Assignment 8

In this assignment you will generate images on raspberry pi/jetson nano using stable diffusion 1.5

1.Environment setup:
1. Download Anaconda (What is Anaconda?)on your computer - link to ARM version with Python 3.12
2. Copy the anaconda installer to the Jetson nano/Raspberry PI via scp
3. Install Anaconda. It is highly recommended to install via terminal by just executing the downloaded file.
4. Download the following whl files:
- torch
- diffusers
- hugginface-hub
- safetensors
- tokenizers
- transformers

1. Download from this link the pretrained Stable Diffusion 1.5 checkpoint
2. Move the .zip file in the Jetson nano/Raspberry PI
3. Extract under your home folder (e.g. /home/pi/)
4. Modify the following code to generate new images taken from here:

```
        from diffusers import StableDiffusionPipeline
        import torch

        model_id = ".cache/huggingface/hub/models--runwayml--stable-diffusion-v1-
5/snapshots/608a7bbe4e4a6a66513c80999e32708671fd2ac0/"
        pipe = StableDiffusionPipeline.from_pretrained(model_id,
torch_dtype=torch.float16, local_files_only=True)
        pipe = pipe.to("cuda")

        prompt = "a photo of an astronaut riding a horse on mars"
        image = pipe(prompt).images[0]

        image.save("astronaut_rides_horse.png")
```

Apply the following modifications (this is the documentation for the class `StableDiffusionPipeline`):
- Output image is 32x32

- prompt is "A photo of a flying cat"
- seed is 493856538
- number of sampling steps are 20
- Use *cpu* device
- set torch dtype to *float32*
- Change output file name *flying_cat.png*

6. Once edited the code, save into a .py file in your HOME directory and run it
7. Visualize the generated image