

Multi-Doc Summarization

COVID-19

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Week 10

Lessen Redundancy

- When 2 sentences are similar, I used tf idf to determine which one to keep in the summary.
- For each sentence, I summed the tf idfs of each word and then divided by the number of words in the sentence.

Examples:

- The virus could cause flu-like symptoms, including shortness of breath and a dry cough.
 - a. tfidf: 26.9
- **The new virus causes cold and flu-like symptoms, including cough and fever, and in more severe cases, shortness of breath and pneumonia.**
 - b. tfidf: 34.5
- Chinese experts investigate an outbreak of respiratory illness in the central city of Wuhan.
 - a. tfidf: 25.9
- **Chinese authorities first investigated an outbreak of respiratory illness in the central city of Wuhan in late December.**
 - b. tfidf: 32.6

Sorting by Date

- Used spaCy NER to extract a Date entity from each sentence.
 - If the Date entity disagrees with the sentence's publish date, assign the correct date to the sentence.
 - Sort the summary by the corrected dates.
1. Handle specific Date entities
 - a. time parser
 2. Handle more general Date entities
 - a. time hierarchy

Handle Specific Date Entities

- First handle more specific phrases, such as:
 - “January 1st”, “January 1st, 2020”, “1/1/2020”, “January 2020”
- Used a time parser: <https://dateutil.readthedocs.io/en/stable/parser.html>

Example:

- “Zhou lived in Beijing during the **2003** SARS outbreak which killed 349 people in mainland China.”
 - publish date: 2020-02-18
 - adjusted date: **2003-07-30**
- “Canada has sent 16 tonnes of personal protective equipment, such as clothing, face shields, masks, goggles and gloves, to China since **February 4, 2020**.”
 - publish date: 2020-02-15
 - adjusted date: **2020-02-04**

Handle General Date Entities

- Then handle general/common phrases, such as:
 - “last January”, “next January”, “last Monday”, “two Mondays ago”, “early last week”, “two weeks ago”, “last year”, “two years ago”, “two days ago”, “tomorrow”, “yesterday”

Examples:

- “The couple from Gatineau, Que., tested positive in **mid-February** and was transported to a Japanese military hospital with symptoms including coughing and fever.”
 - publish date: 2020-03-01
 - adjusted date: **2020-02-15**
- “5 people have died after being infected outside mainland China, with the most recent fatalities in France and Japan **last week.**”
 - publish date: 2020-02-16
 - adjusted date: **2020-02-09**

