

Assignment - 5

Title: Write an ALP to find

- a) No. of blank spaces
- b) No. of ~~and~~ enters
- c) Occurance of particular character.

Problem: Write an ALP to find no. of blank spaces no. of enters and occurrence of a particular character. Accept data from text file. The text file has to be accessed during program execution and write far procedures in program 2 for the rest of program. Use of enters and global directives is mandatory.

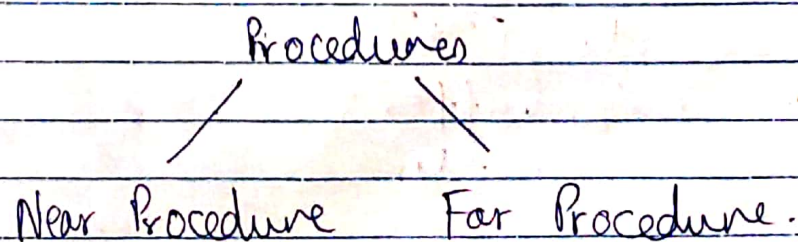
Objectives: To understand how to implement near and far procedures

Outcomes: Students will study near and far procedures and their application.

Theory:

i) **Procedures:**

They are very important in assembly languages ~~as~~ the programs tend to be large in size. They are identified by name.



- A near procedure refers a procedure which is the same code segment. A far procedure refers a procedure which is in different code segment.

* Far Procedures

The procedures which is in different code segment is called as far procedures. We use global and extern directives for implementing far procedure.

* Opening text file.

```

mov rax, 2          ; open syscall
mov rdi, fname      ; file name.
mov rsi, 2          0 → read only
mov rdx, 0777       1 → write only
                    2 → read/write only
syscall.

```

0777
 user → ↑↑↑ all
 group
 7: 1 1 1
 read → ↑↑↑ execute
 write

* Reading text file

```

mov rax, 0
mov rdi, [fd]
mov rsi, buffer
mov rdx, len

```

Algorithm :

- 1) Start
- 2) Open text file
- 3) If file opening terminates, print "can't open file"
- 4) If file opening successful read contents of file
- 5) Store content of file in buffer and length of text file in length var.
- 6) Call enter, space, occurrence procedures.
- 7) Exit.

Procedures for enter and space.

- 1) Start
- 2) Store the buffer and len in registers
- 3) Compare buffer with 0A H for enter and 20 H for spaces.
- 4) If equal, increment the count.
- 5) Increment rsi
- 6) Decrement length counter
- 7) Exit.

~~Procedure~~ for occurrence.

- 1) Start
- 2) Take the character i/p whose occurrence you want to find.
- 3) Compare it with buffer
- 4) If equal, increment the count.
- 5) Increment rsi.
- 6) Decrement len counter.

7) Exit.

Test Cases

Text file: (abc.txt)

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	Description	Expected	Actual	Result
1.	No. of enters in file	3	Same as expected	Pass.
2.	No. of spaces in file	5	Same as expected	Pass
3.	Occurance of p	3	Same as expected	Pass

Conclusion:

We have studied near and far procedures with their applications. We also learnt file handling using ALP.

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