Contents

[1 Introduction 2](#_Toc158368336)

[2 Research design 3](#_Toc158368337)

[2.1 Identifying suitable model/-s for the study 3](#_Toc158368338)

[3 Additional word/sentences to look for 5](#_Toc158368339)

[4 3GPP 5G standards 6](#_Toc158368340)

[5 Examples of “good” latency requirements 7](#_Toc158368341)

[6 Examples of “bad” latency requirements 9](#_Toc158368342)

[7 References 10](#_Toc158368343)

[8 Appendix 11](#_Toc158368344)

[8.1 First run 11](#_Toc158368345)

[8.2 Second run – per model family 15](#_Toc158368346)

[8.3 Third run – per most downloads 20](#_Toc158368347)

[8.4 Fourth run – per most likes 24](#_Toc158368348)

[8.5 Fifth run – per trending 28](#_Toc158368349)

[8.6 Manipulation of parameters 31](#_Toc158368350)

[8.7 Using the models on 3GPP text 33](#_Toc158368351)

# Introduction

Alkjsdlk

1. Add GPT 3 as a model
2. Which additional models can be used? [Models - Hugging Face](https://huggingface.co/models?library=transformers)
3. Tbd
4. Prepare for *concept drift* (monitoring mechanism), once the code is in place
5. Get the example in chapter 6, page 3 - 9, working
6. Test AutoML, page 202 + how do we use in this research project?
7. tbd

Find relevant text passages of latency and a) tie them to existing requirements or b) highlight them as new latency topics.

# Research design

The following steps were taken bla bla bla

1. Identify the most suitable model/-s for this project, see chapter 2.1
2. Download all 3GPP standards that relate to 5G, are Technical Specifications, and are not withdrawn.
3. Define additional words to look for in standards and requirements, see chapter 4
4. Define examples of good (i.e., applicable) and bad (i.e., non-applicable) latency requirements, respectively, in 3GPP, see chapter 3
5. Apply model on 3GPP standards.
6. Improve until desired result is obtained – 80% ?
7. tbd

## Identifying suitable model/-s for the study

This chapter describes how we went by to decide which model/-s to use for the study.

We used the same text for all models:

The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.

We started experimenting with different models, to verify our approach and set-up ways-of-working. The models were copied from <https://huggingface.co/>. We decided also how to structure the findings, and how to rate the outputs of the models. For details, please see chapter 8.1.

Then we proceeded by running models per family (chapter 8.2), per most downloads (chapter 8.3), per most likes (chapter 8.4), and per trending (chapter 8.5). The purpose of this was to decide which models to use for the study. We chose the following models:

* sshleifer/distilbart-cnn-12-6
* knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI
* nickmuchi/fb-bart-large-finetuned-trade-the-event-finance-summarizer
* google/pegasus-xsum

Having decided on the models, we wanted to study the outputs based on manipulating the following parameters: max\_length, min\_length, length\_penalty, num\_beams, and early\_stopping. We changed one parameter at a time by decreasing/increasing their values compared to the baseline. Baseline output here is defined the output given when using the following parameters’ values:

* max\_length = 150
* min\_length = 40
* length\_penalty = 2.0
* num\_beams = 4
* early\_stopping = True

The outcome of this exercise showed that the baseline values were the preferred ones to use.

# Additional word/sentences to look for

The algorithm should capture other words than “latency” and “latencies”, e.g.

1. time budget
2. URLLC
3. delay
4. response (response time)
5. responsiveness
6. interruption (interruption time)
7. ms (milliseconds)
8. transmission
9. tbd

# 3GPP 5G standards

Downloading 3GPP standards that have 5G and are TS, excluding withdrawn.

|  |  |  |
| --- | --- | --- |
| **Subject of specification series** | **3GPP series** | **No of 5G standards** |
| Service aspects ("stage 1") | 22 series | 20 |
| Technical realization ("stage 2") | 23 series | 37 |
| Signalling protocols ("stage 3") - user equipment to network | 24 series | 0 |
| Radio aspects | 25 series | 0 |
| CODECs | 26 series | 87 |
| Data | 27 series | 1 |
| Signalling protocols ("stage 3") -(RSS-CN) and OAM&P and Charging (overflow from 32.- range) | 28 series | 43 |
| Signalling protocols ("stage 3") - intra-fixed-network | 29 series | 113 |
| Programme management | 30 series | 0 |
| Subscriber Identity Module (SIM / USIM), IC Cards. Test specs. | 31 series | 9 |
| OAM&P and Charging | 32 series | 27 |
| Security aspects | 33 series | 39 |
| UE and (U)SIM test specifications | 34 series | 3 |
| Security algorithms | 35 series | 9 |
| LTE (Evolved UTRA), LTE-Advanced, LTE-Advanced Pro radio technology | 36 series | 0 |
| Multiple radio access technology aspects | 37 series | 29 |
| Radio technology beyond LTE | 38 series | 82 |

