# **Algorithm for file updates in Python**

## **Project description**

You are a security professional working at a health care company. As part of your job, you're required to regularly update a file that identifies the employees who can access restricted content. The contents of the file are based on who is working with personal patient records. Employees are restricted access based on their IP address. There is an allow list for IP addresses permitted to sign into the restricted subnetwork. There's also a remove list that identifies which employees you must remove from this allow list.

Your task is to create an algorithm that uses Python code to check whether the allow list contains any IP addresses identified on the remove list. If so, you should remove those IP addresses from the file containing the allow list.

## **Open the file that contains the allow list**

Firstly, I imported “allow\_list.txt” and assigned it to the import\_file value. Then using command “with open(import\_file, “r”) as file:” I opened the import\_file. Then I assigned it to ip\_addresses variable.

Obraz zawierający tekst, zrzut ekranu, Czcionka

Opis wygenerowany automatycznie

## **Convert the string into a list**

Using this command:

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Opis wygenerowany automatycznie

I converted IP addresses that were saved as a string into a list. It makes removing IP addresses easier.

## **Iterate through the remove list**

Now I had to iterate through the remove list to choose the IP addresses to be removed.

Obraz zawierający tekst, Czcionka, zrzut ekranu

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In every iteration using condition statement “if element in ip\_addresses:” I check whether an element from “remove\_list” occurs in IP addresses. If the condition is met it removes this element from the IP addresses list.

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

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After changes to IP addresses made I needed to convert this list back to the string. I achieved that by using command: “ip\_addresses = “n”.join(ip\_addresses)”. Then using command “with open(import\_file, “w”) as file:” I rewritten the import\_file with the updated contents of “ip\_addresses”. At the end I assigned the readable format of “import\_file” to variable text.

## **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 remove\_list. With each iteration, I evaluated if the element was part of the ip\_addresses 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.