In [4]:

```
import spacy
from collections import Counter


```

In [5]:

```
#import the english small letter language model and assign it to nlp
nlp = spacy.load("en_core_web_sm")

```

In [8]:

```
#Define the summarization function and there is no of task under one function
def text_summarization(text, num_sentences=3):
    doc = nlp(text)
    # Remove stop words and punctuation
    word_frequencies = Counter(token.text.lower() for token in doc if not token.
    # Calculate sentence ranks based on word frequencies
    sentence_ranks = {sentence: sum(word_frequencies[token.text.lower()] for tok
    # Sort sentences by rank and select top sentences
    top_sentences = sorted(sentence_ranks, key=sentence_ranks.get, reverse=True)
    summary = " ".join(sentence.text for sentence in top_sentences)
    return summary
```

In [9]:

```
input_text = """
As a practical discipline, clinical informatics has far-reaching applications wi

Electronic Health Record (EHR): Perhaps the most publicly high-profile applicati

Predictive Medicine: One of the most promising potential applications of clinica

Epidemic Tracking: Not limited to healthcare data, clinical informaticists can a
"""
input_text
```

Out[9]:

```
'\nAs a practical discipline, clinical informatics has far-reaching ap
plications within the healthcare framework—individual physicians, mult
i-center hospital systems, medical insurance firms, government agencie
s, medical device developers and more are all potential beneficiaries.
Examples include:  \n\nElectronic Health Record (EHR): Perhaps the mos
t publicly high-profile application of clinical informatics is the uni
versal adoption of the EHR. The Affordable Care Act of 2009 (see belo
w) mandated that all healthcare institutions transition from paper to
exclusively digital medical record system. Since it must record every
patient encounter, medication ordered, and laboratory test performed,
the EHR impacts every aspect of a healthcare institution's operations.
Subsequent EHR adoption achieved varied results. Successful institutio
ns integrated the new EHR systems with existing institutional culture
and workflows with minimal disruption to or even improved delivery of
healthcare services. Other institutions with less effective or absent
clinical informatics support saw worsened employee morale, decreased o
perational effectiveness, and compromised patient safety. \n\nPredicti
ve Medicine: One of the most promising potential applications of clini
cal informatics is the development of predictive medicine. Predictive
medicine is the science of accurately risk-stratifying an individual f
or developing the disease within a specified time-frame. While predict
ive capabilities traditionally revolved around genetics (e.g. karyotyp
e testing for Down Syndrome, BRCA gene testing for breast cancer), cli
nical informatics has helped to usher in a new era of predictive medic
ine based on so-called Big Data, huge quantities of data obtained from
a variety of disparate sources in real-time. Predictive tools based on
big data has the potential to help clinicians better predict who will
get sick when and how best to intervene before the patient becomes sic
k. Though healthcare has yet to develop its own predictive tools, Targ
et Corporation, a major retailer, has already developed a big-data inf
ormatics system that predicts when a customer is pregnant; the company
subsequently tailors its marketing efforts towards those customers acc
ordingly.\n\nEpidemic Tracking: Not limited to healthcare data, clinic
al informaticists can assist in capturing and transforming any data so
urce into usable information. In 2014, public health specialists publi
shed a report demonstrating how they could track and predict HIV outbr
eaks based on real-time data captured from the social media platform,
Twitter. Prior research demonstrated how Twitter could also be used to
predict outbreaks of influenza. With the measles and Ebola crises of 2
015, other groups are now attempting to apply clinical informatics pri
nciples to capture non-traditional streams of data and create systems
of predicting and preventing the next epidemics.  \n'
```

In [10]:

```
num_sentences = 4 # Specify the number of sentences you want in the summary
summary = text_summarization(input_text, num_sentences)
print("Summary:")
print(summary)
```

```
Summary:
While predictive capabilities traditionally revolved around genetics
(e.g. karyotype testing for Down Syndrome, BRCA gene testing for breas
t cancer), clinical informatics has helped to usher in a new era of pr
edictive medicine based on so-called Big Data, huge quantities of data
obtained from a variety of disparate sources in real-time.
As a practical discipline, clinical informatics has far-reaching appli
cations within the healthcare framework—individual physicians, multi-c
enter hospital systems, medical insurance firms, government agencies,
medical device developers and more are all potential beneficiaries.
Though healthcare has yet to develop its own predictive tools, Target
Corporation, a major retailer, has already developed a big-data inform
atics system that predicts when a customer is pregnant; the company su
bsequently tailors its marketing efforts towards those customers accor
dingly.

 Predictive Medicine: One of the most promising potential applications
of clinical informatics is the development of predictive medicine.
```

In [ ]:

```

```