

**Name : C NAVEEN**

**Reg.No : 19BCE7028**

## **ASSIGNMENT – 11**

**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**

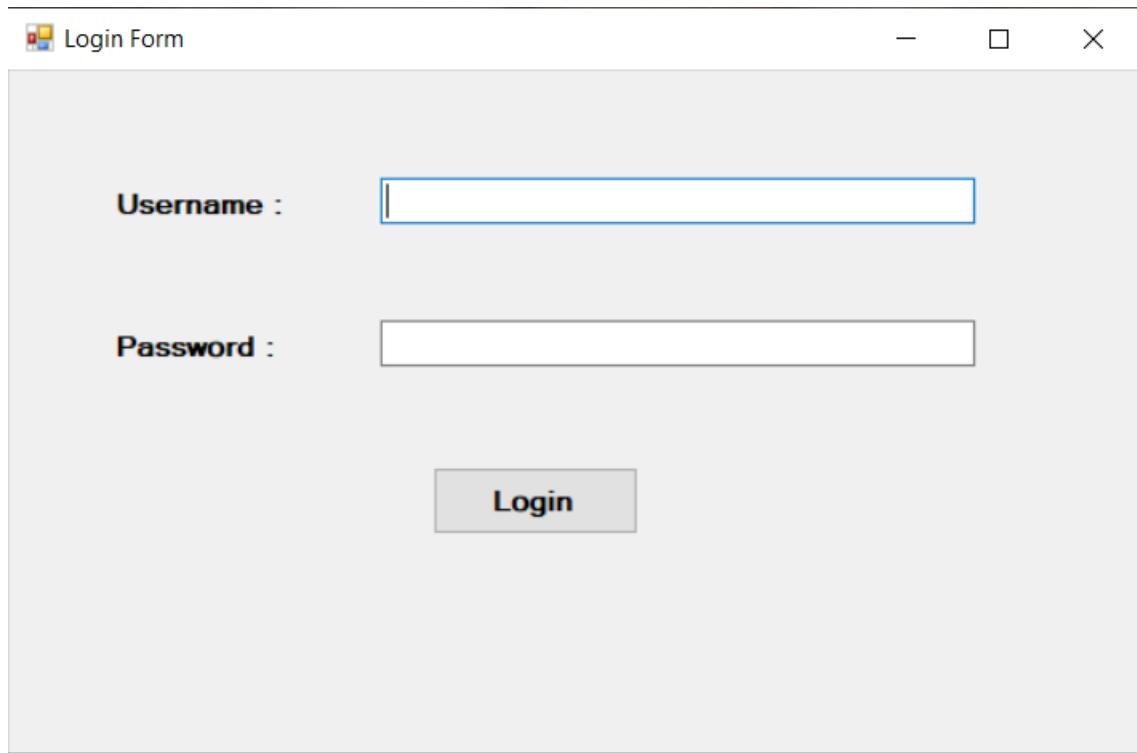
**Enable software DEP, ASLR and SEH in the visual studio and rebuild the same executable**

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

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

**Happy Learning!!!**

## The Application LOGINFORM.exe



**The DEP and ASLR status in program explorer when Data Execution Prevention (DEP) and Randomized Base Address (ASLR) has been **disabled** in Visual Studio for the application LOGINFORM.exe**

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	DEP	ASLR
chrome.exe	0.25	7,220 K	9,876 K	16116			Disabled (permanent)	
chrome.exe	< 0.01	7,980 K	13,152 K	7594	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe	6,112 K	6,916 K	3648 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	3,0220 K	2,5572 K	30,012 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	27,320 K	33,599 K	8312 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	13,704 K	15,748 K	14324 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	33,694 K	44,128 K	16,008 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
cmd.exe	2,152 K	3,848 K	14,072 Windows Command Process.	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR
conhost.exe	6,650 K	7,548 K	19,936 Console Window Host	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR
browseshost.exe	5,416 K	8,300 K	12,488 McAfee WebAdvisor	McAfee, LLC		McAfee, LLC	Enabled (permanent)	ASLR
cmd.exe	2,152 K	3,864 K	12,928 Windows Command Process..	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR
conhost.exe	6,672 K	7,536 K	10,444 Console Window Host	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR
McBrowserHost.exe	4,744 K	9,872 K	18,112 McAfee WSS Shared Browser..	McAfee, LLC		McAfee, LLC	Enabled (permanent)	ASLR
chrome.exe	13,760 K	19,032 K	19,032 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	0.01	2,34,016 K	19,216 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
chrome.exe	17,980 K	18,954 K	10,600 Google Chrome	Google LLC		Google LLC	Enabled (permanent)	ASLR
samp-control.exe	0.27	6,336 K	19,900 K	1400			Disabled (permanent)	
devenv.exe	1.19	34,244 K	35,024 K	5680	Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permanent)	ASLR
PerfWatson2.exe	< 0.01	46,776 K	67,008 K	12776	PerfWatson2.exe	Microsoft Corporation	Enabled (permanent)	ASLR
Microsoft.ServiceHub.Cont...	< 0.01	41,432 K	56,372 K	12132	Microsoft ServiceHub Control..	Microsoft	Enabled (permanent)	ASLR
ServiceHub.IdentityHost...	0.01	60,792 K	79,528 K	4704	ServiceHub.IdentityHost.exe	Microsoft	Enabled (permanent)	ASLR
ServiceHub.VSDetour...	94,908 K	77,992 K	1,024 K	9905	ServiceHub.VSDetourHost.exe	Microsoft	Enabled (permanent)	ASLR
ServiceHub.SessionHost...	0.01	1,00,960 K	1,024 K	9906	ServiceHub.SessionHost.exe	Microsoft	Enabled (permanent)	ASLR
ServiceHub.TestKitHost...	12,640 K	31,020 K	31,024 ServiceHub TestWindowHost.	Microsoft		Microsoft	Enabled (permanent)	ASLR
ServiceHub.HostCLR.x8...	64,544 K	71,936 K	13,200 ServiceHub HostCLR.x8.	Microsoft		Microsoft	Enabled (permanent)	ASLR
ServiceHub.DataWarehouse...	0.83	67,640 K	96,992 K	14048	ServiceHub DataWarehouse.	Microsoft	Enabled (permanent)	ASLR
ServiceHub.ThreadedW...	< 0.01	72,176 K	80,884 K	2344	ServiceHub ThreadedWallDi.	Microsoft	Enabled (permanent)	ASLR
vcpkg.exe	< 0.01	19,216 K	26,776 K	18728	Microsoft (R) Visual C++ Pack..	Microsoft Corporation	Enabled (permanent)	ASLR
MSBuild.exe	30,368 K	46,716 K	46,716 K	14548	MSBuild.exe	Microsoft Corporation	Enabled (permanent)	ASLR
conhost.exe	6,396 K	10,828 K	2496 Console Window Host	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR
LOGINFORM.exe	15,220 K	26,820 K	4420				Disabled (permanent)	
ScriptedSandBox64.exe	0.83	92,000 K	121,000 K	21070	ScriptedSandBox64.exe	Microsoft Corporation	Enabled (permanent)	ASLR
lunched.exe	4,168 K	11,484 K	11,484 Systeminternals Process Explorer	Sysinternals - www.sysinter...		Sysinternals - www.sysinter...	Enabled (permanent)	ASLR
processp64.exe	0.81	41,460 K	60,480 K	18322	Systeminternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permanent)	ASLR
SnippingTool.exe	0.30	4,516 K	23,024 K	12148	Snipping Tool	Microsoft Corporation	Enabled (permanent)	ASLR
GoogleCrashHandler.exe	1,616 K	116 K	112 Google Crash Handler	n/a		n/a	n/a	n/a
GoogleCrashHandler64.exe	1,672 K	148 K	1224 Google Crash Handler64	n/a		n/a	n/a	n/a
lunched.exe	4,168 K	8,732 K	12536 Java Update Scheduler	Oracle Corporation		Oracle Corporation	Enabled (permanent)	ASLR
jcheck.exe	3,944 K	7,460 K	16672 Java Update Checker	Oracle Corporation		Oracle Corporation	Enabled (permanent)	ASLR
HPSystemEventUtilityHost.exe	69,004 K	22,380 K	14428 HPSystemEventUtilityHost	HP Inc.		HP Inc.	Enabled (permanent)	ASLR
McTaskTray.exe	3,640 K	7,944 K	74,000 McAfee File Lock Monitor	McAfee, LLC		McAfee, LLC	Enabled (permanent)	ASLR
Fairshare.exe	< 0.01	2,02,736 K	1,46,476 K	10304	Microsoft Teams	Microsoft Corporation	Enabled (permanent)	ASLR
Teams.exe	1,05,620 K	77,196 K	5216 Microsoft Teams	Microsoft Corporation		Microsoft Corporation	Enabled (permanent)	ASLR

CPU Usage: 8.06% Commit Charge: 58.49% Processes: 272 Physical Usage: 78.18%

# The DEP and ASLR status in program explorer when Data Execution Prevention (DEP) and Randomized Base Address (ASLR) has been **enabled** in Visual Studio for the application LOGINFORM.exe

Process Explorer - Sysinternals: www.sysinternals.com [LAPTOP-BE960UJ3\Nishit Verma]

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	DEP	ASLR
chrome.exe	< 0.01	78,932 K	1,310,812 K	7504	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		6,112 K	6,904 K	9848	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		20,280 K	2,512,48 K	20012	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		21,096 K	33,204 K	15124	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		13,704 K	15,720 K	14324	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		33,680 K	42,559 K	14326	Google Chrome	Google LLC	Enabled (permanent)	ASLR
cmd.exe		2,152 K	3,816 K	14972	Windows Command Process	Microsoft Corporation	Enabled (permanent)	ASLR
browservicehost.exe		6,600 K	7,464 K	18396	Console Window Host	Microsoft Corporation	Enabled (permanent)	ASLR
browserhost.exe		5,416 K	8,180 K	12348	McAfee WebAdvisor	McAfee, LLC	Enabled (permanent)	ASLR
cmd.exe		2,152 K	3,820 K	12292	Windows Command Process	Microsoft Corporation	Enabled (permanent)	ASLR
conhost.exe		6,672 K	7,468 K	10444	Console Window Host	Microsoft Corporation	Enabled (permanent)	ASLR
MfcBrowserHost.exe		4,744 K	9,048 K	18112	McAfee WSS Shared Browser	McAfee, LLC	Enabled (permanent)	ASLR
chrome.exe		13,820 K	19,048 K	16332	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe	0.02	23,116 K	1,91,280 K	15532	Google Chrome	Google LLC	Enabled (permanent)	ASLR
chrome.exe		17,000 K	18,320 K	15530	Google Chrome	Google LLC	Enabled (permanent)	ASLR
ramp-control.exe	0.25	6,336 K	18,440 K	1409			Disabled (permanent)	
processhacker.exe	0.81	24,292 K	3,52,016 K	5580	Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permanent)	ASLR
PerfVatnion2.exe	< 0.01	48,492 K	69,004 K	12776	PerfVatnion2.exe	Microsoft Corporation	Enabled (permanent)	ASLR
Microsoft.ServiceHub.Cont...		41,972 K	56,928 K	12132	Microsoft ServiceHub Control	Microsoft	Enabled (permanent)	ASLR
ServiceHub.IdentityHost...	< 0.01	60,756 K	79,620 K	4704	ServiceHub.IdentityHost.exe	Microsoft	Enabled (permanent)	ASLR
ServiceHub.VSDetour...		44,654 K	77,904 K	4708	ServiceHub.VSDetourdHos...	Microsoft	Enabled (permanent)	ASLR
