User Manual

An informational guide to using MPX

help()
The help command calls a function that briefly informs the user of the other commands available and what they are for.

Example of when the ‘help’ command is run.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'loadR3'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Type 'deletePCB'
Type 'blockPCB'
Type 'unblockPCB'
Type 'resumePCB'
Type 'suspendPCB'
Type 'setPCBpriority'
Type 'showPCB'
Type 'showall'
Type 'showblocked'
Type 'showready'
Type 'alarm'
Please enter a command here : help

'loadR3' command loads and queues predetermined processes.
'getdate' command retrieves the date.
'gettime' command retrieves the time.
'setdate' command allows user to set the date.
'settime' command allows the user to set the time.
'shutdown' command exits to the main function and requires confirmation.
'version' command prints the current version of MPX and the compilation date.

The following commands are specific for PCB:
'delete pcb' command removes the requested process
  from the queue and frees the associate memory.
'block pcb' command puts a process in the blocked state
  and moves it to the appropriate queue.
'unblock pcb' command puts the process in the ready state
  and moves it to the appropriate queue.
'resume pcb' command unsuspends the process and moves
  it to the appropriate queue.
'suspend pcb' command suspends the process and moves
  it to the appropriate queue.
'set pcb priority' command changes the priority of the process and moves
  it to the appropriate queue.
'show pcb' command displays the process's name, class, state, suspend status and priority.

These commands are specifically for groups of processes:
'show all' command shows all of the following information for all processes
  in any state: name, class, state, suspended status and priority.
'show blocked' command shows all of the following information for all processes
  in the blocked state: name, class, state, suspended status and priority.
'show ready' command shows all of the following information for all processes
  in the ready state: name, class, state, suspended status and priority.
```

version()
Informs the user of what version of MPX is running.

Example of what happens when the ‘version’ command is run.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'loadR3'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Type 'deletePCB'
Type 'blockPCB'
Type 'unblockPCB'
Type 'resumePCB'
Type 'suspendPCB'
Type 'setPCBpriority'
Type 'showPCB'
Type 'showall'
Type 'showblocked'
Type 'showready'
Type 'alarm'
Please enter a command here : version

The current version of MPX is: R4.
```

getdate()
Allows the user to retrieve the date that is currently stored.

Example of when the ‘getdate’ command is run.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : getdate

08/09/23
```

setdate()
Allows the user to change the date stored.

Example of when the ‘setdate’ command is run. When the ‘getdate’ command is run after, the changes made in ‘setdate’ are saved.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : setdate

Enter date (DD/MM/YY): 04/03/23

Date set successfully
```

gettime()
Allows the user to retrieve the time that is currently stored.

Example of when the ‘gettime’ command is run.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : gettime

18:19:46
```

settime()
Allows the user to change the time stored.

Example of when the ‘settime’ command is run. When the ‘gettime’ command is run after, the changes made in ‘settime’ are saved.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : settime

Enter time (HH:MM): 21:56

Time set successfully
```

shutdown()
Once the user inserts the command and confirms it, the program does not allow the user to insert commands.

Example of when the ‘shutdown’ command is run, along with the confirmation of ‘yes’ is typed.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : shutdown

Would you like to shutdown? (yes/no): yes

Shutting down...
klogv: Starting system shutdown procedure...
klogv: Halting CPU...
```

Example of when the ‘shutdown’ command is run, along with the confirmation of ‘no’ is typed.

```
Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here : shutdown

Would you like to shutdown? (yes/no): no

Shutdown canceled or invalid input.


Hello! Please type one of the following from the menu.
Type 'help'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Please enter a command here :
```

delete_pcb()
Finds the requested process and removes it from the queue.

Example of when the “deletePCB” command followed by the “showall” command is run.

```
[Please enter a command here : deletePCB
[Please enter the name of the PCB: process1

 PCB deleted successfully.
```

block_pcb()
Puts the requested process into a blocked state and moves it to a blocked queue.

Example of when the “blockPCB” command is run.

```
[Please enter a command here : blockPCB
[Please enter the name of the PCB: process1
 Process blocked successfully.
```

unblock _pcb()
Removes the requested process from the blocked queue and places it into the ready queue.

Example of when the “unblockPCB” command is run.

