Welcome to the Introduction to Python Pre-Workshop Set up!

In this workshop, my aim is to kickstart your Python coding journey!

We will begin with a straightforward beginner's lesson, then move on to a fun project that you can showcase on Github!

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Python Introduction:

- **Why Python?**
- **Basic Syntax and Concepts**
  - Variables
  - Data Types (String, Integers and Floats, Booleans)
  - Functions (Defining/Calling Functions, Parameters and Return Values)
- **Data Structures:**
  - Lists & Dictionaries
- **Modules and Packages**
  - Importing Modules
  - Using External Packages
- **Input and Output**
  - **File Handling:**
    - Reading Files: Opening and reading from image files using PIL.
    - Writing Files: Saving text to audio files using gTTS output.
  - **Print Statements:** For displaying the extracted text for debugging.

Please Note If you have **NOT** set up python on Visual Studio Code, and still wish to participate, don't worry! You can still follow along for this section of the workshop using the following Online Python IDE:
https://www.online-python.com/

Python Project:

Main Objective: Convert an image to text, then text to audio.
Libraries We Will Use:

- **pytesseract:** A Python wrapper for Google's Tesseract-OCR Engine. It is used for optical character recognition (OCR) to recognize text from images.
- **PIL (Python Imaging Library):** also known as Pillow in its current version. A library for opening, manipulating, and saving many different image file formats. It is used in this project to load the image file.
- **gTTS (Google Text-to-Speech):** A Python library and CLI tool to interface with Google Translate's text-to-speech API. Converts the extracted text into spoken words in the form of an MP3 file.
- **pygame:** Pygame is a cross-platform set of Python modules designed for writing video games, including graphics and sound libraries built on the SDL library. In this project we will use it to Manage audio playback of the generated speech file.

Here is a checklist overview of things you will need prior to the Python Workshop!

Your Checklist:
- ☐ I have Visual Studio Code **(Step 1)**
- ☐ I have downloaded Python **(Step 1)**
- ☐ I have created a folder on my Desktop named "Image to Audio Project" **(Step 2)**
- ☐ I have opened the "Image to Audio Project" folder in vscode **(Step 2)**
- ☐ I have installed pytesseract and Tesseract-OCR **(Step 3)**
- ☐ I have my Folder Destination Path **(Step 3)**
- ☐ I have installed Pillow pytesseract gTTS using the vscode terminal **(Step 4)**
- ☐ I have installed pip install pygame using the vscode terminal **(Step 4)**

Step 1: Download Visual Studio Code and the Install Python Extension

- **For Windows:**
  Please follow this video. Completing timestamp **2:26-3:55 is optional**
  https://www.youtube.com/watch?v=cUAK4x_7thA

- **For MacOS:**
  Please follow this video up until timestamp **2:09**
  https://www.youtube.com/watch?v=LhSdBC2vDZE

  Please follow this video up until timestamp **2:11**
  https://www.youtube.com/watch?v=QmFOI8GYz6E

  Your Checklist:
  ☐ I have Visual Studio Code
  ☐ I have downloaded Python

Step 2: Setting up the Image to Audio Project
- Create a **folder** on your desktop named **"Image to Audio Project"**
- Open **vscode** and on the top left click on **File**, then **Open Folder**, then **Desktop**. Find and select the **Image to Audio Project** folder and click **Open Folder**.

  Your Checklist:
  ☐ I have created a folder on my Desktop named **"Image to Audio Project"**
  ☐ I have opened the **"Image to Audio Project"** folder in vscode

Step 3: Installing The Necessary Libraries

- **For Windows:**

  On the top left of vscode, click on **Terminal**, then **New Terminal**

  Next, Please follow this video until timestamp **3:08**

  https://www.youtube.com/watch?v=DG5D8A3zi4o

  Please Note: when you reach the following installation page, copy the folder destination and paste it into notepad or any other place for safekeeping.
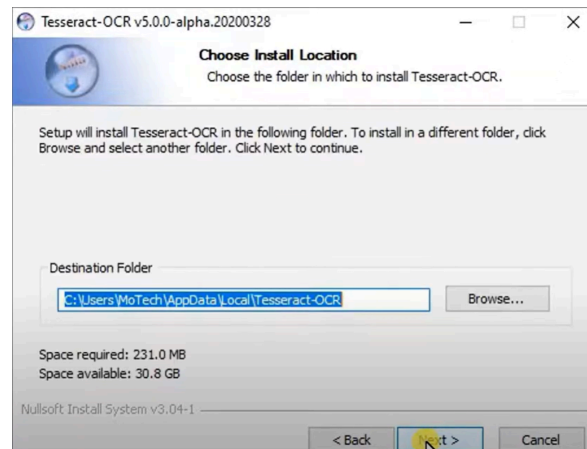
  Once pasted it will look similar to this:

  C:\Users\14379\AppData\Local\Programs\Tesseract-OCR

  Make sure to manually type \tesseract.exe at the end. The final version should look like this:

  C:\Users\14379\AppData\Local\Programs\Tesseract-OCR\tesseract.exe

  Save this, We will need this later.

Did you **forget** to save the folder Destination path in the above screenshot? If so, follow these steps:

1. Click **Window key + s** and type **run** then hit **Enter**
2. Type **AppData**, then click **Local**, then **Programs**, then **hold Shift** and **right click** on **Tesseract-OCR**
3. Look for **tesseract**, it should be an application and have about 1500 KB
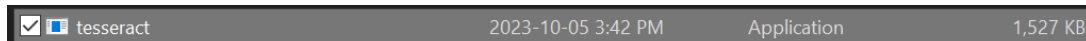
4. **Hold shift** and **right click** your mouse, then **copy as path**
5. Paste the path into notepad or any other place for safe keeping. Make sure to remove the quotation marks if they show up
6. Type \tesseract.exe at the end of the pasted path
7. Your final path should look similar to:
   C:\Users\14379\AppData\Local\Programs\Tesseract-OCR\tesseract.exe

- **For MacOS:**

Open vscode, on the top left of vscode, click on **Terminal**, then **New Terminal** and individually paste and run the following commands one at a time.
  - pip install pytesseract
  - /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
  - brew install tesseract
  - brew list tesseract
    - You should see an output which looks similar to this:
      /usr/local/Cellar/tesseract/3.04.01_1/bin/tesseract
      Please Note: Copy this folder destination path and paste it into notepad or any other place for safekeeping. We will need this later.

Your Checklist:
  - ☐ I have installed pytesseract and Tesseract-OCR
  - ☐ I have my Folder Destination Path

Step 4: Installing Pillow pytesseract gTTS and pygame within our project folder
- If you have not already done so: Open **vscode** and on the top left click on **File**, then **Open Folder**, then **Desktop**. Find and select the **Image to Audio Project** folder and click **Open Folder.**
- Next, on the top left click on **Terminal**, then **New Terminal**, then paste and run the following command:
  - pip install Pillow pytesseract gTTS

Output should look similar to this:

- Next install pygame using the following command:
  - pip install pygame

It should look similar to this:

Your Checklist:
☐ I have installed Pillow pytesseract gTTS within the vscode terminal
☐ I have installed pip install pygame using the vscode terminal