OPERATING SYSTEM SIMULATOR

SUBMITTED TO:

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INSTRUCTION GUIDELINE

IMPLEMENTED MODES

We implement our Project without GUI or with GUI using **GTK** in C. With GUI, we have **8 tasks** to whom we made GUI.

In our project, we implement **10 Core Tasks** and **5 Optional Tasks** which are:

1. Timer

2. Stop Watch

3. Contact Manager

4. Simple File Renaming Tool

5. Simple File Search Tool

and **2 Additional tasks** which are:

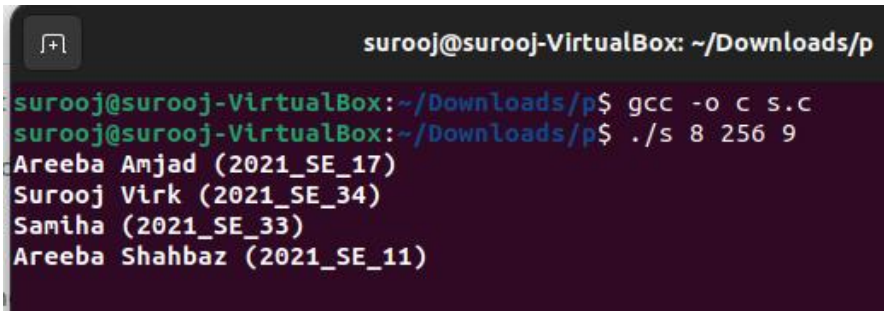
1. Mini Game (Tic-Tac-Toe)

