

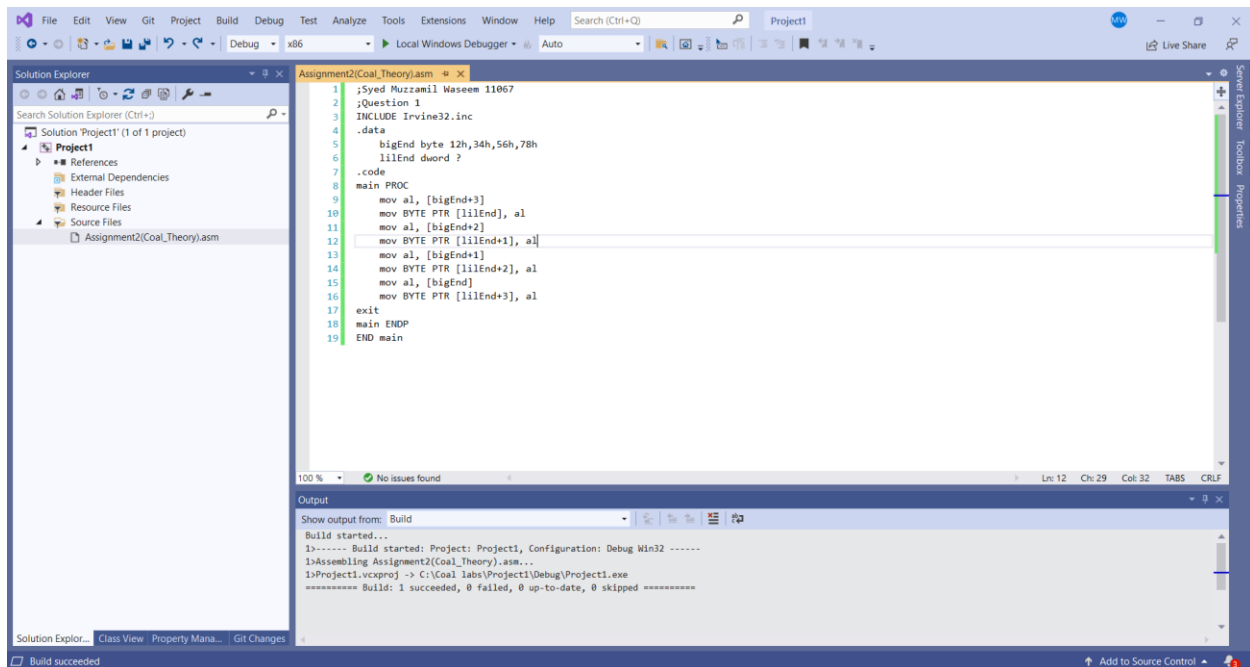
# COAL (Theory) Assignment 2

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## QUESTION 1:



The screenshot displays the Visual Studio IDE with the following components:

