

## **SECURE CODING LAB-11**

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**19BCN7131**

**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**

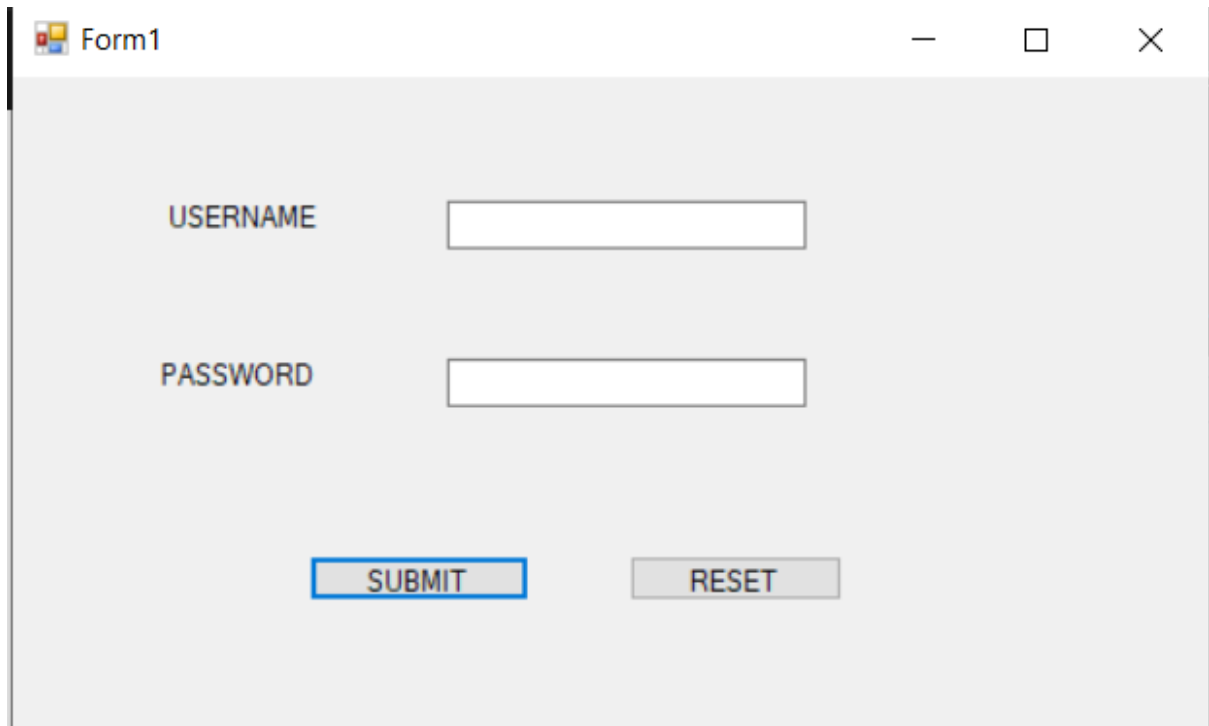
**Enable software DEP, ASLR and SEH in the visual studio and rebuild the same executable**

**Again, verify the DEP & ASLR status in the process explorer**

**Report the same with separate screenshot - before and after enabling DEP & ASLR.**

**Happy Learning!!!**

# LOGIN PAGE



The image shows a login page titled "LOGIN PAGE" at the top. Below the title is a screenshot of a Windows-style application window titled "Form1". The window has a light gray background and a standard Windows title bar with minimize, maximize, and close buttons. Inside the window, there are two input fields: one for "USERNAME" and one for "PASSWORD". Below these fields are two buttons: "SUBMIT" and "RESET". The "SUBMIT" button is highlighted with a blue border, while the "RESET" button is gray.

