Lab: 1

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COAL

Instructor

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Task 1:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov al, 257

main endp
END main
```

Output:

It is an error because AL register is of 8 bit, 257 is out of range number therefore cannot be stored in AL register.

Task 2:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov ax, 567

main endp
```

```
END main
```

Output:

```
Registers
EAX = 00D30237 EBX = 00A69000 ECX = 008C1005 EDX = 008C1005 ESI = 008C1005 EDI = 008C1005 EIP = 008C1014
  ESP = 00D3FAF4 EBP = 00D3FB00 EFL = 00000246
```

Name	Value	Type
al	55 '7'	unsigned char
ah	2 '\x2'	unsigned char

Task 3:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov ah, 255

main endp
END main
```

Output:

```
Registers
EAX = 00D8FFE0 EBX = 00B58000 ECX = 003D1005 EDX = 003D1005 ESI = 003D1005 EDI = 003D1005 EIP = 003D1012
  ESP = 00D8FC8C EBP = 00D8FC98 EFL = 00000246
```

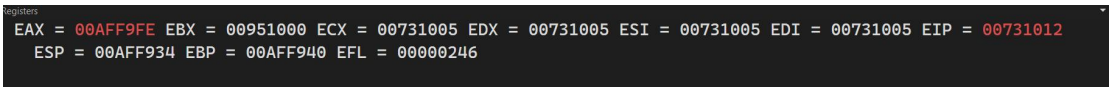
Name	Value	Type
al	224 'à'	unsigned char
ah	255 'ÿ'	unsigned char

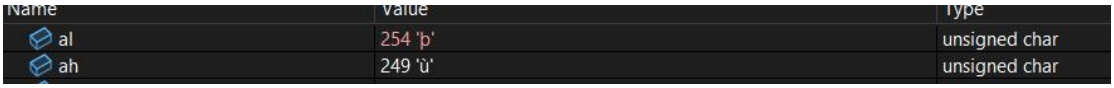
Task 4:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov al, 254

main endp
END main
```

Output:





Task 5:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov bx, 0ff4h
```

```
main endp
END main
```

Output:

Task 6:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov cx, 1237o

main endp
END main
```

Output:

Task 7:

Code:

```
.386
.model flat,stdcall
```

```
.stack 4096

.code
main PROC

mov dl, 01001001b

main endp
END main
```

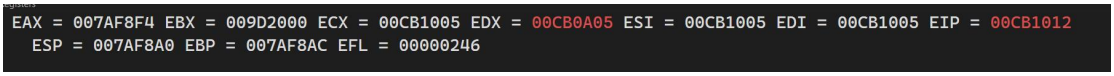
Output:

Task 8:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov dh, 0ah

main endp
END main
```

Output:

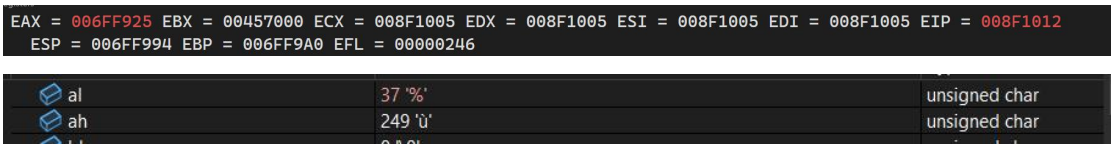


Task 9:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov al, 25h

main endp
END main
```

Output:



Task 10:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov ax, 70abh
```

```
main endp
END main
```

Output:

```
EAX = 012F70AB EBX = 010C0000 ECX = 00481005 EDX = 00481005 ESI = 00481005 EDI = 00481005 EIP = 00481014
  ESP = 012FFD04 EBP = 012FFD10 EFL = 00000246
```

Name	Value	Type
al	171 '«'	unsigned char
ah	112 'p'	unsigned char

Task 11:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov ah, 10011000b

main endp
END main
```

