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A Shell Script - Cleaner

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Abstract: *In Linux system the cleaning of all the cache and temporary memory is a complex task done by command line. Memory management in any operating system is considered as complex task. In Linux system the major hectic task is to manage & free the unnecessary memory usage of applications. By developing this tool we are trying to reduce the overhead of Linux user for better management of memory resources. Now the problem is to enlist the memory usage of all installed applications, for that we developed a module which enlists the installed applications. A shell script cleaner is an interactive tool which consist of multiple modules for different distribution. Every module consists of distribution specific commands and their dependencies over the memory structure. This tool provides an interface to enlist the memory usage and delete cache memory as well as other alternatives of cache memory using the menu driven interface.By prefixing a word shell script make this tool very resourceful and automated. Almost every automation task in Linux system are done via shell scripting. Thus results in better memory management and cache cleaning techniques.*

Keywords: Shell script, command line, Shell variable.

I. INTRODUCTION

Even today deletion of cache memory, apt cache, browser cache, old system logs and much more unnecessary memory is done via complex Linux commands. Hence for the operating system memory resource management becomes a weary task. There are many cleaning GUI based applications for other platforms like windows, this motivates us to develop an automated tool which can delete multiple cache alternatives on Linux platform. To overcome with such old-fashioned processes, there are various software applications to clean cache memory easily. A shell script – cleaner is one of them. A shell is a command-line interpreter & all the operations are performed by shell script. Shell scripts have several required constructs that tell the shell environment which shell engine to call **(shebang)**. Shebang **(#!)** is nothing but the absolute path to the bash interpreter. Shebang ensures that bash will be used to interpret the script, even if it is executed under an other shell (path / environment).

A shell script – cleaner is an application developed for Linux user to delete cache as well as its alternatives. It helps to maintain the memory resources by applying various Linux commands which are distributions pecific. Shell script cleaner is consisting of multiple modules for various distribution and different type of memory to delete. Prefixing a word "shell-script" to this tool makes this tool very fast and automated. This is because shell scrip tcan be execute faster than any other GUI based application .Since shellscript directly interact with the shell of an Linux operating system, it gets executed very fast. As well as almost every automation task in Linux system are done via shell scripting. Since GUI based application performs slower as compared with shell script applications, we developed a shell Script cleaner tool to clean cache memory as well as other junk files.

II. LITERATURE SURVEY

A. Bash Clean Script

Dimitri Merejkowsky developed a bash script which avoids piping concept for better command separation. Piping concept leads to collision of two commands which perform same task with different scope or permission.[5] The idea behind the piping is to combine the commands for better execution,but it also causes some clashing between the scopes of command.[1]

For ex. Cat foo.txt | grep bar

The above command uses the piping concept which can be   replaced by following command without pipe. For ex. grep bar foo.txt

B. Cleaner.Sh

Shell script tool written by imperial wicket which is used to delete directory content by finding the specific route to the directory. This tool is very much intended to delete directory content.[4] The motive behind this cleaner.sh tool is to remove the contents of directory if it contains old files or irrelevant system logs.

For ex. SEARCH_STRING='*' DIR='.'

MIN_FILES='1' DELETED=0

C. Archcleaner

This cleaner tool is used forARCH distribution for following purpose. ARCH cleaner is developed by ARCH community for better memory resource management. [3] Since ARCH distribution is more complex in terms of paging and use different fragmentation.

Database syncing
To clean pacman cache
To remove unused packages
To update mlocat database.

III.   PROBLEM STATEMENT

Many linux user face trouble when system gets slow and performance decreases due to the insufficient memory. So the problem here is to remeber all types of commands and path of directory containing these cache , to delete those cache and junk files. Then user also have to manage the dependencies between different commands .Somtimes there is lock on APT files and user can not install program in such situation he or she have to manually chek for the process which is having the control over APT files. Having a linux system means user have to take care of administrative access and root permission.So we are trying to eliminate all these problems by developing a shell script cleaner which efficient , fast and accurate.

IV.   FLOW DIAGRAM

From the given figure 4.1, end linux user have access to the shell script cleaner interface. That interface constain options to delete many types of cache . while deleting specific cache or junk files shell script cleaner calls distribution specific module for deletion. For ex. User wants to delete DNS cache then DNS cache deleting module gets called and specific command gets executed for respective deletion.Let us see flow diagram given below.
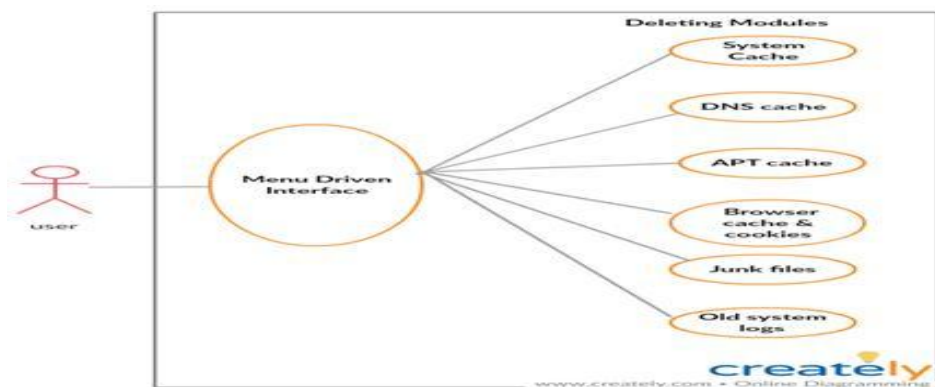

Figure 4.1: Flow Diagram

V.   IMPLEMENTATION

The menu driven interface provide many basic options to delete default system cache , browser cache , old system logs, junk files and DNS cache. The distribution specific command in every module is use to delete the memory. Every module itself contains distribution dependent commands for deletion purpose. There are different modules provided for deletion of specific type of memory since every Linux distribution has slightly different directory structure and different memory management techniques. Every module contains the commands and command piping related to the purpose of deletion.

