Assignment for 3ʳᵈ Year 1ˢᵗSemester Students
IT/PC/B/S/313

GUIDELINES

- Try to write a clean program with enough comments.

- At the beginning of the file, use block comments to write details about name, roll no, assignment details, input required and output generated.

- Also put the compilation [should be WARNING free] and execution sequence under the block comment.

- The name of the file should be as per the following format. <Two Digit Team Number>_<Assignment Number>.c

- The type of the file should be .c.

- The assignment files should be uploaded using google form which I will mail you later.

- While coding, always use indentation of 4 spaces.

- Blocks of code should be separated by a newline.

- Always use command line argument handling to take inputs.

- Duplicate assignments will incur penalties.
  [Marks will be allocated proportionally]

- Not adhering to any of these guidelines will incur penalties.

- For the description of any system/library call use man command.

- Always use 'perror' routine to check the return status of the system/library call.

ASSIGNMENT – 6
Total Marks – 15
Observing the OS through the /proc file system

The OS is a program that uses various data structures. Like all programs in execution, you can determine the performance and other behaviour of the OS by inspecting its state - the values stored in its data structures. In this part of the assignment, we study some aspects of the organization and behaviour of a Linux system by observing values of kernel data structures exposed through the /proc virtual file system.

The /proc virtual file system:

Linux uses the /proc file system to collect information from kernel data structures. The /proc implementation provided with Linux can read many different kernel data structures. If you cd to /proc on a Linux machine, you will see a number of files and directories at that location. Files in this directory subtree each correspond to some kernel data structure. The subdirectories with numeric names contain virtual files with information about the process whose process ID is the same as the directory name. Files in /proc can be read like ordinary ASCII files. You can open each file and read it using library routines such as fgets() or fscanf(). The proc (5) manual page explains the virtual files and their content available through the /proc file system.

Requirements in detail:

You are supposed to write a C program which should print the following values on terminal

- Processor Informations (Vendor ID, Model Name and Cache Size in MB)
- Kernel Name, Kernel Release and Operating System Name.
- The amount of memory configured into this computer and Free Memory
- Amount of time since the system was last booted (In Hours, Minutes, Seconds)