 20.1507 - val_mae: 3.9079

Epoch 15/20
224/224 [=====] - 17s 75ms/step - loss: 8.2658 - mae: 1.6159 - val_loss: 19.5388 - val_mae: 3.8359

Epoch 16/20
224/224 [=====] - 17s 75ms/step - loss: 8.0096 - mae: 1.5679 - val_loss: 21.2315 - val_mae: 4.0280

Epoch 17/20
224/224 [=====] - 17s 75ms/step - loss: 8.0189 - mae: 1.5942 - val_loss: 19.3275 - val_mae: 3.7412

Epoch 18/20
224/224 [=====] - 17s 74ms/step - loss: 8.0275 - mae: 1.5991 - val_loss: 19.2883 - val_mae: 3.7634

Epoch 19/20
224/224 [=====] - 17s 75ms/step - loss: 8.5641 - mae: 1.6246 - val_loss: 18.8392 - val_mae: 3.7706

Epoch 20/20
224/224 [=====] - 17s 75ms/step - loss: 7.5597 - mae: 1.5480 - val_loss: 18.4673 - val_mae: 3.6894

Chunk 49/52 // 92.31% Complete // Cycle 2/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)  
['Dream Execution ', 'Fatshark AB ', 'GabberGames ', 'Third Wave Games '] will  
be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
212/212 [=====] - 16s 75ms/step - loss: 6.9997 - mae:  
1.7953 - val_loss: 11.0738 - val_mae: 3.2222
```

Epoch 2/20

```
212/212 [=====] - 16s 75ms/step - loss: 2.8594 - mae:  
1.0582 - val_loss: 13.7961 - val_mae: 3.5695
```

Epoch 3/20

```
212/212 [=====] - 16s 74ms/step - loss: 1.8433 - mae:  
0.8148 - val_loss: 15.5301 - val_mae: 3.7520
```

Epoch 4/20

```
212/212 [=====] - 16s 74ms/step - loss: 2.0275 - mae:  
0.7285 - val_loss: 15.9375 - val_mae: 3.8307
```

Epoch 5/20

```
212/212 [=====] - 16s 75ms/step - loss: 1.3814 - mae:  
0.5883 - val_loss: 16.4842 - val_mae: 3.8726
```

Epoch 6/20

```
212/212 [=====] - 16s 75ms/step - loss: 1.8189 - mae:  
0.5836 - val_loss: 16.4830 - val_mae: 3.8847
```

Chunk 50/52 // 94.23% Complete // Cycle 2/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) [  
'Behaviour Interactive ', ' Flashback Games ', ' Toylogic ', 'Auroch Digital ',  
'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Bulwark  
Studios ', 'Chucklefish ', 'Complex Games Inc. ', 'Games Workshop ', 'Gasket  
Games ', 'Hammerfall Publishing ', 'Kuju Entertainment ', 'Paradox Interactive',  
'Pixelated Milk ', 'Playwood Project ', 'Proxy Studios ', 'Rodeo Games ', 'Shiro  
Games ', 'Strategic Studies Group ', 'Strayllight Entertainment ', 'The Lordz  
Games Studio', 'Toylogic Inc.', 'Trapdoor '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
213/213 [=====] - 16s 75ms/step - loss: 12.3822 - mae:  
2.2929 - val_loss: 20.8180 - val_mae: 4.1498
```

Epoch 2/20

```
213/213 [=====] - 16s 75ms/step - loss: 7.8052 - mae:  
1.7442 - val_loss: 20.3105 - val_mae: 4.1447
```

Epoch 3/20

```
213/213 [=====] - 16s 76ms/step - loss: 6.5522 - mae:  
1.5338 - val_loss: 19.8789 - val_mae: 4.2268
```

Epoch 4/20

```
213/213 [=====] - 16s 75ms/step - loss: 5.0004 - mae:
```

```

1.3050 - val_loss: 18.3883 - val_mae: 4.0050
Epoch 5/20
213/213 [=====] - 16s 75ms/step - loss: 4.4555 - mae:
1.1880 - val_loss: 19.7107 - val_mae: 4.1550
Epoch 6/20
213/213 [=====] - 16s 74ms/step - loss: 3.8804 - mae:
1.1192 - val_loss: 20.2900 - val_mae: 4.2568
Epoch 7/20
213/213 [=====] - 16s 75ms/step - loss: 3.2506 - mae:
1.0699 - val_loss: 19.7046 - val_mae: 4.2033
Epoch 8/20
213/213 [=====] - 16s 75ms/step - loss: 3.6410 - mae:
1.0479 - val_loss: 19.8189 - val_mae: 4.1947
Epoch 9/20
213/213 [=====] - 16s 74ms/step - loss: 3.2932 - mae:
0.9992 - val_loss: 19.6602 - val_mae: 4.2069
Chunk 51/52 // 96.15% Complete // Cycle 2/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
In Images ', ' Persha Studia ', ' Visual Concepts ', '5 Lives Studios ',
'Alientrap ', 'Asymmetric Publications ', 'B-Alive ', 'Clifftop Games ',
'Cornered Rat ', 'Deadline Games ', 'Deadpan Games ', 'Different Tales ', 'Dim
Bulb Games ', 'Direct Action Games ', 'DotEmu ', 'EVC ', 'Eden Industries ',
'Fast Travel Games ', 'Funomena ', 'G5 Software ', 'Gameyus Interactive ',
'Genius Slackers ', 'Ghost Pattern ', 'Giant Sparrow ', 'GriN Multimedia ',
'Heuristic Park ', 'KT Racing ', 'Knuist & Perzik ', 'Masque Publishing ', 'Mega
Cat Studios ', 'Mojiken Studio ', 'Monokel ', 'Moonshark ', 'Night Light
Interactive ', 'Nine Rocks Games ', 'OSome Studio ', 'Ostrich Banditos ', 'Ota
Imon Studios ', 'Polyslash ', 'Ratbag ', 'Santa Ragione ', 'Silver Wish Games ',
'Sir-Tech Software Inc. ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Studio
Drydock Pty Ltd ', 'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment
', 'The Bitmap Brothers ', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ',
'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ', 'Upstream Arcade ',
'Vile Monarch ', 'Wastelands Interactive ', 'Whale Rock Games ', 'Wide Games ',
'Winning Streak Games ', 'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker
Games ', 'Zuxxez', 'imaginarylab '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20
228/228 [=====] - 17s 76ms/step - loss: 23.2431 - mae:
3.1349 - val_loss: 28.5262 - val_mae: 4.8088
Epoch 2/20
228/228 [=====] - 17s 75ms/step - loss: 13.0945 - mae:
2.2926 - val_loss: 30.0225 - val_mae: 4.9215
Epoch 3/20
228/228 [=====] - 17s 75ms/step - loss: 11.4225 - mae:
2.0385 - val_loss: 27.4261 - val_mae: 4.6261
Epoch 4/20

```

228/228 [=====] - 17s 74ms/step - loss: 10.3929 - mae: 1.9255 - val_loss: 29.7866 - val_mae: 4.8723

Epoch 5/20

228/228 [=====] - 17s 74ms/step - loss: 9.8072 - mae: 1.8125 - val_loss: 28.4374 - val_mae: 4.7634

Epoch 6/20

228/228 [=====] - 17s 75ms/step - loss: 9.1943 - mae: 1.7442 - val_loss: 27.1443 - val_mae: 4.6598

Epoch 7/20

228/228 [=====] - 17s 74ms/step - loss: 8.5434 - mae: 1.6602 - val_loss: 30.9794 - val_mae: 5.0185

Epoch 8/20

228/228 [=====] - 17s 74ms/step - loss: 8.2459 - mae: 1.6185 - val_loss: 26.6254 - val_mae: 4.5532

Epoch 9/20

228/228 [=====] - 17s 76ms/step - loss: 7.4480 - mae: 1.4942 - val_loss: 27.9871 - val_mae: 4.7307

Epoch 10/20

228/228 [=====] - 17s 75ms/step - loss: 7.6614 - mae: 1.5160 - val_loss: 27.9873 - val_mae: 4.6999

Epoch 11/20

228/228 [=====] - 17s 75ms/step - loss: 7.2406 - mae: 1.4907 - val_loss: 29.6260 - val_mae: 4.8664

Epoch 12/20

228/228 [=====] - 17s 76ms/step - loss: 7.8111 - mae: 1.5091 - val_loss: 30.4987 - val_mae: 4.9307

Epoch 13/20

228/228 [=====] - 17s 75ms/step - loss: 6.8889 - mae: 1.4363 - val_loss: 28.3101 - val_mae: 4.6702

Chunk 52/52 // 98.08% Complete // Cycle 2/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Goldhawk Interactive ', ' KADOKAWA CORPORATION ', ' Lab42 ', ' Mandel ArtPlains ', ' Sumo Digital Academy ', ' comcept ', '1P2P ', 'Ackkstudios ', 'Baroque Decay ', 'Brave at Night ', 'Crocodile Entertainment ', 'Digital Spray Studios', 'EXOR Studios ', 'Gamedust ', 'Gamethunks', 'Impressions Games ', 'Jellyvision ', 'Kadokawa', 'Livesay Technologies ', 'MicroProse ', 'Moonbite Games ', 'NoClip ', 'PlayMagic Ltd ', 'Prideful Sloth ', 'Rimlight Studios ', 'Ruud Koorevaar ', 'Ryu ga Gotoku Studios', 'Simogo ', 'Spark Unlimited', 'Spike Chunsoft ', 'Sumo Digital', 'Unicorn Games Studio ', 'Villa Gorilla ', 'WXP ', 'frecle ApS '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

77/77 [=====] - 6s 75ms/step - loss: 26.4947 - mae: 3.3488 - val_loss: 36.6111 - val_mae: 4.9702

Epoch 2/20

77/77 [=====] - 6s 76ms/step - loss: 17.1611 - mae:

2.4446 - val_loss: 32.0547 - val_mae: 4.7269
Epoch 3/20
77/77 [=====] - 6s 76ms/step - loss: 14.7496 - mae: 2.1320 - val_loss: 30.9184 - val_mae: 4.6119
Epoch 4/20
77/77 [=====] - 6s 74ms/step - loss: 11.4764 - mae: 1.9468 - val_loss: 31.0917 - val_mae: 4.7220
Epoch 5/20
77/77 [=====] - 6s 76ms/step - loss: 11.6532 - mae: 1.9368 - val_loss: 30.8890 - val_mae: 4.6842
Epoch 6/20
77/77 [=====] - 6s 75ms/step - loss: 10.8384 - mae: 1.7658 - val_loss: 31.7106 - val_mae: 4.7612
Epoch 7/20
77/77 [=====] - 6s 75ms/step - loss: 10.1843 - mae: 1.7222 - val_loss: 30.9337 - val_mae: 4.7252
Epoch 8/20
77/77 [=====] - 6s 75ms/step - loss: 8.7353 - mae: 1.6080 - val_loss: 31.6796 - val_mae: 4.7731
Epoch 9/20
77/77 [=====] - 6s 75ms/step - loss: 9.2010 - mae: 1.5914 - val_loss: 31.5925 - val_mae: 4.7801
Epoch 10/20
77/77 [=====] - 6s 77ms/step - loss: 10.9188 - mae: 1.6880 - val_loss: 31.7105 - val_mae: 4.8276
Chunk 1/52 // 0.0% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Arzest', ' Atlantis Interactive Entertainment ', ' Avalanche Software ', ' Balan Company ', ' Bird Bath Games ', ' Cape Guy ', ' Dlala Studios ', ' Eurocom ', ' Forgotten Key ', ' Gone North Games ', ' Innersloth ', ' Massive Entertainment', ' Viva Media', ' bitComposer ', ' iNK Stories ', '2K Games ', '3000AD', '3D People ', 'A44 ', 'AGEOD ', 'AWE Games ', 'Accidental Queens ', 'Acclaim Studios Cheltenham ', 'Acme Gamestudio ', 'Aeternum Game Studios ', 'Alan Zucconi ', 'Alientrap ', 'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Argonaut Games ', 'Armature Studio ', 'Artematica ', 'Artisan Studios ', 'Arxel Tribe ', 'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'Auran ', 'Auroch Digital ', 'Aurogon Shanghai ', 'AurumDust ', 'Balancing Monkey Games ', 'Bedtime Digital Games ', 'Benjamin Rivers ', 'BestGameEver.com ', 'Big Ant Studios ', 'Big Boat Interactive ', 'Bit Blot ', 'Black Element ', 'Black Lab Games ', 'Blackpowder Games ', 'Blendo Games ', 'Bojan Brbora ', 'BreakAway Games ', 'Breaking Walls ', 'Broken Rules ', 'BumbleBeast ', 'CE-Asia ', 'Capy Games ', 'Cauldron Ltd. ', 'Causal Bit Games ', 'Centauri Production ', 'Charles University ', 'ClockStone Studio ', 'Cold Iron Studios ', 'Cosmo D Studios ', 'CreativeForge Games ', 'Cross-Product ', 'Cryo Interactive ', 'Daedalic Entertainment', 'Daniel Wynne', 'Data Becker ', 'Dejobaan Games ', 'Demruth ', 'Denki ', 'Digital Arrow ', 'Digital Eclipse ', 'Digital Fusion Inc. ',

'Digixart Entertainment ', 'Dreampainters ', 'E-Line Media ', 'Edelweiss ',
 'EggNut ', 'Eidos Interactive ', 'Elden Pixels ', 'Emobi Games ', 'Etranges
 Libellules ', 'Eurocom Entertainment Software', 'Eutechnyx ', 'Exiin ',
 'Exordium Games ', 'Fallen Tree Games ', 'FarmerGnome ', 'Fiction Factory Games
 ', 'FreakZone ', 'Freebird Games ', 'Funselektor Labs Inc. ', 'Future Games',
 'GUTS Department ', 'Gabe Cuzzillo ', 'Gaijin Games ', 'GameDesignDan ', 'Gato
 Salvaje Studio ', 'Gloomywood ', 'GlyphX Games ', 'GoodbyeWorld Games ',
 'Grundislav Games ', 'Gummy Cat ', 'Gust ', 'Halberd Studios ', 'Harebrained
 Schemes LLC ', 'Harmonix Music Systems ', 'Hazardous Software ', 'Hempuli Oy ',
 'Hi-Bit Studios ', 'Hiding Spot ', 'Himalaya Studios ', 'Hyperbolic Magnetism ',
 'INTERIOR/NIGHT ', 'Iceberg Interactive ', 'Indefatigable ', 'Innerspace VR ',
 'Investigate North ', 'Invictus ', 'Iridium Studios ', "It's Anecdotal ", 'Jacob
 Antonucci', 'Jagex Games Studio ', 'Jankenteam ', 'Jutsu Games ', 'Khaeon ',
 "Kiro'o Games ", 'Krams Design ', 'Kubat Software ', 'Lamplight Studios ',
 'League of Geeks ', 'Lienzo ', 'Lightning Rod Games ', 'Lince Works ', 'Lost
 Toys ', 'LuckyHammers ', 'Lumenox ehf ', 'Lunar Great Wall Studios ', 'MadMinute
 Games ', 'Made by Kiddies ', 'Magnum Games ', 'Massive Development ', 'Max
 Inferno ', 'Maximum Games ', 'MidBoss ', 'Midway Studios - Austin ', 'Mischief
 ', 'Misfits Attic ', 'Mojiken Studio ', 'Mothership Entertainment ', 'MyDearest
 ', 'N-Fusion Interactive Entertainment Corp.', 'NExT Studios ', 'NHN Corporation
 ', 'NetDevil ', 'Nicolas Intoxicate ', 'Ntronium Games ', 'Overhype Studios ',
 'Oxide Games ', 'Panther Games ', 'Pathos Interactive ', 'Pencil Test Studios ',
 'Peter Stock ', 'Piccolo ', 'Pixel Crow ', 'Planet Moon Studios ', 'Plausible
 Concept ', 'Point 5 Projects ', 'Primal Software ', 'Project Aces ', 'Project
 Aces ', 'Pulse Entertainment ', 'Punch Punk Games ', 'Pure FPS ', 'RageSquid ',
 'RainDance LX ', 'Rare Ltd.', 'Rayland Interactive ', 'Realtime Worlds ',
 'Related Designs ', 'Resolution Games ', 'Revolution of Strategy ', 'Ritual
 Entertainment', 'Robot Gentleman ', 'Rogue Entertainment ', 'S&G Software ',
 'Sandbox Interactive ', 'Sanzaru ', 'Schell Games', 'Shadow Tor Studios ',
 'ShadowRage ', 'Shining Rock Software ', 'Shockwave Productions ', 'Sigma Team
 ', 'Silver Lining Studio ', 'Silvio & Gey Savarese ', 'Similis ', 'Sketchy Logic
 ', 'Skydance Interactive ', 'Slocap ', 'Sobaka ', 'Spiderweb Software ', 'Spike
 Chunsoft ', 'Spiral House ', 'Sports Mogul ', 'Stormind Games ', 'Streko-
 Graphics Inc. ', 'Stunlock Studios ', 'Sunflowers Interactive ', 'System Era
 Softworks ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Tantalus ', 'Team Junkfish
 ', 'The Behemoth ', 'The Wandering Band LLC ', 'The Wandering Ben ',
 'ThinkingStars ', 'Third Law Interactive ', 'Threaks ', 'Three One Zero ',
 'Throw the Warped Code Out ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos
 Interactive ', 'Tom Happ ', 'Treyarch', 'Tri Synergy ', 'Turmoil Games ', 'Twice
 Circled ', 'U.S. Army ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft
 Sofia ', 'Unexpected ', 'Unspeakable Pixels ', 'Vagabond Dog ', 'Varsav Game
 Studios ', 'Vertigo Games ', 'Warsaw Film School Video Game & Film Production
 Studio ', 'Wayward Simulations ', 'Witch Beam ', 'WorldForge ', "Yuke's ", 'Zeal
 Game Studios ', 'adamgryu ', 'bitComposer Games', 'idoz & phops ', 'inkle',
 'tiger & squid ', 'ustwo '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

239/239 [=====] - 18s 75ms/step - loss: 61.7367 - mae: 5.9343 - val_loss: 43.3728 - val_mae: 4.8656
Epoch 2/20
239/239 [=====] - 18s 76ms/step - loss: 43.6921 - mae: 5.0380 - val_loss: 34.6677 - val_mae: 4.4323
Epoch 3/20
239/239 [=====] - 18s 75ms/step - loss: 41.3881 - mae: 4.8543 - val_loss: 32.8971 - val_mae: 4.3200
Epoch 4/20
239/239 [=====] - 18s 76ms/step - loss: 36.4779 - mae: 4.5789 - val_loss: 30.0886 - val_mae: 4.0721
Epoch 5/20
239/239 [=====] - 18s 75ms/step - loss: 33.1125 - mae: 4.3457 - val_loss: 29.4674 - val_mae: 4.0036
Epoch 6/20
239/239 [=====] - 18s 75ms/step - loss: 32.8707 - mae: 4.3199 - val_loss: 26.2815 - val_mae: 3.6868
Epoch 7/20
239/239 [=====] - 18s 75ms/step - loss: 31.2371 - mae: 4.1738 - val_loss: 26.3646 - val_mae: 3.7747
Epoch 8/20
239/239 [=====] - 18s 75ms/step - loss: 28.7091 - mae: 4.0171 - val_loss: 24.8083 - val_mae: 3.6010
Epoch 9/20
239/239 [=====] - 18s 75ms/step - loss: 28.1443 - mae: 3.9618 - val_loss: 23.7148 - val_mae: 3.5762
Epoch 10/20
239/239 [=====] - 18s 75ms/step - loss: 27.5146 - mae: 3.9183 - val_loss: 24.7194 - val_mae: 3.6290
Epoch 11/20
239/239 [=====] - 18s 76ms/step - loss: 26.8077 - mae: 3.8804 - val_loss: 22.9382 - val_mae: 3.5004
Epoch 12/20
239/239 [=====] - 18s 75ms/step - loss: 26.1316 - mae: 3.7790 - val_loss: 22.5904 - val_mae: 3.4603
Epoch 13/20
239/239 [=====] - 18s 74ms/step - loss: 25.1741 - mae: 3.7108 - val_loss: 24.0153 - val_mae: 3.5481
Epoch 14/20
239/239 [=====] - 18s 75ms/step - loss: 24.6092 - mae: 3.6918 - val_loss: 22.3924 - val_mae: 3.3643
Epoch 15/20
239/239 [=====] - 18s 75ms/step - loss: 24.5210 - mae: 3.6385 - val_loss: 23.6229 - val_mae: 3.5803
Epoch 16/20
239/239 [=====] - 18s 75ms/step - loss: 24.1889 - mae: 3.6106 - val_loss: 23.0534 - val_mae: 3.4718
Epoch 17/20

239/239 [=====] - 18s 74ms/step - loss: 23.5531 - mae: 3.5306 - val_loss: 21.5511 - val_mae: 3.4162

Epoch 18/20

239/239 [=====] - 18s 74ms/step - loss: 22.7184 - mae: 3.4703 - val_loss: 25.7042 - val_mae: 3.6398

Epoch 19/20

239/239 [=====] - 18s 75ms/step - loss: 23.4938 - mae: 3.5057 - val_loss: 23.7143 - val_mae: 3.5316

Epoch 20/20

239/239 [=====] - 18s 75ms/step - loss: 21.5759 - mae: 3.3979 - val_loss: 23.3227 - val_mae: 3.4814

Chunk 2/52 // 1.92% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Application', 'Cricket', 'Trainer'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['10tons ', 'Cranberry Production ', 'Deep Silver Fishlabs ', 'Digital Eclipse ', 'EA Games ', 'Elbow Rocket ', 'FAKT Software ', 'FireFly Studios ', 'Funatics ', 'Funatics Software', 'ICEBOX Studios ', 'LLC', 'LandFall ', 'Moonbyte Studios ', 'Navarre Corp ', 'Nival ', 'Out of the Blue Games S.L. ', 'Overflow Games ', 'Phosphor Games ', 'Polar Motion ', 'RA Images ', 'Reality Twist ', 'Relentless Studios ', 'S.L. ', 'Sega', 'Slitherine Group', 'Ste Curran ', '10tons Entertainment', '369 Interactive ', 'A Crowd of Monsters ', 'Aarne "MekaSkull" Hunziker ', 'Access Games ', 'Action Forms Ltd. ', 'Activision ', 'Alientrap ', 'Alt Shift ', 'Amanita Design ', 'Apeiron ', 'Argonaut Games', 'Artematica ', 'Ascension Studios', 'Asylum Entertainment ', 'Atomic Games ', 'Awe Interactive ', 'Backbone Entertainment ', 'Beautiful Game Studios ', 'Behold Studios ', 'Big Time Software ', 'Bigmoon Entertainment ', 'Black Mesa Modification Team ', 'Blooming Buds Studio ', 'Blue Manchu ', 'Blue Omega ', 'BootdiskRevolution ', 'Boxed Dream ', 'Brace Yourself Games ', 'Brat Designs ', 'BreakAway Games ', 'Butterscotch Shenanigans ', 'Bytten Studio ', 'Cardboard Utopia ', 'Casus Ludi ', 'Cavia Inc. ', 'Cinemax', 'ClockStone Studio ', 'Coilworks ', 'Convoy Games ', 'Corbie Games ', 'Cranberry Studios ', 'Crazy Rocks ', 'Creative Edge Software ', 'Cygnus Entertainment ', 'D'Avekki Studios Limited ', 'DANG! ', 'DTP Entertainment', 'Darkling Room ', 'Darkworks ', 'Data Realms ', 'Deep Shadows ', 'Destineer ', 'Dimfrost ', 'Discord Games ', 'Double Stallion Games ', 'Drama Drifters ', 'Dreams Uncorporated ', 'Dreamworks Games ', 'EA Bright Light ', 'EA Pacific ', 'EasyGameStation ', 'Eden Industries ', 'Elf Games ', 'Elseware Experience ', 'Erik Svedang ', 'Expansive Worlds ', 'Explosm ', 'Eyebrow Interactive ', 'FAKT Software ', 'FAKT Software GmbH', 'FYQD-Studio ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Flying Cafe for Semianimals ', 'Focus Home Interactive ', 'Fourattic ', 'Free Lives ', 'Funatics Development GmbH', 'G5 Software ', 'Gaijin Games ', 'Gaslamp Games ', 'General Interactive Co. ', 'Greg Lobanov ', 'Gust ', 'Headfirst Productions ', 'Hibernian Workshop ', 'Hothouse Creations ', 'ION LANDS ', 'Ice-Pick Lodge ',

'InGame Studios ', 'Interceptor Entertainment ', 'Interdimensional Games Inc ',
 'Inti Creates ', 'Investigate North Aps ', 'Invictus ', 'Jagex Games Studio ',
 'Jason Oda ', 'Jasozz Games ', 'JoyMasher ', 'Jump Over The Age ', 'Kitfox Games
 ', 'Kraken Unleashed ', 'Krome Studios ', 'La Plata ', 'LandFall Games', 'Lazy 8
 Studios ', 'Logic Artists ', 'Long Hat House ', 'MASA Group ', 'Mad Mimic ',
 'Maddy Makes Games ', 'Mages. ', 'Marvelous First Studio ', 'Maschinen-Mensch ',
 'Massive Monster ', 'Matt Kap ', 'Mattel ', 'Matthias Linda ', 'Midway Studios -
 Austin ', 'Mighty Kingdom ', 'Mighty Rabbit Studios ', 'Mindware Studios ',
 'Momentum DMT ', 'Morteshka ', 'Mythic Entertainment ', 'NExT Studios ', 'Nerial
 ', 'Nival Interactive', 'Nova Production ', 'Original Fire Games ', 'Out of the
 Blue', 'Oxeye ', 'PETOONS STUDIO SL ', 'Paper Cult ', 'PaperSeven ', 'Paragon
 Studios ', 'Passtech Games ', 'Petri Purho ', 'Phobia Game Studio ', 'Phoenix
 Online Studios ', 'Phosphor Games Studio', 'Pixel Multimedia ', 'Playwing ',
 'PortaPlay ', 'Psychodev ', 'Punchers Impact ', 'Puppy Punch Productions ',
 'Puuba ', 'Pyramid ', 'Quotix Software ', 'Radical Fish Games ', 'Reality Twist
 GmbH', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Replay Studios', 'Richard
 Hofmeier ', 'Robi Studios ', 'Ronimo Games ', 'RuneHeads ', 'Runner Duck ',
 'Sand Sailor Studio ', 'Scientifically Proven ', 'Serious Brew ', 'Sierra
 Entertainment ', 'Skilltree Studios ', 'Slitherine', 'Snapshot Games Inc. ',
 'SomaSim ', 'Sonalysts ', 'Spike Chunsoft ', 'Spotlightor Interactive ', 'Spry
 Fox ', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ', 'Storm
 in a Teacup ', 'Stormcloud Creations ', 'Stunlock Studios ', 'Sumo Digital',
 'Sunhead Games ', 'Sunstorm Interactive ', 'SuperScarySnakes ', 'Swing Swing
 Submarine ', 'Sword & Axe LLC ', 'Synetic ', 'TRAGsoft ', 'Tag of Joy ', 'Targem
 Games ', 'Team Reptile ', 'Teku Studios ', 'The Gentlebros ', 'The Moonwalls ',
 'The Parasight ', 'The Pixel Hunt ', 'The Wild Gentlemen ', 'Thing Trunk ',
 'Three Fields Entertainment ', 'Toge Productions ', 'Torus Games ', 'Toys for
 Bob ', 'Triangle Studios ', 'Troglobytes Games', 'Twistplay', 'Uppercut Games
 Pty Ltd ', 'V7 Entertainment Inc. ', 'Various ', 'Vicarious Visions', 'Vile
 Monarch ', 'Vogster ', 'Wadjet Eye Games', 'Weather Factory ', 'White Paper
 Games ', 'XXV Productions ', 'Yippee Entertainment LTD ', 'Zeboyd Games ',
 'Zipper Interactive ', 'Zoetrope Interactive ', 'osao games ', 'stillalive
 studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 18s 75ms/step - loss: 46.7267 - mae:
 5.3481 - val_loss: 39.1832 - val_mae: 5.1020

Epoch 2/20

238/238 [=====] - 18s 74ms/step - loss: 38.2919 - mae:
 4.7988 - val_loss: 35.8132 - val_mae: 4.7866

Epoch 3/20

238/238 [=====] - 18s 75ms/step - loss: 35.5318 - mae:
 4.5763 - val_loss: 32.9413 - val_mae: 4.5922

Epoch 4/20

238/238 [=====] - 18s 77ms/step - loss: 33.6260 - mae:
 4.4382 - val_loss: 30.6110 - val_mae: 4.4064

Epoch 5/20

```

238/238 [=====] - 18s 75ms/step - loss: 30.6918 - mae:
4.2258 - val_loss: 29.2548 - val_mae: 4.2684
Epoch 6/20
238/238 [=====] - 18s 74ms/step - loss: 29.7441 - mae:
4.1213 - val_loss: 29.4390 - val_mae: 4.2845
Epoch 7/20
238/238 [=====] - 18s 76ms/step - loss: 29.0369 - mae:
4.0768 - val_loss: 28.2216 - val_mae: 4.1807
Epoch 8/20
238/238 [=====] - 18s 75ms/step - loss: 27.1997 - mae:
3.9495 - val_loss: 29.6168 - val_mae: 4.3535
Epoch 9/20
238/238 [=====] - 18s 75ms/step - loss: 26.8229 - mae:
3.8573 - val_loss: 28.2841 - val_mae: 4.2210
Epoch 10/20
238/238 [=====] - 18s 75ms/step - loss: 25.3031 - mae:
3.7562 - val_loss: 30.6242 - val_mae: 4.3932
Epoch 11/20
238/238 [=====] - 18s 74ms/step - loss: 24.1944 - mae:
3.6808 - val_loss: 26.2598 - val_mae: 3.9992
Epoch 12/20
238/238 [=====] - 18s 74ms/step - loss: 24.6507 - mae:
3.6798 - val_loss: 29.6813 - val_mae: 4.4124
Epoch 13/20
238/238 [=====] - 18s 74ms/step - loss: 24.0786 - mae:
3.6345 - val_loss: 28.4714 - val_mae: 4.2318
Epoch 14/20
238/238 [=====] - 18s 75ms/step - loss: 23.7245 - mae:
3.6198 - val_loss: 26.2058 - val_mae: 4.0182
Epoch 15/20
238/238 [=====] - 18s 75ms/step - loss: 22.6887 - mae:
3.5040 - val_loss: 30.1595 - val_mae: 4.3932
Epoch 16/20
238/238 [=====] - 18s 75ms/step - loss: 22.8847 - mae:
3.5241 - val_loss: 29.3532 - val_mae: 4.3225
Epoch 17/20
238/238 [=====] - 18s 76ms/step - loss: 22.3976 - mae:
3.4806 - val_loss: 28.8044 - val_mae: 4.3248
Epoch 18/20
238/238 [=====] - 18s 75ms/step - loss: 21.5240 - mae:
3.4116 - val_loss: 28.0580 - val_mae: 4.2181
Epoch 19/20
238/238 [=====] - 18s 74ms/step - loss: 21.8021 - mae:
3.4326 - val_loss: 27.1229 - val_mae: 4.1354
Chunk 3/52 // 3.85% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)

```

['Text'] will be ignored

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
A Jolly Corpse ', ' Alex May ', ' Capcom Vancouver ', ' Digital Leisure ', '
Dose', ' Dreadlocks ', ' Eighting ', ' Eurocom ', ' Foreign Gnomes ', ' FunHouse
', ' Kitty', ' Koei Tecmo Games ', ' Live Wire ', ' Ltd. ', ' Mobigame ', '
Rabbit & Bear Studios ', ' Red Winter Software ', ' Sky Fallen', ' and JW ',
'1C:Ino-Co ', '3D Realms ', '4Head Studios ', '5-Bits Games ', '7 Studios ',
'8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ',
'Afterburner Studios ', 'Allgraf ', 'Amaze Entertainment ', 'Ankama Games ',
'ArachnidGames ', 'Arc System Works', 'Artematica ', 'AtomicTorch ', 'Attention
To Detail ', 'Avalanche Software ', 'Barking Dog ', 'Bay 12 Games ', 'Bedlam
Games ', 'Ben Esposito ', 'Biart ', 'Bippinbits ', 'Bithell Games ', 'Black Salt
Games ', 'Blue Castle Games ', 'Boston Animation ', 'BreakAway Games ', 'Buka
Entertainment ', 'Byterunners Game Studio ', 'CCCP ', 'COWCAT ', 'Canal+
Multimedia ', 'Cave ', 'Chaosmonger Studio ', 'Chris Nordgren', 'Chromatic Games
', 'Code Force ', 'Coin Crew Games ', 'Cosmonaut Studios ', 'Critical Studio ',
'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'DESTINYbit ', 'DNS Development ',
'Dancing Dragon games ', 'Dark Crystal Games ', 'Digital Confectioners ',
'Digital Happiness ', 'Digital Leisure Inc.', 'Digital Lode ', 'Digitalo Studios
', 'Dimps Corporation ', 'Disney Interactive Studios ', 'DoubleBear Productions
', 'Dreadlocks Ltd', 'Dykast Lubomir ', 'Eastshade Studios ', 'Elder Games ',
'Erik Svedang ', 'Eurocom Entertainment Software', 'Fabraz ', 'Fallen Flag
Studio ', 'Fictiorama Studios ', 'Fireplace Games ', 'Fishing Cactus ',
'Foregone ', 'Frima Studio ', 'Frozen line ', 'Game Grumps ', 'Gameyus
Interactive ', 'Gaslamp Games ', 'Gentlymad ', 'Ghost Ship Games ', 'Haggard
Games ', 'Heavy Iron Studios', 'Herobeat Studios ', 'Heuristic Park ', 'Hitbox
', 'Holospark ', 'Honig Studios ', 'HyperSloth ', 'Ikarion ', 'Illwinter Design
Group ', 'Innonics ', 'Instant Kingdom ', 'Invader Studios ', 'Jesse Makkonen ',
'KUNO INTERACTIVE ', 'KillHouse Games ', 'Layopi Games ', 'Live Wire Films',
'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'MagicalTimeBean ', 'Mantra
', 'Massive Work Studio ', 'Matias Schmied ', 'Midgar Studio ', 'Mike Studios ',
'Mindware Studios ', 'Minor Key Games ', 'Misfits Attic ', 'Moppin ', 'Most
Wanted Entertainment ', 'Motion Twin ', 'Muro Studios Ltd. ', 'NATSUME ATARI
Inc.', 'Namco ', 'Namco Bandai Games ', 'Nerve Software ', 'New Blood
Interactive ', 'Nfusion ', 'Nippon Ichi Software ', 'Ocelot Society ', 'Omega
Force', 'Oscar Brittain ', 'Outrage Games ', 'Owlchemy Labs ', 'PD Design Studio
Pte Ltd ', 'Paleo Entertainment ', 'Parallax Software ', 'Pathea Games ',
'Piranha Games ', 'Pixel Night ', 'Pixpil ', 'Plastic Reality ', 'Pocket Trap ',
'Popcannibal ', 'Positech Games ', 'Propaganda Games ', 'QCF Design ', 'ROCKFISH
Games ', 'Radon Labs ', 'Rage Software ', 'RageSquid ', 'Raspina Studio ',
'Ratbag ', 'Razorworks ', 'Red Candle Games ', 'Red Thread Games ', 'Red Winter
Software Limited', 'Reflections Interactive ', 'Related Designs ', 'Resolution
Games ', 'Rudolf Kremers', 'Runewaker Entertainment ', 'Scavengers Studio ',
'Seaven Studio ', 'Secret Base ', 'Shaba Games ', 'Silent Grove Studios ',
'Sirius Games ', 'Sixteen Tons Entertainment ', 'Sky Fallen ', 'Snowhound Games
', 'Soldak Entertainment ', 'Sorath ', 'Sourcenext ', 'Stickmen Studios ',
```

'Storm in a Teacup ', 'Stormfront Studios ', 'Streko-Graphics Inc. ', 'Studio V ', 'Sundae Month ', 'Sunstorm Interactive ', 'T19 Games ', 'Team Ninja', 'Team Salvato ', 'Tendershoot', 'Terri', 'Terry Cavanagh ', 'Tesseract Games ', 'The Chinese Room ', 'Tindalos Interactive ', 'TopWare Interactive ', 'Toukana Interactive ', 'Twisted Pixel Games ', 'Two Tribes', 'Ubisoft Montreal', 'Ultimation Inc. ', 'Ultra Ultra ', 'Un Je Ne Sais Quoi ', 'Unfold Games ', 'V1 Interactive ', 'ValuSoft ', 'Vicious Cycle ', 'White Paper Games ', 'White Rabbit Interactive ', 'Z-Axis', 'Zachtronics Industries ', 'Zoetrope Interactive ', 'Zuxxez ', 'i-illusions '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 19s 76ms/step - loss: 47.2157 - mae: 5.2563 - val_loss: 44.7053 - val_mae: 5.3922

Epoch 2/20

238/238 [=====] - 18s 75ms/step - loss: 40.1803 - mae: 4.8346 - val_loss: 43.8293 - val_mae: 5.3327

Epoch 3/20

238/238 [=====] - 18s 75ms/step - loss: 37.0873 - mae: 4.5803 - val_loss: 43.0383 - val_mae: 5.2567

Epoch 4/20

238/238 [=====] - 18s 76ms/step - loss: 34.4539 - mae: 4.3533 - val_loss: 43.7991 - val_mae: 5.3925

Epoch 5/20

238/238 [=====] - 18s 76ms/step - loss: 33.5641 - mae: 4.3302 - val_loss: 40.9871 - val_mae: 5.1679

Epoch 6/20

238/238 [=====] - 18s 74ms/step - loss: 32.5758 - mae: 4.1925 - val_loss: 37.5358 - val_mae: 4.8968

Epoch 7/20

238/238 [=====] - 18s 76ms/step - loss: 29.8163 - mae: 4.0190 - val_loss: 42.3436 - val_mae: 5.2775

Epoch 8/20

238/238 [=====] - 18s 76ms/step - loss: 29.7238 - mae: 4.0166 - val_loss: 40.4352 - val_mae: 5.1415

Epoch 9/20

238/238 [=====] - 18s 75ms/step - loss: 27.7849 - mae: 3.8915 - val_loss: 36.8972 - val_mae: 4.8899

Epoch 10/20

238/238 [=====] - 18s 76ms/step - loss: 27.6253 - mae: 3.8553 - val_loss: 38.3184 - val_mae: 4.9563

Epoch 11/20

238/238 [=====] - 18s 75ms/step - loss: 27.0591 - mae: 3.8251 - val_loss: 39.1951 - val_mae: 5.0532

Epoch 12/20

238/238 [=====] - 18s 75ms/step - loss: 26.6586 - mae: 3.7707 - val_loss: 36.6333 - val_mae: 4.8742

Epoch 13/20

