Here’s a Python script that fulfills the requirements of Task 1 by creating a text summarization tool using Hugging Face Transformers for abstractive summarization:

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Python Script: Text Summarization Tool

# Install necessary libraries (uncomment the lines below if not already installed)

# !pip install transformers

from transformers import pipeline

# Load the summarization model

summarizer = pipeline("summarization")

# Function to summarize text

def summarize\_text(article, max\_len=130, min\_len=30):

print("Original Text:\n", article)

print("\nSummarized Text:\n")

summary = summarizer(article, max\_length=max\_len, min\_length=min\_len, do\_sample=False)

print(summary[0]['summary\_text'])

# Input: Replace this with the text you want to summarize

article\_text = """

Artificial Intelligence (AI) is transforming industries across the globe. From healthcare to finance,

AI-powered solutions are enabling organizations to enhance their efficiency and decision-making capabilities.

The growing adoption of machine learning, natural language processing, and computer vision technologies

is playing a pivotal role in driving innovation. However, the ethical implications and regulatory challenges

associated with AI systems demand careful attention to ensure responsible use of this powerful technology.

"""

# Call the summarization function

summarize\_text(article\_text)

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How It Works

1. Dependencies: The script uses the transformers library by Hugging Face, which contains state-of-the-art NLP models.

2. Input: The user provides a lengthy article (article\_text).

3. Summarization:

The pipeline loads a pre-trained summarization model (e.g., BART or T5).

The summarizer generates a concise summary.

4. Output: The script prints both the original and summarized text.

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Example Output

Original Text:

"Artificial Intelligence (AI) is transforming industries across the globe..."

Summarized Text:

"AI is revolutionizing industries, enhancing efficiency and decision-making. Despite its potential, ethical and regulatory challenges must be addressed for responsible use."

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You can modify the max\_length and min\_length parameters to adjust the summary's length.