

# USER'S MANUAL

*Mpx Operating System*

**Cs 450 Spring 2016**

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**Revision Sheet**

<b>Release No.</b>	<b>Date</b>	<b>Revision Description</b>
Rev. 0	2/4/2016	Module 1 completion
Rev. 1	2/25/2016	Module 2 completion

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## **User's Manual Authorization Memorandum**

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We fully accept the changes as needed improvements and authorize initiation of work to proceed. Based on our authority and judgment, the continued operation of this system is authorized.

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## TABLE OF CONTENTS

	<u>Page #</u>
<b>1.0 GENERAL INFORMATION .....</b>	<b>1-1</b>
<b>1.1 System Overview .....</b>	<b>1-1</b>
<b>1.2 Project References .....</b>	<b>1-2</b>
<b>1.3 Authorized Use Permission.....</b>	<b>1-2</b>
<b>1.4 Points of Contact.....</b>	<b>1-2</b>
<b>1.5 Acronyms and Abbreviations .....</b>	<b>1-2</b>
<b>2.0 SYSTEM SUMMARY .....</b>	<b>2-1</b>
<b>2.1 System Configuration.....</b>	<b>2-1</b>
<b>2.2 Data Flows .....</b>	<b>2-1</b>
<b>3.0 GETTING STARTED.....</b>	<b>3-1</b>
<b>3.1 Logging On.....</b>	<b>3-1</b>
<b>3.2 Command Line .....</b>	<b>3-1</b>
3.2.1 Help .....	3-1
3.2.2 Version.....	3-1
3.2.3 Set Date.....	3-1
3.2.4 Get Date .....	3-1
3.2.5 Set Time.....	3-1
3.2.6 Get Time .....	3-1
3.2.7 Suspend PCB .....	3-1
3.2.8 Resume PCB .....	3-2
3.2.9 Set Priority .....	3-2
3.2.10 Show PCB .....	3-2
3.2.11 Show all Processes .....	3-2
3.2.12 Show Ready Processes .....	3-2
3.2.13 Show Block Processes .....	3-2
<b>3.3 Temporary Commands .....</b>	<b>3-2</b>
3.3.1 Create PCB .....	3-2
3.3.1.1 Name .....	3-2
3.3.1.2 Class .....	3-3
3.3.1.3 Priority.....	3-3
3.3.2 Delete PCB .....	3-3
3.3.3 Block.....	3-3
3.3.4 Unblock .....	3-3
<b>3.4 Exit System.....</b>	<b>3-3</b>
3.4.1 Shutdown .....	3-3
3.4.1.1 Confirmation .....	3-3

## **1.0 GENERAL INFORMATION**

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### **1.1 System Overview**

- This is the MPX operating system.
- This system will allow you to control your computer system through simple commands
- The design for this operating system build was created in C.
- The operating system is run in a Linux environment
- The system is booted using GRUB

## **1.2 Project References**

References used for this system were slides provided in the CS450 class by Seth Theeke and Mason Greathouse.

## **1.3 Authorized Use Permission**

Unauthorized duplication, distribution of this computer software is strictly prohibited.

## **1.4 Points of Contact**

If any issues are found with this software and/or assistance is needed, call your mother because you're on your own.

## **1.5 Acronyms and Abbreviations**

Process Control Block- PCB

## **2.0 SYSTEM SUMMARY**



## **2.0 SYSTEM SUMMARY**

### **2.1 System Configuration**

This system will be used to demonstrate simple commands, and was designed to provide an experience in developing systems, and increase knowledge on how operating systems work with system hardware.  
(Will add more as time goes on).

### **2.2 Data Flows**

At the moment simple data flows are being used from input to the keyboard and output to the computer screen.

## 3.0 GETTING STARTED

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### 3.1 Logging On

To access the operating system an emulator system is used and an emulated booting sequence is initiated.