'Symptom' Summary

- 1 2020-01-20 Symptoms include fever and difficulty in breathing, which are similar to many other respiratory diseases and pose complications for identifying cases.
- 2 2020-01-20 The initial symptoms of the illness, called COVID-19, are mainly fever and cough, with a few reports of people having difficulty breathing, and chest X-rays showing signs of pneumonia in both lungs.
- 3 2020-01-22 Symptoms of the virus, which can cause pneumonia, include fever, coughing and difficulty breathing.
- 4 2020-01-22 " Health officials stress precautions for travellers to prevent infection while in China, such as staying away from animal markets, washing hands, observing cough hygiene, not coming into contact with sick people and telling health-care providers about their travel if flu-like symptoms occur.
- 5 2020-01-22 The symptoms of coronavirus mimic other common viruses, such as a fever, coughing and shortness of breath, said Kandola.
- 6 2020-01-23 Follow the spread of the new coronavirus with this interactive map Many countries are screening travellers from China for symptoms of the virus, which can cause fever, coughing, breathing difficulties and pneumonia.
- 7 2020-01-24 The initial symptoms of 2019-nCoV are mainly fever, with a few reports of people having difficulty breathing, and chest X-rays showing signs of pneumonia in both lungs.
- 8 2020-01-24 Common symptoms in children do include: Sore throat (sometimes seen in adults too).
- 9 2020-01-24 1:56 Initial symptoms of the virus can mirror those of the cold and flu, including cough, fever, chest tightening and shortness of breath, but can worsen to pneumonia.
- 10 2020-01-28 Have respiratory symptoms like fever and cough.
- 11 2020-01-28 The new virus causes cold- and flu-like symptoms, including cough and fever, and in more severe cases, shortness of breath and pneumonia.
- 12 2020-01-28 Symptoms of the virus have included fever, cough and difficulty breathing.
- 13 2020-01-29 Coronavirus symptoms include fever, cough, tightness in the chest or shortness of breath, Shahab said.
- 14 2020-01-29 Its symptoms, including cough and fever and in severe cases pneumonia, are similar to many other illnesses.
- 15 2020-01-29 A Japanese flight carrying 206 evacuees home included four people with coughs and fevers.
- 16 2020-01-30 Reports said nine of those aboard the flight showed signs of cough and fever.
- 17 2020-01-30 The virus can cause fever, coughing, wheezing and pneumonia.
- 18 2020-01-31 Symptoms can include runny nose, headache, cough, sore throat and fever.
- 19 2020-02-03 Yaffe said the majority of cases under investigation meet the case definition, which says that the person would have been in Hubei province within the past 14 days and have a fever or cough.
- 20 2020-02-04 Symptoms from the virus can include: fever, cough and shortness of breath, according to the U.S. Centers for Disease Control and Prevention.
- 21 2020-02-07 "That includes mild symptoms like a cough, fatigue, fever," said Shahab.
- 22 2020-02-08 Adding to the difficulties in diagnosing the new virus are numerous diseases in Africa with symptoms that include fever or coughing or both.
- 23 2020-02-12 The virus causes respiratory symptoms, such as cough and fever.
- 24 2020-02-15 The couple from Gatineau, Que., tested positive in mid-February and was transported to a Japanese military hospital with symptoms including coughing and fever.
- 25 2020-02-19 Another 14 per cent were classified as severe, causing symptoms such as pneumonia and shortness of breath.
- 26 2020-02-26 The woman had a cough, sore throat, body aches and an occasional fever.
- 27 2020-02-26 The health ministry had determined that people with fever and flu symptoms returning from Italy and six other countries should be considered suspected cases.
- 28 2020-02-26 Travellers with a fever, cough or difficulty breathing are asked to immediately call the public health authority and limit contact with others through self-isolation for 14 days.
- 29 2020-02-26 According to Brazil's health ministry, the man began to show symptoms compatible with the illness, such as a dry cough, throat pain and flu symptoms.
- 30 2020-02-26 More than 81,000 cases of COVID-19, an illness characterized by fever and coughing and sometimes shortness of breath or pneumonia, have occurred since the new virus emerged in China.
- 31 2020-02-27 Health officials say his only symptoms are a mild cough and fever.
- 32 2020-03-02 According to PHAC, the patient passed initial screening in California but reported a mild fever and cough upon arriving in Trenton, Ont.
- 33 2020-03-02 "In the context of coronavirus, people may talk about their signs and symptoms such as fevers, aching all over their body, or having shortness of breath,"
- 34 2020-03-06 Common symptoms include dry cough, fever or fatigue/extreme tiredness.
- 35 2020-03-09 " Symptoms include a cough, fever and extreme tiredness.

