Programmer's Manual

R1

9/10/2021

By:
Will Ferrell, Jarett Hardek, Anthony Lowery, Emily Waechter

Table of Contents

void version():

-Prints the current version of MPX and its completion date
-Void function, prints the version and date to the terminal

void help():

-Provides usage instructions for each command available to the user
-Void function, prints each command on a new line

int shutdown():

-Exits command handler loop, shuts down the MPX machine
-Execution returns to kmain()
-Requires confirmation by users

Return - (integer): that is assigned to “quit”, the main command handler control loop variable

int comhand():

-Collects input from the user and validates that it is valid
-Controls the design of the user interface
-Menu driven, listing each command implemented in the MPX

Return - (integer-pointer): arbitrarily returns 0 to terminate the command handler

int print(char* str):

-Prints a string to the terminal

Parameter - str (char pointer)
Return - (integer): arbitrarily returns 0 to terminate the command handler

int println(char* str):

-Prints a string on a new line to the terminal

Parameter - str (char pointer)
Return - (integer): arbitrarily returns 0 to terminate the command handler

int *polling(char *buffer, int *count):

-Gathers keyboard input from the user and passes it into the command buffer which is stored as a char pointer
-It validates each keystroke including all alphanumeric characters, backslash, forward slash, comma, and period. It also handles special keys such as backspace, delete, the home and end key, and the arrow keys

Parameter - buffer (char-pointer): the data that is stored in the command buffer (usually empty)
Parameter - count (integer-pointer): the value of the size of the buffer (this is the value that remains unchanged and returns)
Return - (integer-pointer): the value of the size of the buffer

int gettime():

-Prints the time that was accessed through the outb function
calls bcdtoStr on the time to convert from BCD to a char and place it in the time char array

Return - (integer): arbitrarily returns 0

int settime(char *time):

-The time has already been inputted after printing a prompt in the command handler
-Calls check_time_str to make sure the time entered was valid
sets the time using the outB and StrtoBCD function to convert the char to a BCD

Parameter - time (char pointer)
Return - (integer): 0 if time format is valid or 1 if the time is invalid

int check_time_str(char* time_str):

-Makes sure the time is of valid length and valid format in military time
-If 0 is returned the settime function continues if 1 is returned a invalid format message is returned

Parameter - time_str (char pointer)
Return - (integer): 0 if time format is valid or 1 if the time is invalid

int getdate():

-Prints the date that was accessed through the outb function
-Calls bcdtoStr on the date to convert from BCD to a char and place it in the date char array

Return - (integer): arbitrarily returns 0

int setdate():

-Reads in the date entered by the user after printing a prompt
-Calls checkDate to make sure the date entered was valid
-Sets the date using the outB and StrtoBCD function to convert the char to a BCD

Return - (integer): arbitrarily returns 0

int checkDate(char* date):

-Makes sure the date is valid
-If 0 is returned the setdate function continues if 1 is returned a invalid format message is returned

Parameter - date (char pointer)
Return - (integer): 0 if time format is valid or 1 if the time is invalid

int intToBCD(int val):

-Converts an int value to a BCD

Parameter - val (integer)
Return - a BCD

int BCDToInt(int val):

-Converts a BCD to an int value

Parameter - val (integer)
Return - an int

int BCDtoStr(int val, char *str):

Parameter - val (integer): BCD value
Parameter - str (char array pointer)
Return - 0 but puts the BCD into the char array pointer

int StrtoBCD(int val, char *str):

-Converts a char pointer to binary coded decimal

Parameter - val (integer): BCD value
Parameter - str (char array pointer)
Return - the BCD of the number that was in the char array