```
!nvidia-smi
```

```
Sun Jul 27 11:26:32 2025
+-----------------------------------------------------------------------------------------+
| NVIDIA-SMI 550.54.15              Driver Version: 550.54.15      CUDA Version: 12.4     |
|-----------------------------------------+------------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id          Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |          Memory-Usage  | GPU-Util  Compute M. |
|                                         |                        |               MIG M. |
|=========================================+========================+======================|
|   0  Tesla T4                       Off | 00000000:00:04.0 Off   |                    0 |
| N/A  46C    P0             28W /   70W  |   1208MiB /  15360MiB  |     0%       Default |
|                                         |                        |                  N/A |
+-----------------------------------------+------------------------+----------------------+

+-----------------------------------------------------------------------------------------+
| Processes:                                                                              |
|  GPU   GI   CI         PID   Type   Process name                             GPU Memory |
|        ID   ID                                                               Usage      |
|=========================================================================================|
+-----------------------------------------------------------------------------------------+
```

1 - TEXT GENERATION MODEL USING HF TRANSFORMER + GPT 2 MODEL)

Double-click (or enter) to edit

```
from transformers import pipeline                    # NLP

generator = pipeline('text-generation', model='gpt2')
response = generator(' What is Hugging Face' , max_length = 40, num_return_sequences = 1)
print(response[0]['generated_text'])
```

```
Device set to use cuda:0
Truncation was not explicitly activated but `max_length` is provided a specific value, please use `truncation=True` to explicitly tr
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
Both `max_new_tokens` (=256) and `max_length`(=40) seem to have been set. `max_new_tokens` will take precedence. Please refer to the
 What is Hugging Face Pushing?

Hugging facial expressions are usually used to convey emotion or excitement, but also to help you relax or calm down.

There are many different types of facial expressions that you can use to express emotion. All different facial expressions are diffe

So if you have a funny face, try to express it with the same gestures you would use to express your emotions.

I am a huge fan of Hugging Face Pushing and I love making fun of myself.


What do I do if I'm feeling really bad about myself?

If you're feeling really bad about yourself, you may want to try changing your facial expressions so that they are more neutral, mor

If you feel like you're being too shy, try turning your face a little more toward the person you're hugging.

You can change your facial expressions by changing the smile you give to the person you're hugging.

If you feel like you're being too tense (you're in a really bad mood), try turning your face slightly toward the person you're huggi

You can also change your facial expressions by changing your body language
```

2 - NER (NAMED ENTITY RECOGNITION)

```
from transformers import pipeline                    # NLP

ner =  pipeline('ner' , grouped_entities = True)
entities = ner('Hugging face is based on NYC and partners Google with $200 dollar price')
print(entities)
```

⇥ No model was supplied, defaulted to dbmdz/bert-large-cased-finetuned-conll03-english and revision 4c53496 (https://huggingface.co/db
   Using a pipeline without specifying a model name and revision in production is not recommended.

   config.json: 100%   998/998 [00:00<00:00, 81.1kB/s]

   model.safetensors: 100%   1.33G/1.33G [00:52<00:00, 15.5MB/s]

   Some weights of the model checkpoint at dbmdz/bert-large-cased-finetuned-conll03-english were not used when initializing BertForToke
   - This IS expected if you are initializing BertForTokenClassification from the checkpoint of a model trained on another task or with
   - This IS NOT expected if you are initializing BertForTokenClassification from the checkpoint of a model that you expect to be exact

   tokenizer_config.json: 100%   60.0/60.0 [00:00<00:00, 5.49kB/s]

   vocab.txt: 213k/? [00:00<00:00, 13.5MB/s]

   Device set to use cuda:0
   [{'entity_group': 'LOC', 'score': np.float32(0.9951492), 'word': 'NYC', 'start': 25, 'end': 28}, {'entity_group': 'ORG', 'score': np
   /usr/local/lib/python3.11/dist-packages/transformers/pipelines/token_classification.py:181: UserWarning: `grouped_entities` is depre
     warnings.warn(

Start coding or generate with AI.