2. Alarm

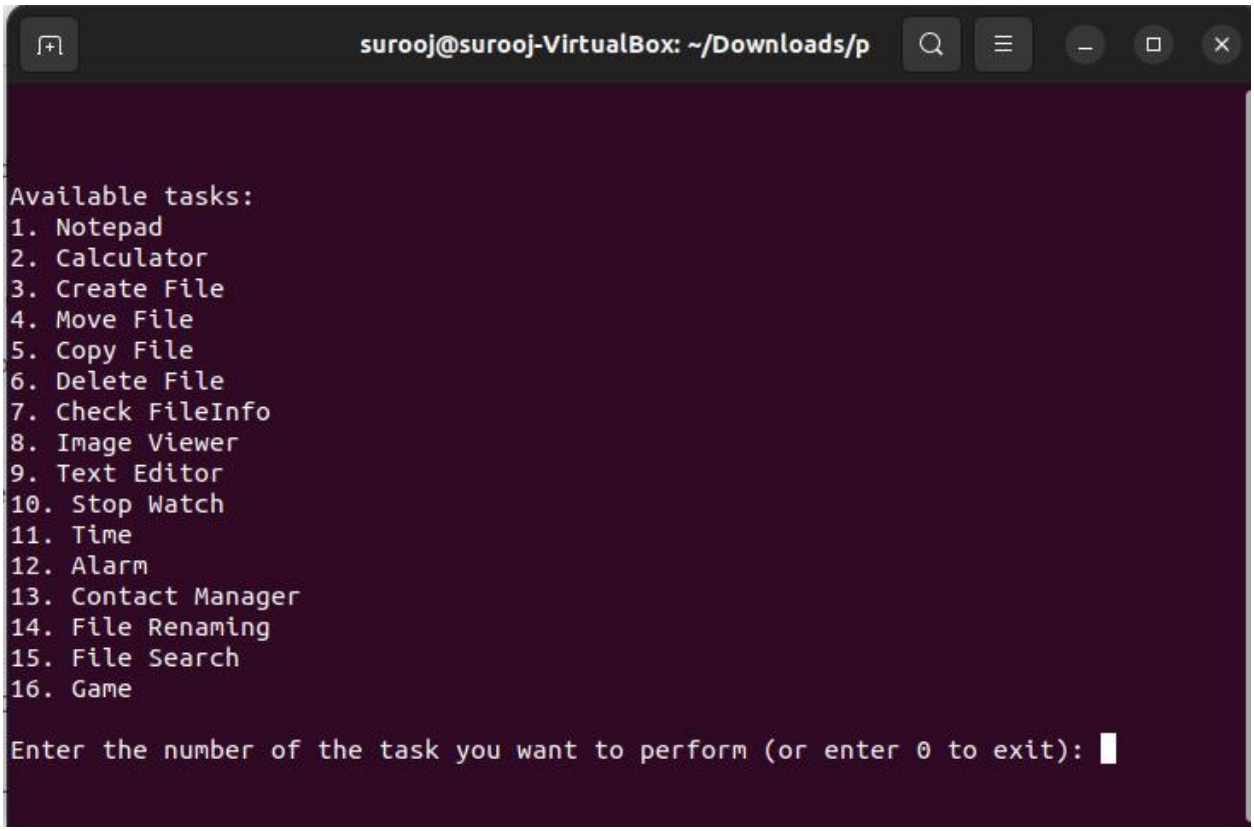
DESCRIPTION OF PROJECT

On running the project we have to give 3 arguments in which Ram,Core and Memory is assigned to the project.

After that our terminal load the names of the us.



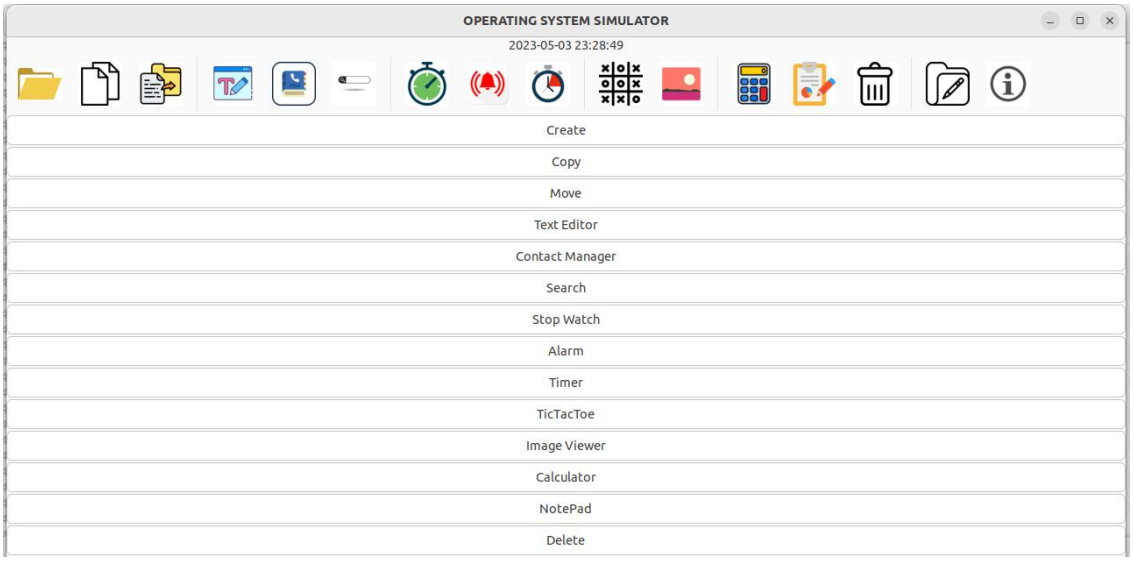
After loading names on terminal it will disappear the screen and show menu list of out tasks.



Now we will select each and every task to show the functionality of them. Firstly the Core Tasks:

But in GUI after loading names it shows us the screen.

On which current time executes automatically. And a toolbar on which each and every task has an icon and below icons we have buttons through which we execute our multiple programs.



RESOURCE ALLOCATION:

Whenever we will execute any Program, it will take resources from the assigned resources at command line argument. But if we run multiple tasks at a time and if the task is assigned the resources which are greater than the command line resources,because of less resources and because of resource allocation by previous tasks it will not run that task because it faces not enough resource for that task.

```
Enter the number of the task you want to perform (or enter 0 to exit): 2
Not enough available resources to run the selected task.
```

