

Mapping and appending dataset with GoEmotions

```
In [24]: from datasets import load_dataset
goemo = load_dataset("go_emotions", "simplified")
print(goemo)
```

```
DatasetDict({
    train: Dataset({
        features: ['text', 'labels', 'id'],
        num_rows: 43410
    })
    validation: Dataset({
        features: ['text', 'labels', 'id'],
        num_rows: 5426
    })
    test: Dataset({
        features: ['text', 'labels', 'id'],
        num_rows: 5427
    })
})
```

```
In [29]: emotion_to_value = {
    "admiration": "Achievement attained",
    "approval": "Conformity: rules attained",
    "gratitude": "Benevolence: caring attained",
    "love": "Benevolence: dependability attained",
    "caring": "Benevolence: caring attained",
    "optimism": "Stimulation attained",
    "joy": "Hedonism attained",
    "excitement": "Stimulation attained",
    "curiosity": "Self-direction: thought attained",
    "desire": "Self-direction: action attained",
    "amusement": "Hedonism attained",
    "pride": "Power: dominance attained",
    "relief": "Security: personal attained",

    "fear": "Security: personal constrained",
    "nervousness": "Security: societal constrained",
    "remorse": "Humility constrained",
    "embarrassment": "Face constrained",
    "disappointment": "Achievement constrained",
    "disapproval": "Conformity: interpersonal constrained",
    "anger": "Power: dominance constrained",
    "annoyance": "Conformity: rules constrained",
    "confusion": "Self-direction: thought constrained",
    "grief": "Universalism: concern constrained",
    "sadness": "Benevolence: caring constrained",
    "neutral": None, # drop neutral (no clear mapping)
    "realization": "Self-direction: thought attained"
}
```

```
In [31]: VALUES_19 = [
    "Self-direction: thought",
    "Self-direction: action",
    "Stimulation",
    "Hedonism",
    "Achievement",
```

```

    "Power: dominance",
    "Power: resources",
    "Face",
    "Security: personal",
    "Security: societal",
    "Tradition",
    "Conformity: rules",
    "Conformity: interpersonal",
    "Humility",
    "Benevolence: caring",
    "Benevolence: dependability",
    "Universalism: concern",
    "Universalism: nature",
    "Universalism: tolerance",
]
]

VALUE_COLUMNS = [f"{{v}} attained" for v in VALUES_19] + [f"{{v}} constrained"

```

In [33]:

```

def map_emotions(example):
    mapped = []
    for emo_id in example["labels"]:
        emo_name = label_names[emo_id]
        if emo_name in emotion_to_value and emotion_to_value[emo_name] is not None:
            mapped.append(emotion_to_value[emo_name])
    return {"value_labels": mapped}

```

In [35]:

```
goemo_mapped = goemo.map(map_emotions)
```

In [37]:

```

def to_multihot(batch):
    mh = {v: [0] * len(batch["text"]) for v in VALUE_COLUMNS}
    for i, labs in enumerate(batch["value_labels"]):
        for lab in labs:
            if lab in mh:
                mh[lab][i] = 1
    mh["text"] = batch["text"]
    return mh

goemo_mh = goemo_mapped.map(to_multihot, batched=True, batch_size=1000)

```

In [39]:

```

train_df = pd.DataFrame(goemo_mh["train"])
val_df = pd.DataFrame(goemo_mh["validation"])
test_df = pd.DataFrame(goemo_mh["test"])

```

In [41]:

```

print(train_df.head(3))
print("Columns:", train_df.columns.tolist())

```

	text	labels	id	\
0	My favourite food is anything I didn't have to...	[27]	eebbqej	
1	Now if he does off himself, everyone will thin...	[27]	ed00q6i	
2	WHY THE FUCK IS BAYLESS ISOING	[2]	eezlygj	
	value_labels	Self-direction: thought attained		\
0		[]		0
1		[]		0
2	[Power: dominance constrained]			0
	Self-direction: action attained	Stimulation attained	Hedonism attained	
d	\			
0		0		0
0		0		0
1		0		0
0		0		0
2		0		0
0		0		0
Achievement attained	Power: dominance attained	...	\	
0	0	0	...	
1	0	0	...	
2	0	0	...	
Security: societal constrained	Tradition constrained		\	
0		0		0
1		0		0
2		0		0
Conformity: rules constrained	Conformity: interpersonal constrained		\	
0		0		0
1		0		0
2		0		0
Humility constrained	Benevolence: caring constrained		\	
0		0		0
1		0		0
2		0		0
Benevolence: dependability constrained	Universalism: concern constrained		\	
ed	\			
0		0		
0		0		
1		0		
0		0		
2		0		
0		0		
Universalism: nature constrained	Universalism: tolerance constrained		\	
0		0		0
1		0		0
2		0		0