# Examples of “good” latency requirements

Asdasdasd

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **3GPP** | **Text** | **Comment** |
| 1 | TS 22.104 | The 5G system shall support an end-to-end latency of less than 5 ms or 10 ms, as requested by the UE initiating the communication. | Word “latency” + number + ms |
| 2 | TS 22.104 | For some legacy systems, the latency usually is set to 15 ms. | Not a requirement per se, but useful information. |
| 3 | TS 22.104 | B.6 Unacceptable deviation from target end-to-end latency | Heading 🡪 useful information |
| 4 | TS 22.104 | In this instance round trip latency of < 20ms is required in order for an operator to see a move reflected at his control position as it is made. | Not a requirement per se, but useful information. |
| 5 | TS 22.104 | Table 5.2-1: Periodic deterministic communication service performance requirements | Questions a) How to extract latency data from a table? E.g., take the row? b) how to interpret “< transfer interval value”, i.e. when pointing to another column of the table  Answer: do not extract direct information 🡪 just point to the table if the word latency is found in the title of the table or in a cell of the table. |
| 6 | TS 22.125 | [R-5.2.1-002] The 3GPP system shall be able to deliver route modification information received from a UTM to a UAS with a latency of less than 500ms. | perfect example |
| 7 | TS 22.125 | [R-5.2.1-003] The 3GPP system shall be able to deliver the notifications received from a UTM to a UAV controller with a latency of less than 500ms. | perfect example |
| 8 | TS 22.125 | [R-5.2.2-011] The 3GPP system shall support a direct UAV to UAV local broadcast communication transport service which can transmit messages with an end-to-end latency of at most 100ms. | perfect example |
| 9 | TS 23.501 | [112] 3GPP TR 38.824: "Study on physical layer enhancements for NR ultra-reliable and low latency case (URLLC)". | When the word “latency” is found in the title of the document, in the chapter Definitions or Abbreviations. |
| 10 | TS 23.501 | L4S Low Latency, Low Loss and Scalable Throughput | When the word “latency” is found in the title of the document, in the chapter Definitions or Abbreviations. |
| 11 | TS 26.118 | The Scene Model can be updated with arbitrary temporal precision, but the resulting HRIR exchange is only done at processing block boundaries of the convolution. With a standard block size of B = 256 samples at 48 kHz sampling rate, this leads to a maximum onset latency of 5.3 ms until there is an audible effect of a motion of sources or the listener. | Not a requirement, but useful information. |
|  |  |  |  |
|  |  |  |  |

# Examples of “bad” latency requirements

Aslkdja slakjs alksj alksj ljk

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **3GPP** | **Text** | **Comment** |
| 1 | TS 22.104 | Communication services supporting cyber-physical control applications need to be ultra-reliable and, in some cases, the end-to-end latency must be very low. | Sentence with no value 🡪 implicit requirement, or just text. |
| 2 | TS 22.104 | end-to-end latency: as defined in TS 22.261 [2] | Reference, not requirement |
| 3 | TS 22.104 | factory automation: automation application in industrial automation branches typically with discrete characteristics of the application to be automated with specific requirements for determinism, low latency, reliability, redundancy, cyber security, and functional safety | Use the words “low latency”, ultra-low latency” or “very low latency” to identify implicit requirement |
| 4 | TS 22.104 | NOTE 7: Low latency typically means below 10 ms delivery time | Note, not requirement |
| 5 | TS 22.104 | (latency from UE1 to UE2, and end-to-end latency from UE2 to UE1) | Exclude information if text is in parentheses |
| 6 | TS 22.104 | Timing accuracy and low latency (<=20ms) | When text is a bullet, and the time budget is in parentheses. |
| 7 | TS 23.501 | MaxLatency: derived as with the corresponding information for the Talker group. | The word “latency” is part of another word, e.g., MaxLatency, AccumulatedLatency |
| 8 | TS 23.502 | Determining whether to relocate PSA UPF considering the user plane latency requirements provided by the AF (see clause 6.3.6 of TS 23.548 [74]). | No time budget defined. |
|  |  |  |  |

# References

1. [Hugging Face – The AI community building the future.](https://huggingface.co/)
2. BART: Denoising Sequence-to-Sequence Pre-training for Natural Language Generation, Translation, and Comprehension, [1910.13461.pdf (arxiv.org)](https://arxiv.org/pdf/1910.13461.pdf)

# Appendix

## First run

#@title Checking that PyTorch Sees CUDA  
import torch  
torch.cuda.is\_available()

* True

# load the summarization model google/pegasus-xsum # <https://huggingface.co/docs/transformers/main/model_doc/pegasus>  
from transformers import PegasusForConditionalGeneration, PegasusTokenizer model\_name = 'google/pegasus-xsum'  
#@title Step 7: Loading the Model and Tokenizer tokenizer = PegasusTokenizer.from\_pretrained(model\_name)  
model = PegasusForConditionalGeneration.from\_pretrained(model\_name)

* textToSummarize = 'The tower is 324 metres (1,063 ft) tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres (410 ft) on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres (17 ft). Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.'

