

# CODTECH Internship - Task 1 Report

## Task Title: File Integrity Checker

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## Objective:

To develop a Python-based tool that ensures file integrity by calculating and comparing SHA-256 hash values of files. This tool helps detect file modifications, additions, or tampering.

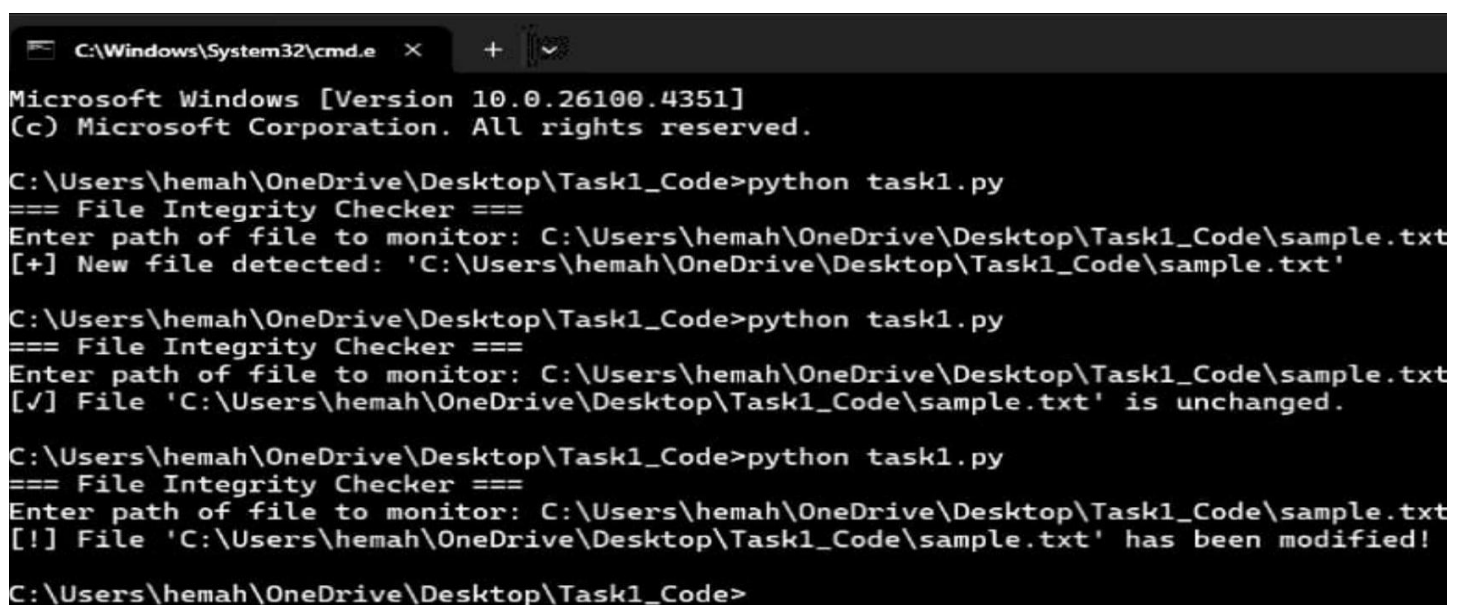
## Technologies/Libraries Used:

- Python
- hashlib
- os
- json

## Implementation Summary:

1. Created a Python script named 'task1.py'.
2. The script calculates the SHA-256 hash of any file provided by the user.
3. It compares the current hash with a stored hash in 'file\_hashes.json'.
4. Based on comparison, it displays whether the file is new, unchanged, or modified.
5. The result is printed on the command prompt and hashes are stored for future reference.

## Execution Screenshot:



```
C:\Windows\System32\cmd.e  X  +  [icon]
Microsoft Windows [Version 10.0.26100.4351]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hemah\OneDrive\Desktop\Task1_Code>python task1.py
=== File Integrity Checker ===
Enter path of file to monitor: C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt
[+] New file detected: 'C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt'

C:\Users\hemah\OneDrive\Desktop\Task1_Code>python task1.py
=== File Integrity Checker ===
Enter path of file to monitor: C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt
[✓] File 'C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt' is unchanged.

C:\Users\hemah\OneDrive\Desktop\Task1_Code>python task1.py
=== File Integrity Checker ===
Enter path of file to monitor: C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt
[!] File 'C:\Users\hemah\OneDrive\Desktop\Task1_Code\sample.txt' has been modified!

C:\Users\hemah\OneDrive\Desktop\Task1_Code>
```

**Conclusion:**

The File Integrity Checker tool is successfully implemented. It accurately detects new, modified, and unchanged files by utilizing hash comparison. This completes Task 1 of the CODTECH Cybersecurity Internship.