

# **ASSIGNMENT – 11**

## **Creating secure and safe executable**

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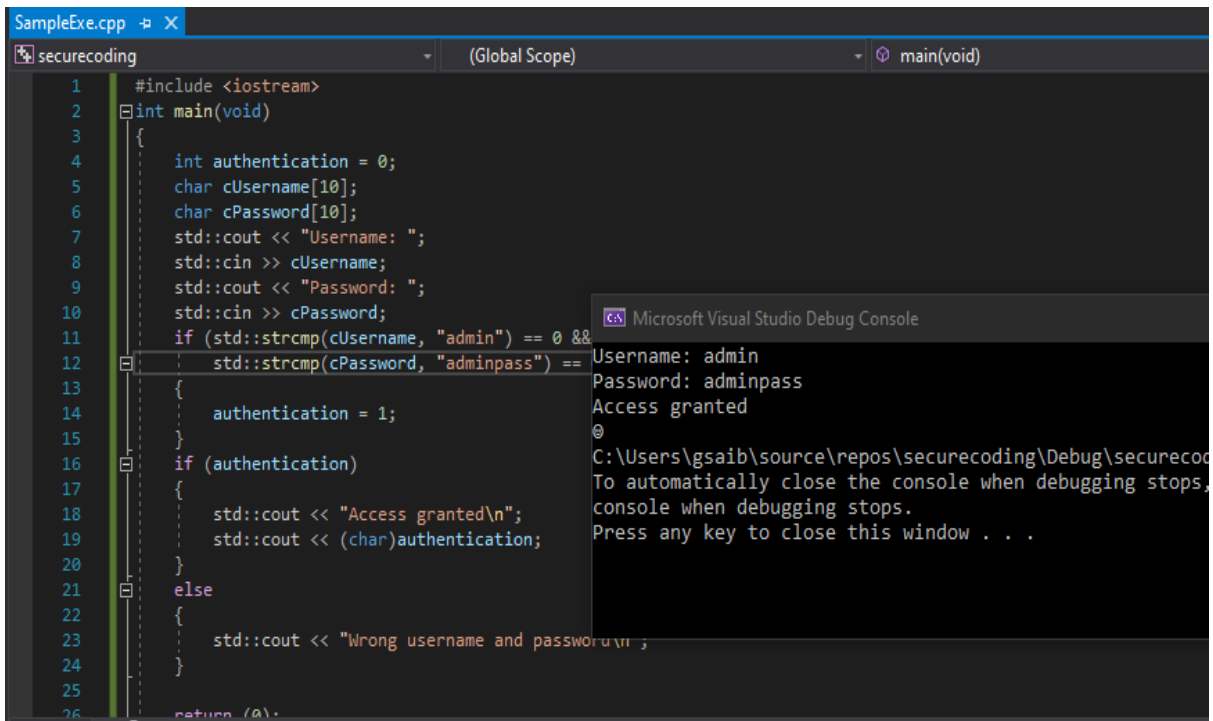
Reg Num : 19BCN7083

Subject : Secure Coding

- Write a C++ code of your own to build an executable and run the same.

```
#include <iostream>
int main(void)
{
    int authentication = 0;
    char cUsername[10];
    char cPassword[10];
    std::cout << "Username: ";
    std::cin >> cUsername;
    std::cout << "Password: ";
    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);
}
```