'China' Summary

- 1 2003-07-30 Zhou lived in Beijing during the 2003 SARS outbreak which killed 349 people in mainland China.
- 2 2003-07-30 The 2003 tournament scheduled for Beijing was called off because of the SARS outbreak in China.
- 3 2004-07-30 France signed an agreement with China in 2004 to establish a research lab on infectious diseases of biosafety level 4, the highest level, in Wuhan.
- 4 2013-07-30 The initial movies chosen include: American Dreams in China, a 2013 Chinese movie that screened at the Toronto International Film Festival.
- 5 2017-07-30 Wolf Warrior II, a 2017 Chinese action film, the fastest to surpass \$500 million US at China's box office.
- 6 2018-07-30 Visitors from China eclipsed all other international visitor numbers in 2018, with just under 19,500 Chinese tourists coming to the Northwest Territories during that time.
- 7 2019-07-30 When adjusted for population size, Taiwan has about 70 per cent fewer cases than Canada, despite being just 130 kilometres from China, where the outbreak began, and having thousands of daily visitors from the mainland – 2.7 million in total in 2019 alone.
- 8 2019-12-22 Repatriating Canadians from China amid coronavirus outbreak Foreign Affairs Minister François-Philippe Champagne spoke with his Chinese counterpart this week as Canada pursues a plan to bring home Canadians from the coronavirus-affected region in China.
- 9 2019-12-30 The most recent novel (or new in humans) coronavirus, officially named SARS-CoV-2, was discovered in Wuhan, China in December 2019.
- 10 2020-01-11 Health authorities elsewhere in China have yet to announce similar cases, despite the high population density around Wuhan and its role as a travel hub for central China.
- 11 2020-01-12 The seafood market in Wuhan – a major domestic and international transport hub in central China –
- 12 2020-01-13 A 61-year-old man died from pneumonia, a symptom of the disease, in the central Chinese city of Wuhan after an outbreak of the yet to be identified virus.
- 13 2020-01-17 Health officials also asked Thai AirAsia and China Southern Airlines, which run direct daily flights from Wuhan, to halt boarding by those suffering from high fever and respiratory symptoms, and reschedule their flights.
- 14 2020-01-19 (Joseph Tunney/CBC) Situation for Canadian trapped in Wuhan growing dire, says daughter Carleton student's twin still trapped by Chinese coronavirus lockdown
- 15 2020-01-20 The outbreak, which originated at a seafood market in the city of Wuhan in central China.
- 16 2020-01-20 Zhong said the two people in Guangdong had not been to Wuhan but family members had returned from the city, the China Daily said.
- 17 2020-01-21 Virus spreading from Wuhan So far in China, the virus has mostly been concentrated in Wuhan city, although isolated cases have also been reported in Shanghai and Beijing.
- 18 2020-01-21 China has confirmed human-to-human transmission in the outbreak, which began at a seafood market in the city of Wuhan in central China.
- 19 2020-01-21 The virus, which originated in China's Wuhan region, has infected 258 and killed six as of Jan. 21.
- 20 2020-01-21 As the death toll from the mysterious flu-like virus in China climbed and new cases surged, authorities fretted about the added risk from millions of Chinese travelling for the Lunar New Year holiday.
- 21 2020-01-22 China remains the epicentre of the outbreak, with more than 500 cases.
- 22 2020-01-22 The coronavirus has traveled from Wuhan, China to the United States.
- 23 2020-01-22 Other countries have also stepped up screening measures for travellers from China, especially those arriving from Wuhan.
- 24 2020-01-22 " Bing Yem is a visitor from Toronto whose family is originally from mainland China.
- 25 2020-01-22 Most tourists to North Korea are either Chinese or travel to the country through neighbouring China.
- 26 2020-01-23 A 3rd death and more than 100 new cases are announced in China, with reports in Beijing, Shanghai and Shenzhen.
- 27 2020-01-23 China closes access to Wuhan and is poised to lock down two neighbouring cities.
- 28 2020-01-24 Scientists still don't know how the virus spreads, although Fauci said environmental tests revealed traces of the virus at the market in Wuhan, China.
- 29 2020-01-24 Fewer than two dozen cases in all have been confirmed outside mainland China, in Hong Kong, Macao, the United States, South Korea, Japan, Singapore, Thailand, Taiwan and Vietnam.
- 30 2020-01-25 The outbreak started in Wuhan, China and travellers have brought the virus to other countries.
- 31 2020-01-25 The virus has now killed 41 people, all in China, mostly within Hubei province.
- 32 2020-01-25 The majority of those infections have been inside China, where the virus has mostly been concentrated in Wuhan city, although there have been confirmed cases reported in Shanghai and Beijing, along with Hong Kong and Macao.
- 33 2020-01-26 A government official said 67 Canadians are registered as being in the affected region, but because registration is voluntary, the figure does not give a complete picture of Canadians in Hubei or in China.
- 34 2020-01-26 " With Twitter banned in China, residents must opt for Weibo and WeChat – messaging platforms known to be monitored by the Chinese state.
- 35 2020-01-27 Germany will relocate 90 citizens living in China's Wuhan region.

