Algorithm for file updates in Python

Project description

As a security professional at a health care company, there is a file that identifies the employees who can access restricted content. Employees are restricted based on their IP address. There is an allowed list which must be updated regularly. Utilizing Python, an algorithm needs to be created to identify and remove the IP addresses on a remove list.

Open the file that contains the allow list

```python
# Build `with` statement to read in the initial contents of the file

with open(import_file, "r") as file:
```

Read the file contents

```python
# Use `.read()` to read the imported file and store it in a variable named `ip_addresses`
ip_addresses = file.read()
```

Convert the string into a list

```python
# Use `.split()` to convert `ip_addresses` from a string to a list

ip_addresses = ip_addresses.split()
```

Iterate through the remove list

```python
# Build iterative statement
# Name loop variable `element`
# Loop through `ip_addresses`

for element in ip_addresses:
```

Remove IP addresses that are on the remove list

```python
if element in remove_list:

  # then current element should be removed from `ip_addresses`

  ip_addresses.remove(element)
```

Update the file with the revised list of IP addresses

```python
# Convert `ip_addresses` back to a string so that it can be written into the text file
ip_addresses = " ".join(ip_addresses)
# Build `with` statement to rewrite the original file
with open(import_file, "w") as file:
  # Rewrite the file, replacing its contents with `ip_addresses`
  file.write(ip_addresses)
# Call `update_file()` and pass in "allow_list.txt" and a list of IP addresses to be removed
update_file("allow_list.txt", ["192.168.205.12"])
# Build `with` statement to read in the updated file
with open("allow_list.txt", "r") as file:
  # Read in the updated file and store the contents in `text`
  text = file.read()
# Display the contents of `text`
print(text)
```

Summary

This algorithm uses a function "update_file" that takes in two parameters, the import_file that contains all the IP addresses that have access and the remove_list which includes the IP addresses that must be removed from the file. The function starts by opening and reading the file and switching the content from a string to a list through split(). We then use a for loop to iterate through each element in the address, if the given ip is also in the remove list, then it is removed from the file. The content is then rewritten to the allow_list.txt file.
After calling the function, we use the open() read command to view the file's content.