```

238/238 [=====] - 18s 75ms/step - loss: 26.3489 - mae:
3.7265 - val_loss: 38.0212 - val_mae: 4.9517
Epoch 14/20
238/238 [=====] - 18s 76ms/step - loss: 25.7388 - mae:
3.7087 - val_loss: 40.3743 - val_mae: 5.1656
Epoch 15/20
238/238 [=====] - 18s 75ms/step - loss: 25.1412 - mae:
3.6277 - val_loss: 37.3590 - val_mae: 4.9630
Epoch 16/20
238/238 [=====] - 18s 74ms/step - loss: 25.6028 - mae:
3.6709 - val_loss: 36.8421 - val_mae: 4.9059
Epoch 17/20
238/238 [=====] - 18s 76ms/step - loss: 23.9427 - mae:
3.5431 - val_loss: 40.3556 - val_mae: 5.1987
Chunk 4/52 // 5.77% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C:Ino-Co ', ' Acclaim Studios Manchester ', ' Ankama ', ' Atari ', ' Atari SA
', ' Black Drakkar Games ', ' Blitz Games ', ' Buried Signal ', ' Calappa Games
', ' Clover Bite ', ' Creative Business Unit III ', ' Cyan', ' EA Vancouver ', '
Endlessfluff Games ', ' Grove Street Games ', ' Gun Interactive ', ' GungHo', '
Humble Games', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio ', '
MicroProse', ' MicroProse ', ' Mixed Realms ', ' N-Game Studios ', ' Navegante
Entertainment ', ' Phosphor Games ', ' PopCap ', ' SeithCG ', ' SkyBox Labs ', '
Splash Damage', ' Team 6 Games Studio ', ' TimeGate Studios ', '10 Chambers
Collective ', '17-Bit ', '2By3 Games ', '4D Rulers ', '6 Eyes Studio ',
'@unepic_fran ', 'AGEOD ', 'Abrakam SA ', 'Acclaim', 'Alkemi Games ', 'Ankama
Games', 'Anshar Studios ', 'Antab Studio ', 'Astro Port ', 'Atari', 'Atelier
Mimina ', 'Auran ', 'Autumn Moon ', 'Awesome Games Studio ', 'Axel Fox ',
'Bandai Namco Games', 'Barking Dog ', 'Beard Envy ', 'Bedtime Digital Games ',
'Behavior Studios ', 'BetaDwarf ', 'Bits & Beasts ', 'Bonus Level Entertainment
', 'Brain Candy ', 'Brendon Chung ', 'Bright Future GmbH ', 'Bromio', 'Byte
Barrel ', 'Caged Element Inc. ', 'Camel 101 ', 'Campo Santo ', 'Cat Daddy Games
', 'Cellar Door Games ', 'ChessBase ', 'Chronic Logic ', 'Claeys Brothers Arts
', 'Clever Beans ', 'Codemasters Birmingham ', 'Coffee Stain North ',
'Covenant.dev ', 'Crate Entertainment ', 'Crazy Monkey Studios ', 'Creepy Jar ',
'Cyan Worlds', 'Cyber Rhino Studios ', 'Cypron Studios ', 'Daybreak Games ',
'Dead Mage Studio ', 'Demagog Studio ', 'Devolver Digital ', 'Doinksoft ',
'DrinkBox Studios ', 'EA Sports', 'Edge Case Games ', 'Exbleative ', 'Fallen
Earth', 'Fallen Leaf', 'Feral Cat Den ', 'Fishcow Studio ', 'Fishlabs ',
'Flaming Fowl Studios ', 'Fort Triumph LTD ', 'Free Lives ', 'Freebird Games ',
'Freedom LLC ', 'Funnel Entertainment', 'GalaxyTrail ', 'Gambrinous ', 'Game
Arts', 'Game Arts ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of a Tale',
'Grace Bruxner ', 'Green Lava Studios ', 'Greenheart Games ', 'Ground Shatter
Ltd. ', 'Gust ', 'Harmonix Music Systems ', 'Hasbro Interactive', 'Heatwave
Interactive ', 'Heavy Iron Studios ', 'Hexagon Entertainment ', 'HopFrog ',
'Hothouse Creations ', 'Humble Bundle', 'IGGYMOB ', 'Idea Factory ', 'IllFonic',

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'IllFonic ', 'Image Space Incorporated ', 'Interactive Stone ', 'IronOak Games ', 'Ivy Games LLC ', 'JC Entertainment ', 'Jason Roberts', 'Johnny Dale Lonack ', 'Kaos Studios ', 'Kong Orange ', 'Lazy Bear Games ', 'Lead Pursuit ', 'Lexis Numerique ', 'Logic Artists ', 'Lucid Games ', 'Lukas Navratil ', 'Mad Orange ', 'Massive Damage', 'MediaMobsters ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd', 'Mode 7 Games ', 'Monolith Productions', 'Mopeful Games ', 'Motiga ', 'Muse Games ', 'Mutant Games ', 'Nemesys ', 'Neversoft Entertainment', 'Nival Interactive', 'Nussoft', 'Object ', 'Okomotive ', 'Old Moon ', 'Old School Games ', 'Orann ', 'Owned by Gravity ', 'Paranoid Interactive ', 'Perfect World Entertainment ', 'Phil Hassey ', 'Phosfiend Systems ', 'Phosphor Games Studio', 'Pinkerton Road Studio ', 'Planet Moon Studios ', 'PortaPlay ', 'Positech Games ', 'Prideful Sloth ', 'Proper Games ', 'Pulsatrix Studios ', 'Queasy Games ', 'R8 Games ', 'Radiation Blue ', 'Razorworks ', 'Rebelmind ', 'Red 5 Studios ', 'Red Redemption ', 'Refugium Games ', 'Rewolf Software ', 'Robotality ', 'Sassybot ', 'Scott Cawthon ', 'Shiro Games ', 'Sick Puppies ', 'Sierra Entertainment ', 'Silent Dreams ', 'Silver Style ', 'Slitherine ', 'Smudged Cat Games ', 'Spaces of Play ', 'Sports Mogul ', 'StarWraith ', 'Stormfront Studios ', 'Stuck In Attic ', 'Sushee ', 'TALEROCK ', 'TIGAMES ', 'Team2Bit ', 'Team6 Game Studios', 'The Chinese Room ', 'The Fullbright Company ', 'Throughline Games ', 'Tom Francis ', 'Tri Synergy ', 'Tribute Games ', 'Trine Games ', 'Under the Stairs ', 'Video System ', 'Vile Monarch ', 'W!Games ', 'Wadjet Eye Games', 'Warner Bros. Interactive Entertainment ', 'Whalebox Studio ', 'Whole Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Wizarbox ', 'WorldForge ', 'Wube Software LTD. ', 'Yukitama Creative Industries ', 'Zoink! ', 'animdude ']

will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

240/240 [=====] - 19s 76ms/step - loss: 39.8784 - mae: 4.8064 - val_loss: 46.0436 - val_mae: 5.5135

Epoch 2/20

240/240 [=====] - 18s 74ms/step - loss: 32.5485 - mae: 4.3354 - val_loss: 42.5834 - val_mae: 5.2622

Epoch 3/20

240/240 [=====] - 18s 75ms/step - loss: 30.1101 - mae: 4.1569 - val_loss: 37.1732 - val_mae: 4.9086

Epoch 4/20

240/240 [=====] - 18s 75ms/step - loss: 27.2425 - mae: 3.9668 - val_loss: 34.0475 - val_mae: 4.6636

Epoch 5/20

240/240 [=====] - 18s 74ms/step - loss: 25.6522 - mae: 3.8216 - val_loss: 33.2468 - val_mae: 4.5848

Epoch 6/20

240/240 [=====] - 18s 75ms/step - loss: 24.0886 - mae: 3.7147 - val_loss: 31.2254 - val_mae: 4.3790

Epoch 7/20

240/240 [=====] - 18s 75ms/step - loss: 23.3981 - mae: 3.6302 - val_loss: 34.1838 - val_mae: 4.6689


```

Epoch 8/20
240/240 [=====] - 18s 76ms/step - loss: 23.2278 - mae:
3.6127 - val_loss: 30.3875 - val_mae: 4.3680
Epoch 9/20
240/240 [=====] - 18s 75ms/step - loss: 22.2071 - mae:
3.5219 - val_loss: 29.2548 - val_mae: 4.2450
Epoch 10/20
240/240 [=====] - 18s 75ms/step - loss: 21.7388 - mae:
3.4514 - val_loss: 28.3905 - val_mae: 4.1921
Epoch 11/20
240/240 [=====] - 18s 75ms/step - loss: 20.7234 - mae:
3.4068 - val_loss: 28.3578 - val_mae: 4.2115
Epoch 12/20
240/240 [=====] - 18s 76ms/step - loss: 20.8920 - mae:
3.3778 - val_loss: 28.2107 - val_mae: 4.1916
Epoch 13/20
240/240 [=====] - 18s 75ms/step - loss: 20.0235 - mae:
3.3398 - val_loss: 25.9329 - val_mae: 3.9985
Epoch 14/20
240/240 [=====] - 18s 76ms/step - loss: 19.1057 - mae:
3.2698 - val_loss: 28.8908 - val_mae: 4.1912
Epoch 15/20
240/240 [=====] - 18s 75ms/step - loss: 20.7570 - mae:
3.3440 - val_loss: 28.5451 - val_mae: 4.1793
Epoch 16/20
240/240 [=====] - 18s 75ms/step - loss: 18.7552 - mae:
3.2346 - val_loss: 26.9080 - val_mae: 4.0515
Epoch 17/20
240/240 [=====] - 18s 76ms/step - loss: 18.1244 - mae:
3.1650 - val_loss: 26.1771 - val_mae: 3.9677
Epoch 18/20
240/240 [=====] - 18s 75ms/step - loss: 18.0137 - mae:
3.1431 - val_loss: 25.8818 - val_mae: 3.9770
Epoch 19/20
240/240 [=====] - 18s 76ms/step - loss: 17.9569 - mae:
3.1398 - val_loss: 27.5696 - val_mae: 4.1341
Epoch 20/20
240/240 [=====] - 18s 75ms/step - loss: 17.6169 - mae:
3.1147 - val_loss: 26.7466 - val_mae: 4.0269
Chunk 5/52 // 7.69% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' 343 Industries ', ' Atari SA ', ' Beamdog', ' Black Sea

```

Games ', ' Bloom Technology ', ' Blueside ', ' Boss Key Productions ', ' Cing ',
 ' Cognosphere ', ' Crema Games ', " DON'T NOD ", ' Davit Andreasyan ', ' Deck
 Nine Games ', ' Easy Trigger Games ', ' Eerie Guest ', ' Hex Entertainment ', '
 Ice Cold Games ', ' Infogrames', ' Jujubee S.A. ', ' Kaiko ', ' Katuri
 Interactive ', ' Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' MONKEYCRAFT
 Co. Ltd. ', ' Melbourne House ', ' Most Wanted Entertainment ', ' Novacore
 Studios ', ' Novik & Co ', ' Overhaul Games ', ' Pine Scented Software ', '
 PixelHive ', ' Psyop ', ' Slitherine Group ', ' Spike Chunsoft ', ' Squad ', '
 Targem Games ', ' Team Reptile ', ' Transmission Games', ' UNKNOWN GAMES ', '
 Vanguard Games ', ' Virtuos ', ' Voidpoint', ' Xaviant ', '1C Entertainment',
 '1C-Softclub ', '343 Industries', '3D People ', '3D Realms', '3DClouds ', '4X
 Studios ', 'Action Squad Studios ', 'Activision ', 'Almost Human ', 'Amanita
 Design ', 'Appaloosa Interactive ', 'Aquiris Game Studio ', 'Arclight Creations
 ', 'Arkedo Studio ', 'Artifact Entertainment ', 'Artifex Mundi ', 'Artificial
 Mind and Movement ', 'Ascendant Studios ', 'Askiisoft ', 'Atari', 'Aterdux
 Entertainment ', 'Bandai Namco Games', 'Barking Dog ', 'Behold Studios ',
 'Benjamin "ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Berzerk Studio ', 'Big
 Red Software ', 'Big Sandwich Games', 'Bishop Games ', 'Bitbox Ltd. ', 'Black
 Isle Studios', 'Black Matter ', 'Black Sea Studios', 'Black Sea Studios ',
 'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Boss Key', 'Bossa Studios
 ', 'Brain Slap Studio ', 'Browsome ', 'Buka Entertainment', 'Bulwark Studios ',
 'Burut Software ', 'ByteRockers' Games ", 'Cardboard Computer ', 'Casey
 Donnellan Games LLC ', 'Cat Rabbit ', 'Cauldron Ltd. ', 'ChaosForge ', 'Choice
 Provisions ', 'Cingular mMode', 'Clever-Plays ', 'Clifftop Games ', 'ClockStone
 Studio ', 'Codo Games ', 'Coffee Stain Studios', 'Conifer Games ', 'Core Design
 Ltd. ', 'Cradle Games ', 'CrazyBunch ', 'Creat Studios ', 'CreativeForge Games
 ', 'CremaGames', 'Critique Gaming ', 'Cryptozoic Entertainment', 'DONTNOD
 Entertainment', 'Daniel Mullins Games ', 'Dark Energy Digital ', 'Defiant
 Development ', 'DigiFX Interactive ', 'Digital Arrow ', 'Dingaling ', 'Dirigo
 Games ', 'Dreadbit ', 'E-One Studio ', 'EA Bright Light ', 'EKO Software ',
 'Elastic Games ', 'Empyrean ', 'Evan Todd ', 'Fiddlesticks Games ', 'Final Form
 Games', 'Fluent ', 'Foam Sword ', 'Foolish Mortals Games ', 'Forge Reply ',
 'Four Quarters ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ',
 'GFI Russia ', 'Galilea Multimedia ', 'Gamious ', 'Geeta Games ', 'Geniaware ',
 'Goblinz Studio ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'Grundislav
 Games ', 'HD Interactive', 'HandyGames ', 'Happy Ray Games ', 'Hato Moa ',
 'Hidden Layer Games ', 'Hollow Ponds ', 'Hollow Ponds and Richard Hogg ',
 'IMGN.PRO ', 'IR Gurus ', 'Ice Code Games', 'Ice-Pick Lodge ', 'Iceberg
 Interactive', 'Impressions Games ', 'In Utero ', 'Infinite Monkeys ', 'Innerloop
 ', 'Joakim Sandberg', 'Joel Mcdonald ', 'Juice Games ', 'Jujubee', 'Jump Over
 The Age ', 'Just A Pixel ', 'Kaiko ', 'Katauri Interactive', 'Koboldgames ',
 'Kuma Reality Games ', 'Kyle Thompson ', 'Kyy Games ', 'L30 Interactive ', 'Lab
 Zero Games ', 'Left Behind Games ', 'Lichthund ', 'Light Brick ', 'Lion Shield',
 'Lo-Fi Games ', 'Love Conquers All Games ', 'Lucky Mountain Games ', 'Lucky
 Pause ', 'M2', 'M2H', 'MONKEYCRAFT Co. Ltd. ', 'MadCat Interactive Software ',
 'Magic Design Studios ', 'Master Creating ', 'Metropolis Software ', 'Micro
 Application ', 'Mirage Game Studios ', 'Mission Studios ', 'Modern Dream ',
 'Mojo Bones ', 'Moon Spider Studio ', 'Moonlight Games ', 'Mosaic Mask ', 'NExT

Studios ', 'NVYVE Studios ', 'Namco ', 'Necrophone ', 'Nemesys ', 'Neon Studios', 'NetDevil ', 'New World Computing ', 'Nfusion ', 'Nigoro ', 'Nival Interactive', 'No Brakes Games ', 'Northway Games ', 'Novarama ', 'Nullpointer Games ', 'Numantian Games ', 'Ovosonico ', 'Palindrome Interactive ', 'Parabole ', 'Particle Systems ', 'Paul Helman ', 'Phantagram', 'Pieces Interactive ', 'PolyKnight Games ', 'Primal Software ', 'Psyop Games', 'QLOC ', 'Quantic Dream', 'Rage Software ', 'Rapid Eye Entertainment ', 'Ratbag ', 'Ratloop Games Canada ', 'Razbor Studios ', 'Ready at Dawn ', 'Red Zero Games ', 'Reflexive Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ', 'Rocket Bear Games ', 'SEMISOFT ', 'SQUADTeam', 'Saibot Studios ', 'Sam Barlow ', 'Seaven Studio ', 'Sega AM2 ', 'Shanghai FantaBlade Network Technology Co.', 'Silverback Entertainment ', 'Sir-Tech Software Inc. ', 'Size Five Games ', 'Skrollcat Studios ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Sluggerfly ', 'So Romantic ', 'Soft Enterprises ', 'Somnium Games d.o.o. ', 'Spike Chunsoft Co. Ltd.', 'Squad ', 'Square Enix Montreal ', 'Stage 2 Studios ', 'Straandlooper ', 'Studio Pixel ', 'Sumo Newcastle ', 'SumomGames ', 'Superbrothers', 'Tangrin ', 'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'Terri Vellimann ', 'The Chinese Room ', 'The Odd Gentlemen ', 'Third Law Interactive ', 'Thomas van den Berg ', 'Tokyo RPG Factory ', 'Tom Francis ', 'Tomorrow Corporation ', 'TreeFortress Games ', 'True Axis ', 'Tunnel Vision Games ', 'TurtleBlaze ', 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vanguard', 'Variable State ', 'Velan Studios ', 'Visual Concepts ', 'Vox Game Studio', 'Wales Interactive ', 'Warpzone Studios ', 'We Create Stuff ', 'Wicked Studios ', 'X1 Software ', 'Xaviant Games', 'Yakov Butuzoff ', 'Zachtronics Industries ', 'dreamfeel ', 'eBrain Studio ', 'inkle ', 'miHoYo', 'straka.studio ', 'superflat games ', 'teedoubleuGAMES ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 18s 74ms/step - loss: 49.3121 - mae: 5.2907 - val_loss: 49.2499 - val_mae: 5.4928

Epoch 2/20

238/238 [=====] - 18s 75ms/step - loss: 39.8800 - mae: 4.7526 - val_loss: 46.8222 - val_mae: 5.4954

Epoch 3/20

238/238 [=====] - 18s 75ms/step - loss: 36.8254 - mae: 4.5649 - val_loss: 42.6715 - val_mae: 5.1771

Epoch 4/20

238/238 [=====] - 18s 74ms/step - loss: 34.1970 - mae: 4.3968 - val_loss: 40.8702 - val_mae: 4.9481

Epoch 5/20

238/238 [=====] - 18s 75ms/step - loss: 33.3723 - mae: 4.3047 - val_loss: 42.9808 - val_mae: 5.1781

Epoch 6/20

238/238 [=====] - 18s 74ms/step - loss: 32.1656 - mae: 4.2381 - val_loss: 41.7817 - val_mae: 5.1182

Epoch 7/20

238/238 [=====] - 18s 74ms/step - loss: 30.8542 - mae:

4.0881 - val_loss: 40.6068 - val_mae: 4.9795
Epoch 8/20
238/238 [=====] - 18s 75ms/step - loss: 30.2750 - mae: 4.0477 - val_loss: 38.5356 - val_mae: 4.8716
Epoch 9/20
238/238 [=====] - 18s 75ms/step - loss: 29.5041 - mae: 4.0221 - val_loss: 37.0028 - val_mae: 4.7071
Epoch 10/20
238/238 [=====] - 18s 74ms/step - loss: 28.9870 - mae: 3.9522 - val_loss: 41.1857 - val_mae: 5.0543
Epoch 11/20
238/238 [=====] - 18s 75ms/step - loss: 29.0377 - mae: 3.9687 - val_loss: 37.2850 - val_mae: 4.7352
Epoch 12/20
238/238 [=====] - 18s 76ms/step - loss: 27.2399 - mae: 3.8275 - val_loss: 37.2894 - val_mae: 4.7380
Epoch 13/20
238/238 [=====] - 18s 75ms/step - loss: 27.5358 - mae: 3.8326 - val_loss: 39.4570 - val_mae: 4.9090
Epoch 14/20
238/238 [=====] - 18s 75ms/step - loss: 26.6594 - mae: 3.7669 - val_loss: 37.8899 - val_mae: 4.8296
Chunk 6/52 // 9.62% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['10tons ', '1C', 'Application Systems Heidelberg ', 'BeautiFun Games ', 'BlackMuffin Studio', 'Bullets ', 'Centauri Production ', 'Char & Torfi ', 'Digital Sun ', 'Dreamworks Games ', 'EA Singapore ', 'Eyeguys ', 'Fair Play Labs ', 'French-Bread ', 'Funatics ', 'Funatics Software', 'General Arcade ', 'Honor Code', 'Immersion Software & Graphics ', 'Ino-Co', 'Ministry of Broadcast Studios ', 'Monkey Moon ', 'Movie Games ', 'Muutsch', 'Now Production', 'Playsport Games Ltd ', 'Pol', 'Ravenscourt', 'Rockstar San Diego ', 'Russia ', 'Soleil', 'Soleil Ltd. ', 'Studio Fizbin ', 'StudioInkyfox ', 'Team Reptile ', 'Thomas Brush ', 'Toylogic ', 'Tribute Games Inc. ', 'VIS Games ', 'Varkian Empire ', '10tons Entertainment', '11 bit studios', '1C-Softclub ', '24 Entertainment ', '3A Games ', 'Alcachofa Soft ', 'Altari Games ', 'Amanita Design ', 'Angel Studios', 'Anim-X ', 'Animation Arts ', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios', 'Arxel Tribe ', 'Asteroid Base ', 'Avalon Style ', 'BEAUTIFUN GAMES SL', 'BLOODIOUS GAMES ', 'Beautiful Glitch ', 'Big Ape Productions ', 'Bit Byterz ', 'Black Mermaid ', 'Black Pants Studio ', 'Blastmode ', 'Blazing Bit Games ', 'Blazing Griffin ', 'Blue Bottle Games ', 'Bombservice ', 'Borealis Games ', 'Broken Rules ', 'BudCat ', 'Capricia Productions ', 'Carlos Coronado ', 'Chance Agency ', 'Charybdis ', 'Cinemax', 'Coffee Powered Machine ', 'Connor Ullmann ', 'Cornfox & Bros. ', 'Crunching Koalas ', 'CyberConnect2', 'Cyberlore Studios ', 'Deep Red ', 'Deibus Studios ', 'Delphine Software International ', 'Detalion ', 'Devolver Digital ', 'Die Gute Fabrik ', 'Digital Dialect ', 'Digital Eclipse ',

'Dinosaur Polo Club ', 'Diversions Entertainment ', 'DrinkBox Studios ',
'Duckbridge ', 'EA Black Box', 'EA Black Box ', 'EA LA', 'EA Seattle ', 'Ecole',
'Eutechnyx ', 'FASA Studio ', 'Finish Line Games ', 'Fizbin', 'From Software',
'Funatics Development GmbH', 'Future Games ', 'GameSourceStudio ', 'Gazillion ',
'Geography of Robots ', 'Gojira ', 'Graceful Decay ', 'Grip Digital ', 'Guru
Games ', 'Half Asleep ', 'HappyJuice Games ', 'Harebrained Schemes LLC ',
'Hidden Fields ', 'Himalaya Studios ', 'Holistic Design', 'Homeless Unicorn',
'Housemarque ', 'Humongous Entertainment ', 'Hydravision ', 'ILCA', 'Idol FX ',
'In Utero ', 'Infinitap Games ', 'Infinite Fall ', 'InterServ International ',
'Interwave Studios ', 'Inti Creates ', 'IonFX ', 'Jacob Dzwiniel ', 'John
Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games ', 'Just Add Water ', 'KCEJ
', 'KDV Games ', 'Keen Software House ', 'Kitfox Games ', 'Kuju Entertainment ',
'LCB Game Studio ', 'LKA ', 'Lantern Studio ', 'Le Cartel Studio ', 'Leaping
Lizard Software Inc. ', 'Level 5 ', 'Lexis Numerique ', 'Limassee Five ',
'Locomalito ', 'Lorenzo Redaelli', 'Ludosity Interactive', 'Max Mraz ', 'Mayhem
Studios ', 'Messhof ', 'Metronomik ', 'Minor Key Games ', 'Mithis/HD Interactive
', 'Mohawk Games ', 'Monster Games Inc. ', 'Mooneye Studios ', 'Movie Games ',
'Movie Games S.A.', 'MuHa Games ', 'MumboJumbo ', 'Muzzy Lane Software ', 'NGD
Studios ', 'NUDE MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No
Code ', 'Nolla Games ', 'NotGames ', 'Nowhere Studios ', 'Ocean Drive Studio ',
'Oddworld Inhabitants ', 'Oldblood ', 'Ossian Studios ', 'Ovid Works ', 'Panic
Barn Ltd ', 'Papyrus ', 'Paradox North ', 'Passtech Games ', 'Pathea Games ',
'Phosphor Games Studio', 'Picaresque Studio ', 'Pieces Interactive ', 'Pinkerton
Road Studio ', 'Piranha Games ', 'Pirita Studio ', 'Player First Games ',
'Playful Corp. ', 'Playsport Games', 'Pocketwatch Games ', 'Pollux Gamelabs ',
'Polypusher Studios ', 'Press Play ', 'Presto Studios ', 'Q-Games ',
'Quicksilver Software ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury',
'Reakktor Media ', 'Red Herring Labs ', 'Red Rocket Games ', 'Related Designs ',
'Render Cube ', 'Renegade Kid ', 'Reptile', 'Rock Pocket Games ', 'Rocket
Science Games ', 'Rockstar San Diego ', 'Rogue Factor ', 'Route 59 Games ', 'SMG
Studio ', 'Santa Ragione ', 'Sanzaru Games ', 'Saturn+ ', 'Secret Level ',
'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ', 'Shiro Games ', 'Shiver
Games ', 'Sileni Studios ', 'Silver Dollar Games ', 'Silverback Studios ',
'SimTex ', 'Skeleton Crew Studio ', 'Sketchbook Games ', 'Space Dust Studios',
'Spearhead Games ', 'State of Play Games ', 'Still Running ', 'Studio Koba ',
'Sunnyside Games ', 'Supersonic Software ', 'THQ', 'TKO Software ', 'TURBOGUN ',
'Tamsoft ', 'Team Shifty ', 'Termite Games ', 'The Outsiders ', 'Thomas Moon
Kang ', 'Tokyo RPG Factory ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic
Inc.', 'Tribute Games', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Triternion ',
'Turbo Tape Games ', 'Twice Circled ', 'Uber Entertainment ', 'Unigine Corp',
'Untame ', 'Upper One Games ', 'Veewo Games ', 'Vile Monarch ', 'Virtuos ',
'Visual Concepts ', 'Visual Imagination Software', 'Vlambeer ', 'Wales
Interactive ', 'White Birds Productions ', 'Wild Factor ', 'William Chyr Studio
LLC ', 'Wizards of the Coast ', 'Y.K. ', 'ZANDEL MEDIA ', 'Zoink! ', 'Zono Inc.
', 'machineboy ', 'roll7 ', 'tiny Build GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

237/237 [=====] - 18s 76ms/step - loss: 43.5776 - mae: 5.0705 - val_loss: 55.9643 - val_mae: 6.0971
Epoch 2/20
237/237 [=====] - 18s 75ms/step - loss: 37.1763 - mae: 4.6456 - val_loss: 49.3957 - val_mae: 5.7132
Epoch 3/20
237/237 [=====] - 18s 75ms/step - loss: 33.9413 - mae: 4.4441 - val_loss: 50.2039 - val_mae: 5.7930
Epoch 4/20
237/237 [=====] - 18s 75ms/step - loss: 32.2633 - mae: 4.2787 - val_loss: 41.8744 - val_mae: 5.2041
Epoch 5/20
237/237 [=====] - 18s 75ms/step - loss: 30.3944 - mae: 4.1557 - val_loss: 42.6978 - val_mae: 5.3029
Epoch 6/20
237/237 [=====] - 18s 75ms/step - loss: 28.3750 - mae: 4.0067 - val_loss: 40.2116 - val_mae: 5.0783
Epoch 7/20
237/237 [=====] - 18s 76ms/step - loss: 28.3335 - mae: 3.9826 - val_loss: 34.3326 - val_mae: 4.6438
Epoch 8/20
237/237 [=====] - 18s 75ms/step - loss: 26.5798 - mae: 3.8604 - val_loss: 35.9016 - val_mae: 4.8121
Epoch 9/20
237/237 [=====] - 18s 75ms/step - loss: 26.3031 - mae: 3.8331 - val_loss: 35.3182 - val_mae: 4.7425
Epoch 10/20
237/237 [=====] - 18s 75ms/step - loss: 25.7917 - mae: 3.7699 - val_loss: 32.6247 - val_mae: 4.5256
Epoch 11/20
237/237 [=====] - 18s 75ms/step - loss: 24.7426 - mae: 3.7038 - val_loss: 31.9867 - val_mae: 4.5005
Epoch 12/20
237/237 [=====] - 18s 76ms/step - loss: 25.2634 - mae: 3.7032 - val_loss: 31.5147 - val_mae: 4.4208
Epoch 13/20
237/237 [=====] - 18s 75ms/step - loss: 23.9630 - mae: 3.6248 - val_loss: 36.2219 - val_mae: 4.8343
Epoch 14/20
237/237 [=====] - 18s 76ms/step - loss: 22.6168 - mae: 3.5221 - val_loss: 33.6829 - val_mae: 4.6299
Epoch 15/20
237/237 [=====] - 18s 75ms/step - loss: 23.6941 - mae: 3.6080 - val_loss: 33.9127 - val_mae: 4.6951
Epoch 16/20
237/237 [=====] - 18s 75ms/step - loss: 22.8790 - mae: 3.5665 - val_loss: 28.6050 - val_mae: 4.2018
Epoch 17/20

237/237 [=====] - 18s 77ms/step - loss: 22.3974 - mae: 3.4927 - val_loss: 30.4576 - val_mae: 4.3978

Epoch 18/20

237/237 [=====] - 18s 75ms/step - loss: 22.3416 - mae: 3.5096 - val_loss: 28.3101 - val_mae: 4.2515

Epoch 19/20

237/237 [=====] - 18s 75ms/step - loss: 20.9113 - mae: 3.3899 - val_loss: 29.1641 - val_mae: 4.2812

Epoch 20/20

237/237 [=====] - 18s 76ms/step - loss: 20.4438 - mae: 3.3350 - val_loss: 26.6822 - val_mae: 4.0670

Chunk 7/52 // 11.54% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['AGEOD ', ' Awesome Games Studio ', ' Bigben Games ', ' Bigben Interactive', ' Bounding Box Games ', ' Double Damage Games ', ' Gaming Minds Studios ', ' Hi Corp ', ' Hopoo Games ', ' KTX Software ', ' Leikir Studio ', ' MachineGames ', ' Minority Media Inc. ', ' Monstars Inc.', ' Omen ', ' Pixel Pi Games ', ' Planetary Annihilation Inc ', ' Q-Games ', ' Resonair ', ' Sproing ', ' Stainless Steel Studios ', ' Super Awesome Hyper Dimensional Mega Team ', ' Team Ladybug ', ' WSS Playground', ' Xeen ', '2 Dawn Games ', '34BigThings ', '7 Studios ', 'Abbey Games ', 'Abrakam SA ', 'Alter Games ', 'Antimatter Games ', 'Appeal', 'Arberth Studios ', 'Atomic Motion ', 'Atomic Planet Entertainment ', 'AwesomeGamesStudio', 'Beamdog ', 'Beatnik Games ', 'Big Star Games ', 'Black Rock Studio ', 'Black Shamrock ', 'Blendo Games ', 'Buckshot Software ', 'CCR', 'Cadenza ', 'Camouflaj', 'Cellar Door Games ', 'Chasing Carrots ', 'Chucklefish', 'Clever Plays ', 'Cloudhead Games ', 'Cococucumber ', 'Continuum ', 'Core Design Ltd. ', 'Creat Studios ', 'Creative Bytes ', 'CreativeForge Games ', 'Cyberlore Studios ', 'Daniel Mullins Games ', 'Dapper Penguin Studios ', 'Dark Seas Games ', 'Denby / Raze ', 'Digixart Entertainment', 'Digixart Entertainment ', 'Disney Online ', 'Doctor Entertainment ', 'Double Damage Games', 'Double Damage Games ', 'Double Eleven', 'Double Eleven ', 'DreamCatcher Interactive ', 'Dry Cactus ', 'EasyGameStation ', 'Ed Key and David Kanaga ', 'Fabled Game ', 'Final Strike Games ', 'Finji ', 'Flashback Games ', 'Flippfly ', 'Flying Lab Software ', 'Freeform Interactive LLC ', 'Frostwood Interactive ', 'FuturLab ', 'Gabriel Interactive ', 'Galilea Multimedia ', 'Gaming Minds Studios ', 'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games ', 'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque', 'Housemarque ', 'ION LANDS ', 'Ice Flames ', 'Ice-Pick Lodge ', 'IllFonic ', 'Impressions Games ', 'Infamous Quests ', 'Innerloop ', 'Interceptor Entertainment ', 'Ironward ', 'IzHard ', 'Jacob Janerka ', 'Jujubee S.A. ', 'K-D Lab ', 'Kaizen Game Works ', 'Koei ', 'Kuju Entertainment ', 'Laura Shighihara ', 'Lazy Bear Games ', 'Lesta Studio ', 'Lightbulb Crew ', 'Lionbite Games ',