# import the feature extraction pipeline   
from transformers import pipeline   
# create the pipeline, which will extract the embedding vectors # the models are already pre-defined, so we do not need to train anything here features = pipeline(  
 "feature-extraction",  
 model="google/pegasus-xsum",  
 tokenizer="google/pegasus-xsum",   
 return\_tensor = False  
)  
inputs = tokenizer.encode("summarize: " + textToSummarize, return\_tensors="pt", max\_length=512) outputs = model.generate(inputs, max\_length=150, min\_length=40, *length\_penalty*=2.0, num\_beams=4, early\_stopping=True)  
#print(outputs)  
# and decode the text  
tokenizer.decode(outputs[0])

* The Eiffel Tower, built in 1889, is one of the most famous buildings in the world and one of the most famous landmarks in Paris, France, and the world at large, with more than 20 million visitors a year.

# one requirement text  
oneRequirement = '… '

# and transfor it to the summarized text   
inputs = tokenizer.encode("summarize: " + oneRequirement,  
 return\_tensors="pt",   
 max\_length=512)   
# getting the set of summarized tokens   
# note that the tokens are actually a vector of embeddings   
outputs = model.generate(inputs, max\_length=30, min\_length=5,  
 *length\_penalty*=2.0, num\_beams=4,  
 early\_stopping=True)   
# and decode the text  
tokenizer.decode(outputs[0])

* The Eiffel Tower, built in 1889, is one of the most famous buildings in the world and one of the most famous landmarks in Paris, France, and the world at large, with more than 20 million visitors a year.

#######################################################

# one requirement text  
oneRequirement = '… '

# row 1: and transform it to the summarized text   
# row 2 + 3: getting the set of summarized tokens   
# note that the tokens are actually a vector of embeddings   
# row 4: and decode the text   
inputs = tokenizer.encode("summarize: " + oneRequirement,  
 return\_tensors="pt", max\_length=512)   
outputs = model.generate(inputs, max\_length=30, min\_length=5,   
 *length\_penalty*=2.0, num\_beams=4,   
 early\_stopping=True)   
tokenizer.decode(outputs[0])

* The Eiffel Tower, built in 1889, is one of the most famous buildings in the world.

# Facebook cnn model  
fb\_model = "facebook/bart-large-cnn"  
summarizer = pipeline("summarization", model=fb\_model)  
print(summarizer(oneRequirement, max\_length=150, min\_length=40,   
 do\_sample=False))

* The tower is 324 metres (1,063 ft) tall, about the same height as an 81-storey building. Its base is square, measuring 125 metres (410 ft) on each side. It is the second tallest free-standing structure in France after the Millau Viaduct.

# google pegasus model  
summarizer = pipeline("summarization", model=model\_name)  
print(summarizer(oneRequirement, max\_length=150, min\_length=40,   
 do\_sample=False))

* The Eiffel Tower, also known as the Arc de Triomphe, is one of the most famous landmarks in Paris, France, and was built in 1889 as a memorial to the victims of the Paris attacks.

# gpt-2 model  
gpt2\_model = 'gavin124/gpt2-finetuned-cnn-summarization-v2'  
summarizer = pipeline("summarization", model=gpt2\_model)  
print(summarizer(oneRequirement, max\_length=150,   
 min\_length=40, do\_sample=False))

* The tower is 324 metres (1,063 ft) tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres (410 ft) on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-v structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres (17 ft). Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct. The

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Model** | **Outcome** | **Rating** |
| inputs = tokenizer.encode("summarize: " + oneRequirement, return\_tensors="pt", max\_length=512)  outputs = model.generate(inputs, max\_length=30, min\_length=5, *length\_penalty*=2.0, num\_beams=4, early\_stopping=True)  tokenizer.decode(outputs[0]) | Pegasus? | The Eiffel Tower, built in 1889, is one of the most famous buildings in the world. | 5 |
| fb\_model = "facebook/bart-large-cnn"  summarizer = pipeline("summarization", model=fb\_model)  print(summarizer(oneRequirement, max\_length=150, min\_length=40, do\_sample=False)) | Facebook cnn model | The tower is 324 metres (1,063 ft) tall, about the same height as an 81-storey building. Its base is square, measuring 125 metres (410 ft) on each side. It is the second tallest free-standing structure in France after the Millau Viaduct. | 3 |
| summarizer = pipeline("summarization", model=model\_name)  print(summarizer(oneRequirement, max\_length=150, min\_length=40, do\_sample=False)) | google pegasus model | The Eiffel Tower, also known as the Arc de Triomphe, is one of the most famous landmarks in Paris, France, and was built in 1889 as a memorial to the victims of the Paris attacks. | 1 |
| gpt2\_model = 'gavin124/gpt2-finetuned-cnn-summarization-v2'  summarizer = pipeline("summarization", model=gpt2\_model)  print(summarizer(oneRequirement, max\_length=150, min\_length=40, do\_sample=False)) | gpt-2 model | The tower is 324 metres (1,063 ft) tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres (410 ft) on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres (17 ft). Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct. The | 2 |

## Second run – per model family

2024-01-15

Models used from: [Hugging Face – The AI community building the future.](https://huggingface.co/)

“Requirement” text used for all models:

The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.

The following models were studied, based on the following question to ChatGPT 3.5. Models in red were not available at *huggingface*.

