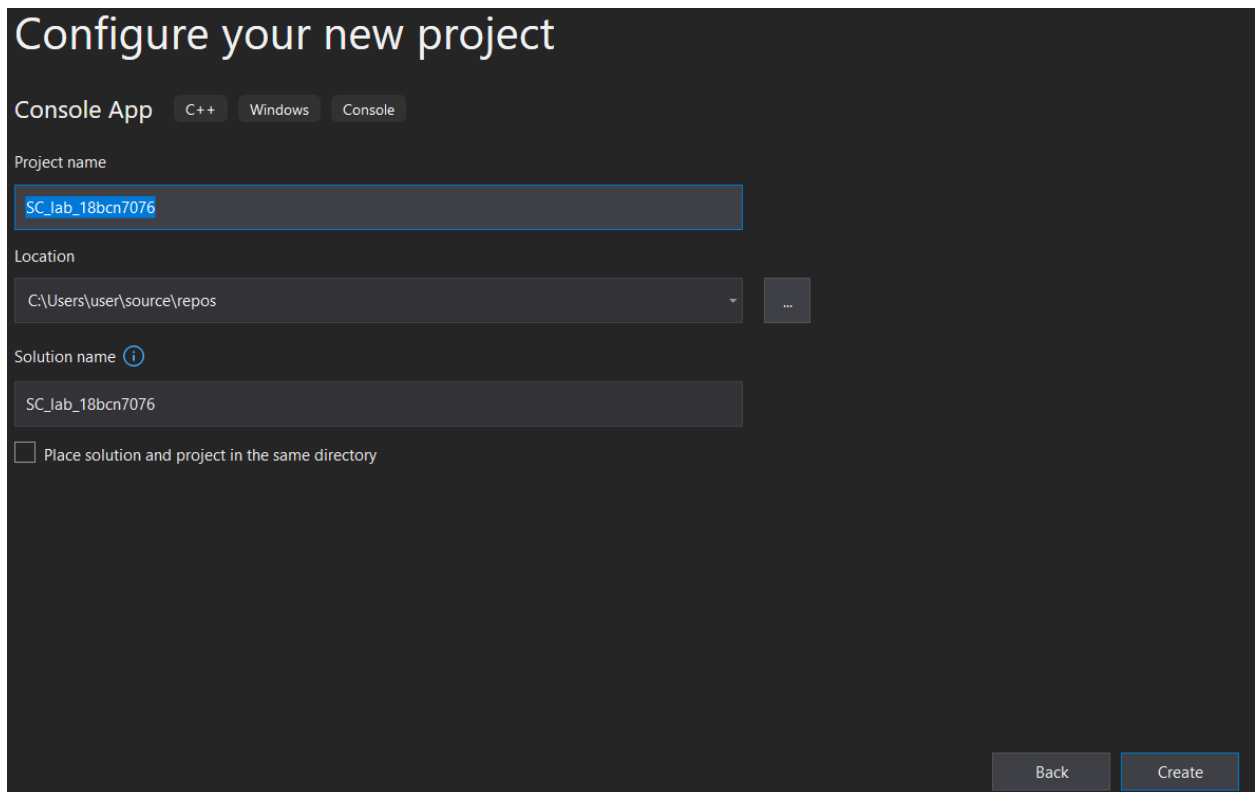
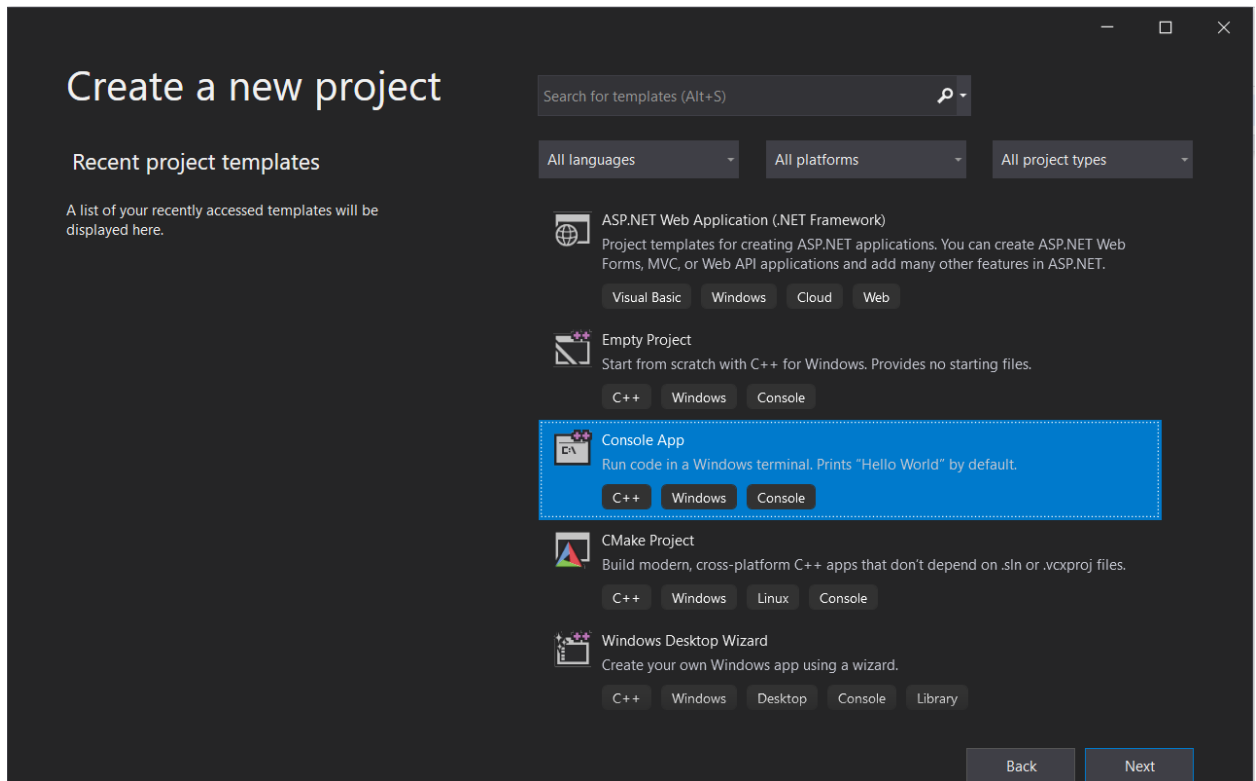


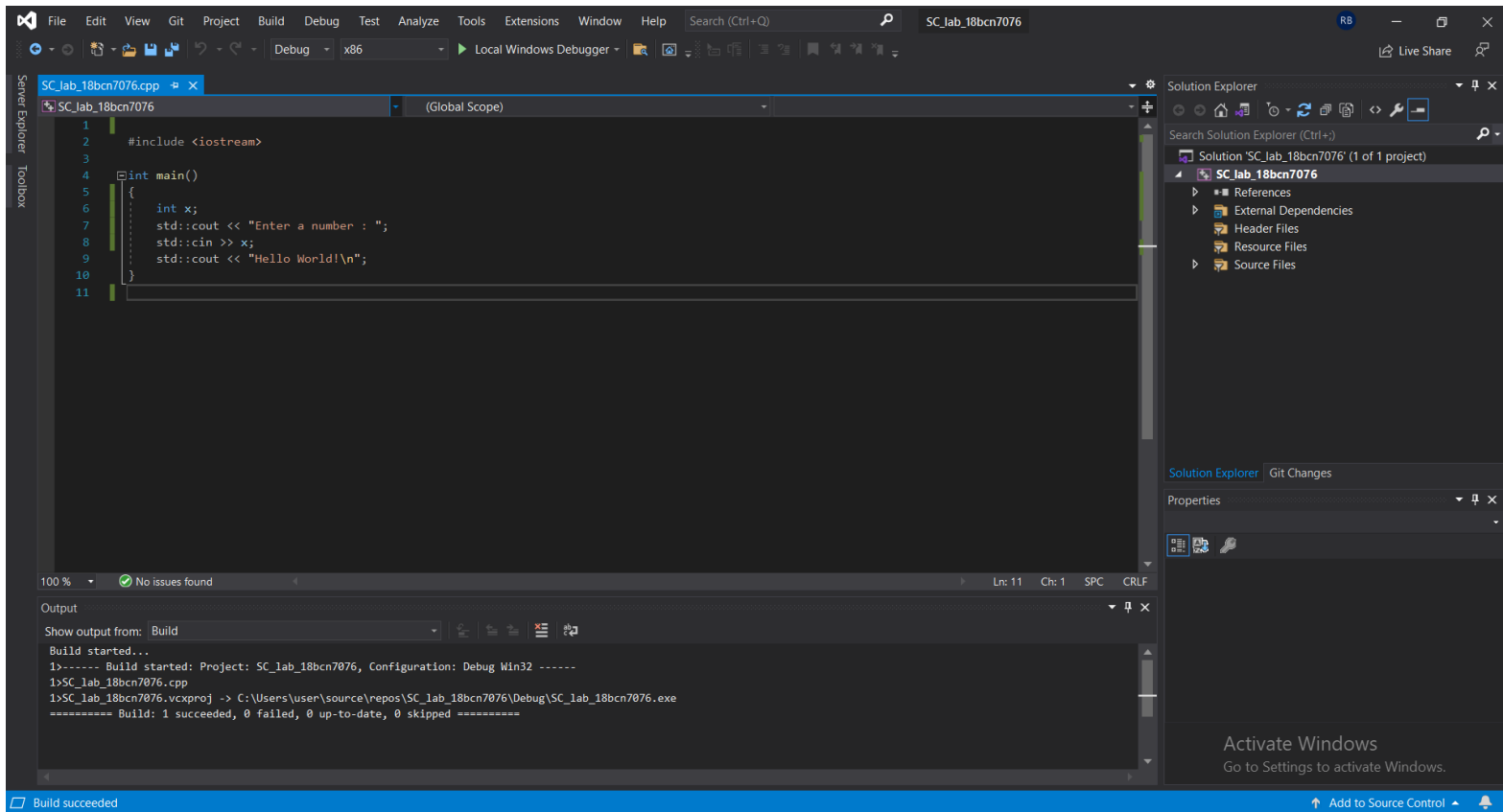
# SECURE CODING LAB

TOPIC : Creating Secure And Safe Executable

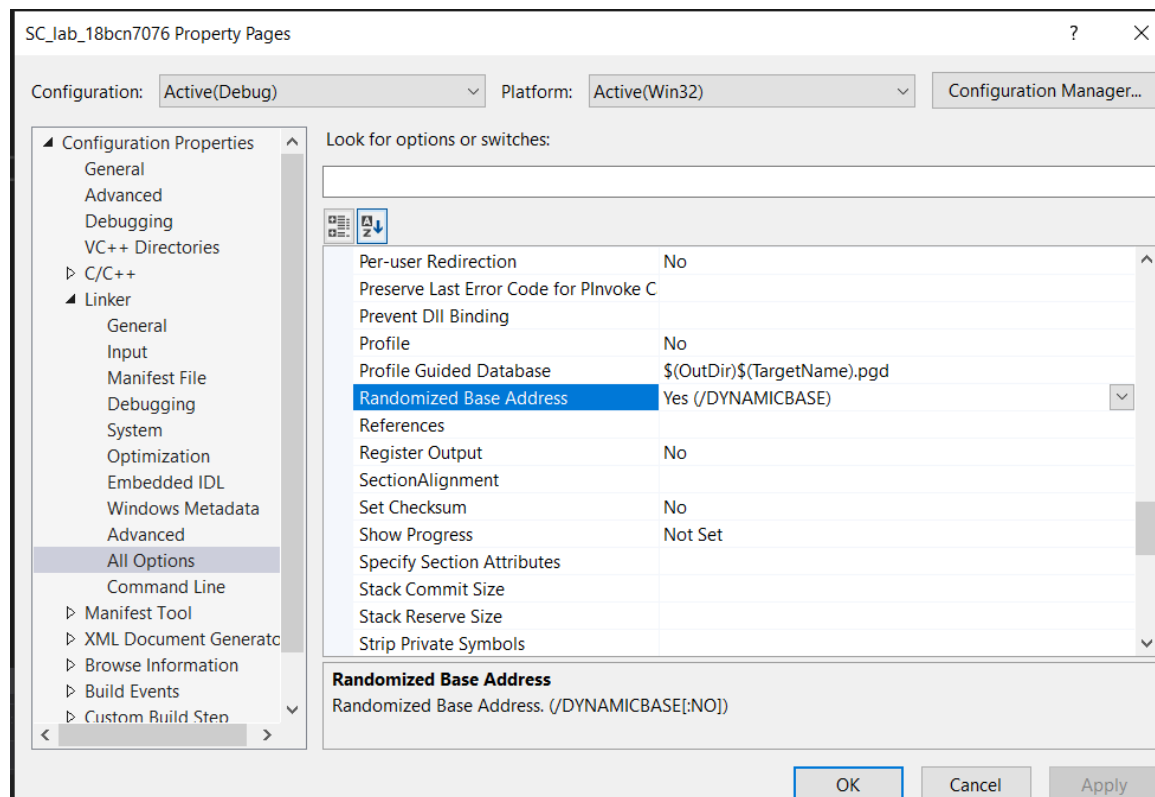
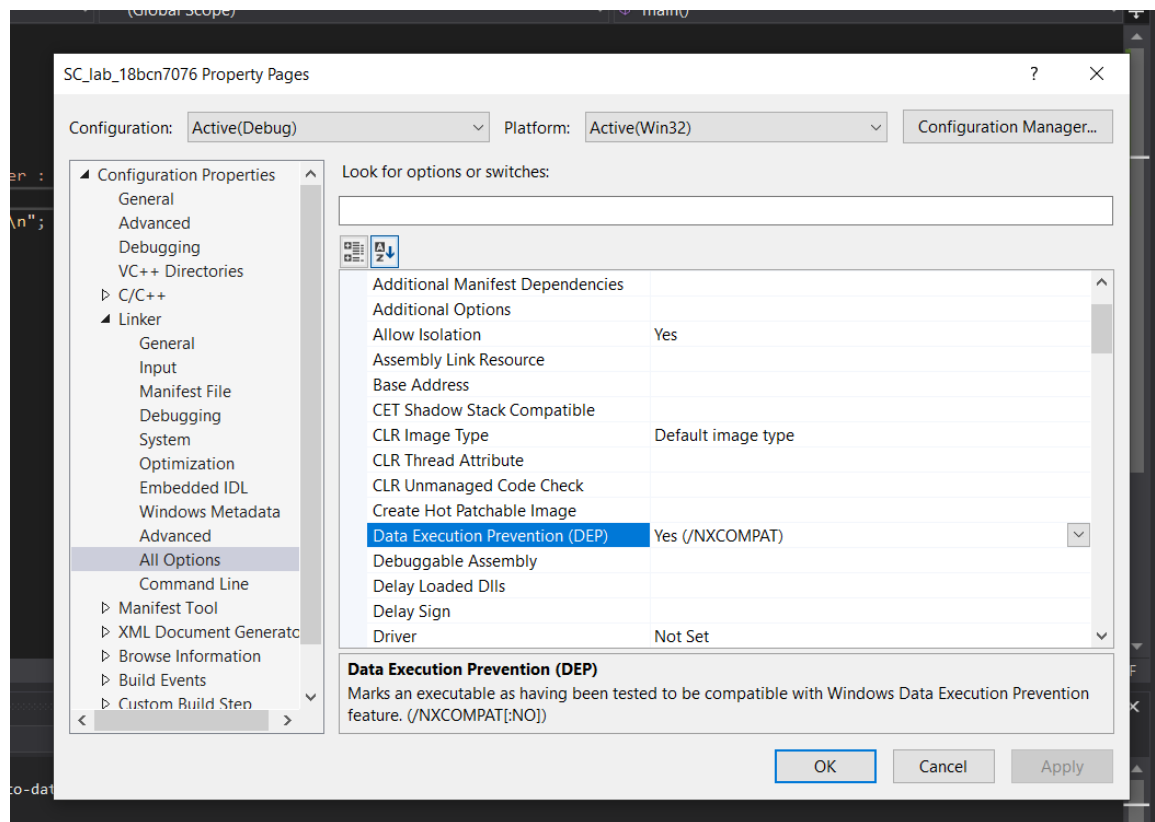
RISHAB BANTHIA 18BCN7076

- Downloaded visual studio and process explorer.
- Creating a new project.

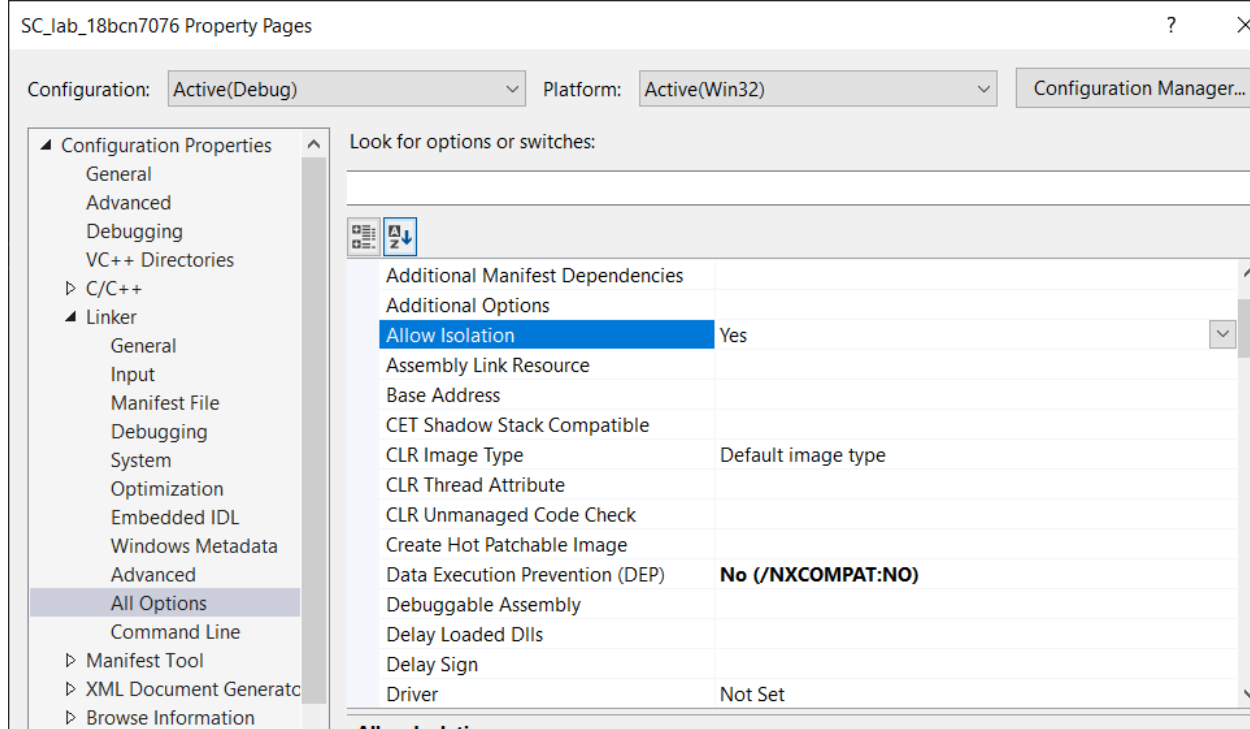
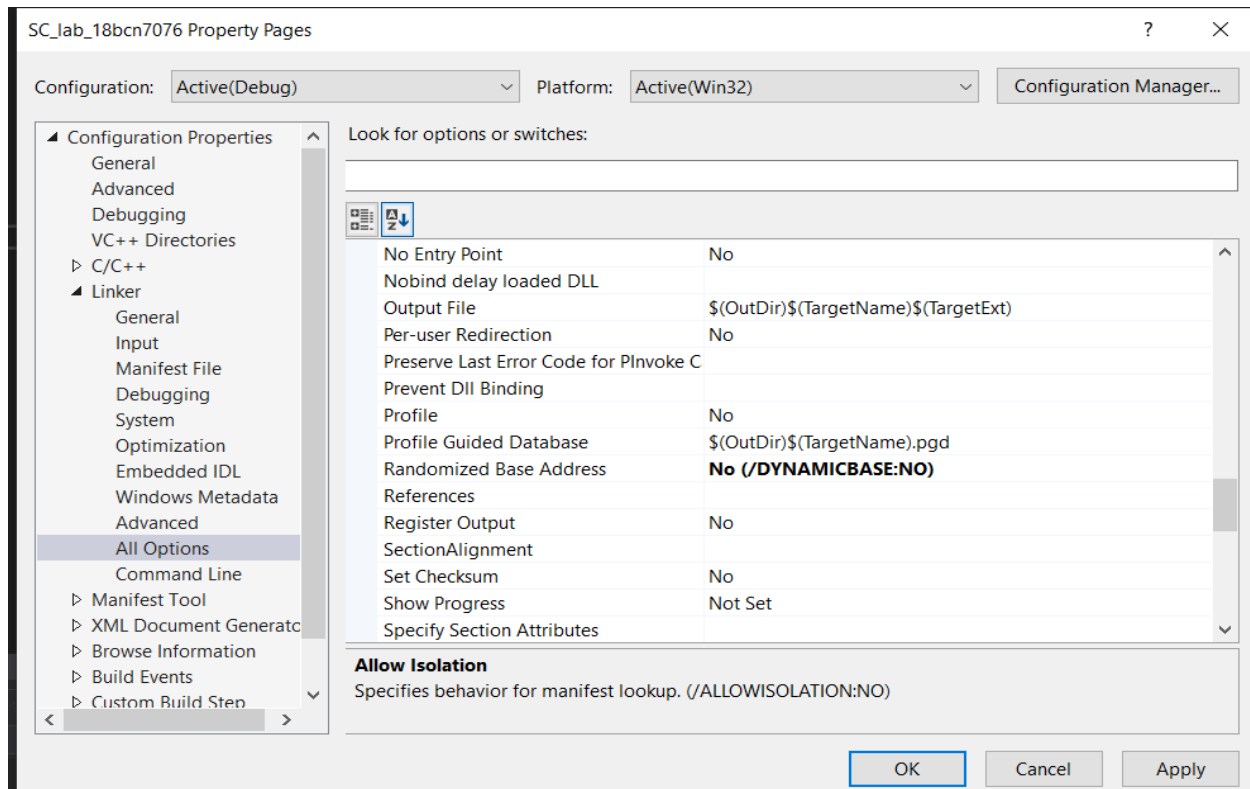


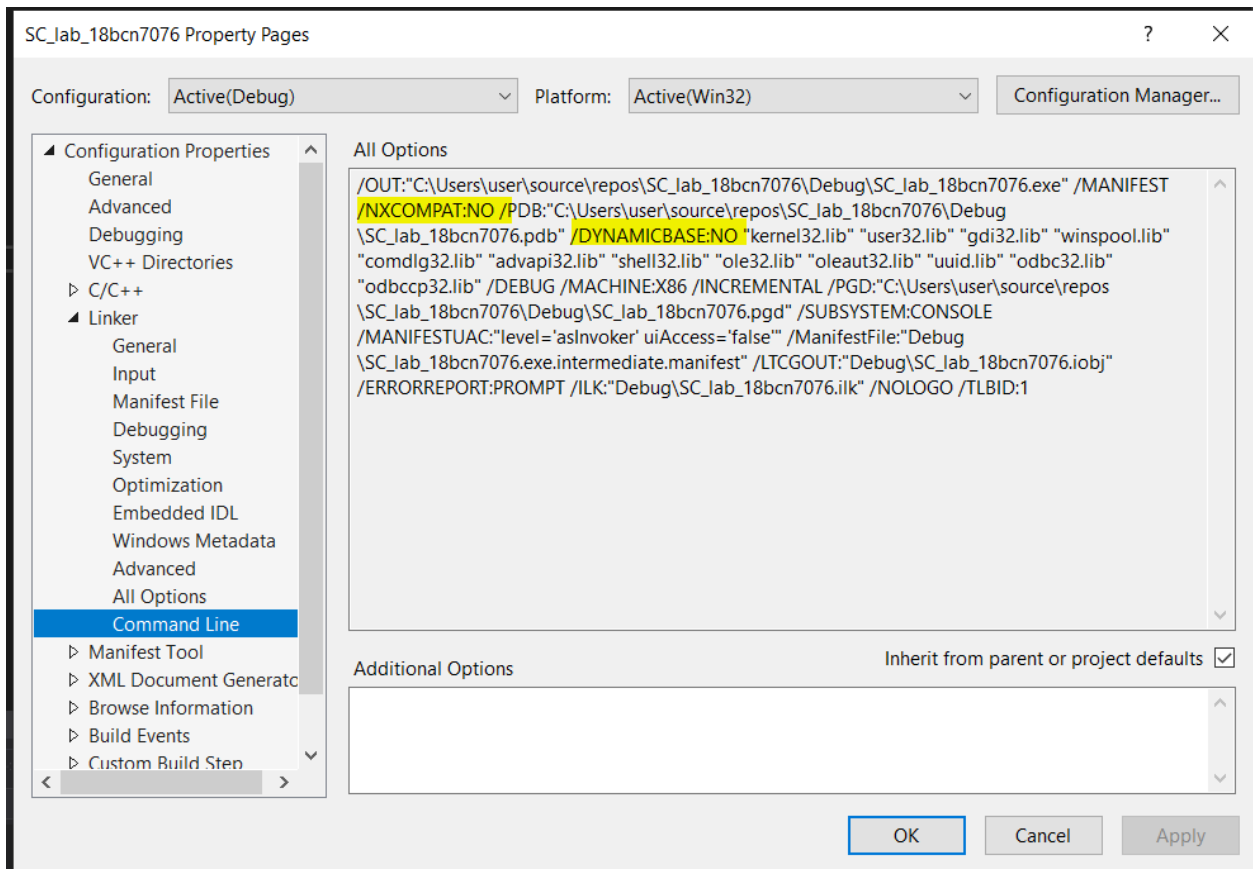


- Visiting the properties of the project and verifying the DEP,ASLR and SEH properties.