In linux system Proc in an virtual file system created at the time of booting which includes any attributes of system memory resources . The proc creates table of first module delete default system cache using-" echo 3 > /proc/sys/vm/drop_caches "command in shell script .This module drops old the tables created by proc file system in root/proc/sys/vm.

The reason we have to use sudo su in our module instead of just sudo is because sudo only works on the main program, the redirection (>) is run without root privileges. Sudo also takes cares of many root privileges without any interruption.

While communicating via internet with server many TLS certificates get stored in DSN cache and local networking cache is also stored as DNS cached , it is clear by using network interface command - "sudo service network-manager restart".While deleting DNS cache predefined shell variable are used to avoid dependencies collision.

Ubuntu uses network-manager instead of the traditional Linux networking model. so you should restart the network-manager service instead of the network service. In Linux while installing any package or application APT cache is used , deleting this cache is important because while installing another software we may get error that , there is lock on APT files bacause another process is using it.
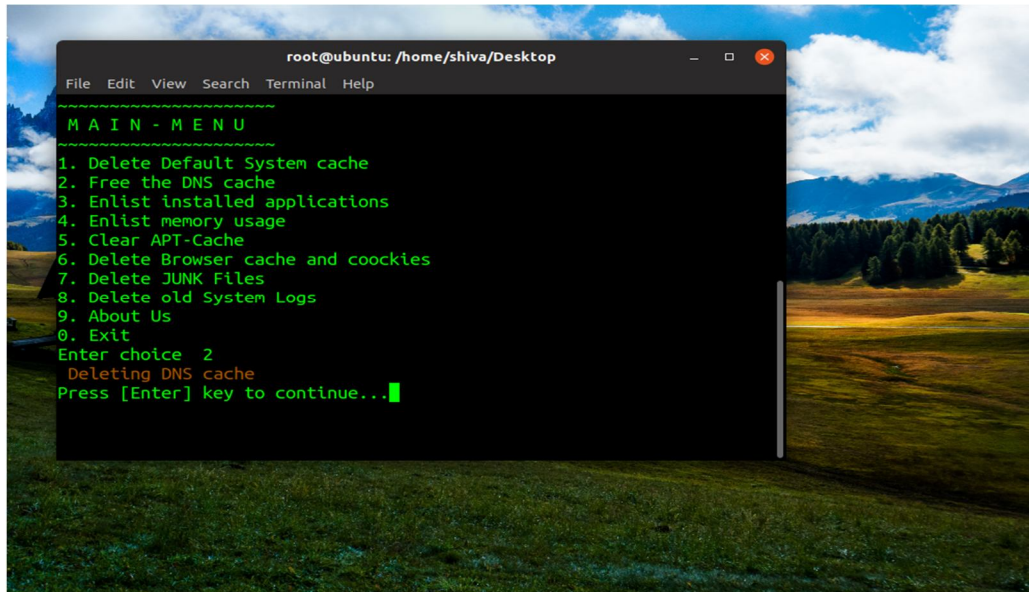
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Figure 5.1: DNS Cache Deletion

So using shell script cleaner we can delete APT cache with distribution specific command. sudo apt-get clean clears out the local repository of retrieved package files. It removes everything but the lock file from /var/cache/apt/archives/ and /var/cache/apt/archives/partial/. Another possibility to see what happens when we use the command sudo apt-get clean is to simulate the execution with the -s-option.

Sudo apt – get autoremove is used to remove packages that were automatically installed to satisfy dependencies for some package and that are no more needed. If you remove an application apt-get autoremove will remove the dependencies that were installed with that application and are no longer used by anything else on the system. APT was patched to mark all packages installed with 'apt-get build-deb' as automatically installed which then includes them immediately in 'autoremove'. In Linux system many process dependent resources waste memory resource ,i.e. junk files and these junk files are clean using specific commands along with shell variable. The command rm –rvf is used to remove old system logs from the system.rm stands for remove here. rm command is used to remove objects such as files, directories, symbolic links and so on from the file system like UNIX. To be more precise, rm removes references to objects from the file system, where those objects might have had multiple references (for example, a file with two different names). By default, it does not remove directories. This command normally works silently and you should be very careful while running rm command because once you delete the files then you are not able to recover the contents of files and directories.

Syntax: rm [OPTION]... FILE...

VI.   RESULT ANALYSIS AND DISCUSSION

The outcome of is that now linux user can clean their system using isfficient built in coomands in shell script cleaner. As the shell acript cleaner integrated with distribution specific commands all the cache and junk files gets clean quickly, so this will help linux memory management and improve performance. With the help of this cleaner tool, linux user will get freedom to clean whatever the cache they want. Due to better memory resource management no freezing issues of computer are noticed.

VII.   CONCLUSION AND FUTURE SCOPE

A.   Conclusion

We have proposed an approach for shell script – cleaner in which the main concern is to provide an interface to delete delete junk , log files , and apt- cache. These patches reflect the development of the virtual memory system. We expect our findings to benefit the development of existing and future virtual memory systems, and their associated bug-finding and debugging tools. Our study would also shed light on the development of memory manager in relevant OSes as they share the same principles as Linux kernel.

B.   Future Work

To extend this project for other O.S. like windows ,MAC
Also provide automatic deletion of cache used by application after weekly or monthly period of time .
To convey same idea for Android o.s. to optimize performance of gaming application.

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