User

*Please give me top 20 summarization models*

ChatGPT

*Sure, here are 20 summarization models:*

1. BERTSum
2. GPT-3
3. T5 (Text-to-Text Transfer Transformer)
4. BART (BART is Not a Recursive Acronym)
5. Pegasus
6. Transformer-XL
7. XLNet
8. Pointer-Generator Network
9. LEAD-3
10. TextRank
11. Extractive Summarization with BERT
12. Unified Summarization Model (USM)
13. Abstractive Summarization with Pretrained Transformer (BertSumAbs)
14. Fast Abstractive Summarization (FastAbsRL)
15. Reinforcement Learning for Extractive Summarization (RLEx)
16. Pretrained Contextualized Embeddings for Summarization (Pegasus)
17. Deep Communicating Agents for Abstractive Summarization (DCA)
18. Salience Estimation Extractive Summarization (SEES)
19. Deep Reinforcement Learning for Unsupervised Extractive Summarization (DRLUS)
20. Reinforcement Learning with Human Feedback (RLHF)

|  |  |  |
| --- | --- | --- |
| **Model** | **Sub-model** | **Outcome** |
| **bart** | facebook/bart-large-cnn | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. It is the second tallest free-standing structure in France after the Millau Viaduct. |
| **bart** | knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It was the tallest man-made structure in the world until the Chrysler Building in New York City was finished in 1930, then it surpassed it by 5.2 metres in 1957. |
| **bart** | lidiya/bart-large-xsum-samsum | The Eiffel Tower was built in 1889. It is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It surpassed the Washington Monument to become the tallest man-made structure in the world for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres, and it is now taller than the Chrysler by 5.2 metres. |
| **bart** | philschmid/bart-large-cnn-samsum | The Eiffel Tower is 324 metres tall and the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres and it is now taller than the Chrysler Building by 5.2 metres. |
| **bert** | bert\_model | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. |
| **bert** | BertForMaskedLM | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct. |
| **bert** | model\_base\_uncased | the tower is 324 metres tall, about the same height as an 81 - storey building, and the tallest structure in paris. its base is square, measuring 125 metres on each side. during its construction, the eiffel tower surpassed the washington monument to become the tallest man - made structure in the world, a title it held for 41 years until the chrysler building in new york city was finished in 1930. it was the first structure to reach a height of 300 metres. due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the chrysler building by 5. 2 metres. excluding transmitters, the eiffel tower is the second tallest free - standing structure in france after the millau viaduct. it..... the famous |
| **falcon** | Falconsai/text\_summarization | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. The Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. |
| **falcon** | Falconsai/medical\_summarization | the Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. its base is square, measuring 125 metres on each side. the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. |
| **gpt** | GPT2 | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.  The Eiffel Tower is the second tallest free-standing structure. |
| **gpt** | gavin124/gpt2-finetuned-cnn-summarization-v2 | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct. The |
| **led** | pszemraj/led-large-book-summary | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. It was the first structure to reach a height of 300 metres. With the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. |
| **led** | pszemraj/led-base-book-summary | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Dauphin Viaduct by 5.2 metres. Excluding transmitters, the towers are the second tallest free |
| **led** | nsi319/legal-led-base-16384 | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the |
| **pegasus** | google/pegasus-large | During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. |
| **pegasus** | google/pegasus-xsum | The Eiffel Tower, built in 1889, is one of the most famous buildings in the world and one of the most famous landmarks in Paris, France, and the world at large, with more than 20 million visitors a year. |
| **pegasus** | google/pegasus-cnn\_dailymail | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris.<n>It is the second tallest free-standing structure in France after the Millau Viaduct.<n>It was the first structure to reach a height of 300 metres. |
| **pegasus** | human-centered-summarization/financial-summarization-pegasus | Paris’s Eiffel Tower is the world’s tallest. It is the second tallest free-standing structure in France after the Millau Viaduct. Excluding transmitters, the Eiffel Tower is the second tallest in France |
| **t5** | cnicu/t5-small-booksum | the Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. The Eiffel Tower is the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. |
| **t5** | marianna13/flan-t5-base-summarization | The Eiffel Tower is 324 metres tall, the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, it surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres, and due to a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. The Eiffel Tower is the second tallest free-standing structure in France |
| **t5** | pszemraj/long-t5-tglobal-base-16384-book-summary | The tallest of France is held in the House of Vienna. It was a towering structure-the tallest building in the world. Londonderry, England from 1857 to 1932. In the years that followed, the taller buildings were known as "Tower" or "Wondom." This term refers to the construction of an addition to a house. Tower was used to symbolize the height of a man's stature; it was one of the tallest buildings in Europe until the late nineteenth century. |
| **t5** | Shahm/t5-small-german | Die Eiffel Tower ist 324 Meter hoch, über die gleiche Höhe wie an 81-storey Gebäude, und die tallest in Paris. Es ist die zweithöchste Free-standing-Street-Street in der Welt.  With automated translation: The Eiffel Tower is 324 meters high, above the same height as at 81-store buildings, and the tallest in Paris. It is the second highest free-standing street street in the world |

## Third run – per most downloads

2024-01-17

Models used from: [Hugging Face – The AI community building the future.](https://huggingface.co/)

“Requirement” text used for all models:

The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.