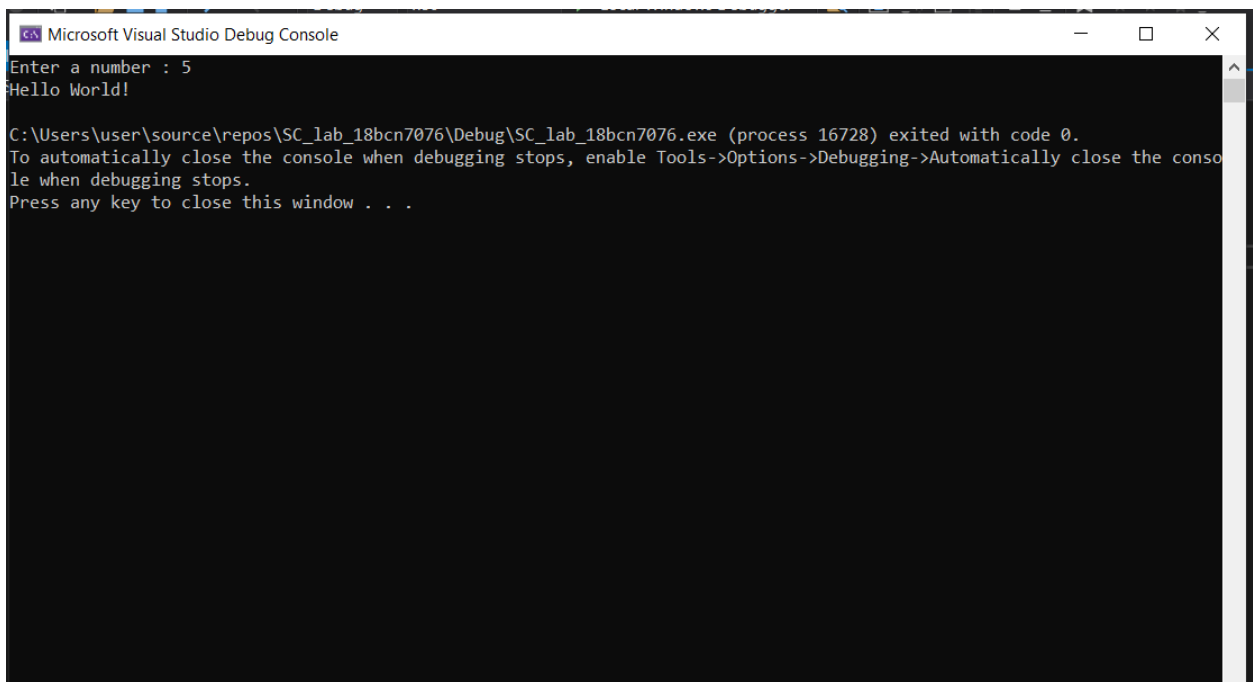


Changing the default option to **no** in command line to check them in process explorer





After executing the file .cpp



Checking the DEP and ASLR status in process explorer

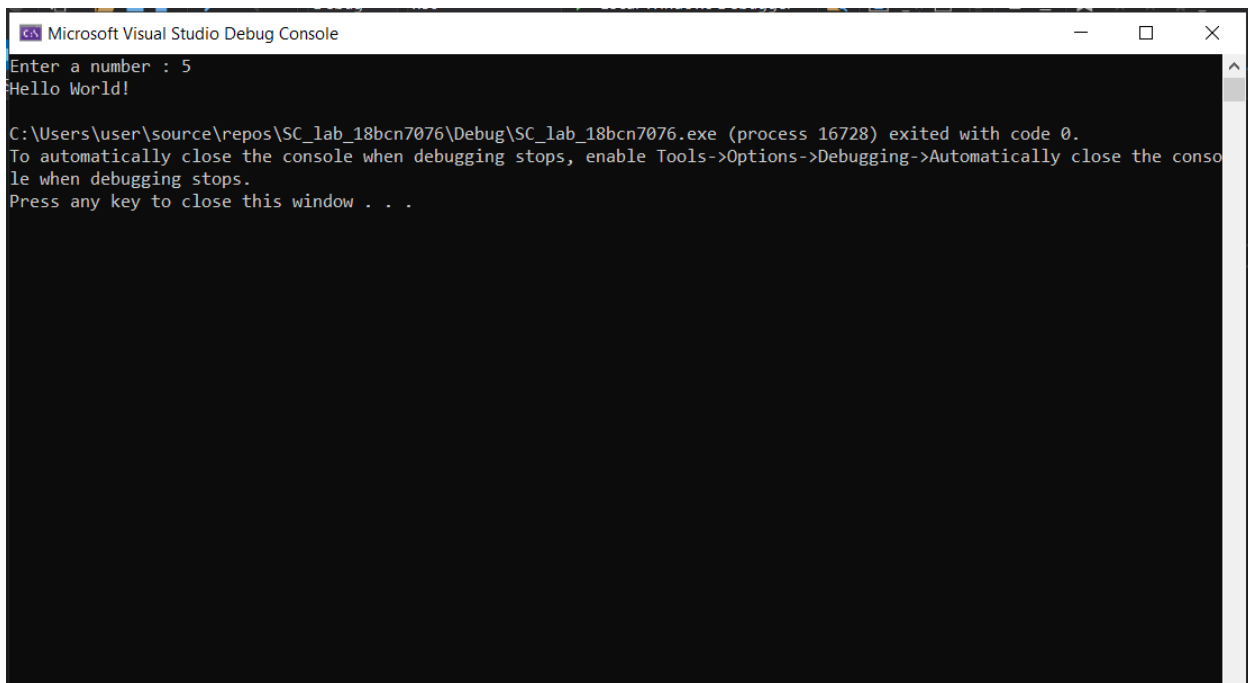
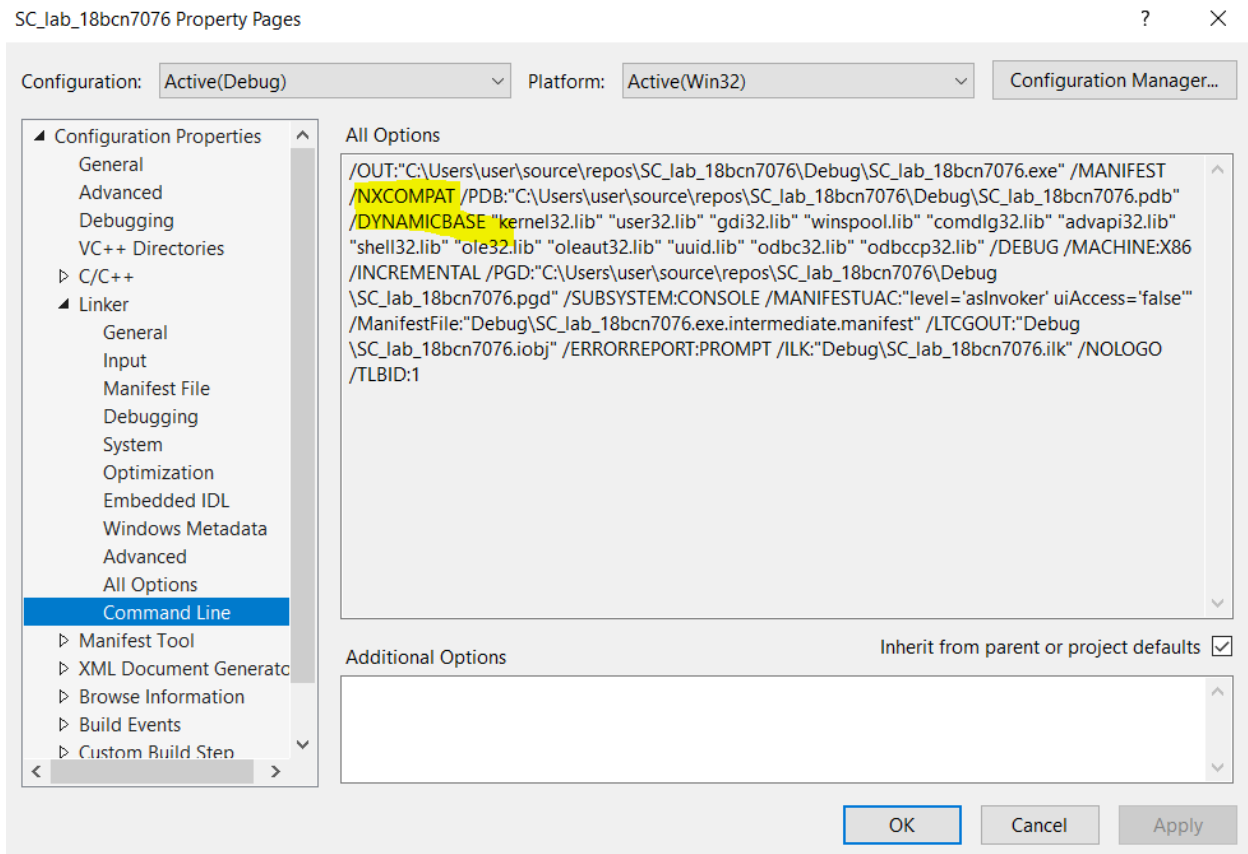
Process Explorer - Sysinternals: www.sysinternals.com [DESKTOP-TSKJKR1\user]

