Report

Hw2 microprocessor

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1. For this question, I ‘d just implemented this algorithm:

```
int num1=6, num2=8;        // num1 dw 8     num2 dw 6
While(num2!=0) {           //cmp bx, 0
t = num2;                  //mov cx, bx
num2 = num1 % num2;        //div bx
num1 = t;                  //mov ax, cx
}
Gcd = num1;                // mov gcd,ax
```

So I have a temporary register CX, And at least I put gcd which is 2 in DX register as question says.

About 2 last lines:

```
mov ah,4ch
int 21h
```

The above lines are used to exit to dos or exit to operating system. Standard Input and Standard Output related Interrupts are found in INT 21H .It works with the value of AH register, If the Value is 4ch, That means Return to Operating System which is the End of the program. (this is used in some other questions too)

2. Algorithm:

```
Cout<< please enter the number   //ask db "please enter the number:$"
Int num;              // num db ?
While(num!=1){
fact = fact*num;      // mul cl
num--;
}
```

A have 2 codes. With input ,& input by user
I asked input by 21h interrupt and it will store in al. in not input form I stored it in ax.

At least
Factorial of 4 is 24 which is stored in dx register(--18 in hex)

3. I used six functions:

   Reverse(by sequential divisions) , finish, convert, itsPalindrome(to copy 01 in register dx), done(when program finishes), hexToDecimal

   There are 2 screens for tests: 1231 that dx is 00

   1221 that dx is 01 at the end.

4. In uppercase label, I checked if its lowercase letter & line 17 converts them to uppercase, uppercase letter do not have third bit set. And we should clear third bit:
   and byte ptr [bx], 11011111b
   inc bx checks next char.

   Also I checked the result by emulator screen by this:
   lea dx, string
   mov ah, 09h
   int 21h

   the other point is that The character strings are enclosed in double quotes
   and terminated by the $ sign. This sign is mandatory to end a character string which is to be printed on the display device.

   Writed the uppercase form in another part of memory as question says:
   mov dx, ax
   screenshots for 4 steps just.
5. My number is 49 which is stored in ax. And root=7 is in cx at last