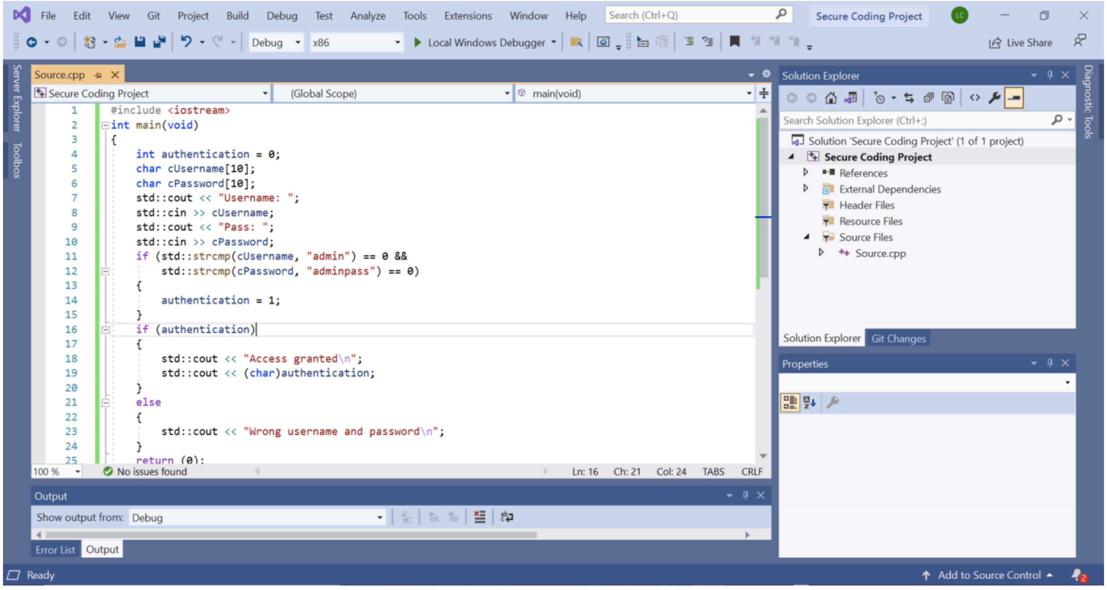
SC LAB - 11
ARSHARTH.P - 19BCE7512

Lab experiment – Creating secure and safe executable

1) C++ Code & building the Executable

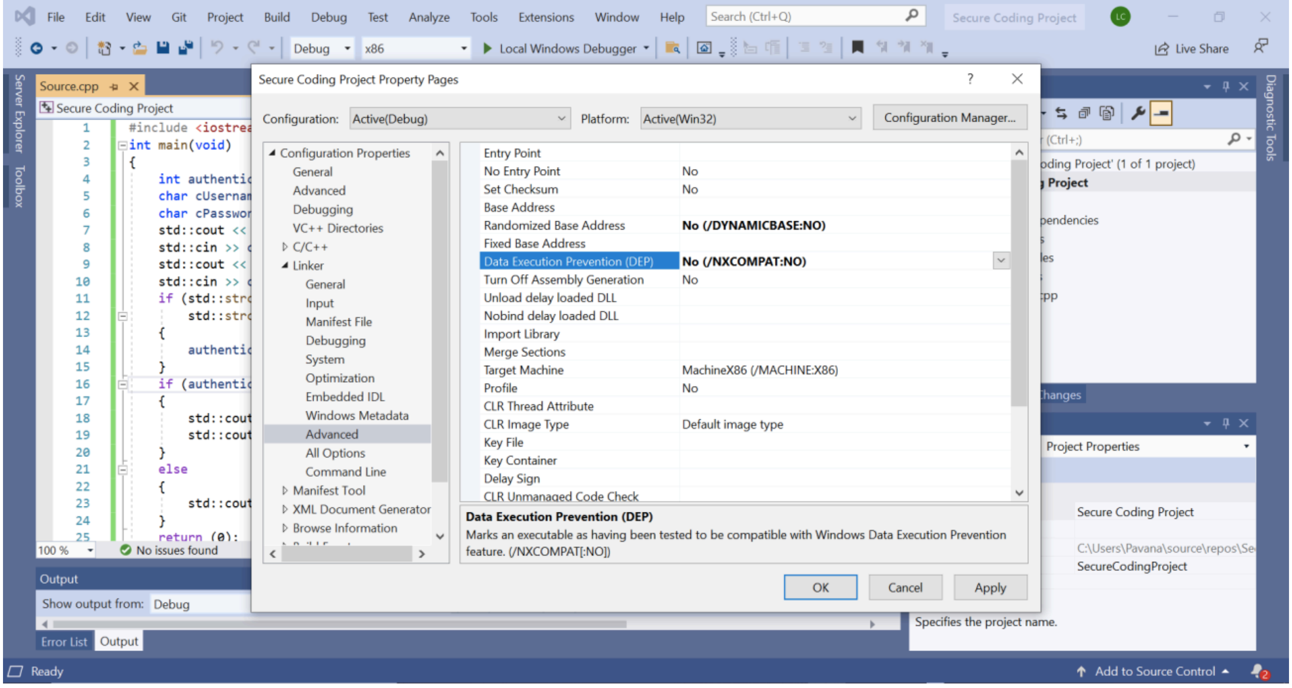
```
#include <iostream>
int main(void)
{
int authentication = 0;
char cUsername[10];
char cPassword[10];
std::cout << "Username: ";
std::cin >> cUsername;
std::cout << "Pass: ";
std::cin >> cPassword;
if (std::strcmp(cUsername, "admin") == 0 &&
std::strcmp(cPassword, "adminpass") == 0)
{
authentication = 1;
}
if (authentication)
{}
else
{}
std::cout << "Access granted\n";
std::cout << (char)authentication;
std::cout << "Wrong username and password\n";
return (0);
}
```