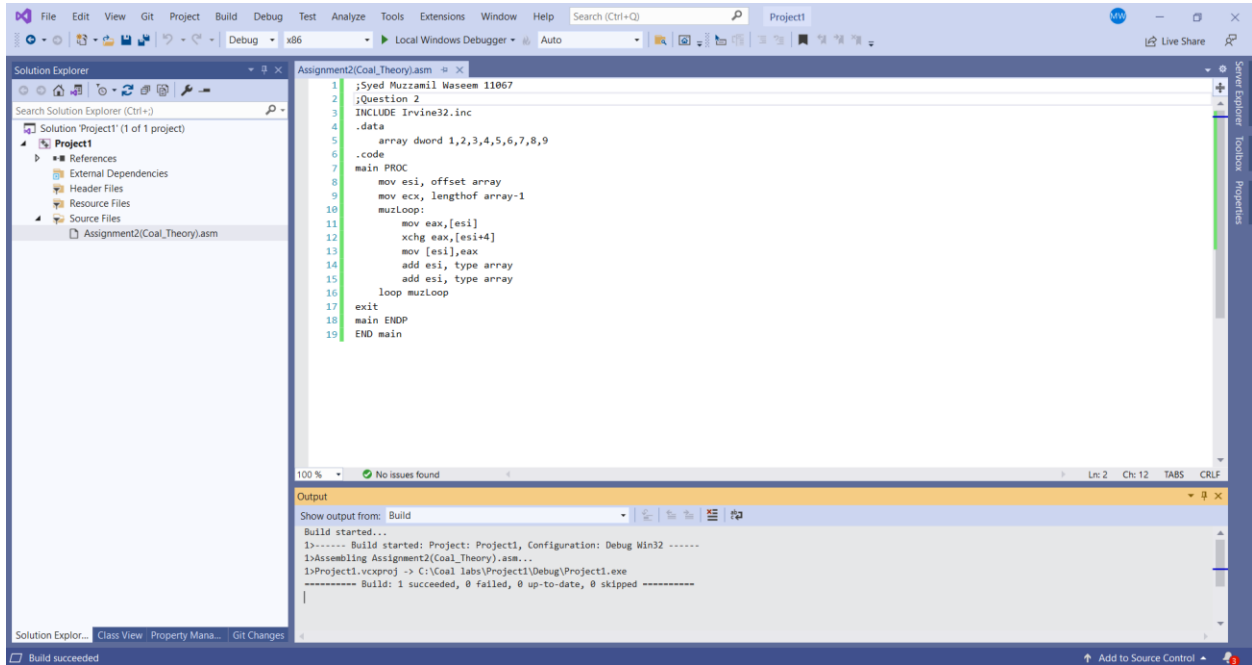
- Solution Explorer:** Shows a project named 'Project1' with a source file 'Assignment2(Coal\_Theory).asm'.
- Code Editor:** Contains assembly code for 'Assignment2(Coal\_Theory).asm'. The code includes a header, data section, and a main procedure.
- Output Window:** Shows the build output for the project.

```
1 ;Syed Muzzamil Waseem 11067
2 ;Question 1
3 INCLUDE Irvine32.inc
4 .data
5     bigEnd byte 12h,34h,56h,78h
6     lilEnd dword ?
7 .code
8 main PROC
9     mov al, [bigEnd+3]
10    mov BYTE PTR [lilEnd], al
11    mov al, [bigEnd+2]
12    mov BYTE PTR [lilEnd+1], al
13    mov al, [bigEnd+1]
14    mov BYTE PTR [lilEnd+2], al
15    mov al, [bigEnd]
16    mov BYTE PTR [lilEnd+3], al
17    exit
18 main ENDP
19 END main
```

Build Output:

```
Build started...
1>----- Build started: Project: Project1, Configuration: Debug Win32 -----
1>Assembling Assignment2(Coal_Theory).asm...
1>Project1.vcxproj -> C:\Coal labs\Project1\Debug\Project1.exe
===== Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped =====
```