The following models were studied:

1. facebook/bart-large-cnn 2.45M 764 likes
2. sshleifer/distilbart-cnn-12-6 793k 203 likes
3. philschmid/bart-large-cnn-samsum 302k 215 likes
4. Shahm/t5-small-german 92k 1 likes
5. google/pegasus-cnn\_dailymail 75,7k 59 likes
6. Falconsai/text\_summarization 55,7k 45 likes
7. google/pegasus-xsum 48k 147 likes
8. imvladikon/het5\_summarization 47.6k 0 likes
9. human-centered-summarization/ 31.8k 98 likes  
   financial-summarization-pegasus
10. google/pegasus-large 31.1k 76 likes
11. knkarthick/MEETING\_SUMMARY 30.8k 172 likes
12. pszemraj/led-large-book-summary 26.6k 79 likes
13. csebuetnlp/mT5\_multilingual\_XLSum 23.7k 211 likes
14. pszemraj/long-t5-tglobal-base-sci-simplify 15.1k 6 likes
15. knkarthick/MEETING-SUMMARY-BART- 13k 12 likes  
    LARGE-XSUM-SAMSUM-DIALOGSUM-AMI
16. sshleifer/distilbart-xsum-12-1 10.9k 4 likes
17. plguillou/t5-base-fr-sum-cnndm 10.7k 15 likes
18. lidiya/bart-large-xsum-samsum 10.2k 36 likes
19. google/bigbird-pegasus-large-bigpatent 8.06k 31 likes 🡪 did not work
20. pszemraj/long-t5-tglobal-base-sci-simplify-elife 7.97k 0 likes 🡪 did not work

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Model family** | **model** | **outcome** | **Downloads/ likes** |
| 1 | bart | facebook/bart-large-cnn | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. It is the second tallest free-standing structure in France after the Millau Viaduct. | 2.45M  764 likes |
| 2 | bart | sshleifer/distilbart-cnn-12-6 | The tower is 324 metres tall, about the same height as an 81-storey building. It is the second tallest free-standing structure in France after the Millau Viaduct. During its construction it surpassed the Washington Monument to become the tallest man-made structure in the world. | 793k  203 likes |
| 3 | bart | philschmid/bart-large-cnn-samsum | The Eiffel Tower is 324 metres tall and the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres and it is now taller than the Chrysler Building by 5.2 metres. | 302k  215 likes |
| 4 | t5 | Shahm/t5-small-german | The Eiffel Tower is 324 meters high, above the same height as at 81-storey buildings,  and the tallest in Paris. It is the second highest free-standing street street in the world. | 92k  1 likes |
| 5 | pegasus | google/pegasus-cnn\_dailymail | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It is the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres. | 75,7k  59 likes |
| 6 | falcon | Falconsai/text\_summarization | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. The Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. | 55,7k  45 likes |
| 7 | pegasus | google/pegasus-xsum | The Eiffel Tower, built in 1889, is one of the most famous buildings in the world and one of the most famous landmarks in Paris, France, and the world at large, with more than 20 million visitors a year. | 48k  147 likes |
| 8 | t5 | imvladikon/het5\_summarization | The Eiffel Tower is the largest tower in the world. The Eiffel Tower is the largest tower in the world, and the largest tower in the world. The Eiffel Tower is the largest tower in the world. | 47.6k  0 likes |
| 9 | pegasus | human-centered-summarization/financial-summarization-pegasus | Paris’s Eiffel Tower is the world’s tallest. It is the second tallest free-standing structure in France after the Millau Viaduct. Excluding transmitters, the Eiffel Tower is the second tallest in France | 31.8k  98 likes |
| 10 | pegasus | google/pegasus-large | During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. | 31.1k  76 likes |
| 11 | ? | knkarthick/MEETING\_SUMMARY | The Eiffel Tower was built in 1889. It is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Before the addition of a broadcasting aerial at the top of the tower in 1957, it was taller than the Chrysler Building by 5.2 metres. It was the tallest man-made structure in the world until 1930. Now it is the second tallest free-standing structure in France after Millau Viaduct. | 30.8k  172 likes |
| 12 | led | pszemraj/led-large-book-summary | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. It was the first structure to reach a height of 300 metres. With the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. | 26.6k  79 likes |
| 13 | t5 | csebuetnlp/mT5\_multilingual\_XLSum | The Eiffel Tower has become the world's tallest free-standing building, marking its 50th anniversary. But what do you know about the structure and what is it really like? | 23.7k  211 likes |
| 14 | t5 | pszemraj/long-t5-tglobal-base-sci-simplify | During the years, it has been known that there is a rise in the number of people who are senestile. It’s not always easy to find out where you live and how much money you have spent on an eithety-tollow The taller we tower at the than its In the 1957tremnous was the Towerlondow until now, it remains one of the biggest hurdles in the process of determining whether or not a person will be able to remain in their home for the rest of their life. For the most part, this can be achieved by having a good understanding of what they are currently doing (for example, if they | 15.1k  6 likes |
| 15 | Bart | knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It was the tallest man-made structure in the world until the Chrysler Building in New York City was finished in 1930, then it surpassed it by 5.2 metres in 1957. | 13k  12 likes |
| 16 | Bart | sshleifer/distilbart-xsum-12-1 | The Eiffel Tower, the tallest in the world, has been built in Paris, for the first time in the 1960s and 20th Century, in the French capital, Paris, in 1957. | 10.9k  4 likes |
| 17 | t5 | plguillou/t5-base-fr-sum-cnndm | French Summary: Le bâtiment de New York a été le premier à atteindre une hauteur de 300 mètres. Il a été le premier bâtiment à atteindre une hauteur de 300 mètres. Le bâtiment Chrysler a été terminé en 1930.  Translated English Summary: translate French to English: The building in New York was the first to reach a height of 300 meters. It was the first building to reach a height of 300 meters. The Chrysler building was completed in 1930. | 10.7k  15 likes |
| 18 | bart | lidiya/bart-large-xsum-samsum | The Eiffel Tower was built in 1889. It is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It surpassed the Washington Monument to become the tallest man-made structure in the world for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres, and it is now taller than the Chrysler by 5.2 metres. | 10.2k  36 likes |

