**potatOS**

(Version 0.1)

Technical Support Manual

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# Overview of Program

A short description of the program including its principle elements

This program, titled potatOS, is an Operating System simulator. In its current state the main goal of the simulator is the design and implementation of an interface as well as some basic functionality. There are currently 5 base functions that the simulator has implemented: version (display version number), date (set or display date), directory (display a list of all of the files in the OS directory), exit (exit the program), and help (display a list of all of the valid user commands along with a brief description of each. Currently all of the simulator is entirely within a single .cpp file, although this will surely change with future iterations. The project was written in C++ with the Qt Creator IDE on a computer running Windows 10.

# Program Structure

A description of how the program is set up

## UML Class Diagrams

[only one class so far]

## List of Contents in Each File

|  |  |  |
| --- | --- | --- |
| **File Name** | **Function Name** | **Description** |
| main.cpp | InputLoop | A big loop set up to implement the command prompt (i.e. allows the user to repeatedly enter in commands until they enter in a command to quit the program). This function has most of the other functions within it. |
|  | DisplayDate | A simple function that uses some variables passed into it to print the date onto the screen. |
|  | RestoreCurrentDate | Gets the current date from the underlying OS and sets the program’s date variables accordingly. |
|  | GetValidInt | Checks to see if the number that the user has input is valid based on the bounds given. |
|  | DirectoryFIles | Prints a list of all of the file names in this program’s directory. |
|  | DisplayVersion | A simple function that prints the OS’s current version number. |
|  | MaximizeWindow | Gets the computer screen’s resolution and sets the program window to be this size. (note: the sizing portion of this function is currently not working properly) |
|  | ShowHelp | Simply prints a list of each valid command along with a brief description of each. |
|  | ExitProgram | Displays a confirmation message to ensure that the user does want to exit. Then, based on user input, either ends program, returns to command prompt, or displays error message. |
|  | AutoTests | Performs some automated tests to show that certain functions work. |

# Description of Each Function

An in-depth look at each function and how they work

**Prototype**

void InputLoop();

**Description**

This function is used to create the loop that runs to create a command prompt. Before starting the loop the function displays a welcome message, calls the DisplayVersion function, sets up the date variables to the current date, and calls the MaximizeWindow function. Within the loop a prompt to enter a command is displayed and the function waits for the user to enter in something. The function then sets the user input to lower case and compares their input to a list of acceptable commands (currently through if-else statements but in the future a switch case with enumerated types may be incorporated). Either a valid command will be entered and a corresponding function will be called as a result or an error message will be displayed to let the user know that they have entered an invalid command.

**Prototype**

void DisplayDate(int year, int month, int day);

**Parameters**

|  |  |  |
| --- | --- | --- |
| year | int | Integer value that is used in order to display the current year set. |
| month | int | Integer value that is used in order to display the current month set. |
| day | int | Integer value that is used in order to display the current day set. |

**Description**

This function simply takes in three integer values (year, month, and day) and prints them along with some formatting to display the current date in the system.

**Prototype**

void RestoreCurrentDate(int &year, int &month, int &day);

**Parameters**

|  |  |  |
| --- | --- | --- |
| year | int | Integer value that is used in order to display the current year set. Variable passed by reference in order to manipulate its value within the function. |
| month | int | Integer value that is used in order to display the current month set. Variable passed by reference in order to manipulate its value within the function. |
| day | int | Integer value that is used in order to display the current day set. Variable passed by reference in order to manipulate its value within the function. |

**Description**

The date variables are passed by reference into this function in order to set their values to represent the current date as acquired from the computer. This lets the OS set up the date to be accurate by default as well as allows the user to reset the date to be accurate if they have changed it.

**Prototype**

int GetValidInt(int min, int max);

**Parameters**

|  |  |  |
| --- | --- | --- |
| min | int | Integer value that is used to determine what the minimum acceptable value is for the user to enter. |
| max | int | Integer value that is used to determine what the maximum acceptable value is for the user to enter. |

**Return Value**

Returns an int value equal to what the user had entered if it were acceptable. If the number entered is unacceptable as determined by the min and max variables then an error is displayed telling the user that “You must input a whole number between *min* and *max*” where *min* and *max* are the variables passed into the function.

**Description**

This function simply takes in some parameters to determine the bounds of an acceptable user input and returns the value if it is valid. The function also displays which date value that they are entering a value for (i.e. day, month, or year).

**Prototype**

void DirectoryFiles();

**Description**

This function goes through the OS directory and prints the filename for each file. This function can display two errors: “Not a directory” and “No such file or directory.” These errors are displayed when the file path used to find the program directory is either not a file path at all or if it does not lead to a directory or file. This function currently uses an absolute file path to find the directory so it this function will only work on the computer which it was created on. Therefore this function needs to be altered in order find the file path.

­­­­­­­­­­­­­­­­­­­­**Prototype**

void DisplayVersion();

**Description**

This simple function is just a print statement that displays the program’s version number.

**Prototype**

void MaximizeWindow();

**Description**

This function gets the screen resolution values and stores them into two variables. It is then supposed to set the window size to fullscreen based on these variables but this functionality is currently not working properly.

**Prototype**

void ShowHelp();

**Description**

This function simply uses several print statements to print a list of valid user commands along with a brief description of each.

**Prototype**

void ExitProgram();

**Description**

This function is called when the user wants to exit the program. First the user is asked if they are sure that they want to exit. Based on their input the function will either terminate the program, return back to the command prompt, or display an error to let the user know that they have entered in an unacceptable value and re-display the exit confirmation prompt.

**Prototype**

void AutoTests(int &year, int &month, int &day);

**Parameters**

|  |  |  |
| --- | --- | --- |
| year | int | Integer value that is used in order to display the current year set. Variable passed by reference in order to manipulate its value within the function. |
| month | int | Integer value that is used in order to display the current month set. Variable passed by reference in order to manipulate its value within the function. |
| day | int | Integer value that is used in order to display the current day set. Variable passed by reference in order to manipulate its value within the function. |

**Description**

This function is used to automatically run a short list of tests in order to show that certain functions work properly. The function tests the RestoreCurrentDate, DisplayDate, DirectoryFiles, DisplayVersion, and ShowHelp functions.

# Description of Data Structures

Use, attributes, and description of the data structures implemented

[no data structures created and implemented yet]

# Cross References

A representation of what each function calls and is called by

|  |  |  |
| --- | --- | --- |
| **Function Name** | **What Does This Call?** | **What Calls This?** |
| InputLoop | DisplayVersion, RestoreCurrentDate, MaximizeWindow, DisplayVersion, DisplayDate, GetValidInt, DirectoryFiles, ShowHelp, ExitProgram | main |
| DisplayDate | [none] | InputLoop, AutoTests |
| RestoreCurrentDate | [none] | InputLoop, AutoTests |
| GetValidInt | [none] | InputLoop |
| DirectoryFiles | [none] | InputLoop, AutoTests |
| DisplayVersion | [none] | InputLoop, AutoTests |
| MaximizeWindow | [none] | InputLoop |
| ShowHelp | [none] | InputLoop, AutoTests |
| ExitProgram | [none] | InputLoop |
| AutoTests | RestoreCurrentDate, DisplayDate, DirectoryFiles, DisplayVersion, ShowHelp | main |

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