

Algorithm for file updates in Python

Project description

In this project as a security analyst, I developed an algorithm that parses a file containing IP addresses that are allowed to access restricted content and remove addresses that no longer have access to it. I did this in two primary ways, First, I imported a text file containing an allow list and store it as a string. Second, I developed a parsing algorithm that removes IP addresses from the allow list that no longer have access to the restricted information.

Open the file that contains the allow list

```
# Assign `import_file` to the name of the file
import_file = "allow_list.txt"

# Assign `remove_list` to a list of IP addresses that are no longer allowed to access restricted information.
remove_list = ["192.168.97.225", "192.168.158.170", "192.168.201.40", "192.168.58.57"]

# First line of `with` statement
with open(import_file, "r") as file:
```

Read the file contents

```
# Assign `import_file` to the name of the file
import_file = "allow_list.txt"

# Assign `remove_list` to a list of IP addresses that are no longer allowed to access restricted information.
remove_list = ["192.168.97.225", "192.168.158.170", "192.168.201.40", "192.168.58.57"]

# Build `with` statement to read in the initial contents of the file
with open(import_file, "r") as file:

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

# Display `ip_addresses`
print(ip_addresses)
```

Convert the string into a list

```
# Assign `import_file` to the name of the file
import_file = "allow_list.txt"

# Assign `remove_list` to a list of IP addresses that are no longer allowed to access restricted information.
remove_list = ["192.168.97.225", "192.168.158.170", "192.168.201.40", "192.168.58.57"]

# Build `with` statement to read in the initial contents of the file
with open(import_file, "r") as file:

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

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

# Display `ip_addresses`
print(ip_addresses)
```

Iterate through the list of IP addresses and remove IP addresses that are on the remove list

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

for element in ip_addresses:

    # Build conditional statement
    # If current element is in `remove_list`,

    if element in remove_list:

        # then current element should be removed from `ip_addresses`

        ip_addresses.remove(element)

# Display `ip_addresses`
print(ip_addresses)
```

Update the file with the revised list of IP addresses

```
# 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)
```

Summary

Required to regularly update a file that identifies the employees at a health care company who can access restricted content, I used a with statement and open function to properly open such file for reading and writing purposes. I used the read and write methods to first read and convert the contents into a string and, then, a list by using the split method in order to iterate through the list of IP addresses using a for loop and remove IP addresses that are on the remove list using the remove method. Finally, I wrote to the file with the revised list of IP addresses.