[3 rows x 42 columns]

Columns: ['text', 'labels', 'id', 'value_labels', 'Self-direction: thought attained', 'Self-direction: action attained', 'Stimulation attained', 'Hedonism attained', 'Achievement attained', 'Power: dominance attained', 'Power: resources attained', 'Face attained', 'Security: personal attained', 'Security: societal attained', 'Tradition attained', 'Conformity: rules attained', 'Conformity: interpersonal attained', 'Humility attained', 'Bene-

olence: caring attained', 'Benevolence: dependability attained', 'Universa
lism: concern attained', 'Universalism: nature attained', 'Universalism: t
olerance attained', 'Self-direction: thought constrained', 'Self-directio
n: action constrained', 'Stimulation constrained', 'Hedonism constrained',
'Achievement constrained', 'Power: dominance constrained', 'Power: resourc
es constrained', 'Face constrained', 'Security: personal constrained', 'Se
curity: societal constrained', 'Tradition constrained', 'Conformity: rules
constrained', 'Conformity: interpersonal constrained', 'Humility constrain
ed', 'Benevolence: caring constrained', 'Benevolence: dependability constr
ained', 'Universalism: concern constrained', 'Universalism: nature constra
ined', 'Universalism: tolerance constrained']

Appending

```
In [46]: import pandas as pd

hv_labels = pd.read_csv("training-english/labels_training.tsv", sep="\t")
hv_sentences = pd.read_csv("training-english/sentences_training.tsv", sep

hv_df = pd.merge(hv_labels, hv_sentences, on=["Text-ID", "Sentence-ID"])

hv_df = hv_df.rename(columns={"Text": "text"})
hv_df = hv_df[["text"] + [c for c in hv_df.columns if c not in ["Text-ID"]]
```

```
In [58]: combined_train = pd.concat([hv_df, train_df], ignore_index=True)

print("Original HV size:", hv_df.shape)
print("GoEmotions mapped size:", train_df.shape)
print("Combined size:", combined_train.shape)
```

Original HV size: (44758, 39)
 GoEmotions mapped size: (43410, 42)
 Combined size: (88168, 42)

```
In [70]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

hv_labels = pd.read_csv("training-english/labels_training.tsv", sep="\t")
hv_sentences = pd.read_csv("training-english/sentences_training.tsv", sep

hv_df = pd.merge(hv_labels, hv_sentences, on=["Text-ID", "Sentence-ID"])
hv_df = hv_df.rename(columns={"Text": "text"})

label_cols = [c for c in hv_df.columns if c not in ["Text-ID", "Sentence-ID"]]
hv_df = hv_df[["text"] + label_cols]

hv_df[label_cols] = hv_df[label_cols].astype(int)

train_df = train_df[["text"] + label_cols]
train_df[label_cols] = train_df[label_cols].astype(int)

def balance_dataset(hv_df, goemo_df, label_cols, strategy="median"):

    hv_counts = hv_df[label_cols].sum()
```

```

if strategy == "median":
    target = int(hv_counts.median())
elif strategy == "mean":
    target = int(hv_counts.mean())
elif strategy == "percentile90":
    target = int(np.percentile(hv_counts.values, 90))
else:
    raise ValueError("Invalid strategy. Use 'median', 'mean', or 'per"
print("Target per label:", target)

oversampled = []
for label in label_cols:
    deficit = target - hv_counts[label]
    if deficit > 0:
        candidates = goemo_df[goemo_df[label] == 1]
        if not candidates.empty:
            sampled = candidates.sample(
                n=min(int(deficit), len(candidates)),
                replace=True,
                random_state=42
            )
            oversampled.append(sampled)
oversampled = pd.concat(oversampled, ignore_index=True) if oversam

goemo_balanced = pd.concat([hv_df, goemo_balanced], ignore_index=True)

combined = pd.concat([hv_df, goemo_balanced], ignore_index=True)

final_parts = []
for label in label_cols:
    positives = combined[combined[label] == 1]
    if len(positives) > target:
        positives = positives.sample(n=target, random_state=42)
    final_parts.append(positives)

balanced = pd.concat(final_parts, ignore_index=True).drop_duplicates()

new_counts = balanced[label_cols].sum().sort_values()
print("\nCounts after balancing:\n", new_counts)

return balanced

balanced_df = balance_dataset(hv_df, train_df, label_cols, strategy="medi"

balanced_df.to_csv("balanced_training.csv", index=False)

before = hv_df[label_cols].sum().sort_values()
after = balanced_df[label_cols].sum().sort_values()

plt.figure(figsize=(14,6))
before.plot(kind="bar", alpha=0.6, label="Before")
after.plot(kind="bar", alpha=0.6, label="After", color="orange")
plt.legend()