ServiceHub.SettingsHos...	0.13	1,00,812 K	1,02,132 K	9900	ServiceHub.SettingsHost.exe	Microsoft	Enabled (permanent)	ASLR
ServiceHub.HostCLR.x8...		12,350 K	81,492 K	19144	ServiceHub.HostCLR.x86	Microsoft	Enabled (permanent)	ASLR
ServiceHub.TestWindo...		64,320 K	71,832 K	19146	ServiceHub.TestWindow.x86	Microsoft	Enabled (permanent)	ASLR
ServiceHub.HostCLR.x8...	< 0.01	53,136 K	63,136 K	19308	ServiceHub.HostCLR.x86	Microsoft	Enabled (permanent)	ASLR
ServiceHub.DataTransfer...	0.66	91,000 K	102,588 K	19405	ServiceHub.DataTransfer	Microsoft	Enabled (permanent)	ASLR
ServiceHub.ThreadsedDW...		71,400 K	80,484 K	2344	ServiceHub.ThreadsedDW	Microsoft	Enabled (permanent)	ASLR
MSBuild.exe		33,612 K	50,312 K	14548	MSBuild.exe	Microsoft Corporation	Enabled (permanent)	ASLR
conhost.exe		6,340 K	10,804 K	2496	Console Window Host	Microsoft Corporation	Enabled (permanent)	ASLR
vcpkgsvr.exe	< 0.01	19,476 K	26,664 K	7500	Microsoft (R) Visual C++ Pack...	Microsoft Corporation	Enabled (permanent)	ASLR
LOGINFORM.exe		15,316 K	26,588 K	16580			Enabled (permanent)	ASLR
ScriptedSandbox64.exe	1.01	94,844 K	1,23,392 K	13900	ScriptedSandbox64.exe	Microsoft Corporation	Enabled (permanent)	ASLR
procexp.exe		5,120 K	11,372 K	15968	Sysinternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permanent)	ASLR
procexp64.exe	1.02	41,364 K	80,012 K	16032	Sysinternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permanent)	ASLR
Process Hacker	0.21	32,360 K	72,528 K	4706	Process Hacker	Microsoft Corporation	Enabled (permanent)	ASLR
!GoogleCrashHandler.exe		1,616 K	116 K	1226			n/a	n/a
!GoogleCrashHandler64.exe		1,572 K	145 K	1244			n/a	n/a
!jusched.exe		4,160 K	8,660 K	12536	Java Update Scheduler	Oracle Corporation	Enabled (permanent)	ASLR
jcheck.exe		3,944 K	7,408 K	16672	Java Update Checker	Oracle Corporation	Enabled (permanent)	ASLR
!PSystemEventUtilityHost.exe		69,016 K	21,980 K	14428	HPSystemEventUtilityHost	HP Inc.	Enabled (permanent)	ASLR
McPTray.exe		3,640 K	784 K	6456	McAfee File Lock Monitor	McAfee, LLC	Enabled (permanent)	ASLR
!McSmnFwk.exe		2,996 K	3,308 K	1212			n/a	n/a
Teams.exe	< 0.01	2,02,740 K	1,46,196 K	10348	Microsoft Teams	Microsoft Corporation	Enabled (permanent)	ASLR
Teams.exe		1,00,700 K	77,072 K	5276	Microsoft Teams	Microsoft Corporation	Enabled (permanent)	ASLR
Teams.exe		15,760 K	60,558 K	17324	Microsoft Teams	Microsoft Corporation	Enabled (permanent)	ASLR

CPU Usage: 9.56% Commit Charge: 58.75% Processes: 272 Physical Usage: 78.48%