Output:

```
EAX = 001B986C EBX = 004DB000 ECX = 00321005 EDX = 00321005 ESI = 00321005 EDI = 00321005 EIP = 00321012
  ESP = 001BFB18 EBP = 001BFB24 EFL = 00000246
```

Name	Value	Type
al	108 'l'	unsigned char
ah	152 '˜'	unsigned char

Task 12:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov al, 20o

main endp
END main
```

Output:

```
EAX = 012FFE10 EBX = 0102B000 ECX = 00201005 EDX = 00201005 ESI = 00201005 EDI = 00201005 EIP = 00201012
  ESP = 012FFE80 EBP = 012FFE8C EFL = 00000246
```

al	16 '\x10'	unsigned char
ah	254 'þ'	unsigned char

Task 13:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov bx, 11111111b

main endp
```

```
END main
```

Output:

```
EAX = 005FF994 EBX = 006D00FF ECX = 009E1005 EDX = 009E1005 ESI = 009E1005 EDI = 009E1005 EIP = 009E1014
  ESP = 005FF940 EBP = 005FF94C EFL = 00000246
```

bl	255 'ÿ'	unsigned char
bh	0 '\0'	unsigned char

Task 14:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov cx, 1237h

main endp
END main
```

Output:

```
EAX = 00FCFA50 EBX = 01041000 ECX = 00AE1237 EDX = 00AE1005 ESI = 00AE1005 EDI = 00AE1005 EIP = 00AE1014
  ESP = 00FCF9FC EBP = 00FCFA08 EFL = 00000246
```

cl	55 '7'	unsigned char
ch	18 '\x12'	unsigned char

Task 15:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov dl, 0ffh

main endp
END main
```

Output:

```
EAX = 00EFFEE0 EBX = 00CE7000 ECX = 00B81005 EDX = 00B810FF ESI = 00B81005 EDI = 00B81005 EIP = 00B81012
  ESP = 00EFFE8C EBP = 00EFFE98 EFL = 00000246
```

dl	255 'ÿ'	unsigned char
dh	16 '\x10'	unsigned char
Add item to watch		

Task 16:

Code:

```
.386
.model flat,stdcall
.stack 4096

.code
main PROC

mov dh, 217

main endp
END main
```

Output:

```
EAX = 0054FCF8 EBX = 002E3000 ECX = 00441005 EDX = 0044D905 ESI = 00441005 EDI = 00441005 EIP = 00441012
  ESP = 0054FCA4 EBP = 0054FCB0 EFL = 00000246
```

dl	5 '\x5'	unsigned char
dh	217 'Ù'	unsigned char

Note:

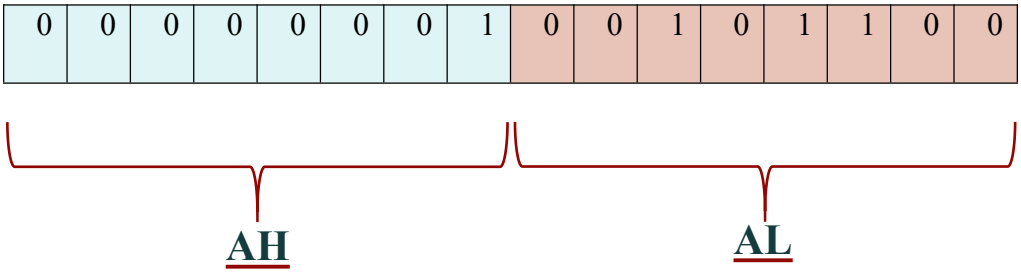
AX register is of 16 bit.

AL, AH is part of AX. AL and AH are of 8bit both.

If you want to store a number which is greater than 255 (8 bit not enough to store number)

For example if you want to store 300 in AX register.

AX:



Hence :

AL = $(00101100)_2 = (44)_{10}$

AH = $(00000001)_2 = (1)_{10}$