Pak Angels
Essential Generative AI Training
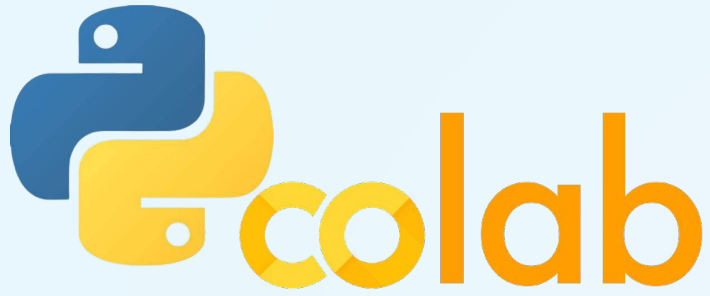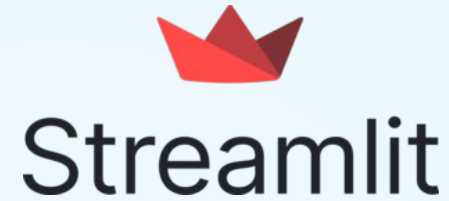
Module

Hands-on with Generative AI Models

Hugging Face
The AI Powerhouse

- Hugging Face is known for its NLP models and tools

Hugging Face – The AI community building the future.

Introduction to
Hugging Face

What is Hugging Face?

Hugging Face is a leading company in **Artificial Intelligence**, primarily focused on **Natural Language Processing (NLP)**. It has **democratized** AI by providing access to **pre-trained models** and **tools** that make **building AI-powered applications** much easier.

Key Offering: Hugging Face's **open-source libraries** are widely adopted by both **researchers and developers** to enhance productivity in AI tasks like language modeling, machine translation, and text generation.

Hugging Face – The AI community building the future.

Core Products

Transformers Library:

A rich library providing pre-trained models for NLP tasks. Some popular models include:

- **BERT (Bidirectional Encoder Representations from Transformers)**: Great for text classification.
- **GPT (Generative Pre-trained Transformer)**: Used for text generation.
- **T5 (Text-To-Text Transfer Transformer)**: A unified framework for NLP tasks.

Hugging Face – The AI community building the future.

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Open-Source Models

Hugging Face

Gemini

LLaMA by Meta

Hugging Face and Langchain.ipynb - Colab (google.com)

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Core Products

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Datasets Library:

An extensive collection of datasets for **NLP and computer vision**.
You can use this to quickly access the **data needed for model training or fine-tuning.**

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Core Products

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Model Hub:

Hugging Face's Model Hub offers thousands of **pre-trained models** shared by the **community and organizations**, **ready for use**.

Hugging Face – The AI community building the future.

Why Hugging Face Matters?

Ease of Use: Hugging Face has made state-of-the-art NLP models **accessible with just a few lines of code**.

Pre-trained Models: No need to start from scratch. Pre-trained models can be **fine-tuned to solve specific tasks in domains** like *healthcare, finance, customer service, and more.*

Community Focus: Hugging Face fosters a massive, collaborative open-source community.

Popular Use Cases

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Text Classification:

Spam detection, sentiment analysis, topic categorization.
Hugging Face models can be used to label texts in real-time.

Question Answering:

Hugging Face's models power systems that answer user questions based on **input documents**.
A common use case is **FAQ chatbots**.

Text Generation:

Generating human-like text for chatbots, creative writing, **code generation**, etc.

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Hands-on Demo

```
from transformers import pipeline

# Load a pre-trained model for sentiment analysis
classifier = pipeline("sentiment-analysis")

# Test on a sample text
result = classifier("Hugging Face is amazing!")
print(result)
```

This code loads a **pre-trained sentiment analysis model** and analyzes the sentiment of a given text. Hugging Face makes it this simple to use cutting-edge models.

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Hands-on Demo

Hugging Face

Notebook does not have secret access

Notebook titled "Hugging Face Demo.ipynb" does not have access to secret named "HF_TOKEN". Grant access?

Cancel   **Grant access**

This code loads a **pre-trained sentiment analysis model** and analyzes the sentiment of a given text. Hugging Face makes it this simple to use cutting-edge models.

Hugging Face Demo.ipynb - Colab (google.com)

Hands-on Demo

[mrm8488/distilroberta-finetuned-financial-news-sentiment-analysis · Hugging Face](#)

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Hands-on Demo

What is this token?

API Token:

It is **an access key that allows you or applications to interact with** Hugging Face resources (datasets, models, spaces, etc.) and the inference API for tasks like deploying models or making predictions.

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Hugging Face Hub and Spaces

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Model Hub:

The go-to place to find, share, and use pre-trained models.
You can search for models based on specific tasks like *text generation, translation, and more.*

Hugging Face Spaces:

A platform to build and share AI apps powered by models on the Hugging Face Hub.
Hugging Face supports integration with tools like **Gradio and Streamlit** for **app development.**

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Community and Collaborations

Open-Source Spirit:

Hugging Face is a pioneer in building a collaborative AI ecosystem. Researchers, developers, and organizations alike **contribute models and datasets to the platform.**

Partnerships:

Hugging Face works with tech giants like **Microsoft and Google** to push the boundaries of AI.
They also integrate their models with major cloud services.

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Conclusion

Hugging Face's Impact:

Hugging Face is **driving the AI revolution** by enabling rapid development of NLP solutions.

Call to Action:

I encourage you all to explore Hugging Face, experiment with the models, and see how AI can benefit your own projects and industries!

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🤗

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Regards,
Zulfiqar Ali Mir

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Regards,
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