'Lucas Pope ', 'Ludeon Studios ', 'Lukewarm Media ', 'Mad Head Games ', 'Mages. ', 'Magiko Gaming ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Master Creating ', 'Mi-Clos Studio ', 'Midway', 'Might and Delight ', 'Mighty Polygon ', 'Mike and Jason', 'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist Land ', 'NG:DEV.TEAM', 'Naked Sky Entertainment ', 'Namco Bandai Games ', 'Nerd Monkeys ', 'Nerial ', 'Nexus Game Studio ', 'Nicolas Meyssonnier ', 'No Goblin ', 'Nodding Heads Games ', 'Now Production', 'NuClearVision ', 'Nvizzio Creations ', 'Object ', 'Old School Games ', 'Osmotic Studios ', 'Out Of The Park Developments ', 'Outrage Games ', 'Owlcat Games ', 'Owlchemy Labs ', 'Paradox Interactive', 'Pasta Games ', 'Patrick Traynor ', 'Phantom 8 ', 'Phantom Compass ', 'Phantomery Interactive ', 'Phigames ', 'Pieces Interactive ', 'Pinokl Games ', 'Pixelated Milk ', 'Plastic Piranha ', 'PolyAmorous ', 'Polygon Treehouse ', 'Polyslash ', 'Proxy Studios ', 'Puppy Games ', 'R8 Games ', 'Radon Labs ', 'RailSimulator.com ', 'Recoil Games ', 'Red Ego Games ', 'Reikon Games ', 'Revival Productions', 'RichMakeGame ', 'Rival Interactive ', 'Robot House ', 'Robotality ', 'Running Dog ', 'SEK Ost ', 'SSI ', 'Screaming Games ', 'Sector D2 ', 'Sectordub ', 'Shining Pixel Studios ', 'Slant Six ', 'Snapshot Games Inc. ', 'Sobaka ', 'SoftWarWare ', 'Softlab-NSK ', 'SomaSim ', 'SouthPeak Games ', 'Spellbind Studios ', 'Sproing Interactive Media', 'Spry Fox ', 'Stormfront Studios ', 'Stormind Games ', 'Sundae Month ', 'Super Mega Team', 'Survios ', 'Tamsoft ', 'Team Oneshot ', 'Team Pixel Pi', 'The Artistocrats ', 'The Bae Team ', 'The Behemoth ', 'The Deep End Games ', 'The Lordz Games Studio ', 'The Tiniest Shark ', 'Thomas Brush ', 'Three Rings ', 'TickTock Games ', 'Tlon Studios ', 'Tomasz Wacławek ', 'Torched Hill ', 'Torus Games ', 'Tour De Pizza ', 'Toxic Games ', 'Tribute Games ', 'Triskell Interactive ', 'Twice Different ', 'Two Tribes ', 'Ublart Montpellier ', 'UGA', 'Uber Entertainment', 'Ultra Runaway Games ', 'Vblank Entertainment Inc. ', 'Vertical Robot ', 'Videocult ', 'Visiware Studios ', 'Vladimir Kudelka ', 'Volatile Games ', 'Voracious Games ', 'Wastelands Interactive ', 'White Birds Productions ', 'Why so serious?', 'Wishfully ', 'Wizarbox ', 'Wormwood Studios ', 'YCJY Games ', 'Yanim Studio ', 'Zeboyd Games ', 'ZootFly ', 'Zordix Racing ', 'comcept ', 'nDreams ', 'neoqb ', 'niceplay games ', 'roll7 ', 'xii games '] will be ignored
 "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

238/238 [=====] - 18s 75ms/step - loss: 47.3171 - mae: 5.1199 - val_loss: 56.0692 - val_mae: 6.0915

Epoch 2/20

238/238 [=====] - 18s 74ms/step - loss: 39.2392 - mae: 4.6600 - val_loss: 54.0878 - val_mae: 6.0066

Epoch 3/20

238/238 [=====] - 18s 76ms/step - loss: 36.6016 - mae: 4.4515 - val_loss: 48.9627 - val_mae: 5.5576

Epoch 4/20

238/238 [=====] - 18s 75ms/step - loss: 33.0377 - mae: 4.1889 - val_loss: 47.4187 - val_mae: 5.4441

Epoch 5/20

238/238 [=====] - 18s 76ms/step - loss: 33.0695 - mae:


```

4.1680 - val_loss: 42.9459 - val_mae: 5.0964
Epoch 6/20
238/238 [=====] - 18s 75ms/step - loss: 30.9561 - mae:
4.0118 - val_loss: 39.8100 - val_mae: 4.8874
Epoch 7/20
238/238 [=====] - 18s 75ms/step - loss: 29.5485 - mae:
3.9348 - val_loss: 43.7541 - val_mae: 5.2322
Epoch 8/20
238/238 [=====] - 18s 75ms/step - loss: 28.4805 - mae:
3.8505 - val_loss: 41.9713 - val_mae: 5.0837
Epoch 9/20
238/238 [=====] - 18s 76ms/step - loss: 27.9039 - mae:
3.8234 - val_loss: 39.4254 - val_mae: 4.9446
Epoch 10/20
238/238 [=====] - 18s 75ms/step - loss: 27.5963 - mae:
3.7809 - val_loss: 42.2470 - val_mae: 5.1944
Epoch 11/20
238/238 [=====] - 18s 75ms/step - loss: 27.4987 - mae:
3.7622 - val_loss: 39.4557 - val_mae: 4.9859
Epoch 12/20
238/238 [=====] - 18s 75ms/step - loss: 26.2698 - mae:
3.7295 - val_loss: 38.5139 - val_mae: 4.9289
Epoch 13/20
238/238 [=====] - 18s 76ms/step - loss: 25.7637 - mae:
3.6620 - val_loss: 36.8898 - val_mae: 4.8000
Epoch 14/20
238/238 [=====] - 18s 75ms/step - loss: 25.3673 - mae:
3.6424 - val_loss: 40.9896 - val_mae: 5.1188
Epoch 15/20
238/238 [=====] - 18s 76ms/step - loss: 25.5614 - mae:
3.6358 - val_loss: 39.6888 - val_mae: 4.9905
Epoch 16/20
238/238 [=====] - 18s 75ms/step - loss: 24.1093 - mae:
3.5404 - val_loss: 40.2111 - val_mae: 5.0810
Epoch 17/20
238/238 [=====] - 18s 75ms/step - loss: 24.0421 - mae:
3.4989 - val_loss: 38.9314 - val_mae: 4.9549
Epoch 18/20
238/238 [=====] - 18s 76ms/step - loss: 22.9677 - mae:
3.4467 - val_loss: 37.4050 - val_mae: 4.8389
Chunk 8/52 // 13.46% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Animation Arts ', ' Atlus ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron
Ltd. ', ' Cliffhanger Productions ', ' Coatsink Software ', ' Dead Mage ', '
Devoured Studios ', ' EA Redwood Shores ', ' Elemental Games', ' Engine Software
', ' Factor 5 ', ' Fire Face ', ' Gamasoft ', ' Games Farm s.r.o. ', ' Infinite

```

Interactive ', ' Introversion Software ', ' Jo-Mei Games ', ' Just Add Water', ' Kaigan Games ', ' Krome Studios ', ' Marvelous AQL ', ' Mixed Realms ', ' Mossmouth ', ' Multiverse ', ' Project Soul ', ' Red Storm Entertainment ', ' Shaba Games ', ' Studio 369 ', ' Studio Fizbin ', ' Terri Vellmann & Doseone ', ' Vlambeer ', ' d3t Ltd ', '17-Bit ', '5 Lives Studios ', '5000ft Inc. ', '5TH Cell ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Amanita Design ', 'Animation Arts ', 'Artdink', 'Artifice Studio ', 'Artificer ', 'Arxel Tribe ', 'Asymmetric Publications ', 'Bandai Namco Games', 'Beau Blyth ', 'Big Robot Ltd ', 'Black Element ', 'Black Lab Games ', 'Black Lion Studios ', 'Black Rock Studio ', 'Bloodirony ', 'Broken Rules ', 'Bullfrog Productions ', 'CBE software ', 'Cadenza ', 'Cat Daddy Games ', 'Choice Provisions ', 'Chucklefish ', 'Cliffhanger Productions', 'Cracked Heads Games ', 'Crackshell ', 'Crea-ture Studios ', 'Croteam', 'DAMAGE STATE LTD ', 'DarkStar Games ', 'Dead Mage Studio', 'Deep Red ', 'Den-Yu-Sha ', 'Derek Yu', 'Detalion ', 'DoubleDutch Games ', 'Douze Dixiemes ', 'Dramatic Labs ', 'Draw Distance ', 'Ebb Software ', 'Echodog Games ', 'Edelweiss ', 'Egidijus Bachur ', 'Enigami ', 'Enlight Software', 'Escape ', 'Extend Interactive ', 'FASA Studio ', 'FLOW COMBINE ', 'Facepunch Studios ', 'Finish Line Games ', 'FishTankStudio ', 'Fizbin', 'Fizz Factor ', 'Flying Oak Games ', 'Free Radical Design ', 'Free Reign Entertainment ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Games Farm', 'Games Farm ', 'Garage 227 ', 'Genetic Anomalies ', 'Glass Bottom Games ', 'Greylock Studio ', 'Grimlore Games ', 'HAKAMA ', 'Harebrained Schemes LLC ', 'Human Head Studios', 'IMGN.PRO ', 'Infogrames ', 'Introversion', 'Ironward ', 'Italic Pig ', 'Jesse Makkonen ', 'Jumpship ', 'Jutsu Games ', 'Kaigan Games OU', 'LGK Games ', 'MPS Labs ', 'Mad Head Games ', 'MadLightStudio ', 'Malfador Machinations ', 'Mandragora ', 'Massive Damage', 'Maxis', 'Mega Crit Games ', 'Meridian4 ', 'Meteorise ', 'Metropolis Software ', 'Might and Delight ', 'Mimimi Games ', 'MinMax Games Ltd. ', 'Mind over Matter ', 'Minds-Eye Productions ', 'Mixed Realms Pte Ltd', 'Mommy's Best Games ', 'Monomi Park ', 'Morgondag ', 'Mossmouth', 'Multiverse Games', 'Murudai ', 'Mystic Box ', 'N-Game Studios', 'Naked Sky Entertainment ', 'Nexon ', 'Night Dive Studios ', 'Nucleosys ', 'Nyamakop ', 'Okugi Studio ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ', 'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Red Blue Games ', 'Redlock Studio ', 'Reflexive Entertainment ', 'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ', 'Runewaker Entertainment ', 'Runner Duck ', 'SEGA Racing Studio ', 'SNK Corporation ', 'Sabotage Studio ', 'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Seamless Entertainment', 'Shed-Works ', 'Sidhe Interactive ', 'Silver Style ', 'Ska Studios', 'Skunkape Games ', 'Skyshine Games ', 'Slitherine ', 'Sloclap ', 'Sneaky Yak Studio ', 'Solar Sail Games ', 'Something Classic Games LLC ', 'SouthPAW Games ', 'Southend Interactive ', 'Space Bullet Dynamics Corporation ', 'Sperasoft ', 'Spiral Circus ', 'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Swing Swing Submarine ', 'Tactical Adventures ', 'Taito Corporation ', 'Taldren ', 'Tamsoft', 'Tamsoft ', 'Team Gotham ', 'Terri Vellimann', 'Totally Games ', 'Treyarch', 'Ultimation Inc. ', 'Unicube ', 'Uprising Studios ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank Entertainment Inc. ', 'Vine ', 'Vivid Games ', 'Wadjet Eye Games ', 'Wales Interactive ',

'WayForward ', 'White Birds Productions ', 'Wings Simulations ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'XYLA Entertainment ', 'Youxiland', 'Ysbryd Games ', 'Zachtronics Industries ', 'Zojoi Studios ', 'iFun4all ', 'inkle ', 'rose-engine ', 'stillalive studios '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

242/242 [=====] - 18s 75ms/step - loss: 39.6188 - mae: 4.8359 - val_loss: 43.2624 - val_mae: 5.2488

Epoch 2/20

242/242 [=====] - 18s 75ms/step - loss: 32.4680 - mae: 4.3853 - val_loss: 40.6277 - val_mae: 5.0889

Epoch 3/20

242/242 [=====] - 18s 75ms/step - loss: 29.6705 - mae: 4.1268 - val_loss: 36.2663 - val_mae: 4.7913

Epoch 4/20

242/242 [=====] - 18s 76ms/step - loss: 27.2235 - mae: 3.9638 - val_loss: 37.0100 - val_mae: 4.8521

Epoch 5/20

242/242 [=====] - 18s 75ms/step - loss: 25.9352 - mae: 3.8275 - val_loss: 33.5922 - val_mae: 4.5629

Epoch 6/20

242/242 [=====] - 18s 76ms/step - loss: 24.7427 - mae: 3.7303 - val_loss: 34.1003 - val_mae: 4.6167

Epoch 7/20

242/242 [=====] - 18s 76ms/step - loss: 24.2002 - mae: 3.6759 - val_loss: 34.5716 - val_mae: 4.6102

Epoch 8/20

242/242 [=====] - 18s 76ms/step - loss: 23.3831 - mae: 3.6063 - val_loss: 33.7963 - val_mae: 4.5837

Epoch 9/20

242/242 [=====] - 18s 75ms/step - loss: 22.6328 - mae: 3.5321 - val_loss: 34.5955 - val_mae: 4.6045

Epoch 10/20

242/242 [=====] - 18s 76ms/step - loss: 21.5396 - mae: 3.4242 - val_loss: 31.4142 - val_mae: 4.3844

Epoch 11/20

242/242 [=====] - 18s 75ms/step - loss: 21.6467 - mae: 3.4660 - val_loss: 33.7927 - val_mae: 4.5026

Epoch 12/20

242/242 [=====] - 18s 75ms/step - loss: 20.6994 - mae: 3.3494 - val_loss: 32.0212 - val_mae: 4.3905

Epoch 13/20

242/242 [=====] - 18s 75ms/step - loss: 20.5850 - mae: 3.3575 - val_loss: 37.2573 - val_mae: 4.7310

Epoch 14/20

242/242 [=====] - 18s 75ms/step - loss: 19.4795 - mae: 3.2842 - val_loss: 31.8468 - val_mae: 4.3801

Epoch 15/20

242/242 [=====] - 18s 75ms/step - loss: 19.3845 - mae: 3.2328 - val_loss: 32.1708 - val_mae: 4.3928

Chunk 9/52 // 15.38% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es)

['Text', 'Trainer'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['

Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Deck Nine Games ', ' Digital Eclipse ', ' Dire Wolf Digital ', ' Do My Best Games ', ' Endnight Studios ', ' Florian Hims1 ', ' Fullbright ', ' Furious Bee ', ' Ishtar Games Inc. ', ' King Art Games ', ' Koalabs ', ' Point Blank ', ' Quasar ', ' Question ', ' Ragequit Corporation ', ' Skookum Arts ', ' Slitherine ', ' Splendy Games ', ' Studio Fizbin ', ' Super Awesome Hyper Dimensional Mega Team ', ' Tyler Glaiel ', ' Uppercut Games Pty Ltd ', ' XPEC Entertainment Inc. ', ' YCJY Games ', '10tons ', '3D2 Entertainment ', '4Head Studios ', 'AGO Games ', 'ARS GOETIA ', 'Abstraction Games ', 'Abyss Gameworks ', 'Act 3 Games', 'Akabaka ', 'Akella', 'Arcen Games', 'Artefacts Studio ', 'Artificial Mind and Movement ', 'Arxel Tribe ', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ', 'Awaken Realms Digital', 'Awfully Nice Studios ', 'Bad Viking ', 'Banpresto', 'Baroque Decay ', 'BattleGoat Studios ', 'Beethoven & Dinosaur ', 'Bellular Studios ', 'Big Ant Studios ', 'Big Finish Games ', 'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue Tongue Entertainment ', 'BonusXP ', 'Bossa Studios ', 'Braingame ', 'Brainwash Gang ', 'CCCP', 'Caligari Games ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats Games ', 'Chibig ', 'Choice Provisions ', 'Cloak and Dagger Games ', 'Cockroach Inc. ', 'Color Gray Games ', 'Convict Games ', 'Cosmo D Studios ', 'Cranberry Production ', 'Crema Games ', 'Cryo Interactive ', 'Cultic Games ', 'Curve Digital ', 'Curve Studios ', 'Daedalic Studio West ', 'Dancing Dragon games ', 'Daniel Benmergui ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam ', 'Destroyer Studios ', 'Dialogue Design ', 'Digital Sun ', 'Dimps Corporation ', 'Dragon Slumber ', 'DreamCatcher Interactive ', 'Droqen ', 'Echo Chamber Games ', 'Eden Studios ', 'Edmund McMillen', 'Ellipse Studios ', 'Embers ', 'Empty Clip Studios ', 'Enhance Games ', 'Exakt ', 'FIX Korea', 'Failbetter Games ', 'Fairyrship Games ', 'Fireglow ', 'Fizbin', 'Free Lives ', 'Fury Software ', 'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'GameCo ', 'Gaming Corps AB ', 'GhostShark Games ', 'GoldKnights Studio ', 'GolemLabs ', 'Grimorio of Games ', 'Grip Games ', 'Happy Volcano ', 'Harvester Games ', 'Headup Games ', 'House of Tales ', 'IF Games ', 'IMC Games ', 'Illusion Ray Studio ', 'Image & Form ', 'Inevitable Entertainment ', 'Iron Tower Studio ', 'James Interactive ', 'Jason Rohrer ', 'Joe Richardson ', 'Johamm Tael & Mihkel Tael ', 'KING Art', 'Kamehan Studios ', 'Kite Games ', 'Konami', 'Ladyluck Digital Media ', 'Leonard Menchiari ', 'Lexis Numerique ', "Lion's Shade ", 'Little Green Men ', 'Locomalito ', 'M2 ', 'Magic Lantern ', 'Magitech ', 'Mana Games ', 'Marvelous Inc. ', "Mi'pu'mi Games ", 'Microids', 'Midway ', 'Mighty Yell ', 'Minds-Eye Productions ', 'Modern Storyteller ', 'Monochrome Paris ', 'Mouldy Toof Studios

, 'Mucky Foot Productions ', 'Neon Doctrine ', 'Neon Giant ', 'Nicalis ',
 'Night Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Noumena Productions
 ', 'Numinous Games ', 'Odd Bug Studio ', 'Omni Creative Group ', 'Orthogonal
 Games ', 'Over The Moon ', 'Owl Cave ', 'Paranoid Productions ', 'Paul Cuisset
 ', 'Pewter Games Studios ', 'Pillow Castle Games ', 'Pixel Titans ', 'Pixelogic
 ', 'Plot Twist ', 'Point Blank Games', 'PostMod Softworks ', 'Power Struggle
 Games ', 'Psyche Studios ', 'Punk Notion ', 'Puuba ', 'Question ',
 'Questionary', 'RLR Training Inc ', 'Rain Games ', 'Random Potion Oy ',
 'Rebelmind ', 'Rival Games Ltd ', 'Rusty Lake ', 'SKS Games', 'Sabotage Studio
 ', 'Sam Barlow', 'Serellan LLC ', 'Serenity Forge ', 'Sever ', 'Shark Punch ',
 'Sierra Entertainment ', 'Sigtrap Games ', 'Skookum Arts LLC', 'SkyBox Labs ',
 'SkyGoblin ', 'Sleepless Clinic ', 'Sleepy Sentry ', 'Slendy Interactive',
 'Slitherine Software', 'Smoking Car Productions ', 'Spearhead Games ', 'Spooky
 Doorway ', 'Strangelite ', 'Strike Vector Team', 'Stubby Games ', 'Studio Seufz
 ', 'Summerfall Studios ', 'Super Mega Team', 'Surreal Software ', 'Swing Swing
 Submarine ', 'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia
 ', 'Team Gotham ', 'Technocrat ', 'Teotl Studios ', 'The Artistocrats ', 'The
 Bitmap Brothers ', 'The Collective ', 'The Fullbright Company', 'The Molasses
 Flood ', 'The Odd Gentlemen ', 'The Voxel Agents ', 'Third Wire ', 'Thunkd ',
 'Tomas Sala ', 'Torpor Games ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and
 Mario Castaneda ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games',
 'Uppercut Games Pty Ltd ', 'VRESKI ', 'ValuSoft ', 'Vertex4 ', 'Wadjet Eye Games
 ', 'Wales Interactive ', 'White Owls ', 'White Paper Games ', 'Wideload Games
 Inc. ', 'Wonderstruck Games ', 'WorldForge ', 'Wormwood Studios ', 'Xilam ',
 'Xpec', 'YCJY', 'Zenimax Online Studios ', 'Zenovia ', 'Zero Sum Games ',
 'Zoink! ', 'eSim Games ', 'h.a.n.d. Inc. ', 'increpare ', 'mif2000 ', 'nDreams
 ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

236/236 [=====] - 18s 76ms/step - loss: 43.1410 - mae:
 4.9129 - val_loss: 49.9236 - val_mae: 5.5902

Epoch 2/20

236/236 [=====] - 18s 75ms/step - loss: 38.7015 - mae:
 4.6291 - val_loss: 55.4151 - val_mae: 6.0603

Epoch 3/20

236/236 [=====] - 18s 75ms/step - loss: 36.2441 - mae:
 4.4509 - val_loss: 54.2866 - val_mae: 5.9524

Epoch 4/20

236/236 [=====] - 18s 75ms/step - loss: 33.5291 - mae:
 4.2609 - val_loss: 50.4359 - val_mae: 5.7427

Epoch 5/20

236/236 [=====] - 18s 76ms/step - loss: 32.0268 - mae:
 4.1747 - val_loss: 48.0505 - val_mae: 5.5832

Epoch 6/20

236/236 [=====] - 18s 75ms/step - loss: 31.7399 - mae:
 4.1568 - val_loss: 44.6368 - val_mae: 5.3374

Epoch 7/20

236/236 [=====] - 18s 76ms/step - loss: 30.2405 - mae: 4.0304 - val_loss: 47.8115 - val_mae: 5.5322

Epoch 8/20

236/236 [=====] - 18s 76ms/step - loss: 29.2513 - mae: 3.9830 - val_loss: 46.6079 - val_mae: 5.5091

Epoch 9/20

236/236 [=====] - 18s 76ms/step - loss: 28.3038 - mae: 3.8715 - val_loss: 47.5923 - val_mae: 5.5281

Epoch 10/20

236/236 [=====] - 18s 76ms/step - loss: 27.4907 - mae: 3.8377 - val_loss: 48.9100 - val_mae: 5.6429

Epoch 11/20

236/236 [=====] - 18s 76ms/step - loss: 27.2567 - mae: 3.7981 - val_loss: 45.4836 - val_mae: 5.4078

Chunk 10/52 // 17.31% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['1C', '2K Sports', 'Atlantis Interactive Entertainment', 'CINIC Games', 'Cavalier Game Studios', 'Cherrymochi', 'Crenetic Studios', 'Crows Crows Crows', 'Drool', 'Duality Games', 'Hotta Studio', 'KRAFTON Inc.', 'Kukouri Mobile Entertainment', 'Mercenary Technologies', 'ONEOONE GAMES', 'Pieces Interactive', 'Sumo Nottingham', 'Supergonk', 'Team Toro', 'Ubisoft Paris', 'Xeen', 'btf', '101%', '258 Productions AB', '2By3 Games', '2x2 Games', '49Games', 'AGEOD', 'AREA35', 'Acid Nerve', 'Adeline Software', 'Alawar Premium', 'Alien Pixel Studios', 'Antagonist', 'Ares Dragonis', 'Artdink', 'Aspyr', 'Atlantis Interactive Entertainment\t', 'Auran', 'Backwoods Entertainment', 'Battlefront.com', 'Big Robot Ltd', 'Black Pants', 'Blendo Games', 'BlueGiant Interactive', 'Brainy Studio LLC', 'BreakAway Games', 'Bulkhead Interactive', 'Burut Software', 'C.I.N.I.C. Games', 'Camel 101', 'Can Explode', 'Carbon Studio', 'Cavedog Entertainment', 'Chaos Concept', 'Cinemaware', 'Click Entertainment', 'Colibri Games', 'ComonGames', 'Computer Artworks', 'Core Design Ltd.', 'Cowardly Creations', 'DNS Development', 'Dan Smith Studios', 'Davey Wreden', 'Daydream Software', 'Deadline Games', 'Deconstructeam', 'Deep Red', 'Double Zero One Zero', 'Draw Me A Pixel', 'Dual Effect', 'Duality Studio', 'Dynamix', 'EXOR Studios', 'Echtra Games', 'Event Horizon Software', 'Expansive Worlds', 'Facepalm Games', 'Falling Squirrel', 'Feral Interactive', 'Fireart Games', 'Fireproof Games', 'Flazm', 'Freebird Games', 'Frog City Software', 'Frogwares', 'GRIN', 'Galactic Cafe', 'Game-Labs', 'Gatling Goat Studios', 'Gato Salvaje Studio', 'Gigawatt Studios', 'Grasshopper Manufacture', 'Grip Games', 'Gun Interactive', 'Headup Games', 'High Moon Studios', 'Humanature Studios', 'HyperBole Studios', 'ISOMETRICORP Games', 'Ice-Pick Lodge', 'Iceberg Interactive', 'Iridium Studios', 'Iron Lore Entertainment', 'Ironward', 'KT

Racing ', 'Kite Games ', 'LEAP Game Studios ', 'LKA ', 'Luis Antonio ',
 'Luxoflux', 'Maddy Thorson ', 'Minority Media Inc. ', 'Modern Dream ',
 'Moonlight Kids ', 'Morbidityware ', 'Most Wanted Entertainment ', 'MuHa Games ',
 'Naughty Dog', 'Neversoft Entertainment ', 'Nevrax ', 'Nicely Crafted ', 'Night
 Dive Studios ', 'Norsfell ', 'Numantian Games ', 'OhNoo ', 'One Bit Beyond ',
 'OtherSide Entertainment ', 'OverBorder Studio ', 'Paintbucket Games ', 'Pixwerk
 ', 'Playmestudio ', 'Pocketwatch Games ', 'Point of View ', 'Prograph ',
 'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Puuba ', 'Puzzling Dream ',
 'Rat King Entertainment ', 'Red Storm Entertainment', 'Replay Studios', 'Rogue
 Sun ', 'Ron Gilbert and Gary Winnick ', 'SMAC Games ', 'Shifting Tides ', 'Size
 Five Games ', 'Skybound LLC', 'Skydance Interactive ', 'Something We Made ',
 'SpectreVision ', 'Spidersoft', 'Splashteam ', 'Spooky Squid Games ', 'Stormling
 Studios ', 'Streko-Graphics Inc. ', 'Stygian Software ', 'SuperPAC ',
 'SuperSexySoftware ', 'Supergonk Ltd.', 'Surreal Software ', 'Survios ',
 'Swordtales ', 'Terrible Posture Games ', 'The Station ', 'Timeline Computer
 Entertainment ', 'Tin Man Games ', 'Tragnarion Studios ', 'Trecision ', 'Trepang
 Studios ', 'Two Tribes ', 'TwoPM Studios ', 'Ubisoft Blue Byte ', 'Ubisoft Milan
 ', 'Ubisoft Singapore ', 'Urban Games ', 'Urnique Studio ', 'Vicarious Visions
 ', 'Vitamin G Studios ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Yukon Wainczak
 ', 'Zombie Cow Studios ', '[bracket]games ', 'btf GmbH', 'damiansommer ',
 'dietzribi ', 'drool Games', 'fragOut Studio', 'neo Software ', 'tobyfox '] will
 be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

242/242 [=====] - 19s 76ms/step - loss: 34.2649 - mae:
 4.3992 - val_loss: 41.2739 - val_mae: 5.3055

Epoch 2/20

242/242 [=====] - 18s 76ms/step - loss: 30.6202 - mae:
 4.1287 - val_loss: 42.6413 - val_mae: 5.3910

Epoch 3/20

242/242 [=====] - 18s 76ms/step - loss: 27.8964 - mae:
 3.9090 - val_loss: 38.7387 - val_mae: 5.1385

Epoch 4/20

242/242 [=====] - 18s 75ms/step - loss: 26.7439 - mae:
 3.7983 - val_loss: 38.9461 - val_mae: 5.1116

Epoch 5/20

242/242 [=====] - 18s 76ms/step - loss: 25.7963 - mae:
 3.6850 - val_loss: 38.3767 - val_mae: 5.0775

Epoch 6/20

242/242 [=====] - 18s 75ms/step - loss: 24.6476 - mae:
 3.6246 - val_loss: 34.7859 - val_mae: 4.8091

Epoch 7/20

242/242 [=====] - 18s 75ms/step - loss: 23.9860 - mae:
 3.5509 - val_loss: 33.0712 - val_mae: 4.6067

Epoch 8/20

242/242 [=====] - 18s 75ms/step - loss: 22.1017 - mae:
 3.4195 - val_loss: 33.7179 - val_mae: 4.6694

```

Epoch 9/20
242/242 [=====] - 18s 75ms/step - loss: 22.5860 - mae:
3.4246 - val_loss: 32.0912 - val_mae: 4.5920
Epoch 10/20
242/242 [=====] - 18s 76ms/step - loss: 22.0434 - mae:
3.3547 - val_loss: 33.0977 - val_mae: 4.6211
Epoch 11/20
242/242 [=====] - 18s 75ms/step - loss: 21.2963 - mae:
3.3249 - val_loss: 35.6344 - val_mae: 4.8613
Epoch 12/20
242/242 [=====] - 18s 75ms/step - loss: 20.3028 - mae:
3.2105 - val_loss: 30.4634 - val_mae: 4.4289
Epoch 13/20
242/242 [=====] - 18s 76ms/step - loss: 20.0522 - mae:
3.1960 - val_loss: 31.6020 - val_mae: 4.5580
Epoch 14/20
242/242 [=====] - 18s 75ms/step - loss: 19.9673 - mae:
3.1982 - val_loss: 34.4791 - val_mae: 4.7888
Epoch 15/20
242/242 [=====] - 18s 74ms/step - loss: 19.4996 - mae:
3.1384 - val_loss: 31.7382 - val_mae: 4.5802
Epoch 16/20
242/242 [=====] - 18s 76ms/step - loss: 19.0138 - mae:
3.0780 - val_loss: 28.7848 - val_mae: 4.3013
Epoch 17/20
242/242 [=====] - 18s 75ms/step - loss: 18.3113 - mae:
3.0306 - val_loss: 30.3178 - val_mae: 4.4566
Epoch 18/20
242/242 [=====] - 18s 76ms/step - loss: 18.1401 - mae:
3.0487 - val_loss: 32.2741 - val_mae: 4.5785
Epoch 19/20
242/242 [=====] - 18s 75ms/step - loss: 18.0172 - mae:
3.0143 - val_loss: 31.1296 - val_mae: 4.5855
Epoch 20/20
242/242 [=====] - 18s 75ms/step - loss: 17.9407 - mae:
3.0335 - val_loss: 32.0932 - val_mae: 4.6375
Chunk 11/52 // 19.23% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
3DClouds ', ' Avalanche Software ', ' Behaviour Interactive ', ' Blackmill Games
', ' Cape Guy ', ' Eurocom ', ' Flashback Games ', ' Forever Entertainment ', '
Goldhawk Interactive ', ' Gone North Games ', ' In Images ', ' KADOKAWA
CORPORATION ', ' Lab42 ', ' ML Enterprises ', ' Mandel ArtPlains ', ' Persha
Studia ', ' Reborn Games Inc. ', ' Revistronic ', ' Soleil Ltd. ', ' Sumo
Digital Academy ', ' Talawa Games ', ' Toylogic ', ' Visual Concepts ', '
comcept ', ' iNK Stories ', '110 Industries', '1P2P ', '2x2 Games ', '3000AD',
'3DClouds.it', '5 Lives Studios ', 'Accidental Queens ', 'Ackkstudios ',

```


'Acquire ', 'Action Button Entertainment ', 'Alientrap ', 'Arcen Games',
 'Asymmetric Publications ', 'Auroch Digital ', 'B-Alive ', 'Baroque Decay ',
 'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Black Sea
 Studios ', 'Blue Manchu ', 'Bojan Brbora ', 'Brave at Night ', 'BreakAway Games
 ', 'Bulwark Studios ', 'Celeris ', 'Chucklefish ', 'Clifftop Games ', 'Coldwood
 Interactive ', 'Complex Games Inc. ', 'Cordens Interactive ', 'Cornered Rat ',
 'Crazy Viking Studios ', 'Crocodile Entertainment ', 'Deadline Games ', 'Deadpan
 Games ', 'Deep Red ', 'Dejobaan Games ', 'Devespresso Games ', 'Different Tales
 ', 'Digital Spray Studios', 'Digixart Entertainment ', 'Dim Bulb Games ',
 'Direct Action Games ', 'DotEmu ', 'Draw Distance ', 'Dream Execution ', 'Dumb
 and Fat Games ', 'EVC ', 'EXOR Studios ', 'Eden Industries ', 'Emobi Games ',
 'Endless Fluff ', 'Eurocom Entertainment Software', 'FarmerGnome ', 'Fast Travel
 Games ', 'Fatbot Games ', 'Fatshark AB ', 'Forever Entertainment S.A.',
 'Fragment Production Ltd', 'Freebird Games ', 'Funomena ', 'G5 Software ',
 'GabberGames ', 'GameDesignDan ', 'Gamedust ', 'Games Farm ', 'Games Workshop ',
 'Gamethunks', 'Gameyus Interactive ', 'Gasket Games ', 'Genius Slackers ',
 'Ghost Pattern ', 'Giant Sparrow ', 'Glass Heart Games ', 'Gloomywood ', 'GrIN
 Multimedia ', 'Grundislav Games ', 'Guild Software ', 'Halberd Studios ',
 'Hammerfall Publishing ', 'Heuristic Park ', 'Hi-Bit Studios ', 'House House ',
 'Impressions Games ', 'Innerspace VR ', 'Invictus ', 'It's Anecdotal ', 'Jacob
 Antonucci', 'Jagex Games Studio ', 'Jason Oda ', 'Jellyvision ', 'JoyMasher ',
 'Jutsu Games ', 'KT Racing ', 'Kadokawa', 'Knuist & Perzik ', 'Kuju
 Entertainment ', 'Legend Entertainment ', 'Lightning Rod Games ', 'Livesay
 Technologies ', 'Lumenox ehf ', 'M2H', 'Magic Design Studios ', 'Masque
 Publishing ', 'Max Inferno ', 'Mega Cat Studios ', 'MicroProse ', 'MidBoss ',
 'Misfits Attic ', 'Mojiken Studio ', 'Monokel ', 'Moonbite Games ', 'Moonshark
 ', 'N-Fusion Interactive Entertainment Corp.', 'Night Light Interactive ',
 'Nihilistic ', 'Nine Rocks Games ', 'NoClip ', 'OSome Studio ', 'Ostrich
 Banditos ', 'Ota Imon Studios ', 'Outsider Games ', 'Owlchemy Labs ', 'Paradox
 Interactive', 'Pixelated Milk ', 'PlayMagic Ltd ', 'Playwood Project ',
 'Polyslash ', 'Prideful Sloth ', 'Project Aces ', 'Project Aces ', 'Proxy
 Studios ', 'Pterodon ', 'Pyrodactyl Games ', 'Ratbag ', 'Reflexive Entertainment
 ', 'Related Designs ', 'Replay Studios', 'Revistonic', 'Rimlight Studios ',
 'Ritual Entertainment', 'Robot Gentleman ', 'Rodeo Games ', 'Rooster Teeth Games
 ', 'Ruud Koorevaar ', 'Ryu ga Gotoku Studios', 'Sad Owl Studios ', 'SadSquare
 Studio ', 'Santa Ragione ', 'Shiro Games ', 'Silver Wish Games ', 'Silvio & Gey
 Savarese ', 'Simogo ', 'Sir-Tech Software Inc. ', 'Sky Machine Studios ',
 'Sloclap ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Sobaka ', 'Spark
 Unlimited', 'Spike Chunsoft ', 'Steel Mantis ', 'Strange Loop Games ',
 'Strategic Studies Group ', 'Strayllight Entertainment ', 'Studio Drydock Pty
 Ltd ', 'Studio Pixel Punk ', 'Subterranean Games ', 'Sukeban Games ', 'Sumo
 Digital', 'Sunflowers Interactive ', 'Super X Studios ', 'Sylum Entertainment ',
 'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment ', 'Tate Multimedia
 ', 'Team OFK ', 'Teotl Studios', 'Terry Cavanagh ', 'The Bitmap Brothers ', 'The
 Lordz Games Studio', 'The Wandering Ben ', 'Theta Division ', 'Third Wave Games
 ', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ', 'Toylogic Inc.', 'Trapdoor ',
 'Treyarch', 'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ',
 'Unicorn Games Studio ', 'Upstream Arcade ', 'Variable State ', 'Vile Monarch ',