## QUESTION 2:



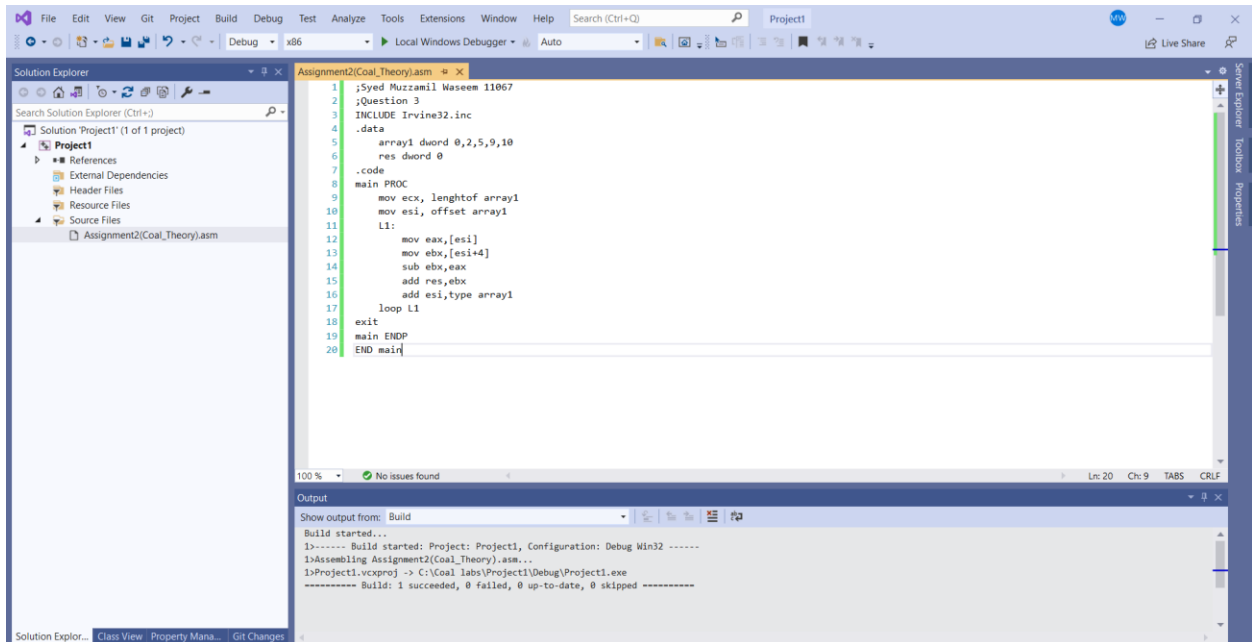
The screenshot shows the Visual Studio IDE with the assembly code for 'Question 2' in the main editor. The code is as follows:

```
1 ;Syed Muzzamil Maseem 11067
2 ;Question 2
3 INCLUDE Irvine32.inc
4 .data
5     array dword 1,2,3,4,5,6,7,8,9
6 .code
7 main PROC
8     mov esi, offset array
9     mov ecx, lengthof array-1
10    muzLoop:
11        mov eax,[esi]
12        xchg eax,[esi+4]
13        mov [esi],eax
14        add esi, type array
15        add esi, type array
16        loop muzLoop
17    exit
18 main ENDP
19 END main
```

The Output window shows the build process:

```
Build started...
1>----- Build started: Project: Project1, Configuration: Debug Win32 -----
1>Assembling Assignment2(Coal_Theory).asm...
1>Project1.vcxproj -> C:\Coal labs\Project1\Debug\Project1.exe
----- Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped -----
```

## QUESTION 3:



The screenshot shows the Visual Studio IDE with the assembly code for 'Question 3' in the main editor. The code is as follows:

```
1 ;Syed Muzzamil Maseem 11067
2 ;Question 3
3 INCLUDE Irvine32.inc
4 .data
5     array1 dword 0,2,5,9,10
6     res dword 0
7 .code
8 main PROC
9     mov ecx, lengthof array1
10    mov esi, offset array1
11    L1:
12        mov eax,[esi]
13        mov ebx,[esi+4]
14        sub ebx,eax
15        add res,ebx
16        add esi,type array1
17        loop L1
18    exit
19 main ENDP
20 END main
```

The Output window shows the build process:

```
Build started...
1>----- Build started: Project: Project1, Configuration: Debug Win32 -----
1>Assembling Assignment2(Coal_Theory).asm...
1>Project1.vcxproj -> C:\Coal labs\Project1\Debug\Project1.exe
----- Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped -----
```

## QUESTION 4:

The screenshot shows the Visual Studio IDE with the following components:

- Solution Explorer:** Displays the project structure for 'Solution 'Project1'' (1 of 1 project). The 'Source Files' folder contains 'Assignment2(Coal\_Theory).asm'.
- Code Editor:** Shows the assembly code for 'Assignment2(Coal\_Theory).asm'. The code is as follows:

```
1 ;Syed Muzzamil Maseem 11067
2 ;Question 4
3 INCLUDE Irvine32.inc
4 .data
5     array1 dword 0,2,5,9,10
6     array2 dword lengthof array1 DUP(?)
7 .code
8 main PROC
9     mov ecx, lengthof array1
10    mov esi, offset array1
11    mov edi, offset array2
12    L1:
13        mov eax,0
14        mov ax,[esi]
15        mov [edi],eax
16        add esi, type array1
17        add edi, type array2
18    loop L1
19    exit
20 main ENDP
21 END main
```
- Output Window:** Shows the build output for 'Build'. The output is as follows:

```
Build started...
1>----- Build started: Project: Project1, Configuration: Debug Win32 -----
1>Assembling Assignment2(Coal_Theory).asm...
1>Project1.vcxproj -> C:\Coal labs\Project1\Debug\Project1.exe
----- Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped -----
```
- Status Bar:** Indicates 'Build succeeded'.

## QUESTION 5:

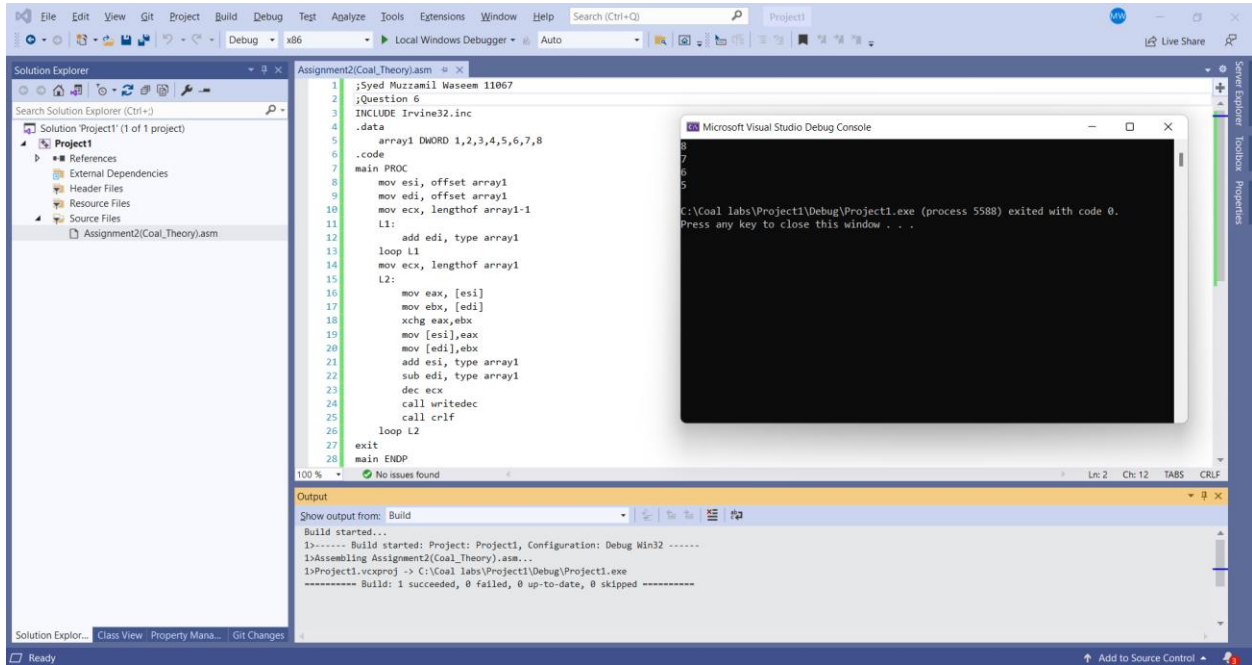
The screenshot shows the Visual Studio IDE with the following components:

- Solution Explorer:** Displays the project structure for 'Solution 'Project1'' (1 of 1 project). The 'Source Files' folder contains 'Assignment2(Coal\_Theory).asm'.
- Code Editor:** Shows the assembly code for 'Assignment2(Coal\_Theory).asm'. The code is as follows:

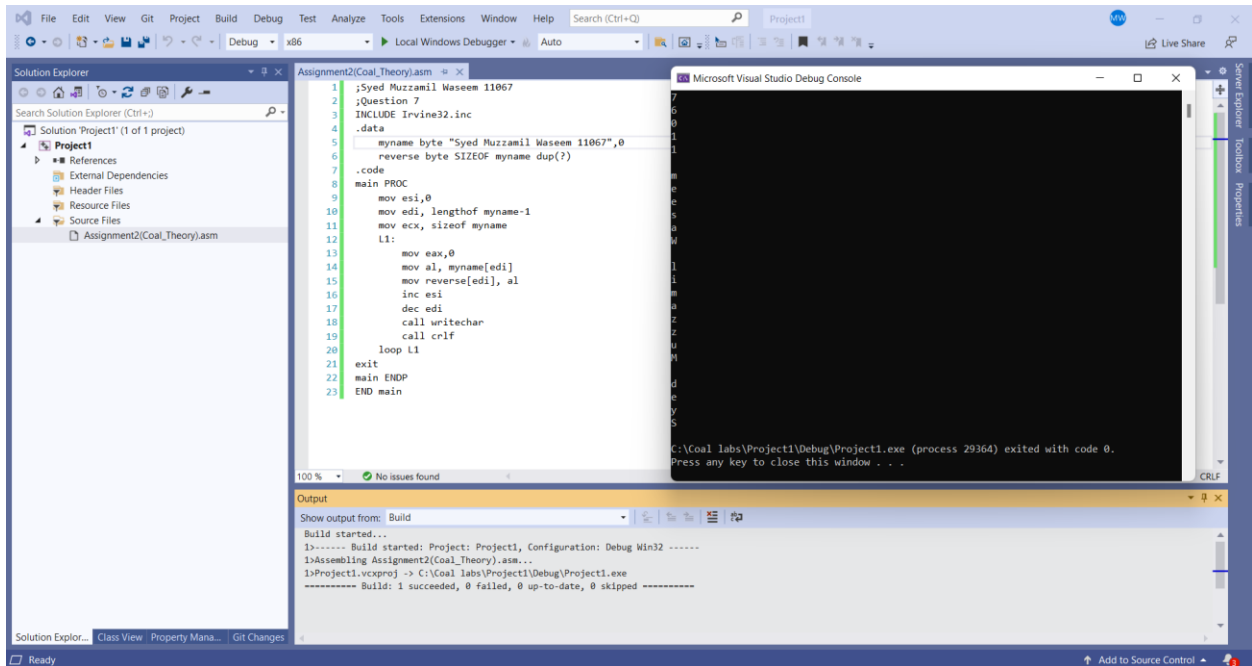
```
1 ;Syed Muzzamil Maseem 11067
2 ;Question 5
3 INCLUDE Irvine32.inc
4 .data
5     count dword 5
6     array1 dword 7 dup(1,1,?,?,?,?)
7 .code
8 main PROC
9     mov ecx, count
10    mov esi, offset array1
11    add esi, type array1
12    add esi, type array1
13    L1:
14        mov eax,[esi-4]
15        mov ebx,[esi-8]
16        add eax,ebx
17        mov [esi],eax
18        add esi, type array1
19        call writedec
20        call crlf
21    loop L1
22    exit
23 main ENDP
24 END main
```
- Output Window:** Shows the build output for 'Build'. The output is as follows:

```
Build started...
1>----- Build started: Project: Project1, Configuration: Debug Win32 -----
1>Assembling Assignment2(Coal_Theory).asm...
1>Project1.vcxproj -> C:\Coal labs\Project1\Debug\Project1.exe
----- Build: 1 succeeded, 0 failed, 0 up-to-date, 0 skipped -----
```
- Status Bar:** Indicates 'Build succeeded'.

## QUESTION 6:



## QUESTION 7:



## QUESTION 8:

