

SECURE CODING

LAB-11

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Lab experiment – Creating secure and safe executable

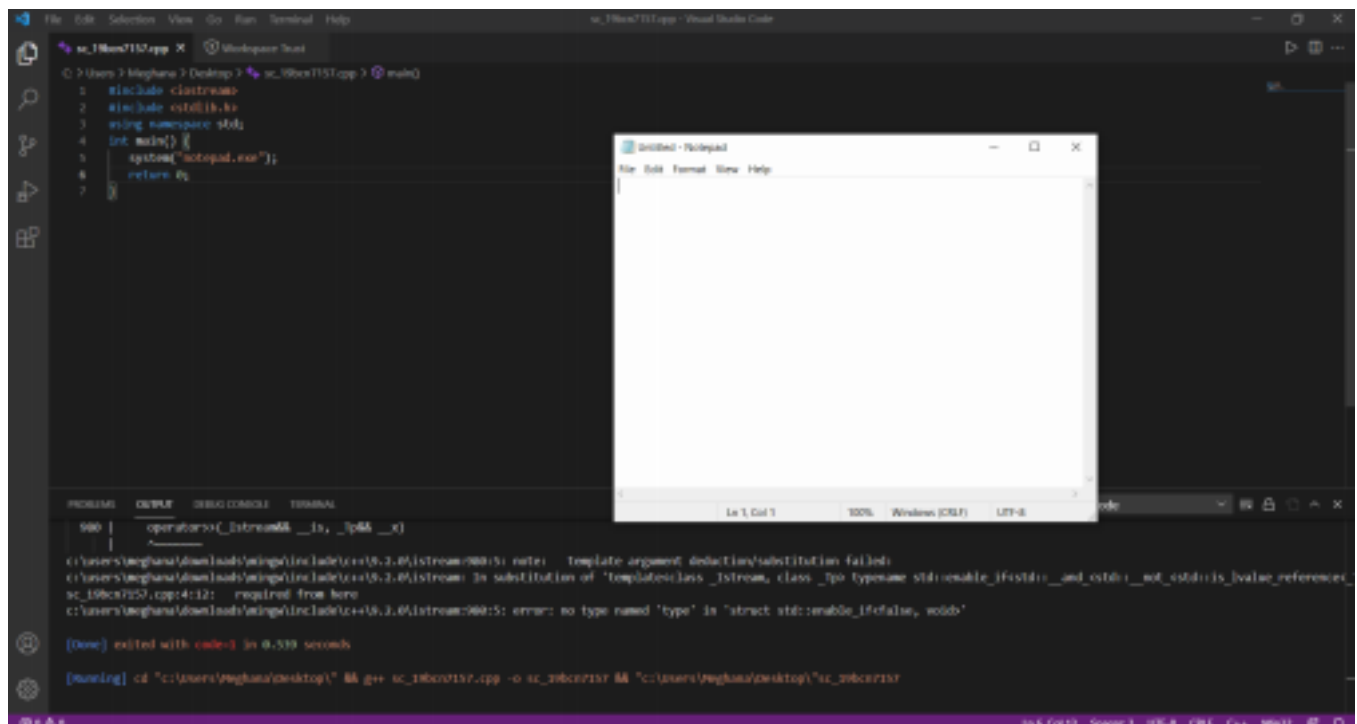
Download and install visual studio (recent edition)

Write a C++ code of your own to build an executable and run the same.

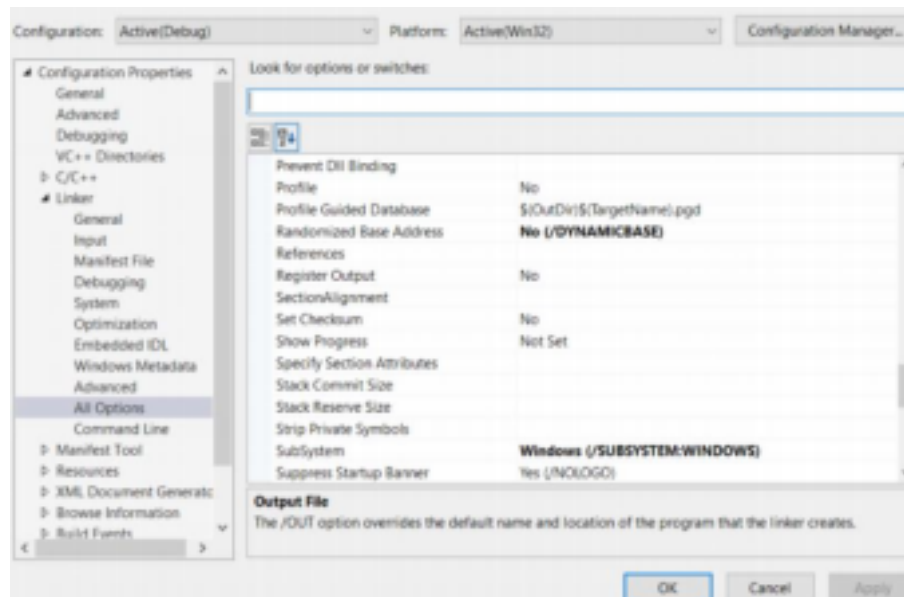
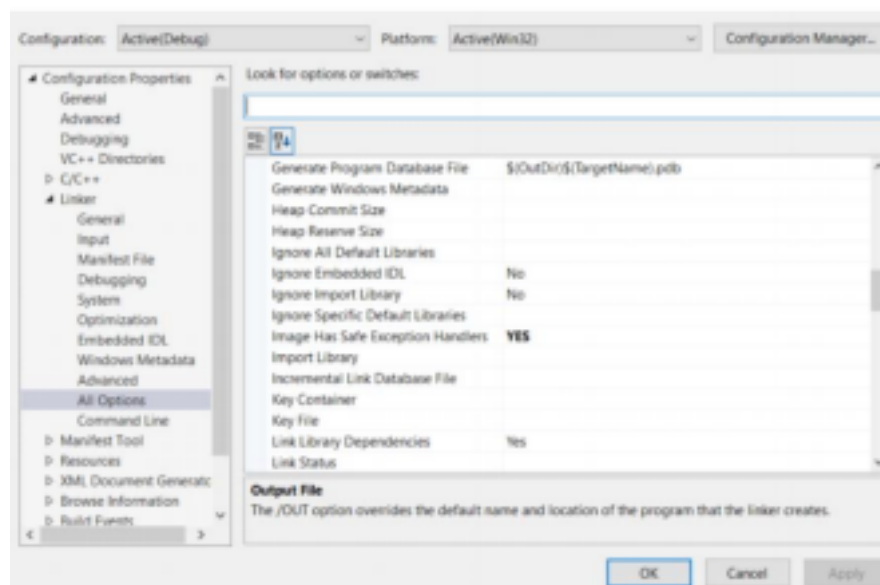
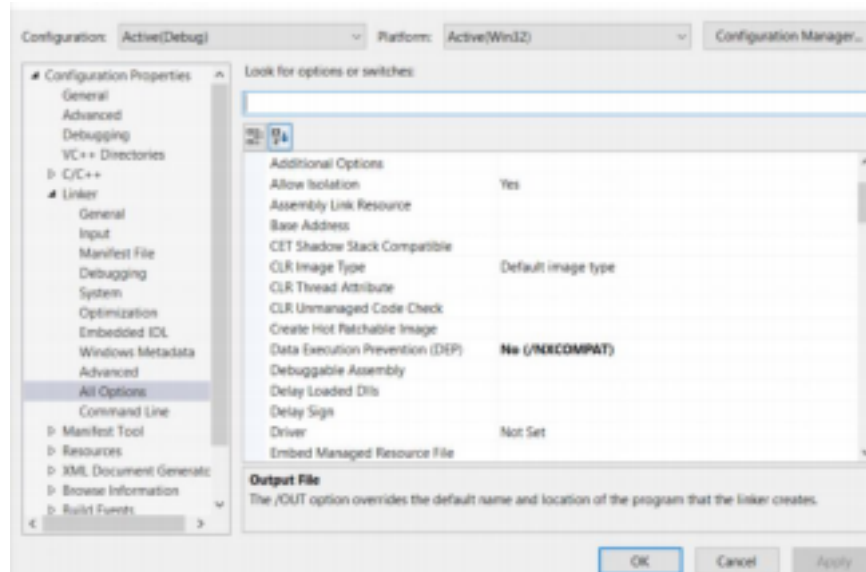
Download process explorer and verify the DEP & ASLR status Enable software DEP, ASLR and SEH in the visual studio and rebuild the same executable

Again, verify the DEP & ASLR status in the process explorer Report the same with separate screenshot - before and after enabling DEP & ASLR.