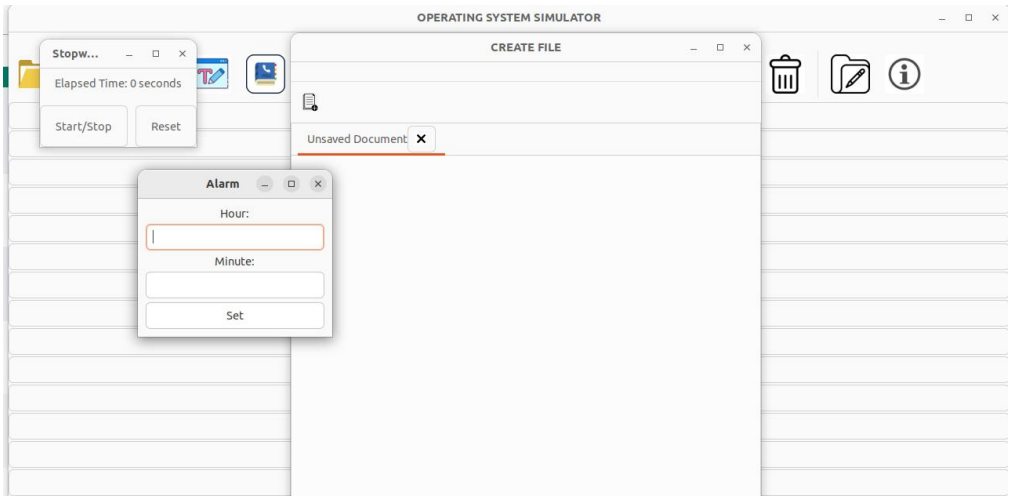
KERNEL MODE:

In kernel Mode user can close or delete the processes from memory meaning you can close running programs.

MULTITASKING:

In case of terminals:

In case of GUI:



CORE TASKS:

Whenever we will execute any Program, it will take resources from the assigned resources at command line argument.After allocating the resources it print the available resource and after executing the task it will De-allocate the resources.

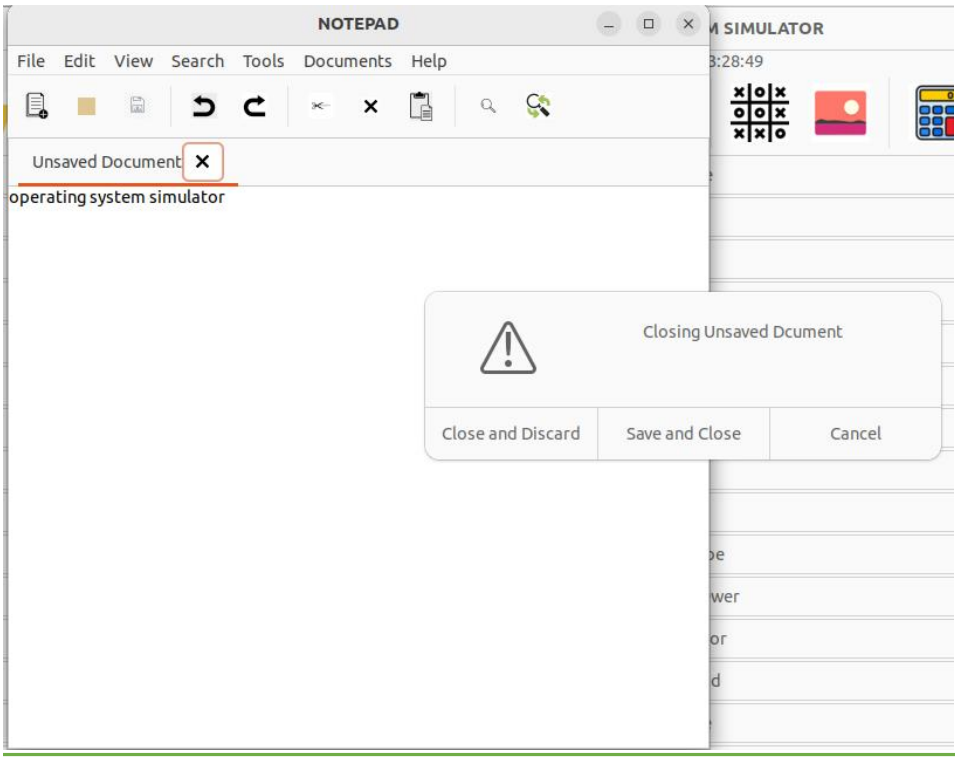
1. NOTEPAD

```
Enter the number of the task you want to perform (or enter 0 to exit): 1
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task Notepad running...
```

