



Email your submission and/or provide github link of the implementation to
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Technical Problem:

The following is the list of problems and you are free to pick any one of them to implement.

1. Find relations in the data.
2. Decode the reference.
3. Generate fill-in-the blank questions from text-content
4. Generate short summary from text-content
5. Predict next possible-word [n-gram approach]
6. Create a keyword filter

Please read below for detailed problem description.

Note:

All input data is ONLY textual. It contains NO media elements

You may use any external free-software library

There will be NO biased evaluation based on the problem type you choose.

The following is the input passage-text for all the mentioned problems:

Just A Rather Very Intelligent System a.k.a JARVIS is created by Tony Stark natural-language and a sophisticated artificial intelligence user interface computer system, named after Edwin Jarvis, the butler who worked for Howard Stark. Though its primary duty is to automate Stark's Malibu estate, the lifelike program fulfills many other needs for Stark, like being an information source for him, a diagnostic tool, a consultant and a voice of reason in Stark's life. It was also responsible to provide security for Tony Stark's Mansion and Stark Tower. After creating the Mark II armor, Stark uploaded JARVIS into all of the Iron Man Armors, as well as allowing him to interact with the other Avengers, giving them valuable information during combat. JARVIS may be the one intellect Stark feels most comfortable opening up to. JARVIS can object to Stark's commands if necessary. JARVIS speaks with a refined British accent, and is capable of back talk, sarcasm and condescension. During the Ultron Offensive, JARVIS was destroyed by Ultron, although his remaining programming codes unknowingly continued to thwart Ultron's plans of gaining access to nuclear missiles. His remains were found by Stark, who uploaded them into a synthetic body made of vibranium and, in conjunction with Ultron's personality and an Infinity Stone. JARVIS' duties were then taken over by FRIDAY.



Problem #1:

Find relations in the data. :

Generate relations from the given text.

Some of the Subject-Predicate-Object examples are below:

JARVIS-automate-Malibu estate

JARVIS-accent-British

Ultron-destroyed-JARVIS

Problem #2:

Decode the reference

The given textual passage, contains references such as <he, she, it, they, their, its> to a pre-mentioned entity.

Extract the entity against the input. Please refer the below sample input and expected output.

Input: Though <its> primary duty is to automate Stark's Malibu estate

Output: JARVIS, a sophisticated artificial intelligence created by Tony Stark

The <its> in the input refers to <JARVIS> entity

Input: the lifelike program fulfills many other needs for Stark, like being an information source for <him>, a diagnostic tool.

Output: Tony Stark. The <him> in the input refers to <Tony Stark> entity

Input: <It> can connect to Stark Industries central database and Stark's personal server and can access outside computers and radio signals.

Output: JARVIS, a sophisticated artificial intelligence created by Tony Stark

The <It> in the input refers to <JARVIS> entity

Problem #3:

Generate fill-in-the blank questions from text-content

From the given passage, generate fill-in-the blank statement and corresponding answer



Query: JARVIS is a sophisticated artificial intelligence created by -----

Answer: Tony Stark

Query: JARVIS speaks with a refined ----- accent

Answer: British

The below sample is an advanced one where it dereferences and constructs a blank statement

Query: ----- primary duty is to automate Stark's Malibu estate

Answer: JARVIS's

Problem #4

Generate short summary from text-content

From the given passage, generate a short summary based on the percentage of length of summary or minimum number of words in summary text

Summary 1: 20%

After creating the Mark II armor, Stark uploaded JARVIS into all of the Iron Man Armors, as well as allowing him to interact with the other Avengers, giving them valuable information during combat.

During the Ultron Offensive, JARVIS was destroyed by Ultron, although his remaining programming codes unknowingly continued to thwart Ultron's plans of gaining access to nuclear missiles.

Summary 2: 40%

Just A Rather Very Intelligent System a.k.a JARVIS is created by Tony Stark natural-language and a sophisticated artificial intelligence user interface computer system, named after Edwin Jarvis, the butler who worked for Howard Stark.

Though its primary duty is to automate Stark's Malibu estate, the lifelike program fulfills many other needs for Stark, like being an information source for him, a diagnostic tool, a consultant and a voice of reason in Stark's life.



After creating the Mark II armor, Stark uploaded JARVIS into all of the Iron Man Armors, as well as allowing him to interact with the other Avengers, giving them valuable information during combat.

During the Ultron Offensive, JARVIS was destroyed by Ultron, although his remaining programming codes unknowingly continued to thwart Ultron's plans of gaining access to nuclear missiles.

Problem #5

Predict next possible-word [n-gram approach]

Given a phrase, predict the next possible word as per the corpus with an incremental approach.

Input: JARVIS was destroyed

Output: ['by Ultron']

Input: JARVIS is created by

Output: ['Tony Stark']

Input: JARVIS can object to Stark's

Output: ['commands']

Input: a sophisticated artificial

Output: [['intelligence'], ['intelligence user interface'], ['intelligence user interface computer system']]

Problem #6

Create a keyword filter

Given a keyword, return the sentence(s) that has the keyword present in it.

Input: armors

Output: [

'After creating the Mark II armor, Stark uploaded JARVIS into all of the Iron Man Armors, as well as allowing him to interact with the other Avengers, giving them valuable information during combat.']



Input: ultron

Output: [

'During the Ultron Offensive, JARVIS was destroyed by Ultron, although his remaining programming codes unknowingly continued to thwart Ultron's plans of gaining access to nuclear missiles.',

'His remains were found by Stark, who uploaded them into a synthetic body made of vibranium and, in conjunction with Ultron's personality and an Infinity Stone.']

Input: ultron offensive

Output: [

'During the Ultron Offensive, JARVIS was destroyed by Ultron, although his remaining programming codes unknowingly continued to thwart Ultron's plans of gaining access to nuclear missiles.']