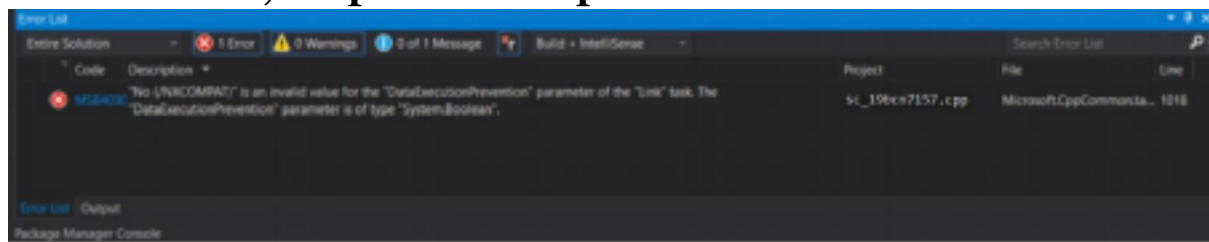
Run the c++ code on VSCode



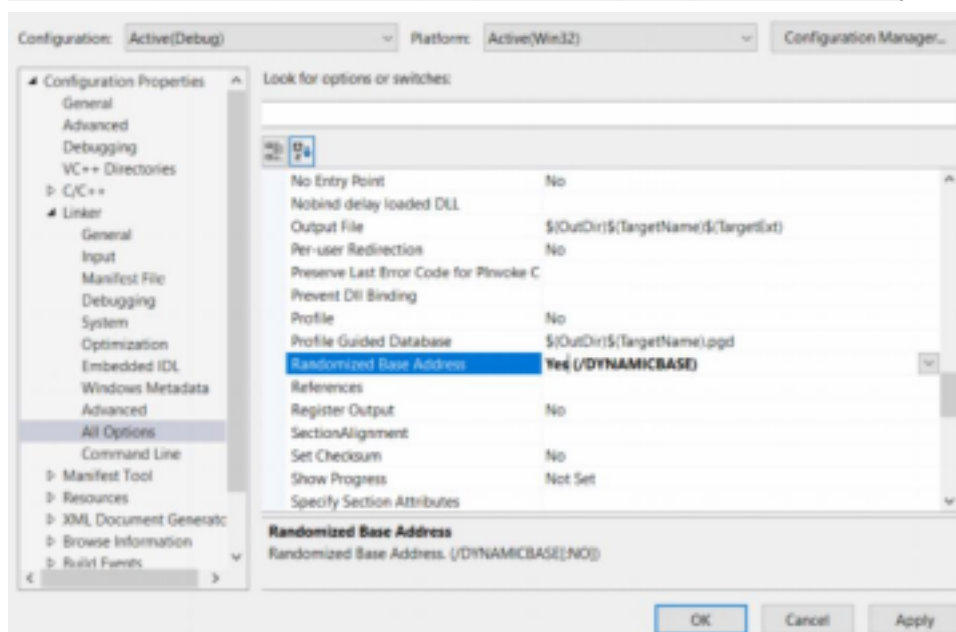
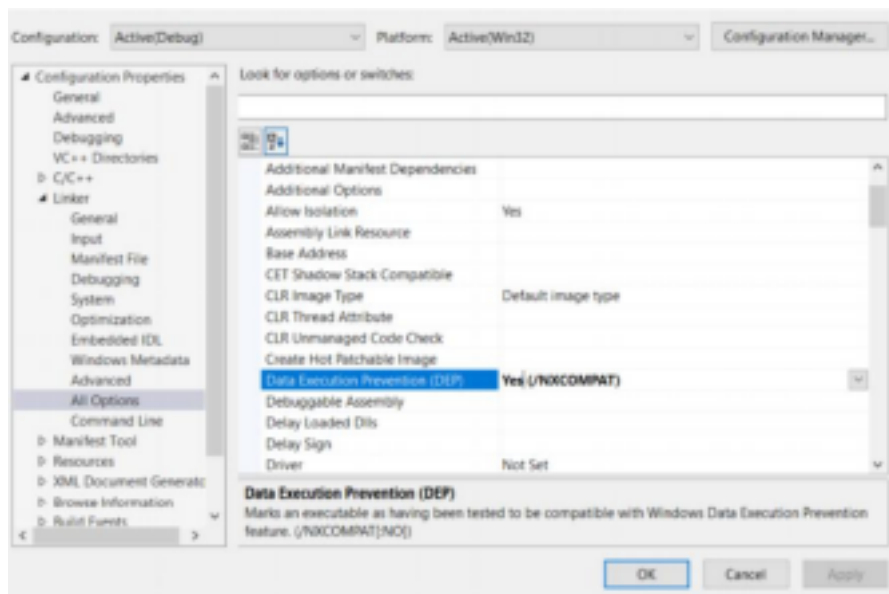
Disable The DEP and ASLR

