

Algorithm for file updates in Python

Project description

As a security professional in a healthcare company, the task is to regularly update a file that identifies employees with access to restricted content. Access is determined based on IP addresses, with an allow list specifying permitted addresses and a remove list indicating addresses to be removed.

Open the file that contains the allow list

```
import_file = "allow_list.txt"

with open(import_file, "r") as file:
    # Code for opening the file
```

- `import_file` is assigned the name of the file, "allow_list.txt".
- `with open(import_file, "r") as file:` opens the file in read mode ("r") and assigns it to the variable `file`. The `with` statement ensures proper closure of the file.

Read the file contents

```
ip_addresses = file.read()
```

- `file.read()` reads the contents of the file and assigns it to the variable `ip_addresses`.

Convert the string into a list

```
ip_addresses_list = ip_addresses.split()
```

- `ip_addresses.split()` converts the string `ip_addresses` into a list by splitting it based on whitespace.

Iterate through the remove list

```
remove_list = ["192.168.1.1", "192.168.2.2", "192.168.3.3"] # replace

for element in remove_list:
    # Code inside the loop
```

- remove_list is a list containing the IP addresses that need to be removed.
- for element in remove_list: sets up a loop to iterate through each element in remove_list.

Remove IP addresses that are on the remove list

```
if element in ip_addresses_list:
    ip_addresses_list.remove(element)
```

- if element in ip_addresses_list: checks if the current element is in the ip_addresses_list.
- ip_addresses_list.remove(element) removes the element from the list.

Update the file with the revised list of IP addresses

```
updated_content = "\n".join(ip_addresses_list)

with open(import_file, "w") as file:
    file.write(updated_content)
```

- "\n".join(ip_addresses_list) joins the elements of ip_addresses_list with newline characters, creating a string.
- The second with open(import_file, "w") as file: opens the file in write mode ("w") and writes the updated content to it.

Summary

This algorithm ensures that the allow list file is updated by removing IP addresses specified in the remove list. It involves opening the file, reading its contents, converting the data into a list, iterating through the remove list, removing specified IP addresses, and updating the file with the revised list.