Text summarization in Natural Language Processing (NLP) is the process of automatically creating a concise and coherent summary of a longer text document. The goal is to capture the essence of the original text, presenting its most important points or concepts in a shorter form. This technique helps in reducing reading time, accelerates the process of researching for information, and can improve the efficiency of information retrieval systems.

Text summarization can be broadly classified into two types:

1. **Extractive Summarization**: This approach involves identifying and extracting the most significant phrases, sentences, or sections directly from the original text without altering them. The main challenge here is to determine the relevance of each piece of text and how well it represents the overall content. Extractive summarization is akin to highlighting the most important parts of a document.

2. **Abstractive Summarization**: This approach generates a new, shorter text that conveys the most critical information from the original text. Unlike extractive summarization, abstractive methods aim to produce summaries that might not use exact phrases from the source document but rather present it in a new, condensed form, often requiring a deeper understanding of the text, natural language generation techniques, and sometimes even inference.

Advancements in machine learning, especially deep learning, have significantly improved the capabilities of text summarization systems. Techniques involving models like sequence-to-sequence LSTM (Long Short-Term Memory) networks, attention mechanisms, and more recently, Transformer-based models like BERT (Bidirectional Encoder Representations from Transformers) and GPT (Generative Pre-trained Transformer), have been at the forefront of progress in both extractive and abstractive text summarization.

Effective text summarization tools are crucial in various applications, including news aggregation, academic research, customer feedback analysis, legal document summarization, and more, providing users with swift and accessible insights into vast amounts of text data.