```

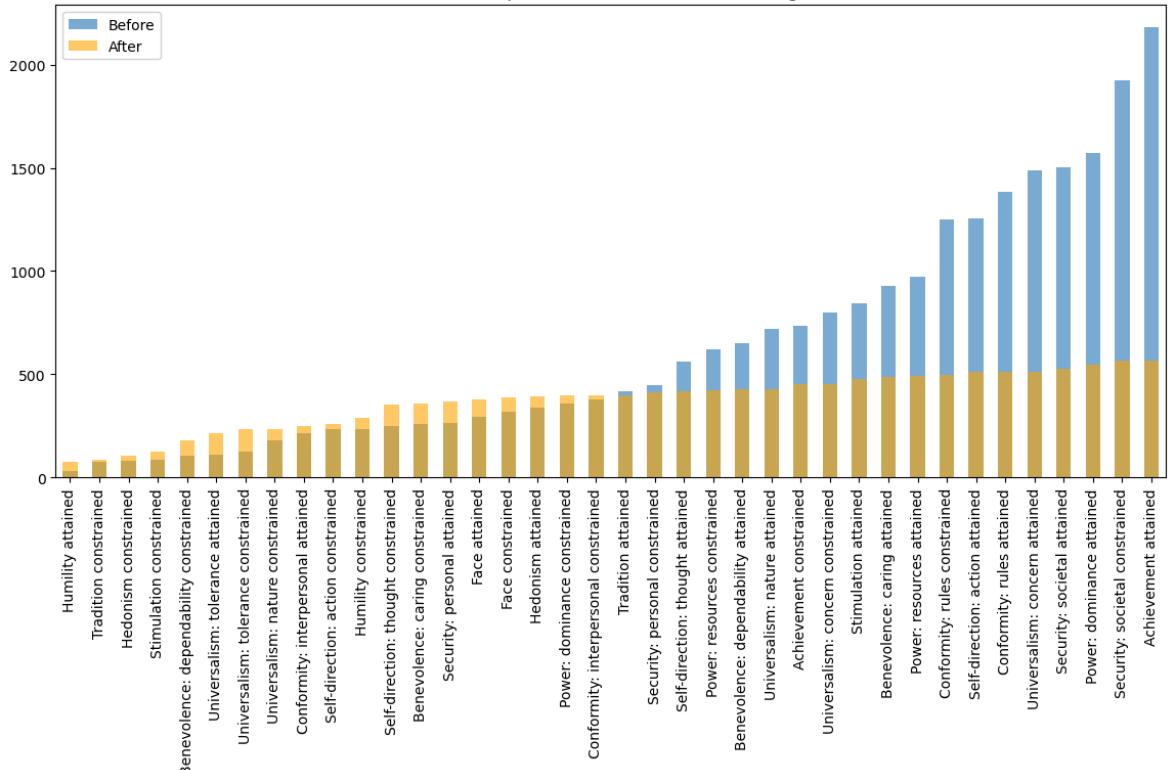
```
plt.title("Label Frequencies Before vs After Balancing")
plt.show()
```

Target per label: 398

Counts after balancing:

Humility attained	75
Tradition constrained	85
Hedonism constrained	107
Stimulation constrained	126
Benevolence: dependability constrained	180
Universalism: tolerance attained	216
Universalism: tolerance constrained	237
Universalism: nature constrained	237
Conformity: interpersonal attained	248
Self-direction: action constrained	261
Humility constrained	288
Self-direction: thought constrained	353
Benevolence: caring constrained	358
Security: personal attained	367
Face attained	380
Face constrained	390
Hedonism attained	393
Power: dominance constrained	396
Conformity: interpersonal constrained	396
Tradition attained	397
Security: personal constrained	415
Self-direction: thought attained	416
Power: resources constrained	424
Benevolence: dependability attained	427
Universalism: nature attained	427
Achievement constrained	451
Universalism: concern constrained	451
Stimulation attained	479
Benevolence: caring attained	488
Power: resources attained	494
Conformity: rules constrained	495
Self-direction: action attained	510
Conformity: rules attained	512
Universalism: concern attained	514
Security: societal attained	527
Power: dominance attained	549
Security: societal constrained	566
Achievement attained	567
dtype: int64	

Label Frequencies Before vs After Balancing



In []: