## By Aditya Tiwari

## Internship Project for Suvidha Mahila Mandal

```
1 # Install PyTorch
```

2 !pip install torch torchvision torchaudio

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Requirement already satisfied: torch in /usr/local/lib/python3.10/dist-packages (2.3.
Requirement already satisfied: torchvision in /usr/local/lib/python3.10/dist-packages
Requirement already satisfied: torchaudio in /usr/local/lib/python3.10/dist-packages
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (f
Requirement already satisfied: typing-extensions>=4.8.0 in /usr/local/lib/python3.10/
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (f
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (fro
Requirement already satisfied: fsspec in /usr/local/lib/python3.10/dist-packages (fro
Collecting nvidia-cuda-nvrtc-cu12==12.1.105 (from torch)
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Collecting nvidia-cuda-runtime-cu12==12.1.105 (from torch)
  Using cached nvidia_cuda_runtime_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (823
Collecting nvidia-cuda-cupti-cu12==12.1.105 (from torch)
  Using cached nvidia_cuda_cupti_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (14.1 M
Collecting nvidia-cudnn-cu12==8.9.2.26 (from torch)
  Using cached nvidia_cudnn_cu12-8.9.2.26-py3-none-manylinux1_x86_64.whl (731.7 MB)
Collecting nvidia-cublas-cu12==12.1.3.1 (from torch)
  Using cached nvidia cublas cu12-12.1.3.1-py3-none-manylinux1 x86 64.whl (410.6 MB)
Collecting nvidia-cufft-cu12==11.0.2.54 (from torch)
  Using cached nvidia_cufft_cu12-11.0.2.54-py3-none-manylinux1_x86_64.whl (121.6 MB)
Collecting nvidia-curand-cu12==10.3.2.106 (from torch)
  Using cached nvidia_curand_cu12-10.3.2.106-py3-none-manylinux1_x86_64.whl (56.5 MB)
Collecting nvidia-cusolver-cu12==11.4.5.107 (from torch)
  Using cached nvidia_cusolver_cu12-11.4.5.107-py3-none-manylinux1_x86_64.whl (124.2
Collecting nvidia-cusparse-cu12==12.1.0.106 (from torch)
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Collecting nvidia-nccl-cu12==2.20.5 (from torch)
  Using cached nvidia_nccl_cu12-2.20.5-py3-none-manylinux2014_x86_64.whl (176.2 MB)
Collecting nvidia-nvtx-cu12==12.1.105 (from torch)
  Using cached nvidia_nvtx_cu12-12.1.105-py3-none-manylinux1_x86_64.whl (99 kB)
Requirement already satisfied: triton==2.3.0 in /usr/local/lib/python3.10/dist-packag
Collecting nvidia-nvjitlink-cu12 (from nvidia-cusolver-cu12==11.4.5.107->torch)
  Downloading nvidia_nvjitlink_cu12-12.5.40-py3-none-manylinux2014_x86_64.whl (21.3 M
                                            - 21.3/21.3 MB 62.8 MB/s eta 0:00:00
```

Requirement already satisfied: numpy in /usr/local/lib/python3.10/dist-packages (from Requirement already satisfied: pillow!=8.3.\*,>=5.3.0 in /usr/local/lib/python3.10/dist Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-pack Requirement already satisfied: mpmath<1.4.0,>=1.1.0 in /usr/local/lib/python3.10/dist Installing collected packages: nvidia-nvtx-cu12, nvidia-nvjitlink-cu12, nvidia-nccl-c Successfully installed nvidia-cublas-cu12-12.1.3.1 nvidia-cuda-cupti-cu12-12.1.105 nv

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- 1 # Install transformers
- 2 !pip install transformers

Requirement already satisfied: transformers in /usr/local/lib/python3.10/dist-package Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (f Requirement already satisfied: huggingface-hub<1.0,>=0.23.0 in /usr/local/lib/python3 Requirement already satisfied: numpy>=1.17 in /usr/local/lib/python3.10/dist-packages Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-pack Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.10/dist-packages Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.10/dist-pa Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (f Requirement already satisfied: tokenizers<0.20,>=0.19 in /usr/local/lib/python3.10/di Requirement already satisfied: safetensors>=0.4.1 in /usr/local/lib/python3.10/dist-p Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.10/dist-packages Requirement already satisfied: fsspec>=2023.5.0 in /usr/local/lib/python3.10/dist-pac Requirement already satisfied: typing-extensions>=3.7.4.3 in /usr/local/lib/python3.1 Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/ Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-package Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-p Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-p

- 1 #import & load model
- 2 # Importing dependencies from transformers
- 3 from transformers import PegasusForConditionalGeneration, PegasusTokenizer
- 1 # Load tokenizer
- 2 tokenizer = PegasusTokenizer.from\_pretrained("google/pegasus-xsum")

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```
1 # Load model
```

2 model = PegasusForConditionalGeneration.from\_pretrained("google/pegasus-xsum")

 $\rightarrow$   $\overline{\phantom{a}}$ 

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```
1 text = """
```

- 2 The Roman Empire is generally understood to mean the period and territory ruled by the 3 By 100 BC, Rome had expanded its rule to most of the Mediterranean and beyond. However 4 The first two centuries of the Empire saw a period of unprecedented stability and pros 5 Due to the Empire's extent and endurance, its institutions and culture had a lasting i
- 1 # Create tokens number representation of our text
  2 tokens = tokenizer(text, truncation=True, padding="longest", return tensors="pt")
- 1 # Input tokens
- 2 tokens

```
{'input_ids': tensor([[
                            139,
                                   5385,
                                           7292,
                                                    117,
                                                           1813,
                                                                   5045,
                                                                            112,
                                                                                   1021,
109,
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                                           2613,
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                           5997,
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                                           2661,
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                     109, 29125,
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               141,
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                                      113,
                                            654,
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                     109, 5088,
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                          113, 87954,
                                            109, 59231, 1911,
         441,
               109,
                    1251,
                                      112,
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                     109, 23002,
                                 113, 19433, 40035, 51325,
       11021,
               111,
                                                       115,
                                                              110,
       37142,
              8783,
                     141, 58368,
                                5282,
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                                                  109,
                                                       2728,
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              1477, 16506,
                                139, 4424,
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        7292,
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                                                 1863,
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                     131,
                           116,
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1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
```

- 1 # Summarize
- 2 summary = model.generate(\*\*tokens)
- 1 # Output summary tokens
- 2 summary[0]

```
tensor([ 0, 139, 5385, 7292, 140, 156, 113, 109, 1368, 111, 205, 356, 1653, 115, 109, 3266, 278, 107, 1])
```

- 1 # Decode summary
- 2 print(tokenizer.decode(summary[0]))

<pad>The Roman Empire was one of the largest and most important states in the ancient

1 Start coding or generate with AI.

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