PYTHON ASSIGNMENT

Objective

Build a **mini media automation pipeline** in Python that generates **atomic media assets** (audio + slides/images) from structured input and compiles them into a **final video output**.

The system should accept a **JSON input** like:

```
{
  "title": "Introduction to Photosynthesis",
  "slides": [
    {
      "text": "Photosynthesis is the process by which plants make food.",
      "image_prompt": "green plants under sunlight"
    },
    {
      "text": "It uses sunlight, carbon dioxide, and water.",
      "image_prompt": "diagram of photosynthesis process"
    }
  ]
}
```

Assignment Tasks

1️⃣ Media Asset Generation

- Generate an **audio narration** for each slide's text

- You may use:

    - Any free/open-source TTS library

Image / Slide Creation

- Generate a **slide image** for each slide
    - Title
    - Slide text

Video Compilation

- Combine:
    - Slide image
    - Corresponding audio
- Generate a **final MP4 video**
- Each slide should appear while its audio plays

Backend API

Create a simple REST API using **FastAPI or Flask**:

POST /generate-video

- Accepts the input JSON
- Triggers media generation pipeline
- Returns:

{
"status": "success",
"video_path": "output/final_video.mp4"
}

Code Quality & Structure

- Modular design:
    - audio_generator.py
    - image_generator.py
    - video_compiler.py
- Clear function responsibilities
- Proper error handling