# -\*- coding: utf-8 -\*-

"""

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@author: Shravani

"""

import pandas as pd

import matplotlib.pyplot as plt

import numpy as np

def plot\_approve\_votes(data, x\_col, y\_col, label\_col):

"""

This function plots the approve votes against the date and labels them according to the subject column.

Args:

data (DataFrame): The input DataFrame containing the data.

x\_col (str): The name of the column containing the x-axis values (date).

y\_col (str): The name of the column containing the y-axis values (approve adjusted votes).

label\_col (str): The name of the column containing the labels (subject).

Returns:

None

"""

# Group the data by the label column

grouped\_data = data.groupby(label\_col)

plt.figure(figsize=(20,20))

# Plot each group separately

for label, group in grouped\_data:

plt.plot(group[x\_col], group[y\_col], label=label)

# Add labels and legend

plt.xlabel(x\_col)

plt.ylabel("Approved Votes ")

plt.title('Approve Votes vs Date for each Party')

plt.legend()

# Show the plot

plt.savefig("F1.png")

# Read the data from a CSV file

data = pd.read\_csv('covid\_approval\_polls.csv')

data['Date'] = pd.to\_datetime(data['end\_date'])

# Call the function to plot the data

#plot\_approve\_votes(data, 'date', 'approve adjusted votes', 'subject')

plot\_approve\_votes(data, 'Date', 'approve', 'party')

def plot\_sponsor\_pie\_chart(df, figsize=(10, 10), fontsize=14):

"""

Plots a pie chart of the vote counts for each sponsor in the given DataFrame.

Parameters:

df (pandas.DataFrame): The input DataFrame with columns "sponsor" and "vote\_counts".

figsize (tuple, optional): The size of the plot in inches (width, height). Default is (8, 8).

fontsize (int, optional): The font size of the labels. Default is 14.

Returns:

None.

"""

# Group the data by sponsor and calculate the total vote counts

data = df.groupby('subject')['sample\_size'].sum()

# Create a pie chart of the vote counts for each sponsor

fig, ax = plt.subplots(figsize=figsize)

ax.pie(data, labels=data.index, autopct='%1.1f%%', startangle=90, textprops={'fontsize': fontsize})

ax.axis('equal')

# Set the title

ax.set\_title('Sample Size total by Subject ', fontsize=fontsize+2)

# Show the plot

plt.savefig("F2.png")

plot\_sponsor\_pie\_chart(data)

def plot\_top\_disapproval\_sponsors(df, figsize=(30, 30), fontsize=12):

"""

Plots a bar chart of the top 10 sponsors with the highest average disapproval ratings in the given DataFrame.

Parameters:

df (pandas.DataFrame): The input DataFrame with columns "sponsor" and "disapproval\_percent".

figsize (tuple, optional): The size of the plot in inches (width, height). Default is (8, 6).

fontsize (int, optional): The font size of the labels. Default is 12.

Returns:

None.

"""

# Group the data by sponsor and calculate the average disapproval rating

data = df.groupby('sponsor')['disapprove'].mean().sort\_values(ascending=False)[:10]

# Define a list of colors for the bars

colors = plt.cm.tab10(np.arange(len(data)))

# Create a bar chart of the top 10 sponsors with the highest average disapproval ratings

fig, ax = plt.subplots(figsize=figsize)

ax.bar(data.index, data.values, color=colors)

# Set the title and axis labels

ax.set\_title('Top 10 Sponsors with Highest Average Disapproval Ratings', fontsize=fontsize+2)

ax.set\_xlabel('Sponsor', fontsize=fontsize)

ax.set\_ylabel('Average Disapproval Rating', fontsize=fontsize)

# Set the font size of the axis tick labels

ax.tick\_params(axis='both', which='major', labelsize=fontsize)

# Show the plot

plt.savefig("F3.png")

plot\_top\_disapproval\_sponsors(data)