⌄ 3 - SENTIMENT ANALYSIS USING GRADIO (PROJECT -1)

```
!pip install transformers datasets
```

⇥ Requirement already satisfied: transformers in /usr/local/lib/python3.11/dist-packages (4.53.3)
   Requirement already satisfied: datasets in /usr/local/lib/python3.11/dist-packages (4.0.0)
   Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from transformers) (3.18.0)
   Requirement already satisfied: huggingface-hub<1.0,>=0.30.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.33.4)
   Requirement already satisfied: numpy>=1.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2.0.2)
   Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.11/dist-packages (from transformers) (25.0)
   Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.11/dist-packages (from transformers) (6.0.2)
   Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.11/dist-packages (from transformers) (2024.11.6)
   Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from transformers) (2.32.3)
   Requirement already satisfied: tokenizers<0.22,>=0.21 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.21.2)
   Requirement already satisfied: safetensors>=0.4.3 in /usr/local/lib/python3.11/dist-packages (from transformers) (0.5.3)
   Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.11/dist-packages (from transformers) (4.67.1)
   Requirement already satisfied: pyarrow>=15.0.0 in /usr/local/lib/python3.11/dist-packages (from datasets) (18.1.0)
   Requirement already satisfied: dill<0.3.9,>=0.3.0 in /usr/local/lib/python3.11/dist-packages (from datasets) (0.3.8)
   Requirement already satisfied: pandas in /usr/local/lib/python3.11/dist-packages (from datasets) (2.2.2)
   Requirement already satisfied: xxhash in /usr/local/lib/python3.11/dist-packages (from datasets) (3.5.0)
   Requirement already satisfied: multiprocess<0.70.17 in /usr/local/lib/python3.11/dist-packages (from datasets) (0.70.16)
   Requirement already satisfied: fsspec<=2025.3.0,>=2023.1.0 in /usr/local/lib/python3.11/dist-packages (from fsspec[http]<=2025.3.0,>
   Requirement already satisfied: aiohttp!=4.0.0a0,!=4.0.0a1 in /usr/local/lib/python3.11/dist-packages (from fsspec[http]<=2025.3.0,>=
   Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0,>=0.3
   Requirement already satisfied: hf-xet<2.0.0,>=1.1.2 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub<1.0,>=0.30.0->t
   Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (3
   Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (3.10)
   Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2.5.0)
   Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests->transformers) (2025.7.1
   Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.11/dist-packages (from pandas->datasets) (2.9.0.post
   Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas->datasets) (2025.2)
   Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.11/dist-packages (from pandas->datasets) (2025.2)
   Requirement already satisfied: aiohappyeyeballs>=2.5.0 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->
   Requirement already satisfied: aiosignal>=1.4.0 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fsspec
   Requirement already satisfied: attrs>=17.3.0 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fsspec[htt
   Requirement already satisfied: frozenlist>=1.1.1 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fsspec
   Requirement already satisfied: multidict<7.0,>=4.5 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fssp
   Requirement already satisfied: propcache>=0.2.0 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fsspec
   Requirement already satisfied: yarl<2.0,>=1.17.0 in /usr/local/lib/python3.11/dist-packages (from aiohttp!=4.0.0a0,!=4.0.0a1->fsspec
   Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.8.2->pandas->datasets)

```
from transformers import pipeline

classifier = pipeline('sentiment-analysis')
result = classifier( 'I Love Hugging Face library very much, it is so nice')
print(result)
```

⇥ No model was supplied, defaulted to distilbert/distilbert-base-uncased-finetuned-sst-2-english and revision 714eb0f (https://hugging
   Using a pipeline without specifying a model name and revision in production is not recommended.

   config.json: 100%   629/629 [00:00<00:00, 40.7kB/s]

   model.safetensors: 100%   268M/268M [00:06<00:00, 50.7MB/s]

   tokenizer_config.json: 100%   48.0/48.0 [00:00<00:00, 5.40kB/s]

   vocab.txt: 232k/? [00:00<00:00, 11.0MB/s]

