LOCAL DEPLOYMENT GUIDE: SPEECH GRADER

Detailed Steps for Local Server Deployment

Project Overview

Speech Grader AI is an intelligent tool that analyzes student self-introductions using natural language processing and rule-based scoring. The application provides comprehensive feedback on communication skills through both user interface and JSON output formats.

PREREQUISITES CHECKLIST

Required Software:

- Python 3.8 or higher
- pip (Python package manager)
- Git version control system
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Verify Installation:

python --version # Should show 3.8+

pip --version # Should show pip version

git --version # Should show git version

EXACT DEPLOYMENT STEPS

Step 1: Repository Setup

1.1 Clone the Repository

git clone https://github.com/Akash-Sare03/speech-grader.git

1.2 Navigate to Project Directory

cd speech-grader

1.3 Verify File Structure

ls -la

Expected Files:

- app.py (main application file)
- src/scoring.py (scoring logic)
- requirements.txt (dependencies)
- README.md (documentation)
- DEPLOYMENT_GUIDE.pdf (this document)

Step 2: Python Environment Setup

2.1 Create Virtual Environment

python -m venv venv

2.2 Activate Virtual Environment

- **Windows:**

venv\Scripts\activate

- **Mac/Linux:**

source venv/bin/activate

2.3 Verify Activation

- You should see (venv) prefix in your terminal
- Verify Python version:

python --version

Step 3: Dependency Installation

3.1 Install Required Packages

pip install -r requirements.txt

3.2 Verify Installations

pip list

Expected Packages:

- streamlit==1.28.0
- nltk==3.8.1
- vaderSentiment==3.3.2

- lexicalrichness==0.1.5
- textblob==0.17.1
- pandas==2.0.3
- language-tool-python==2.7.1

Step 4: NLTK Data Setup

4.1 Download NLP Datasets

python -c "import nltk; nltk.download('punkt'); nltk.download('vader_lexicon')"

4.2 Verify Downloads

python -c "import nltk; print('NLTK data ready')"

Step 5: Application Launch

5.1 Start Streamlit Server

streamlit run app.py

5.2 Expected Output:

You can now view your Streamlit app in your browser.

Local URL: http://localhost:8501

Network URL: http://192.168.x.x:8501

5.3 Access Application

- Open web browser
- Navigate to: http://localhost:8501
- Application interface should load

Step 6: Application Verification

6.1 Test Interface Components

- "Speech Grader" title displays
- Text input area is available
- Duration input field works

- "Analyze Speech" button is clickable

6.2 Perform Test Analysis
Sample Input Text:

text

Hello everyone, my name is Akash. I am 15 years old and study in class 10 at NSB School. I live with my parents and younger brother. I enjoy playing Cricket and reading science books. My favorite subject is mathematics because I love solving problems. Thank you for listening.

Test Settings:

- Duration: 45 seconds
- Click "Analyze Speech"

6.3 Verify UI Output

- Overall score displays (0-100)
- Category scores show (Content, Language, Delivery)
- Detailed feedback appears for each criterion
- Improvement suggestions display

6.4 Verify JSON Output

- Scroll to "JSON Output" section
- Click "View JSON Output" to expand
- JSON structure displays correctly
- Click "Download JSON Results"
- JSON file downloads successfully

OUTPUT FORMATS VERIFICATION

UI Output Features:

- Visual score display with metrics
- Category-wise breakdown
- Detailed feedback for each criterion
- Color-coded improvement suggestions
- Progress indicators

JSON Output Features:

```
json
{
  "overall_score": 85,
  "word_count": 150,
  "criteria": [
    {
      "criterion": "Content & Structure",
      "score": 35,
      "max_score": 40,
      "components": [
        {
          "name": "Salutation",
          "score": 4,
          "max_score": 5,
          "feedback": "Good salutation found"
        }
      ]
    }
  ],
  "improvement_suggestions": ["Suggestion 1", "Suggestion 2"]
}
```

JSON Verification Checklist:

- overall_score present (0-100)
- word_count matches input text
- criteria array contains all categories
- components have scores and feedback
- improvement_suggestions array populated

LIVE DEPLOYMENT

Streamlit Cloud Deployment:

- Application available at: https://speech-grader.streamlit.app/
- No local setup required
- Always accessible via web browser
- Automatic updates from GitHub

DEMONSTRATION

A screen recording is available showing:

- Screen recording available at : https://drive.google.com/file/d/1rtGjKUAclQ----agEbyM9rem44iPwsiC/view?usp=sharing
- Complete deployment process
- Application functionality