Building an executable code.



```
#include <iostream>
int main(void)
{
    int authentication = 0;
    char cUsername[10];
    char cPassword[10];
    std::cout << "Username: ";
    std::cin >> cUsername;
    std::cout << "Pass: ";
    std::cin >> cPassword;
    if (std::strcmp(cUsername, "admin") == 0 &&
        std::strcmp(cPassword, "adminpass") == 0)
    {
        authentication = 1;
    }
    if (authentication)
    {
        std::cout << "Access granted\n";
        std::cout << (char)authentication;
    }
    else
    {
        std::cout << "Wrong username and password\n";
    }
    return (0);
```

Disable DEP, ASLR and SEH



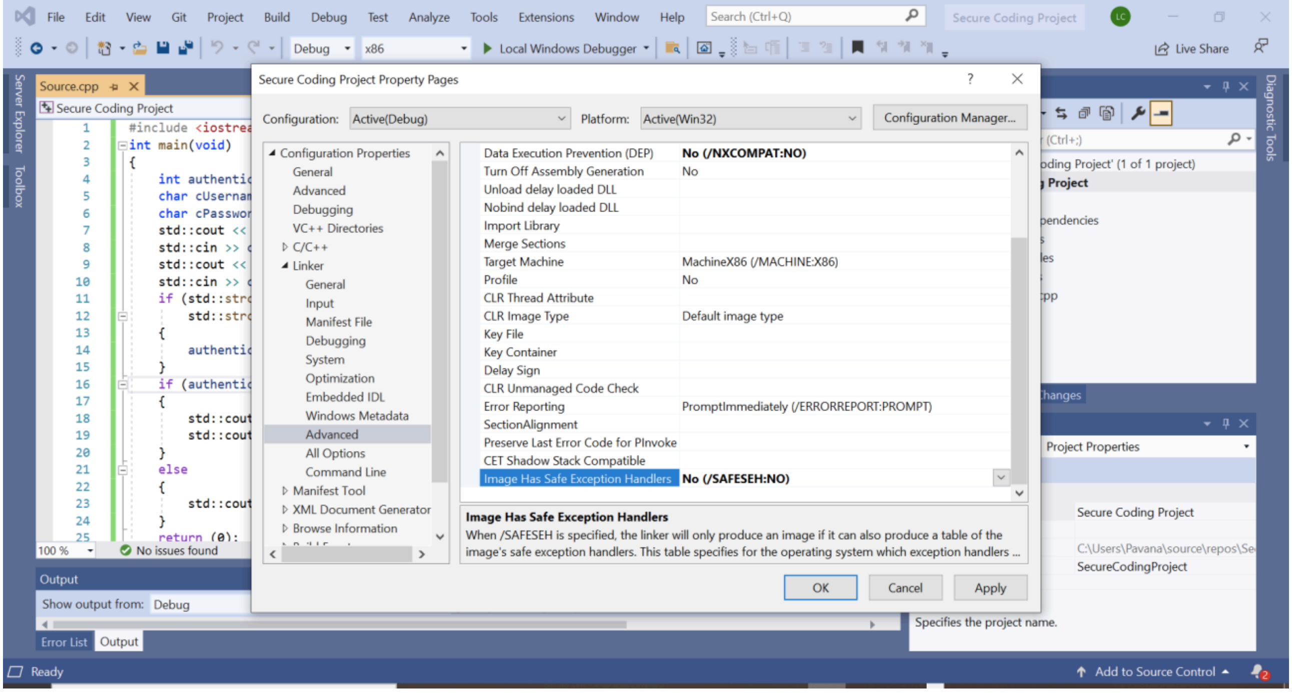
Secure Coding Project Property Pages

Configuration: Active(Debug) Platform: Active(Win32)

Entry Point	
No Entry Point	No
Set Checksum	No
Base Address	
Randomized Base Address	**No (/DYNAMICBASE:NO)**
Fixed Base Address	
Data Execution Prevention (DEP)	**No (/NXCOMPAT:NO)**
Turn Off Assembly Generation	No
Unload delay loaded DLL	
Nobind delay loaded DLL	
Import Library	
Merge Sections	
Target Machine	MachineX86 (/MACHINE:X86)
Profile	No
CLR Thread Attribute	
CLR Image Type	Default image type
Key File	
Key Container	
Delay Sign	
CLR Unmanaged Code Check	

Data Execution Prevention (DEP)
Marks an executable as having been tested to be compatible with Windows Data Execution Prevention feature. (/NXCOMPAT[:NO])

```
#include <iostrea
int main(void)
{
    int authentic
    char cUsernam
    char cPasswor
    std::cout <<
    std::cin >> c
    std::cout <<
    std::cin >> c
    if (std::strc
        std::strc
    {
        authentic
    }
    if (authentic
    {
        std::cout
        std::cout
    }
    else
    {
        std::cout
    }
    return (0):
```