'Villa Gorilla ', 'Visai Games ', 'WXP ', 'Warcave ', 'Wastelands Interactive ',
'Whale Rock Games ', 'Wide Games ', 'Winning Streak Games ', 'Witch Beam ',
'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker Games ', 'Zeal Game Studios
, 'Zuxxez', 'adamgryu ', 'frecle ApS ', 'imaginarylab ', 'inkle', 'poncle ',
'timesymmetry '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

234/234 [=====] - 18s 75ms/step - loss: 38.4639 - mae:
4.6490 - val_loss: 41.1022 - val_mae: 4.9982

Epoch 2/20

234/234 [=====] - 18s 75ms/step - loss: 30.0329 - mae:
4.0449 - val_loss: 34.5827 - val_mae: 4.5333

Epoch 3/20

234/234 [=====] - 18s 75ms/step - loss: 29.0513 - mae:
3.9027 - val_loss: 36.3178 - val_mae: 4.6975

Epoch 4/20

234/234 [=====] - 18s 75ms/step - loss: 26.9867 - mae:
3.7712 - val_loss: 35.2691 - val_mae: 4.5300

Epoch 5/20

234/234 [=====] - 17s 75ms/step - loss: 25.4874 - mae:
3.5995 - val_loss: 32.9875 - val_mae: 4.4057

Epoch 6/20

234/234 [=====] - 17s 75ms/step - loss: 25.9247 - mae:
3.5951 - val_loss: 35.3058 - val_mae: 4.5619

Epoch 7/20

234/234 [=====] - 18s 75ms/step - loss: 24.8294 - mae:
3.5178 - val_loss: 30.9589 - val_mae: 4.2448

Epoch 8/20

234/234 [=====] - 18s 75ms/step - loss: 23.5828 - mae:
3.4342 - val_loss: 32.1234 - val_mae: 4.3357

Epoch 9/20

234/234 [=====] - 18s 75ms/step - loss: 23.2330 - mae:
3.4043 - val_loss: 29.0032 - val_mae: 4.1101

Epoch 10/20

234/234 [=====] - 18s 75ms/step - loss: 21.5804 - mae:
3.2981 - val_loss: 31.3803 - val_mae: 4.3407

Epoch 11/20

234/234 [=====] - 18s 75ms/step - loss: 21.5271 - mae:
3.2585 - val_loss: 31.9701 - val_mae: 4.3819

Epoch 12/20

234/234 [=====] - 18s 75ms/step - loss: 21.8866 - mae:
3.2701 - val_loss: 32.6771 - val_mae: 4.4626

Epoch 13/20

234/234 [=====] - 17s 74ms/step - loss: 21.2405 - mae:
3.2129 - val_loss: 30.2586 - val_mae: 4.2238

Epoch 14/20

234/234 [=====] - 18s 75ms/step - loss: 21.4669 - mae:

3.2178 - val_loss: 33.1621 - val_mae: 4.4957

Chunk 12/52 // 21.15% Complete // Cycle 3/3

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```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Forgotten Key ', ' Innersloth ', ' Viva Media', ' bitComposer ', 'AWE Games ',
'Acclaim Studios Cheltenham ', 'Aeternum Game Studios ', 'Alientrap ',
'Analgesic Productions ', 'Anarteam ', 'Arcen Games', 'Arxel Tribe ', 'Auroch
Digital ', 'Aurogon Shanghai ', 'Big Ant Studios ', 'Bit Blot ', 'Black Element
', 'Broken Rules ', 'Centauri Production ', 'Cold Iron Studios ', 'CreativeForge
Games ', 'Cross-Product ', 'Daedalic Entertainment', 'Data Becker ', 'Demruth ',
'Digital Arrow ', 'Dreampainters ', 'Elden Pixels ', 'Fallen Tree Games ',
'Fiction Factory Games ', 'FreakZone ', 'Future Games', 'GUTS Department ',
'Gabe Cuzzillo ', 'Gato Salvaje Studio ', 'GlyphX Games ', 'Hazardous Software
', 'Himalaya Studios ', 'Iceberg Interactive ', 'Indefatigable ', 'Investigate
North ', 'Jagex Games Studio ', 'Jankenteam ', 'Khaeon ', 'Krams Design ',
'Kubat Software ', 'Lince Works ', 'MadMinute Games ', 'Made by Kiddies ',
'Massive Development ', 'Maximum Games ', 'Mischief ', 'MyDearest ', 'Nicolas
Intoxicate ', 'Panther Games ', 'Piccolo ', 'Punch Punk Games ', 'Pure FPS ',
'RageSquid ', 'Realtime Worlds ', 'Resolution Games ', 'Revolution of Strategy
', 'Rogue Entertainment ', 'S&G Software ', 'Sandbox Interactive ', 'Schell
Games', 'Sigma Team ', 'Skydance Interactive ', 'Spike Chunsoft ', 'Spiral House
', 'Tantalus ', 'The Wandering Band LLC ', 'ThinkingStars ', 'Third Law
Interactive ', 'Three One Zero ', 'TicToc Games ', 'Tim Conkling ', 'Tindalos
Interactive ', 'Turmoil Games ', 'U.S. Army ', 'Vagabond Dog ', 'Vertigo Games
', 'WorldForge ', 'Yuke's ', 'bitComposer Games', 'ustwo '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

230/230 [=====] - 18s 75ms/step - loss: 32.5620 - mae:
3.9857 - val_loss: 28.4964 - val_mae: 3.9309

Epoch 2/20

230/230 [=====] - 17s 74ms/step - loss: 19.9667 - mae:
2.9220 - val_loss: 23.4427 - val_mae: 3.6069

Epoch 3/20

230/230 [=====] - 17s 75ms/step - loss: 17.1031 - mae:
2.5394 - val_loss: 23.3165 - val_mae: 3.6650

Epoch 4/20

230/230 [=====] - 17s 74ms/step - loss: 14.8264 - mae:
2.2531 - val_loss: 21.7127 - val_mae: 3.5530

Epoch 5/20

230/230 [=====] - 17s 75ms/step - loss: 13.3643 - mae:
2.0983 - val_loss: 22.8938 - val_mae: 3.6364

Epoch 6/20

230/230 [=====] - 17s 75ms/step - loss: 12.2580 - mae:
1.9654 - val_loss: 21.8231 - val_mae: 3.5273

Epoch 7/20

230/230 [=====] - 17s 75ms/step - loss: 12.3301 - mae:
1.9270 - val_loss: 22.4748 - val_mae: 3.6091

```

Epoch 8/20
230/230 [=====] - 17s 76ms/step - loss: 11.9011 - mae:
1.8704 - val_loss: 21.9572 - val_mae: 3.5306
Epoch 9/20
230/230 [=====] - 17s 75ms/step - loss: 10.8739 - mae:
1.7905 - val_loss: 22.8195 - val_mae: 3.6395
Chunk 13/52 // 23.08% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Atlantis Interactive Entertainment ', ' Bird Bath Games ', ' Massive
Entertainment', '3D People ', 'A44 ', 'Acme Gamestudio ', 'Artisan Studios ',
'Atlantis Interactive Entertainment\t', 'AtomTeam ', 'AurumDust ',
'BestGameEver.com ', 'Blendo Games ', 'Breaking Walls ', 'Charles University ',
'ClockStone Studio ', 'Daniel Wynne', 'Denki ', 'Digital Eclipse ', 'Edelweiss
', 'Etranges Libellules ', 'Exiin ', 'Funselektor Labs Inc. ', 'Gust ', 'Hempuli
Oy ', 'INTERIOR/NIGHT ', 'Kiro'o Games ', 'League of Geeks ', 'Lienzo ',
' LuckyHammers ', 'Midway Studios - Austin ', 'Mothership Entertainment ', 'NHN
Corporation ', 'NetDevil ', 'Ntronium Games ', 'Pencil Test Studios ', 'Peter
Stock ', 'Piccolo ', 'Planet Moon Studios ', 'Sanzaru ', 'Sketchy Logic ',
'Spiderweb Software ', 'Streko-Graphics Inc. ', 'System Era Softworks ', 'Team
Junkfish ', 'Tom Happ ', 'Ubisoft Bordeaux ', 'Ubisoft Singapore ', 'Ubisoft
Sofia ', 'Unexpected ', 'Wayward Simulations ', 'Witch Beam ', 'idoz & phops ']
will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
213/213 [=====] - 16s 75ms/step - loss: 15.3722 - mae:
2.5326 - val_loss: 11.1644 - val_mae: 2.6952
Epoch 2/20
213/213 [=====] - 16s 76ms/step - loss: 10.2210 - mae:
1.9341 - val_loss: 9.6824 - val_mae: 2.4016
Epoch 3/20
213/213 [=====] - 16s 75ms/step - loss: 9.0481 - mae:
1.7912 - val_loss: 9.4124 - val_mae: 2.4478
Epoch 4/20
213/213 [=====] - 16s 75ms/step - loss: 7.9083 - mae:
1.6505 - val_loss: 8.9614 - val_mae: 2.3244
Epoch 5/20
213/213 [=====] - 16s 75ms/step - loss: 7.2198 - mae:
1.5244 - val_loss: 8.6307 - val_mae: 2.3526
Epoch 6/20
213/213 [=====] - 16s 75ms/step - loss: 6.7804 - mae:
1.4717 - val_loss: 8.1642 - val_mae: 2.2489
Epoch 7/20
213/213 [=====] - 16s 75ms/step - loss: 6.8800 - mae:
1.4479 - val_loss: 8.2416 - val_mae: 2.2735
Epoch 8/20
213/213 [=====] - 16s 76ms/step - loss: 5.8903 - mae:

```

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1.3943 - val_loss: 7.9546 - val_mae: 2.2303
Epoch 9/20
213/213 [=====] - 16s 74ms/step - loss: 5.8287 - mae:
1.3404 - val_loss: 7.6578 - val_mae: 2.1641
Epoch 10/20
213/213 [=====] - 16s 76ms/step - loss: 5.2321 - mae:
1.2788 - val_loss: 7.5701 - val_mae: 2.1646
Epoch 11/20
213/213 [=====] - 16s 77ms/step - loss: 5.5638 - mae:
1.2892 - val_loss: 7.9916 - val_mae: 2.2459
Epoch 12/20
213/213 [=====] - 16s 76ms/step - loss: 5.4017 - mae:
1.2597 - val_loss: 7.8033 - val_mae: 2.1992
Epoch 13/20
213/213 [=====] - 16s 75ms/step - loss: 5.2570 - mae:
1.2478 - val_loss: 7.5792 - val_mae: 2.1444
Epoch 14/20
213/213 [=====] - 16s 75ms/step - loss: 4.7217 - mae:
1.2073 - val_loss: 8.2787 - val_mae: 2.3310
Epoch 15/20
213/213 [=====] - 16s 76ms/step - loss: 4.7731 - mae:
1.1962 - val_loss: 7.4566 - val_mae: 2.1544
Epoch 16/20
213/213 [=====] - 16s 76ms/step - loss: 4.9055 - mae:
1.2119 - val_loss: 8.0606 - val_mae: 2.2248
Epoch 17/20
213/213 [=====] - 16s 75ms/step - loss: 4.3863 - mae:
1.1616 - val_loss: 7.9706 - val_mae: 2.2060
Epoch 18/20
213/213 [=====] - 16s 75ms/step - loss: 4.9842 - mae:
1.2123 - val_loss: 8.1721 - val_mae: 2.2618
Epoch 19/20
213/213 [=====] - 16s 75ms/step - loss: 4.8261 - mae:
1.1764 - val_loss: 7.5814 - val_mae: 2.1213
Epoch 20/20
213/213 [=====] - 16s 76ms/step - loss: 4.4987 - mae:
1.1662 - val_loss: 7.8051 - val_mae: 2.2080
Chunk 14/52 // 25.0% Complete // Cycle 3/3

```

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Arzest', ' Balan Company ', '3000AD', 'Armature Studio ', 'Bedtime Digital Games
', 'CE-Asia ', 'Cauldron Ltd. ', 'Causal Bit Games ', 'EggNut ', 'Lost Toys ',
'Overhype Studios ', 'Pathos Interactive ', 'Plausible Concept ', 'Point 5
Projects ', 'Pulse Entertainment ', 'Rayland Interactive ', 'Shadow Tor Studios
', 'Shining Rock Software ', 'Shockwave Productions ', 'Sports Mogul ',
'Stormind Games ', 'The Behemoth ', 'Throw the Warped Code Out ', 'Unspeakable
Pixels '] will be ignored

```

```

    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
225/225 [=====] - 17s 75ms/step - loss: 26.4525 - mae:
3.2583 - val_loss: 18.7677 - val_mae: 3.0649
Epoch 2/20
225/225 [=====] - 17s 76ms/step - loss: 10.8947 - mae:
2.0167 - val_loss: 18.0342 - val_mae: 3.0213
Epoch 3/20
225/225 [=====] - 17s 76ms/step - loss: 9.1806 - mae:
1.6563 - val_loss: 18.0467 - val_mae: 2.9900
Epoch 4/20
225/225 [=====] - 17s 74ms/step - loss: 6.2066 - mae:
1.3338 - val_loss: 17.1217 - val_mae: 2.8640
Epoch 5/20
225/225 [=====] - 17s 75ms/step - loss: 6.9596 - mae:
1.2732 - val_loss: 16.9073 - val_mae: 2.8864
Epoch 6/20
225/225 [=====] - 17s 75ms/step - loss: 6.2944 - mae:
1.1406 - val_loss: 18.4657 - val_mae: 3.1902
Epoch 7/20
225/225 [=====] - 17s 75ms/step - loss: 5.6010 - mae:
1.0883 - val_loss: 18.6819 - val_mae: 3.1570
Epoch 8/20
225/225 [=====] - 17s 75ms/step - loss: 5.5553 - mae:
1.0384 - val_loss: 18.5172 - val_mae: 3.1131
Epoch 9/20
225/225 [=====] - 17s 75ms/step - loss: 5.8724 - mae:
1.0302 - val_loss: 19.1530 - val_mae: 3.2725
Epoch 10/20
225/225 [=====] - 17s 75ms/step - loss: 4.4139 - mae:
0.8887 - val_loss: 19.5241 - val_mae: 3.4053
Chunk 15/52 // 26.92% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Dlala Studios ', ' Eurocom ', 'Argonaut Games ', 'Artematica ', 'Auran ',
'Balancing Monkey Games ', 'Big Boat Interactive ', 'Black Lab Games ',
'Blackpowder Games ', 'BumbleBeast ', 'Capy Games ', 'Cryo Interactive ',
'Digital Fusion Inc. ', 'Eidos Interactive ', 'Eurocom Entertainment Software',
'Eutechnyx ', 'GoodbyeWorld Games ', 'Gummy Cat ', 'Harebrained Schemes LLC ',
'Hiding Spot ', 'Hyperbolic Magnetism ', 'Iridium Studios ', 'Magnum Games ',
'Pixel Crow ', 'Rare Ltd.', 'ShadowRage ', 'Silver Lining Studio ', 'Similis ',
'Stunlock Studios ', 'THE BROTHERHOOD ', 'Tale of Tales ', 'Threacks ', 'Tindalos
Interactive ', 'Tri Synergy ', 'Twice Circled ', 'Varsav Game Studios ', 'Warsaw
Film School Video Game & Film Production Studio ', 'tiger & squid '] will be
ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

```

Epoch 1/20
228/228 [=====] - 17s 75ms/step - loss: 19.4246 - mae:
2.9185 - val_loss: 20.8629 - val_mae: 3.1509
Epoch 2/20
228/228 [=====] - 17s 75ms/step - loss: 11.8240 - mae:
2.0644 - val_loss: 17.3075 - val_mae: 2.9769
Epoch 3/20
228/228 [=====] - 17s 76ms/step - loss: 10.0433 - mae:
1.8556 - val_loss: 17.9277 - val_mae: 3.0152
Epoch 4/20
228/228 [=====] - 17s 74ms/step - loss: 9.2847 - mae:
1.6975 - val_loss: 18.4540 - val_mae: 3.1650
Epoch 5/20
228/228 [=====] - 17s 75ms/step - loss: 8.3663 - mae:
1.5696 - val_loss: 18.2238 - val_mae: 3.1656
Epoch 6/20
228/228 [=====] - 17s 76ms/step - loss: 8.1227 - mae:
1.5273 - val_loss: 18.6031 - val_mae: 3.2076
Epoch 7/20
228/228 [=====] - 17s 76ms/step - loss: 7.9370 - mae:
1.4818 - val_loss: 18.5058 - val_mae: 3.1598
Chunk 16/52 // 28.85% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Cricket'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cranberry Production ', ' Digital Eclipse ', ' Nival ', ' Polar Motion ', ' S.L.
', ' Slitherine Group', '2K Games ', 'A Crowd of Monsters ', 'AGEOD ', 'Amanita
Design ', 'Apeiron ', 'Atomic Games ', 'Awe Interactive ', 'Black Mesa
Modification Team ', 'Blooming Buds Studio ', 'BootdiskRevolution ', 'Brat
Designs ', 'Cavia Inc. ', 'ClockStone Studio ', 'Corbie Games ', 'Cranberry
Studios ', 'DANG! ', 'DTP Entertainment', 'Deep Shadows ', 'Dimfrost ', 'Drama
Drifters ', 'Elsewhere Experience ', 'Erik Svedang ', 'FYQD-Studio ', 'Free Lives
', 'Gaijin Games ', 'Gust ', 'Headfirst Productions ', 'Interceptor
Entertainment ', 'Inti Creates ', 'Jagex Games Studio ', 'JoyMasher ', 'Kitfox
Games ', 'Krome Studios ', 'La Plata ', 'Midway Studios - Austin ', 'Mighty
Rabbit Studios ', 'Morteshka ', 'NExT Studios ', 'Nival Interactive', 'Nova
Production ', 'Paper Cult ', 'PaperSeven ', 'Pixel Multimedia ', 'PortaPlay ',
'Quotix Software ', 'Rebel Act Studios ', 'RedRuins Softworks ', 'Robi Studios
', 'Runner Duck ', 'Sand Sailor Studio ', 'Scientifically Proven ',
'Slitherine', 'Stellar Jockeys ', 'Stickmen Studios ', 'Still Alive Studios ',
'Stunlock Studios ', 'SuperScarySnakes ', 'Swing Swing Submarine ', 'Targem
Games ', 'Team Reptile ', 'The Moonwalls ', 'The Parasight ', 'The Pixel Hunt ',
'Thing Trunk ', 'Troglobytes Games', 'V7 Entertainment Inc. ', 'stillalive
studios '] will be ignored

```

```

    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
224/224 [=====] - 17s 75ms/step - loss: 23.8111 - mae:
3.1906 - val_loss: 13.7846 - val_mae: 2.4869
Epoch 2/20
224/224 [=====] - 17s 77ms/step - loss: 15.4352 - mae:
2.3358 - val_loss: 13.2257 - val_mae: 2.5858
Epoch 3/20
224/224 [=====] - 17s 76ms/step - loss: 14.2675 - mae:
2.1459 - val_loss: 13.8444 - val_mae: 2.6880
Epoch 4/20
224/224 [=====] - 17s 74ms/step - loss: 12.6947 - mae:
2.0615 - val_loss: 12.4683 - val_mae: 2.5534
Epoch 5/20
224/224 [=====] - 17s 76ms/step - loss: 11.4669 - mae:
1.9188 - val_loss: 13.3262 - val_mae: 2.7667
Epoch 6/20
224/224 [=====] - 17s 74ms/step - loss: 11.6436 - mae:
1.9015 - val_loss: 14.4698 - val_mae: 2.8853
Epoch 7/20
224/224 [=====] - 17s 75ms/step - loss: 10.7446 - mae:
1.7935 - val_loss: 13.7568 - val_mae: 2.7332
Epoch 8/20
224/224 [=====] - 17s 74ms/step - loss: 11.3106 - mae:
1.7903 - val_loss: 14.8772 - val_mae: 2.9273
Epoch 9/20
224/224 [=====] - 17s 74ms/step - loss: 10.7585 - mae:
1.7330 - val_loss: 14.0246 - val_mae: 2.8300
Chunk 17/52 // 30.77% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Out of the Blue Games S.L. ', 'Action Forms Ltd. ', 'Activision ', 'Alientrap ',
'Blue Manchu ', 'Bytten Studio ', 'Expansive Worlds ', 'Hothouse Creations ',
'Ice-Pick Lodge ', 'Matt Kap ', 'Nerial ', 'Out of the Blue', 'Phobia Game
Studio ', 'Richard Hofmeier ', 'Serious Brew ', 'Sierra Entertainment ',
'Spotlightor Interactive ', 'Sunhead Games ', 'Sunstorm Interactive ', 'Teku
Studios ', 'Torus Games '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
220/220 [=====] - 17s 75ms/step - loss: 19.0298 - mae:
2.8752 - val_loss: 19.5419 - val_mae: 3.4438
Epoch 2/20

```



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220/220 [=====] - 17s 76ms/step - loss: 8.4547 - mae:
1.7393 - val_loss: 18.0502 - val_mae: 3.3106
Epoch 3/20
220/220 [=====] - 17s 75ms/step - loss: 7.4194 - mae:
1.5626 - val_loss: 18.5618 - val_mae: 3.3709
Epoch 4/20
220/220 [=====] - 17s 75ms/step - loss: 5.9917 - mae:
1.3896 - val_loss: 17.9518 - val_mae: 3.2832
Epoch 5/20
220/220 [=====] - 17s 75ms/step - loss: 5.4123 - mae:
1.3109 - val_loss: 18.8519 - val_mae: 3.3741
Epoch 6/20
220/220 [=====] - 17s 77ms/step - loss: 5.4607 - mae:
1.2797 - val_loss: 18.9217 - val_mae: 3.4048
Epoch 7/20
220/220 [=====] - 17s 76ms/step - loss: 4.9218 - mae:
1.1918 - val_loss: 19.3553 - val_mae: 3.4026
Epoch 8/20
220/220 [=====] - 16s 74ms/step - loss: 4.5465 - mae:
1.1191 - val_loss: 18.2093 - val_mae: 3.3040
Epoch 9/20
220/220 [=====] - 16s 75ms/step - loss: 4.4148 - mae:
1.1070 - val_loss: 19.4439 - val_mae: 3.4133
Chunk 18/52 // 32.69% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Application', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Deep Silver Fishlabs ', ' EA Games ', ' FireFly Studios ', ' LLC', ' LandFall ',
' Navarre Corp ', ' Overflow Games ', ' Phosphor Games ', ' Reality Twist ', '
Sega', ' Ste Curran ', 'Amanita Design ', 'Argonaut Games', 'Ascension Studios',
'Atomic Games ', 'Backbone Entertainment ', 'Beautiful Game Studios ', 'Behold
Studios ', 'Big Time Software ', 'Boxed Dream ', 'BreakAway Games ', 'Convoy
Games ', 'Crazy Rocks ', 'Cygnus Entertainment ', 'Darkworks ', 'Data Realms ',
'Destineer ', 'Discord Games ', 'Double Stallion Games ', 'Dreamworks Games ',
'EA Pacific ', 'EasyGameStation ', 'Eden Industries ', 'Elf Games ', 'Eyebrow
Interactive ', 'Fever Pitch Studios ', 'Firaxis Games', 'Fishlabs', 'Focus Home
Interactive ', 'Gaslamp Games ', 'Greg Lobanov ', 'ION LANDS ',
'Interdimensional Games Inc ', 'Investigate North Aps ', 'Jason Oda ', 'Jump
Over The Age ', 'LandFall Games', 'Lazy 8 Studios ', 'Logic Artists ', 'MASA
Group ', 'Maddy Makes Games ', 'Mages. ', 'Matthias Linda ', 'Mighty Kingdom ',
'Mindware Studios ', 'Original Fire Games ', 'Oxeye ', 'Paragon Studios ',
'Phoenix Online Studios ', 'Phosphor Games Studio', 'Playwing ', 'Puuba ',
'Reality Twist GmbH', 'Snapshot Games Inc. ', 'SomaSim ', 'Storm in a Teacup ',
'TRAGsoft ', 'The Gentlebros ', 'The Wild Gentlemen ', 'Toge Productions ',

```

'Twistplay', 'Two Star Games ', 'Uppercut Games Pty Ltd ', 'Various ', 'White Paper Games ', 'Yippee Entertainment LTD ', 'Zeboyd Games ', 'Zoetrope Interactive ', 'osao games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

224/224 [=====] - 17s 75ms/step - loss: 28.0036 - mae: 3.2824 - val_loss: 23.6508 - val_mae: 3.5825

Epoch 2/20

224/224 [=====] - 17s 75ms/step - loss: 19.6427 - mae: 2.5893 - val_loss: 20.4428 - val_mae: 3.3065

Epoch 3/20

224/224 [=====] - 17s 75ms/step - loss: 15.3808 - mae: 2.2169 - val_loss: 19.3979 - val_mae: 3.2216

Epoch 4/20

224/224 [=====] - 17s 76ms/step - loss: 14.8340 - mae: 2.1445 - val_loss: 19.6150 - val_mae: 3.3006

Epoch 5/20

224/224 [=====] - 17s 75ms/step - loss: 14.6975 - mae: 2.0729 - val_loss: 18.7111 - val_mae: 3.1462

Epoch 6/20

224/224 [=====] - 17s 75ms/step - loss: 14.0979 - mae: 1.9810 - val_loss: 19.7534 - val_mae: 3.3289

Epoch 7/20

224/224 [=====] - 17s 75ms/step - loss: 13.5328 - mae: 1.8890 - val_loss: 19.2667 - val_mae: 3.2718

Epoch 8/20

224/224 [=====] - 17s 75ms/step - loss: 14.5854 - mae: 1.9343 - val_loss: 19.3670 - val_mae: 3.2355

Epoch 9/20

224/224 [=====] - 17s 75ms/step - loss: 12.8821 - mae: 1.8160 - val_loss: 18.4621 - val_mae: 3.2180

Epoch 10/20

224/224 [=====] - 17s 75ms/step - loss: 13.3481 - mae: 1.8397 - val_loss: 19.4558 - val_mae: 3.2727

Epoch 11/20

224/224 [=====] - 17s 75ms/step - loss: 12.8606 - mae: 1.7867 - val_loss: 19.8313 - val_mae: 3.2628

Epoch 12/20

224/224 [=====] - 17s 75ms/step - loss: 11.4366 - mae: 1.6773 - val_loss: 19.1933 - val_mae: 3.2807

Epoch 13/20

224/224 [=====] - 17s 75ms/step - loss: 11.7678 - mae: 1.6850 - val_loss: 18.7194 - val_mae: 3.2405

Epoch 14/20

224/224 [=====] - 17s 75ms/step - loss: 11.4313 - mae: 1.6369 - val_loss: 20.4805 - val_mae: 3.3411

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time

recently (threshold: 10%)

Chunk 19/52 // 34.62% Complete // Cycle 3/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['  
10tons ', ' Elbow Rocket ', ' FAKT Software ', ' Funatics ', ' Funatics  
Software', ' Moonbyte Studios ', ' Relentless Studios ', '10tons Entertainment',  
'369 Interactive ', 'Aarne "MekaSkull" Hunziker ', 'Action Forms Ltd. ', 'Alt  
Shift ', 'Amanita Design ', 'Artematica ', 'Asylum Entertainment ', 'Brace  
Yourself Games ', 'Butterscotch Shenanigans ', 'Dreams Uncorporated ', 'EA  
Bright Light ', 'Explosm ', 'FAKT Software ', 'FAKT Software GmbH', 'Flying Cafe  
for Semianimals ', 'Fourattic ', 'Funatics Development GmbH', 'G5 Software ',  
'InGame Studios ', 'Invictus ', 'Jasozz Games ', 'Kraken Unleashed ',  
'Maschinen-Mensch ', 'Massive Monster ', 'Momentum DMT ', 'NExT Studios ',  
'PETOONS STUDIO SL ', 'Passtech Games ', 'Petri Purho ', 'Punchers Impact ',  
'Radical Fish Games ', 'Replay Studios', 'Skilltree Studios ', 'Spry Fox ',  
'Sumo Digital', 'Tag of Joy ', 'Toys for Bob ', 'Triangle Studios ', 'Vicarious  
Visions', 'Vile Monarch ', 'Vogster ', 'Weather Factory ', 'Zipper Interactive  
' ] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))  
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time  
recently (threshold: 10%)  
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time  
recently (threshold: 10%)
```

Epoch 1/20

```
209/209 [=====] - 16s 76ms/step - loss: 14.1228 - mae:  
2.1699 - val_loss: 11.5762 - val_mae: 2.5123
```

Epoch 2/20

```
209/209 [=====] - 16s 75ms/step - loss: 7.7428 - mae:  
1.4335 - val_loss: 10.9211 - val_mae: 2.4278
```

Epoch 3/20

```
209/209 [=====] - 16s 76ms/step - loss: 7.3057 - mae:  
1.3139 - val_loss: 10.2434 - val_mae: 2.3635
```

Epoch 4/20

```
209/209 [=====] - 16s 75ms/step - loss: 7.1404 - mae:  
1.2119 - val_loss: 10.7123 - val_mae: 2.4821
```

Epoch 5/20

```
209/209 [=====] - 16s 75ms/step - loss: 6.6081 - mae:  
1.1742 - val_loss: 10.1611 - val_mae: 2.4046
```

Epoch 6/20

```
209/209 [=====] - 16s 75ms/step - loss: 7.2033 - mae:  
1.1396 - val_loss: 8.8050 - val_mae: 2.3258
```

Epoch 7/20

```
209/209 [=====] - 16s 75ms/step - loss: 5.9332 - mae:  
1.0793 - val_loss: 9.6833 - val_mae: 2.5790
```

Epoch 8/20

```
209/209 [=====] - 16s 75ms/step - loss: 6.2225 - mae:
```

```

1.0260 - val_loss: 9.5606 - val_mae: 2.5398
Epoch 9/20
209/209 [=====] - 16s 75ms/step - loss: 5.6778 - mae:
0.9922 - val_loss: 9.6681 - val_mae: 2.4853
Epoch 10/20
209/209 [=====] - 16s 75ms/step - loss: 5.9673 - mae:
0.9612 - val_loss: 11.3561 - val_mae: 2.7503
Epoch 11/20
209/209 [=====] - 16s 74ms/step - loss: 5.9331 - mae:
0.9719 - val_loss: 11.4221 - val_mae: 2.7674

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 20/52 // 36.54% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
ICEBOX Studios ', ' RA Images ', 'Access Games ', 'Bigmoon Entertainment ',
'Blue Omega ', 'Cinemax', 'Creative Edge Software ', 'D'Avekki Studios Limited
', 'Darkling Room ', 'Hibernian Workshop ', 'Long Hat House ', 'Mad Mimic ',
'Marvelous First Studio ', 'Mythic Entertainment ', 'Namco Bandai Games ',
'Pyramid ', 'Sonalysts ', 'Spike Chunsoft ', 'Sword & Axe LLC ', 'Three Fields
Entertainment ', 'Wadjet Eye Games', 'XXV Productions '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
203/203 [=====] - 16s 75ms/step - loss: 8.5454 - mae:
1.2621 - val_loss: 7.0268 - val_mae: 2.3314
Epoch 2/20
203/203 [=====] - 15s 75ms/step - loss: 4.3548 - mae:
0.8734 - val_loss: 6.5405 - val_mae: 2.2406
Epoch 3/20
203/203 [=====] - 15s 74ms/step - loss: 3.7246 - mae:
0.7750 - val_loss: 6.5455 - val_mae: 2.3199
Epoch 4/20
203/203 [=====] - 15s 75ms/step - loss: 3.1307 - mae:
0.7075 - val_loss: 6.9556 - val_mae: 2.4137
Epoch 5/20
203/203 [=====] - 15s 75ms/step - loss: 2.9657 - mae:
0.6641 - val_loss: 7.5187 - val_mae: 2.4808
Epoch 6/20
203/203 [=====] - 15s 75ms/step - loss: 2.8951 - mae:
0.6489 - val_loss: 7.3239 - val_mae: 2.4737
Epoch 7/20
203/203 [=====] - 15s 76ms/step - loss: 3.1304 - mae:

```

0.6669 - val_loss: 7.7582 - val_mae: 2.5666

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Chunk 21/52 // 38.46% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Capcom Vancouver ', ' Koei Tecmo Games ', ' Ltd. ', ' Sky Fallen', '5-Bits Games ', '8Monkey Labs ', 'Access Games ', 'Acid Nerve ', 'Acid Wizard Studio ', 'Allgraf ', 'Biart ', 'Blue Castle Games ', 'Boston Animation ', 'CCCP ', 'COWCAT ', 'Cave ', 'DNS Development ', 'Digital Confectioners ', 'DoubleBear Productions ', 'Dykast Lubomir ', 'Fabraz ', 'Fictiorama Studios ', 'Frozen line ', 'Ghost Ship Games ', 'Haggard Games ', 'Ikarion ', 'Invader Studios ', 'KUNO INTERACTIVE ', 'Ludus future ', 'MINT ROCKET ', 'Madruga Works ', 'Most Wanted Entertainment ', 'Motion Twin ', 'Nfusion ', 'Oscar Brittain ', 'Outrage Games ', 'Parallax Software ', 'Positech Games ', 'QCF Design ', 'RageSquid ', 'Related Designs ', 'Resolution Games ', 'Scavengers Studio ', 'Silent Grove Studios ', 'Sky Fallen ', 'Snowhound Games ', 'Streko-Graphics Inc. ', 'Team Ninja', 'The Chinese Room ', 'Twisted Pixel Games ', 'Unfold Games ', 'White Rabbit Interactive ', 'Z-Axis', 'Zoetrope Interactive '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Epoch 1/20

224/224 [=====] - 17s 76ms/step - loss: 28.3386 - mae: 3.5640 - val_loss: 21.7527 - val_mae: 3.3724

Epoch 2/20

224/224 [=====] - 17s 76ms/step - loss: 17.6705 - mae: 2.6496 - val_loss: 21.4952 - val_mae: 3.4544

Epoch 3/20

224/224 [=====] - 17s 75ms/step - loss: 15.2736 - mae: 2.3786 - val_loss: 19.6373 - val_mae: 3.1788

Epoch 4/20

224/224 [=====] - 17s 75ms/step - loss: 14.3918 - mae: 2.2419 - val_loss: 20.7793 - val_mae: 3.4735

Epoch 5/20

224/224 [=====] - 17s 75ms/step - loss: 13.2058 - mae: 2.0836 - val_loss: 21.6245 - val_mae: 3.5569

Epoch 6/20

224/224 [=====] - 17s 76ms/step - loss: 12.9345 - mae: 2.0092 - val_loss: 21.6270 - val_mae: 3.5276

Epoch 7/20

224/224 [=====] - 17s 74ms/step - loss: 12.4436 - mae: 1.9771 - val_loss: 21.6008 - val_mae: 3.5178

Epoch 8/20

224/224 [=====] - 17s 75ms/step - loss: 12.0357 - mae: 1.9176 - val_loss: 21.6938 - val_mae: 3.5335

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Chunk 22/52 // 40.38% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Dreadlocks ', 'Digitalo Studios ', 'Dreadlocks Ltd', 'Foregone ', 'Layopi Games ', 'Red Candle Games ', 'Sorath ', 'Sourcenext ', 'Ultimation Inc. '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Epoch 1/20

231/231 [=====] - 18s 75ms/step - loss: 14.3567 - mae: 2.2637 - val_loss: 16.4163 - val_mae: 3.3184

Epoch 2/20

231/231 [=====] - 17s 74ms/step - loss: 7.2339 - mae: 1.4800 - val_loss: 16.6956 - val_mae: 3.3608

Epoch 3/20

231/231 [=====] - 17s 75ms/step - loss: 6.4024 - mae: 1.2649 - val_loss: 19.6433 - val_mae: 3.6448

Epoch 4/20

231/231 [=====] - 17s 75ms/step - loss: 5.6943 - mae: 1.1219 - val_loss: 15.9022 - val_mae: 3.3223

Epoch 5/20

231/231 [=====] - 18s 76ms/step - loss: 4.3881 - mae: 0.9845 - val_loss: 15.5115 - val_mae: 3.3347

Epoch 6/20

231/231 [=====] - 17s 75ms/step - loss: 4.3881 - mae: 0.9531 - val_loss: 15.6342 - val_mae: 3.3434

Epoch 7/20

231/231 [=====] - 17s 76ms/step - loss: 4.1511 - mae: 0.9190 - val_loss: 15.3249 - val_mae: 3.3406

Epoch 8/20

231/231 [=====] - 17s 75ms/step - loss: 3.9782 - mae: 0.8769 - val_loss: 15.8108 - val_mae: 3.4059

Epoch 9/20

231/231 [=====] - 18s 76ms/step - loss: 3.4798 - mae: 0.8407 - val_loss: 12.6754 - val_mae: 3.0529

Epoch 10/20

231/231 [=====] - 17s 75ms/step - loss: 3.6665 - mae: 0.7950 - val_loss: 13.2404 - val_mae: 3.1054

Epoch 11/20

231/231 [=====] - 17s 76ms/step - loss: 3.0897 - mae:
0.7790 - val_loss: 13.0865 - val_mae: 3.0918

Epoch 12/20

231/231 [=====] - 17s 76ms/step - loss: 3.1999 - mae:
0.7451 - val_loss: 11.7034 - val_mae: 2.9538

Epoch 13/20

231/231 [=====] - 17s 75ms/step - loss: 2.8225 - mae:
0.7121 - val_loss: 13.0032 - val_mae: 3.1013

Epoch 14/20

231/231 [=====] - 17s 75ms/step - loss: 2.7927 - mae:
0.6806 - val_loss: 14.1323 - val_mae: 3.2517

Epoch 15/20

231/231 [=====] - 17s 75ms/step - loss: 2.9083 - mae:
0.6508 - val_loss: 13.1456 - val_mae: 3.1194

Epoch 16/20

231/231 [=====] - 17s 75ms/step - loss: 3.4251 - mae:
0.7107 - val_loss: 14.6257 - val_mae: 3.3674

Epoch 17/20

231/231 [=====] - 17s 75ms/step - loss: 2.9442 - mae:
0.6524 - val_loss: 13.7374 - val_mae: 3.2115

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 23/52 // 42.31% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['
Dose', ' Kitty', ' and JW ', 'ArachnidGames ', 'AtomicTorch ', 'DESTINYbit ',
'Frima Studio ', 'Innonics ', 'Nippon Ichi Software ', 'Piranha Games ', 'Ratbag
' , 'Soldak Entertainment ', 'Sundae Month ', 'Terri', 'Terry Cavanagh ', 'V1
Interactive '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20

231/231 [=====] - 18s 76ms/step - loss: 7.2429 - mae:
1.2345 - val_loss: 21.0256 - val_mae: 3.3076

Epoch 2/20

231/231 [=====] - 17s 75ms/step - loss: 4.6958 - mae:
0.9047 - val_loss: 19.7373 - val_mae: 3.3629

Epoch 3/20

231/231 [=====] - 17s 75ms/step - loss: 3.5343 - mae:
0.7710 - val_loss: 17.4019 - val_mae: 3.3049

Epoch 4/20

231/231 [=====] - 17s 75ms/step - loss: 3.4128 - mae:
0.7374 - val_loss: 18.7462 - val_mae: 3.3462

