⌄ 1-Install all the required package
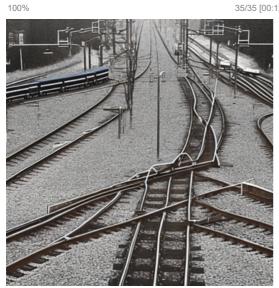
```
!pip install --upgrade diffusers transformers -q# your image generator to use pretrained model
```

```
    Usage:
      pip3 install [options] <requirement specifier> [package-index-options] ...
      pip3 install [options] -r <requirements file> [package-index-options] ...
      pip3 install [options] [-e] <vcs project url> ...
      pip3 install [options] [-e] <local project path> ...
      pip3 install [options] <archive url/path> ...

    no such option: -#
```

```
!pip install diffusers
```

```
    Collecting diffusers
      Downloading diffusers-0.26.2-py3-none-any.whl (1.9 MB)
    ──────────────────────────────────── 1.9/1.9 MB 21.0 MB/s eta 0:00:00
    Requirement already satisfied: importlib-metadata in /usr/local/lib/python3.10/dist-packages (from diffusers) (7.0.1)
    Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from diffusers) (3.13.1)
    Requirement already satisfied: huggingface-hub>=0.20.2 in /usr/local/lib/python3.10/dist-packages (from diffusers) (0.20.3)
    Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from diffusers) (1.23.5)
    Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.10/dist-packages (from diffusers) (2023.12.25)
    Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from diffusers) (2.31.0)
    Requirement already satisfied: safetensors>=0.3.1 in /usr/local/lib/python3.10/dist-packages (from diffusers) (0.4.2)
    Requirement already satisfied: Pillow in /usr/local/lib/python3.10/dist-packages (from diffusers) (9.4.0)
    Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.2->diffusers
    Requirement already satisfied: tqdm>=4.42.1 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.2->diffusers) (4
    Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.2->diffusers) (6.0
    Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.2->
    Requirement already satisfied: packaging>=20.9 in /usr/local/lib/python3.10/dist-packages (from huggingface-hub>=0.20.2->diffusers)
    Requirement already satisfied: zipp>=0.5 in /usr/local/lib/python3.10/dist-packages (from importlib-metadata->diffusers) (3.17.0)
    Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests->diffusers) (3.3.2
    Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests->diffusers) (3.6)
    Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests->diffusers) (2.0.7)
    Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests->diffusers) (2024.2.2)
    Installing collected packages: diffusers
    Successfully installed diffusers-0.26.2
```

```
# import necessary libraries
from pathlib import Path
import tqdm
import torch
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
import cv2
from diffusers import StableDiffusionPipeline
from transformers import pipeline, set_seed
```

```
    The cache for model files in Transformers v4.22.0 has been updated. Migrating your ol
        0/0 [00:00<?, ?it/s]
```

```
# use pretrained model
class CFG:
    device = "cuda" if torch.cuda.is_available() else "cpu"  # Check if CUDA is available
    seed = 42
    torch.manual_seed(seed)  # Set seed for CPU operations
    if device == "cuda":
        torch.cuda.manual_seed(seed)  # Set seed for CUDA operations
    generator = torch.Generator(device=device).manual_seed(seed)
    image_gen_steps = 35
    image_gen_model_id = "stabilityai/stable-diffusion-2"
    image_gen_size = (400, 400)
    image_gen_guidance_scale = 9
    prompt_gen_model_id = 'gpt-2'
    prompt_dataset_size = 6
    prompt_max_length = 12
```

```python
image_gen_model=StableDiffusionPipeline.from_pretrained(
    CFG.image_gen_model_id,torch_dtype=torch.float16,
    revision='fp16',
    use_auth_token="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",
    guidance_scale=9
)
image_gen_model=image_gen_model.to(CFG.device)
```

```
/usr/local/lib/python3.10/dist-packages/huggingface_hub/utils/_token.py:88: UserWarni
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public mo
  warnings.warn(
```

model_index.json: 100%	511/511 [00:00<00:00, 6.94kB/s]

```
/usr/local/lib/python3.10/dist-packages/diffusers/pipelines/pipeline_utils.py:270: Fu
  warnings.warn(
unet/diffusion_pytorch_model.safetensors not found
```

Fetching 12 files: 100%	12/12 [01:37<00:00, 10.81s/it]
tokenizer/vocab.json: 100%	1.06M/1.06M [00:01<00:00, 941kB/s]
scheduler/scheduler_config.json: 100%	345/345 [00:00<00:00, 11.4kB/s]
text_encoder/config.json: 100%	624/624 [00:00<00:00, 32.4kB/s]
unet/config.json: 100%	900/900 [00:00<00:00, 26.6kB/s]
tokenizer/special_tokens_map.json: 100%	460/460 [00:00<00:00, 9.95kB/s]
tokenizer/merges.txt: 100%	525k/525k [00:00<00:00, 604kB/s]
pytorch_model.bin: 100%	681M/681M [00:38<00:00, 18.3MB/s]
tokenizer/tokenizer_config.json: 100%	815/815 [00:00<00:00, 46.9kB/s]
vae/config.json: 100%	602/602 [00:00<00:00, 43.9kB/s]

```python
def generate_image(prompt, model):
  image=model(
      prompt, num_inference_steps=CFG.image_gen_steps,
      generator=CFG.generator,
      guidance_scale=CFG.image_gen_guidance_scale,
  ).images[0]
  image=image.resize(CFG.image_gen_size)
  return image
```

```python
generate_image("two trains crossing each other", image_gen_model)
```

100%
35/35 [00:12<00:00, 3.17it/s]


```
generate_image('Two boy playing football', image_gen_model)
```
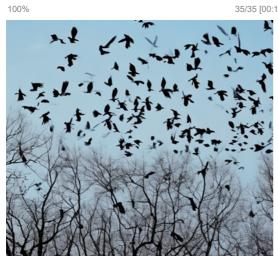
100%
35/35 [00:11<00:00, 2.99it/s]


```
generate_image("Crossing river between two mountains", image_gen_model)
```

100%
35/35 [00:12<00:00, 2.92it/s]


```
generate_image("Flying birds in the sky", image_gen_model)
```

100%   35/35 [00:12<00:00, 2.72it/s]

generate_image("Give me a photo of bollywood actor salman khan", image_gen_model)

100%   35/35 [00:12<00:00, 2.77it/s]

generate_image("Give me a photo of Dr APJ Abdul kalam", image_gen_model)

100%   35/35 [00:12<00:00, 2.78it/s]