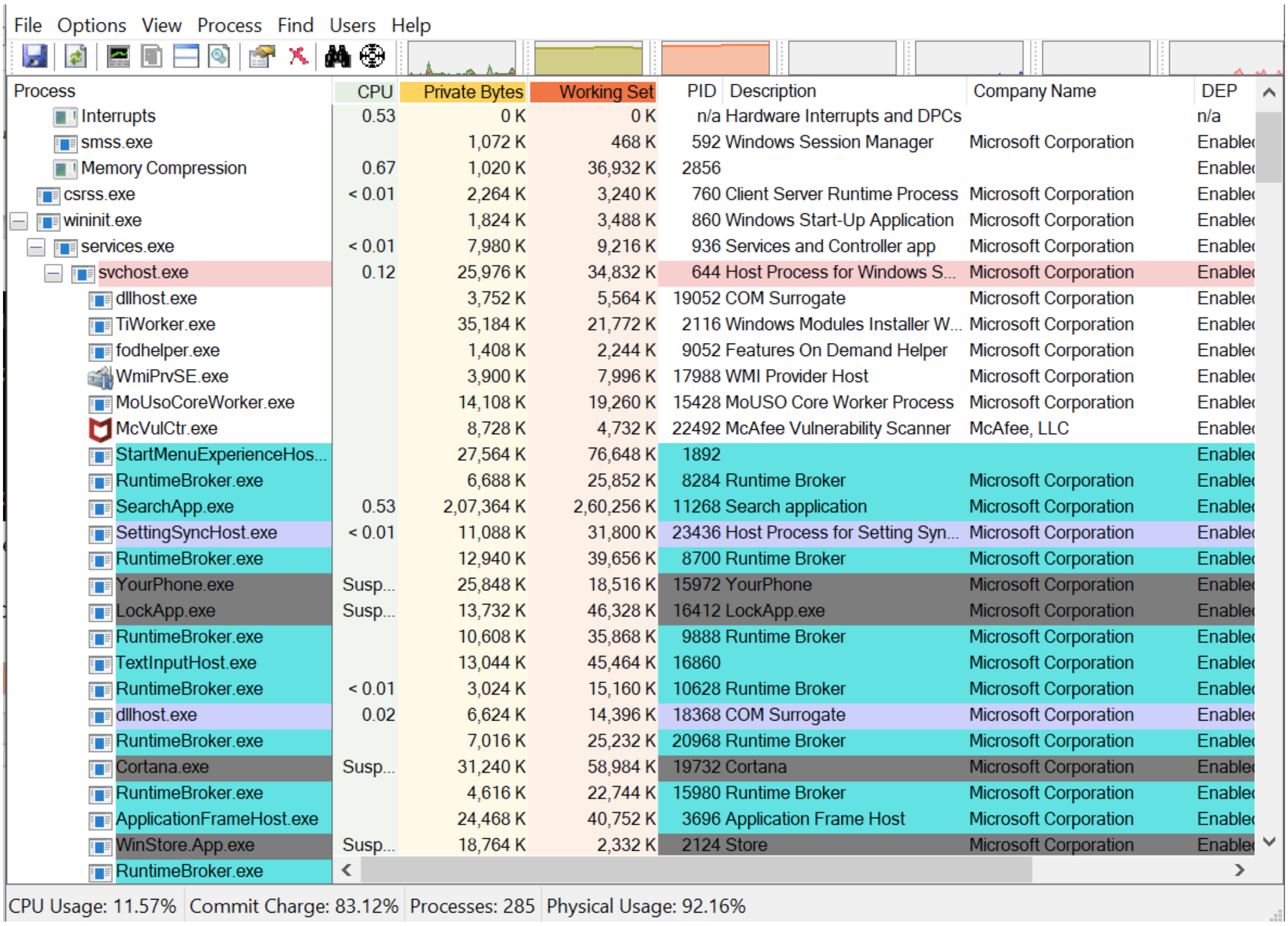
Secure Coding Project Property Pages

Configuration: Active(Debug) Platform: Active(Win32)

Data Execution Prevention (DEP)	**No (/NXCOMPAT:NO)**
Turn Off Assembly Generation	No
Unload delay loaded DLL	
Nobind delay loaded DLL	
Import Library	
Merge Sections	
Target Machine	MachineX86 (/MACHINE:X86)
Profile	No
CLR Thread Attribute	
CLR Image Type	Default image type
Key File	
Key Container	
Delay Sign	
CLR Unmanaged Code Check	
Error Reporting	PromptImmediately (/ERRORREPORT:PROMPT)
SectionAlignment	
Preserve Last Error Code for PInvoke	
CET Shadow Stack Compatible	
Image Has Safe Exception Handlers	**No (/SAFESEH:NO)**

Image Has Safe Exception Handlers
When /SAFESEH is specified, the linker will only produce an image if it can also produce a table of the image's safe exception handlers. This table specifies for the operating system which exception handlers ...

