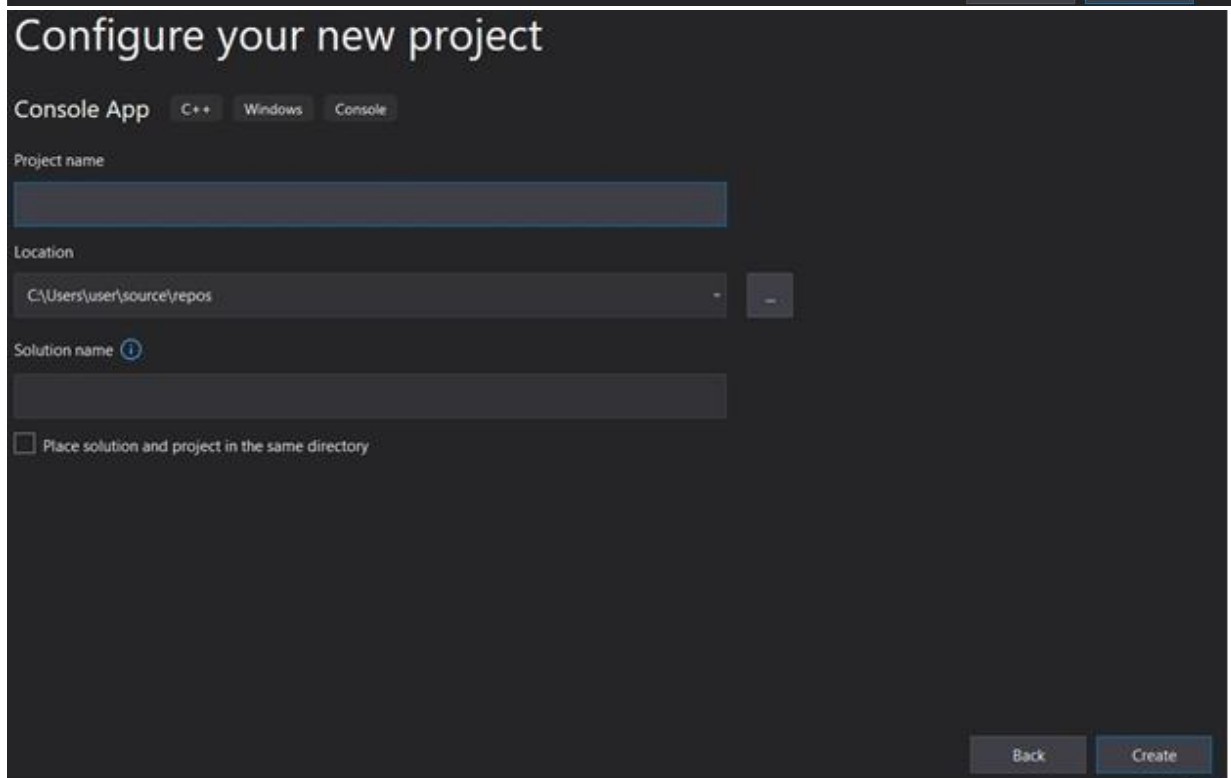
