

Assignment No. 5

Title - File handling. (Near & Far procedure)

Problem statement : Write x86 ALP to find

- Number of Blank spaces.
- Number of lines.
- Occurrence of a particular character.

Objective :

- To understand the following in ALP
 - Near procedure.
 - Far procedure.

Outcome : He will be able to study near & far procedure & their application.

Software packages /
h/w apparatus

editor - gedit
assembler - NASM
Debugger - gdb

Theory :

Near call procedure : It refers to which in same code segment.

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A Far call :- It refers a procedure which is in different code segment. It is also called Intra-segment call.

Near call replaces the old IP with new IP. a far call replaces CS & IP with new CS & IP.

- Procedure is group of instruction that usually performs one task. It is reusable section of the program which is stored in memory once, but can be used when often necessary.

Near call

- A near call refers a procedure which is in same code segment.
- It is also called Intra-segment call.
- It uses keyword near for calling procedure.
- Less stack locations are required.

Far call

- A far call refers a procedure which is in different code segment.
- It is called Inter-segment call.
- It uses keyword far for calling procedure.
- More stack locations are required.

close a file :-

```
mov rax, 3
mov rdi, [fd-in]
syscall
```

Algorithm:-

- i) Declare filename in section .data
- ii) Open a file using open system call.
- iii) check the descriptor value of open file (if value is negative means file is not open & if value is positive means file is open)
- iv) Save the file descriptor for further use.
- v) Read the content of text file using read system call.
- vi) To find the number of spaces from text file
compare each entry from the text with 20H, count the value & print.
- vii) To find the number of Enter from text file
compare each entry from the text with 0x0A, count the value & print.
- viii) Accept the letters whose number of occurrences find in the text file.
- ix) To find the No. of occurrences from the text file compare each entry from the text with ASCII value of entered text, count the value & print
- x) close the file.

System calls to be required:-

- Open a file

```

mov rax, 2          ; open syscall
mov rdi, fname1     ; file name
mov rsi, 2          ; file access mode
mov rdx, 0777       ; permission set.
syscall

```

- Read a file

```

mov rax, 0          ; Read syscall
mov rdi, [fd_in]    ; file pointer
mov rsi, Buffer      ; Buffer for read
mov rdx, length     ; len of data want to read.
syscall

```

- write a file

```

mov rax, 01         ; write syscall
mov rdi, [fd_in]    ; file pointer
mov rsi, Buffer      ; Buffer for write
mov rdx, length     ; len of data want to read
syscall

```

Conclusion :- we have learn & implement the assembly program to find Blank space, number of lines & occurrence of particulae character.