# Algorithm for file updates in Python

## Project description

I have been tasked to create an algorithm using python code to check a list of allowed IP addresses against another list of IP addresses that are required to be removed.

## Open the file that contains the allow list

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Description automatically generated

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First the file containing the list of allowed IP addresses (allow\_list.txt) is stored in a variable called import\_file.

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Description automatically generated

Next I used a ‘with’ statement to open and prepare the file to be read. The first argument is the file (import\_file), the next argument (“r”) instructs the open command to open the file in read mode.

## Read the file contents

A close-up of a white background

Description automatically generatedHere I have stored the output of the file.read() (reads the contents of the file) command into a variable called ip\_addresses, this can be displayed using the print command.

## Convert the string into a list

A close-up of a computer code

Description automatically generated

In order to remove elements from the file, I need to convert the contents into a list. I did this with the .split() command. This will separate the data using any white space as a marker for separation. This was then stored in the ip\_addresses variable.

## Iterate through the remove list

A computer screen shot of a program

Description automatically generated

Next I had to design a ‘for’ loop which would iterate through the ip\_addresses list and compare it to the remove\_list.

## Remove IP addresses that are on the remove list

A close up of words

Description automatically generated

The .remove(element) part of code will remove the element (ip address) from the ip\_addresses list if it is found in the remove\_list.

## Update the file with the revised list of IP addresses

A screenshot of a computer code

Description automatically generated

With the updates now made to the file, all that remains is to convert the list back into string data and re-write it to the file. The “\n”.join() instructs the program to join the list using a \n (new line) as a separator. The next with statement opens the file (import\_file) in write mode (“w”).The final line of the with statement (file.write(ip\_addresses)) overwrites the new list of IP addresses into the original file.

## Summary

I created an algorithm that removes IP addresses identified in a remove\_list variable from

the "allow\_list.txt" file of approved IP addresses. This algorithm involved opening the

file, converting it to a string to be read, and then converting this string to a list stored in the

variable ip\_addresses. I then iterated through the IP addresses in ip\_addresses. With each

iteration, I evaluated if the element was part of the remove\_list. If it was, I applied the

.remove() method to it to remove the element from ip\_addresses.. After this, I used the

.join() method to convert the ip\_addresses back into a string so that I could write over

the contents of the "allow\_list.txt" file with the revised list of IP addresses.