LAB #7

Prompt Engineering (Stable Diffusion)
(10 pts)

Due by Oct 16th Mon 4pm

Stable Diffusion is a generative AI tool that lets you create or edit various different types of images. There are text to image or image to image methods.

This lab provides hands-on experience using Stable Diffusion and explores the concept and hands-on practices of prompt engineering.

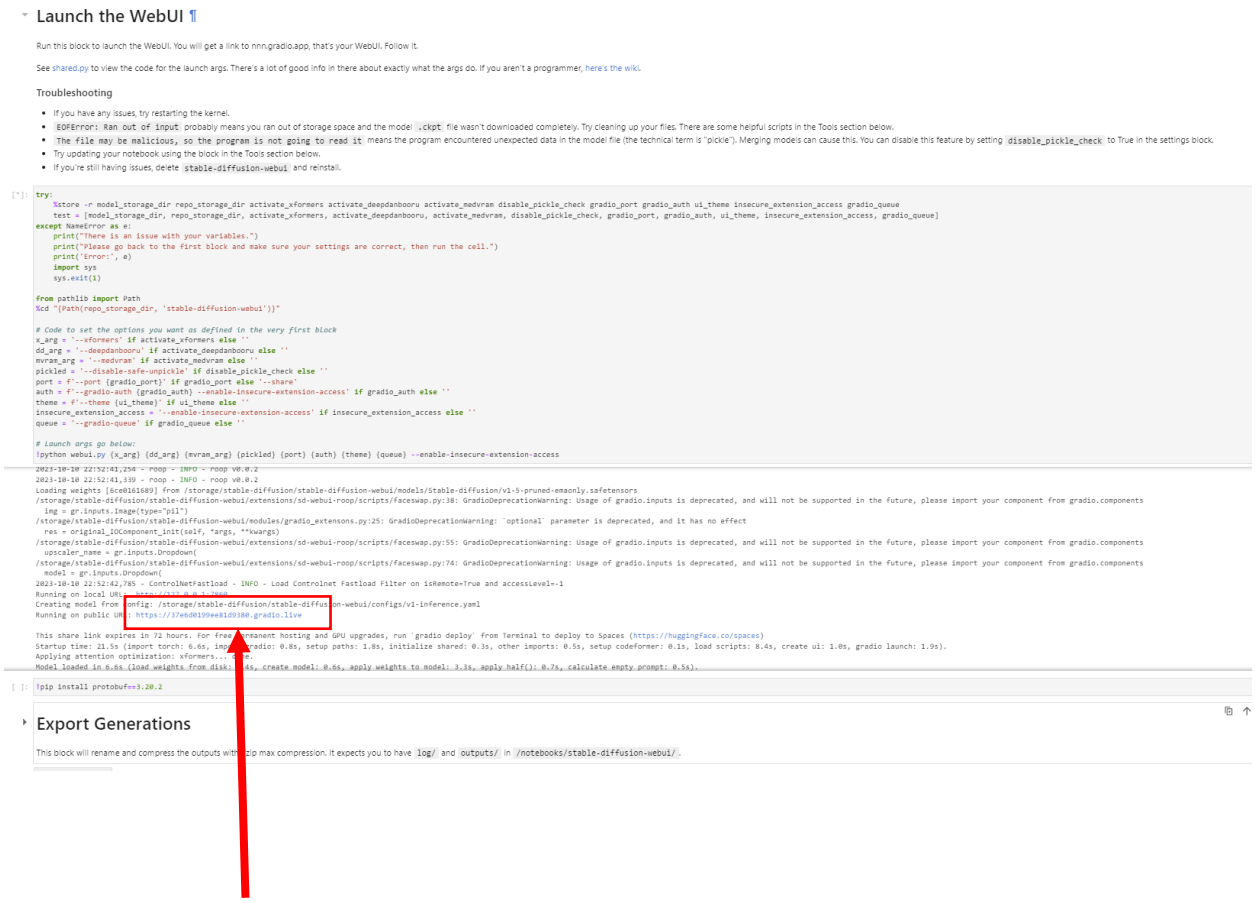
For this and other Stable Diffusion labs, we need to have Python to 3.10 version and install a few extensions (eg. Controlnet and Roop).

[Setting up for the Stable Diffusion Labs]

The following steps in paperspace.com site will upgrade Python to 3.10 version, install the extensions and UI:

1. Log into Paperspace.com
2. Goto notebooks
3. Select a free GPU & 6hr (or less)
4. Turn on the 'Advanced options'.
5. Enter the following in 'Container Name':
   cyberes/gradient-base-py3.10:latest
6. Click 'Start Notebook'
7. Upload the 'StableDiffusionUI_automatic1111.ipynb
8. Run all cells
9. Under the module named 'Launch the WebUI,' you will find a URL such as http://37uw51098weoiruwieur92skjfd984lsj.**gradio.live** **(see the image next page)**
10. Now you are in Stable Diffusion Web UI (an excellent tool for text2img and img2img)
11. On the top menu, click 'Extensions,' we will use **controlNet** and **Roop** extensions.
12. Click the 'List' button to find controlnet and roop extensions from the list
13. Click it to install (do one at a time)

14. Click ‘txt2img’ back to main UI page
15. In the extensions tab go to the installed tab and then click on the "apply and quit" button. You then close the window and run the cell to open the GUI again
16. Again, under the module named ‘Launch the WebUI’ (see enclosed screen capture) you will find a URL such as http://37uw51098weoiruwieur92skjfd984lsj.**gradio.live**



17. Back to the ‘txt2img’ main UI page
18. You may background the screen by adding the following code (/?__theme=dark) in the web browser address.
19. Now you are ready to start the lab.

[Prompt Engineering Lab]

20. Based on Dr.Choi’s lecture, think about a target image that you and your partner want to create. Both people have to agree. Make sure to choose an image that will utilize all the lesson points.

21. For each incremental prompt, create and save a few images (you may use the batches setting to how many images)

22. Open a MS Word and create a table that captures all your prompt-generated incremental images with a brief description for each prompt. Your final submitting table would have the series of images, their corresponding prompts and descriptions.