COAL LAB#12 TASKS

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Section: H

TASK#01:

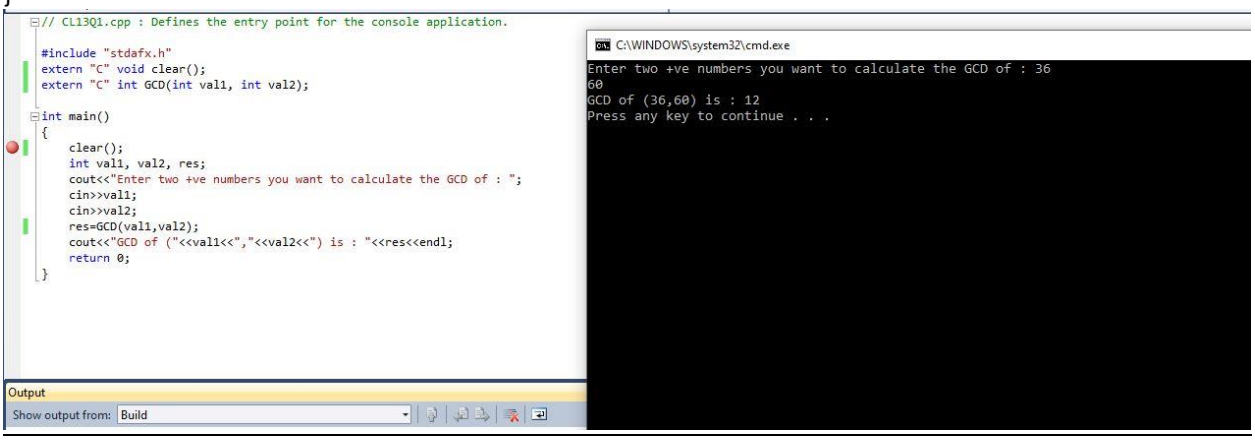
.asm:-

```
.686
.MODEL FLAT, C
.STACK 2048

.data
clear PROTO
GCD PROTO, temp1:DWORD, temp2:DWORD

.code
clear PROC
xor eax, eax
xor ecx, ecx
ret
clear endp

GCD PROC, temp1:DWORD, temp2:DWORD
mov eax,temp1
mov ecx,temp2
cmp eax,ecx
jae L1
mov eax,temp1
mov ecx,temp2
mov temp1,ecx
mov temp2,eax
mov temp1,eax
mov temp2,ecx
L1:
mov edx,0
div cx
mov eax,temp2
mov temp1,eax
mov temp2,edx
mov eax,temp1
mov ecx,temp2
cmp ecx,0
ja L1
ret
```

```
GCD endp
end
```

.cpp:-

```
#include "stdafx.h"
extern "C" void clear();
extern "C" int GCD(int val1, int val2);

int main()
{
	clear();
	int val1, val2, res;
	cout<<"Enter two +ve numbers you want to calculate the GCD of : ";
	cin>>val1;
	cin>>val2;
	res=GCD(val1,val2);
	cout<<"GCD of ("<<val1<<","<<val2<<") is : "<<res<<endl;
	return 0;
}
```



TASK#02:

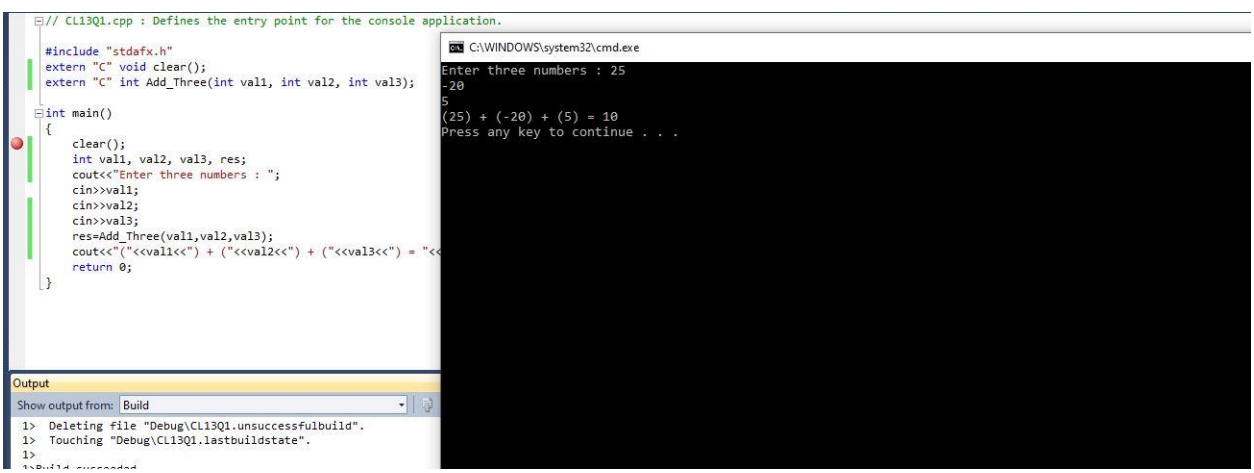
.asm:-

```
.686
.MODEL FLAT, C
.STACK 2048

.data
clear PROTO
Add_Three PROTO, temp1:SDWORD, temp2:SDWORD, temp3:SDWORD

.code
clear PROC
xor eax, eax
xor ecx, ecx
ret
```

```
clear endp

Add_Three PROC, temp1:SDWORD, temp2:SDWORD, temp3:SDWORD
mov eax, temp1
mov ecx, temp2
add eax,ecx
add eax, temp3
ret
Add_Three endp
end
```

