Comp 304 Project 1 Report

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Problem – 1

We implemented our own execute function to use execv instead of execvp. Program invocation is done by fork and execute methods.

Problem – 2

In short command, set is done by storing current directory with the help of getcwd function. Jump is done by calling chdir function with a parameter of the saved nickname.

Example Call: short set favorite

Example Call: short jump favorite

Text

Description automatically generated

In bookmark command, bookmarks are stored in an array. It will execute the parameter when bookmark is called with the -i flag. -l flag lists the bookmarks and -d deletes the corresponding bookmark.

Example Call: bookmark “ls”

Example Call: bookmark -l

Example Call: bookmark -i 0

Example Call: bookmark -d 0

Text

Description automatically generated

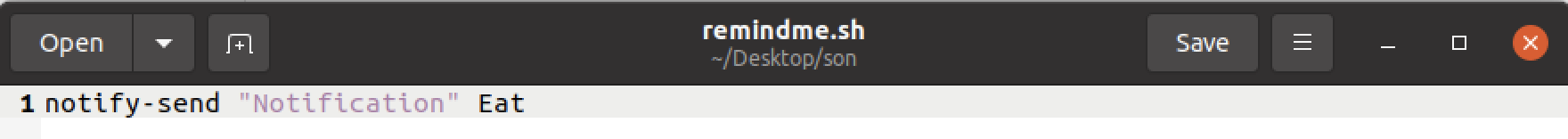
In remindme command, a shell script and a crontab file is created within the same directory. Then, crontab command is executed with the parameter of the crontab file. Crontab file includes the time and a path to the script file.

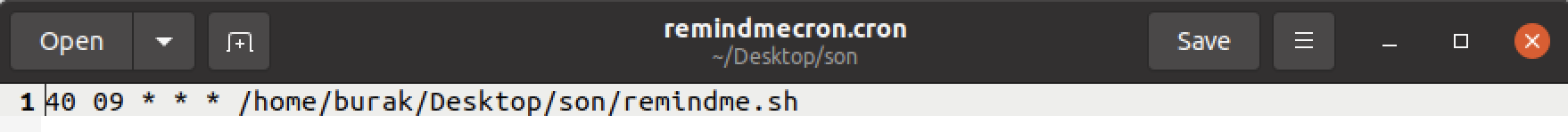
Example Call: remindme 09.40 “Eat”



Graphical user interface, application

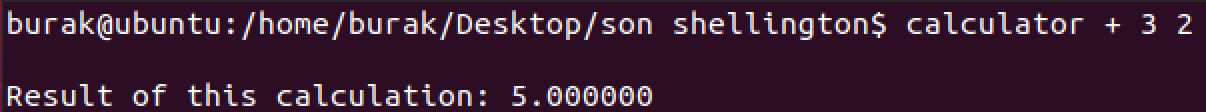
Description automatically generated





In calculator command, a calculator can perform multiplication, addition, subtraction, and division operations with 2 numbers.

Example Call: calculator + 3 2



In guessinggame command, the player has 3 chances to guess a random number between 0 and 10. If the player guesses the correct number, they win the game. If they can’t guess the correct number in 3 chances they lose and the random will be shown to the player.

Example Call: guessinggame

Text

Description automatically generated

Problem – 3

Ps\_traverse module takes 2 module parameters which are flag for determining the searching method such as DFS or BFS and a pid number to be used as a root process id. Using list\_for\_each we accomplished the traversal between child processes of the root process. Traversed processed names and IDs is printed in the kernel by using printk.

Text

Description automatically generated

File\_list module takes a single parameter which is a filename. It creates a character device file with that file name. We have managed to get the sibling files using dentry and file structs. Then, we list the name of the files in the kernel using printk.

Text

Description automatically generated