

The Helpless Four OS User Manual

Overview:

This is the Helpless Four OS, listed below are the commands that are available to the user.

Commands:

R1

version:

This command is used to print out the current version of the Helpless Four OS and the completion date of the version. To use the command just type **version** into the command line.

help:

This command prints all functions that the user is able to use with the current version of the OS. This shows the format needed to type in a command and also what the command does. To use the command just type **help** into the command line. To only see one of the commands descriptions type help then the command description you'd like to see. For example if you'd only like to see the description of shutdown type help shutdown.

setdate:

This command allows the user to set the date in the OS to whatever they desire. To use this command you must type **setdate** then type the date in this format mm/dd/yyyy. So the command line will look like this when using this command setdate

mm/dd/yyyy. To see the date you must use the `getdate` function. Be aware numlock must be on to use the number pad on the keyboard.

getdate:

_____This command will allow the user to see the current date on the OS. To use this command just type **getdate**. This will print the current date to the terminal, to set the date to a different date then use `setdate`.

settime:

This command allows the user to set the time in the OS to whatever they desire. To use this command you must type **settime** then type the time in this format hh:mm:ss. So the command line will look like this when using this command `settime hh:mm:ss`. To see the time you must type `gettime`. Be aware numlock must be on to use the number pad on the keyboard.

gettime:

This command allows the user to see the current time of the OS. The time will be printed in the terminal in 24 hours format hh:mm:ss. To use the command just type **gettime** into the command line. The user also can change the time by typing **settime** in the command line.

shutdown:

This command will exit the commadhandler loop, the execution will return to Kmain() and the system will halt. It will also ask the user for confirmation. To use this command just type **shutdown** to the command line.

R2

Suspend:

_____This command will place a PCB into a suspended state given and reinsert it into the appropriate queue. To use the command type **suspendpcb nameofpcb**. For example: name of pcb you wish to suspend is firstpcb you would type suspendpcb firstpcb.

Resume:

_____This command will take a PCB out of a suspended state and reinsert it into the appropriate queue. To use the command type in **resumepcb nameofpcb**. For example: name of pcb you wish to suspend is firstpcb you would type resumepcb firstpcb.

Set priority:

_____This command will set a PCB's priority and reinsert the process into the correct place in the correct queue. This function takes in the PCB's name and the int for the desired priority. The priority's being 0-9 and 0 being the lowest priority and 9 being the highest. To use the command type in **setpcbpriority nameofpcb prioritynum**. For example if the name of the pcb is firstpcb and the priority you want is 5 you would type setpcbpriority firstpcb 5.

Show PCB:

_____ Will display a certain pcb's process name, class, state, suspended status and priority. To use this command type **showpcb pcbname**.

Show all Processes:

_____ This command will display process name, class, state, suspended status, priority for each PCB in the ready and blocked queues. To use this command type **showallprocesses**.

Show Ready Processes:

_____ This command will display process name, class, state, suspended status, priority for each PCB in the ready queue. To use this command type **showreadyprocesses**.

Show Blocked Processes:

_____ This command will display process name, class, state, suspended status, priority for each PCB in the blocked queue. To use this command type **showblockedprocesses**.

Create PCB:

_____ This command will set up a pcb then insert it in the appropriate queue. This command will need a process name, process class (which can be either a 1 for application or a 2 for system process), and a process priority (which is any number 0-9 with 0 being the lowest priority). To use this command type **createpcb pcbname pcbclassnum pcbprioritynum**.

Delete PCB:

_____ This command will remove a pcb from a queue and then free all associated memory. This command will need the name of the pcb you wish to remove. To use this command type **removepcb pcbname**.

Block:

_____ This command will find a pcb and set its state to blocked and reinsert it into the blocked queue. This command will need the name of the pcb you wish to set to blocked. To use this command type **blockpcb pcbname**.

Unblock:

_____ This command will find a pcb and set its state to ready and reinsert it into the ready queue. This command will need the name of the pcb you wish to set to ready. To use this command type **unblockpcb pcbname**.

R3

Yield:

_____ This command will cause commhand to yield to other processes. To use this command the user would just type **yield**. The only time the user should use this command is in R3.

Loadr3:

This command will load all r3 “processes” into memory in a suspended ready state. To use this command the user would type **loadr3**.

R4

Alarm:

This command will allow the user to set multiple alarms to go off at whatever time they specify and when the alarm goes off a message will be printed that the user provides with the alarm time. To use this command type **alarm “message to be printed” hh:mm:ss** (alarm time in this format).

Infinite:

This command will allow the user to make an infinite process that forever calls sys_req(IDLE). To use this command type **infinite**. Warning: infinite can’t be called twice nor deleted until it is set to suspended.

R5

PART 1

Initialize Heap:

This command will allow the user to allocate all the memory available for the mpx, this will initialize 1000 bytes of memory. To use this command type **initheap**.

Allocate Memory:

This command will allow the user to allocate memory from the heap. To use this command type **allocatemem** then the size of the memory you want to allocate. So for example if you want to allocate 100 bytes then type **allocatemem 100**.

Free Memory:

This command will allow the user to free a block of memory that was previously allocated. To use this command type **freemem** then the address of the allocated block you wish to free. So if the address of the block you want to free is 218108360 then you would type **freemem 218108360**.

IsEmpty:

This command will tell the user if the heap is empty or not. To use this command type **isempty**. .

PART 2

Show Free Memory:

This command will allow the user to see the sizes and addresses of all free memory blocks, these will be shown in order of address. To use this command the user would type **showfree**.

Show Allocated Memory:

This command will allow the user to see the sizes and addresses of all allocated memory blocks, these will be shown in order of address. To use this command the user would type **showallocated**.