   Device set to use cuda:0
   [{'label': 'POSITIVE', 'score': 0.999874472618103}]

```
from transformers import pipeline

classifier = pipeline('sentiment-analysis')
result = classifier( 'the food is not tasty')
print(result)
```

```
⇥  No model was supplied, defaulted to distilbert/distilbert-base-uncased-finetuned-sst-2-english and revision 714eb0f (https://huggin
   Using a pipeline without specifying a model name and revision in production is not recommended.
   Device set to use cuda:0
   [{'label': 'NEGATIVE', 'score': 0.9997794032096863}]
```

```
!pip install gradio
```

```
⇥  Requirement already satisfied: gradio in /usr/local/lib/python3.11/dist-packages (5.38.1)
   Requirement already satisfied: aiofiles<25.0,>=22.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (24.1.0)
   Requirement already satisfied: anyio<5.0,>=3.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (4.9.0)
   Requirement already satisfied: brotli>=1.1.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (1.1.0)
   Requirement already satisfied: fastapi<1.0,>=0.115.2 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.116.1)
   Requirement already satisfied: ffmpy in /usr/local/lib/python3.11/dist-packages (from gradio) (0.6.1)
   Requirement already satisfied: gradio-client==1.11.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (1.11.0)
   Requirement already satisfied: groovy~=0.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.1.2)
   Requirement already satisfied: httpx<1.0,>=0.24.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.28.1)
   Requirement already satisfied: huggingface-hub>=0.28.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.33.4)
   Requirement already satisfied: jinja2<4.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.1.6)
   Requirement already satisfied: markupsafe<4.0,>=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.0.2)
   Requirement already satisfied: numpy<3.0,>=1.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.0.2)
   Requirement already satisfied: orjson~=3.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.11.0)
   Requirement already satisfied: packaging in /usr/local/lib/python3.11/dist-packages (from gradio) (25.0)
   Requirement already satisfied: pandas<3.0,>=1.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.2.2)
   Requirement already satisfied: pillow<12.0,>=8.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (11.3.0)
   Requirement already satisfied: pydantic<2.12,>=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.11.7)
   Requirement already satisfied: pydub in /usr/local/lib/python3.11/dist-packages (from gradio) (0.25.1)
   Requirement already satisfied: python-multipart>=0.0.18 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.0.20)
   Requirement already satisfied: pyyaml<7.0,>=5.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (6.0.2)
   Requirement already satisfied: ruff>=0.9.3 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.12.4)
   Requirement already satisfied: safehttpx<0.2.0,>=0.1.6 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.1.6)
   Requirement already satisfied: semantic-version~=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.10.0)
   Requirement already satisfied: starlette<1.0,>=0.40.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.47.2)
   Requirement already satisfied: tomlkit<0.14.0,>=0.12.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.13.3)
   Requirement already satisfied: typer<1.0,>=0.12 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.16.0)
   Requirement already satisfied: typing-extensions~=4.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (4.14.1)
   Requirement already satisfied: uvicorn>=0.14.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.35.0)
   Requirement already satisfied: fsspec in /usr/local/lib/python3.11/dist-packages (from gradio-client==1.11.0->gradio) (2025.3.0)
   Requirement already satisfied: websockets<16.0,>=10.0 in /usr/local/lib/python3.11/dist-packages (from gradio-client==1.11.0->gradio
   Requirement already satisfied: idna>=2.8 in /usr/local/lib/python3.11/dist-packages (from anyio<5.0,>=3.0->gradio) (3.10)
   Requirement already satisfied: sniffio>=1.1 in /usr/local/lib/python3.11/dist-packages (from anyio<5.0,>=3.0->gradio) (1.3.1)
   Requirement already satisfied: certifi in /usr/local/lib/python3.11/dist-packages (from httpx<1.0,>=0.24.1->gradio) (2025.7.14)
   Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.11/dist-packages (from httpx<1.0,>=0.24.1->gradio) (1.0.9)
   Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.11/dist-packages (from httpcore==1.*->httpx<1.0,>=0.24.1->gradio
   Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (3.18.0)
   Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (2.32.3)
   Requirement already satisfied: tqdm>=4.42.1 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (4.67
   Requirement already satisfied: hf-xet<2.0.0,>=1.1.2 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio
   Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2
   Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2025.2)
   Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2025.2)
   Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio)
   Requirement already satisfied: pydantic-core==2.33.2 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio)
   Requirement already satisfied: typing-inspection>=0.4.0 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio
   Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (8.2.1)
   Requirement already satisfied: shellingham>=1.3.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (1.5.4
   Requirement already satisfied: rich>=10.11.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (13.9.4)
   Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.8.2->pandas<3.0,>=1.0->g
   Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.11/dist-packages (from rich>=10.11.0->typer<1.0,>=0.1
   Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.11/dist-packages (from rich>=10.11.0->typer<1.0,>=0
   Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests->huggingface-hub>=
   Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->huggingface-hub>=0.28.1
   Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.11/dist-packages (from markdown-it-py>=2.2.0->rich>=10.11.0->typ
```

```
import gradio as gr

from transformers import pipeline

classifier = pipeline("sentiment-analysis")

def analyze_sentiment(text):
  return classifier(text)[0]['label']

gr.Interface(fn = analyze_sentiment , inputs='text', outputs='text').launch()
```