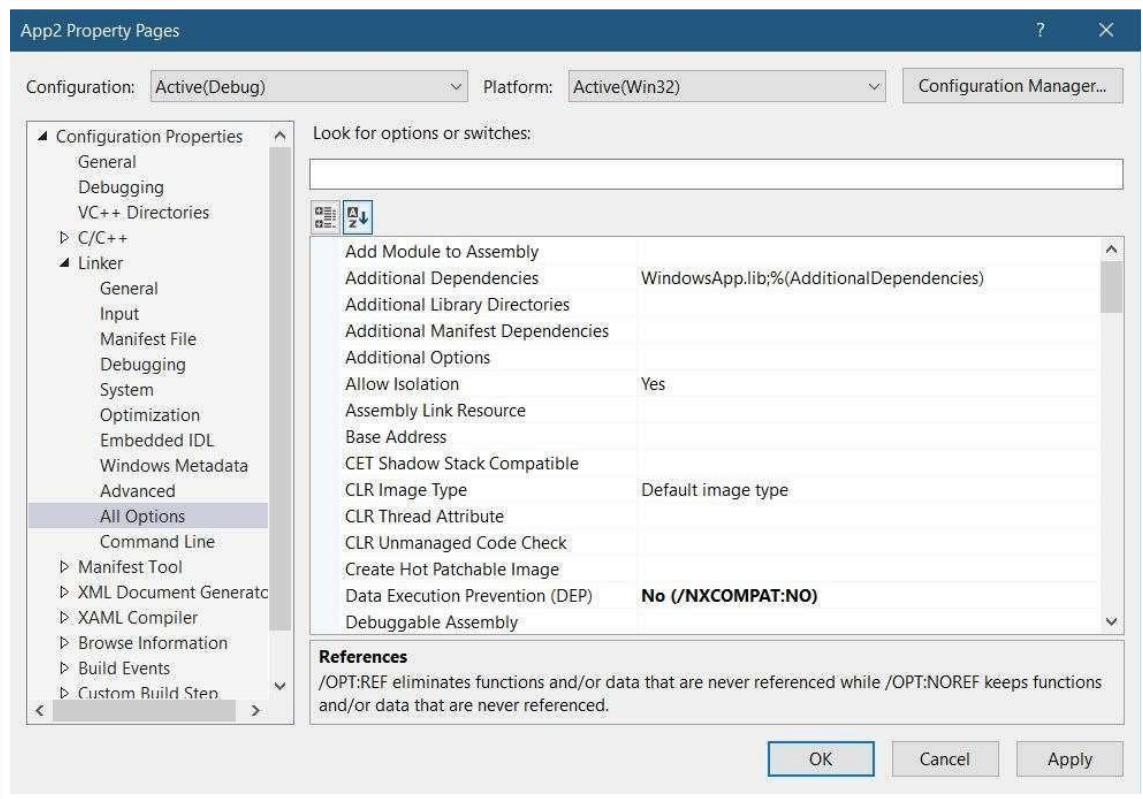


```
1 #include <iostream>
2 int main(void)
3 {
4     int authentication = 0;
5     char cUsername[10];
6     char cPassword[10];
7     std::cout << "Username: ";
8     std::cin >> cUsername;
9     std::cout << "Password: ";
10    std::cin >> cPassword;
11    if (std::strcmp(cUsername, "admin") == 0 &&
12        std::strcmp(cPassword, "adminpass") == 0)
13    {
14        authentication = 1;
15    }
16    if (authentication)
17    {
18        std::cout << "Access granted\n";
19        std::cout << (char)authentication;
20    }
21    else
22    {
23        std::cout << "Wrong username and password\n";
24    }
25
26    return 0;
}
```

Microsoft Visual Studio Debug Console

```
Username: admin
Password: adminpass
Access granted
0
C:\Users\gsaib\source\repos\securecoding\Debug\securecod
To automatically close the console when debugging stops,
console when debugging stops.
Press any key to close this window . . .
```

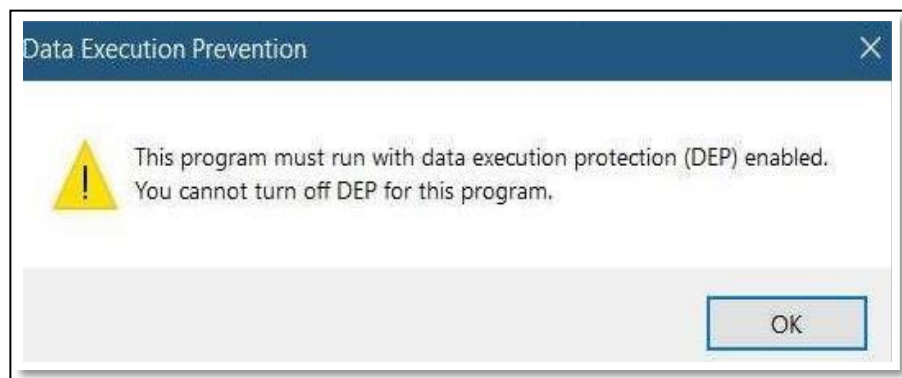
- Disabling the DEP and ALSR:



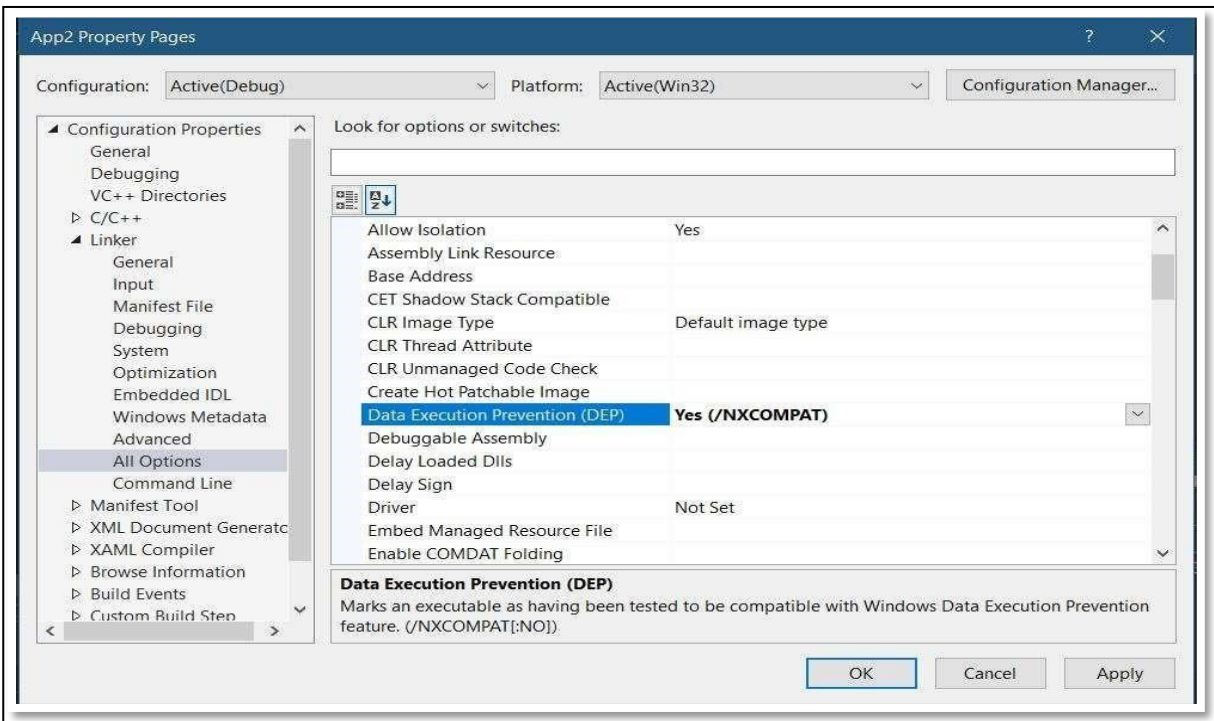
Heap Reserve Size	
Ignore All Default Libraries	
Ignore Embedded IDL	No
Ignore Import Library	Yes
Ignore Specific Default Libraries	
Image Has Safe Exception Handlers	YES
Import Library	