```
[Please enter a command here : unblockPCB
[Please enter the name of the PCB: process1
 Process UNBLOCKED (ready) successfully.
```

suspend_pcb()
Suspends the requested process by placing it into the suspended queue and updating a state number to match the placement.

Example of when the “suspendPCB” command is run.

```
[Please enter a command here : suspendPCB
[Please enter the name of the PCB: process1
 Process suspended successfully.
```

resume_pcb()
Removes the requested process from the suspended queue and adds it to the ready queue.

Example of when the “resumePCB” command is run.

```
[Please enter a command here : resumePCB
[Please enter the name of the PCB: process1
 Process resumed successfully.
```

set_pcb_priority()
Allows the user to set the priority level for a specified process, the range is from 0 to 9.

Example of when the “setPCBpriority” command is run.

```
[Please enter a command here : setPCBpriority
[Please enter the name of the PCB: process1
[Please enter the new priority of the PCB: 4
```

show_pcb()
Displays the requested process’s name, class, state, suspended status and priority.

Example of when the “showPCB” command is run.

```
[Please enter a command here : showPCB
[Please enter the name of the PCB: process1

 Name: process1
 Class: 1
 State: 3
 Priority: 4
```

show_ready()
Displays the following information of all the processes in the ready state: name, class, state, suspended status and priority.

Example of when the “showready” command is run.

```
Please enter a command here : showready

Name: process1
Class: User
State: READY
Priority: 1

Name: process2
Class: User
State: READY
Priority: 2

Name: process3
Class: User
State: READY
Priority: 3

Name: process4
Class: User
State: READY
Priority: 4

Name: process5
Class: User
State: READY
Priority: 5

Name: Idle Process
Class: Syst
State: READY
Priority: 9
```

show_blocked()
Displays the following information of all the processes in the blocked state: name, class, state, suspended status and priority.

Example of when the “showblocked” command is run.

```
[Please enter a command here : showblocked

 Name: process1
 Class: User
 State: BLOCKED
 Priority: 1
```

show_all()
Displays the following information about all of the created processes, no matter their state: name, class, state, suspended status and priority.

Example of when the “showall” command is run.

```
[Please enter a command here : showall

 Name: process1
 Class: User
 State: READY
 Priority: 1

 Name: process2
 Class: User
 State: READY
 Priority: 2

 Name: process3
 Class: User
 State: READY
 Priority: 3

 Name: process4
 Class: User
 State: READY
 Priority: 4

 Name: process5
 Class: User
 State: READY
 Priority: 5

 Name: Idle Process
 Class: Syst
 State: READY
 Priority: 9
```

load_r3()
Loads test processes and queues them into a ready state.

Example of when the “loadR3” command followed by the “showall” command is run.

```
Please enter a command here : loadR3


Hello! Please type one of the following from the menu.
Type 'help'
Type 'loadR3'
Type 'version'
Type 'getdate'
Type 'setdate'
Type 'gettime'
Type 'settime'
Type 'shutdown'
Type 'createPCB'
Type 'deletePCB'
Type 'blockPCB'
Type 'unblockPCB'
Type 'resumePCB'
Type 'suspendPCB'
Type 'setPCBpriority'
Type 'showPCB'
Type 'showall'
Type 'showblocked'
Type 'showready'
Type 'alarm'
Please enter a command here : showall

Name: process1
Class: User
State: READY
Priority: 1

Name: process2
Class: User
State: READY
Priority: 2

Name: process3
Class: User
State: READY
Priority: 3

Name: process4
Class: User
State: READY
Priority: 4

Name: process5
Class: User
State: READY
Priority: 5

Name: Idle Process
Class: Syst
State: READY
Priority: 9
```

alarm()
Command that spawn an additional ready process to display a message at a certain time given specific parameters.

Example of when the “alarm” command is run.

```
[Please enter a command here : alarm
[Please enter the time (HH:MM:SS): 01:01:01

 02:23:30
 dispatched proc1
[Please enter the time (HH:MM:SS): 10:10:10

 02:23:40
```

Index

show_blocked()
show_pcb()
show_ready()
shutdown()
suspend_pcb()

U

unblock_pcb()

V

version()

Y

yield()