Close

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```
import os
import torch
from diffusers import StableDiffusionPipeline
import matplotlib.pyplot as plt

# ---------------------------------
# Configuration
# ---------------------------------
MODEL_ID = "runwayml/stable-diffusion-v1-5"
DEVICE = "cuda" if torch.cuda.is_available() else "cpu"

BASE_DIR = "synthetic_dataset"

prompts = {
    "futuristic_city": "A futuristic city at night with neon lights and flying cars",
    "astronaut": "A realistic portrait of a young astronaut on Mars",
    "cyberpunk_robot": "A cyberpunk-style robot sitting in a café",
    "fantasy_landscape": "A fantasy landscape with floating islands and waterfalls",
    "tiger_rainforest": "A high-resolution image of a tiger in a rainforest"
}

# ---------------------------------
# Load Model
# ---------------------------------
pipe = StableDiffusionPipeline.from_pretrained(
    MODEL_ID,
    torch_dtype=torch.float16 if DEVICE == "cuda" else torch.float32
)
pipe = pipe.to(DEVICE)

# ---------------------------------
# Create Dataset Folders
# ---------------------------------
os.makedirs(BASE_DIR, exist_ok=True)

# ---------------------------------
# Generate Images
# ---------------------------------
generated_images = []

for category, prompt in prompts.items():
    category_path = os.path.join(BASE_DIR, category)
    os.makedirs(category_path, exist_ok=True)

    print(f"Generating image for: {category}")

    image = pipe(prompt).images[0]

    image_path = os.path.join(category_path, f"{category}_01.png")
    image.save(image_path)

    generated_images.append((category, image))

# ---------------------------------
# Display Sample Outputs
# ---------------------------------
plt.figure(figsize=(12, 8))

for i, (title, img) in enumerate(generated_images):
    plt.subplot(2, 3, i + 1)
    plt.imshow(img)
    plt.title(title.replace("_", " ").title())
    plt.axis("off")

plt.tight_layout()
plt.show()
```

```
Flax classes are deprecated and will be removed in Diffusers v1.0.0. We recommend migrating to PyTorch classes or pinning your version of Diffusers.
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/usr/local/lib/python3.12/dist-packages/huggingface_hub/utils/_auth.py:94: UserWarning:
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://huggingface.co/settings/tokens), set it as secret in your Google Colab and restart your session.
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 models or datasets.
  warnings.warn(
```

model_index.json: 100% 541/541 [00:00<00:00, 19.2kB/s]

Fetching 15 files: 100% 15/15 [00:47<00:00, 3.14s/it]

preprocessor_config.json: 100% 342/342 [00:00<00:00, 2.17kB/s]

config.json: 100% 617/617 [00:00<00:00, 5.87kB/s]

special_tokens_map.json: 100% 472/472 [00:00<00:00, 2.67kB/s]

config.json: 4.72k/? [00:00<00:00, 32.0kB/s]

scheduler_config.json: 100% 308/308 [00:00<00:00, 1.91kB/s]

merges.txt: 525k/? [00:00<00:00, 1.01MB/s]

safety_checker/model.safetensors: 100% 1.22G/1.22G [00:18<00:00, 38.8MB/s]

text_encoder/model.safetensors: 100% 492M/492M [00:41<00:00, 30.3MB/s]

tokenizer_config.json: 100% 806/806 [00:00<00:00, 91.7kB/s]

vocab.json: 1.06M/? [00:00<00:00, 16.1MB/s]

config.json: 100% 743/743 [00:00<00:00, 28.9kB/s]

config.json: 100% 547/547 [00:00<00:00, 17.6kB/s]

unet/diffusion_pytorch_model.safetensors: 100% 3.44G/3.44G [00:46<00:00, 220MB/s]

vae/diffusion_pytorch_model.safetensors: 100% 335M/335M [00:21<00:00, 43.3MB/s]

Loading pipeline components...: 100% 7/7 [00:26<00:00, 3.26s/it]

```
`torch_dtype` is deprecated! Use `dtype` instead!
Generating image for: futuristic_city
```

100% 50/50 [00:10<00:00, 7.70it/s]

```
Generating image for: astronaut
```

100% 50/50 [00:06<00:00, 7.65it/s]

```
Generating image for: cyberpunk_robot
```

100% 50/50 [00:06<00:00, 7.62it/s]

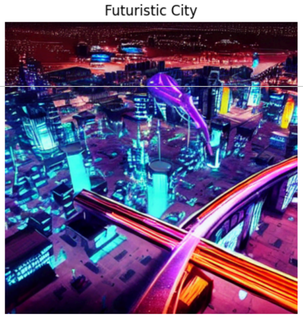
```
Generating image for: fantasy_landscape
```

100% 50/50 [00:07<00:00, 7.18it/s]

```
Generating image for: tiger_rainforest
```

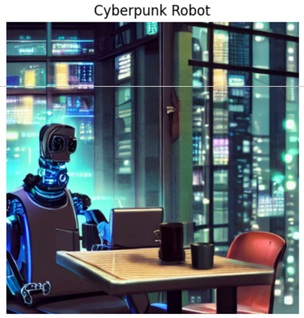
100% 50/50 [00:07<00:00, 6.55it/s]

Futuristic City

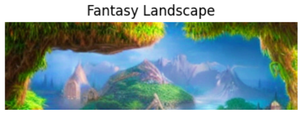


Astronaut

Cyberpunk Robot



Fantasy Landscape



Tiger Rainforest