```

Epoch 5/20
231/231 [=====] - 17s 74ms/step - loss: 3.3139 - mae:
0.6995 - val_loss: 18.0316 - val_mae: 3.3859
Epoch 6/20
231/231 [=====] - 17s 76ms/step - loss: 3.3762 - mae:
0.6911 - val_loss: 17.4190 - val_mae: 3.2825
Epoch 7/20
231/231 [=====] - 18s 76ms/step - loss: 3.7832 - mae:
0.6995 - val_loss: 18.0611 - val_mae: 3.3655
Epoch 8/20
231/231 [=====] - 17s 76ms/step - loss: 3.3213 - mae:
0.6509 - val_loss: 17.0528 - val_mae: 3.2928
Epoch 9/20
231/231 [=====] - 17s 76ms/step - loss: 2.7135 - mae:
0.5881 - val_loss: 16.7687 - val_mae: 3.3047
Epoch 10/20
231/231 [=====] - 18s 76ms/step - loss: 2.8197 - mae:
0.5711 - val_loss: 17.1373 - val_mae: 3.3730
Epoch 11/20
231/231 [=====] - 17s 75ms/step - loss: 2.6243 - mae:
0.5860 - val_loss: 16.5945 - val_mae: 3.2591
Epoch 12/20
231/231 [=====] - 17s 74ms/step - loss: 3.0359 - mae:
0.5731 - val_loss: 16.3875 - val_mae: 3.3423
Epoch 13/20
231/231 [=====] - 17s 75ms/step - loss: 2.1469 - mae:
0.5510 - val_loss: 16.4545 - val_mae: 3.3716
Epoch 14/20
231/231 [=====] - 17s 76ms/step - loss: 2.7160 - mae:
0.5856 - val_loss: 17.1267 - val_mae: 3.3232
Epoch 15/20
231/231 [=====] - 17s 75ms/step - loss: 2.3432 - mae:
0.5254 - val_loss: 16.9317 - val_mae: 3.3218
Epoch 16/20
231/231 [=====] - 17s 76ms/step - loss: 2.6196 - mae:
0.5373 - val_loss: 17.0277 - val_mae: 3.4839
Epoch 17/20
231/231 [=====] - 17s 75ms/step - loss: 2.5248 - mae:
0.5565 - val_loss: 16.6392 - val_mae: 3.3178

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distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

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Chunk 24/52 // 44.23% Complete // Cycle 3/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Digital Leisure ', ' Eighting ', ' Eurocom ', 'Ankama Games ', 'Arc System
Works', 'Avalanche Software ', 'Barking Dog ', 'Ben Esposito ', 'Bippinbits ',

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'Canal+ Multimedia ', 'Code Force ', 'Digital Leisure Inc.', 'Disney Interactive Studios ', 'Eurocom Entertainment Software', 'Heavy Iron Studios', 'Illwinter Design Group ', 'Jesse Makkonen ', 'KillHouse Games ', 'Massive Work Studio ', 'Moppin ', 'Muro Studios Ltd. ', 'Nerve Software ', 'Pocket Trap ', 'Propaganda Games ', 'Secret Base ', 'Stickmen Studios ', 'Team Salvato ', 'Toukana Interactive ', 'Un Je Ne Sais Quoi ', 'V1 Interactive '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

212/212 [=====] - 16s 76ms/step - loss: 10.1087 - mae: 1.7098 - val_loss: 11.1418 - val_mae: 2.5187

Epoch 2/20

212/212 [=====] - 16s 75ms/step - loss: 6.9900 - mae: 1.2612 - val_loss: 8.3982 - val_mae: 2.4245

Epoch 3/20

212/212 [=====] - 16s 74ms/step - loss: 5.6467 - mae: 1.1045 - val_loss: 8.6153 - val_mae: 2.4352

Epoch 4/20

212/212 [=====] - 16s 76ms/step - loss: 5.4818 - mae: 1.0213 - val_loss: 9.1052 - val_mae: 2.6438

Epoch 5/20

212/212 [=====] - 16s 75ms/step - loss: 5.2277 - mae: 1.0142 - val_loss: 9.0126 - val_mae: 2.6641

Epoch 6/20

212/212 [=====] - 16s 74ms/step - loss: 4.8475 - mae: 0.9264 - val_loss: 9.3324 - val_mae: 2.7279

Epoch 7/20

212/212 [=====] - 16s 76ms/step - loss: 4.5125 - mae: 0.9326 - val_loss: 9.1859 - val_mae: 2.6283

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Chunk 25/52 // 46.15% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['A Jolly Corpse ', ' FunHouse ', ' Koei Tecmo Games ', ' Mobigame ', ' Rabbit & Bear Studios ', ' Red Winter Software ', '3D Realms ', '7 Studios ', 'Afterburner Studios ', 'Amaze Entertainment ', 'Artematica ', 'Bay 12 Games ', 'Bedlam Games ', 'Black Salt Games ', 'Buka Entertainment ', 'Byterunners Game Studio ', 'Critical Studio ', 'Ctrl Alt Ninja Ltd. ', 'Cube Roots ', 'Dancing Dragon games ', 'Digital Happiness ', 'Dimps Corporation ', 'Eastshade Studios ', 'Game Grumps ', 'Gaslamp Games ', 'Heuristic Park ', 'Hitbox ', 'Holospark ', 'Honig Studios ', 'HyperSloth ', 'Instant Kingdom ', 'Midgar Studio ', 'Mike Studios ', 'Mindware Studios ', 'Misfits Attic ', 'NATSUME ATARI Inc.', 'New

Blood Interactive ', 'Omega Force', 'Owlchemy Labs ', 'PD Design Studio Pte Ltd
, 'Paleo Entertainment ', 'Pixpil ', 'Plastic Reality ', 'Radon Labs ',
'Raspina Studio ', 'Red Thread Games ', 'Red Winter Software Limited',
'Reflections Interactive ', 'Runewaker Entertainment ', 'Snowbird Game Studios
, 'Soldak Entertainment ', 'Studio V ', 'Sunstorm Interactive ', 'T19 Games ',
'Tendershoot', 'TopWare Interactive ', 'Two Tribes', 'Ubisoft Montreal', 'Ultra
Ultra ', 'Vicious Cycle ', 'Zuxxez '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

Epoch 1/20

232/232 [=====] - 18s 76ms/step - loss: 21.9483 - mae:
2.8099 - val_loss: 19.6110 - val_mae: 3.6321

Epoch 2/20

232/232 [=====] - 17s 75ms/step - loss: 13.2515 - mae:
1.9776 - val_loss: 17.9951 - val_mae: 3.3194

Epoch 3/20

232/232 [=====] - 18s 76ms/step - loss: 10.4766 - mae:
1.7602 - val_loss: 18.8846 - val_mae: 3.4539

Epoch 4/20

232/232 [=====] - 17s 75ms/step - loss: 9.2218 - mae:
1.5881 - val_loss: 18.7158 - val_mae: 3.3940

Epoch 5/20

232/232 [=====] - 17s 74ms/step - loss: 9.2774 - mae:
1.5349 - val_loss: 19.0504 - val_mae: 3.4528

Epoch 6/20

232/232 [=====] - 18s 76ms/step - loss: 8.1296 - mae:
1.4684 - val_loss: 17.9189 - val_mae: 3.4243

Epoch 7/20

232/232 [=====] - 17s 75ms/step - loss: 7.6493 - mae:
1.4110 - val_loss: 18.6198 - val_mae: 3.4951

Epoch 8/20

232/232 [=====] - 17s 75ms/step - loss: 7.4755 - mae:
1.3659 - val_loss: 18.1224 - val_mae: 3.2293

Epoch 9/20

232/232 [=====] - 17s 75ms/step - loss: 7.6683 - mae:
1.3662 - val_loss: 18.0386 - val_mae: 3.2664

Epoch 10/20

232/232 [=====] - 17s 74ms/step - loss: 8.1567 - mae:
1.3286 - val_loss: 17.8385 - val_mae: 3.2501

Epoch 11/20

232/232 [=====] - 17s 75ms/step - loss: 6.3547 - mae:
1.2678 - val_loss: 18.0668 - val_mae: 3.2231

Epoch 12/20

232/232 [=====] - 17s 74ms/step - loss: 7.0432 - mae:

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1.2599 - val_loss: 17.9382 - val_mae: 3.2330
Epoch 13/20
232/232 [=====] - 17s 75ms/step - loss: 7.3940 - mae:
1.2403 - val_loss: 18.4338 - val_mae: 3.2920
Epoch 14/20
232/232 [=====] - 18s 76ms/step - loss: 6.7453 - mae:
1.2197 - val_loss: 17.6132 - val_mae: 3.2728
Epoch 15/20
232/232 [=====] - 18s 76ms/step - loss: 6.3849 - mae:
1.1962 - val_loss: 17.6704 - val_mae: 3.2354
Epoch 16/20
232/232 [=====] - 18s 76ms/step - loss: 5.4894 - mae:
1.1066 - val_loss: 17.6889 - val_mae: 3.2081
Epoch 17/20
232/232 [=====] - 17s 75ms/step - loss: 6.4574 - mae:
1.1635 - val_loss: 17.8399 - val_mae: 3.2472
Epoch 18/20
232/232 [=====] - 17s 75ms/step - loss: 5.6648 - mae:
1.1336 - val_loss: 19.2255 - val_mae: 3.4743
Epoch 19/20
232/232 [=====] - 18s 76ms/step - loss: 6.7848 - mae:
1.1414 - val_loss: 19.5081 - val_mae: 3.4590

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distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

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Chunk 26/52 // 48.08% Complete // Cycle 3/3

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y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Alex May ', ' Endlessfluff Games ', ' Foreign Gnomes ', ' Humble Games', ' Live
Wire ', ' MicroProse ', ' TimeGate Studios ', '1C:Ino-Co ', '4Head Studios ',
'Abraham SA ', 'Atari', 'BreakAway Games ', 'Chaosmonger Studio ', 'Chris
Nordgren', 'Codemasters Birmingham ', 'Coin Crew Games ', 'DESTINYbit ', 'Dark
Crystal Games ', 'Digital Lode ', 'Elder Games ', 'Erik Svedang ', 'Exbleative
', 'Fallen Earth', 'Fallen Flag Studio ', 'Fireplace Games ', 'Fishing Cactus ',
'Gameyus Interactive ', 'Gentlymad ', 'Gust ', 'Heavy Iron Studios ', 'Herobeat
Studios ', 'Humble Bundle', 'Idea Factory ', 'Image Space Incorporated ', 'Lead
Pursuit ', 'Lexis Numerique ', 'Live Wire Films', 'Logic Artists ', 'Mad Orange
', 'MagicalTimeBean ', 'Mantra ', 'Matias Schmied ', 'Minor Key Games ',
'Monolith Productions', 'Nfusion ', 'Ocelot Society ', 'Pathea Games ',
'Popcannibal ', 'Queasy Games ', 'ROCKFISH Games ', 'Rage Software ',
'Razorworks ', 'Rudolf Kremers', 'Shiro Games ', 'Sixteen Tons Entertainment ',
'StarWraith ', 'Storm in a Teacup ', 'Stormfront Studios ', 'TIGAMES ',
'Tesseract Games ', 'The Chinese Room ', 'Tindalos Interactive ', 'ValuSoft

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', 'Video System ', 'White Paper Games ', 'Wube Software LTD. ', 'Zachtronics
Industries ', 'i-illusions '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
229/229 [=====] - 18s 75ms/step - loss: 29.6990 - mae:
3.6600 - val_loss: 29.3189 - val_mae: 4.1939
Epoch 2/20
229/229 [=====] - 17s 74ms/step - loss: 18.3537 - mae:
2.6858 - val_loss: 24.4980 - val_mae: 3.9157
Epoch 3/20
229/229 [=====] - 17s 75ms/step - loss: 16.4907 - mae:
2.4109 - val_loss: 23.5163 - val_mae: 3.8782
Epoch 4/20
229/229 [=====] - 17s 75ms/step - loss: 14.5580 - mae:
2.1997 - val_loss: 21.7091 - val_mae: 3.7253
Epoch 5/20
229/229 [=====] - 17s 75ms/step - loss: 12.3673 - mae:
2.0055 - val_loss: 23.2500 - val_mae: 3.9401
Epoch 6/20
229/229 [=====] - 17s 76ms/step - loss: 12.4317 - mae:
1.9500 - val_loss: 20.0821 - val_mae: 3.6206
Epoch 7/20
229/229 [=====] - 17s 75ms/step - loss: 11.9318 - mae:
1.8761 - val_loss: 21.0904 - val_mae: 3.7311
Epoch 8/20
229/229 [=====] - 17s 76ms/step - loss: 12.4902 - mae:
1.8565 - val_loss: 20.9596 - val_mae: 3.6951
Epoch 9/20
229/229 [=====] - 17s 74ms/step - loss: 11.8127 - mae:
1.7813 - val_loss: 20.5393 - val_mae: 3.7107
Epoch 10/20
229/229 [=====] - 17s 75ms/step - loss: 11.2987 - mae:
1.7499 - val_loss: 21.3586 - val_mae: 3.7499
Epoch 11/20
229/229 [=====] - 17s 75ms/step - loss: 12.1546 - mae:
1.7969 - val_loss: 21.5429 - val_mae: 3.7863

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 27/52 // 50.0% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C:Ino-Co ', 'Owned by Gravity '] will be ignored

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```

    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
224/224 [=====] - 17s 75ms/step - loss: 10.2408 - mae:
2.0484 - val_loss: 21.7486 - val_mae: 3.9723
Epoch 2/20
224/224 [=====] - 17s 75ms/step - loss: 4.8073 - mae:
1.4186 - val_loss: 20.3543 - val_mae: 3.8679
Epoch 3/20
224/224 [=====] - 17s 75ms/step - loss: 3.7771 - mae:
1.1875 - val_loss: 21.7666 - val_mae: 3.9912
Epoch 4/20
224/224 [=====] - 17s 75ms/step - loss: 3.5257 - mae:
1.1142 - val_loss: 20.6187 - val_mae: 3.9240
Epoch 5/20
224/224 [=====] - 17s 76ms/step - loss: 3.7012 - mae:
1.0657 - val_loss: 19.9564 - val_mae: 3.8914
Epoch 6/20
224/224 [=====] - 17s 75ms/step - loss: 2.9724 - mae:
0.9586 - val_loss: 20.7664 - val_mae: 3.9185
Epoch 7/20
224/224 [=====] - 17s 75ms/step - loss: 2.5627 - mae:
0.8616 - val_loss: 19.6993 - val_mae: 3.8899
Epoch 8/20
224/224 [=====] - 17s 74ms/step - loss: 2.7449 - mae:
0.8618 - val_loss: 19.1953 - val_mae: 3.8424
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 2.6036 - mae:
0.8257 - val_loss: 19.2725 - val_mae: 3.8649
Epoch 10/20
224/224 [=====] - 17s 75ms/step - loss: 2.5848 - mae:
0.8231 - val_loss: 19.1414 - val_mae: 3.9290
Epoch 11/20
224/224 [=====] - 17s 74ms/step - loss: 2.6008 - mae:
0.8062 - val_loss: 19.2096 - val_mae: 3.8856
Epoch 12/20
224/224 [=====] - 17s 74ms/step - loss: 2.2996 - mae:
0.7482 - val_loss: 20.2449 - val_mae: 4.0640
Epoch 13/20
224/224 [=====] - 17s 75ms/step - loss: 2.0558 - mae:
0.7198 - val_loss: 18.7952 - val_mae: 3.8939
Epoch 14/20
224/224 [=====] - 17s 75ms/step - loss: 2.3501 - mae:
0.7200 - val_loss: 19.4311 - val_mae: 3.9587

```

Epoch 15/20
224/224 [=====] - 17s 75ms/step - loss: 2.1738 - mae:
0.6993 - val_loss: 19.1202 - val_mae: 3.9674

Epoch 16/20
224/224 [=====] - 17s 75ms/step - loss: 2.2202 - mae:
0.6962 - val_loss: 20.2460 - val_mae: 4.0569

Epoch 17/20
224/224 [=====] - 17s 75ms/step - loss: 1.9666 - mae:
0.6740 - val_loss: 19.7149 - val_mae: 4.0078

Epoch 18/20
224/224 [=====] - 17s 75ms/step - loss: 2.2807 - mae:
0.7335 - val_loss: 19.8267 - val_mae: 4.0010

Chunk 28/52 // 51.92% Complete // Cycle 3/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['  
Ankama ', ' Black Drakkar Games ', ' Blitz Games ', ' Calappa Games ', '  
Creative Business Unit III ', ' Cyan', ' EA Vancouver ', ' Gun Interactive ', '  
Team 6 Games Studio ', '17-Bit ', '2By3 Games ', '6 Eyes Studio ', 'AGEOD ',  
'Ankama Games', 'Anshar Studios ', 'Antab Studio ', 'Auran ', 'Awesome Games  
Studio ', 'Axel Fox ', 'Beard Envy ', 'Bedtime Digital Games ', 'BetaDwarf ',  
'Bits & Beasts ', 'Bonus Level Entertainment ', 'Brain Candy ', 'Brendon Chung  
, 'Bright Future GmbH ', 'Byte Barrel ', 'Campo Santo ', 'Cellar Door Games ',  
'ChessBase ', 'Cyan Worlds', 'Dead Mage Studio ', 'EA Sports', 'Edge Case Games  
, 'Fallen Leaf', 'Fishlabs ', 'Fort Triumph LTD ', 'Freebird Games ', 'Freedom  
LLC ', 'GalaxyTrail ', 'Gamepires ', 'Grace Bruxner ', 'Green Lava Studios ',  
'Greenheart Games ', 'Ground Shatter Ltd. ', 'Harmonix Music Systems ', 'Hasbro  
Interactive', 'Hexagon Entertainment ', 'HopFrog ', 'Hothouse Creations ',  
'IllFonic', 'IronOak Games ', 'JC Entertainment ', 'Kaos Studios ', 'Kong Orange  
, 'Lukas Navratil ', 'MediaMobsters ', 'Mode 7 Games ', 'Mopeful Games ',  
'Mutant Games ', 'Nemesys ', 'Nussoft', 'Object ', 'Okomotive ', 'Paranoid  
Interactive ', 'Perfect World Entertainment ', 'Phil Hassey ', 'Phosfiend  
Systems ', 'Pinkerton Road Studio ', 'Proper Games ', 'Pulsatrix Studios ', 'R8  
Games ', 'Razorworks ', 'Red 5 Studios ', 'Red Redemption ', 'Sassybot ', 'Scott  
Cawthon ', 'Sierra Entertainment ', 'Spaces of Play ', 'Sports Mogul ',  
'Stormfront Studios ', 'Sushee ', 'Team2Bit ', 'Team6 Game Studios',  
'Throughline Games ', 'Tri Synergy ', 'Tribute Games ', 'Vile Monarch ', 'Whole  
Hog Games ', 'WideScreen Games ', 'WildTangent ', 'Zoink! ', 'animdude '] will  
be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20
225/225 [=====] - 18s 77ms/step - loss: 33.6234 - mae:
3.9601 - val_loss: 22.3547 - val_mae: 3.5039

Epoch 2/20
225/225 [=====] - 17s 75ms/step - loss: 17.3022 - mae:
2.7487 - val_loss: 19.3962 - val_mae: 3.4408

Epoch 3/20
225/225 [=====] - 17s 75ms/step - loss: 14.8963 - mae:

```

2.4308 - val_loss: 17.2598 - val_mae: 3.2306
Epoch 4/20
225/225 [=====] - 17s 76ms/step - loss: 14.0121 - mae:
2.3024 - val_loss: 17.8572 - val_mae: 3.1945
Epoch 5/20
225/225 [=====] - 17s 74ms/step - loss: 12.7957 - mae:
2.2032 - val_loss: 17.3398 - val_mae: 3.2185
Epoch 6/20
225/225 [=====] - 17s 74ms/step - loss: 12.7467 - mae:
2.1442 - val_loss: 17.1125 - val_mae: 3.1383
Epoch 7/20
225/225 [=====] - 17s 76ms/step - loss: 11.2053 - mae:
2.0237 - val_loss: 18.1631 - val_mae: 3.2391
Epoch 8/20
225/225 [=====] - 17s 74ms/step - loss: 11.6029 - mae:
2.0147 - val_loss: 16.7944 - val_mae: 3.0380
Epoch 9/20
225/225 [=====] - 17s 75ms/step - loss: 10.9275 - mae:
1.9978 - val_loss: 16.7734 - val_mae: 3.1056
Epoch 10/20
225/225 [=====] - 17s 76ms/step - loss: 10.8451 - mae:
1.9157 - val_loss: 16.6612 - val_mae: 3.0898
Epoch 11/20
225/225 [=====] - 17s 75ms/step - loss: 10.0726 - mae:
1.8594 - val_loss: 15.9167 - val_mae: 2.9970
Epoch 12/20
225/225 [=====] - 17s 74ms/step - loss: 10.3129 - mae:
1.8535 - val_loss: 15.7648 - val_mae: 2.8704
Epoch 13/20
225/225 [=====] - 17s 76ms/step - loss: 9.8418 - mae:
1.7783 - val_loss: 16.1222 - val_mae: 2.9741
Epoch 14/20
225/225 [=====] - 17s 76ms/step - loss: 10.1633 - mae:
1.8352 - val_loss: 16.6126 - val_mae: 2.9672
Epoch 15/20
225/225 [=====] - 17s 76ms/step - loss: 10.6711 - mae:
1.8595 - val_loss: 15.8832 - val_mae: 3.0124
Epoch 16/20
225/225 [=====] - 17s 75ms/step - loss: 9.6203 - mae:
1.7757 - val_loss: 15.9417 - val_mae: 2.9543
Epoch 17/20
225/225 [=====] - 17s 76ms/step - loss: 9.3113 - mae:
1.7457 - val_loss: 16.7231 - val_mae: 2.9929
Chunk 29/52 // 53.85% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Acclaim Studios Manchester ', ' Atari ', ' Atari SA ', ' Buried Signal ', '

```

Grove Street Games ', ' Joshua Nuernberger ', ' LLC', ' Marvelous First Studio ', ' MicroProse', ' Mixed Realms ', ' Phosphor Games ', ' SeithCG ', ' Splash Damage', '4D Rulers ', '@unepic_fran ', 'Acclaim', 'AggroCrab ', 'Astro Port ', 'Atari', 'Atelier Mimina ', 'Bandai Namco Games', 'Barking Dog ', 'Behavior Studios ', 'Camel 101 ', 'Cat Daddy Games ', 'Chronic Logic ', 'Clever Beans ', 'Coffee Stain North ', 'Covenant.dev ', 'Cypron Studios ', 'Demagog Studio ', 'Devolver Digital ', 'Doinksoft ', 'Feral Cat Den ', 'Fishcow Studio ', 'Flaming Fowl Studios ', 'Free Lives ', 'Gamepires ', 'Gaming Minds Studios ', 'Ghost of a Tale', 'Hasbro Interactive', 'Heatwave Interactive ', 'IllFonic ', 'Jason Roberts', 'Lucid Games ', 'Metamorf Studios ', 'Mixed Realms Pte Ltd', 'Motiga ', 'Old Moon ', 'Old School Games ', 'Phosphor Games Studio', 'Planet Moon Studios ', 'PortaPlay ', 'Radiation Blue ', 'Sick Puppies ', 'Silver Style ', 'Smudged Cat Games ', 'Stuck In Attic ', 'Sushee ', 'The Fullbright Company ', 'Trine Games ', 'Wadjet Eye Games', 'Warner Bros. Interactive Entertainment ', 'Whalebox Studio '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

210/210 [=====] - 16s 75ms/step - loss: 34.9361 - mae: 3.8214 - val_loss: 20.6891 - val_mae: 3.3212

Epoch 2/20

210/210 [=====] - 16s 75ms/step - loss: 17.8078 - mae: 2.4385 - val_loss: 19.7482 - val_mae: 3.2636

Epoch 3/20

210/210 [=====] - 16s 75ms/step - loss: 15.5383 - mae: 2.1065 - val_loss: 19.4766 - val_mae: 3.5131

Epoch 4/20

210/210 [=====] - 16s 75ms/step - loss: 14.2086 - mae: 1.9439 - val_loss: 18.5149 - val_mae: 3.5005

Epoch 5/20

210/210 [=====] - 16s 75ms/step - loss: 11.5334 - mae: 1.7923 - val_loss: 17.8898 - val_mae: 3.5400

Epoch 6/20

210/210 [=====] - 16s 75ms/step - loss: 12.2983 - mae: 1.7703 - val_loss: 19.8911 - val_mae: 3.6450

Epoch 7/20

210/210 [=====] - 16s 75ms/step - loss: 10.6411 - mae: 1.6388 - val_loss: 17.2917 - val_mae: 3.4643

Epoch 8/20

210/210 [=====] - 16s 75ms/step - loss: 10.4117 - mae: 1.5933 - val_loss: 21.7387 - val_mae: 3.9522

Epoch 9/20

210/210 [=====] - 16s 75ms/step - loss: 10.3891 - mae: 1.5388 - val_loss: 20.2289 - val_mae: 3.6926

Epoch 10/20

210/210 [=====] - 16s 74ms/step - loss: 10.0832 - mae: 1.5139 - val_loss: 20.2882 - val_mae: 3.8353

Epoch 11/20


```

210/210 [=====] - 16s 75ms/step - loss: 9.4563 - mae:
1.4692 - val_loss: 20.1587 - val_mae: 3.8093
Epoch 12/20
210/210 [=====] - 16s 76ms/step - loss: 9.2423 - mae:
1.4692 - val_loss: 21.0196 - val_mae: 3.8615
Chunk 30/52 // 55.77% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Clover Bite ', ' Grove Street Games ', ' GungHo', ' Navegante Entertainment ', '
PopCap ', ' SkyBox Labs ', '10 Chambers Collective ', 'Bromio', 'Caged Element
Inc. ', 'Claeys Brothers Arts ', 'Crate Entertainment ', 'Crazy Monkey Studios
', 'Creepy Jar ', 'Cyber Rhino Studios ', 'Daybreak Games ', 'DrinkBox Studios
', 'Funnel Entertainment', 'Gambrinous ', 'Game Arts', 'Game Arts ', 'IGGYMOB ',
'Interactive Stone ', 'Ivy Games LLC ', 'Johnny Dale Lonack ', 'Lazy Bear Games
', 'Massive Damage', 'Muse Games ', 'Neversoft Entertainment', 'Orann ',
'Positech Games ', 'Prideful Sloth ', 'Rebelmind ', 'Rewolf Software ', 'Silent
Dreams ', 'TALEROCK ', 'Tom Francis ', 'W!Games ', 'Wizarbox ', 'WorldForge ',
'Yukitama Creative Industries '] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
221/221 [=====] - 17s 74ms/step - loss: 19.6653 - mae:
3.0268 - val_loss: 20.8631 - val_mae: 3.7395
Epoch 2/20
221/221 [=====] - 17s 75ms/step - loss: 12.4726 - mae:
2.3430 - val_loss: 19.7217 - val_mae: 3.6335
Epoch 3/20
221/221 [=====] - 16s 75ms/step - loss: 10.4136 - mae:
1.9900 - val_loss: 19.9066 - val_mae: 3.6243
Epoch 4/20
221/221 [=====] - 16s 75ms/step - loss: 9.6955 - mae:
1.8186 - val_loss: 19.2295 - val_mae: 3.5189
Epoch 5/20
221/221 [=====] - 17s 75ms/step - loss: 8.3595 - mae:
1.7080 - val_loss: 19.6286 - val_mae: 3.5491
Epoch 6/20
221/221 [=====] - 17s 76ms/step - loss: 8.2202 - mae:
1.6246 - val_loss: 19.2079 - val_mae: 3.5740
Epoch 7/20
221/221 [=====] - 17s 76ms/step - loss: 8.2496 - mae:
1.6140 - val_loss: 19.2778 - val_mae: 3.6158
Epoch 8/20
221/221 [=====] - 17s 76ms/step - loss: 7.7511 - mae:
1.5527 - val_loss: 20.5357 - val_mae: 3.8030
Epoch 9/20
221/221 [=====] - 16s 75ms/step - loss: 7.9914 - mae:
1.5492 - val_loss: 21.3058 - val_mae: 3.9453
Epoch 10/20

```