'Mask' Summary

1 2009-07-30 A worker inspects a finished N95 face mask while wearing a medical mask in a 2009 photo.
2 2009-07-30 A 2009 study by researchers in the U.S. and Singapore uses schlieren imaging to show airflow from a person's mouth a) without a mask b) with a
3 medical mask and c) with an N95 mask.
4 2014-07-30 The masks, along with more than 400,000 pairs of medical gloves, had expired in 2014.
5 2020-01-25 Demand for gloves, masks People in China wore medical masks to public places like grocery stores, where workers dispensed hand sanitizer to
6 customers.
7 2020-01-27 One hundred boxes of isolated face masks or surgical procedure masks and 40 boxes of N95.
8 2020-01-27 " Wearing a mask likely won't prevent a healthy person from getting sick anyway, Etches said.
9 2020-01-28 Li Mei, 57, of Delta, B.C., wears a mask in Wuhan.
10 2020-01-30 In that situation, employees would also wear masks, gowns and gloves, which is standard when dealing with patients with the flu.
11 2020-01-30 " In January, the province worked to secure extra supplies including surgical masks and specialized N95 respirator masks that are required for
12 procedures where there is a risk that tiny droplets containing the virus could become airborne.
13 2020-01-31 There are also face shields to protect paramedics from airborne droplets, and a variety of masks.
14 2020-01-31 Sometimes this full face protection is required if first responders can't wear other types of masks due to their facial shape or even facial
15 hair.
16 2020-02-04 Everyone is wearing masks and protective gear.
17 2020-02-04 Canada has sent 16 tonnes of personal protective equipment, such as clothing, face shields, masks, goggles and gloves, to China since February
18 4, 2020.
19 2020-02-05 " Items like face masks and alcohol-based hand sanitizer are sold out at most stores, Schellenberg said.
20 2020-02-06 Roussin discourages the general public from using of face masks, which are being sold out in some Winnipeg stores.
21 2020-02-07 Employees inspect disposable face masks on the production line of the
22 " the man said from behind a white face mask.
23 2020-02-08 A local pharmacy manager, Edward Goma, estimated that his business had sold more than 800 face masks in the past few days.
24 2020-02-10 Lu also spoke of face masks which are commonly worn in China and by Chinese nationals abroad.
25 2020-02-11 \"These specialized masks are only worn by our health-care workers for specific procedures in which aerosol sprays may be generated,\n26 2020-02-13 Supplies of masks, gloves and isolation gowns at Crowfoot Village Family Practice.
27 2020-02-13 For more invasive procedures, there are additional precautions and gloves and masks must be changed between each patient and should also be
28 changed if compromised.
29 2020-02-14 Employees must wear masks all day and report their temperature twice a day.
30 2020-02-14 Chinese officials and hospitals have repeatedly spoken of a shortage of protective equipment, including face masks.
31 2020-02-16 - including masks, gloves, protective body suits and goggles.
32 2020-02-19 Not Just Tourists is sending N95 masks to a hospital in Hebei province.
33 2020-02-19 Manitoban Colby Charles wears a mask while in public in China to help stop the spread of coronavirus.
34 2020-02-24 The family member was wearing a mask during their interaction, Williams said.
35 2020-02-24 The country is also restricting exports to deal with nationwide shortages in face masks.
36 2020-02-25 Andrews said many people in Milan are wearing masks and grocery store shelves are being stripped bare.
37 2020-02-28 " Masks and gloves in short supply
38 2020-03-02 Boxes of N95 masks are selling for as much as \$600.
39 2020-03-03 Stores in the province are facing shortages of facial masks and hand sanitizers, Friesen said.
40 2020-03-03 Store employees in Greater Victoria says face masks and hand sanitizer are disappearing soon after being stocked.
41 2020-03-04 The recommendation is the person that has the infection, and even the people in the apartment, wear masks during all their contact.
2020-03-05 Some ads are asking upwards of \$150 for 10 face masks.
2020-03-05 As for face masks, a statement to CBC from the provincial Department of Health said public health officials are not recommending the use of
masks in public places, saying there is little evidence that wearing masks significantly reduces the risk of getting the virus.
2020-03-05 " Willmore said the Ottawa Hospital is well stocked with face masks and ventilators, and also has access to additional supplies through its
partners.
2020-03-06 The biggest problem Brady facing is the shortage of masks.
2020-03-06 Dr. Brent Roussin also said people should properly wash their hands to avoid contracting or spreading the virus and wearing masks
2020-03-12 Gloves should be worn by staff handling towels or laundry.