## Fourth run – per most likes

2024-01-19

Models used from: [Hugging Face – The AI community building the future.](https://huggingface.co/)

“Requirement” text used for all models:

The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.

The following models were studied (number in parenthesis denotes the order of the model in the previous chapter):

🡪 could not get it to work

1. (1) facebook/bart-large-cnn 2.45M 764 likes
2. (3) philschmid/bart-large-cnn-samsum 302k 215 likes
3. (13) csebuetnlp/mT5\_multilingual\_XLSum 23.7k 211 likes
4. (2) sshleifer/distilbart-cnn-12-6 793k 203 likes
5. (11) knkarthick/MEETING\_SUMMARY 30.8k 172 likes
6. (7) google/pegasus-xsum 48k 147 likes
7. (-) pszemraj/long-t5-tglobal-base- 3.55k 104 likes  
    16384-book-summary
8. (9) human-centered-summarization/ 31.8k 98 likes  
    financial-summarization-pegasus
9. (12) pszemraj/led-large-book-summary 26.6k 79 likes
10. (10) google/pegasus-large 31.1k 76 likes
11. (5) google/pegasus-cnn\_dailymail 75,7k 59 likes
12. (-) slauw87/bart\_summarisation 6.31k 55 likes
13. (-) pszemraj/led-base-book-summary 1.16k 47 likes
14. (-) IDEA-CCNL/Randeng-Pegasus- 302 44 likes 🡪 did not work  
     523M-Summary-Chinese
15. (-) Falconsai/medical\_summarization 7.18k 44 likes
16. (6) Falconsai/text\_summarization 55.7k 45 likes
17. (-) IDEA-CCNL/Randeng-Pegasus-238M 419 40 likes 🡪 did not work  
     -Summary-Chinese
18. (-) tuner007/pegasus\_summarizer 876 39 likes
19. (-) IlyaGusev/mbart\_ru\_sum\_gazeta 6.26k 38 likes 🡪 did not work
20. (18) lidiya/bart-large-xsum-samsum 10.2k 36 likes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Model family** | **model** | **outcome** | **Downloads/ likes** |
| 1 (1) | bart | facebook/bart-large-cnn | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. It is the second tallest free-standing structure in France after the Millau Viaduct. | 2.45M  764 likes |
| 2 (3) | bart | philschmid/bart-large-cnn-samsum | The Eiffel Tower is 324 metres tall and the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres and it is now taller than the Chrysler Building by 5.2 metres. | 302k  215 likes |
| 3 (13) | t5 | csebuetnlp/mT5\_multilingual\_XLSum | The Eiffel Tower has become the world's tallest free-standing building, marking its 50th anniversary. But what do you know about the structure and what is it really like? | 23.7k  211 likes |
| 4 (2) | bart | sshleifer/distilbart-cnn-12-6 | The tower is 324 metres tall, about the same height as an 81-storey building. It is the second tallest free-standing structure in France after the Millau Viaduct. During its construction it surpassed the Washington Monument to become the tallest man-made structure in the world. | 793k  203 likes |
| 5 (11) | ? | knkarthick/MEETING\_SUMMARY | The Eiffel Tower was built in 1889. It is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Before the addition of a broadcasting aerial at the top of the tower in 1957, it was taller than the Chrysler Building by 5.2 metres. It was the tallest man-made structure in the world until 1930. Now it is the second tallest free-standing structure in France after Millau Viaduct. | 30.8k  172 likes |
| 6 (7) | pegasus | google/pegasus-xsum | The Eiffel Tower, built in 1889, is one of the most famous buildings in the world and one of the most famous landmarks in Paris, France, and the world at large, with more than 20 million visitors a year. | 48k  147 likes |
| 7 (-) | t5 | pszemraj/long-t5-tglobal-base-16384-book-summary | The tallest of France is held in the House of Vienna. It was a towering structure-the tallest building in the world. Londonderry, England from 1857 to 1932. In the years that followed, the taller buildings were known as "Tower" or "Wondom." This term refers to the construction of an addition to a house. Tower was used to symbolize the height of a man's stature; it was one of the tallest buildings in Europe until the late nineteenth century. | 3.55k  104 likes |
| 8 (9) | pegasus | human-centered-summarization/financial-summarization-pegasus | Paris’s Eiffel Tower is the world’s tallest. It is the second tallest free-standing structure in France after the Millau Viaduct. Excluding transmitters, the Eiffel Tower is the second tallest in France | 31.8k  98 likes |
| 9 (12) | led | pszemraj/led-large-book-summary | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. It was the first structure to reach a height of 300 metres. With the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. | 26.6k  79 likes |
| 10 (10) | pegasus | google/pegasus-large | During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. | 31.1k  76 likes |
| 11 (5) | pegasus | google/pegasus-cnn\_dailymail | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It is the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres. | 75,7k  59 likes |
| 12 (-) | bart | slauw87/bart\_summarisation | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building. It is the tallest structure in Paris and the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres. | 6.31k  55 likes |
| 13 (-) | led | pszemraj/led-base-book-summary | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the | 1.16k  47 likes |
| 15 (-) | falcon | Falconsai/medical\_summarization | the Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. its base is square, measuring 125 metres on each side. the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. | 7.18k  44 likes |
| 16 (6) | falcon | Falconsai/text\_summarization | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. The Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. | 55.7k  45 likes |
| 18 (-) | pegasus | tuner007/pegasus\_summarizer | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished. | 876  39 likes |
| 20 (18) |  | lidiya/bart-large-xsum-samsum | The Eiffel Tower was built in 1889. It is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It surpassed the Washington Monument to become the tallest man-made structure in the world for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres, and it is now taller than the Chrysler by 5.2 metres. | 10.2k  36 likes |