### 3.2 Command Line

This system uses a command line interface. Simple commands can be used. Where “[ ]” are used demonstrates where the user input will be entered. For this manual all user input entries inside of the brackets will be considered valid. Non valid entries from the user will display an error message in the mpX system.

#### 3.2.1 Help

At any time while using this operating system you can type “help” and receive the list of commands that are available. Help gives an overview of all the commands available for use. Executed by typing “help”.

#### 3.2.2 Version

Shows the working version of the software. This is updated every time the software is updated and revised. Executed by typing “version”

#### 3.2.3 Set Date

Allows the user to set the date for the operating system. Date is entered in the MM/DD/YY format. Executed by typing “setdate [MM/DD/YY]”.

#### 3.2.4 Get Date

Displays the date to the display. Date is displayed in the MM/DD/YY format. Executed by typing “getdate”.

#### 3.2.5 Set Time

Allows the user to set the time for the operating system. Time is set in the HH:MM:SS format. Executed by typing “settime [HH:MM:SS]” and entering the time in the correct format. NOTE: 24hr time is used with this system.

#### 3.2.6 Get Time

Displays the time to the display. Time is displayed in the HH:MM:SS format. Executed by typing “gettime”

#### 3.2.7 Suspend PCB

Gets Process Control Block (PCB) name from the user and Puts the PCB in the suspended state. Executed using the command “suspendPCB [name]” There will be a confirmation of suspension with the display of a success message

### **3.2.8 Resume PCB**

Puts process in not suspended state, might require the changing of queues if multiple queues are being used. Applicable process will resume. Command is executed by “resumePCB [name]” There will be a conformation the process has resumed with the display of a success message.

### **3.2.9 Set Priority**

Gets Process Control Block (PCB) name and new priority from user, system checks validity and the changes the position of the PCB based on the new designated priority. Command is written as follows “setpriority [name] [priority]”

### **3.2.10 Show PCB**

Gets Process Control Block (PCB) name from the user and displays all information about the PCB. Command is executed by writing “showPCB [name]”.

### **3.2.11 Show all Processes**

Shows information for all Process Control Blocks (PCBs) in all queues. It displays the process name, the state, its status, and its priority. Command is written as “showall”.

### **3.2.12 Show Ready Processes**

Shows all the processes that are in the ready state. Shows the processes in the order they are in the queue. Command is written as “showready”.

### **3.2.13 Show Block Processes**

Shows all blocked processes in the blocked queue. Command is written as “showblocked”.

## **3.3 Temporary Commands**

These commands are all temporary and will be removed at a later date.

### **3.3.1 Create PCB**

Allocates and sets up a new Process Control Block (PCB) and inserts it into the ready queue. Must be entered in the format “createPCB [name] [class] [priority]”. Success message is displayed after completion.

#### **3.3.1.1 Name**

The name must be less than 8 characters long

### **3.3.1.2 Class**

The class must be an integer “0” for system class or “1” for application class.

### **3.3.1.3 Priority**

The priority must be an integer between -127 and 128.

## **3.3.2 Delete PCB**

Command is written as “deletePCB [name]”. Removes an existing Process Control Block (PCB) from its queue and frees its memory. The name of the PCB being deleted must be entered after the command. Success confirmation is displayed after completion of deletePCB

## **3.3.3 Block**

Command is written as “blockPCB [name]”. This command gets Process Control Block (PCB) name from the user and checks that the PCB with that name exists. Then places the PCB in the blocked state. Conformation is given with a success message.

## **3.3.4 Unblock**

Gets process name from the user and places the process (PCB) in the ready state. Command is written as “unblockPCB [name]”. Success confirmation is displayed when completed.

# **3.4 Exit System**

## **3.4.1 Shutdown**

Will safely shutdown the operating system. Loss of data and corruption could occur if not properly shut down. Executed by typing the command “shutdown”.

### **3.4.1.1 Confirmation**

Shutting down will need a confirmation. Typing ‘y’ will confirm the shutdown procedure. Typing ‘n’ will cancel the shutdown procedure.