USERNAME	<input type="text"/>
PASSWORD	<input type="password"/>
<input type="button" value="SUBMIT"/> <input type="button" value="RESET"/>	

# BEFORE disabling the DEP AND ASLR

Process Explorer - Sysinternals: www.sysinternals.com [LAPTOP-G637AG3U\NISHANK]

File Options View Process Find Users Help

<Filter by name>

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	User Name	I/O Read Bytes	I/O Write Bytes	Verified Signer	Virus Total	DEP	ASLR
ShellExperienceHost.exe	Susp...	23,408 K	51,104 K	10284	Windows Shell Experience H...	Microsoft Corporation	LAPTOP-G637AG...	414 KB	8 B (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.DataWarehouseHo...	< 0.01	98,148 K	1,02,760 K	10352	ServiceHub DataWarehouse...	Microsoft	LAPTOP-G637AG...	6.2 MB	20.0 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
WmiPrivSE.exe		4,468 K	10,356 K	10380			LAPTOP-G637AG...			<access denied>	n/a	n/a	
ServiceHub.TestWindowStoreH...		72,984 K	77,780 K	10440	ServiceHub.TestWindowStore...	Microsoft	LAPTOP-G637AG...	1.6 MB	2.4 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
RuntimeBroker.exe		5,448 K	25,908 K	10512	Runtime Broker	Microsoft Corporation	LAPTOP-G637AG...	15.0 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
svchost.exe		12,840 K	20,812 K	10832	Host Process for Windows S...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
SecurityHealthSystray.exe		1,780 K	9,240 K	10944	Windows Security notification...	Microsoft Corporation	LAPTOP-G637AG...	53 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
SecurityHealthService.exe		4,324 K	15,760 K	11024	Windows Security Health Ser...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
ServiceHub.VSDetouredHost.exe		1,14,972 K	80,052 K	11144	ServiceHub.VSDetouredHos...	Microsoft	LAPTOP-G637AG...	5.4 MB	338.6 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
UserOOBEBroker.exe		2,072 K	9,544 K	11408	User OOBE Broker	Microsoft Corporation	LAPTOP-G637AG...	6.1 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
svchost.exe		3,028 K	12,376 K	11640	Host Process for Windows S...	Microsoft Corporation	LAPTOP-G637AG...	3.0 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
OfficeClickToRun.exe	< 0.01	34,024 K	45,540 K	11684	Microsoft Office Click-to-Run...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
RtkNGUI64.exe		4,576 K	2,588 K	11688	Realtek HD Audio Manager	Realtek Semiconductor	LAPTOP-G637AG...	55 KB	(Verified) Realtek...	A connection with L...	Enabled (permane...		
jusched.exe		1,956 K	2,596 K	11704	Java Update Scheduler	Oracle Corporation	LAPTOP-G637AG...		1.1 KB (Verified) Oracle A...	A connection with L...	Enabled (permane...	ASLR	
explorer.exe	< 0.01	21,972 K	52,064 K	11720	Windows Explorer	Microsoft Corporation	LAPTOP-G637AG...	137.4 KB	320 B (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
NVIDIA Web Helper.exe	< 0.01	30,368 K	4,024 K	11816	NVIDIA Web Helper Service	Node.js	LAPTOP-G637AG...	1.5 MB	131 KB (Verified) NVIDIA...	A connection with L...	Enabled (permane...	ASLR	
conhost.exe		6,356 K	880 K	11824	Console Window Host	Microsoft Corporation	LAPTOP-G637AG...		(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.ThreadedWaitDialo...	0.76	93,964 K	89,644 K	12004	ServiceHub.ThreadedWaitDialo...	Microsoft	LAPTOP-G637AG...	1.8 MB	2.2 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
chrome.exe		12,464 K	30,692 K	12008	Google Chrome	Google LLC	LAPTOP-G637AG...	3.4 MB	6.5 MB (Verified) Google L...	A connection with L...	Enabled (permane...	ASLR	
chrome.exe		91,084 K	42,796 K	12444	Google Chrome	Google LLC	LAPTOP-G637AG...	7.9 MB	995.0 KB (Verified) Google L...	A connection with L...	Enabled (permane...	ASLR	
setup.exe	1.83	1,90,264 K	2,31,496 K	12476			LAPTOP-G637AG...	121.0 MB	211.8 KB		Enabled (permane...	n/a	