When notepad is execute, what functionality it will perform:

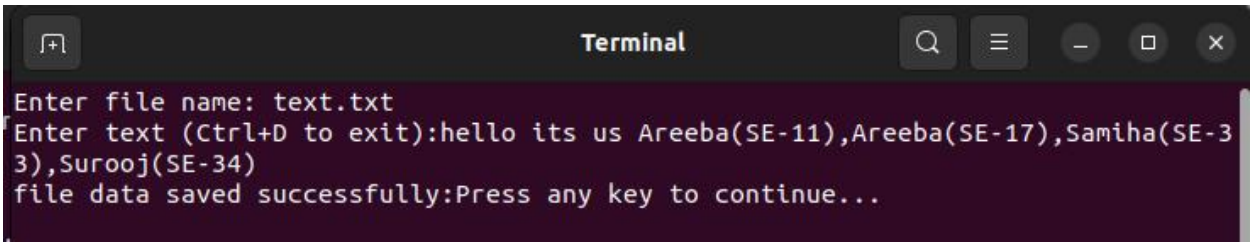
1. It will take the name of the file to create it.
2. Then It will take the data which will store in File.
3. By pressing Ctrl+D, it will exit the notepad
4. And file will store successfully

GUI of Notepad:

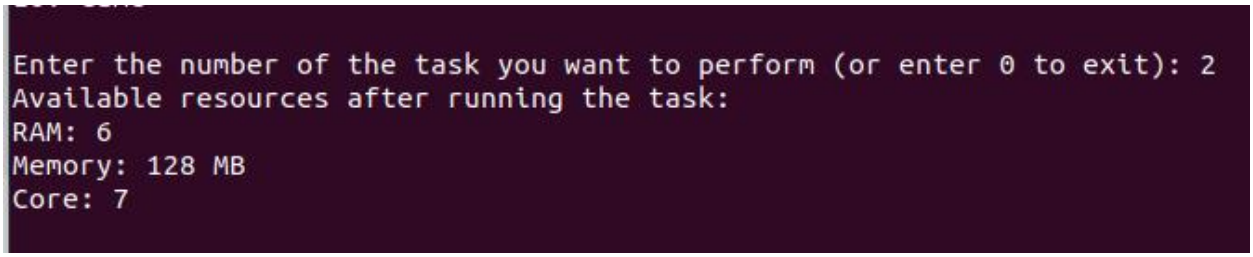


Using GUI of Notepad, we write into a file and after that if we close the tab it will ask us to save the file or not by providing a trigger. File is also saved in it. And show file name on tab.

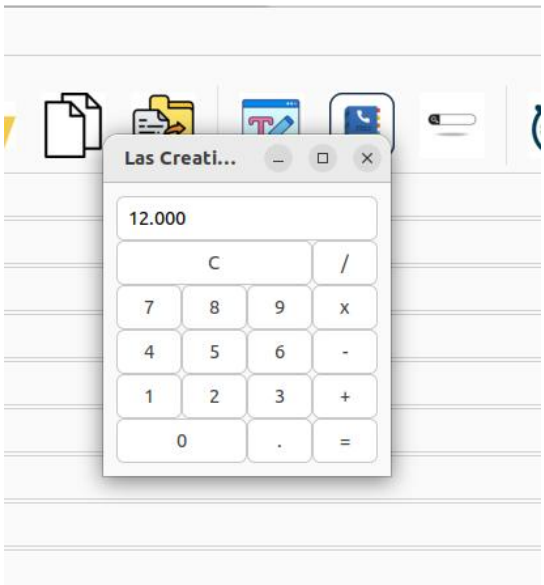
Opening a new terminal of the Notepad process



2. Calculator



GUI of Calculator:



When calculator is execute, what functionality it will perform:

1. Take 1st number.
2. Take 2nd number.
3. Take operator.
4. Execute Answer

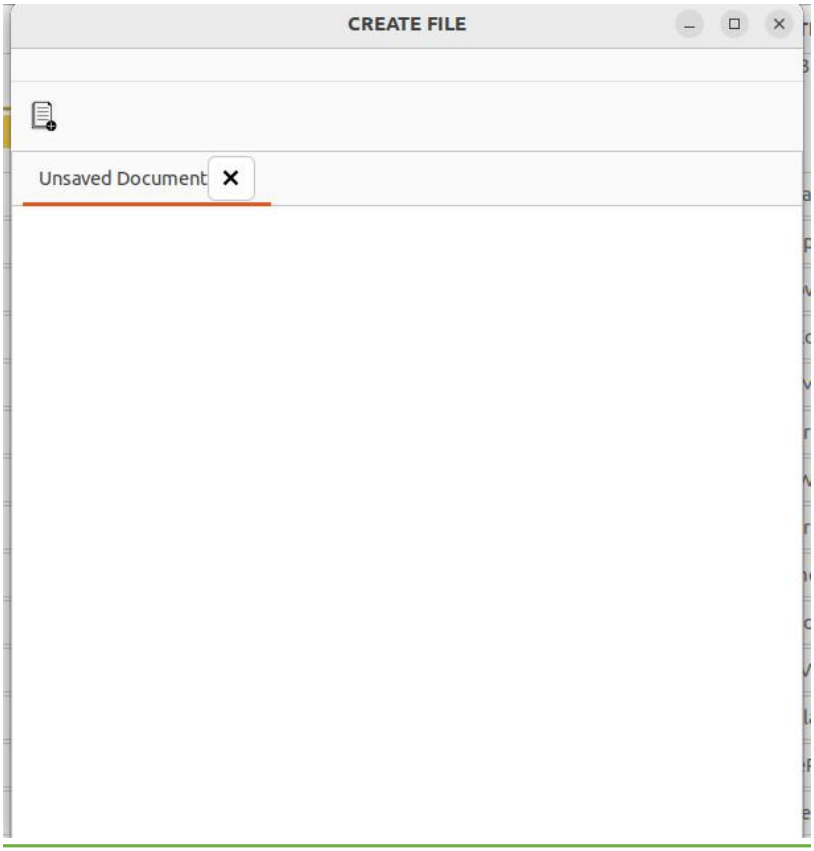
Terminal base Calculator:

```
Enter the first number:
56
Enter the second number:
4
Enter the operator (+, -, *, /):
/
56 / 4 = 14
Press any key to continue...
```

3. Create File:

```
Enter the number of the task you want to perform (or enter 0 to exit): 1
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task Notepad running...
```

GUI of Create File:



When Create File is execute, what functionality it will perform:

1. It take file name to create a new one.

Terminal base Create File:

```
Enter file name: text.txt
file created successfulyPress any key to continue...
```

4. Move File:

```
Enter the number of the task you want to perform (or enter 0 to exit): 4
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task Move File running...
```

When Move File is execute, what functionality it will perform:

1. It take file name to be moved on.
2. Then it will take location name where it will move.

Terminal base Move File:

```
Enter the name of the file to be moved: text.txt
Enter the new location for the file: home
File moved successfully!
Press any key to continue...
```

5. Copy File:

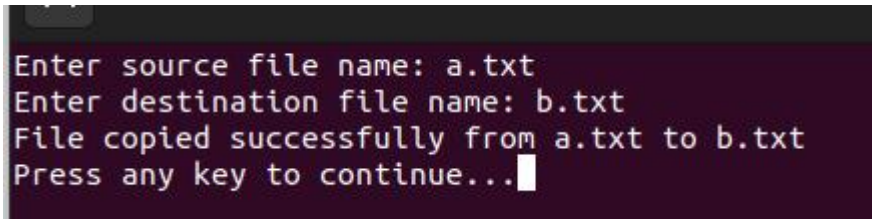
```
Enter the number of the task you want to perform (or enter 0 to exit):
5
Available resources after running the task:
RAM: 6
Memory: 128 MB
Core: 7


Task Copy File running...
```

When Copy File is execute, what functionality it will perform:

1. It take source file name to be moved on.

2. Then it will take destination file name where it will copy.

Terminal base Copy File:



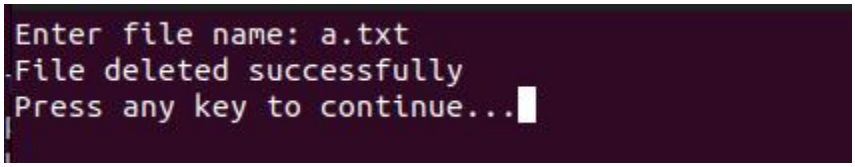
6. Delete File:

```
Enter the number of the task you want to perform (or enter 0 to exit): 6
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task Delete File running...
```

When Copy File is execute, what functionality it will perform:

1. It take name of the file to be deleted.

Terminal base Delete File:



7. Check File Info:

```
Enter the number of the task you want to perform (or enter 0 to exit): 7
Available resources after running the task:
RAM: 6
Memory: 128 MB
Core: 7


Task Check FileInfo running...
```

When Check File Info is execute, what functionality it will perform:

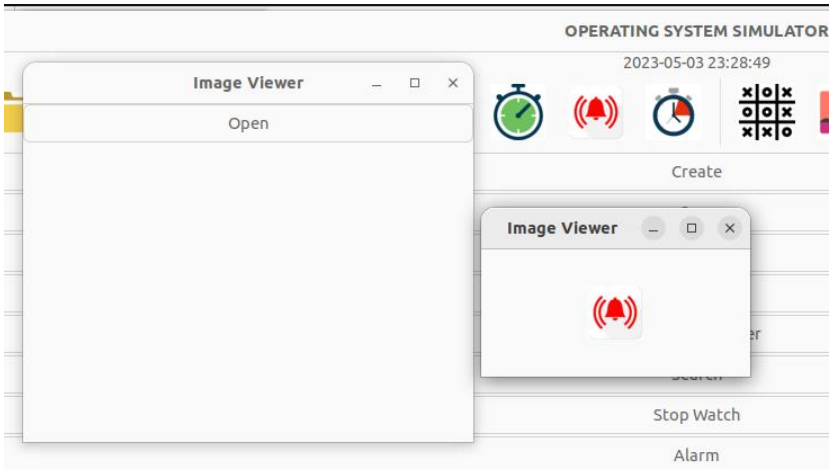
1. It take name of the file to be checked.

Terminal base Check File Info:

```
Enter the name of the file: b.txt
File information for: b.txt
Size: 41 bytes
Owner ID: 1000
Group ID: 1000
Permissions: 664
Inode: 435488
Device ID: 2050
Press any key to continue...
```

8. Image Viewer:

GUI of Image Viewer:



When Image Viewer is execute, what functionality it will perform:

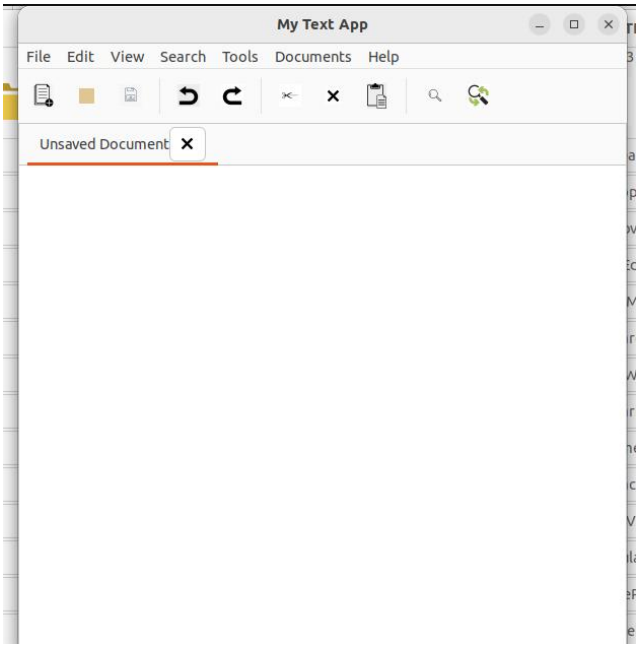
1. It will open a screen with a open button from where we will insert image.