No model was supplied, defaulted to distilbert/distilbert-base-uncased-finetuned-sst-2-english and revision 714eb0f (https://hugging
Using a pipeline without specifying a model name and revision in production is not recommended.
Device set to use cuda:0
It looks like you are running Gradio on a hosted Jupyter notebook, which requires `share=True`. Automatically setting `share=True`

Colab notebook detected. To show errors in colab notebook, set debug=True in launch()
* Running on public URL: https://8b24a0aade5ff71c01.gradio.live

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working

gradio

No interface is running right now

Double-click (or enter) to edit

4 - TEXT TO IMAGE MODEL USING DIFFUSION PIPELINE(PROJECT - 2)

```python
from diffusers import StableDiffusionPipeline
import torch

model_id = "sd-legacy/stable-diffusion-v1-5"
pipe = StableDiffusionPipeline.from_pretrained(model_id, torch_dtype=torch.float16)
pipe = pipe.to("cuda")

prompt = "a lake beautiful nature and water falls with butterflies nd birds"
image = pipe(prompt).images[0]

image.save("a beatiful nature.png")
```

model_index.json: 100%   541/541 [00:00<00:00, 48.2kB/s]

Fetching 15 files: 100%   15/15 [00:30<00:00, 2.07s/it]

preprocessor_config.json: 100%   342/342 [00:00<00:00, 5.42kB/s]

config.json: 100%   617/617 [00:00<00:00, 13.4kB/s]

Start coding or generate with AI.

scheduler_config.json: 100%

```python
import gradio as gr
from diffusers import StableDiffusionPipeline
import torch

model_id = "sd-legacy/stable-diffusion-v1-5"
pipe = StableDiffusionPipeline.from_pretrained(model_id, torch_dtype=torch.float16)
pipe = pipe.to("cuda")

def generate_image(prompt):
  image = pipe(prompt).images[0]
  #image.save(f"outputs/{prompt}.png")
  return image

# create ui frontend
gr.Interface(
    fn = generate_image ,
    inputs = gr.Textbox(label='Enter your prompt', placeholder = "a lake beautiful nature and water falls with butterflies nd birds"),
    outputs = gr.Image(type='pil' , label='Generated Image'),
    title = 'savitri reddy Text - Image Generator' ,
    description = 'Enter your prompt abd see the generated image'
).launch()
```

Loading pipeline components...: 100%   7/7 [00:23<00:00, 2.91s/it]

It looks like you are running Gradio on a hosted Jupyter notebook, which requires `share=True`. Automatically setting `share=True`

Colab notebook detected. To show errors in colab notebook, set debug=True in launch()
* Running on public URL: https://a943f9c8a42a7422d4.gradio.live

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working

savitri reddy Text - Image Generator

Enter your prompt abd see the generated image

Enter your prompt

a lake beautiful nature and water falls with
butterflies nd birds

Clear   **Submit**

🖼 Generated Image

Flag

Use via API 🚀 · Built with Gradio 🟠 · Settings ⚙