## Fifth run – per trending

2024-01-22

Models used from: [Hugging Face – The AI community building the future.](https://huggingface.co/)

“Requirement” text used for all models:

The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. Excluding transmitters, the Eiffel Tower is the second tallest free-standing structure in France after the Millau Viaduct.

The following models were studied:

1. facebook/bart-large-cnn 2,45M 764  
2. falconsai/text\_summarization 55,7k 40  
3. sshleifer/distilbart-cnn-12-6 793k 203  
4. falconsai/medical\_summarization 7,18k 44  
5. google/pegasus-cnn\_dailymail 75,7k 59  
6. mrm8488/bert2bert\_shared- 532 10 🡪 did not work  
 turkish-summarization   
7. philschmid/bart-large-cnn-samsum 302k 215  
8. IlyaGusev/mbart\_ru\_sum\_gazeta 5,6k 38   
9. IlyaGusev/rubert\_telegram\_headlines 101 10 🡪 did not work  
10. SEBIS/code\_trans\_t5\_base\_code\_ 19 1 🡪 did not work  
 documentation\_generation\_javascript   
11. SEBIS/code\_trans\_t5\_large\_source\_code\_ 72 5 🡪 did not work  
 summarization\_csharp\_multitask\_finetune  
12. SEBIS/code\_trans\_t5\_small\_code\_ 12 8  
 documentation\_generation\_javascript\_  
 transfer\_learning\_finetune  
13. alaggung/bart-r3f 514 5 🡪 did not work  
14. google/pegasus-pubmed 281 7 🡪 did not work  
15. google/roberta2roberta\_L-24\_gigaword 31 4 🡪 did not work  
16. human-centered-summarization/ 31,8k 98  
17. HooshvareLab/pn-summary-b2b-shared 1 1 🡪 did not work  
18. HooshvareLab/pn-summary-mt5-base 24 1 🡪 did not work  
19. nickmuchi/fb-bart-large-finetuned-trade- 620 13  
 the-event-finance-summarizer  
20. nsi319/legal-led-base-16384 328 6

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Model family** | **model** | **outcome** | **Downloads/ Likes** |
| 1 | bart | facebook/bart-large-cnn | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. It is the second tallest free-standing structure in France after the Millau Viaduct. | 2,45M  764 |
| 2 | falcon | Falconsai/text\_summarization | The Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. The Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world. | 55,7k  40 |
| 3 | bart | sshleifer/distilbart-cnn-12-6 | The tower is 324 metres tall, about the same height as an 81-storey building. It is the second tallest free-standing structure in France after the Millau Viaduct. During its construction it surpassed the Washington Monument to become the tallest man-made structure in the world. | 793k  203 |
| 4 | falcon | Falconsai/medical\_summarization | the Eiffel Tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. its base is square, measuring 125 metres on each side. the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. | 7,18k  44 |
| 5 | pegasus | google/pegasus-cnn\_dailymail | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. It is the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres. | 75,7k  59 |
| 7 | bart | philschmid/bart-large-cnn-samsum | The Eiffel Tower is 324 metres tall and the second tallest free-standing structure in France after the Millau Viaduct. It was the first structure to reach a height of 300 metres and it is now taller than the Chrysler Building by 5.2 metres. | 302k  215 |
| 8 | bart | IlyaGusev/mbart\_ru\_sum\_gazeta | The Eiffel Tower is the tallest free-standing structure in France after the Millau Viaduct. During its construction, it surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the addition of a broadcasting aerial at the top of the tower in 1957, it is now taller than the Chrysler Building by 5.2 metres. | 5,6k  38 |
| 12 | t5 | SEBIS/code\_trans\_t5\_small\_code\_documentation\_generation\_javascript\_transfer\_learning\_finetune | It is the Eiffel Tower in the Building in the editor. It is the wrapper around the Eiffel Tower and it is the taller if the tower is the tallest man in the world. | 8  4 |
| 16 | pegasus | human-centered-summarization/financial-summarization-pegasus | Paris’s Eiffel Tower is the world’s tallest. It is the second tallest free-standing structure in France after the Millau Viaduct. Excluding transmitters, the Eiffel Tower is the second tallest in France | 31,8k  98 |
| 19 | bart | nickmuchi/fb-bart-large-finetuned-trade-the-event-finance-summarizer | The Eiffel Tower is the Tallest Structure in France, Standing 324 Metres Tallest Man-Made Structure in the World until the Chrysler Building in New York City in 1930 | 620  13 |
| 20 | led | nsi319/legal-led-base-16384 | The tower is 324 metres tall, about the same height as an 81-storey building, and the tallest structure in Paris. Its base is square, measuring 125 metres on each side. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. During its construction, the Eiffel Tower surpassed the Washington Monument to become the tallest man-made structure in the world, a title it held for 41 years until the Chrysler Building in New York City was finished in 1930. It was the first structure to reach a height of 300 metres. Due to the | 328  6 |

