Group 11 - MPX User Manual

Getting Started

Upon starting the system the user is prompted to enter input:

> *Type `help` for list of available commands. `$` character indicates awaiting user input.*
> *$*

This message means that system is ready to accept user commands. Commands are executing by typing their name and then listing any arguments separated with spaces. For example, typing '*help version*' will execute the '*help*' command with the argument '*version*'.

When entering input, the pipe symbol '|' shows the position of the cursor. Typing a character will insert it at the location of the cursor. The cursor is moved by the left arrow, right arrow, home, and end keys. Up and down arrows give no effect. The backspace and delete keys delete the characters preceding and succeeding the cursor respectively. Pressing the enter key will submit the characters shown in console.

The system will start with 2 processes. One is the idle process and the other is comhand. The idle process has priority 9, and will only run if it is the only process available when comhand blocks. Comhand has priority 1 by default. To silence the idle process simply do `suspend idle` or queue another process.

It should be noted that the COP (currently operating process) may not be deleted or suspended, but its priority can be changed.

Commands

- ***version***
  - Prints the version of the OS that is currently being used and the compilation date.
- ***help [command]***
  - Prints the help message associated with *command*. Passing an invalid or empty command argument will print all available commands and their usage.
- ***shutdown***
  - Ends operation of the system. Asks for confirmation, typing a "y" will stop the OS from running, any other input will keep the OS running.
- ***getdate***
  - Displays the current date in format *yyyy-mm-dd*. (UTC time)
- ***gettime***
  - Displays the current time in format *hh:mm:ss*. (UTC time)
- ***setdate <yyyy-hh-mm>***
  - Overwrites the current date. Must be entered as *yyyy-mm-dd*.
    - Ex: *setdate 2022-09-09* (Sets the date to September 9th, 2022)
- ***settime <hh:mm:ss>***
  - Will overwrite the current time. Must be entered in the format *hh:mm:ss*. Time must also be entered in UTC, which is 4 hours behind EDT and 5 hours behind EST.

        - Ex: *settime 8:30:00* (Sets the time to 8:30 am during daylight savings time)
- **suspend <name>**
    - Moves the specified process to the suspended state and moves it to the correct queue. The name specified must be a valid name of a process.
- **resume <name>**
    - Moves the specified process to the not suspended state and moves it to the correct queue. The name specified must be a valid name of a process.
- **setpriority <name> <priority>**
    - Changes the current priority of the specified process. The name specified must be a valid name of a process and the priority specified must be a number that is 0-9.
- **deletePCB <name>**
    - Deletes the specified PCB, but only if it is in the suspended state.
- **showPCB <name>**
    - Shows information based on the specified process. This will show the name, class, state, suspended state, and the priority. The name specified must be a valid name of a process.
- **showready**
    - Shows the information for all processes in the ready state. This will show the name, class, state, suspended state, and the priority for all these processes.
- **showblocked**
    - Shows the information for all processes in the blocked state. This will show the name, class, state, suspended state, and the priority for all these processes.
- **showallprocesses**
    - Shows the information for all processes. This will show the name, class, state, suspended state, and the priority for all these processes.
- **loadr3**
    - Loads all of the test processes from the file “procsr3.c”. All of the processes will be loaded and put in the queues in a non-suspended ready state with a priority of 5.
- **alarm <hh:mm:ss> <message>**
    - Will print a user-provided message at the user-specified time, or if the current time is greater than the input.
- **infinite**
    - Creates an infinite process that can not be deleted until the user has suspended it.
- **showallocmem**
    - shows information about all allocated memory control blocks (MCB). This will show the amount allocated, the previous and next memory control blocks, the start address of the data, as well as displaying that the MCB is allocated.
- **showfreemem**

    - shows information about all allocated memory control blocks (MCB). This will show the amount allocated, the previous and next memory control blocks, the start address of the data, as well as displaying that the MCB is allocated.

- **allocmem <int>**
    - Creates an MCB with the size in bytes of the passed integer. The MCB becomes part of allocated memory.
- **freemem <0x000…>**
    - Deletes the MCB with the specified hex value. The value can be found by doing showallocmem and getting the start address value.
- **loadr6**
    - Loads and runs all of the functions in the test file provided.