proceexp64.exe	2.14	58,280 K	79,716 K	13004	Sysinternals Process Explorer	Sysinternals - www.sysinter...	LAPTOP-G637AG...	468.7 MB	49.8 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
smartscreen.exe		8,016 K	23,716 K	13324	Windows Defender SmartScr...	Microsoft Corporation	LAPTOP-G637AG...	10.1 KB	160 B (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
PerfWatson2.exe	< 0.01	42,628 K	64,124 K	13340	PerfWatson2.exe	Microsoft Corporation	LAPTOP-G637AG...	621.3 KB	1.1 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
chrome.exe		18,584 K	38,432 K	13800	Google Chrome	Google LLC	LAPTOP-G637AG...	477.4 KB	523.6 KB (Verified) Google L...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.SettingsHost.exe		1,23,616 K	1,08,900 K	13996	ServiceHub.SettingsHost.exe	Microsoft	LAPTOP-G637AG...	8.3 MB	6.9 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
conhost.exe		6,688 K	7,480 K	14108	Console Window Host	Microsoft Corporation	LAPTOP-G637AG...	6.0 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.VSDetouredHost.exe		1,17,328 K	82,256 K	14448	ServiceHub.VSDetouredHos...	Microsoft	LAPTOP-G637AG...	14.4 MB	1.4 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.Host.CLR.x86.exe		67,932 K	66,976 K	14524	ServiceHub.Host.CLR.x86	Microsoft	LAPTOP-G637AG...	1.8 MB	4.3 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.SettingsHost.exe		1,20,284 K	1,04,920 K	14888	ServiceHub.SettingsHost.exe	Microsoft	LAPTOP-G637AG...	3.9 MB	885.2 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
ServiceHub.IdentityHost.exe	< 0.01	66,016 K	80,816 K	14968	ServiceHub.IdentityHost.exe	Microsoft	LAPTOP-G637AG...	2.1 MB	876.7 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
SearchApp.exe	Susp...	1,35,996 K	84,224 K	15032	Search application	Microsoft Corporation	LAPTOP-G637AG...	666.2 KB	2.0 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
devcm.exe	1.22	3,49,908 K	4,71,652 K	15080	Microsoft Visual Studio 2019	Microsoft Corporation	LAPTOP-G637AG...	294.4 MB	12.0 MB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
conhost.exe		6,380 K	10,804 K	15240	Console Window Host	Microsoft Corporation	LAPTOP-G637AG...	4.9 KB	(Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
Microsoft.ServiceHub.Controller...		39,192 K	56,808 K	15280	Microsoft.ServiceHub.Control...	Microsoft	LAPTOP-G637AG...	394.2 KB	34.7 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
svchost.exe		4,516 K	17,180 K	16136	Host Process for Windows S...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
MSBuild.exe		28,908 K	44,088 K	16200	MSBuild.exe	Microsoft Corporation	LAPTOP-G637AG...	1.4 MB	151.9 KB (Verified) Microsoft...	A connection with L...	Enabled (permane...	ASLR	
WmiPrivSE.exe		3,068 K	9,432 K	16796			LAPTOP-G637AG...			<access denied>	n/a	n/a	
svchost.exe		1,800 K	7,460 K	17116	Host Process for Windows S...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
svchost.exe		1,832 K	11,576 K	17960	Host Process for Windows S...	Microsoft Corporation	LAPTOP-G637AG...			(Verified) Microsoft...	A connection with L...	n/a	ASLR
DTShellHlp.exe		5,280 K	15,032 K	18004	DAEMON Tools Shell Extens...	Disc Soft Ltd	LAPTOP-G637AG...	67.2 KB	1.7 KB (Verified) AVB Dis...	A connection with L...	Enabled (permane...	ASLR	
DiscSoftBusServiceLite.exe		3,872 K	15,300 K	18068	Disc Soft Bus Service Lite	Disc Soft Ltd	LAPTOP-G637AG...			(Verified) AVB Dis...	A connection with L...	n/a	ASLR
WindowsFormsApp1.exe		14,976 K	23,732 K	19268	WindowsFormsApp1	HP Inc.	LAPTOP-G637AG...	143.2 KB	(No signature was ...	A connection with L...	Enabled (permane...	ASLR	

CPU Usage: 10.53% Commit Charge: 63.91% Processes: 220 Physical Usage: 71.93%

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