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Title:	Program for printing the string using procedure and macro.
Date of Performance:	05/04/2024
Date of Submission:	12/04/2024
Marks:	
Sign of Faculty:	

Aim: Program for printing the string using procedure and macro.

Theory:

Procedures:-

- Procedures are used for large group of instructions to be repeated.
- Object code generated only once. Length of the object file is less the memory
- CALL and RET instructions are used to call procedure and return from procedure.
- More time required for its execution.

• Procedure Can be defined as:

Procedure_name PROC
……
……
Procedure_name ENDP

Example:

Addition PROC near
……
……
Addition ENDP

Macro:-

• Macro is used for small group of instructions to be repeated.

• Object code is generated every time the macro is called.

• Object file becomes very lengthy.

• Macro can be called just by writing.

• Directives MACRO and ENDM are used for defining macro.

• Less time required for its execution.

• Macro can be defined as:

Macro_name MACRO [Argument, ... , Argument N]
.....
.....
ENDM

Example:-

Display MACRO msg
.....
.....
ENDM

Implementation:

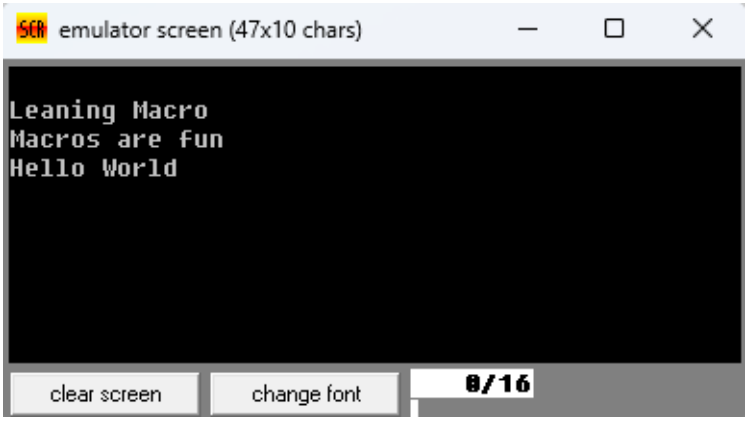
Program :

```
org 100h

    print macro p1
        lea dx,p1
        mov ah,09h
        int 21h
    endm
    .data
    m1 db 10,13,"Leaning Macro$"
    m2 db 10,13,"Macros are fun$"
    m3 db 10,13,"Hello World$"
    .code
    print m1
    print m2
    print m3

ret
```

Output:



Conclusion:

Thus, the program for printing the string is successfully implemented using procedure and macro.

- Differentiate between procedure and macros.

Aspect	Procedure	Macros
Parameterization	Accept parameters for dynamic behavior	Do not accept parameters, fixed values
Execution	Executed at runtime	Expanded at compile time
Scope	Typically have their own scope	No separate scope, expanded inline
Debugging	Easier debugging at runtime	Can be challenging due to compile-time expansion
Flexibility	Dynamic behavior, runtime execution	Static behavior, compile-time customization
Usage	Used for reusable code blocks	Used for code generation and customization

- Explain CALL and RET instructions.

CALL:

- Initiates a subroutine or procedure by transferring control to a specified memory address.
- Saves the return address (the address of the instruction following the `CALL`) `onto the stack before transferring control.`

RET :

- Returns control from a subroutine or procedure back to the calling code.
- Retrieves the return address from the stack and sets the instruction pointer to that address, effectively resuming execution from the point where the subroutine was called.