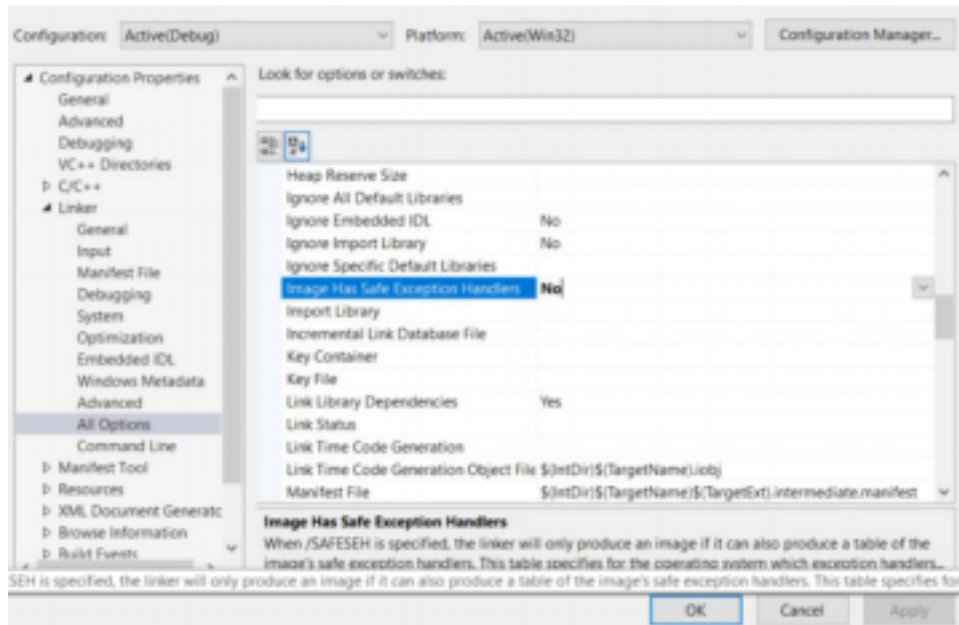


Built is failed, notepad didn't open

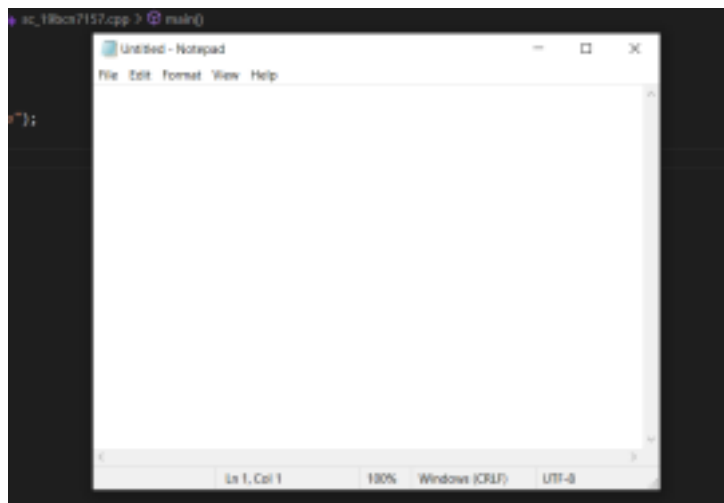


Enable DEP AND ASLR





It successfully works



In Process Explorer

| Process | CPU | Private Bytes | Working Set | PID | Description | Company Name | VirusTotal |
|---------------------------|--------|---------------|-------------|------|----------------------------------|-----------------------|------------|
| explorer.exe | < 0.01 | 2,62,956 K | 2,42,928 K | 2228 | Windows Explorer | Microsoft Corporation | |
| SecurityHealthSystray.exe | | 2,012 K | 9,668 K | 2192 | Windows Security notification... | Microsoft Corporation | |
| vgtay.exe | < 0.01 | 1,396 K | 7,028 K | 2528 | Vanguard tray notification | Riot Games, Inc. | |
| OneDrive.exe | | 18,312 K | 50,968 K | 1756 | Microsoft OneDrive | Microsoft Corporation | |
| Signa_agent.exe | | 11,424 K | 15,844 K | 1796 | Signa Agent | | |
| POWERPNT.EXE | | 72,296 K | 1,84,812 K | 2672 | Microsoft PowerPoint | Microsoft Corporation | |
| POWERPNT.EXE | | 1,84,784 K | 1,87,716 K | 1888 | Microsoft PowerPoint | Microsoft Corporation | |
| Code.exe | | 38,412 K | 77,568 K | 2692 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | | 9,364 K | 24,228 K | 2488 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | | 1,93,828 K | 2,14,692 K | 2528 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | | 11,988 K | 39,656 K | 1280 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | < 0.01 | 1,31,604 K | 1,87,328 K | 1888 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | < 0.01 | 82,024 K | 1,28,588 K | 908 | Visual Studio Code | Microsoft Corporation | |
| cpphost.exe | < 0.01 | 31,664 K | 38,162 K | 2328 | C/C++ Extension for Visual St... | Microsoft Corporation | |
| conhost.exe | | 6,336 K | 10,724 K | 1256 | Console Window Host | Microsoft Corporation | |
| cpphost.exe | < 0.01 | 45,072 K | 50,364 K | 2408 | C/C++ IntelliSense Server for... | Microsoft Corporation | |
| cmd.exe | | 2,452 K | 4,388 K | 812 | Windows Command Process... | Microsoft Corporation | |
| conhost.exe | | 6,344 K | 10,832 K | 1356 | Console Window Host | Microsoft Corporation | |
| sc_16bn7157.exe | | 668 K | 3,188 K | 2384 | | | Unknown |
| cmd.exe | | 2,248 K | 4,336 K | 828 | Windows Command Process... | Microsoft Corporation | |
| notepad.exe | | 2,548 K | 14,448 K | 2928 | Notepad | Microsoft Corporation | |
| Code.exe | | 34,188 K | 81,040 K | 2184 | Visual Studio Code | Microsoft Corporation | |
| Code.exe | | 17,388 K | 63,888 K | 2136 | Visual Studio Code | Microsoft Corporation | |
| WINWORD.EXE | | 1,59,396 K | 2,58,508 K | 1844 | Microsoft Word | Microsoft Corporation | |
| NVIDIA Web Helper.exe | < 0.01 | 30,812 K | 11,636 K | 438 | NVIDIA Web Helper Service | Nvidia | |
| conhost.exe | | 6,336 K | 1,084 K | 1312 | Console Window Host | Microsoft Corporation | |
| jushd.exe | | 1,316 K | 7,396 K | 2328 | Java Update Scheduler | Oracle Corporation | |
| Teams.exe | < 0.01 | 1,76,004 K | 1,46,032 K | 1908 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | 0.28 | 1,88,756 K | 1,91,204 K | 1412 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | < 0.01 | 21,828 K | 47,664 K | 436 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | | 36,812 K | 55,168 K | 1856 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | < 0.01 | 4,15,868 K | 3,85,964 K | 2688 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | | 11,912 K | 60,852 K | 2688 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | | 78,088 K | 83,228 K | 2716 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | < 0.01 | 1,85,344 K | 1,22,032 K | 1808 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | 0.74 | 2,29,556 K | 2,77,612 K | 1312 | Microsoft Teams | Microsoft Corporation | |
| Teams.exe | | 23,668 K | 76,288 K | 1752 | Microsoft Teams | Microsoft Corporation | |
| AsiaOSD.exe | | 2,708 K | 14,124 K | 836 | | | |
| Discord.exe | < 0.01 | 48,736 K | 68,772 K | 2832 | Discord | Discord Inc. | |
| Discord.exe | | 11,132 K | 22,608 K | 1452 | Discord | Discord Inc. | |
| Discord.exe | | 1,55,736 K | 1,51,708 K | 2128 | Discord | Discord Inc. | |
| Discord.exe | | 16,876 K | 37,516 K | 2436 | Discord | Discord Inc. | |
| Discord.exe | 0.19 | 2,67,416 K | 1,95,204 K | 1842 | Discord | Discord Inc. | |
| Discord.exe | | 12,564 K | 57,308 K | 1812 | Discord | Discord Inc. | |
| chrome.exe | < 0.01 | 1,62,384 K | 2,19,016 K | 1888 | Google Chrome | Google LLC | |

CPU Usage: 2.68% Commit Charge: 77.91% Processes: 303 Physical Usage: 54.57%