2. Then it will open picture on a new window.

9. Text Editor:

```
Enter the number of the task you want to perform (or enter 0 to exit): 9
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8

Task Text Editor running...
```

GUI of Text Editor:

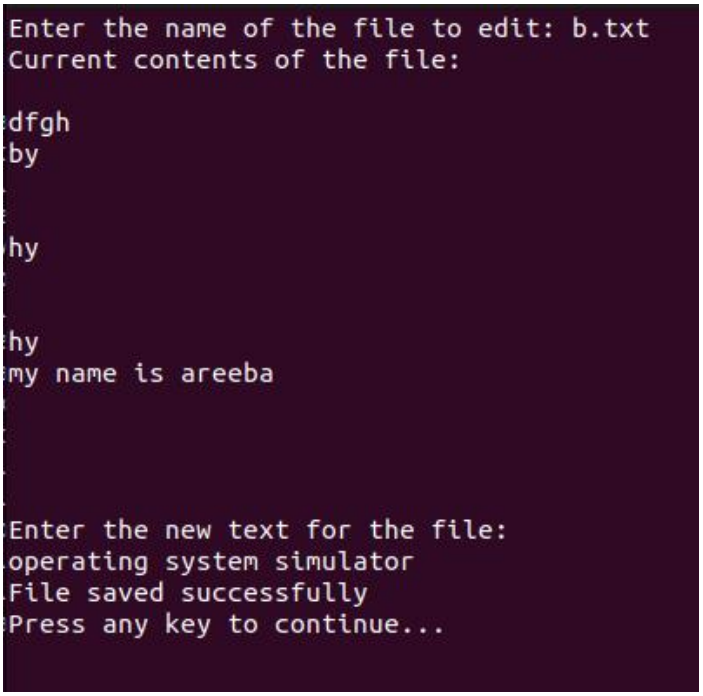


When Text Editor is execute, what functionality it will perform:

1. It take name of the file to be checked.

2. Then it will ask for the new data to be entered in place of the previous one.

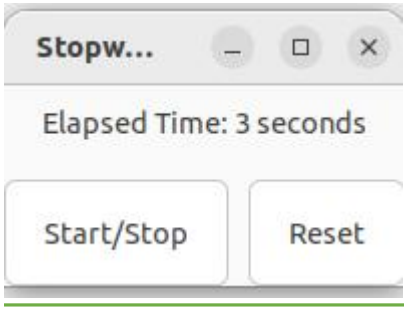
Terminal base Text Editor:



10. Stop Watch:

```
Enter the number of the task you want to perform (or enter 0 to exit):
10
Available resources after running the task:
RAM: 6
Memory: 128 MB
Core: 7


Task Stop Watch running...
```

GUI of Stop Watch:



When Stop Watch with GUI is execute, what functionality it will perform:

1. By pressing start button it will start the stop watch.

2. And by pressing stop button it will stop it.

3. By pressing Reset button it will reset the stop watch to 0.

Terminal base Stop Watch:

When Stop Watch is execute, what functionality it will perform:

1.By pressing Enter key Stop Watch will start.

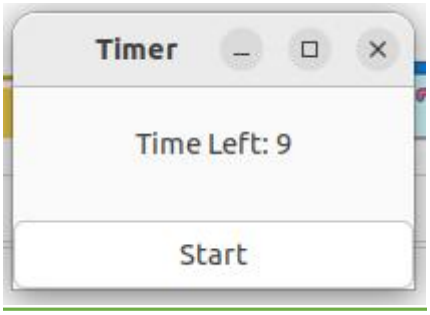
2. And by pressing Enter Key again Stop Watch will stop.

```
Press Enter to start the stopwatch


Stopwatch started!
Press enter key to stop the stopwatch
Elapsed time: 3.83 secondss

Stopwatch stopped! Elapsed time: 3.83 seconds
Press any key to continue...
```

11. Timer:

```
Enter the number of the task you want to perform (or enter 0 to exit): 11
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task Time running...
```

GUI of Timer:



1. By pressing the start button it will start the timer.

Terminal base Timer:

When Timer is execute, what functionality it will perform:

1. By Entering the time in seconds it will start Timer.

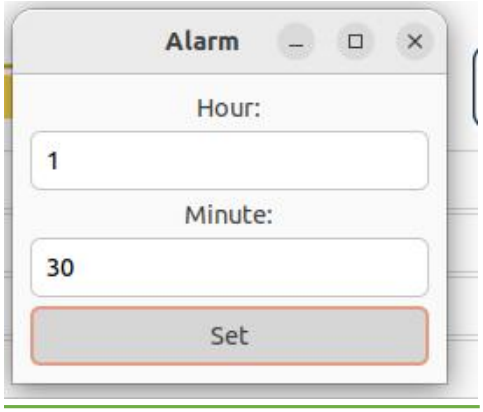
```
Enter time in seconds: 10
Remaining time: 10 seconds
Remaining time: 9 seconds
Remaining time: 8 seconds
Remaining time: 7 seconds
Remaining time: 6 seconds
Remaining time: 5 seconds
Remaining time: 4 seconds
Remaining time: 3 seconds
Remaining time: 2 seconds
Remaining time: 1 seconds
Time's up!
Press any key to continue...
```

OPTIONAL TASKS

12. Alarm:

```
16. Game

Enter the number of the task you want to perform (or enter 0 to exit):
12
Available resources after running the task:
RAM: 6
Memory: 0 MB
Core: 7


Task Alarm running...
```

GUI of Alarm:



When GUI of Alarm is execute, what functionality it will perform:

1. We will set time in Hours and Minutes to run alarm.

Terminal base Alarm:

When Alarm is execute, what functionality it will perform:

1. We will set time in seconds to run alarm.

```
Enter the number of seconds for the alarm: 4
Time's up!
Press any key to continue...
```

13. Contact Manager:

```
Enter the number of the task you want to perform (or enter 0 to exit): 13
Available resources after running the task:
RAM: 7
Memory: 128 MB
Core: 8


Task Contact Manager running...
```

When Contact Manager is execute, what functionality it will perform:

1. It will display menu.

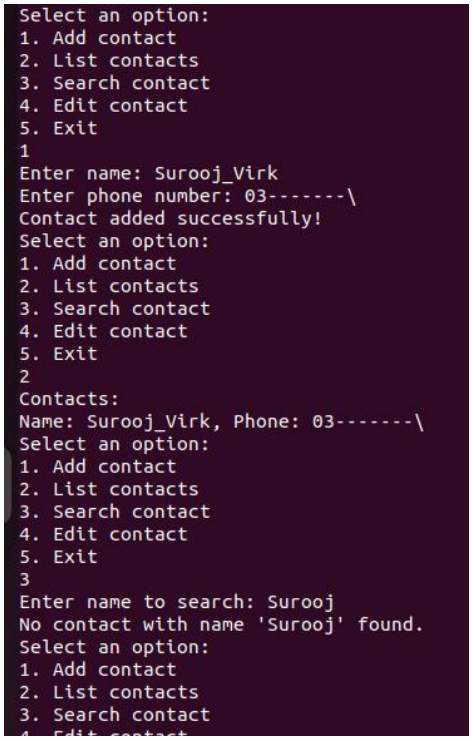
2. We will add contact name and number.

3. We will view contact list.

4. We will search contact.

5. We will edit contact.

Terminal base Contact Manager:



14. File Renaming Tool:

```
Enter the number of the task you want to perform (or enter 0 to exit): 14
Available resources after running the task:
RAM: 7
Memory: 0 MB
Core: 8


Task File Renaming running...
```

When File Renaming Tool is execute, what functionality it will perform:

1. It will take the existing name of the file
2. Then it will take the new name for that file.

Terminal base Renaming Tool:

```
Enter the current name of the file: b.txt
Enter the new name of the file: boom.txt
File renamed successfully.
Press any key to continue...
```

15. File Search Tool:

```
Enter the number of the task you want to perform (or enter 0 to exit): 15
Available resources after running the task:
RAM: 6
Memory: 0 MB
Core: 7


Task File Search running...
```

When File Search Tool is execute, what functionality it will perform:

1 It will take the name of the file.

3. then it will take an alphabet or word to fetch out the line where that alphabet or word is present.

Terminal base Search Tool:

```
Enter the name of the file to search: b.txt
Enter the string to search: o
Line 1: operating system simulatorPress any key to continue...
```

16. Tic-Tac-Toe Game:

When Game is execute, what functionality it will perform:

1 It will take 2 keys on pressing both of them 2 players will play game.

Terminal base Tic-Tac-Toe Game: