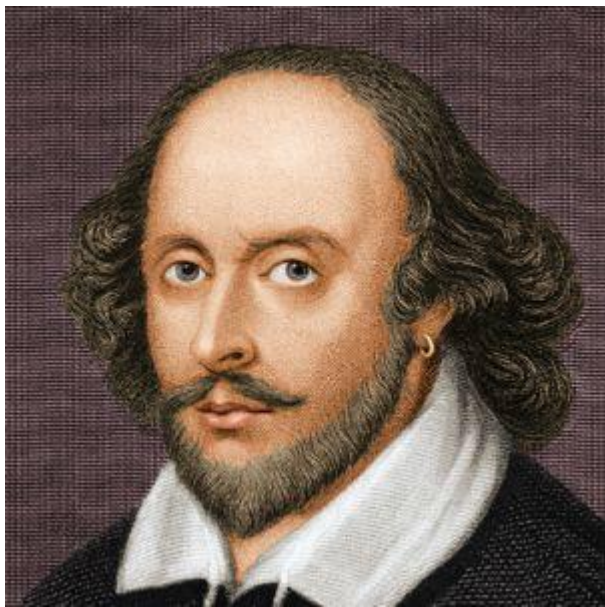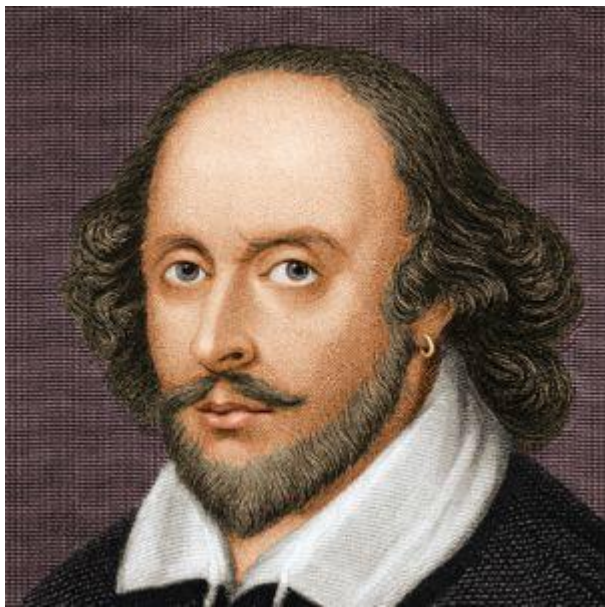# Naive Bayes

William Shakespeare

Stephenie Meyer

?

One day too late , I fear me , noble lord , Hath clouded all thy happy days on earth .

No Offense Intended !!

William Shakespeare
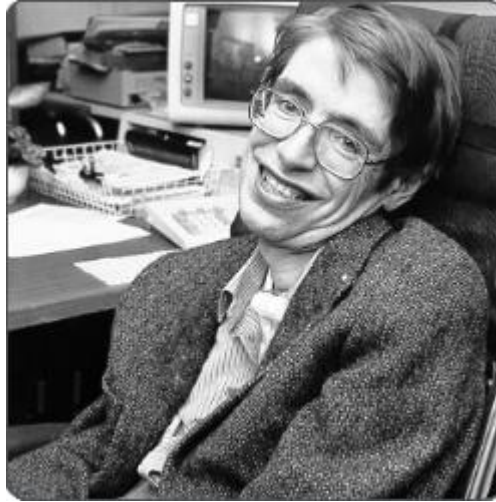
#Time,
Age

Stephenie Meyer

One day too late , I fear me , noble lord , Hath clouded all thy happy days on earth .
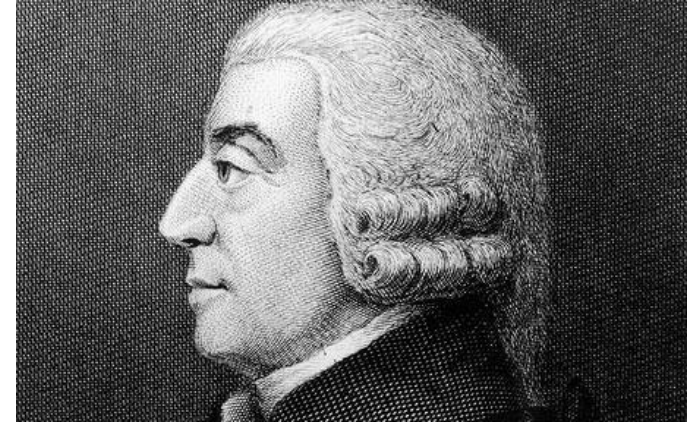
No Offense
Intended !!

Alan Turing

Instead, they were just different directions in a single object called spacetime. This spacetime was not flat, but was warped and curved by the matter and energy in it.

Stephen Hawking

though all things would have become cheaper in reality, in appearance many things might have become dearer than before, or have been exchanged for a greater quantity of other goods

Adam Smith

The information in the store is usually broken up into packets of moderately small size. In one machine, for instance, a packet might consist of ten decimal digits.
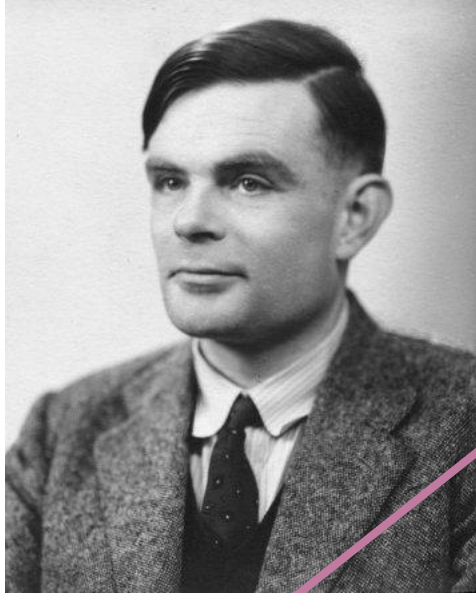
Alan Turing

Stephen Hawking

#Genre

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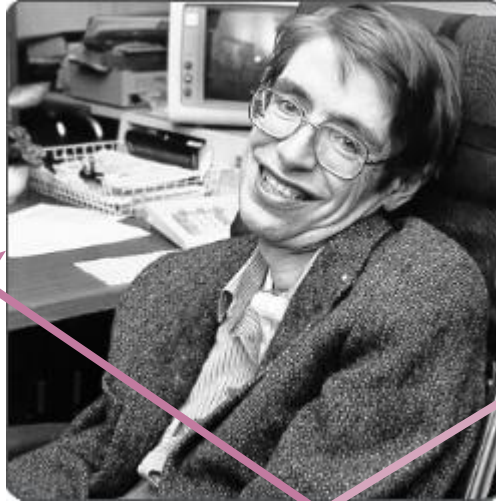
Task : Author Classification

- How are we able to figure this out ? !

- "..." Looks like "Shakespeare", It seems like "Conan Doyle" would say "..."

Task : Author Classification

- What are we really talking about ?
  - P(Author | Sentence)
  - This can also be written as ..
    - $P(A|S) = (P(S|A) P(A)) / P(S)$
    - See any problem here ?

Task : Author Classification

- How to estimate P(S|A) ?
  - Originally P(S|A) is sparse because there are infinite number of sentences.
  - So, estimate P(S|A) just like we estimate P(S)
    - Sentence (S) = [w1, w2, w3 ….. wn]
    - P(S|A) = P(w1|A) * P(w2|A) …. P(wn|A)

Task : Author Classification

- P(A) can be #Words by Author/ Total #Words
- The Idea to select Author such that, P(A|S) is maximum

    so,
    - A = argmax P(A|S)
        - = argmax (P(S|A) P(A)) / P(S)
    - For a given sentence, P(S) is same across all authors, because it is calculated in total. So, we can say,
        - A = argmax P(S|A) P(A)