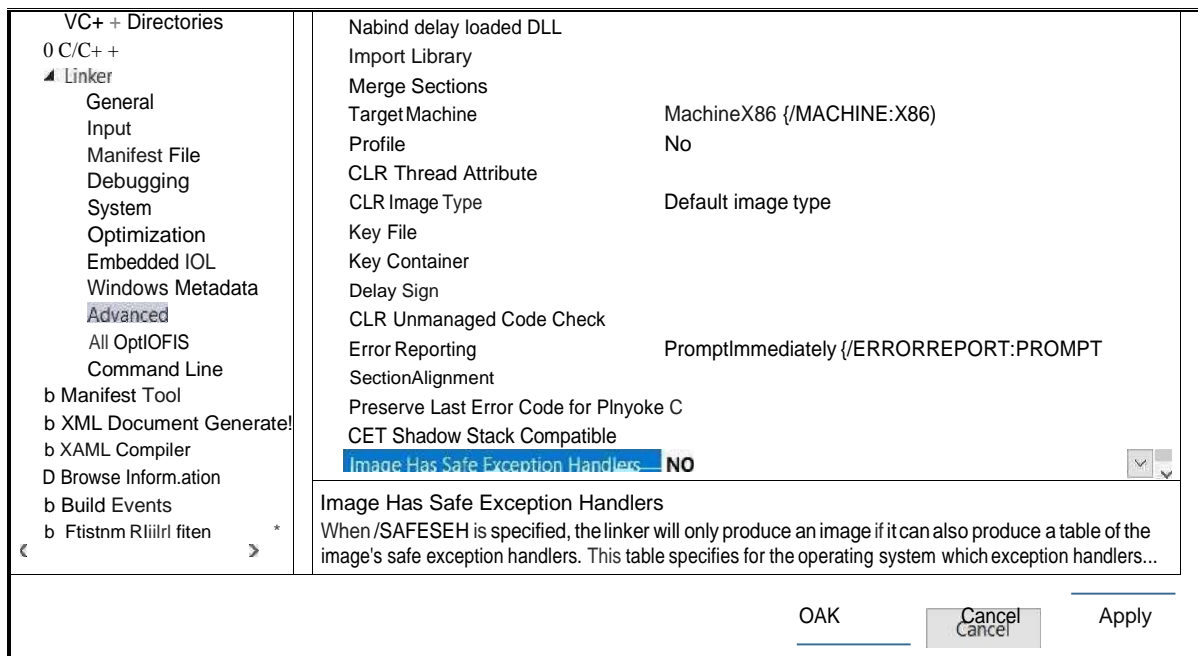
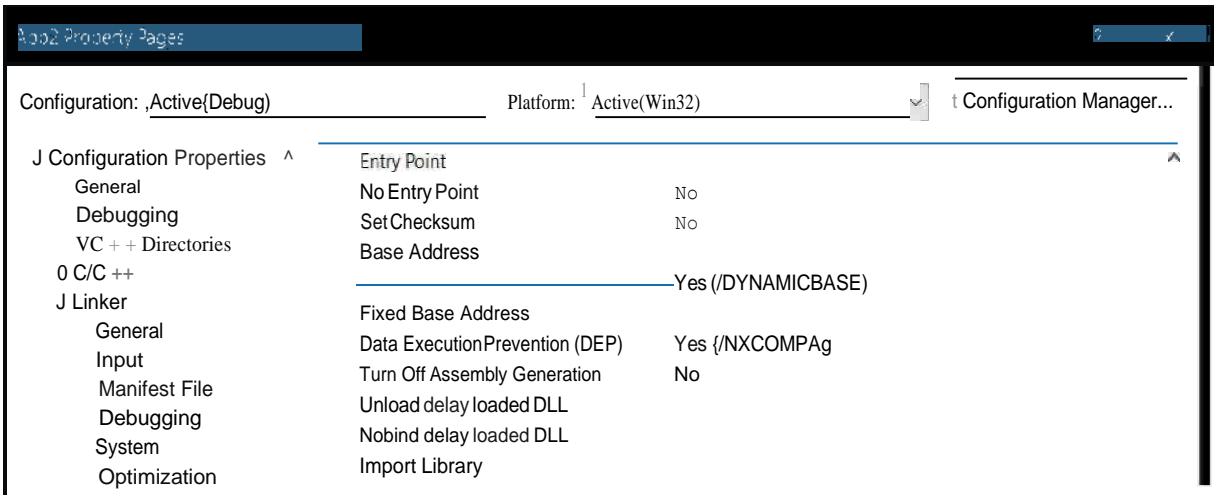
MIDL Commands	
Minimum Required Version	
Module Definition File	
No Entry Point	No
Nobind delay loaded DLL	
Output File	\$(OutDir)\$(TargetName)\$(TargetExt)
Per-user Redirection	No
Preserve Last Error Code for PInvoke C	
Prevent Dll Binding	
Profile	No
Profile Guided Database	\$(OutDir)\$(TargetName).pgd
Randomized Base Address	<b>No (/DYNAMICBASE:NO)</b>
References	
Register Output	No
SectionAlignment	