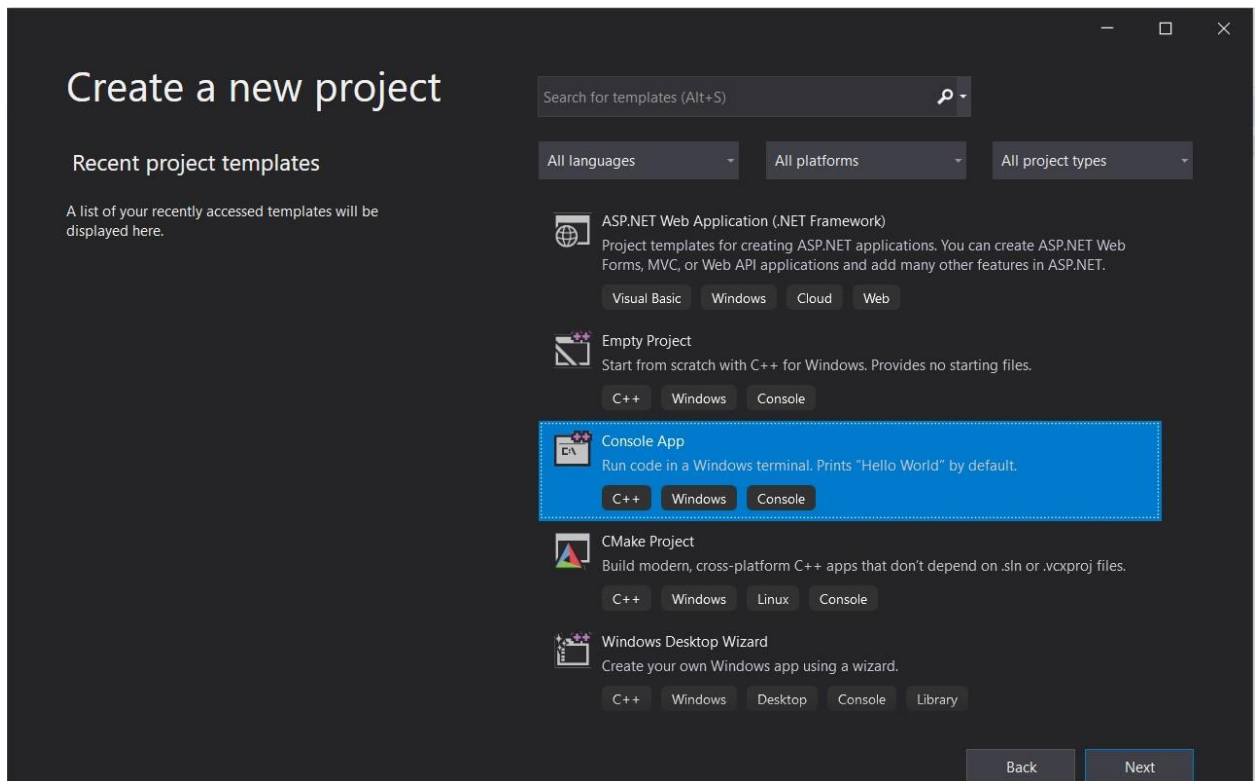