```

221/221 [=====] - 17s 75ms/step - loss: 7.5261 - mae:
1.4809 - val_loss: 22.5210 - val_mae: 4.1045
Epoch 11/20
221/221 [=====] - 16s 75ms/step - loss: 7.6225 - mae:
1.4565 - val_loss: 23.2288 - val_mae: 4.1618
Chunk 31/52 // 57.69% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
343 Industries ', ' Atari SA ', ' Cognosphere ', " DON'T NOD ", ' Eerie Guest ',
' Hex Entertainment ', ' Ice Cold Games ', ' Novik & Co ', ' Psyop ', ' Targem
Games ', ' Transmission Games', ' Vanguard Games ', ' Virtuos ', '343
Industries', '3D People ', 'Amanita Design ', 'Aquiris Game Studio ', 'Arclight
Creations ', 'Arkedo Studio ', 'Atari', 'Barking Dog ', 'Benjamin
"ThingOnItsOwn" Hauer ', 'Benjamin Rivers ', 'Big Sandwich Games', 'Black Matter
', 'Brain Slap Studio ', 'Buka Entertainment', 'Burut Software ', 'Cat Rabbit ',
'Choice Provisions ', 'Cradle Games ', 'CreativeForge Games ', 'Cryptozoic
Entertainment', 'DONTNOD Entertainment', 'Defiant Development ', 'DigiFX
Interactive ', 'E-One Studio ', 'EA Bright Light ', 'GFI Russia ', 'Hato Moa ',
'IR Gurus ', 'Ice Code Games', 'Joel Mcdonald ', 'Lucky Pause ', 'Magic Design
Studios ', 'Moon Spider Studio ', 'Mosaic Mask ', 'New World Computing ', 'Nival
Interactive', 'Paul Helman ', 'Psyop Games', 'Quantic Dream', 'Red Zero Games ',
'Robotality ', 'Saibot Studios ', 'Sam Barlow ', 'Sega AM2 ', 'Silverback
Entertainment ', 'Skrollcat Studios ', 'Sluggerfly ', 'Soft Enterprises ',
'Square Enix Montreal ', 'Straandlooper ', 'Sumo Newcastle ', 'Terri Vellimann
', 'Tom Francis ', 'Vanguard', 'Warpzone Studios ', 'inkle ', 'miHoYo',
'tinyBuild'] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20
216/216 [=====] - 17s 75ms/step - loss: 29.8718 - mae:
3.4087 - val_loss: 22.1404 - val_mae: 3.5874
Epoch 2/20
216/216 [=====] - 16s 75ms/step - loss: 21.3447 - mae:
2.6107 - val_loss: 18.9223 - val_mae: 3.4341
Epoch 3/20
216/216 [=====] - 16s 74ms/step - loss: 17.3223 - mae:
2.3883 - val_loss: 17.8625 - val_mae: 3.4014
Epoch 4/20
216/216 [=====] - 16s 75ms/step - loss: 12.9652 - mae:
2.0786 - val_loss: 18.8712 - val_mae: 3.4075
Epoch 5/20
216/216 [=====] - 16s 75ms/step - loss: 13.1134 - mae:
2.0287 - val_loss: 19.9964 - val_mae: 3.6616
Epoch 6/20
216/216 [=====] - 16s 75ms/step - loss: 12.4661 - mae:
1.9249 - val_loss: 20.8547 - val_mae: 3.6994
Epoch 7/20
216/216 [=====] - 16s 75ms/step - loss: 11.6239 - mae:

```

1.8522 - val_loss: 21.1479 - val_mae: 3.6942

Epoch 8/20

216/216 [=====] - 16s 75ms/step - loss: 11.6201 - mae:

1.8167 - val_loss: 20.7469 - val_mae: 3.6947

Chunk 32/52 // 59.62% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C-Entertainment ', ' Beamdog', ' Bloom Technology ', ' Blueside ', ' Crema
Games ', ' Davit Andreasyan ', ' Easy Trigger Games ', ' Katuri Interactive ', '
Konjak ', ' Ltd. ', ' M2H & BlackMill Games ', ' Most Wanted Entertainment ', '
Overhaul Games ', ' Pine Scented Software ', ' PixelHive ', ' Spike Chunsoft ',
' Squad ', ' Voidpoint', '1C Entertainment', '1C-Softclub ', '3D Realms', '4X
Studios ', 'Action Squad Studios ', 'Appaloosa Interactive ', 'Artifact
Entertainment ', 'Artifex Mundi ', 'Artificial Mind and Movement ', 'Ascendant
Studios ', 'Askiiisoft ', 'Berzerk Studio ', 'Big Red Software ', 'Black Isle
Studios', 'Bleakmill ', 'Blue Tongue Entertainment ', 'Blyts ', 'Bossa Studios
', 'Browsome ', 'Bulwark Studios ', 'ByteRockers' Games ', 'Cardboard Box
Entertainment ', 'Cardboard Computer ', 'Casey Donnellan Games LLC ',
'ChaosForge ', 'Clifftop Games ', 'Coffee Stain Studios', 'Conifer Games ',
'CremaGames', 'Critique Gaming ', 'Daniel Mullins Games ', 'Dark Energy Digital
', 'Digital Arrow ', 'Dirigo Games ', 'Dreadbit ', 'EKO Software ', 'Empyrean ',
'Fiddlesticks Games ', 'Final Form Games', 'Foolish Mortals Games ', 'Forge
Reply ', 'Freebird Games ', 'Fugitive Games ', 'Fuzzyeyes Studio ', 'Galilea
Multimedia ', 'Grasshopper Manufacture ', 'Grimbart Tales ', 'HD Interactive',
'HandyGames ', 'Happy Ray Games ', 'Hidden Layer Games ', 'Hollow Ponds and
Richard Hogg ', 'IMGN.PRO ', 'Iceberg Interactive', 'In Utero ', 'Innerloop ',
'Joakim Sandberg', 'Juice Games ', 'Jump Over The Age ', 'Kaiko ', 'Katauri
Interactive', 'Koboldgames ', 'Kyle Thompson ', 'L30 Interactive ', 'Lab Zero
Games ', 'Lion Shield', 'Lo-Fi Games ', 'Lucky Mountain Games ', 'M2H',
'MONKEYCRAFT Co. Ltd. ', 'Metropolis Software ', 'Micro Application ', 'Mission
Studios ', 'Mojo Bones ', 'Moonlight Games ', 'NExT Studios ', 'Namco ',
'Necrophone ', 'Nemesys ', 'No Brakes Games ', 'Northway Games ', 'Nullpointer
Games ', 'Palindrome Interactive ', 'Particle Systems ', 'Phantagram',
'PolyKnight Games ', 'Primal Software ', 'QLOC ', 'Rage Software ', 'Rocket Bear
Games ', 'SQUADTeam', 'Sam Barlow ', 'Shanghai FantaBlade Network Technology
Co.', 'Sir-Tech Software Inc. ', 'So Romantic ', 'Somnium Games d.o.o. ', 'Spike
Chunsoft Co. Ltd.', 'Squad ', 'Studio Pixel ', 'SumomGames ', 'Superbrothers',
'Tate Multimedia ', 'Telepaths Tree ', 'Tendershoot ', 'The Odd Gentlemen ',
'Tokyo RPG Factory ', 'Tomorrow Corporation ', 'TreeFortress Games ', 'True Axis
', 'Typhoon Studios ', 'UndeadScout ', 'Unfrozen ', 'Vox Game Studio', 'We
Create Stuff ', 'Wicked Studios ', 'X1 Software ', 'Zachtronics Industries ',
'dreamfeel '] will be ignored
```

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

Epoch 1/20

225/225 [=====] - 17s 75ms/step - loss: 33.9008 - mae:

3.9780 - val_loss: 44.4977 - val_mae: 5.1482

Epoch 2/20

```

225/225 [=====] - 17s 76ms/step - loss: 21.9055 - mae:
2.9362 - val_loss: 41.1806 - val_mae: 4.9848
Epoch 3/20
225/225 [=====] - 17s 76ms/step - loss: 17.0096 - mae:
2.5372 - val_loss: 41.4501 - val_mae: 4.9521
Epoch 4/20
225/225 [=====] - 17s 75ms/step - loss: 15.7536 - mae:
2.3880 - val_loss: 40.4416 - val_mae: 4.7867
Epoch 5/20
225/225 [=====] - 17s 75ms/step - loss: 14.3362 - mae:
2.3014 - val_loss: 40.5585 - val_mae: 4.8503
Epoch 6/20
225/225 [=====] - 17s 74ms/step - loss: 13.3912 - mae:
2.1644 - val_loss: 44.2765 - val_mae: 5.0123
Epoch 7/20
225/225 [=====] - 17s 75ms/step - loss: 12.8562 - mae:
2.1500 - val_loss: 42.7159 - val_mae: 4.9673
Epoch 8/20
225/225 [=====] - 17s 75ms/step - loss: 11.5440 - mae:
2.0288 - val_loss: 41.8378 - val_mae: 4.8715
Epoch 9/20
225/225 [=====] - 17s 75ms/step - loss: 11.8330 - mae:
2.0305 - val_loss: 44.4592 - val_mae: 5.0945
Chunk 33/52 // 61.54% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Black Sea Games ', ' Boss Key Productions ', ' Deck Nine Games ', ' Infogrames',
' Jujubee S.A. ', ' Kaiko ', ' MONKEYCRAFT Co. Ltd. ', ' Melbourne House ', '
Movie Games ', ' Novacore Studios ', ' Slitherine Group ', ' Team Reptile ', '
UNKNOWN GAMES ', ' Xaviant ', 'Activision ', 'Almost Human ', 'Altari Games ',
'Amanita Design ', 'Animation Arts ', 'Asteroid Base ', 'Atari', 'Aterdux
Entertainment ', 'BLOODIOUS GAMES ', 'Bandai Namco Games', 'Behold Studios ',
'Bishop Games ', 'Bitbox Ltd. ', 'Black Sea Studios', 'Black Sea Studios ',
'Boss Key', 'BudCat ', 'Cauldron Ltd. ', 'Clever-Plays ', 'ClockStone Studio ',
'Codo Games ', 'Core Design Ltd. ', 'CrazyBunch ', 'DONTNOD Entertainment',
'Dingaling ', 'Duckbridge ', 'Elastic Games ', 'Evan Todd ', 'Foam Sword ',
'Four Quarters ', 'Gamious ', 'Geeta Games ', 'Geniaware ', 'Goblinz Studio ',
'Grundislav Games ', 'HappyJuice Games ', 'Hollow Ponds ', 'Ice-Pick Lodge ',
'Impressions Games ', 'Infinite Monkeys ', 'Jujubee', 'Just A Pixel ', 'KDV
Games ', 'Kuma Reality Games ', 'Kyy Games ', 'Lantern Studio ', 'Left Behind
Games ', 'Lichthund ', 'Light Brick ', 'Love Conquers All Games ', 'M2', 'Master
Creating ', 'Mirage Game Studios ', 'Modern Dream ', 'Mooneye Studios ', 'Movie
Games ', 'Movie Games S.A.', 'Neon Studios', 'NetDevil ', 'Nfusion ', 'Nigoro ',

```

```
'Numantian Games ', 'Ocean Drive Studio ', 'Ovosonico ', 'Parabole ', 'Pieces
Interactive ', 'Playful Corp. ', 'Pollux Gamelabs ', 'Rapid Eye Entertainment ',
'Ratbag ', 'Ratloop Games Canada ', 'Razbor Studios ', 'Ready at Dawn ',
'Reflexive Entertainment ', 'Replay Games ', 'Reptile', 'Robot Loves Kitty ',
'SEMISOFT ', 'Shiver Games ', 'Silverback Studios ', 'Size Five Games ',
'Sketchbook Games ', 'Skyhook Games ', 'Slitherine', 'Slitherine ', 'Stage 2
Studios ', 'State of Play Games ', 'Tangrin ', 'The Chinese Room ', 'Third Law
Interactive ', 'Thomas van den Berg ', 'Tokyo RPG Factory ', 'Tomorrow
Corporation ', 'Triple Eh? Ltd ', 'Triplevision Games ', 'Tunnel Vision Games ',
'TurtleBlaze ', 'Variable State ', 'Velan Studios ', 'Visual Concepts ',
'Vlambeer ', 'Wild Factor ', 'Xaviant Games', 'Yakov Butuzoff ', 'Zoink! ',
'eBrain Studio ', 'straka.studio ', 'superflat games '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

Epoch 1/20

```
220/220 [=====] - 17s 75ms/step - loss: 27.6959 - mae:
3.2501 - val_loss: 25.4531 - val_mae: 3.4803
```

Epoch 2/20

```
220/220 [=====] - 16s 75ms/step - loss: 19.8238 - mae:
2.6268 - val_loss: 21.5634 - val_mae: 3.3695
```

Epoch 3/20

```
220/220 [=====] - 16s 75ms/step - loss: 16.7211 - mae:
2.3258 - val_loss: 21.6964 - val_mae: 3.4119
```

Epoch 4/20

```
220/220 [=====] - 17s 75ms/step - loss: 15.2302 - mae:
2.1613 - val_loss: 20.0252 - val_mae: 3.3883
```

Epoch 5/20

```
220/220 [=====] - 17s 75ms/step - loss: 14.0090 - mae:
2.0296 - val_loss: 19.8792 - val_mae: 3.3860
```

Epoch 6/20

```
220/220 [=====] - 16s 75ms/step - loss: 14.3024 - mae:
2.0393 - val_loss: 22.3663 - val_mae: 3.5855
```

Epoch 7/20

```
220/220 [=====] - 16s 74ms/step - loss: 13.3630 - mae:
1.9652 - val_loss: 20.0454 - val_mae: 3.5108
```

Epoch 8/20

```
220/220 [=====] - 17s 75ms/step - loss: 12.7118 - mae:
1.8822 - val_loss: 20.9359 - val_mae: 3.5994
```

Epoch 9/20

```
220/220 [=====] - 17s 75ms/step - loss: 12.9794 - mae:
1.8845 - val_loss: 21.2874 - val_mae: 3.7220
```

Epoch 10/20

```
220/220 [=====] - 16s 75ms/step - loss: 12.7061 - mae:
1.8437 - val_loss: 21.0960 - val_mae: 3.6437
```

```
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

```
Chunk 34/52 // 63.46% Complete // Cycle 3/3
```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Ino-Co', 'Anim-X ', 'Borealis Games ', 'Charybdis ', 'Cyberlore Studios ', 'FASA
Studio ', 'Finish Line Games ', 'GameSourceStudio ', 'Gazillion ', 'Graceful
Decay ', 'Guru Games ', 'Himalaya Studios ', 'Holistic Design', 'InterServ
International ', 'LKA ', 'Leaping Lizard Software Inc. ', 'Locomalito ', 'MuHa
Games ', 'Muzzy Lane Software ', 'NGD Studios ', 'Oldblood ', 'Paradox North ',
'Passtech Games ', 'Pieces Interactive ', 'Piranha Games ', 'Press Play ',
'Quicksilver Software ', 'Sanzaru Games ', 'Secret Level ', 'Sileni Studios ',
'SimTex ', 'Wales Interactive ', 'William Chyr Studio LLC ', 'Wizards of the
Coast '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

Epoch 1/20

```
227/227 [=====] - 17s 75ms/step - loss: 35.6117 - mae:
3.8747 - val_loss: 24.5848 - val_mae: 4.3025
```

Epoch 2/20

```
227/227 [=====] - 17s 75ms/step - loss: 21.7727 - mae:
2.7058 - val_loss: 19.1840 - val_mae: 3.9779
```

Epoch 3/20

```
227/227 [=====] - 17s 75ms/step - loss: 14.7415 - mae:
2.0915 - val_loss: 17.3693 - val_mae: 3.8169
```

Epoch 4/20

```
227/227 [=====] - 17s 75ms/step - loss: 12.2193 - mae:
1.8431 - val_loss: 19.1401 - val_mae: 4.0038
```

Epoch 5/20

```
227/227 [=====] - 17s 75ms/step - loss: 12.4021 - mae:
1.7876 - val_loss: 18.4762 - val_mae: 3.9291
```

Epoch 6/20

```
227/227 [=====] - 17s 75ms/step - loss: 11.9650 - mae:
1.7537 - val_loss: 19.4195 - val_mae: 4.0846
```

Epoch 7/20

```
227/227 [=====] - 17s 76ms/step - loss: 11.6729 - mae:
1.6581 - val_loss: 19.1205 - val_mae: 3.9814
```

Epoch 8/20

```
227/227 [=====] - 17s 75ms/step - loss: 10.0081 - mae:
1.5851 - val_loss: 19.3944 - val_mae: 4.0410
```

```
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

Chunk 35/52 // 65.38% Complete // Cycle 3/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' Bullets ', ' Centauri Production ', ' Dreamworks Games ', ' Eyeguys ', '

```

```

French-Bread ', ' General Arcade ', ' Ministry of Broadcast Studios ', ' Now
Production', ' Rockstar San Diego ', ' Studio Fizbin ', ' Team Reptile ', '
Tribute Games Inc. ', '1C-Softclub ', 'Angel Studios', 'Bit Byterz ', 'Blastmode
', 'Bombservice ', 'Carlos Coronado ', 'Cinemax', 'Devolver Digital ', 'Digital
Dialect ', 'Digital Eclipse ', 'Dinosaur Polo Club ', 'EA LA', 'Ecole',
'Fizbin', 'From Software', 'Half Asleep ', 'Homeless Unicorn', 'Inti Creates ',
'IonFX ', 'Jacob Dzwinel ', 'KCEJ ', 'Keen Software House ', 'Kuju Entertainment
', 'Lorenzo Redaelli', 'Piranha Games ', 'Red Rocket Games ', 'Render Cube ',
'Reptile', 'Rockstar San Diego ', 'Saturn+ ', 'Supersonic Software ', 'THQ',
'TKO Software ', 'The Outsiders ', 'Tribute Games', 'Twice Circled ', 'Virtuos
', 'Zono Inc. '] will be ignored

```

```

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

```

Epoch 1/20

```

210/210 [=====] - 16s 75ms/step - loss: 20.5333 - mae:
2.9882 - val_loss: 12.7797 - val_mae: 2.6671

```

Epoch 2/20

```

210/210 [=====] - 16s 75ms/step - loss: 12.3726 - mae:
2.0681 - val_loss: 13.6125 - val_mae: 2.9359

```

Epoch 3/20

```

210/210 [=====] - 16s 75ms/step - loss: 11.7457 - mae:
1.8685 - val_loss: 13.9167 - val_mae: 3.0145

```

Epoch 4/20

```

210/210 [=====] - 16s 75ms/step - loss: 11.0834 - mae:
1.7671 - val_loss: 13.9481 - val_mae: 3.0620

```

Epoch 5/20

```

210/210 [=====] - 16s 74ms/step - loss: 9.8920 - mae:
1.6458 - val_loss: 14.3489 - val_mae: 3.0955

```

Epoch 6/20

```

210/210 [=====] - 16s 76ms/step - loss: 10.0196 - mae:
1.5949 - val_loss: 14.9842 - val_mae: 3.1920

```

```

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

```

Chunk 36/52 // 67.31% Complete // Cycle 3/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
10tons ', ' Application Systems Heidelberg ', ' Awesome Games Studio ', '
BeautiFun Games ', ' BlackMuffin Studio', ' Char & Torfi ', ' Digital Sun ', '
EA Singapore ', ' Fair Play Labs ', ' Funatics ', ' Funatics Software', ' Honor
Code', ' Immersion Software & Graphics ', ' Monkey Moon ', ' Muutsch', '
Playsport Games Ltd ', ' Pol', ' Russia ', ' Soleil', ' Soleil Ltd. ', '
StudioInkyfox ', ' Thomas Brush ', ' Toylogic ', ' Varkian Empire ', '10tons
Entertainment', '11 bit studios', '24 Entertainment ', '3A Games ', 'Alcachofa

```

Soft ', 'Application Systems Heidelberg Software GmbH', 'Artificial Studios',
 'Arxel Tribe ', 'Avalon Style ', 'AwesomeGamesStudio', 'BEAUTIFUN GAMES SL',
 'Beautiful Glitch ', 'Big Ape Productions ', 'Black Mermaid ', 'Black Pants
 Studio ', 'Blazing Bit Games ', 'Blazing Griffin ', 'Blue Bottle Games ',
 'Broken Rules ', 'Capricia Productions ', 'Chance Agency ', 'Coffee Powered
 Machine ', 'Connor Ullmann ', 'Cornfox & Bros. ', 'Crunching Koalas ',
 'CyberConnect2', 'Deep Red ', 'Delphine Software International ', 'Detalion ',
 'Die Gute Fabrik ', 'Diversions Entertainment ', 'DrinkBox Studios ', 'EA Black
 Box', 'EA Seattle ', 'Eutechnyx ', 'Funatics Development GmbH', 'Future Games ',
 'Geography of Robots ', 'Gojira ', 'Grip Digital ', 'Harebrained Schemes LLC ',
 'Hidden Fields ', 'Housemarque ', 'Humongous Entertainment ', 'Hydravision ',
 'ILCA', 'Idol FX ', 'In Utero ', 'Infinitap Games ', 'Infinite Fall ',
 'Interwave Studios ', 'John Szymanski ', 'Jonas Manke', 'Joon', 'Juggler Games
 ', 'Just Add Water ', 'Kitfox Games ', 'Kuju Entertainment ', 'LCB Game Studio
 ', 'Le Cartel Studio ', 'Level 5 ', 'Lexis Numerique ', 'Limasse Five ',
 'Ludosity Interactive', 'Max Mraz ', 'Mayhem Studios ', 'Messhof ', 'Metronomik
 ', 'Mithis/HD Interactive ', 'Mohawk Games ', 'Monster Games Inc. ', 'NUDE
 MAKER', 'Narcosis Team', 'Neotro Inc. ', 'Nepos Games ', 'No Code ', 'Nolla
 Games ', 'NotGames ', 'Nowhere Studios ', 'Oddworld Inhabitants ', 'Ossian
 Studios ', 'Panic Barn Ltd ', 'Papyrus ', 'Pathea Games ', 'Phosphor Games
 Studio', 'Picaresque Studio ', 'Pinkerton Road Studio ', 'Player First Games ',
 'Playsport Games', 'Pocketwatch Games ', 'Polypusher Studios ', 'Presto Studios
 ', 'Rage Software ', 'Rainbow Studios ', 'Raw Fury', 'Red Herring Labs ',
 'Related Designs ', 'Renegade Kid ', 'Rock Pocket Games ', 'Rocket Science Games
 ', 'Rogue Factor ', 'Route 59 Games ', 'SMG Studio ', 'Santa Ragione ',
 'Screaming Games ', 'Serenity Forge', 'Sharkbomb Studios ', 'Shiny Shoe ',
 'Shiro Games ', 'Silver Dollar Games ', 'Skeleton Crew Studio ', 'Space Dust
 Studios', 'Spearhead Games ', 'Still Running ', 'Studio Koba ', 'Sunnyside Games
 ', 'Tamssoft ', 'Team Oneshot ', 'Team Shifty ', 'Termite Games ', 'Thomas Moon
 Kang ', 'Tom Hegarty ', 'TopWare Interactive ', 'Toylogic Inc.', 'Triternion ',
 'Turbo Tape Games ', 'Uber Entertainment ', 'Unigine Corp', 'Untame ', 'Upper
 One Games ', 'Veewo Games ', 'Vile Monarch ', 'Visual Concepts ', 'Vlambeer ',
 'White Birds Productions ', 'Y.K. ', 'ZANDEL MEDIA ', 'roll7 ', 'tiny Build
 GAMES'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
 distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
 recently (threshold: 10%)
 distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
 recently (threshold: 10%)

Epoch 1/20

220/220 [=====] - 17s 76ms/step - loss: 32.5812 - mae:
 3.9796 - val_loss: 25.5909 - val_mae: 4.0706

Epoch 2/20

220/220 [=====] - 17s 76ms/step - loss: 21.0565 - mae:
 3.0454 - val_loss: 22.6819 - val_mae: 3.9490

Epoch 3/20

220/220 [=====] - 17s 75ms/step - loss: 18.5657 - mae:


```

2.7329 - val_loss: 21.0256 - val_mae: 3.7920
Epoch 4/20
220/220 [=====] - 16s 75ms/step - loss: 17.0939 - mae:
2.5434 - val_loss: 21.8550 - val_mae: 3.9491
Epoch 5/20
220/220 [=====] - 17s 75ms/step - loss: 15.2799 - mae:
2.4171 - val_loss: 21.6834 - val_mae: 3.9578
Epoch 6/20
220/220 [=====] - 17s 76ms/step - loss: 14.0288 - mae:
2.3347 - val_loss: 21.4159 - val_mae: 3.9558
Epoch 7/20
220/220 [=====] - 17s 75ms/step - loss: 14.0241 - mae:
2.2767 - val_loss: 22.4589 - val_mae: 4.0789
Epoch 8/20
220/220 [=====] - 16s 75ms/step - loss: 13.6083 - mae:
2.2219 - val_loss: 22.3457 - val_mae: 4.0945

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

Chunk 37/52 // 69.23% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Bigben Games ', ' Bigben Interactive', ' Minority Media Inc. ', ' Sproing ', '
Xeen ', 'Alter Games ', 'Appeal', 'Black Shamrock ', 'Clever Plays ', 'Continuum
', 'Finji ', 'Flashback Games ', 'Galilea Multimedia ', 'Gaming Minds Studios ',
'Ghost Town Games Ltd. ', 'Grayfax Software ', 'Grinding Gear Games ',
'Hemisphere Games ', 'Homegrown Games ', 'House of Tales ', 'Housemarque', 'Ice-
Pick Lodge ', 'IzHard ', 'Jacob Janerka ', 'Kaizen Game Works ', 'Lesta Studio
', 'Lightbulb Crew ', 'Lucas Pope ', 'Mad Head Games ', 'Mi-Clos Studio ',
'Mindfield Games ', 'Mindware Studios ', 'Minority', 'Mist Land ', 'Namco Bandai
Games ', 'Nerd Monkeys ', 'Nerial ', 'Now Production', 'Osmotic Studios ', 'Out
Of The Park Developments ', 'Owlcat Games ', 'Patrick Traynor ', 'Phantom 8 ',
'Phantomery Interactive ', 'Pinokl Games ', 'PolyAmorous ', 'Proxy Studios ',
'R8 Games ', 'Revival Productions', 'Robotality ', 'SEK Ost ', 'SSI ', 'Shining
Pixel Studios ', 'Sproing Interactive Media', 'The Artistocrats ', 'The Lordz
Games Studio ', 'Tribute Games ', 'Ultra Runaway Games ', 'White Birds
Productions ', 'Zordix Racing '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

Epoch 1/20
223/223 [=====] - 17s 76ms/step - loss: 22.8246 - mae:
2.7896 - val_loss: 15.3771 - val_mae: 3.1833
Epoch 2/20
223/223 [=====] - 17s 75ms/step - loss: 12.2810 - mae:

```

```

1.8345 - val_loss: 13.7651 - val_mae: 3.0562
Epoch 3/20
223/223 [=====] - 17s 75ms/step - loss: 10.3677 - mae:
1.6500 - val_loss: 12.9798 - val_mae: 2.9552
Epoch 4/20
223/223 [=====] - 17s 74ms/step - loss: 8.7810 - mae:
1.5210 - val_loss: 13.0498 - val_mae: 2.9809
Epoch 5/20
223/223 [=====] - 17s 76ms/step - loss: 8.4216 - mae:
1.4431 - val_loss: 12.8434 - val_mae: 2.9180
Epoch 6/20
223/223 [=====] - 17s 75ms/step - loss: 7.2532 - mae:
1.3445 - val_loss: 13.4376 - val_mae: 2.9345
Epoch 7/20
223/223 [=====] - 17s 75ms/step - loss: 6.7448 - mae:
1.2768 - val_loss: 13.5880 - val_mae: 2.9641
Epoch 8/20
223/223 [=====] - 17s 74ms/step - loss: 7.3045 - mae:
1.3032 - val_loss: 13.3983 - val_mae: 2.9677
Epoch 9/20
223/223 [=====] - 17s 75ms/step - loss: 7.1238 - mae:
1.2968 - val_loss: 14.0688 - val_mae: 3.0582
Epoch 10/20
223/223 [=====] - 17s 75ms/step - loss: 7.4043 - mae:
1.2578 - val_loss: 14.6255 - val_mae: 3.0981

distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)

Chunk 38/52 // 71.15% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
AGEOD ', ' Gaming Minds Studios ', ' Planetary Annihilation Inc ', ' Q-Games ',
'7 Studios ', 'Adrian Lazar ', 'Beamdog ', 'Beatnik Games ', 'Chasing Carrots ',
'Cloudhead Games ', 'CreativeForge Games ', 'Cyberlore Studios ', 'Daniel
Mullins Games ', 'Disney Online ', 'Double Eleven', 'Double Eleven ', 'Dry
Cactus ', 'Fabled Game ', 'Flying Lab Software ', 'FuturLab ', 'Gaming Minds
Studios ', 'ION LANDS ', 'IllFonic ', 'Impressions Games ', 'K-D Lab ',
'Lukewarm Media ', 'Mages. ', 'Might and Delight ', 'Object ', 'Paradox
Interactive', 'Pasta Games ', 'Polyslash ', 'RichMakeGame ', 'Running Dog ',
'SectorDub ', 'Snapshot Games Inc. ', 'SoftWarWare ', 'Stormfront Studios ',
'The Behemoth ', 'The Deep End Games ', 'Thomas Brush ', 'Tlon Studios ', 'Torus
Games ', 'Tour De Pizza ', 'Triskell Interactive ', 'Uber Entertainment',
'Visiware Studios ', 'Voracious Games ', 'Wastelands Interactive ', 'Wishfully
', 'Wormwood Studios ', 'YCJY Games ', 'Zeboyd Games ', 'ZootFly ', 'nDreams ',
'niceplay games '] will be ignored
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time

```

```

recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)

Epoch 1/20
230/230 [=====] - 17s 74ms/step - loss: 24.6300 - mae:
3.1891 - val_loss: 22.0203 - val_mae: 3.6615
Epoch 2/20
230/230 [=====] - 17s 75ms/step - loss: 16.3065 - mae:
2.3956 - val_loss: 23.1552 - val_mae: 4.1078
Epoch 3/20
230/230 [=====] - 17s 75ms/step - loss: 13.1561 - mae:
2.0935 - val_loss: 25.2169 - val_mae: 4.2717
Epoch 4/20
230/230 [=====] - 18s 76ms/step - loss: 12.7129 - mae:
1.9600 - val_loss: 23.6516 - val_mae: 4.1222
Epoch 5/20
230/230 [=====] - 18s 77ms/step - loss: 11.3909 - mae:
1.8440 - val_loss: 24.3570 - val_mae: 4.2831
Epoch 6/20
230/230 [=====] - 17s 75ms/step - loss: 10.1496 - mae:
1.7412 - val_loss: 25.3667 - val_mae: 4.3578

```

```

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time
recently (threshold: 10%)

```

```

Chunk 39/52 // 73.08% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Bounding Box Games ', ' Double Damage Games ', ' Hi Corp ', ' KTX Software ', '
MachineGames ', ' Pixel Pi Games ', ' Team Ladybug ', ' WSS Playground', '2 Dawn
Games ', '34BigThings ', 'Abbey Games ', 'Atomic Motion ', 'Big Star Games ',
'Black Rock Studio ', 'Blendo Games ', 'Buckshot Software ', 'Camouflaj',
'Cococucumber ', 'Core Design Ltd. ', 'Creat Studios ', 'Doctor Entertainment ',
'Double Damage Games', 'Double Damage Games ', 'EasyGameStation ', 'Ed Key and
David Kanaga ', 'Flippfly ', 'Flying Lab Software ', 'Freeform Interactive LLC
', 'Frostwood Interactive ', 'Gaming Minds Studios ', 'Ice Flames ', 'Infamous
Quests ', 'Innerloop ', 'Interceptor Entertainment ', 'Ironward ', 'Jujubee S.A.
', 'Kuju Entertainment ', 'Laura Shigihara ', 'Lazy Bear Games ', 'Lionbite
Games ', 'ManaVoid Entertainment Inc. ', 'Mark Healey ', 'Mighty Polygon ',
'Mike and Jason', 'NG:DEV.TEAM', 'Nerial ', 'Nexus Game Studio ', 'Nicolas
Meyssonnier ', 'Nodding Heads Games ', 'NuClearVision ', 'Old School Games ',
'Outrage Games ', 'Phigames ', 'Pixelated Milk ', 'Plastic Piranha ', 'Radon
Labs ', 'RailSimulator.com ', 'Rival Interactive ', 'Sector D2 ', 'Sobaka ',
'SomaSim ', 'Stormind Games ', 'Sundae Month ', 'Survios ', 'Team Pixel Pi',

```

'The Bae Team ', 'The Tiniest Shark ', 'Three Rings ', 'Toxic Games ', 'Ublart Montpellier ', 'Vertical Robot ', 'Videocult ', 'Vladimir Kudelka ', 'Volatile Games ', 'Why so serious?', 'Wizarbox ', 'Yanim Studio ', 'comcept '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

Epoch 1/20

212/212 [=====] - 16s 76ms/step - loss: 25.1665 - mae: 3.1962 - val_loss: 29.1156 - val_mae: 4.5137

Epoch 2/20

212/212 [=====] - 16s 76ms/step - loss: 15.2051 - mae: 2.2440 - val_loss: 29.7459 - val_mae: 4.6551

Epoch 3/20

212/212 [=====] - 16s 75ms/step - loss: 13.3275 - mae: 1.9869 - val_loss: 26.2534 - val_mae: 4.4084

Epoch 4/20

212/212 [=====] - 16s 76ms/step - loss: 11.6227 - mae: 1.8212 - val_loss: 28.3653 - val_mae: 4.5833

Epoch 5/20

212/212 [=====] - 16s 75ms/step - loss: 12.5396 - mae: 1.8707 - val_loss: 30.1338 - val_mae: 4.6949

Epoch 6/20

212/212 [=====] - 16s 75ms/step - loss: 11.1821 - mae: 1.7568 - val_loss: 28.0232 - val_mae: 4.5332

Epoch 7/20

212/212 [=====] - 16s 75ms/step - loss: 9.8511 - mae: 1.6383 - val_loss: 28.4914 - val_mae: 4.5753

Epoch 8/20

212/212 [=====] - 16s 76ms/step - loss: 9.8571 - mae: 1.6059 - val_loss: 28.8597 - val_mae: 4.6029

distributed.utils_perf - WARNING - full garbage collections took 14% CPU time recently (threshold: 10%)

Chunk 40/52 // 75.0% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Animation Arts ', ' Devoured Studios ', ' Engine Software ', ' Gamasoft ', ' Hopoo Games ', ' Introversion Software ', ' Jo-Mei Games ', ' Leikir Studio ', ' Mixed Realms ', ' Monstars Inc.', ' Omen ', ' Resonair ', ' Stainless Steel Studios ', ' Studio 369 ', ' Studio Fizbin ', ' Super Awesome Hyper Dimensional Mega Team ', '5 Lives Studios ', '5TH Cell ', 'Abbey Games ', 'Abrakam SA ', 'Amanita Design ', 'Animation Arts ', 'Antimatter Games ', 'Arberth Studios ', 'Artifice Studio ', 'Atomic Planet Entertainment ', 'Beau Blyth ', 'Broken Rules ', 'CCR', 'Cadenza ', 'Cellar Door Games ', 'Chucklefish', 'Creative Bytes ',

'DAMAGE STATE LTD ', 'Dapper Penguin Studios ', 'Dark Seas Games ', 'Denby / Raze ', 'Digixart Entertainment', 'Digixart Entertainment ', 'DreamCatcher Interactive ', 'Ebb Software ', 'Edelweiss ', 'Egidijus Bachur ', 'Facepunch Studios ', 'Final Strike Games ', 'Fizbin', 'Flying Oak Games ', 'Free Radical Design ', 'Fusionsphere Systems', 'Fusionsphere Systems ', 'Gabriel Interactive ', 'HAKAMA ', 'Housemarque ', 'Human Head Studios', 'Introversion', 'Italic Pig ', 'Jutsu Games ', 'Koei ', 'LGK Games ', 'Lucas Pope ', 'Ludeon Studios ', 'Mad Head Games ', 'Master Creating ', 'Midway', 'Mixed Realms Pte Ltd', 'Morgondag ', 'Mystic Box ', 'Naked Sky Entertainment ', 'No Goblin ', 'Nucleosys ', 'Nvizzio Creations ', 'Owlchemy Labs ', 'Phantom Compass ', 'Polygon Treehouse ', 'Puppy Games ', 'Recoil Games ', 'Red Ego Games ', 'Reikon Games ', 'Robot House ', 'Runewaker Entertainment ', 'SNK Corporation ', 'Sabotage Studio ', 'Samurai Punk ', 'Santa Ragione ', 'Scavengers Studio ', 'Shed-Works ', 'Ska Studios', 'Skunkape Games ', 'Slant Six ', 'Softlab-NSK ', 'SouthPeak Games ', 'Southend Interactive ', 'Spellbind Studios ', 'Sperasoft ', 'Spry Fox ', 'Super Mega Team', 'Swing Swing Submarine ', 'TickTock Games ', 'Tomasz Wacławek ', 'Torched Hill ', 'Totally Games ', 'Twice Different ', 'Two Tribes ', 'UGA', 'Uprising Studios ', 'Vblank Entertainment Inc. ', 'XYLA Entertainment ', 'Youxiland', 'neoqb ', 'roll7 ', 'xii games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 14% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 14% CPU time recently (threshold: 10%)

Epoch 1/20

221/221 [=====] - 17s 75ms/step - loss: 33.0319 - mae: 4.0650 - val_loss: 37.0904 - val_mae: 4.8942

Epoch 2/20

221/221 [=====] - 17s 75ms/step - loss: 24.0244 - mae: 3.2778 - val_loss: 36.7961 - val_mae: 4.9765

Epoch 3/20

221/221 [=====] - 17s 76ms/step - loss: 22.2961 - mae: 3.0634 - val_loss: 35.7502 - val_mae: 4.9348

Epoch 4/20

221/221 [=====] - 16s 74ms/step - loss: 20.5753 - mae: 2.8999 - val_loss: 31.3040 - val_mae: 4.5709

Epoch 5/20

221/221 [=====] - 16s 75ms/step - loss: 19.2461 - mae: 2.8002 - val_loss: 31.2819 - val_mae: 4.6357

Epoch 6/20

221/221 [=====] - 17s 76ms/step - loss: 18.3206 - mae: 2.7063 - val_loss: 30.6603 - val_mae: 4.5753

Epoch 7/20

221/221 [=====] - 16s 74ms/step - loss: 16.2133 - mae: 2.5568 - val_loss: 28.6680 - val_mae: 4.4096

Epoch 8/20

221/221 [=====] - 17s 75ms/step - loss: 16.2290 - mae:

```

2.4619 - val_loss: 30.4364 - val_mae: 4.6224
Epoch 9/20
221/221 [=====] - 16s 75ms/step - loss: 15.5905 - mae:
2.4283 - val_loss: 30.6411 - val_mae: 4.6657
Epoch 10/20
221/221 [=====] - 17s 75ms/step - loss: 14.8920 - mae:
2.3869 - val_loss: 30.2122 - val_mae: 4.6357
Epoch 11/20
221/221 [=====] - 17s 75ms/step - loss: 15.0014 - mae:
2.3599 - val_loss: 31.4796 - val_mae: 4.7185
Epoch 12/20
221/221 [=====] - 17s 75ms/step - loss: 14.5838 - mae:
2.3138 - val_loss: 30.7373 - val_mae: 4.7211

```

distributed.utils_perf - WARNING - full garbage collections took 14% CPU time recently (threshold: 10%)

Chunk 41/52 // 76.92% Complete // Cycle 3/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cliffhanger Productions ', ' Dead Mage ', ' Games Farm s.r.o. ', ' Infinite
Interactive ', ' Kaigan Games ', ' Marvelous AQL ', ' Multiverse ', ' Terri
Vellmann & Doseone ', ' Vlambeer ', ' d3t Ltd ', 'Artificer ', 'Arxel Tribe ',
'Asymmetric Publications ', 'Big Robot Ltd ', 'Black Element ', 'Black Lion
Studios ', 'Bloodirony ', 'Cliffhanger Productions', 'Cracked Heads Games ',
'Crackshell ', 'Crea-ture Studios ', 'Croteam', 'DarkStar Games ', 'Dead Mage
Studio', 'Den-Yu-Sha ', 'Detalion ', 'Douze Dixiemes ', 'Draw Distance ',
'Echodog Games ', 'Enigami ', 'Enlight Software', 'FASA Studio ', 'Finish Line
Games ', 'FishTankStudio ', 'Free Reign Entertainment ', 'Games Farm', 'Games
Farm ', 'Garage 227 ', 'Glass Bottom Games ', 'Greylock Studio ', 'Harebrained
Schemes LLC ', 'IMGN.PRO ', 'Jesse Makkonen ', 'Kaigan Games OU', 'MPS Labs ',
'MadLightStudio ', 'Mandragora ', 'Mega Crit Games ', 'Meteorise ', 'Might and
Delight ', 'Mimimi Games ', 'Minds-Eye Productions ', 'Mommy's Best Games ',
'Monomi Park ', 'Multiverse Games', 'Nexon ', 'Night Dive Studios ', 'Okugi
Studio ', 'Redlock Studio ', 'Right Nice Games ', 'Rotobee ', 'Runecraft ',
'SEGA Racing Studio ', 'Sidhe Interactive ', 'Skyshine Games ', 'Slocap ',
'Something Classic Games LLC ', 'SouthPAW Games ', 'Space Bullet Dynamics
Corporation ', 'Spiral Circus ', 'Tamsoft', 'Tamsoft ', 'Terri Vellmann',
'Ultimation Inc. ', 'Unicube ', 'VSTEP ', 'Valkyrie Studios ', 'Vblank
Entertainment Inc. ', 'Vine ', 'Wadjet Eye Games ', 'WayForward ', 'White Birds
Productions ', 'Wolf Brew Games ', 'Wolfpack Studios ', 'Ysbryd Games ', 'Zojoi
Studios ', 'iFun4all ', 'rose-engine '] will be ignored

```

```

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 14% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 14% CPU time
recently (threshold: 10%)

```

Epoch 1/20

232/232 [=====] - 18s 75ms/step - loss: 19.2978 - mae: 2.9465 - val_loss: 30.0747 - val_mae: 4.8817
Epoch 2/20
232/232 [=====] - 17s 74ms/step - loss: 12.6124 - mae: 2.2048 - val_loss: 28.8003 - val_mae: 4.8467
Epoch 3/20
232/232 [=====] - 17s 75ms/step - loss: 10.9530 - mae: 1.9771 - val_loss: 27.3222 - val_mae: 4.7079
Epoch 4/20
232/232 [=====] - 17s 74ms/step - loss: 10.1471 - mae: 1.8667 - val_loss: 27.3078 - val_mae: 4.7360
Epoch 5/20
232/232 [=====] - 17s 75ms/step - loss: 10.1085 - mae: 1.8383 - val_loss: 25.8705 - val_mae: 4.6073
Epoch 6/20
232/232 [=====] - 17s 75ms/step - loss: 9.5576 - mae: 1.8252 - val_loss: 24.4904 - val_mae: 4.4801
Epoch 7/20
232/232 [=====] - 17s 75ms/step - loss: 8.7304 - mae: 1.7150 - val_loss: 24.6768 - val_mae: 4.5684
Epoch 8/20
232/232 [=====] - 17s 75ms/step - loss: 9.0083 - mae: 1.7027 - val_loss: 24.4667 - val_mae: 4.4956
Epoch 9/20
232/232 [=====] - 17s 75ms/step - loss: 8.6911 - mae: 1.6399 - val_loss: 26.1105 - val_mae: 4.6887
Epoch 10/20
232/232 [=====] - 17s 75ms/step - loss: 7.5517 - mae: 1.5264 - val_loss: 26.6166 - val_mae: 4.7181
Epoch 11/20
232/232 [=====] - 17s 75ms/step - loss: 7.9944 - mae: 1.5607 - val_loss: 23.7924 - val_mae: 4.4289
Epoch 12/20
232/232 [=====] - 18s 76ms/step - loss: 8.2199 - mae: 1.5678 - val_loss: 25.2020 - val_mae: 4.6060
Epoch 13/20
232/232 [=====] - 17s 75ms/step - loss: 7.7293 - mae: 1.5195 - val_loss: 26.0114 - val_mae: 4.6853
Epoch 14/20
232/232 [=====] - 18s 76ms/step - loss: 7.6209 - mae: 1.5345 - val_loss: 24.9019 - val_mae: 4.6004
Epoch 15/20
232/232 [=====] - 17s 75ms/step - loss: 7.1628 - mae: 1.4625 - val_loss: 24.9639 - val_mae: 4.5982
Epoch 16/20
232/232 [=====] - 18s 76ms/step - loss: 7.3508 - mae: 1.4708 - val_loss: 24.3167 - val_mae: 4.5275

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

Chunk 42/52 // 78.85% Complete // Cycle 3/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['  
Atlus ', ' Bitworks ', ' Black Wing Foundation ', ' Cauldron Ltd. ', ' Coatsink  
Software ', ' EA Redwood Shores ', ' Elemental Games', ' Factor 5 ', ' Fire Face  
, ' Just Add Water', ' Krome Studios ', ' Mossmouth ', ' Project Soul ', ' Red  
Storm Entertainment ', ' Shaba Games ', ' Terri Vellmann & Doseone ', '17-Bit ',  
'5000ft Inc. ', 'Activision', 'Alan Hazelden & Harry Lee ', 'Artdink', 'Bandai  
Namco Games', 'Black Lab Games ', 'Black Rock Studio ', 'CBE software ',  
'Cadenza ', 'Cat Daddy Games ', 'Deep Red ', 'Derek Yu', 'DoubleDutch Games ',  
'Dramatic Labs ', 'Escape ', 'Extend Interactive ', 'Fizz Factor ', 'Grimlore  
Games ', 'Infogrames ', 'Ironward ', 'Jumpship ', 'Malfador Machinations ',  
'Massive Damage', 'Maxis', 'Meridian4 ', 'Metropolis Software ', 'MinMax Games  
Ltd. ', 'Mind over Matter ', 'Mossmouth', 'Murudai ', 'N-Game Studios', 'Naked  
Sky Entertainment ', 'Oovee Game Studios ', 'Owen Deery', 'Owned by Gravity ',  
'Panic Barn Ltd ', 'Passtech Games ', 'Protocol Games ', 'Provox Games ',  
'Pulsetense Games ', 'Rebellion', 'Rebelmind ', 'Reflexive Entertainment ',  
'Reply Game Studios ', 'Retro Affect ', 'Retro Forge ', 'Runner Duck ',  
'Seamless Entertainment', 'Silver Style ', 'Slitherine ', 'Sneaky Yak Studio ',  
'Splashteam ', 'Star Gem Inc. ', 'State of Play Games ', 'Survios ', 'Tactical  
Adventures ', 'Taldren ', 'Terri Vellimann', 'Totally Games ', 'Treyarch',  
'Vivid Games ', 'Wales Interactive ', 'Wings Simulations ', 'Zachtronics  
Industries ', 'inkle ', 'stillalive studios '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
```

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

Epoch 1/20

224/224 [=====] - 17s 75ms/step - loss: 27.5981 - mae: 3.5350 - val_loss: 25.7792 - val_mae: 4.2076

Epoch 2/20

224/224 [=====] - 17s 74ms/step - loss: 14.8145 - mae: 2.3671 - val_loss: 24.9857 - val_mae: 4.1819

Epoch 3/20

224/224 [=====] - 17s 76ms/step - loss: 12.7001 - mae: 2.0906 - val_loss: 26.4603 - val_mae: 4.3409

Epoch 4/20

224/224 [=====] - 17s 75ms/step - loss: 11.7286 - mae: 1.9806 - val_loss: 26.6314 - val_mae: 4.3557

Epoch 5/20

224/224 [=====] - 17s 77ms/step - loss: 11.6051 - mae: 1.9062 - val_loss: 25.2558 - val_mae: 4.2393

Epoch 6/20

224/224 [=====] - 17s 75ms/step - loss: 10.9519 - mae: 1.8507 - val_loss: 25.8657 - val_mae: 4.3077

Epoch 7/20

224/224 [=====] - 17s 75ms/step - loss: 9.9978 - mae: 1.7652 - val_loss: 25.9334 - val_mae: 4.2573

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

Chunk 43/52 // 80.77% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Text'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['Awaken Realms ', ' B.B.Studio ', ' Co. LTD ', ' Fullbright ', ' Koalabs ', ' Point Blank ', ' Quasar ', ' Ragequit Corporation ', ' Uppercut Games Pty Ltd ', 'Akabaka ', 'Akella', 'Ashdar Games ', 'Attention To Detail ', 'Awaceb ', 'Awaken Realms Digital', 'Bad Viking ', 'Banpresto', 'BattleGoat Studios ', 'Bkom ', 'Blackmill Games ', 'Blue 52 ', 'Blue Tongue Entertainment ', 'Bossa Studios ', 'Camel 101 ', 'Capy Games ', 'Chasing Rats Games ', 'Chibig ', 'Chucklefish ', 'Cosmo D Studios ', 'Cultic Games ', 'Curve Digital ', 'Curve Studios ', 'Dancing Dragon games ', 'Daniel Benmergui ', 'Destroyer Studios ', 'Dialogue Design ', 'Dimps Corporation ', 'Droqen ', 'Echo Chamber Games ', 'Ellipse Studios ', 'Embers ', 'Empty Clip Studios ', 'Exakt ', 'FIX Korea', 'Failbetter Games ', 'Fireglow ', 'Fury Software ', 'GameCo ', 'GolemLabs ', 'IMC Games ', 'Image & Form ', 'Kamehan Studios ', 'Kite Games ', 'Little Green Men ', 'M2 ', 'Magic Lantern ', 'Marvelous Inc. ', 'Microids', 'Midway ', 'Minds-Eye Productions ', 'Monochrome Paris ', 'Mucky Foot Productions ', 'Night Dive Studios ', 'No Bull Intentions ', 'No Code ', 'Odd Bug Studio ', 'Paul Cuisset ', 'Pillow Castle Games ', 'Pixel Titans ', 'Point Blank Games', 'Psyche Studios ', 'RLR Training Inc ', 'Serellan LLC ', 'Sierra Entertainment ', 'Sigtrap Games ', 'SkyBox Labs ', 'Sleepless Clinic ', 'Sleepy Sentry ', 'Spearhead Games ', 'Strangelite ', 'Strike Vector Team', 'Summerfall Studios ', 'THE BROTHERHOOD ', 'Taldren ', 'Tale of Tales ', 'Tate Multimedia ', 'The Artistocrats ', 'The Bitmap Brothers ', 'The Fullbright Company', 'Third Wire ', 'Torpor Games ', 'Uber Entertainment ', 'Ubisoft Annecy ', 'Uppercut Games', 'Uppercut Games Pty Ltd ', 'Vertex4 ', 'Wideload Games Inc. ', 'Wormwood Studios ', 'Xilam ', 'Zenovia ', 'Zero Sum Games ', 'Zoink! ', 'eSim Games ', 'increpare '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 13% CPU time recently (threshold: 10%)

Epoch 1/20

231/231 [=====] - 18s 76ms/step - loss: 36.7232 - mae:

3.9405 - val_loss: 33.5209 - val_mae: 4.2860
 Epoch 2/20
 231/231 [=====] - 17s 75ms/step - loss: 25.0671 - mae: 2.9813 - val_loss: 33.6443 - val_mae: 4.5508
 Epoch 3/20
 231/231 [=====] - 17s 75ms/step - loss: 22.4687 - mae: 2.7267 - val_loss: 31.1129 - val_mae: 4.3959
 Epoch 4/20
 231/231 [=====] - 17s 75ms/step - loss: 20.3309 - mae: 2.5144 - val_loss: 29.2041 - val_mae: 4.2758
 Epoch 5/20
 231/231 [=====] - 17s 75ms/step - loss: 19.2865 - mae: 2.3888 - val_loss: 31.5644 - val_mae: 4.5659
 Epoch 6/20
 231/231 [=====] - 17s 75ms/step - loss: 17.4763 - mae: 2.2818 - val_loss: 30.1307 - val_mae: 4.4290
 Epoch 7/20
 231/231 [=====] - 17s 75ms/step - loss: 16.1450 - mae: 2.1785 - val_loss: 29.9209 - val_mae: 4.4830
 Epoch 8/20
 231/231 [=====] - 17s 75ms/step - loss: 16.6382 - mae: 2.1950 - val_loss: 29.0418 - val_mae: 4.4428
 Epoch 9/20
 231/231 [=====] - 17s 75ms/step - loss: 15.7233 - mae: 2.1194 - val_loss: 27.5784 - val_mae: 4.2683
 Epoch 10/20
 231/231 [=====] - 17s 75ms/step - loss: 15.1846 - mae: 2.0526 - val_loss: 25.7934 - val_mae: 4.0667
 Epoch 11/20
 231/231 [=====] - 17s 75ms/step - loss: 14.8736 - mae: 2.0140 - val_loss: 26.6370 - val_mae: 4.2123
 Epoch 12/20
 231/231 [=====] - 17s 74ms/step - loss: 14.8125 - mae: 1.9977 - val_loss: 24.5934 - val_mae: 4.0313
 Epoch 13/20
 231/231 [=====] - 17s 75ms/step - loss: 14.4547 - mae: 1.9942 - val_loss: 25.0371 - val_mae: 4.0891
 Epoch 14/20
 231/231 [=====] - 17s 74ms/step - loss: 14.8555 - mae: 2.0334 - val_loss: 24.1718 - val_mae: 4.0128
 Epoch 15/20
 231/231 [=====] - 17s 74ms/step - loss: 14.4634 - mae: 1.9762 - val_loss: 24.3567 - val_mae: 4.0766
 Epoch 16/20
 231/231 [=====] - 17s 75ms/step - loss: 12.9123 - mae: 1.9068 - val_loss: 25.2820 - val_mae: 4.1938
 Epoch 17/20
 231/231 [=====] - 18s 76ms/step - loss: 13.7394 - mae:

```

1.9589 - val_loss: 25.5562 - val_mae: 4.1816
Epoch 18/20
231/231 [=====] - 17s 74ms/step - loss: 12.9818 - mae:
1.8746 - val_loss: 26.0515 - val_mae: 4.2829
Epoch 19/20
231/231 [=====] - 17s 75ms/step - loss: 14.6377 - mae:
1.9545 - val_loss: 25.5339 - val_mae: 4.2342

distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)

Chunk 44/52 // 82.69% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text', 'Trainer'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Digital Eclipse ', ' Florian Himsl ', ' Furious Bee ', ' King Art Games ', '
Lancarse ', ' Splendy Games ', ' YCJY Games ', '3D2 Entertainment ', 'AGO Games
', 'ARS GOETIA ', 'Abstraction Games ', 'Artefacts Studio ', 'Awfully Nice
Studios ', 'Baroque Decay ', 'Beethoven & Dinosaur ', 'Big Ant Studios ', 'Big
Finish Games ', 'BonusXP ', 'Bossa Studios ', 'Choice Provisions ', 'Cockroach
Inc. ', 'Color Gray Games ', 'Crema Games ', 'Cryo Interactive ', 'Davey Wreden
', 'Deconstructeam ', 'Dragon Slumber ', 'DreamCatcher Interactive ', 'Eden
Studios ', 'Edmund McMillen', 'Enhance Games ', 'Fairyrship Games ', 'Free Lives
', 'Future Games ', 'Galilea Multimedia ', 'Game Freak ', 'Gaming Corps AB ',
'Harvester Games ', 'Illusion Ray Studio ', 'Iron Tower Studio ', 'Jason Rohrer
', 'Johamm Tael & Mihkel Tael ', 'KING Art', 'Konami', 'Ladyluck Digital Media
', 'Lion's Shade ', 'Mighty Yell ', 'Neon Giant ', 'Nicalis ', 'Noumena
Productions ', 'Numinous Games ', 'Owl Cave ', 'Question ', 'Rain Games ',
'Random Potion Oy ', 'Rebelmind ', 'Rival Games Ltd ', 'Sam Barlow', 'Slendy
Interactive', 'Spooky Doorway ', 'Swing Swing Submarine ', 'Technocrat ', 'Teotl
Studios ', 'The Collective ', 'Tribute Games ', 'Tuxedo Labs ', 'Ty Taylor and
Mario Castaneda ', 'Wadjet Eye Games ', 'Wales Interactive ', 'YCJY', 'Zenimax
Online Studios ', 'h.a.n.d. Inc. ', 'nDreams '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)

Epoch 1/20
232/232 [=====] - 18s 74ms/step - loss: 19.6868 - mae:
2.5734 - val_loss: 25.9656 - val_mae: 4.1618
Epoch 2/20
232/232 [=====] - 17s 75ms/step - loss: 15.1316 - mae:
2.1272 - val_loss: 21.0465 - val_mae: 3.8646
Epoch 3/20

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232/232 [=====] - 17s 75ms/step - loss: 12.4818 - mae:
1.9146 - val_loss: 19.1036 - val_mae: 3.5840
Epoch 4/20
232/232 [=====] - 17s 74ms/step - loss: 10.9982 - mae:
1.7585 - val_loss: 19.1950 - val_mae: 3.4897
Epoch 5/20
232/232 [=====] - 17s 75ms/step - loss: 11.2082 - mae:
1.7162 - val_loss: 18.0320 - val_mae: 3.4581
Epoch 6/20
232/232 [=====] - 17s 75ms/step - loss: 10.2809 - mae:
1.6324 - val_loss: 17.9460 - val_mae: 3.4389
Epoch 7/20
232/232 [=====] - 17s 74ms/step - loss: 10.0984 - mae:
1.6063 - val_loss: 17.8454 - val_mae: 3.3970
Epoch 8/20
232/232 [=====] - 17s 75ms/step - loss: 10.2925 - mae:
1.5720 - val_loss: 17.8974 - val_mae: 3.4940
Epoch 9/20
232/232 [=====] - 17s 74ms/step - loss: 10.0513 - mae:
1.5462 - val_loss: 17.1194 - val_mae: 3.4073
Epoch 10/20
232/232 [=====] - 17s 74ms/step - loss: 9.2805 - mae:
1.4999 - val_loss: 19.1242 - val_mae: 3.6761
Epoch 11/20
232/232 [=====] - 17s 75ms/step - loss: 9.9823 - mae:
1.5328 - val_loss: 17.7810 - val_mae: 3.4195
Epoch 12/20
232/232 [=====] - 17s 74ms/step - loss: 9.0218 - mae:
1.4813 - val_loss: 20.1303 - val_mae: 3.7701
Epoch 13/20
232/232 [=====] - 17s 75ms/step - loss: 8.8654 - mae:
1.4395 - val_loss: 20.5641 - val_mae: 3.7561
Epoch 14/20
232/232 [=====] - 17s 75ms/step - loss: 9.1335 - mae:
1.4513 - val_loss: 19.0399 - val_mae: 3.6350

```

```

distributed.utils_perf - WARNING - full garbage collections took 12% CPU time
recently (threshold: 10%)

```

```

Chunk 45/52 // 84.62% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Cavalier Game Studios ', ' Crows Crows Crows ', ' Deck Nine Games ', ' Dire Wolf
Digital ', ' Do My Best Games ', ' Endnight Studios ', ' Ishtar Games Inc. ', '

```

ONEOONE GAMES ', ' Question ', ' Skookum Arts ', ' Slitherine ', ' Studio Fizbin ', ' Sumo Nottingham ', ' Super Awesome Hyper Dimensional Mega Team ', ' Tyler Glaiel ', '101%', '4Head Studios ', 'Act 3 Games', 'Arcen Games', 'Ares Dragonis ', 'Arxel Tribe ', 'Bellular Studios ', 'Big Robot Ltd ', 'Braingame ', 'Brainwash Gang ', 'Bulkhead Interactive ', 'CCCP', 'Caligari Games ', 'Cloak and Dagger Games ', 'Colibri Games ', 'Computer Artworks ', 'Daedalic Studio West ', 'Dan Smith Studios ', 'Darkling Room ', 'Davey Wreden ', 'Deconstructeam ', 'Digital Sun ', 'EXOR Studios ', 'Edmund McMillen', 'Facepalm Games ', 'Fireproof Games ', 'Fizbin', 'Frogwares', 'Galactic Cafe', 'GoldKnights Studio ', 'Grasshopper Manufacture ', 'Grip Games ', 'Gun Interactive', 'Headup Games ', 'House of Tales ', 'IF Games ', 'Image & Form ', 'Inevitable Entertainment ', 'Ironward ', 'James Interactive ', 'Joe Richardson ', 'LKA ', 'Leonard Menchiari ', 'Lexis Numerique ', 'Mana Games ', 'Mi'pu'mi Games ', 'Modern Storyteller ', 'Morbidityware ', 'Mouldy Toof Studios ', 'Neon Doctrine ', 'Nevrax ', 'Omni Creative Group ', 'One Bit Beyond ', 'Orthogonal Games ', 'Over The Moon ', 'Pewter Games Studios ', 'Pixelogic ', 'Playmestudio ', 'Plot Twist ', 'Point of View ', 'PostMod Softworks ', 'Power Struggle Games ', 'Puuba ', 'Questionary', 'Rusty Lake ', 'SKS Games', 'Sabotage Studio ', 'Serenity Forge ', 'Sever ', 'Shark Punch ', 'Shifting Tides ', 'Size Five Games ', 'Skookum Arts LLC', 'SkyGoblin ', 'Slitherine Software', 'Smoking Car Productions ', 'Spidersoft', 'Streko-Graphics Inc. ', 'Stubby Games ', 'Studio Seufz ', 'Super Mega Team', 'SuperSexySoftware ', 'Surreal Software ', 'Tale of Tales ', 'Team Gotham ', 'The Molasses Flood ', 'The Odd Gentlemen ', 'The Station ', 'The Voxel Agents ', 'Thunkd ', 'Tomas Sala ', 'Tragnarion Studios ', 'TwoPM Studios ', 'Ubisoft Blue Byte ', 'VRESKI ', 'ValuSoft ', 'White Owls ', 'White Paper Games ', 'Wonderstruck Games ', 'mif2000 ', 'neo Software ', 'tinyBuild'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 12% CPU time recently (threshold: 10%)

Epoch 1/20

224/224 [=====] - 17s 75ms/step - loss: 27.9383 - mae: 3.5252 - val_loss: 27.7506 - val_mae: 4.3756

Epoch 2/20

224/224 [=====] - 17s 76ms/step - loss: 19.7992 - mae: 2.8451 - val_loss: 26.7181 - val_mae: 4.3161

Epoch 3/20

224/224 [=====] - 17s 76ms/step - loss: 16.8220 - mae: 2.5221 - val_loss: 24.7054 - val_mae: 4.1354

Epoch 4/20

224/224 [=====] - 17s 76ms/step - loss: 15.1877 - mae: 2.3423 - val_loss: 24.6510 - val_mae: 4.2231

Epoch 5/20

224/224 [=====] - 17s 75ms/step - loss: 14.2452 - mae: 2.2282 - val_loss: 24.3171 - val_mae: 4.1944

Epoch 6/20

```

224/224 [=====] - 17s 75ms/step - loss: 12.7596 - mae:
2.1195 - val_loss: 23.7292 - val_mae: 4.1496
Epoch 7/20
224/224 [=====] - 17s 75ms/step - loss: 12.9526 - mae:
2.1023 - val_loss: 23.5204 - val_mae: 4.1490
Epoch 8/20
224/224 [=====] - 17s 75ms/step - loss: 11.7735 - mae:
1.9957 - val_loss: 23.7775 - val_mae: 4.1609
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 11.4216 - mae:
1.9740 - val_loss: 24.7179 - val_mae: 4.2188
Epoch 10/20
224/224 [=====] - 17s 75ms/step - loss: 11.8340 - mae:
1.9642 - val_loss: 24.3752 - val_mae: 4.2318
Epoch 11/20
224/224 [=====] - 17s 74ms/step - loss: 10.5645 - mae:
1.8490 - val_loss: 24.0732 - val_mae: 4.1852
Epoch 12/20
224/224 [=====] - 17s 74ms/step - loss: 10.2644 - mae:
1.8272 - val_loss: 23.7674 - val_mae: 4.1616

```

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Chunk 46/52 // 86.54% Complete // Cycle 3/3

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' CINIC Games ', ' Drool ', ' KRAFTON Inc. ', ' Kukouri Mobile
Entertainment ', 'AREA35 ', 'Adeline Software ', 'Alawar Premium ', 'Antagonist
', 'Battlefront.com', 'Black Pants ', 'Blendo Games ', 'Bulkhead Interactive ',
'C.I.N.I.C. Games', 'Camel 101 ', 'Can Explode ', 'Carbon Studio ', 'Click
Entertainment ', 'ComonGames ', 'Double Zero One Zero ', 'Draw Me A Pixel ',
'Expansive Worlds ', 'Falling Squirrel ', 'Flazm ', 'Gato Salvaje Studio ',
'HyperBole Studios ', 'Ice-Pick Lodge ', 'Iceberg Interactive', 'Iridium Studios
', 'Kite Games ', 'Minority Media Inc. ', 'Modern Dream ', 'Moonlight Kids ',
'Most Wanted Entertainment ', 'MuHa Games ', 'Numantian Games ', 'OverBorder
Studio ', 'Paintbucket Games ', 'Puuba ', 'Puzzling Dream ', 'Rogue Sun ', 'Ron
Gilbert and Gary Winnick ', 'Skybound LLC', 'Skydance Interactive ', 'Splashteam
', 'Spooky Squid Games ', 'SuperPAC ', 'Tin Man Games ', 'Trecision ', 'Urnique
Studio ', 'Zombie Cow Studios ', '[bracket]games ', 'damiansommer ', 'drool
Games', 'fragOut Studio'] will be ignored

```

```

    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time
recently (threshold: 10%)

```

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Epoch 1/20

222/222 [=====] - 17s 76ms/step - loss: 16.1320 - mae: 2.5843 - val_loss: 21.1386 - val_mae: 4.0051

Epoch 2/20

222/222 [=====] - 17s 75ms/step - loss: 9.9306 - mae: 1.8763 - val_loss: 19.8302 - val_mae: 3.8989

Epoch 3/20

222/222 [=====] - 17s 75ms/step - loss: 8.5437 - mae: 1.7058 - val_loss: 19.0635 - val_mae: 3.8544

Epoch 4/20

222/222 [=====] - 17s 75ms/step - loss: 8.3644 - mae: 1.6331 - val_loss: 18.3553 - val_mae: 3.8199

Epoch 5/20

222/222 [=====] - 17s 76ms/step - loss: 7.9201 - mae: 1.5853 - val_loss: 20.7854 - val_mae: 4.0813

Epoch 6/20

222/222 [=====] - 17s 75ms/step - loss: 7.3765 - mae: 1.4796 - val_loss: 20.0710 - val_mae: 3.9932

Epoch 7/20

222/222 [=====] - 17s 75ms/step - loss: 7.3048 - mae: 1.4669 - val_loss: 19.2516 - val_mae: 3.9257

Epoch 8/20

222/222 [=====] - 16s 74ms/step - loss: 6.7104 - mae: 1.4279 - val_loss: 20.7046 - val_mae: 4.1077

Epoch 9/20

222/222 [=====] - 17s 75ms/step - loss: 7.0376 - mae: 1.4155 - val_loss: 19.9139 - val_mae: 3.9907

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

Chunk 47/52 // 88.46% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es) ['

2K Sports ', ' Cherrymochi ', ' Pieces Interactive ', ' Ubisoft Paris ',

'49Games ', 'AGEOD ', 'Acid Nerve ', 'Aspyr', 'Cavedog Entertainment ',

'Cinemaware ', 'Core Design Ltd. ', 'Deadline Games ', 'Dual Effect ', 'Echtra

Games', 'Fireart Games ', 'Freebird Games ', 'GRIN', 'Humanature Studios ',

'Iron Lore Entertainment', 'Neversoft Entertainment ', 'OhNoo ', 'Pocketwatch

Games ', 'Red Storm Entertainment', 'SMAC Games ', 'Something We Made ',

'Swordtales ', 'Two Tribes ', 'Ubisoft Milan ', 'Ubisoft Singapore ', 'Vicarious

Visions ', 'dietzribi '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time

recently (threshold: 10%)

Epoch 1/20

228/228 [=====] - 18s 76ms/step - loss: 16.7067 - mae:
2.5491 - val_loss: 26.3823 - val_mae: 4.5168

Epoch 2/20

228/228 [=====] - 17s 75ms/step - loss: 9.7593 - mae:
1.7831 - val_loss: 25.5018 - val_mae: 4.4929

Epoch 3/20

228/228 [=====] - 17s 75ms/step - loss: 9.1409 - mae:
1.6284 - val_loss: 24.8497 - val_mae: 4.4926

Epoch 4/20

228/228 [=====] - 17s 75ms/step - loss: 8.3322 - mae:
1.5274 - val_loss: 23.1912 - val_mae: 4.3106

Epoch 5/20

228/228 [=====] - 17s 75ms/step - loss: 7.6964 - mae:
1.4253 - val_loss: 25.2420 - val_mae: 4.5300

Epoch 6/20

228/228 [=====] - 17s 76ms/step - loss: 7.3477 - mae:
1.3440 - val_loss: 23.6795 - val_mae: 4.3775

Epoch 7/20

228/228 [=====] - 17s 74ms/step - loss: 7.9265 - mae:
1.3533 - val_loss: 24.0878 - val_mae: 4.4688

Epoch 8/20

228/228 [=====] - 17s 75ms/step - loss: 6.9833 - mae:
1.2675 - val_loss: 22.3909 - val_mae: 4.2904

Epoch 9/20

228/228 [=====] - 17s 75ms/step - loss: 6.7409 - mae:
1.2389 - val_loss: 23.6418 - val_mae: 4.4512

Epoch 10/20

228/228 [=====] - 17s 75ms/step - loss: 6.7887 - mae:
1.2129 - val_loss: 22.1744 - val_mae: 4.2669

Epoch 11/20

228/228 [=====] - 17s 76ms/step - loss: 7.0071 - mae:
1.2589 - val_loss: 22.9714 - val_mae: 4.3606

Epoch 12/20

228/228 [=====] - 17s 75ms/step - loss: 6.9556 - mae:
1.2146 - val_loss: 22.7423 - val_mae: 4.3153

Epoch 13/20

228/228 [=====] - 17s 75ms/step - loss: 6.9074 - mae:
1.2295 - val_loss: 22.9746 - val_mae: 4.3415

Epoch 14/20

228/228 [=====] - 17s 75ms/step - loss: 6.1878 - mae:
1.1780 - val_loss: 23.1638 - val_mae: 4.3710

Epoch 15/20

228/228 [=====] - 17s 75ms/step - loss: 6.3643 - mae:
1.2006 - val_loss: 23.2074 - val_mae: 4.3531

distributed.utils_perf - WARNING - full garbage collections took 11% CPU time

recently (threshold: 10%)

Chunk 48/52 // 90.38% Complete // Cycle 3/3

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-  
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['  
Blackmill Games ', ' Crenetic Studios ', ' Duality Games ', ' Eurocom ', '  
Forever Entertainment ', ' Hotta Studio ', ' ML Enterprises ', ' Mercenary  
Technologies ', ' Reborn Games Inc. ', ' Revistronic ', ' Soleil Ltd. ', '  
Supergonk ', ' Talawa Games ', ' Team Toro ', ' Xeen ', ' btf ', '110  
Industries', '258 Productions AB ', '2By3 Games ', '2x2 Games ', '3000AD',  
'Action Button Entertainment ', 'Alien Pixel Studios ', 'Artdink ', 'Auran ',  
'Backwoods Entertainment ', 'Blue Manchu ', 'BlueGiant Interactive ', 'Brainy  
Studio LLC ', 'BreakAway Games ', 'Burut Software ', 'Celeris ', 'Chaos Concept  
, 'Coldwood Interactive ', 'Cordens Interactive ', 'Cowardly Creations ',  
'Crazy Viking Studios ', 'DNS Development ', 'Daydream Software ', 'Deep Red ',  
'Devespresso Games ', 'Draw Distance ', 'Duality Studio', 'Dumb and Fat Games ',  
'Dynamix ', 'Endless Fluff ', 'Eurocom Entertainment Software', 'Event Horizon  
Software ', 'Fatbot Games ', 'Feral Interactive ', 'Forever Entertainment S.A.',  
'Fragment Production Ltd', 'Frog City Software ', 'Game-Labs ', 'Games Farm ',  
'Gatling Goat Studios ', 'Gigawatt Studios ', 'Glass Heart Games ', 'Guild  
Software ', 'Headup Games', 'High Moon Studios', 'House House ', 'ISOMETRICORP  
Games ', 'JoyMasher ', 'KT Racing ', 'LEAP Game Studios ', 'Legend Entertainment  
, 'Luis Antonio ', 'Luxoflux', 'M2H', 'Maddy Thorson ', 'Magic Design Studios  
, 'Naughty Dog', 'Night Dive Studios ', 'Nihilistic ', 'Norsfell ', 'OhNoo ',  
'OtherSide Entertainment ', 'Outsider Games ', 'Owlchemy Labs ', 'Pixwerk ',  
'Propaganda Games ', 'Proxima Beta Europe B.V.', 'Pterodon ', 'Pyrodactyl Games  
, 'Rat King Entertainment ', 'Replay Studios', 'Revistonic', 'Rooster Teeth  
Games ', 'Sad Owl Studios ', 'SadSquare Studio ', 'SpectreVision ', 'Steel  
Mantis ', 'Stormling Studios ', 'Strange Loop Games ', 'Studio Pixel Punk ',  
'Stygian Software ', 'Subterranean Games ', 'Sukeban Games ', 'Supergonk Ltd.',  
'Tate Multimedia ', 'Teotl Studios', 'Terrible Posture Games ', 'Terry Cavanagh  
, 'Theta Division ', 'Trepang Studios ', 'Urban Games ', 'Variable State ',  
'Visai Games ', 'Wadjet Eye Games ', 'Whatboy Games ', 'Witch Beam ', 'Yukon  
Wainczak ', 'btf GmbH', 'poncle ', 'timesymmetry ', 'tobyfox '] will be ignored  
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))  
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time  
recently (threshold: 10%)  
distributed.utils_perf - WARNING - full garbage collections took 11% CPU time  
recently (threshold: 10%)
```

Epoch 1/20

224/224 [=====] - 17s 76ms/step - loss: 22.6322 - mae:
3.1955 - val_loss: 21.5113 - val_mae: 3.6889

Epoch 2/20

224/224 [=====] - 17s 74ms/step - loss: 14.1165 - mae:
2.3093 - val_loss: 20.1020 - val_mae: 3.6335

Epoch 3/20

224/224 [=====] - 17s 75ms/step - loss: 12.8833 - mae:

2.1305 - val_loss: 19.1845 - val_mae: 3.5368
Epoch 4/20
224/224 [=====] - 17s 74ms/step - loss: 11.3583 - mae: 1.9853 - val_loss: 19.5579 - val_mae: 3.6663
Epoch 5/20
224/224 [=====] - 17s 76ms/step - loss: 10.0630 - mae: 1.8348 - val_loss: 18.3981 - val_mae: 3.5391
Epoch 6/20
224/224 [=====] - 17s 75ms/step - loss: 9.7915 - mae: 1.7739 - val_loss: 18.5192 - val_mae: 3.5421
Epoch 7/20
224/224 [=====] - 17s 76ms/step - loss: 9.7677 - mae: 1.7643 - val_loss: 18.5580 - val_mae: 3.5539
Epoch 8/20
224/224 [=====] - 17s 75ms/step - loss: 9.7307 - mae: 1.7624 - val_loss: 18.6710 - val_mae: 3.5342
Epoch 9/20
224/224 [=====] - 17s 75ms/step - loss: 9.9699 - mae: 1.7781 - val_loss: 18.8870 - val_mae: 3.6580
Epoch 10/20
224/224 [=====] - 17s 76ms/step - loss: 8.5325 - mae: 1.6398 - val_loss: 18.1730 - val_mae: 3.5869
Epoch 11/20
224/224 [=====] - 17s 74ms/step - loss: 8.7801 - mae: 1.6508 - val_loss: 17.9467 - val_mae: 3.5152
Epoch 12/20
224/224 [=====] - 17s 75ms/step - loss: 9.1583 - mae: 1.6865 - val_loss: 18.6621 - val_mae: 3.6417
Epoch 13/20
224/224 [=====] - 17s 75ms/step - loss: 8.8846 - mae: 1.6305 - val_loss: 18.3814 - val_mae: 3.5919
Epoch 14/20
224/224 [=====] - 17s 75ms/step - loss: 8.6045 - mae: 1.6267 - val_loss: 16.8215 - val_mae: 3.3594
Epoch 15/20
224/224 [=====] - 17s 75ms/step - loss: 8.1011 - mae: 1.5546 - val_loss: 16.8590 - val_mae: 3.4128
Epoch 16/20
224/224 [=====] - 17s 76ms/step - loss: 8.2572 - mae: 1.5169 - val_loss: 18.7793 - val_mae: 3.6771
Epoch 17/20
224/224 [=====] - 17s 75ms/step - loss: 8.1269 - mae: 1.5403 - val_loss: 18.4969 - val_mae: 3.5347
Epoch 18/20
224/224 [=====] - 17s 75ms/step - loss: 8.9481 - mae: 1.5821 - val_loss: 17.9562 - val_mae: 3.5038
Epoch 19/20
224/224 [=====] - 17s 75ms/step - loss: 7.9630 - mae:

```

1.5167 - val_loss: 18.1496 - val_mae: 3.5576

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 49/52 // 92.31% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Dream Execution ', 'Fatshark AB ', 'GabberGames ', 'Third Wave Games '] will
be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Epoch 1/20
212/212 [=====] - 16s 75ms/step - loss: 8.9052 - mae:
1.8546 - val_loss: 8.8109 - val_mae: 2.8842
Epoch 2/20
212/212 [=====] - 16s 75ms/step - loss: 2.3625 - mae:
0.9744 - val_loss: 8.9329 - val_mae: 2.8676
Epoch 3/20
212/212 [=====] - 16s 75ms/step - loss: 1.6655 - mae:
0.7555 - val_loss: 9.2493 - val_mae: 2.9094
Epoch 4/20
212/212 [=====] - 16s 75ms/step - loss: 1.2670 - mae:
0.6554 - val_loss: 8.9738 - val_mae: 2.8534
Epoch 5/20
212/212 [=====] - 16s 75ms/step - loss: 1.0560 - mae:
0.6082 - val_loss: 9.4138 - val_mae: 2.9300
Epoch 6/20
212/212 [=====] - 16s 74ms/step - loss: 1.1389 - mae:
0.5665 - val_loss: 9.4899 - val_mae: 2.9491

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

Chunk 50/52 // 94.23% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Behaviour Interactive ', ' Flashback Games ', ' Toylogic ', 'Auroch Digital ',
'Behaviour Interactive Inc.', 'Black Cactus ', 'Black Lab Games ', 'Bulwark
Studios ', 'Chucklefish ', 'Complex Games Inc. ', 'Games Workshop ', 'Gasket
Games ', 'Hammerfall Publishing ', 'Kuju Entertainment ', 'Paradox Interactive',
'Pixelated Milk ', 'Playwood Project ', 'Proxy Studios ', 'Rodeo Games ', 'Shiro
Games ', 'Strategic Studies Group ', 'Strayllight Entertainment ', 'The Lordz
Games Studio', 'Toylogic Inc.', 'Trapdoor '] will be ignored
    "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

```

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

213/213 [=====] - 16s 75ms/step - loss: 11.8192 - mae: 2.2654 - val_loss: 13.3182 - val_mae: 3.1682

Epoch 2/20

213/213 [=====] - 16s 75ms/step - loss: 6.7087 - mae: 1.5127 - val_loss: 12.9854 - val_mae: 3.1416

Epoch 3/20

213/213 [=====] - 16s 75ms/step - loss: 6.4037 - mae: 1.4053 - val_loss: 13.2909 - val_mae: 3.1960

Epoch 4/20

213/213 [=====] - 16s 77ms/step - loss: 5.6969 - mae: 1.2829 - val_loss: 13.1800 - val_mae: 3.1838

Epoch 5/20

213/213 [=====] - 16s 75ms/step - loss: 5.6326 - mae: 1.2513 - val_loss: 12.8804 - val_mae: 3.1139

Epoch 6/20

213/213 [=====] - 16s 75ms/step - loss: 5.3647 - mae: 1.2003 - val_loss: 13.6590 - val_mae: 3.2159

Epoch 7/20

213/213 [=====] - 16s 76ms/step - loss: 4.5298 - mae: 1.1314 - val_loss: 12.6755 - val_mae: 3.0611

Epoch 8/20

213/213 [=====] - 16s 74ms/step - loss: 4.4561 - mae: 1.0650 - val_loss: 12.9150 - val_mae: 3.1034

Epoch 9/20

213/213 [=====] - 16s 76ms/step - loss: 4.6596 - mae: 1.0728 - val_loss: 12.6473 - val_mae: 3.1064

Epoch 10/20

213/213 [=====] - 16s 75ms/step - loss: 4.4395 - mae: 1.0418 - val_loss: 13.7242 - val_mae: 3.1738

Epoch 11/20

213/213 [=====] - 16s 75ms/step - loss: 4.3980 - mae: 1.0011 - val_loss: 13.1953 - val_mae: 3.1283

Epoch 12/20

213/213 [=====] - 16s 75ms/step - loss: 4.1656 - mae: 0.9768 - val_loss: 13.0279 - val_mae: 3.1631

Epoch 13/20

213/213 [=====] - 16s 74ms/step - loss: 4.5006 - mae: 1.0007 - val_loss: 12.9450 - val_mae: 3.1690

Epoch 14/20

213/213 [=====] - 16s 75ms/step - loss: 3.9948 - mae: 0.9509 - val_loss: 13.3504 - val_mae: 3.1554

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time

recently (threshold: 10%)

Chunk 51/52 // 96.15% Complete // Cycle 3/3

y:\ML\Anaconda\envs\TF-GPU\lib\site-

```
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
In Images ', ' Persha Studia ', ' Visual Concepts ', '5 Lives Studios ',
'Alientrap ', 'Asymmetric Publications ', 'B-Alive ', 'Clifftop Games ',
'Cornered Rat ', 'Deadline Games ', 'Deadpan Games ', 'Different Tales ', 'Dim
Bulb Games ', 'Direct Action Games ', 'DotEmu ', 'EVC ', 'Eden Industries ',
'Fast Travel Games ', 'Funomena ', 'G5 Software ', 'Gameyus Interactive ',
'Genius Slackers ', 'Ghost Pattern ', 'Giant Sparrow ', 'GriN Multimedia ',
'Heuristic Park ', 'KT Racing ', 'Knuist & Perzik ', 'Masque Publishing ', 'Mega
Cat Studios ', 'Mojiken Studio ', 'Monokel ', 'Moonshark ', 'Night Light
Interactive ', 'Nine Rocks Games ', 'OSome Studio ', 'Ostrich Banditos ', 'Ota
Imon Studios ', 'Polyslash ', 'Ratbag ', 'Santa Ragione ', 'Silver Wish Games ',
'Sir-Tech Software Inc. ', 'Sneaky Bastards ', 'Snowed In Studios ', 'Studio
Drydock Pty Ltd ', 'Synetic ', 'Take-Two Interactive', 'Tasharen Entertainment
', 'The Bitmap Brothers ', 'Third Wire ', 'Tigon ', 'Total Mayhem Games ',
'Triband ', 'Triple Topping Games ', 'Twisted Pixel Games ', 'Upstream Arcade ',
'Vile Monarch ', 'Wastelands Interactive ', 'Whale Rock Games ', 'Wide Games ',
'Winning Streak Games ', 'Wolcen Studio ', 'Wolfeye Studios ', 'Worldwalker
Games ', 'Zuxxez', 'imaginarylab '] will be ignored
```

```
"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)
```

Epoch 1/20

228/228 [=====] - 17s 75ms/step - loss: 22.3174 - mae: 3.0354 - val_loss: 22.6371 - val_mae: 3.8165

Epoch 2/20

228/228 [=====] - 17s 75ms/step - loss: 15.2918 - mae: 2.3999 - val_loss: 24.0463 - val_mae: 4.0801

Epoch 3/20

228/228 [=====] - 17s 75ms/step - loss: 12.2950 - mae: 2.0961 - val_loss: 23.2835 - val_mae: 3.9970

Epoch 4/20

228/228 [=====] - 17s 75ms/step - loss: 11.2509 - mae: 1.9793 - val_loss: 23.6823 - val_mae: 4.0594

Epoch 5/20

228/228 [=====] - 17s 75ms/step - loss: 9.9033 - mae: 1.8182 - val_loss: 21.9559 - val_mae: 3.9548

Epoch 6/20

228/228 [=====] - 17s 74ms/step - loss: 9.5943 - mae: 1.7453 - val_loss: 20.5055 - val_mae: 3.8025

Epoch 7/20

228/228 [=====] - 17s 76ms/step - loss: 8.7207 - mae:

```

1.6818 - val_loss: 20.5078 - val_mae: 3.7649
Epoch 8/20
228/228 [=====] - 17s 76ms/step - loss: 8.5750 - mae:
1.6594 - val_loss: 20.6700 - val_mae: 3.7633
Epoch 9/20
228/228 [=====] - 17s 76ms/step - loss: 7.8274 - mae:
1.5857 - val_loss: 21.0575 - val_mae: 3.8426
Epoch 10/20
228/228 [=====] - 17s 75ms/step - loss: 8.5363 - mae:
1.5661 - val_loss: 20.4247 - val_mae: 3.7606
Epoch 11/20
228/228 [=====] - 17s 75ms/step - loss: 7.6365 - mae:
1.5008 - val_loss: 19.9959 - val_mae: 3.7267
Epoch 12/20
228/228 [=====] - 17s 75ms/step - loss: 7.5133 - mae:
1.4718 - val_loss: 20.0376 - val_mae: 3.6803
Epoch 13/20
228/228 [=====] - 17s 75ms/step - loss: 6.9132 - mae:
1.4521 - val_loss: 21.4893 - val_mae: 3.8922
Epoch 14/20
228/228 [=====] - 17s 75ms/step - loss: 6.9977 - mae:
1.4109 - val_loss: 20.9061 - val_mae: 3.8047
Epoch 15/20
228/228 [=====] - 17s 75ms/step - loss: 8.2897 - mae:
1.4730 - val_loss: 19.6361 - val_mae: 3.6546
Epoch 16/20
228/228 [=====] - 17s 75ms/step - loss: 6.3739 - mae:
1.3101 - val_loss: 20.9019 - val_mae: 3.7969
Epoch 17/20
228/228 [=====] - 17s 76ms/step - loss: 7.3894 - mae:
1.4180 - val_loss: 18.8232 - val_mae: 3.6230
Epoch 18/20
228/228 [=====] - 17s 75ms/step - loss: 7.2392 - mae:
1.3421 - val_loss: 20.9615 - val_mae: 3.7933
Epoch 19/20
228/228 [=====] - 17s 76ms/step - loss: 6.5918 - mae:
1.3276 - val_loss: 21.8955 - val_mae: 3.9147
Epoch 20/20
228/228 [=====] - 17s 75ms/step - loss: 6.6713 - mae:
1.3483 - val_loss: 21.5161 - val_mae: 3.8124

```

```

distributed.utils_perf - WARNING - full garbage collections took 10% CPU time
recently (threshold: 10%)

```

```

Chunk 52/52 // 98.08% Complete // Cycle 3/3

```

```

y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
Goldhawk Interactive ', ' KADOKAWA CORPORATION ', ' Lab42 ', ' Mandel ArtPlains

```

', ' Sumo Digital Academy ', ' comcept ', '1P2P ', 'Ackkstudios ', 'Baroque Decay ', 'Brave at Night ', 'Crocodile Entertainment ', 'Digital Spray Studios', 'EXOR Studios ', 'Gamedust ', 'Gamethunks', 'Impressions Games ', 'Jellyvision ', 'Kadokawa', 'Livesay Technologies ', 'MicroProse ', 'Moonbite Games ', 'NoClip ', 'PlayMagic Ltd ', 'Prideful Sloth ', 'Rimlight Studios ', 'Ruud Koorevaar ', 'Ryu ga Gotoku Studios', 'Simogo ', 'Spark Unlimited', 'Spike Chunsoft ', 'Sumo Digital', 'Unicorn Games Studio ', 'Villa Gorilla ', 'WXP ', 'frecle ApS '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)

Epoch 1/20

77/77 [=====] - 6s 77ms/step - loss: 29.6564 - mae: 3.4187 - val_loss: 40.0114 - val_mae: 5.3970

Epoch 2/20

77/77 [=====] - 6s 76ms/step - loss: 17.3319 - mae: 2.4767 - val_loss: 33.7028 - val_mae: 4.9802

Epoch 3/20

77/77 [=====] - 6s 76ms/step - loss: 16.8575 - mae: 2.3113 - val_loss: 34.1649 - val_mae: 4.9958

Epoch 4/20

77/77 [=====] - 6s 75ms/step - loss: 13.6008 - mae: 2.0189 - val_loss: 32.6427 - val_mae: 5.0028

Epoch 5/20

77/77 [=====] - 6s 75ms/step - loss: 11.8931 - mae: 1.8864 - val_loss: 32.0052 - val_mae: 4.9696

Epoch 6/20

77/77 [=====] - 6s 75ms/step - loss: 11.2721 - mae: 1.8535 - val_loss: 32.8839 - val_mae: 5.0433

Epoch 7/20

77/77 [=====] - 6s 74ms/step - loss: 11.2571 - mae: 1.7990 - val_loss: 31.6614 - val_mae: 4.9345

Epoch 8/20

77/77 [=====] - 6s 76ms/step - loss: 10.9282 - mae: 1.6513 - val_loss: 33.7027 - val_mae: 5.1120

Epoch 9/20

77/77 [=====] - 6s 79ms/step - loss: 10.3531 - mae: 1.5944 - val_loss: 33.3432 - val_mae: 5.0971

Epoch 10/20

77/77 [=====] - 6s 76ms/step - loss: 9.7614 - mae: 1.6083 - val_loss: 33.3211 - val_mae: 5.0960

Epoch 11/20

77/77 [=====] - 6s 77ms/step - loss: 10.0851 - mae: 1.5404 - val_loss: 33.0616 - val_mae: 5.1094

Epoch 12/20

```
77/77 [=====] - 6s 75ms/step - loss: 9.4254 - mae:
1.5209 - val_loss: 32.2088 - val_mae: 5.0677
```

E. Data Summary and Implications - The data analysis revealed significant relationships between pre-release and early-release information and the overall user ratings. The model showed decent predictive performance, with reasonable values for MSE, MAE, and R2 that suggest that although the model has room for improvement, it can provide useful predictions. One limitation of the analysis is that it relies on historical data, some of which is somewhat dated now, so it may not fully capture evolving trends in the video game industry. It is recommended that the model be further refined, so that game developers and publishers can use the model to optimize pre-release and early-release strategies, such as improving initial reviews and targeting popular genres and platforms, to enhance overall user reception. - Future studies could include social media sentiment analysis to capture more real-time and dynamic user opinions. - Additionally, expanding the dataset to include more recent games and additional platforms could improve the model's relevance and accuracy.

```
[22]: mcMSE, mcMAE, mcR2 = EvaluateMCModel(mcMod, mcScaler, mcTokenizer, maxSeqLen,
      ↪uniqueLabels)
      print(f"Evaluation -- MSE: {mcMSE}, MAE: {mcMAE}, R2: {mcR2}")
```

```
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es)
['Text'] will be ignored
  "unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
y:\ML\Anaconda\envs\TF-GPU\lib\site-
packages\sklearn\preprocessing\_label.py:876: UserWarning: unknown class(es) ['
1C', ' 343 Industries ', ' Acclaim Studios Manchester ', ' Animation Arts ', '
Application Systems Heidelberg ', ' Atari SA ', ' B.B.Studio ', ' Behaviour
Interactive ', ' Bigben Games ', ' Bigben Interactive', ' Bitworks ', ' Capcom
Vancouver ', ' Cape Guy ', ' Cauldron Ltd. ', ' Cherrymochi ', ' Cognosphere ',
' Creative Business Unit III ', ' Crows Crows Crows ', ' Deep Silver Fishlabs ',
' Devoured Studios ', ' Digital Sun ', ' Dlala Studios ', ' Do My Best Games ',
' Dose', ' EA Singapore ', ' EA Vancouver ', ' Elbow Rocket ', ' Elemental
Games', ' Endnight Studios ', ' Eurocom ', ' Flashback Games ', ' Florian Himsl
', ' Fullbright ', ' FunHouse ', ' Funatics ', ' Funatics Software', ' Furious
Bee ', ' Gaming Minds Studios ', ' Goldhawk Interactive ', ' Gone North Games ',
' Grove Street Games ', ' Hopoo Games ', ' Hotta Studio ', ' Infinite
Interactive ', ' Introversion Software ', ' Joshua Nuernberger ', ' King Art
Games ', ' Kitty', ' Koalabs ', ' Koei Tecmo Games ', ' LandFall ', ' M2H &
BlackMill Games ', ' Mercenary Technologies ', ' MicroProse', ' Ministry of
Broadcast Studios ', ' Minority Media Inc. ', ' Mixed Realms ', ' Movie Games ',
' Novacore Studios ', ' ONEOONE GAMES ', ' Omen ', ' Out of the Blue Games S.L.
', ' Point Blank ', ' Project Soul ', ' Rabbit & Bear Studios ', ' Rockstar San
Diego ', ' Sega', ' Sky Fallen', ' Spike Chunsoft ', ' Splash Damage', ' Squad
', ' Talawa Games ', ' Team 6 Games Studio ', ' TimeGate Studios ', ' Ubisoft
Paris ', ' Vlambeer ', ' Voidpoint', ' Xaviant ', ' and JW ', '101%', '11 bit
studios', '17-Bit ', '1C-Softclub ', '1C:Ino-Co ', '258 Productions AB ', '3D
Realms', '3D Realms ', '4X Studios ', '5 Lives Studios ', '7 Studios ', '8Monkey
```


Labs ', 'A44 ', 'AWE Games ', 'Abbey Games ', 'Access Games ', 'Accidental
 Queens ', 'Acclaim', 'Acid Nerve ', 'Acid Wizard Studio ', 'Acme Gamestudio ',
 'Action Squad Studios ', 'Activision', 'Akabaka ', 'Alientrap ', 'Almost Human
 ', 'Alt Shift ', 'Alter Games ', 'Amanita Design ', 'Angel Studios', 'Anim-X ',
 'Anshar Studios ', 'Appeal', 'Application Systems Heidelberg Software GmbH',
 'Artifice Studio ', 'Artificer ', 'Artisan Studios ', 'Arxel Tribe ', 'Ascendant
 Studios ', 'Askiisoft ', 'Atari', 'Aterdux Entertainment ', 'AtomTeam ', 'Auran
 ', 'Auroch Digital ', 'Awfully Nice Studios ', 'Balancing Monkey Games ',
 'Bandai Namco Games', 'Banpresto', 'Battlefront.com', 'Beethoven & Dinosaur ',
 'Behaviour Interactive Inc.', 'BestGameEver.com ', 'Biart ', 'Big Robot Ltd ',
 'Big Star Games ', 'Big Time Software ', 'Bit Blot ', 'Bkom ', 'Black Cactus ',
 'Black Element ', 'Black Matter ', 'Black Mesa Modification Team ', 'Black Pants
 ', 'Black Rock Studio ', 'Black Salt Games ', 'Black Sea Studios ', 'Blackpowder
 Games ', 'Blendo Games ', 'Blue Castle Games ', 'Blue Manchu ', 'Blue Omega ',
 'Bossa Studios ', 'Boxed Dream ', 'Brace Yourself Games ', 'Brat Designs ',
 'Brave at Night ', 'Breaking Walls ', 'Broken Rules ', 'Buckshot Software ',
 'BudCat ', 'Bullfrog Productions ', 'Bulwark Studios ', 'Byte Barrel ', 'CBE
 software ', 'CCCP ', 'CCR', 'Caged Element Inc. ', 'Camel 101 ', 'Campo Santo ',
 'Capricia Productions ', 'Cardboard Computer ', 'Carlos Coronado ', 'Casey
 Donnellan Games LLC ', 'Causal Bit Games ', 'Cavedog Entertainment ', 'Cellar
 Door Games ', 'Chaos Concept ', 'Chaosmonger Studio ', 'Chasing Carrots ',
 'Chronic Logic ', 'Chucklefish', 'Chucklefish ', 'Cinemaware ', 'Codemasters
 Birmingham ', 'Cold Iron Studios ', 'Coldwood Interactive ', 'Colibri Games ',
 'ComonGames ', 'Complex Games Inc. ', 'Continuum ', 'Convoy Games ', 'Core
 Design Ltd. ', 'Cornered Rat ', 'Crate Entertainment ', 'Creative Bytes ',
 'CreativeForge Games ', 'Croteam', 'Curve Studios ', 'Cyberlore Studios ', 'DNS
 Development ', 'Daedalic Studio West ', 'Dancing Dragon games ', 'Daniel Mullins
 Games ', 'Dark Energy Digital ', 'Dark Seas Games ', 'Data Becker ', 'Davey
 Wreden ', 'Dead Mage Studio ', 'Defiant Development ', 'Dejobaan Games ',
 'Demagog Studio ', 'Demruth ', 'Denki ', 'Destineer ', 'Destroyer Studios ',
 'Devespresso Games ', 'Die Gute Fabrik ', 'Digital Arrow ', 'Digital
 Confectioners ', 'Digital Eclipse ', 'Digital Sun ', 'Digitalo Studios ',
 'Digixart Entertainment', 'Dim Bulb Games ', 'Dinosaur Polo Club ', 'Disney
 Interactive Studios ', 'Disney Online ', 'Draw Distance ', 'Draw Me A Pixel ',
 'Dreadbit ', 'Dreams Uncorporated ', 'DrinkBox Studios ', 'Dynamix ', 'EA Black
 Box', 'EA Pacific ', 'EA Sports', 'EKO Software ', 'Ebb Software ', 'Eden
 Industries ', 'Eden Studios ', 'Edmund McMillen', 'Elastic Games ', 'Embers ',
 'Enhance Games ', 'Enigami ', 'Enlight Software', 'Eurocom Entertainment
 Software', 'Event Horizon Software ', 'Exbleative ', 'FAKT Software ',
 'Facepunch Studios ', 'Fatshark AB ', 'Feral Cat Den ', 'Fiddlesticks Games ',
 'Final Strike Games ', 'Fireglow ', 'Fireplace Games ', 'Fishing Cactus ',
 'Fishlabs', 'Fizz Factor ', 'Flaming Fowl Studios ', 'Flashback Games ',
 'Flippfly ', 'Fluent ', 'Flying Lab Software ', 'Fort Triumph LTD ', 'Four
 Quarters ', 'Free Lives ', 'Freebird Games ', 'Freeform Interactive LLC ', 'Frog
 City Software ', 'Funatics Development GmbH', 'Fusionsphere Systems', 'Future
 Games ', 'G5 Software ', 'GRIN', 'Galactic Cafe', 'Game Grumps ', 'Gamepires ',
 'Gamethunks', 'Gaming Minds Studios ', 'Gatling Goat Studios ', 'Gazillion ',
 'Genius Slackers ', 'Geography of Robots ', 'Ghost Pattern ', 'Ghost Ship Games

, 'Giant Sparrow ', 'GlyphX Games ', 'GolemLabs ', 'Greenheart Games ', 'Greg Lobanov ', 'Greylock Studio ', 'GriN Multimedia ', 'Grinding Gear Games ', 'Grip Digital ', 'Grip Games ', 'HandyGames ', 'Harebrained Schemes LLC ', 'Harvester Games ', 'Hato Moa ', 'Heatwave Interactive ', 'Herobeat Studios ', 'Hibernian Workshop ', 'High Moon Studios', 'Himalaya Studios ', 'Homeless Unicorn', 'HopFrog ', 'House House ', 'House of Tales ', 'Housemarque ', 'Hydravision ', 'IF Games ', 'IMC Games ', 'ION LANDS ', 'IR Gurus ', 'ISOMETRICORP Games ', 'Ice-Pick Lodge ', 'Illusion Ray Studio ', 'In Utero ', 'InGame Studios ', 'Infinite Fall ', 'Innerloop ', 'Innerspace VR ', 'Interceptor Entertainment ', 'Interwave Studios ', 'Inti Creates ', 'Introversion', 'Investigate North ', 'Iron Tower Studio ', 'Jacob Antonucci', 'Jacob Dzwinel ', 'Jagex Games Studio ', 'Jesse Makkonen ', 'Joe Richardson ', 'JoyMasher ', 'Juice Games ', 'Jump Over The Age ', 'K-D Lab ', 'KCEJ ', 'KDV Games ', 'KING Art', 'KT Racing ', 'Kaos Studios ', 'Keen Software House ', 'Kiro'o Games ', 'Kitfox Games ', 'Koboldgames ', 'Kuju Entertainment ', 'LEAP Game Studios ', 'LKA ', 'LandFall Games', 'Lazy Bear Games ', 'Le Cartel Studio ', 'Leaping Lizard Software Inc. ', 'Legend Entertainment ', 'Level 5 ', 'Lexis Numerique ', 'Lienzo ', 'Lightbulb Crew ', 'Lightning Rod Games ', 'Limassee Five ', 'Lince Works ', 'Lionbite Games ', 'Little Green Men ', 'Lo-Fi Games ', 'Logic Artists ', 'Lucas Pope ', 'Ludeon Studios ', 'Luis Antonio ', 'Luxoflux', 'M2H', 'MINT ROCKET ', 'MONKEYCRAFT Co. Ltd. ', 'Mad Head Games ', 'Maddy Makes Games ', 'Magic Lantern ', 'Magnum Games ', 'Mandragora ', 'Massive Development ', 'Massive Monster ', 'Massive Work Studio ', 'Matthias Linda ', 'Mega Crit Games ', 'Metamorf Studios ', 'Metropolis Software ', 'Microids', 'MidBoss ', 'Might and Delight ', 'Mighty Polygon ', 'Minds-Eye Productions ', 'Mindware Studios ', 'Minority', 'Misfits Attic ', 'Mixed Realms Pte Ltd', 'Mode 7 Games ', 'Modern Storyteller ', 'Monolith Productions', 'Monomi Park ', 'Moon Spider Studio ', 'Moonlight Games ', 'Moonlight Kids ', 'Moonshark ', 'Moepful Games ', 'Morteshka ', 'Mossmouth', 'Mothership Entertainment ', 'Motion Twin ', 'Mouldy Toof Studios ', 'Movie Games S.A.', 'Muro Studios Ltd. ', 'Muse Games ', 'Mystic Box ', 'Mythic Entertainment ', 'NATSUME ATARI Inc.', 'NExT Studios ', 'NGD Studios ', 'NVYVE Studios ', 'Naked Sky Entertainment ', 'Namco Bandai Games ', 'Naughty Dog', 'Necrophone ', 'Nemesys ', 'Neon Doctrine ', 'Neon Giant ', 'Nerial ', 'NetDevil ', 'Neversoft Entertainment', 'Neversoft Entertainment ', 'New Blood Interactive ', 'New World Computing ', 'Nicalis ', 'Nicolas Intoxicate ', 'Nihilistic ', 'Nine Rocks Games ', 'Northway Games ', 'NotGames ', 'Nvizzio Creations ', 'OhNoo ', 'Okomotive ', 'Old Moon ', 'Omega Force', 'One Bit Beyond ', 'Osmotic Studios ', 'Ostrich Banditos ', 'Out Of The Park Developments ', 'Out of the Blue', 'Outrage Games ', 'OverBorder Studio ', 'Ovosonico ', 'Owlcat Games ', 'Owlchemy Labs ', 'Owned by Gravity ', 'Panic Barn Ltd ', 'Parabole ', 'Paradox Interactive', 'Paradox North ', 'Paragon Studios ', 'Pathea Games ', 'Pencil Test Studios ', 'Perfect World Entertainment ', 'Phobia Game Studio ', 'Phosphor Games Studio', 'Pieces Interactive ', 'Pinkerton Road Studio ', 'Pinokl Games ', 'Piranha Games ', 'Pixel Crow ', 'Pixelated Milk ', 'Planet Moon Studios ', 'Plastic Piranha ', 'PlayMagic Ltd ', 'Plot Twist ', 'Pocketwatch Games ', 'Point Blank Games', 'Pollux Gamelabs ', 'PolyKnight Games ', 'Polygon Treehouse ', 'Polyslash ', 'Positech Games ', 'Press Play ', 'Prideful Sloth ', 'Proxima Beta Europe B.V.', 'Pterodon ', 'Punch Punk Games ', 'Puuba ', 'QLOC ',

'ROCKFISH Games ', 'Radical Fish Games ', 'Radon Labs ', 'Rare Ltd.', 'Rayland Interactive ', 'Ready at Dawn ', 'Red Candle Games ', 'Red Ego Games ', 'Red Redemption ', 'Red Thread Games ', 'RedRuins Softworks ', 'Reflections Interactive ', 'Reply Game Studios ', 'Resolution Games ', 'Revival Productions', 'Rewolf Software ', 'Robot House ', 'Robot Loves Kitty ', 'Rogue Factor ', 'Rogue Sun ', 'Ron Gilbert and Gary Winnick ', 'Rotobee ', 'S&G Software ', 'SKS Games', 'SQUADTeam', 'SSI ', 'Sabotage Studio ', 'Sam Barlow', 'Sam Barlow ', 'Sandbox Interactive ', 'Sanzaru ', 'Sassybot ', 'Scott Cawthon ', 'Secret Level ', 'Sector D2 ', 'Sega AM2 ', 'Serious Brew ', 'Sever ', 'Shed-Works ', 'Shining Rock Software ', 'Shiny Shoe ', 'Shiro Games ', 'Shiver Games ', 'Sierra Entertainment ', 'Silent Dreams ', 'Silver Style ', 'SimTex ', 'Ska Studios', 'Skrollcat Studios ', 'Sky Fallen ', 'Skydance Interactive ', 'Skyshine Games ', 'Sloclap ', 'Snapshot Games Inc. ', 'Snowbird Game Studios ', 'Snowhound Games ', 'SomaSim ', 'Something Classic Games LLC ', 'Something We Made ', 'Sorath ', 'Sourcenext ', 'SouthPeak Games ', 'Spaces of Play ', 'Spearhead Games ', 'Spellbind Studios ', 'Spike Chunsoft ', 'Spike Chunsoft Co. Ltd.', 'Spry Fox ', 'Stormfront Studios ', 'Strangelite ', 'Strayllight Entertainment ', 'Studio Drydock Pty Ltd ', 'Studio Pixel ', 'Stunlock Studios ', 'Stygian Software ', 'Sukeban Games ', 'Sumo Digital', 'Supersonic Software ', 'Surreal Software ', 'Swordtales ', 'System Era Softworks ', 'Tactical Adventures ', 'Tag of Joy ', 'Taito Corporation ', 'Taldren ', 'Tale of Tales ', 'Targem Games ', 'Tasharen Entertainment ', 'Team Gotham ', 'Team Ninja', 'Team Reptile ', 'Team Salvato ', 'Team6 Game Studios', 'Teku Studios ', 'Teotl Studios', 'Terri', 'Terry Cavanagh ', 'The Behemoth ', 'The Chinese Room ', 'The Collective ', 'The Fullbright Company', 'The Fullbright Company ', 'The Lordz Games Studio', 'The Outsiders ', 'The Parasight ', 'The Tiniest Shark ', 'The Wandering Band LLC ', 'The Wild Gentlemen ', 'Thing Trunk ', 'ThinkingStars ', 'Third Law Interactive ', 'Threaks ', 'Three Fields Entertainment ', 'Timeline Computer Entertainment ', 'Tindalos Interactive ', 'Toge Productions ', 'Tom Francis ', 'Tom Happ ', 'Tomasz Wacławek ', 'Tomorrow Corporation ', 'Torpor Games ', 'Totally Games ', 'Tour De Pizza ', 'Toxic Games ', 'Trepang Studios ', 'Tribute Games ', 'Trine Games ', 'Twisted Pixel Games ', 'Ublart Montpellier ', 'Ubisoft Blue Byte ', 'Ubisoft Bordeaux ', 'Ubisoft Milan ', 'Ubisoft Montreal', 'Ubisoft Singapore ', 'Ubisoft Sofia ', 'Ultimation Inc. ', 'Ultra Runaway Games ', 'Unicube ', 'Untame ', 'Uprising Studios ', 'Urban Games ', 'Vanguard', 'Variable State ', 'Vblank Entertainment Inc. ', 'Veewo Games ', 'Velan Studios ', 'Visiware Studios ', 'Vitamin G Studios ', 'Vlambeer ', 'Voracious Games ', 'Wadjet Eye Games', 'Wadjet Eye Games ', 'White Rabbit Interactive ', 'Wideload Games Inc. ', 'Wishfully ', 'Wizards of the Coast ', 'Wolcen Studio ', 'Wonderstruck Games ', 'WorldForge ', 'Worldwalker Games ', 'Wube Software LTD. ', 'X1 Software ', 'XXV Productions ', 'Xaviant Games', 'Zeboyd Games ', 'Zero Sum Games ', 'Zoink! ', 'animdude ', 'comcept ', 'damiansommer ', 'inkle', 'miHoYo', 'roll7 ', 'rose-engine ', 'superflat games ', 'tinyBuild', 'tobyfox ', 'xii games '] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time recently (threshold: 10%)
distributed.utils_perf - WARNING - full garbage collections took 10% CPU time

recently (threshold: 10%)

Evaluation -- MSE: 119.35368347167969, MAE: 8.38284683227539, R2:
0.1009657202754819

```
[24]: inData = {  
    "Game Release Date": "27-Feb-25",  
    "Game Developer": "Nintendo",  
    "Genre": "Genre(s):Miscellaneous,Puzzle,Action,Platformer",  
    "Platforms": "PlayStation5,Switch,PC",  
    "Product Rating": "T",  
    "Overall Metascore": 80,  
    "Overall User Rating": "8.5",  
    "Rating Given By The Reviewer": "8",  
    "Review Text": "The open-world gameplay is makes this platformer highly_  
    ↪enjoyable."  
}  
mcPred = PredictMetascore(mcMod, mcTokenizer, mcScaler, maxSeqLen, inData)  
print(f"Predicted Metascore: {mcPred[0][0]}")
```

y:\ML\Anaconda\envs\TF-GPU\lib\site-

packages\sklearn\preprocessing_label.py:876: UserWarning: unknown class(es)
['Nintendo'] will be ignored

"unknown class(es) {0} will be ignored".format(sorted(unknown, key=str))

distributed.utils_perf - WARNING - full garbage collections took 12% CPU time

recently (threshold: 10%)

distributed.utils_perf - WARNING - full garbage collections took 12% CPU time

recently (threshold: 10%)

Predicted Metascore: 75.68212127685547