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import streamlit as st
from wordcloud import WordCloud
import matplotlib.pyplot as plt
import nltk
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
from nltk.stem import WordNetLemmatizer
import io

# Download required NLTK data
nltk.download('punkt')
nltk.download('stopwords')
nltk.download('wordnet')
nltk.download('omw-1.4')

# Title
st.title("Interactive Word Cloud Generator App")

# Session states
if "text" not in st.session_state:
    st.session_state.text = "TECHNOLOGY IS CHANGING THE WORLD"

if "generated" not in st.session_state:
    st.session_state.generated = False

# Text input
st.session_state.text = st.text_area("Enter your text below:", st.session_state.text)

# Generate button
if st.button("Generate Word Cloud"):
    if not st.session_state.text.strip():
        st.warning("Please enter some text.")
    else:
        st.session_state.generated = True

# Customize and display word cloud
if st.session_state.generated:
    st.subheader("Customize your Word Cloud")

    max_words = st.slider("Maximum number of words", 10, 500, 100, step=10)
    bg_color = st.color_picker("Background color", "#ffffff")
    colormap = st.selectbox("Color map", options=[
        "viridis", "plasma", "inferno", "magma", "cividis",
        "Greys", "Purples", "Blues", "Greens", "Oranges", "Reds",
        "YlOrBr", "YlOrRd", "OrRd", "PuRd", "RdPu", "BuPu", "GnBu",
        "PuBu", "YlGnBu", "PuBuGn", "BuGn", "YlGn"
    ])

    extra_stopwords = st.text_input("Add extra stopwords (comma-separated)", "")
    use_lemmatization = st.checkbox("Apply Lemmatization (NLTK)", value=True)

    # Text processing
    tokens = word_tokenize(st.session_state.text)
    nltk_stop = set(stopwords.words("english"))

    if extra_stopwords:
        custom = {w.strip().lower() for w in extra_stopwords.split(",")}
        nltk_stop.update(custom)

    words = [w.lower() for w in tokens if w.isalpha() and w.lower() not in nltk_stop]

    if use_lemmatization:
        lemmatizer = WordNetLemmatizer()

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        words = [lemmatizer.lemmatize(w) for w in words]

processed_text = " ".join(words)

# Generate WordCloud
wc = WordCloud(
    width=800,
    height=400,
    max_words=max_words,
    background_color=bg_color,
    colormap=colormap
).generate(processed_text)

# Display WordCloud
fig, ax = plt.subplots()
ax.imshow(wc, interpolation="bilinear")
ax.axis("off")
st.pyplot(fig)

# Create image for download
buf = io.BytesIO()
wc.to_image().save(buf, format="PNG")
buf.seek(0)

st.download_button(
    label="■ Download Word Cloud as PNG",
    data=buf,
    file_name="wordcloud.png",
    mime="image/png"
)

```

Interactive Word Cloud Generator App

Enter your text below:

TECHNOLOGY IS CHANGING THE WORLD

Generate Word Cloud

Customize your Word Cloud

Maximum number of words



Background color



Color map

viridis



Add extra stopwords (comma-separated)

☒ Apply Lemmatization (NLTK)

technology
world
changing



Download Word Cloud as PNG