SECURE CODING LAB

TOPIC : Creating Secure And Safe Executable

RISHAV DHIMAN 18BCN7030

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

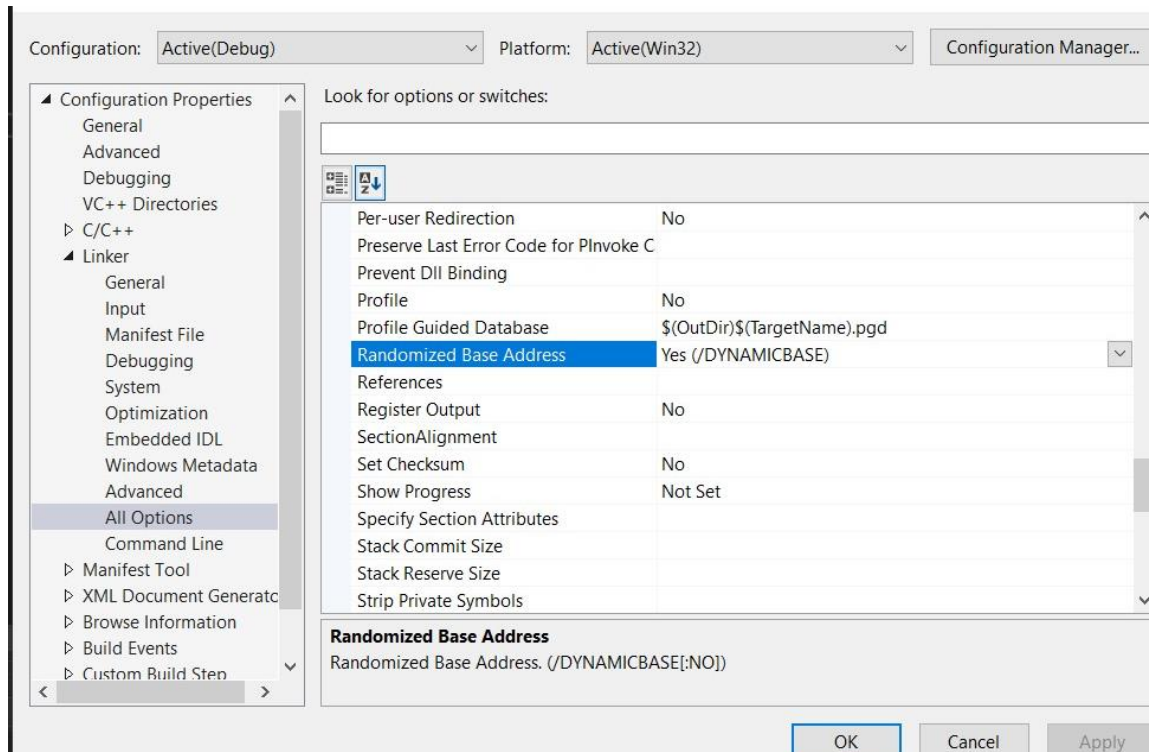
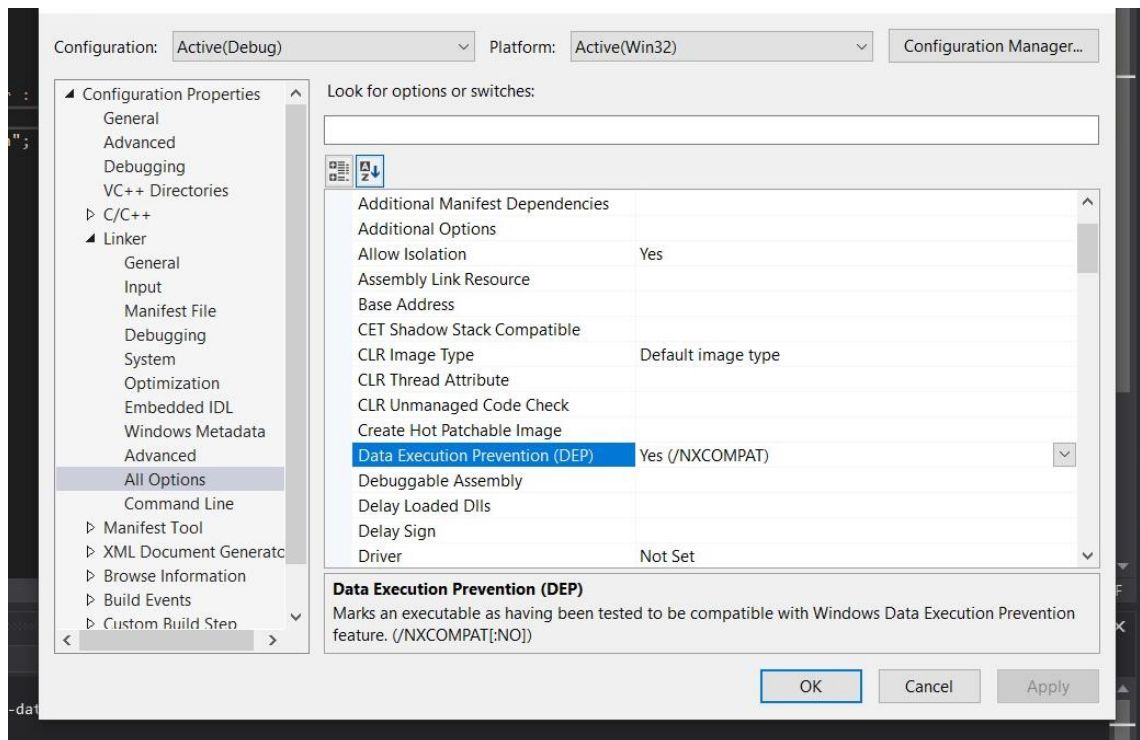


```
1  #include <iostream>
2
3
4  int main()
5  {
6      int x;
7      std::cout << "Enter a number : ";
8      std::cin >> x;
9      std::cout << "Hello World!\n";
10 }
11
```