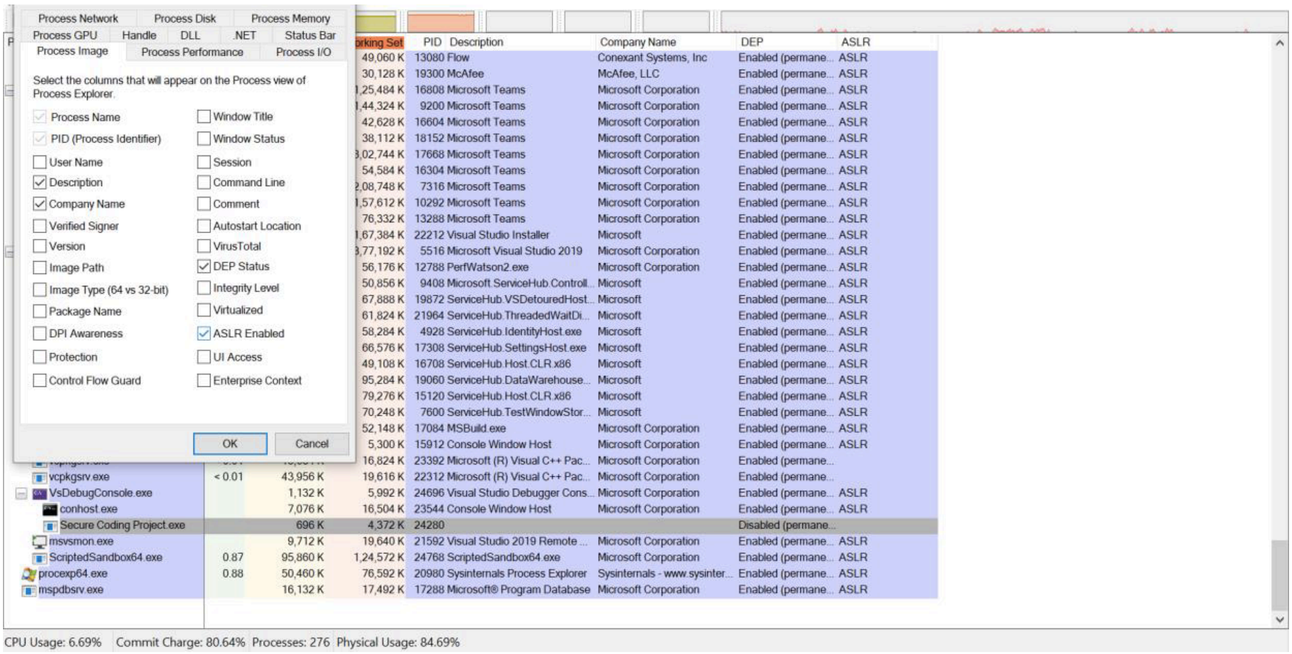
Install process Explorer



Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	DEP
Interrupts	0.53	0 K	0 K	n/a	Hardware Interrupts and DPCs		n/a
smss.exe		1,072 K	468 K	592	Windows Session Manager	Microsoft Corporation	Enablec
Memory Compression	0.67	1,020 K	36,932 K	2856			Enablec
csrss.exe	< 0.01	2,264 K	3,240 K	760	Client Server Runtime Process	Microsoft Corporation	Enablec
wininit.exe		1,824 K	3,488 K	860	Windows Start-Up Application	Microsoft Corporation	Enablec
services.exe	< 0.01	7,980 K	9,216 K	936	Services and Controller app	Microsoft Corporation	Enablec
svchost.exe	0.12	25,976 K	34,832 K	644	Host Process for Windows S...	Microsoft Corporation	Enablec
dllhost.exe		3,752 K	5,564 K	19052	COM Surrogate	Microsoft Corporation	Enablec
TiWorker.exe		35,184 K	21,772 K	2116	Windows Modules Installer W...	Microsoft Corporation	Enablec
fodhelper.exe		1,408 K	2,244 K	9052	Features On Demand Helper	Microsoft Corporation	Enablec
WmiPrvSE.exe		3,900 K	7,996 K	17988	WMI Provider Host	Microsoft Corporation	Enablec
MoUsoCoreWorker.exe		14,108 K	19,260 K	15428	MoUSO Core Worker Process	Microsoft Corporation	Enablec
McVulCtr.exe		8,728 K	4,732 K	22492	McAfee Vulnerability Scanner	McAfee, LLC	Enablec
StartMenuExperienceHos...		27,564 K	76,648 K	1892			Enablec
RuntimeBroker.exe		6,688 K	25,852 K	8284	Runtime Broker	Microsoft Corporation	Enablec
SearchApp.exe	0.53	2,07,364 K	2,60,256 K	11268	Search application	Microsoft Corporation	Enablec
SettingSyncHost.exe	< 0.01	11,088 K	31,800 K	23436	Host Process for Setting Syn...	Microsoft Corporation	Enablec
RuntimeBroker.exe		12,940 K	39,656 K	8700	Runtime Broker	Microsoft Corporation	Enablec
YourPhone.exe	Susp...	25,848 K	18,516 K	15972	YourPhone	Microsoft Corporation	Enablec
LockApp.exe	Susp...	13,732 K	46,328 K	16412	LockApp.exe	Microsoft Corporation	Enablec
RuntimeBroker.exe		10,608 K	35,868 K	9888	Runtime Broker	Microsoft Corporation	Enablec
TextInputHost.exe		13,044 K	45,464 K	16860		Microsoft Corporation	Enablec
RuntimeBroker.exe	< 0.01	3,024 K	15,160 K	10628	Runtime Broker	Microsoft Corporation	Enablec
dllhost.exe	0.02	6,624 K	14,396 K	18368	COM Surrogate	Microsoft Corporation	Enablec
RuntimeBroker.exe		7,016 K	25,232 K	20968	Runtime Broker	Microsoft Corporation	Enablec
Cortana.exe	Susp...	31,240 K	58,984 K	19732	Cortana	Microsoft Corporation	Enablec
RuntimeBroker.exe		4,616 K	22,744 K	15980	Runtime Broker	Microsoft Corporation	Enablec
ApplicationFrameHost.exe		24,468 K	40,752 K	3696	Application Frame Host	Microsoft Corporation	Enablec
WinStore.App.exe	Susp...	18,764 K	2,332 K	2124	Store	Microsoft Corporation	Enablec
RuntimeBroker.exe							

CPU Usage: 11.57% Commit Charge: 83.12% Processes: 285 Physical Usage: 92.16%

Enabling DEP and ASLR in process



Select the columns that will appear on the Process view of Process Explorer.

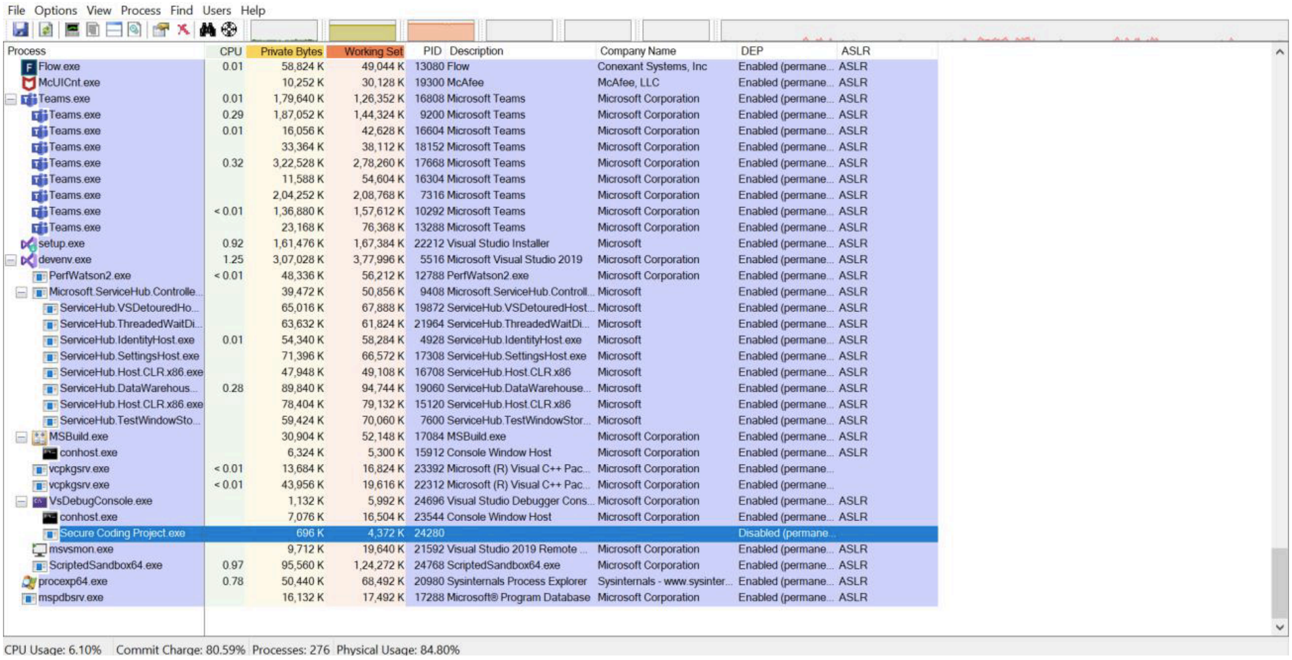
☑ Process Name
☑ PID (Process Identifier)
☐ User Name
☑ Description
☑ Company Name
☐ Verified Signer
☐ Version
☐ Image Path
☐ Image Type (64 vs 32-bit)
☐ Package Name
☐ DPI Awareness
☐ Protection
☐ Control Flow Guard