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	Path	DEP	ASLR
RuntimeBroker.exe	< 0.01	8,064 K	24,272 K	12984	Runtime Broker	Microsoft Corporation	C:\Windows\System32\RuntimeBroker.exe	Enabled (permanent)	ASLR
RuntimeBroker.exe		1,824 K	7,224 K	9312	Runtime Broker	Microsoft Corporation	C:\Windows\System32\RuntimeBroker.exe	Enabled (permanent)	ASLR
RuntimeBroker.exe		4,416 K	19,040 K	11696	Runtime Broker	Microsoft Corporation	C:\Windows\System32\RuntimeBroker.exe	Enabled (permanent)	ASLR
RuntimeBroker.exe		12,028 K	31,828 K	10728	Runtime Broker	Microsoft Corporation	C:\Windows\System32\RuntimeBroker.exe	Enabled (permanent)	ASLR
rundll32.exe		2,000 K	9,784 K	2412	Windows host process (Rundll32.exe)	Microsoft Corporation	C:\Windows\System32\rundll32.exe	Enabled (permanent)	ASLR
RtkNGUI64.exe		4,876 K	14,960 K	2500	Realtek HD Audio Manager	Realtek Semiconductor	C:\Program Files\Realtek\Audio\HDA\RtkNGUI64.exe	Enabled (permanent)	ASLR
procexp64.exe		37,460 K	57,272 K	17132	Sysinternals Process Explorer	Sysinternals - www.sysinternals.com	C:\Users\user\AppData\Local\Temp\procexp64.exe	Enabled (permanent)	ASLR
Microsoft.ServiceHub.Controller.exe		44,540 K	56,868 K	13544	Microsoft.ServiceHub.Controller.exe	Microsoft	C:\Program Files (x86)\Microsoft Visual Studio\2019\Community\Common7\ServiceHub\controller.exe	Enabled (permanent)	ASLR
Microsoft.Photos.exe	Susp...	50,636 K	2,660 K	2576	Microsoft Windows Photos	Microsoft Corporation	C:\Program Files\WindowsApps\Microsoft.Windows.Photos_2020.20120.4004.0_x64__8wekyb3d8bfe36\Microsoft.Windows.Photos.exe	Enabled (permanent)	ASLR
LockApp.exe	Susp...	15,972 K	50,204 K	4636	LockApp.exe	Microsoft Corporation	C:\Windows\SystemApps\Microsoft.LockApp_cw5n1h2zyewy\LockApp.exe	Enabled (permanent)	ASLR
igfxEM.exe		7,592 K	25,848 K	8520	igfxEM Module	Intel Corporation	C:\Windows\System32\DriverStore\FileRepository\cui_dch_inf_amd64_b8e01d9e8716d2a7\igfxem64.exe	Enabled (permanent)	ASLR
HxTsr.exe	< 0.01	9,796 K	33,268 K	10144	Microsoft Outlook Communicator	Microsoft Corporation	C:\Program Files\WindowsApps\microsoft.windowscommunicationsapps_16005.13426.20920.0_x-ww_8wekyb3d8bfe36\HxTsr.exe	Enabled (permanent)	ASLR
HxOutlook.exe	Susp...	23,828 K	3,164 K	10244	Microsoft Outlook	Microsoft Corporation	C:\Program Files\WindowsApps\microsoft.windowscommunicationsapps_16005.13426.20920.0_x-ww_8wekyb3d8bfe36\HxOutlook.exe	Enabled (permanent)	ASLR
HxAccounts.exe	< 0.01	18,440 K	32,176 K	13000	Microsoft Outlook Accounts	Microsoft Corporation	C:\Program Files\WindowsApps\microsoft.windowscommunicationsapps_16005.13426.20920.0_x-ww_8wekyb3d8bfe36\HxAccounts.exe	Enabled (permanent)	ASLR
explorer.exe	0.19	86,656 K	1,48,364 K	13188	Windows Explorer	Microsoft Corporation	C:\Windows\explorer.exe	Enabled (permanent)	ASLR
dllhost.exe		4,256 K	13,204 K	11788	COM Surrogate	Microsoft Corporation	C:\Windows\System32\dllhost.exe	Enabled (permanent)	ASLR
dllhost.exe		3,348 K	15,012 K	7876	COM Surrogate	Microsoft Corporation	C:\Windows\SysWOW64\dllhost.exe	Enabled (permanent)	ASLR
ctmon.exe	< 0.01	40,984 K	44,156 K	9252	[Access is denied.]		[Access is denied.]	Enabled (permanent)	n/a
Cortana.exe	Susp...	30,952 K	31,088 K	9228	Cortana	Microsoft Corporation	C:\Program Files\WindowsApps\Microsoft549981C3F5F10_32105.19601.0_x64__8wekyb3d8bfe36\Cortana.exe	Enabled (permanent)	ASLR
conhost.exe		6,528 K	11,536 K	2248	Console Window Host	Microsoft Corporation	C:\Windows\System32\conhost.exe	Enabled (permanent)	ASLR
conhost.exe		7,188 K	17,032 K	6572	Console Window Host	Microsoft Corporation	C:\Windows\System32\conhost.exe	Enabled (permanent)	ASLR
CompPkgSrv.exe		1,760 K	9,012 K	12372	Component Package Support	Microsoft Corporation	C:\Windows\System32\CompPkgSrv.exe	Enabled (permanent)	ASLR
chrome.exe	0.19	1,02,292 K	1,64,164 K	10960	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		2,400 K	7,828 K	15048	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		7,65,064 K	7,28,556 K	7792	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe	< 0.01	23,384 K	41,212 K	12636	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		13,072 K	17,552 K	8704	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		40,124 K	66,248 K	11940	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		1,99,384 K	2,12,488 K	7808	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe	< 0.01	39,236 K	68,688 K	3192	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		36,024 K	65,856 K	16196	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		10,324 K	19,980 K	13680	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe	< 0.01	204,572 K	2,26,592 K	15124	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		43,440 K	83,608 K	16396	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
chrome.exe		15,924 K	23,672 K	1280	Google Chrome	Google LLC	C:\Program Files\Google\Chrome\Application\chrome.exe	Enabled (permanent)	ASLR
Calculator.exe	Susp...	24,204 K	2,324 K	12088	Microsoft Windows Calculator	Microsoft Corporation	C:\Program Files\WindowsApps\Microsoft.WindowsCalculator_10.2103.8.0_x64__8wekyb3d8bfe36\Calculator.exe	Enabled (permanent)	ASLR
AvastUI.exe	0.37	36,828 K	88,624 K	2216	Avast Antivirus	AVAST Software	C:\Program Files\Avast Software\Avast\AvastUI.exe	Enabled (permanent)	ASLR
AvastUI.exe		19,528 K	40,852 K	8324	Avast Antivirus	AVAST Software	C:\Program Files\Avast Software\Avast\AvastUI.exe	Enabled (permanent)	ASLR
AvastUI.exe		12,172 K	32,568 K	876	Avast Antivirus	AVAST Software	C:\Program Files\Avast Software\Avast\AvastUI.exe	Enabled (permanent)	ASLR
AvastUI.exe		16,356 K	42,396 K	12360	Avast Antivirus	AVAST Software	C:\Program Files\Avast Software\Avast\AvastUI.exe	Enabled (permanent)	ASLR
audiodg.exe		9,616 K	18,656 K	12020	[Access is denied.]		[Access is denied.]	Enabled (permanent)	n/a
ApplicationFrameHost.exe		23,732 K	39,196 K	12384	Application Frame Host	Microsoft Corporation	C:\Windows\System32\ApplicationFrameHost.exe	Enabled (permanent)	ASLR
SC_lab_18bcn7076.exe		772 K	4,924 K	6440	[Access is denied.]		C:\Users\user\source\repos\SC_lab_18bcn7076\Debug\SC_lab_18bcn7076.exe	Disabled (permanent)	ASLR

