Project Overview *[Maximum 100 words]*
What data source(s) did you use and what technique(s) did you use analyze/process them? What did you hope to learn/create?

I used Wikipedia as a source and performed sentiment checks on text I pulled off of the site. I wanted to create a program that allowed the user to search for articles on Wikipedia as a whole and then look at specific sections of the article and see how subjective said section is. My hope was to learn to pull and search text from the internet and also to gain experience in making a search algorithm for future projects.

Implementation *[~2-3 paragraphs]*
Describe your implementation at a system architecture level. You should **NOT** walk through your code line by line, or explain every function (we can get that from your docstrings). Instead, talk about the major components, algorithms, data structures and how they fit together. You should also discuss at least one design decision where you had to choose between multiple alternatives, and explain why you made the choice you did.

Overall, my code is actually rather simple in construction and is designed to run from the terminal. The two main sections of my code are the main loop that runs when the program is executed in the terminal, and the actual section selection element that also runs the sentiment check.

The user chooses an article and then can look at sections of the article. This is all done using a series of nested loops. I had originally written my own search algorithm for finding articles on Wikipedia rather than the included .search function because I wanted to have as much of the program be mine as possible. After I finished it I found that it took far too long to search through the possible article titles and so had to switch to the included function.

The main loop's role is checking if the program should still be running based on user input, while the search function's main purpose to navigate through the text that has been pulled up.

Results *[~2-3 paragraphs + figures/examples]*
Present what you accomplished:

- If you did some text analysis, what interesting things did you find? Graphs or other visualizations may be very useful here for showing your results.

I found that my program worked excellently for searching for articles and texts and found the results given by the sentiment checks to be interesting. Below is what a typical run of the code looks like:

When asked for input, put you answer in quotes

Do you want to search for an article? [Yes/No]: 'yes'

Choose an Article: 'cat'

Searching...

Article Abstract

This article is about the cat species that is commonly kept as a pet. For the cat family, see Felidae. For other uses, see Cat (disambiguation) and Cats (disambiguation).

The domestic cat [1] [2] (Felis catus [2] or Felis silvestris catus [4]) is a small, usually furry, domesticated, and carnivorous mammal. They are often called a housecat when kept as an indoor pet, [6] or simply a cat when there is no need to distinguish them from other felids and felines. Cats are often valued by humans for companionship, and their ability to hunt vermin and household pests.

Cats are similar in anatomy to the other felids, with strong, flexible bodies, quick reflexes, sharp retractable claws, and teeth adapted to killing small prey. Cat senses fit a crepuscular and predatory ecological niche. Cats can hear sounds too faint or too high in frequency for human ears, such as those made by mice and other small animals. They can see in near darkness. Like most other mammals, cats have poorer color vision and a better sense of smell than humans.

Despite being solitary hunters, cats are a social species, and cat communication includes the use of a variety of vocalizations (mewing, purring, trilling, hissing, growling, and grunting), as well as cat pheromones, and types of cat-specific body language. [7]

Cats have a high breeding rate. Under controlled breeding, they can be bred and shown as registered pedigree pets, a hobby known as cat fancy. Failure to control the breeding of pet cats by neutering, and the abandonment of former household pets, has resulted in large numbers of feral cats worldwide, requiring population control. [8]

Since cats were cult animals in ancient Egypt, they were commonly believed to have been domesticated there, [9] but there may have been instances of domestication as early as the Neolithic from around 9500 years ago (7500 BC). [10] A genetic study in 2007 concluded that domestic cats are descended from African wildcats (Felis silvestris lybica), having diverged around 8000 BC in West Asia. [9] [11] Cats are the most popular pet in the world, and are now found in almost every place where humans live. [12]

Below are the sections of the article you chose:

Choose a section of look at: 'Senses'
SensesMain article: Cat senses

Cats have excellent night vision and can see at only one-sixth the light level required for human vision. [54]:43 This is partly the result of cat eyes having a tapetum lucidum, which

reflects any light that passes through the retina back into the eye, thereby increasing the eye's sensitivity to dim light. [74] Another adaptation to dim light is the large pupils of cats' eyes. Unlike some big cats, such as tigers, domestic cats have slit pupils. [75] These slit pupils can focus bright light without chromatic aberration, and are needed since the domestic cat's pupils are much larger, relative to their eyes, than the pupils of the big cats. [75] Indeed, at low light levels a cat's pupils will expand to cover most of the exposed surface of its eyes. [76] However, domestic cats have rather poor color vision and (like most nonprimate mammals) have only two types of cones, optimized for sensitivity to blue and yellowish green; they have limited ability to distinguish between red and green. [77] A 1993 paper reported a response to middle wavelengths from a system other than the rods which might be due to a third type of cone. However, this appears to be an adaptation to low light levels rather than representing true trichromatic vision. [78]

Cats have excellent hearing and can detect an extremely broad range of frequencies. They can hear higher-pitched sounds than either dogs or humans, detecting frequencies from 55 Hz to 79,000 Hz, a range of 10.5 octaves, while humans can only hear from 31 Hz to 18,000 Hz, and dogs hear from 67 Hz to 44,000 Hz, which are both ranges of about 9 octaves. [79] [80] Cats do not use this ability to hear ultrasound for communication, but it is probably important in hunting, [81] since many species of rodents make ultrasonic calls. [82] Cat hearing is also extremely sensitive and is among the best of any mammal, [79] being most acute in the range of 500 Hz to 32 kHz. [83] This sensitivity is further enhanced by the cat's large movable outer ears (their pinnae), which both amplify sounds and help a cat sense the direction from which a noise is coming. [81]

Cats have an acute sense of smell, which is due in part to their well-developed olfactory bulb and also to a large surface of olfactory mucosa, about 5.8 cm2 (0.90 in2) in area, which is about twice that of humans. [84] Cats are very sensitive to pheromones such as 3-mercapto-3-methylbutan-1-ol, [85] which they use to communicate through urine spraying and marking with scent glands. [86] Many cats also respond strongly to plants that contain nepetalactone, especially catnip, as they can detect that substance at less than one part per billion. [87] About 70—80% of cats are affected by nepetalactone. [88] This response is also produced by other plants, such as silver vine (Actinidia polygama) and the herb valerian; it may be caused by the smell of these plants mimicking a pheromone and stimulating cats' social or sexual behaviors. [89]

Cats have relatively few taste buds compared to humans. Domestic and wild cats share a gene mutation that keeps their sweet taste buds from binding to sugary molecules, leaving them with no ability to taste sweetness. [90] Their taste buds instead respond to amino acids, bitter tastes, and acids. [91]

To aid with navigation and sensation, cats have dozens of movable whiskers over their bodies, especially their faces. These provide information on the width of gaps and on the

location of objects in the dark, both by touching objects directly and by sensing air currents; they also trigger protective blink reflexes to protect the eyes from damage. [54]:47

Below is shows positivity of the section (0-1) and subjectivity (0-1)

(0.1682490079365079, 0.4839037698412697)

As shown the user has a large amount of control. I chose to do the subjectivity test because I thought it would be interesting to see how subjective the computer felt that articles on Wikipedia are since as an information sight it should be objective. Conversely, this can also be used to check the computer's sentiment function. In the cat article above the sentiment function returns low positivity (happiness) and a median score for the subjectivity. The first value makes sense because text consisting of purely fact is likely not positive, but the second value is less understandable. Why isn't it lower?

The part of my code that I am most proud of is the control that the user has when running it and the easy navigation that results from this.

Reflection *[~1 paragraph]*
From a process point of view, what went well? What could you improve? Other possible reflection topics: Was your project appropriately scoped? Did you have a good plan for unit testing? How will you use what you learned going forward? What do you wish you knew before you started that would have helped you succeed?

In general the program went well and was actually quite easy to write, but in the future I would do it differently. I want to make a program that takes a selected article and then chooses some arbitrary number of other articles and compares the texts for similarities. I also definitely want to make a better search function that runs at least close to as fast as the function already implemented by python. The experience will be useful in the future as I will have a greater understanding of the basics of text manipulation and the code structures that work best for doing so.