☐ Window Title
☐ Window Status
☐ Session
☐ Command Line
☐ Comment
☐ Autostart Location
☐ VirusTotal
☑ DEP Status
☐ Integrity Level
☐ Virtualized
☑ ASLR Enabled
☐ UI Access
☐ Enterprise Context

			orking Set	PID	Description	Company Name	DEP	ASLR
			49,060 K	13080	Flow	Conexant Systems, Inc	Enabled (permane...	ASLR
			30,128 K	19300	McAfee	McAfee, LLC	Enabled (permane...	ASLR
			1,25,484 K	16808	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			1,44,324 K	9200	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			42,628 K	16604	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			38,112 K	18152	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			3,02,744 K	17668	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			54,584 K	16304	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			2,08,748 K	7316	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			1,57,612 K	10292	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			76,332 K	13288	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
			1,67,384 K	22212	Visual Studio Installer	Microsoft	Enabled (permane...	ASLR
			3,77,192 K	5516	Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permane...	ASLR
			56,176 K	12788	PerfWatson2.exe	Microsoft Corporation	Enabled (permane...	ASLR
			50,856 K	9408	Microsoft.ServiceHub.Controll...	Microsoft	Enabled (permane...	ASLR
			67,888 K	19872	ServiceHub.VSDetouredHost...	Microsoft	Enabled (permane...	ASLR
			61,824 K	21964	ServiceHub.ThreadedWaitDi...	Microsoft	Enabled (permane...	ASLR
			58,284 K	4928	ServiceHub.IdentityHost.exe	Microsoft	Enabled (permane...	ASLR
			66,576 K	17308	ServiceHub.SettingsHost.exe	Microsoft	Enabled (permane...	ASLR
			49,108 K	16708	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
			95,284 K	19060	ServiceHub.DataWarehouse...	Microsoft	Enabled (permane...	ASLR
			79,276 K	15120	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
			70,248 K	7600	ServiceHub.TestWindowStor...	Microsoft	Enabled (permane...	ASLR
			52,148 K	17084	MSBuild.exe	Microsoft Corporation	Enabled (permane...	ASLR
			5,300 K	15912	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
			16,824 K	23392	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
vcpkgsrv.exe	< 0.01	43,956 K	19,616 K	22312	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
VsDebugConsole.exe		1,132 K	5,992 K	24696	Visual Studio Debugger Cons...	Microsoft Corporation	Enabled (permane...	ASLR
conhost.exe		7,076 K	16,504 K	23544	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
Secure Coding Project.exe		696 K	4,372 K	24280			Disabled (permane...	
msvsmon.exe		9,712 K	19,640 K	21592	Visual Studio 2019 Remote ...	Microsoft Corporation	Enabled (permane...	ASLR
ScriptedSandbox64.exe	0.87	95,860 K	1,24,572 K	24768	ScriptedSandbox64.exe	Microsoft Corporation	Enabled (permane...	ASLR
procexp64.exe	0.88	50,460 K	76,592 K	20980	Sysinternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permane...	ASLR
mspdbsrv.exe		16,132 K	17,492 K	17288	Microsoft® Program Database	Microsoft Corporation	Enabled (permane...	ASLR

CPU Usage: 6.69% Commit Charge: 80.64% Processes: 276 Physical Usage: 84.69%

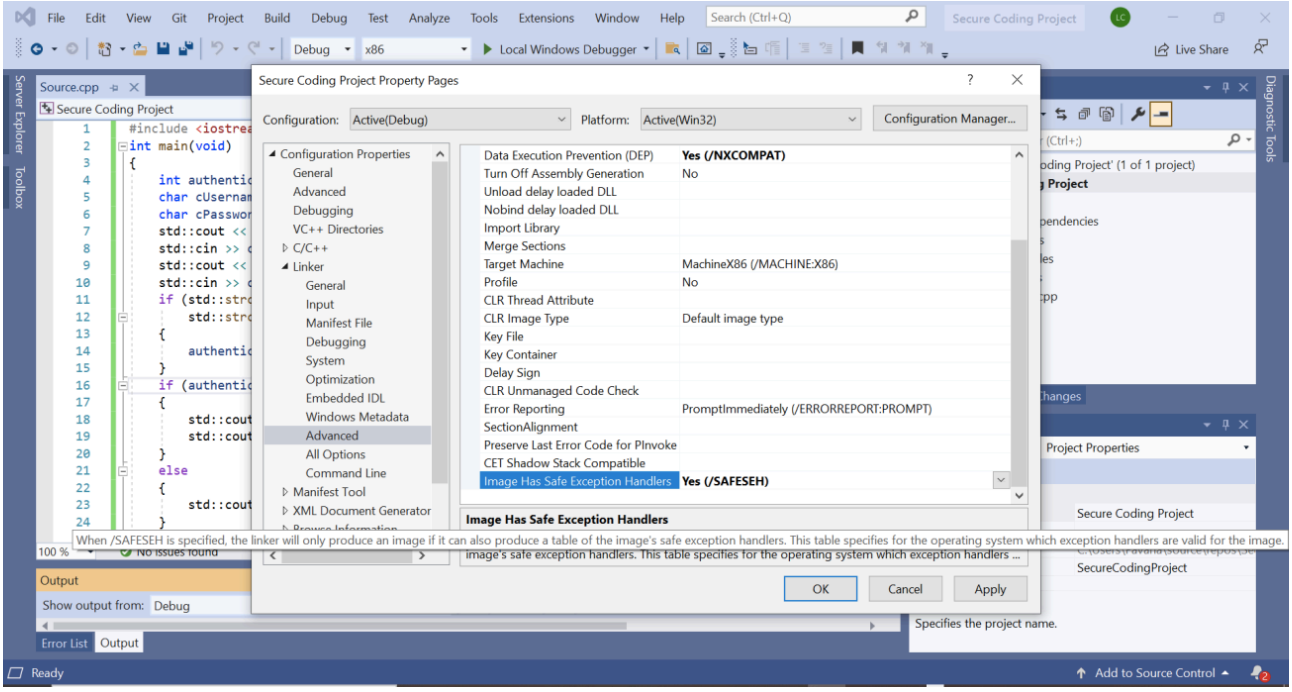
DEP Status of Secure Coding Project.exe shows disabled.



Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	DEP	ASLR
Flow.exe	0.01	58,824 K	49,044 K	13080	Flow	Conexant Systems, Inc	Enabled (permane...	ASLR
McUICnt.exe		10,252 K	30,128 K	19300	McAfee	McAfee, LLC	Enabled (permane...	ASLR
Teams.exe	0.01	1,79,640 K	1,26,352 K	16808	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.29	1,87,052 K	1,44,324 K	9200	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.01	16,056 K	42,628 K	16604	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		33,364 K	38,112 K	18152	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.32	3,22,528 K	2,78,260 K	17668	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		11,588 K	54,604 K	16304	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		2,04,252 K	2,08,768 K	7316	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	< 0.01	1,36,880 K	1,57,612 K	10292	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		23,168 K	76,368 K	13288	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
setup.exe	0.92	1,61,476 K	1,67,384 K	22212	Visual Studio Installer	Microsoft	Enabled (permane...	ASLR
devenv.exe	1.25	3,07,028 K	3,77,996 K	5516	Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permane...	ASLR
PerfWatson2.exe	< 0.01	48,336 K	56,212 K	12788	PerfWatson2.exe	Microsoft Corporation	Enabled (permane...	ASLR
Microsoft.ServiceHub.Controlle...		39,472 K	50,856 K	9408	Microsoft.ServiceHub.Controll...	Microsoft	Enabled (permane...	ASLR
ServiceHub.VSDetouredHo...		65,016 K	67,888 K	19872	ServiceHub.VSDetouredHost...	Microsoft	Enabled (permane...	ASLR
ServiceHub.ThreadedWaitDi...		63,632 K	61,824 K	21964	ServiceHub.ThreadedWaitDi...	Microsoft	Enabled (permane...	ASLR
ServiceHub.IdentityHost.exe	0.01	54,340 K	58,284 K	4928	ServiceHub.IdentityHost.exe	Microsoft	Enabled (permane...	ASLR
ServiceHub.SettingsHost.exe		71,396 K	66,572 K	17308	ServiceHub.SettingsHost.exe	Microsoft	Enabled (permane...	ASLR
ServiceHub.Host.CLR.x86.exe		47,948 K	49,108 K	16708	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
ServiceHub.DataWarehous...	0.28	89,840 K	94,744 K	19060	ServiceHub.DataWarehouse...	Microsoft	Enabled (permane...	ASLR
ServiceHub.Host.CLR.x86.exe		78,404 K	79,132 K	15120	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
ServiceHub.TestWindowSto...		59,424 K	70,060 K	7600	ServiceHub.TestWindowStor...	Microsoft	Enabled (permane...	ASLR
MSBuild.exe		30,904 K	52,148 K	17084	MSBuild.exe	Microsoft Corporation	Enabled (permane...	ASLR
conhost.exe		6,324 K	5,300 K	15912	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
vcpkgsrv.exe	< 0.01	13,684 K	16,824 K	23392	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
vcpkgsrv.exe	< 0.01	43,956 K	19,616 K	22312	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
VsDebugConsole.exe		1,132 K	5,992 K	24696	Visual Studio Debugger Cons...	Microsoft Corporation	Enabled (permane...	ASLR
conhost.exe		7,076 K	16,504 K	23544	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
Secure Coding Project.exe		696 K	4,372 K	24280			Disabled (permane...	
msvsmon.exe		9,712 K	19,640 K	21592	Visual Studio 2019 Remote ...	Microsoft Corporation	Enabled (permane...	ASLR
ScriptedSandbox64.exe	0.97	95,560 K	1,24,272 K	24768	ScriptedSandbox64.exe	Microsoft Corporation	Enabled (permane...	ASLR
procexp64.exe	0.78	50,440 K	68,492 K	20980	Sysinternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permane...	ASLR
mspdbsrv.exe		16,132 K	17,492 K	17288	Microsoft® Program Database	Microsoft Corporation	Enabled (permane...	ASLR

CPU Usage: 6.10% Commit Charge: 80.59% Processes: 276 Physical Usage: 84.80%

Now enable DEP, ASLR and SEH in Visual Studio.



```
#include <iostrea
int main(void)
{
    int authentic
    char cUsernam
    char cPasswor
    std::cout <<
    std::cin >> c
    std::cout <<
    std::cin >> c
    if (std::strc
        std::strc
    {
        authentic
    }
    if (authentic
    {
        std::cout
        std::cout
    }
    else
    {
        std::cout
    }
```

Secure Coding Project Property Pages

Configuration: Active(Debug) Platform: Active(Win32) Configuration Manager...

Data Execution Prevention (DEP)	**Yes (/NXCOMPAT)**
Turn Off Assembly Generation	No
Unload delay loaded DLL	
Nobind delay loaded DLL	
Import Library	
Merge Sections	
Target Machine	MachineX86 (/MACHINE:X86)
Profile	No
CLR Thread Attribute	
CLR Image Type	Default image type
Key File	
Key Container	
Delay Sign	
CLR Unmanaged Code Check	
Error Reporting	PromptImmediately (/ERRORREPORT:PROMPT)
SectionAlignment	
Preserve Last Error Code for PInvoke	
CET Shadow Stack Compatible	
Image Has Safe Exception Handlers	**Yes (/SAFESEH)**

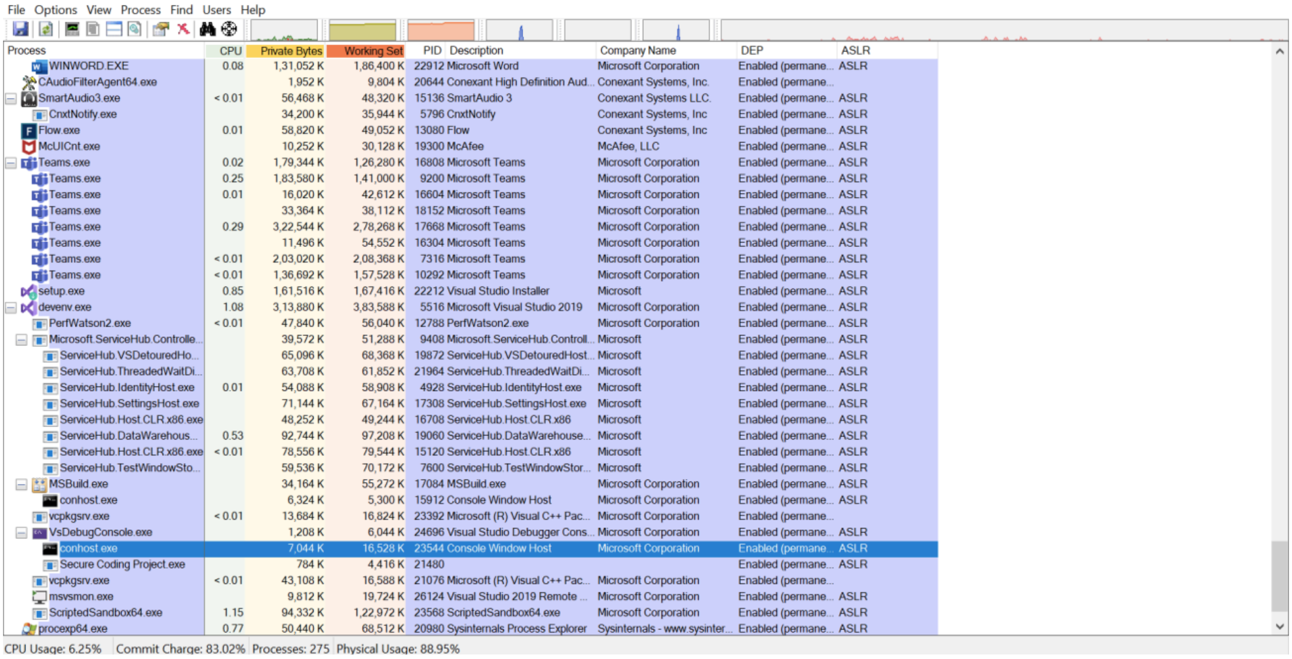
Image Has Safe Exception Handlers

When /SAFESEH is specified, the linker will only produce an image if it can also produce a table of the image's safe exception handlers. This table specifies for the operating system which exception handlers are valid for the image.

image's safe exception handlers. This table specifies for the operating system which exception handlers ...

Specifies the project name.

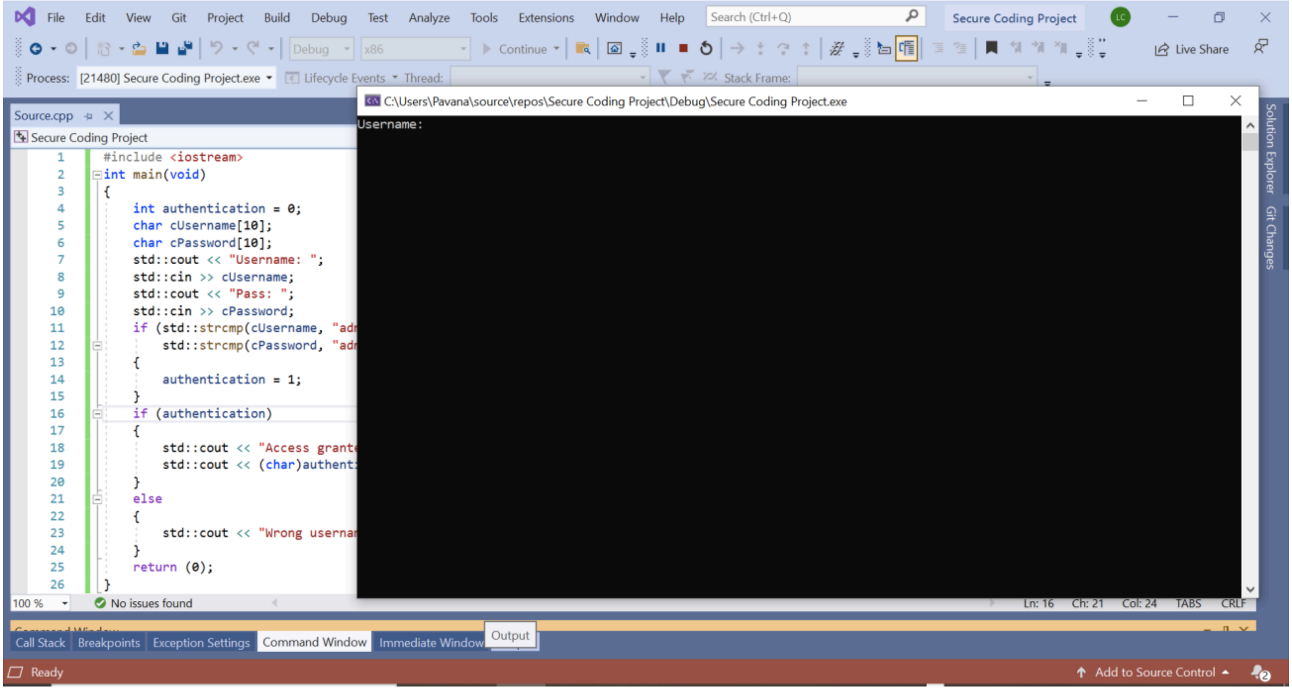
Now, the DEP status of Secure Coding Project.exe shows enabled.



