```
import torch
from diffusers import AutoPipelineForText2Image
from PIL import Image
import os
import matplotlib.pyplot as plt

device = "cuda" if torch.cuda.is_available() else "cpu"

pipe = AutoPipelineForText2Image.from_pretrained(
    "stabilityai/sd-turbo",
    torch_dtype=torch.float16 if device == "cuda" else torch.float32
)

pipe = pipe.to(device)
pipe.safety_checker = None

prompts = [
    "Chest X-ray of a healthy elderly patient, mild age-related changes, clear lungs, no pathological findings.",
    "Chest X-ray showing patchy infiltrates consistent with atypical pneumonia",
    "Chest X-ray with ground-glass opacities throughout both lungs.",
    "Chest X-ray with bilateral pleural effusion, fluid levels present",
    "Chest X-ray showing pulmonary fibrosis with reticular opacities and reduced lung volume.",
    "Chest X-ray with prominent pulmonary vessels and mild interstitial edema.",
    "Chest X-ray with chest tube placed for pneumothorax management.",
    "Chest X-ray in erect position with full lung expansion",
    "Chest X-ray showing variation in brightness and contrast due to different imaging equipment."
]

output_dir = "synthetic_image_dataset"
os.makedirs(output_dir, exist_ok=True)

images = []

for idx, prompt in enumerate(prompts):
    image = pipe(
        prompt=prompt,
        num_inference_steps=4,
        guidance_scale=0.0,
        height=512,
        width=512
    ).images[0]

    image.save(f"{output_dir}/image_{idx+1}.png")
    images.append(image)

rows = 3
cols = 3

plt.figure(figsize=(12, 12))

for i, img in enumerate(images):
    plt.subplot(rows, cols, i + 1)
    plt.imshow(img, cmap="gray")
    plt.title(f"Image {i+1}")
    plt.axis("off")
```

```
        plt.axis("off")

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

```
Loading pipeline components...: 100%                                    5/5 [00:18<00:00,  2.82s/it]
You have disabled the safety checker for <class 'diffusers.pipelines.stable_diffusion.pipeline_stable_diffusion.StableDiffusionPipeline'> by passing `safety_checker=Non
100%                                                    4/4 [00:00<00:00, 11.04it/s]
100%                                                    4/4 [00:00<00:00, 14.85it/s]
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100%                                                    4/4 [00:00<00:00, 14.85it/s]
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100%                                                    4/4 [00:00<00:00, 14.21it/s]
```