**Each python file contains code to build abstractive text summary indifferent methods.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Cosine | BERT | T5 |
| Speed | fast | slow | Fast |
| Lines Arrangement | colapsed | Followed original text | Followed original text |
| Summary size | Fixed on given number of lines | Based on training sets (small) | Based on training sets (medium) |
| Convey meaning |  |  |  |
| Size restriction | No. of lines/2 | No. of words/2 | No. of words/2 |

1. Pre-Consideration, summary size = Half of original text size
2. Placing original text as strings

**Summary1:**

A ship is a large watercraft that travels the world's oceans and other sufficiently deep waterways, carrying cargo or passengers, or in support of specialized missions, such as defense, research, and fishing. Ships are generally distinguished from boats, based on size, shape, load capacity, and purpose. Ships have supported exploration, trade, warfare, migration, colonization, and science. After the 15th century, new crops that had come from and to the Americas via the European seafarers significantly contributed to world population growth.[1] Ship transport is responsible for the largest portion of world commerce.

The word ship has meant, depending on the era and the context, either just a large vessel or specifically a ship-rigged sailing ship with three or more masts, each of which is square-rigged.

As of 2016, there were more than 49,000 merchant ships, totaling almost 1.8 billion dead weight tons. Of these 28% were oil tankers, 43% were bulk carriers, and 13% were container ships.[2]

Cosine result:

Ships have supported exploration, trade, warfare, migration, colonization, and science. Ships are generally distinguished from boats, based on size, shape, load capacity, and purpose

BERT result:

ships are generally distinguished from boats, based on size, shape, load capacity, and purpose . ship transport is responsible for the largest portion of world commerce . as of 2016, there were more than 49,000 merchant ships .

T5 result:

Ships are generally distinguished from boats, based on size, shape, load capacity, and purpose . Ships have supported exploration, trade, warfare, migration, colonization, and science . Ship transport is responsible for the largest portion of world commerce .

**Summary2:**

A traffic jam occurs when vehicles are unable to move freely. It is a major issue in many towns. Traffic jams can occur for a variety of reasons. The major reasons for traffic jams include violations of traffic regulations, unplanned roads and streets, a large number of rickshaws on the roads, and unskilled traffic police. Illegal parking, limited roads and lanes, and unlicensed shops and marketplaces on the side of the road all cause traffic jams.

Traffic jams waste our time and energy. Students, patients, laborers, and employees are the most affected by traffic jams. They won’t be able to get to their destination on time. We cannot become quick and punctual in our daily activities. Some steps should be taken to resolve the problem. Unauthorized roadside stores and marketplaces must be removed. Unlicensed vehicles must be removed from the roads. Traffic laws must be properly followed. Traffic police should be trained. This problem can be solved if the government takes appropriate measures.

Cosine result:

The major reasons for traffic jams include violations of traffic regulations, unplanned roads and streets, a large number of rickshaws on the roads, and unskilled traffic police. Traffic jams can occur for a variety of reasons. Illegal parking, limited roads and lanes, and unlicensed shops and marketplaces on the side of the road all cause traffic jams.

Traffic jams waste our time and energy. Traffic laws must be properly followed. Traffic police should be trained. Students, patients, laborers, and employees are the most affected by traffic jams

BERT result:

traffic jams can occur for a variety of reasons . violations of traffic regulations, unplanned roads and streets, unlicensed shops and marketplaces on the side of the road . illegal parking, limited roads and lanes, and unskilled traffic police

T5 result:

A traffic jam occurs when vehicles are unable to move freely . The major reasons for traffic jams include violations of traffic regulations, unplanned roads and streets . Illegal parking, limited roads and lanes, and unlicensed shops and marketplaces on the side of the road all cause traffic jams .

**Summary3:**

You must have heard that “an apple a day, keeps the doctor away.” I remember hearing this for the first time and I decided to eat an apple every day. Ever since it has become my favourite fruit.

It is round in shape and comes in a red colour. But, there are also green apples. An apple contains a high quantity of juice which is mixed with high fibres. It tastes sweet and is edible for everyone.

As it is one of the healthiest fruit, it is my favourite. I try to eat one every day for the betterment of my health. One single apple contains 130 calories. The insoluble [fibre](https://www.toppr.com/guides/chemistry/synthetic-fibres-and-plastics/introduction-to-fibres/) in the fruit is effective for the body because it does not mix with water.

Further, we get apples in many sizes and shapes. We can use it for extraction, skin, chewing and drinking juice. I always carry an apple in my tiffin and share it with my friends as well. With so many benefits it offers, it has become my favourite fruit.

Cosine result:

One single apple contains 130 calories.

You must have heard that “an apple a day, keeps the doctor away.” I remember hearing this for the first time and I decided to eat an apple every day. An apple contains a high quantity of juice which is mixed with high fibres. I try to eat one every day for the betterment of my health. The insoluble fibre in the fruit is effective for the body because it does not mix with water.

BERT result:

apple contains a high quantity of juice mixed with high fibres . it tastes sweet and edible for everyone . one apple contains 130 calories .

T5 result:

An apple contains a high quantity of juice which is mixed with high fibres . The insoluble fibre in the fruit is effective for the body because it does not mix with water . One single apple contains 130 calories .

**Summary4:**

India is a land of various cultures and heritage. It is the seventh-largest country by area and the second-most populous country globally. The peacock is India’s national bird, and the Bengal tiger is the country’s national animal. The national song is named Vande Matram and is written by Bankimchandra Chatterji. The Indian national song was first performed at the Indian National Congress in 1896. ‘Jana Gana Mana,’ India’s national anthem, is sung in 52 seconds. The national flag of India is named Tiranga, which is made up of three colours: saffron, white, and green, with the Ashoka Chakra in navy blue in the centre.

Cosine result:

The peacock is India’s national bird, and the Bengal tiger is the country’s national animal. The Indian national song was first performed at the Indian National Congress in 1896. The national song is named Vande Matram and is written by Bankimchandra Chatterji

BERT result:

the national song is written by Bankimchandra Chatterji . the song was first performed at the Indian National Congress in 1896 .

T5 result:

India is the seventh-largest country by area and the second-most populous country globally . The peacock is the country’s national bird, and the Bengal tiger is the animal . The national song was first performed at the Indian National Congress in 1896 .

**Summary5:**

Recently, a growing interest to Machine Learning forced the companies to focus and invest on it. Besides, this major is considered an exciting research topic for scholars in Computer Science. Machine Learning (ML) is the major of computational science, which focuses on analyzing and interpreting patterns and structures in data to enable learning, reasoning, and decision making outside of human being interaction. This essay aims to discuss and introduce concepts, methods, and steps of Machine Learning.

Cosine result:

Machine Learning (ML) is the major of computational science, which focuses on analyzing and interpreting patterns and structures in data to enable learning, reasoning, and decision making outside of human being interaction.

BERT result:

machine learning is the major of computational science . it focuses on analyzing patterns and structures in data to enable learning, reasoning, and decision making .

T5 result:

Machine Learning (ML) focuses on analyzing and interpreting patterns and structures in data to enable learning, reasoning, and decision making outside of human interaction . This essay aims to discuss and introduce concepts, methods, and steps of Machine Learning .