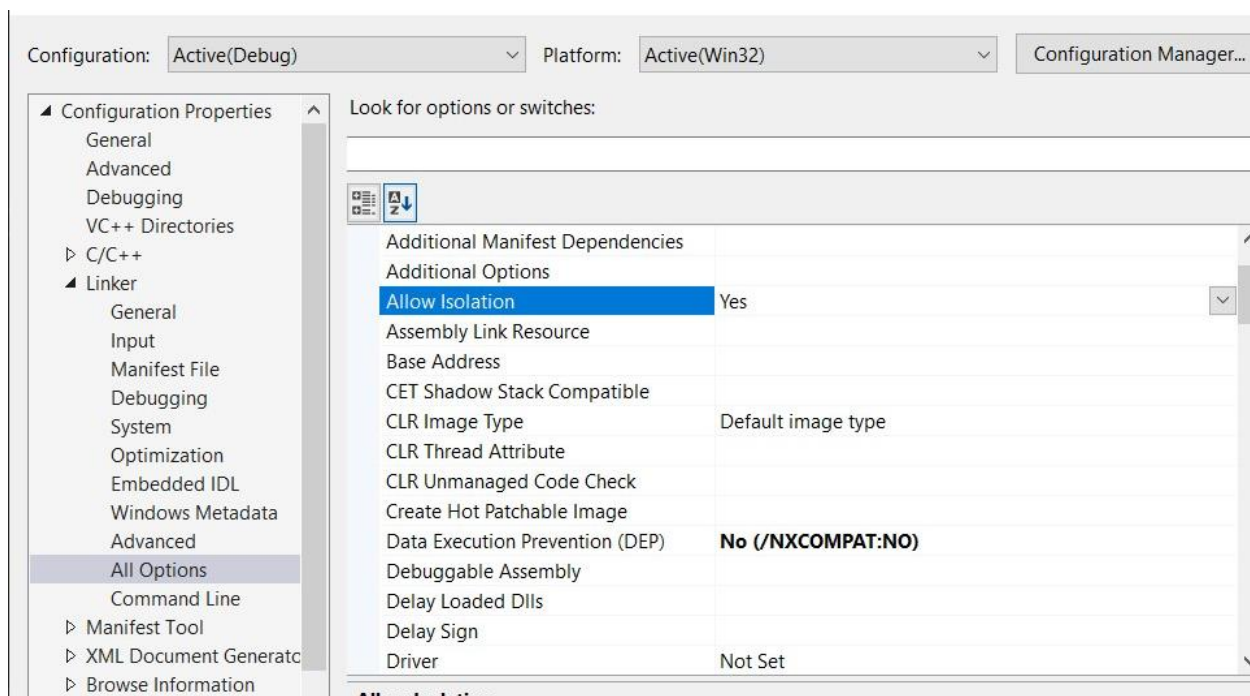
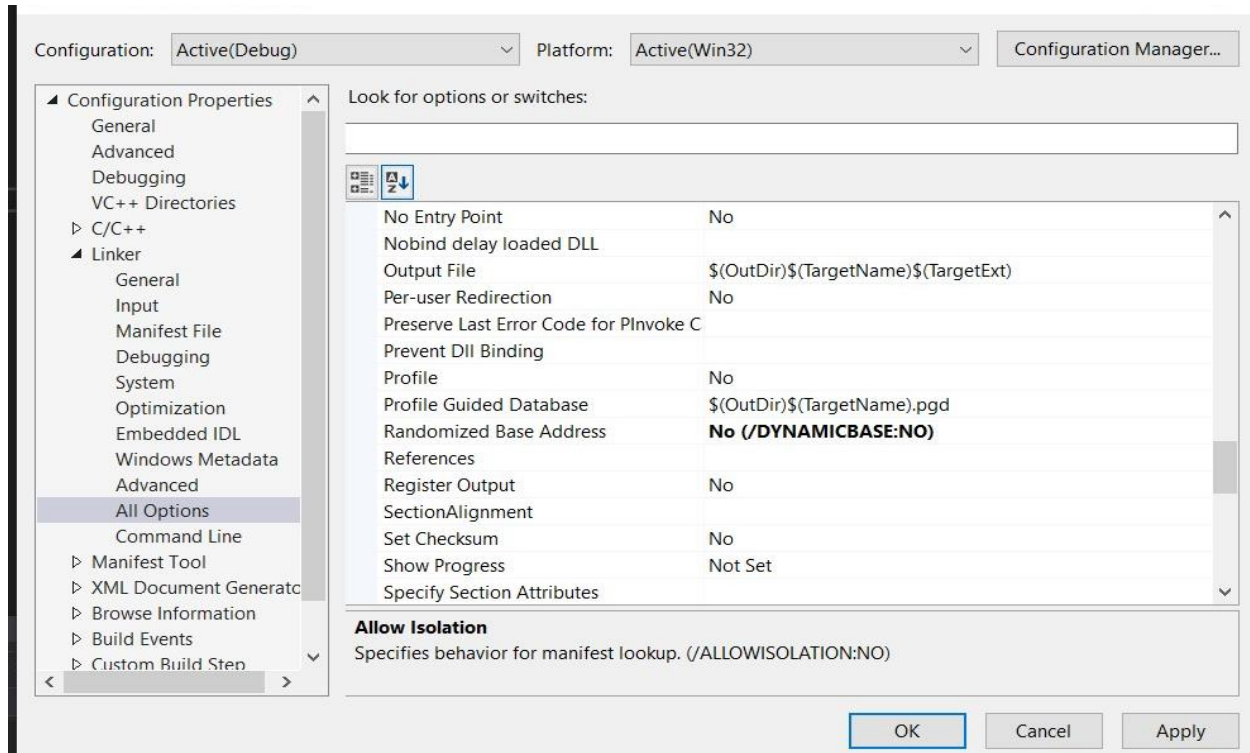
100 % No issues found Ln: 11 Ch: 1 SPC CRLF

Output

- 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

```
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.  
Press any key to close this window . . .
```


Checking the DEP and ASLR status in process explorer

Process Explorer - Sysinternals: www.sysinternals.com [DESKTOP-TSKJKR1\user]									
File Options View Process Find Users Help									
<Filter by name>									
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)	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	1.49	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_x-ww_8wekyb3d8bbfe\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_cw5n1h2zyeww\LockApp.exe	Enabled (permanent)	ASLR
igfxEM.exe		7,592 K	25,848 K	8520	igfxEM Module	Intel Corporation	C:\Windows\System32\DriverStore\FileRepository\icui_dch_inf_amd64_b0e01d9e8716d2a7\igfxem.exe	Enabled (permanent)	ASLR
HxTst.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_8wekyb3d8bbfe\HxTst.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_8wekyb3d8bbfe\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_8wekyb3d8bbfe\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\System32\dllhost.exe	Enabled (permanent)	ASLR
ctfmon.exe	< 0.01	40,984 K	44,156 K	9252	ctfmon.exe	Microsoft Corporation	[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_3.2105.19601.0_x-ww_8wekyb3d8bbfe\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	Windows Calculator	Microsoft Corporation	C:\Program Files\WindowsApps\Microsoft.Windows.Calculator_10.2103.8.0_x-ww_8wekyb3d8bbfe\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
audiocd.exe		9,616 K	18,656 K	12020	audiocd.exe	Microsoft Corporation	[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_Jab_18bcb7076.exe		772 K	4,924 K	6440	SC_Jab_18bcb7076.exe	Microsoft Corporation	C:\Users\user\source\repos\SC_Jab_18bcb7076\Debug\SC_Jab_18bcb7076.exe	Disabled (permanent)	ASLR

Go to Settings to activate Windows.

als: www.sysinternals.com [DESKTOP-TSKJKR1\user]

Find Users Help									
	CPU	Private Bytes	Working Set	PID	Des...	Company Name	Path	DEP	ASLR
		4,544 K	5,900 K	3088	Avast...	AVAST Software	C:\Program Files\Avast Soft...	n/a	ASLR
		27,432 K	32,280 K	20176	Script..	Microsoft Corporation	C:\Program Files (x86)\Micr...	Enabled (permanent)	ASLR
		992 K	4,988 K	864			C:\Users\user\source\repo...	Disabled	

Again enabling the DEP and ASLR status and also the SEH

To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .

als: www.sysinternals.com [DESKTOP-TSKJKR1\user]

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