Process Explorer - Sysinternals: www.sysinternals.com [DESKTOP-TSKJKR1\user]

Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	Path	DEP	ASLR
wsc_proxy.exe		4,544 K	5,900 K	3088	Avast Antivirus	AVAST Software	C:\Program Files\Avast Software\Avast\wsc_proxy.exe	n/a	ASLR
ScriptedSandbox64.exe		27,432 K	32,280 K	20176	Scripted Sandbox	Microsoft Corporation	C:\Program Files (x86)\Microsoft\ScriptedSandbox64.exe	Enabled (permanent)	ASLR
SC_lab_18bcn7076.exe		992 K	4,988 K	864	[Access is denied.]		C:\Users\user\source\repos\SC_lab_18bcn7076\Debug\SC_lab_18bcn7076.exe	Disabled	ASLR

Again enabling the DEP and ASLR status and also the SEH





File Options View Process Find Users Help

Process	CPU	Private Bytes	Working Set	PID	Des...	Company Name	Path	DEP	ASLR
wsc_proxy.exe		4,476 K	5,812 K	3088	Avast...	AVAST Software	C:\Program Files\Avast Soft...	n/a	ASLR
SC_lab_18bcn7076.exe		784 K	4,924 K	8792			C:\Users\user\source\repo...	Enabled (permanent)	ASLR
ScriptedSandbox64.exe		27,432 K	55,012 K	20176	Script...	Microsoft Corporation	C:\Program Files (x86)\Micr...	Enabled (permanent)	ASLR