.cpp:-

```
#include "stdafx.h"
extern "C" void clear();
extern "C" int Add_Three(int val1, int val2, int val3);

int main()
{
	clear();
	int val1, val2, val3, res;
	cout<<"Enter three numbers : ";
	cin>>val1;
	cin>>val2;
	cin>>val3;
	res=Add_Three(val1,val2,val3);
	cout<<"("<<val1<<") + ("<<val2<<") + ("<<val3<<") = "<<res<<endl;
	return 0;
}
```



TASK#03:

.asm:-

```
.686
```

```
.MODEL FLAT, C
.STACK 2048

.data
clear PROTO

.code
clear PROC
xor eax, eax
xor ecx, ecx
ret
clear endp
end
```

.cpp:-

```
#include "stdafx.h"
extern "C" void clear();

int main()
{
	clear();
	int val1, val2, res;
	cout<<"Enter three numbers : ";
	cin>>val1;
	cin>>val2;
	_asm
	{
		mov eax, val1
		mov ecx, val2
		imul ecx
		mov res,eax
	}
	cout<<val1<<" x "<<val2<<" = "<<res<<endl;
	return 0;
}
```

```
#include "stdafx.h"
extern "C" void clear();

int main()
{
    clear();
    int val1, val2, res;
    cout<<"Enter three numbers : ";
    cin>>val1;
    cin>>val2;
    _asm
    {
        mov eax, val1
        mov ecx, val2
        imul ecx
        mov res,eax
    }
    cout<<val1<<" x "<<val2<<" = "<<res<<endl;
    return 0;
}
```

Output

C:\WINDOWS\system32\cmd.exe

```
Enter three numbers : -2
10
-2 x 10 = -20
Press any key to continue . . .
```

TASK#04:

.asm:-

```
.686
.MODEL FLAT, C
.STACK 2048

.data
min SDWORD ?
max SDWORD ?
clear PROTO
MinMax PROTO, X: PTR DWORD

.code
clear PROC
xor eax, eax
xor ebx, ebx
ret
clear endp

MinMax PROC, X: PTR DWORD
mov ecx, 10
dec ecx
mov esi, X
mov eax, [esi]
L1:
add esi, 4
mov ebx, [esi]
cmp ebx, eax
jl next
```

```
jmp skip
next:
mov eax, ebx
skip:
LOOP L1

mov min, eax

mov ecx, 10
dec ecx
mov esi, X
mov eax, [esi]
L2:
add esi, 4
mov ebx, [esi]
cmp ebx, eax
jg next2
jmp skip2
next2:
mov eax, ebx
skip2:
LOOP L2

mov max, eax
mov eax, min
mov ebx, max
ret
MinMax endp
end
```

.cpp:-

```
#include "stdafx.h"
extern "C" void clear();
extern "C" void MinMax(int *arr);

int main()
{
	clear();
	int min, max, arr[10];
	cout<<"Enter 10 numbers in the array : "<<endl;
	for(int i=0; i<10; i++)
	{
		cin>>arr[i];
	}
	MinMax(arr);
	_asm
	{
```

```
            mov min, eax
            mov max, ebx
        }
        cout<<"Min = "<<min<<endl<<" Max = "<<max<<endl;
        return 0;
}
```