Process	CPU	Private Bytes	Working Set	PID	Description	Company Name	DEP	ASLR
WINWORD.EXE	0.08	1,31,052 K	1,86,400 K	22912	Microsoft Word	Microsoft Corporation	Enabled (permane...	ASLR
CAudioFilterAgent64.exe		1,952 K	9,804 K	20644	Conexant High Definition Aud...	Conexant Systems, Inc.	Enabled (permane...	
SmartAudio3.exe	< 0.01	56,468 K	48,320 K	15136	SmartAudio 3	Conexant Systems LLC.	Enabled (permane...	ASLR
CnxtNotify.exe		34,200 K	35,944 K	5796	CnxtNotify	Conexant Systems, Inc	Enabled (permane...	ASLR
Flow.exe	0.01	58,820 K	49,052 K	13080	Flow	Conexant Systems, Inc	Enabled (permane...	ASLR
McUICnt.exe		10,252 K	30,128 K	19300	McAfee	McAfee, LLC	Enabled (permane...	ASLR
Teams.exe	0.02	1,79,344 K	1,26,280 K	16808	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.25	1,83,580 K	1,41,000 K	9200	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.01	16,020 K	42,612 K	16604	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		33,364 K	38,112 K	18152	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	0.29	3,22,544 K	2,78,268 K	17668	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe		11,496 K	54,552 K	16304	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	< 0.01	2,03,020 K	2,08,368 K	7316	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
Teams.exe	< 0.01	1,36,692 K	1,57,528 K	10292	Microsoft Teams	Microsoft Corporation	Enabled (permane...	ASLR
setup.exe	0.85	1,61,516 K	1,67,416 K	22212	Visual Studio Installer	Microsoft	Enabled (permane...	ASLR
devenv.exe	1.08	3,13,880 K	3,83,588 K	5516	Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permane...	ASLR
PerfWatson2.exe	< 0.01	47,840 K	56,040 K	12788	PerfWatson2.exe	Microsoft Corporation	Enabled (permane...	ASLR
Microsoft.ServiceHub.Controlle...		39,572 K	51,288 K	9408	Microsoft.ServiceHub.Controll...	Microsoft	Enabled (permane...	ASLR
ServiceHub.VSDetouredHo...		65,096 K	68,368 K	19872	ServiceHub.VSDetouredHost...	Microsoft	Enabled (permane...	ASLR
ServiceHub.ThreadedWaitDi...		63,708 K	61,852 K	21964	ServiceHub.ThreadedWaitDi...	Microsoft	Enabled (permane...	ASLR
ServiceHub.IdentityHost.exe	0.01	54,088 K	58,908 K	4928	ServiceHub.IdentityHost.exe	Microsoft	Enabled (permane...	ASLR
ServiceHub.SettingsHost.exe		71,144 K	67,164 K	17308	ServiceHub.SettingsHost.exe	Microsoft	Enabled (permane...	ASLR
ServiceHub.Host.CLR.x86.exe		48,252 K	49,244 K	16708	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
ServiceHub.DataWarehous...	0.53	92,744 K	97,208 K	19060	ServiceHub.DataWarehouse...	Microsoft	Enabled (permane...	ASLR
ServiceHub.Host.CLR.x86.exe	< 0.01	78,556 K	79,544 K	15120	ServiceHub.Host.CLR.x86	Microsoft	Enabled (permane...	ASLR
ServiceHub.TestWindowSto...		59,536 K	70,172 K	7600	ServiceHub.TestWindowStor...	Microsoft	Enabled (permane...	ASLR
MSBuild.exe		34,164 K	55,272 K	17084	MSBuild.exe	Microsoft Corporation	Enabled (permane...	ASLR
conhost.exe		6,324 K	5,300 K	15912	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
vcpkgsrv.exe	< 0.01	13,684 K	16,824 K	23392	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
VsDebugConsole.exe		1,208 K	6,044 K	24696	Visual Studio Debugger Cons...	Microsoft Corporation	Enabled (permane...	ASLR
conhost.exe		7,044 K	16,528 K	23544	Console Window Host	Microsoft Corporation	Enabled (permane...	ASLR
Secure Coding Project.exe		784 K	4,416 K	21480			Enabled (permane...	ASLR
vcpkgsrv.exe	< 0.01	43,108 K	16,588 K	21076	Microsoft (R) Visual C++ Pac...	Microsoft Corporation	Enabled (permane...	
msvsmon.exe		9,812 K	19,724 K	26124	Visual Studio 2019 Remote ...	Microsoft Corporation	Enabled (permane...	ASLR
ScriptedSandbox64.exe	1.15	94,332 K	1,22,972 K	23568	ScriptedSandbox64.exe	Microsoft Corporation	Enabled (permane...	ASLR
procexp64.exe	0.77	50,440 K	68,512 K	20980	Sysinternals Process Explorer	Sysinternals - www.sysinter...	Enabled (permane...	ASLR

CPU Usage: 6.25% Commit Charge: 83.02% Processes: 275 Physical Usage: 88.95%

By executing the code at the end, console opens up.



Process: [21480] Secure Coding Project.exe

Secure Coding Project

```cpp
#include <iostream>
int main(void)
{
    int authentication = 0;
    char cUsername[10];
    char cPassword[10];
    std::cout << "Username: ";
    std::cin >> cUsername;
    std::cout << "Pass: ";
    std::cin >> cPassword;
    if (std::strcmp(cUsername, "adr
        std::strcmp(cPassword, "adr
    {
        authentication = 1;
    }
    if (authentication)
    {
        std::cout << "Access grante
        std::cout << (char)authenti
    }
    else
    {
        std::cout << "Wrong userna
    }
    return (0);
}
```

C:\Users\Pavana\source\repos\Secure Coding Project\Debug\Secure Coding Project.exe

```
Username:
```