- Now we are unable to built exe file after disabling DEP:

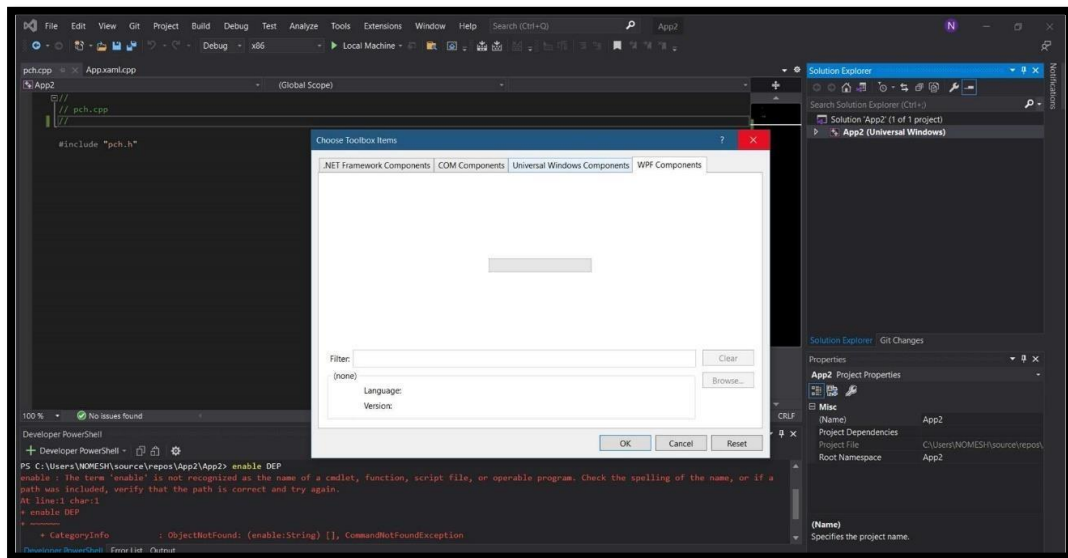


➤ So we need to enable DEP:





- After enabling ASLR the visual studio not responding :



- Here we can see the status of Process Explorer:

 chrome.exe		27,304 K	42,004 K	7070 Google Chrome	Google LLC	Enabled (permane... ASLR
 chrome.exe		22,200 K	44,564 K	17136 Google Chrome	Google LLC	Enabled (permane... ASLR
 chrome.exe		17,856 K	23,164 K	2152 Google Chrome	Google LLC	Enabled (permane... ASLR
 devenv.exe	1.30	2,46,852 K	3,68,992 K	10096 Microsoft Visual Studio 2019	Microsoft Corporation	Enabled (permane... ASLR
 PerfWatson2.exe	< 0.01	48,792 K	69,516 K	11916 PerfWatson2.exe	Microsoft Corporation	Enabled (permane... ASLR
 Microsoft.ServiceHub Contr...		35.140 K	50.676 K	13156 Microsoft.ServiceHub Control...	Microsoft	Enabled (permane... ASLR