### **Summarizer Application: First-Time Setup & Run Tutorial**

This tutorial will guide you through setting up and running your text summarizer web application for the first time.

**Prerequisites:**

* **Python 3.x:** Make sure you have Python installed. You can download it from [python.org](https://www.python.org/downloads/).
* **Internet Connection:** Required for downloading Python packages and NLTK data.

**Steps:**

**1. Navigate to Your Project Directory**

First, open your command prompt (Windows) or terminal (macOS/Linux) and navigate to the folder where you have extracted your project files (app.py, requirements.txt, index.html, etc.).

cd C:\Users\Hp\Desktop\summarizer\_clone

*(Replace C:\Users\Hp\Desktop\summarizer\_clone with the actual path to your project folder).*

**2. Create and Activate a Virtual Environment**

It's best practice to use a virtual environment to manage your project's dependencies, preventing conflicts with other Python projects.

* **Create the virtual environment:**

python -m venv venv

* This will create a new folder named venv inside your project directory.
* **Activate the virtual environment:**
  + **On Windows:**

.\venv\Scripts\activate

* + **On macOS/Linux:**
  + Bash

source venv/bin/activate

* You'll know it's activated when you see (venv)1 at the beginning of your command prompt line.

**3. Install Required Libraries**

Now that your virtual environment is active, install all the necessary Python libraries listed in requirements.txt, including the crucial numpy that was missing.

pip install -r requirements.txt

pip install numpy

* pip install -r requirements.txt: This command reads all packages from your requirements.txt file (Flask, NLTK, Sumy) and installs them.
* pip install numpy: This explicitly installs the numpy library, which is a dependency for the LexRankSummarizer used in your app.py (it was causing the previous errors).

Wait for these installations to complete. You should see messages indicating successful installation.

**4. Run the Flask Application**

With all dependencies installed, you can now start your web server.

python app.py

You should see output similar to this in your terminal:

INFO - NLTK 'punkt' tokenizer loaded directly from pickle.

INFO - NLTK 'stopwords' corpus found.

INFO - Starting Flask development server.

\* Running on http://127.0.0.1:5000

**Important:** Keep this terminal window open and running. If you close it, the server will stop.

**5. Access the Web Application**

Open your web browser (Chrome, Firefox, Edge, etc.) and go to the following address:

http://127.0.0.1:5000/

You should now see the summarizer application's interface.

**6. Test the Summarizer**

* Enter any text or a paragraph into the **left input box**. For example: "The quick brown fox jumps over the lazy dog. This sentence is a well-known pangram, which means it contains every letter of the alphabet at least once. Pangrams are often used for testing typewriters, keyboards, and fonts because they allow for a quick assessment of all characters. Other famous pangrams include 'Pack my box with five dozen liquor jugs' and 'How vexingly quick daft zebras jump'."
* Move the **"Short" to "Long" slider** to adjust the desired summary length. Try moving it towards "Short" (left side) for a more noticeable summary.
* Click the **"Summarize" button**.

The summarized text should now appear in the **right output box**.