| **Class** | **Use Case** |
| --- | --- |
| AutoModelForSequenceClassification | For tasks like **sentiment analysis** |
| AutoModelForTokenClassification | For tasks like **named entity recognition (NER)** |
| AutoModelForCausalLM | For **text generation** (e.g., GPT models) |
| AutoModelForSeq2SeqLM | For **summarization**, **translation**, etc. |

**AutoModelForSeq2SeqLM**

**What it does:**

It **automatically selects and loads** the right model architecture for a **sequence-to-sequence (seq2seq)** task based on the model name you provide

**What is Seq2Seq?**

"Sequence-to-sequence" means:

* The model **takes a sequence of text as input** (e.g., a resume).
* It **produces another sequence as output** (e.g., a summary of that resume).

Examples:

* Resume summarization
* Text translation
* Question answering (with full-sentence answers)

**Summarization**

For summarization, it's better to use models that are **seq2seq** (sequence-to-sequence) architectures. Some alternatives include:

1. **BART (Bidirectional and Auto-Regressive Transformers)**:
   * A seq2seq model like BERT but with a **denoising autoencoder** objective.
   * Great for tasks like summarization and translation.
   * Example: "facebook/bart-large-cnn" is often used for summarization tasks.
2. **T5 (Text-to-Text Transfer Transformer)**:
   * A unified text-to-text model that handles a wide range of NLP tasks, including summarization.
   * Example: "t5-large" or "t5-small" for text summarization.
3. **PEGASUS**:
   * A transformer model designed specifically for abstractive summarization tasks.
   * Example: "google/pegasus-xsum" is a good model for summarization

**HOW TO SEARCH MODELS ON HUGGING FACE BY TASK**

**steps:**

1. **Go to the Hugging Face Models page**.
2. On the **left panel**, look for the **“Tasks”** filter.
3. Select a task like:
   * Text Classification → for **sentiment analysis**, intent detection, etc.
   * Token Classification → for **NER**, POS tagging.
   * Text Generation → for **story generation**, code generation.
   * Summarization → for **text summarization**.
   * Translation → for language translation.
4. (Optional) Use the **search bar** to narrow it further with keywords like bert, t5, gpt, multilingual, etc.

**HOW TO SEARCH DATASETS ON HUGGING FACE BY TASK**

**Steps:**

1. **Go to the Hugging Face Datasets page.**
2. **Use the “Task Categories” filter on the left.**
3. **Pick a task you're working on:**
   * **Text Classification → datasets like imdb, yelp\_review\_full**
   * **Token Classification → datasets like conll2003, wnut\_17**
   * **Summarization → datasets like cnn\_dailymail, xsum**
   * **Translation → datasets like wmt14, opus100**
4. **Use the search bar to find domain-specific datasets (e.g., "medical ner").**

Example Scenarios

| Task | Filter To Use | Example Model | Example Dataset |
| --- | --- | --- | --- |
| Sentiment Analysis | Text Classification | distilbert-base-uncased-finetuned-sst-2-english | imdb, yelp\_polarity |
| Named Entity Recognition | Token Classification | dslim/bert-base-NER | conll2003, wnut\_17 |
| Summarization | Summarization | facebook/bart-large-cnn, t5-small | cnn\_dailymail, xsum |
| Translation | Translation | Helsinki-NLP/opus-mt-en-de | wmt14, opus100 |