Algorithm for File Updates in Python

A person wearing a mask and using a computer

Description automatically generated

Material & instructions developed by: Google Cybersecurity Professional Certificate Course

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**Scenario**



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.

**Step-By-Step Instructions**



1. Project description
2. Open the file that contains the allow list
3. Read the file contents
4. Convert the string into a list
5. Iterate through the remove list
6. Remove IP addresses that are on the remove list
7. Update the file with the revised list of IP addresses
8. Summary

**Code for Corresponding Steps**

A screenshot of a computer program

Description automatically generated

**Summary**

My algorithm starts out by defining a function called `update\_file`, which takes two parameters: `import\_file` (the file to be updated) and `remove\_list` (a list of IP addresses to remove). Within the function, it opens the specified file in read mode, reads its contents into a string, and splits the string into a list of IP addresses. It then iterates through each IP address in the list and removes those that are in the `remove\_list`. After removals, the updated list of IP addresses is joined back into a string with IP addresses separated by spaces. The function then opens the file again, this time in write mode, and writes the updated string of IP addresses back to the file. Finally, the function is called with the `allow\_list.txt` file and a list of IP addresses to remove. After updating the file, it reads the contents of the updated file, splits it into a list, and prints the list. This code efficiently updates a list of IP addresses in a file based on a provided removal list and displays the updated contents.