Roll No: 11

Name: Soham Desai Xavier ID: 202003021

Date: 6/4/22

EXPERIMENT 11

Aim: Compute the factorial of a positive integer 'n' using recursive procedure

LO: 5

LO STATEMENT: Write programs based on string and procedure for 8086

microprocessor

Software and Hardware Requirements: TASM Software

Theory:

1. MOV Instruction

The MOV instruction is the most important command in the 8086 because it moves data from one location to another. It also has the widest variety of parameters; so the assembler programmer can use MOV effectively, the rest of the commands are easier to understand. MOV copies the data in the source to the destination. The data can be either a byte or a word. Sometimes this has to be explicitly stated when the assembler cannot determine from the operands whether a byte or word is being referenced.

Syntax:

Move Destination, Source

Example:

MOV Ax, Bx

2. INT instruction:

Interrupt is the method of creating a temporary halt during program execution and allows peripheral devices to access the microprocessor. The microprocessor responds to that interrupt with an ISR (Interrupt Service Routine), which is a short program to instruct the microprocessor on how to handle the interrupt.

Example:

INT 21H

3. LOOP instruction:

Loop instructions are Used to simplify the decrementing, testing and branching portion of the loop. A loop instruction is used to loop a group of instructions until the condition satisfies, i.e., CX = 0. To get the loop instruction to work first you have to define a label, set the value in cx which would be the number of times the loop should execute.

Example:

LOOP back

Roll No: 11

Name: Soham Desai Xavier ID: 202003021

Date: 6/4/22

4. Proc near Instruction:

A near procedure refers to a procedure which is in the same code segment from that of the call instruction It is also called intra-segment procedure A near procedure call replaces the old IP with new IP

Example:

CALL fact

5. RET Instruction:

The ret instruction transfers control to the return address located on the stack. This address is usually placed on the stack by a call instruction. Issue the ret instruction within the called procedure to resume execution flow at the instruction following the call.

Syntax:

RET

Code:

assume cs:code,ds:data

data segment

num db 04H

ans dw?

data ends

code segment

start:

mov Ax,data

mov Ds,Ax

mov Cl,num

mov Ch,00H

mov Ax,0001H

Roll No: 11

Name: Soham Desai Xavier ID: 202003021

Date: 6/4/22

back:

call fact

LOOP back

mov ans,Ax

mov AH,4CH

INT 21H

fact proc near

MUL CI

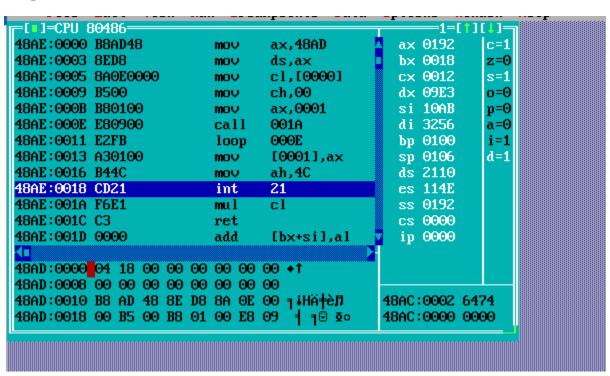
RET

fact ENDP

code ends

end start

Output:



Conclusion: From this experiment we have learned about how to use procedure and call then in 8086 assembly language