Cybersecurity Python Activity Portfolio

Activity: Create Another Algorithm

This project involved building a Python algorithm to open a file, parse its contents, and remove IP addresses based on a removal list.

```
with open("allow_list.txt", "r") as file:
    ip_addresses = file.read().split()

for element in remove_list:
    if element in ip_addresses:
        ip_addresses.remove(element)

with open("allow_list.txt", "w") as file:
    file.write(" ".join(ip_addresses))
```

Activity: Use Regular Expressions

In this task, I used Python's `re` module to extract valid IP addresses from a noisy log file and compare them to a flagged list.

```
import re
pattern = "\d{1,3}\.\d{1,3}\.\d{1,3}\.\d{1,3}"
valid_ip_addresses = re.findall(pattern, log_file)
```

Activity: Define and Call Functions

Here I created user-defined Python functions to automate login analysis using username and login count comparisons.

```
def analyze_logins(username, current_day_logins, average_day_logins):
    login_ratio = current_day_logins / average_day_logins
    return login_ratio
```