PDF Presentation and Graph Paper Partition Converter for Note Taking

Why use this script?

This script is perfect if you take notes of lectures on a tablet, but also want the context provided by lecture slides. When using an application such as GoodNotes, traditionally you have two choices:

1. Take notes on a blank page, or
2. Take notes directly on the slides

But, both of these options have drawbacks.

Option 1 can result in getting "lost in the sauce", meaning it might be hard to find where your notes line up with the slides. This can be tough if you're uncertain of the accuracy or context of your note and need to refer to the original material.

Option 2 can result in not fully understanding the content of which you write. Studies support that the most effective note taking strategies *consolidate* what is being taught into one's own words. This is the reason typing notes verbatim is not an effective note taking strategy; when you type, you're not cultivating a "gist" of the lecture in you're own words— you're copying it verbatim.

This script provides the solution, which is:

1. Hand-written, consolidated notes that form a gist of lecture, and
2. Additional context provided by the original lecture.

I hope you find this script as helpful as I do. -Ty

How does this work?

This script is designed to transform a PDF containing slides into a new PDF where each page combines two consecutive slides with an added section of graph paper

for notes. To use it, specify the input PDF path and the desired output PDF path, along with the dot distance for the graph paper. Internally, the script processes the PDF by converting each pair of slides into images, then merges these images side-by-side with a graph paper pattern generated on the fly. The resulting image is then converted back into a PDF format, effectively halving the number of pages and providing a convenient space for notes alongside the original content. This utility is ideal for students, professionals, or anyone who benefits from having structured note-taking space alongside their reference material.

Getting Started

1. **Python 3**: Ensure you have Python 3 installed on your system. You can download it from the official Python website. After installation, you can verify it by running `python --version` or `python3 --version` in your terminal.
2. **pip**: pip is the package installer for Python. It usually comes pre-installed with Python 3.4 and later. You can check its presence by running `pip --version` or `python -m pip --version` in the terminal. If it's not installed, follow the installation instructions provided in the official pip documentation.
3. **Virtual Environment (optional but recommended)**:
   - **venv**: Use Python's built-in module `venv` to create an isolated environment. Create it using `python -m venv myenv` and activate it with `source myenv/bin/activate` on Unix/macOS or `myenv\Scripts\activate` on Windows.
4. **pdf2image**: This library converts PDF files into images. Once you have pip ready and possibly your virtual environment activated, install it using the command: `pip install pdf2image`.
5. **Poppler**: pdf2image depends on the Poppler toolkit. You need to install it separately as it's not a Python package. Instructions vary based on the operating system:
   - **Windows**: Download binaries from the official site or use a package manager like Chocolatey: `choco install poppler`.
   - **Linux**: Use your package manager, e.g., `apt install poppler-utils` for Ubuntu/Debian, or `yum install poppler-utils` for Fedora.

- **macOS**: Install via Homebrew: `brew install poppler`.

Debugging Help

Ensure you have `pdf2image` installed:

```
pip install pdf2image
```

If you're encountering the **"pip command not found"** error in your terminal, it usually means that the Python package installer, pip, is either not installed or not included in your system's PATH. Here are some steps you can take to resolve this issue:

1. **Check if pip is installed**: First, you should check if pip is already installed on your system. You can do this by trying the following command in your terminal:

   ```
   python -m pip --version
   ```

   or, if you're using Python 3 explicitly:

   ```
   python3 -m pip --version
   ```

   If this command returns a version number, pip is installed on your system, but it might not be in your PATH.

2. **Install pip**: If pip is not installed, you'll need to install it. You can do this by downloading the get-pip.py script and running it using Python. Here's how you can do it:

   - Download the `get-pip.py` script:

     ```
     curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
     ```

- Run the script with Python:

  ```
  python get-pip.py
  ```

  or, if you are using a specific version of Python (like Python 3), use:

  ```
  python3 get-pip.py
  ```

3. **Add pip to your PATH**: If pip is installed but not found, you might need to add it to your system's PATH. The location of pip can vary depending on your system and how Python is installed. You can find the location of pip and add it to your PATH using the following steps:
   - Find the path where pip is installed:

     ```
     python -m site --user-base
     ```

   - This command will return a path. You'll need to append `/bin` to this path, and that's where pip is likely located.
   - Add the full path to your PATH environment variable. The method to do this depends on your operating system:
     - On Unix-like systems (Linux, macOS), you can add the line `export PATH="$HOME/.local/bin:$PATH"` to your `.bashrc`, `.bash_profile`, or `.zshrc` file.
     - On Windows, you can add it through the System Properties (search for 'Environment Variables' in the Control Panel).
4. **Use a virtual environment**: It's often recommended to use a Python virtual environment which can manage pip independently of the system settings. You can create a virtual environment and activate it as follows:
   - Creating a virtual environment:

     ```
     python -m venv myenv
     ```

   - Activating the virtual environment:
     - On Unix-like systems:

```
source myenv/bin/activate
```

- On Windows:

```
myenv\Scripts\activate
```

Once the virtual environment is activated, pip will be available to install packages locally within the environment.

Try these steps to resolve your issue. If you continue to experience problems, the exact solution might depend on your specific system configuration, the version of Python you're using, and how Python was installed on your system.