## Manipulation of parameters

From the previous executions we chose the models that got that highest rating, i.e., a “4”; see file *ratings\_\_C.xlsx*. These models were:

1. sshleifer/distilbart-cnn-12-6
2. knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI
3. nickmuchi/fb-bart-large-finetuned-trade-the-event-finance-summarizer
4. google/pegasus-xsum

The details are listed in the file *manipulation\_of\_rating\_4\_\_D.xlsx*.

We used the following parameter values as our baseline:

outputs = model.generate(inputs, max\_length=150, min\_length=40, *length\_penalty*=2.0, num\_beams=4, early\_stopping=True)

We manipulated the values, according to the following:

1. we manipulated stepwise the *length\_penalty* from 2.0 to:   
   1.0 🡪 4.0 🡪 10.0 🡪 50.0 🡪 100.0  
   while keeping the other values according to the baseline
2. then we manipulated stepwise the *num\_beams* from 4 to:   
   2 🡪 8 🡪 20 🡪 50 🡪 100  
   while keeping the other values according to the baseline
3. then we manipulated the *early\_stopping* value from True to False,  
   while keeping the other values according to the baseline
4. then we manipulated stepwise the *max\_ length* from 150 to:   
   75 🡪 100 🡪 200 🡪 500 🡪 1000 🡪 2000  
   while keeping the other values according to the baseline
5. finally we manipulated stepwise the min\_length from 40 to:   
   20 🡪 80 🡪 150  
   while keeping the other values according to the baseline

increase in calculation time

General observations, for details please see manipulation\_of\_rating\_4\_\_**E**.xlsx

1. Comments for "baseline"
   1. No change in the values of these parameters gave a better output.  
      The question is of course if this holds for coordinated changes as oppose to singular changes in this run.
   2. the google/pegasus-xsum provides the best summarization, as:
      1. it gives when Eiffel tower was built
      2. points out that it is the most famous building in France and the world
      3. that is has 20 million visitors a year: a) it quantifies how famous it is and b) this was an information that was not included in the training text
      4. it would have received a "5" if it did not repeat that it is the most famous landmark in the world twice.
      5. when it comes to using the model for requirements' handling, this is **not good**, as we do not want the model to add things by itself to the output.
2. comments for max\_lenght
   1. the increase of *max\_lenght* resulted in the same output as for the baseline, i.e., it did not have any impact on the output.
3. comments for min\_length
   1. different models gave different lengthy outputs.
   2. All outputs resulted in worse rating than baseline.
4. comments for *length\_penalty*
   1. decreasing the *length\_penalty*
      1. resulted in a worse rating for sshleifer/distilbart-cnn-12-6 and knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI
      2. did not have any impact on the other two models
      3. having a value of “0” did not affect the output.
   2. Increasing the *length\_penalty* did not change anything, i.e., we get the exact same outputs as the original ones.
5. comments for num\_beams
   1. Reducing or increasing the num\_beams decrease the rating for all the models. Except for the fourth model   
      nickmuchi/fb-bart-large-finetuned-trade-the-event-finance-summarizer which had the worst output, the other three models gave a good output, scoring “3”.

## Using the models on 3GPP text

We used text from the 3GPP standard TS 22.104, on the four models defined in chapter 8.6. The details are found in …\Research\2024\AI\_finding\_latency\models\_on\_3GPP\_\_B.xlsx.

Main observations:

* The sshleifer/distilbart-cnn-12-6 model performed the best.
* The models nickmuchi/fb-bart-large-finetuned-trade-the-event-finance-summarizer and google/pegasus-xsum had the worst performance, and the knkarthick/MEETING-SUMMARY-BART-LARGE-XSUM-SAMSUM-DIALOGSUM-AMI model was in between these two and the first one.