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Implementation of Shell

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Abstract
Our aim is to develop a shell and kernel in Java that will be able to run on most of the available operating systems that supports Java Runtime Environment. The shell and kernel would be designed in such a way that the beneath platform (operating system and hardware) should not impact on the syntax and output. Also there should be a unique set of commands that we are going to develop, which will be same throughout various Operating systems where we will be using this shell. The other aim is to develop an advanced set of commands that will prove very useful for the users when using this shell. The advance commands will be file utilities such as file splitter, file/folder locker, file/folder zipper, an inbuilt rich text editor, ftp client etc. This all utilities are general and users all time need them, we are going to provide them in the shell itself so that only installing the shell will avail the user with all of the utilities mentioned.

Keywords: Shell, Kernel, Nucleus, JVM

1. Introduction
In computing, a shell is a piece of software that provides an interface for users. Typically, the term refers to an operating system shell which provides access to the services of a kernel. However, the term is also applied very loosely to applications and may include any software that is "built around" a particular component, such as web browsers and email clients that are "shells" for HTML rendering engines. The name 'shell' originates from shells being an outer layer of interface between the user and the innards of the operating system (the kernel).Operating system shells generally fall into one of two categories: command line and graphical. Command line shells provide a command line interface (CLI) to the operating system, while graphical shells provide a graphical user interface (GUI). In either category the primary purpose of the shell is to invoke or "launch" another program; however, shells frequently have additional capabilities such as viewing the contents of directories. The kernel is the essential center of a computer operating system, the core that provides basic services for all other parts of the operating system. A synonym is nucleus. A kernel can be contrasted with a shell, the outermost part of an operating system that interacts with user commands.

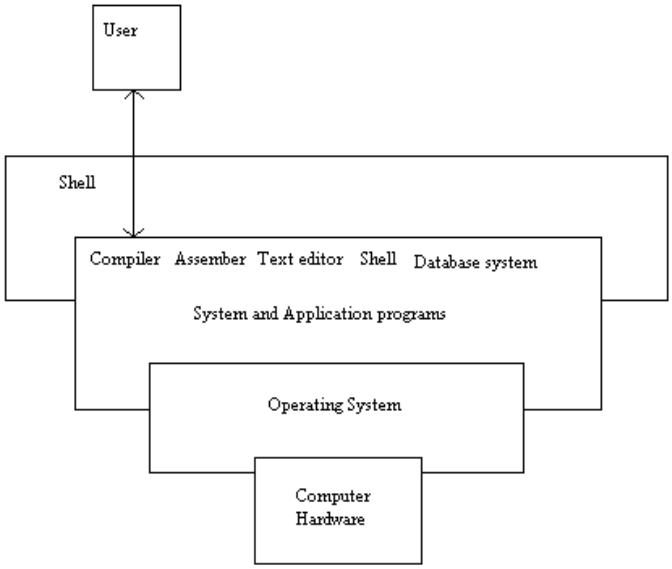

Fig: 1 Operating System

2. Literature Survey

2.1. Existing System

We have lots of shell in the market of various available operating systems
For UNIX we have the following shells available till date:
Bourne shell (sh)
Almquist shell (ash)
Debian Almquist shell (dash)
Bourne-Again shell (bash)
Friendly interactive shell (fish)
By using the above given shells we use different commands for different operating systems.

2.2 Proposed System

In our proposed solution we are building a shell in Java, that can be used on any of the Java enabled operating systems like Windows 9x,Me,NT,XP,VISTA or Unix, Linux(Red Hat, Mandrake, Fedora etc.), Solaris, MAC and many more.
The shell and kernel will get programmed in Java and that will make the OS truly platform independent.

3. Results & Experiments

Implementation of shell includes a user interface to execute commands in the command prompt. We can execute same commands on different operating systems.
File menu provide user with options like open, exit.
Accessories menu provides user with options like calendar, calculator, zipper, notepad, style pad.
Preferences menu provides user with options like font, size, style, color.
View menu provides user with options like Show and hide result box. Also show and hide Command box.
Help menu provides user with options like about us, help.

4. Steps and Algorithm

Step 1: The user has to login with user name and password.
Step 2: In Command Frame, The user can enter the command which he/she wants to execute.
For e.g. Clear, copy, delete, rename etc.
Step 3: In Result Frame the result against the command executed by the user.
Step 4: By using the Accessories menu the user can directly access calculator, notepad, and zipper.
Step 5: The user can change the font style, font size, font color and background color through the view menu.
Step 6: We can exit the command prompt by using exit option from file menu.

5. Screen Shots of Module

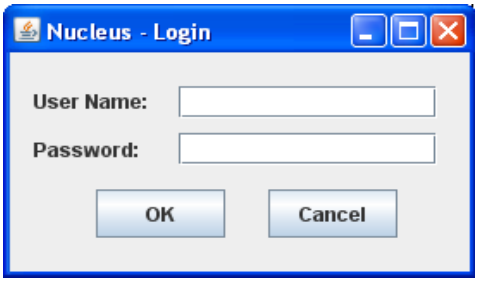

Fig: 2 Login Frame

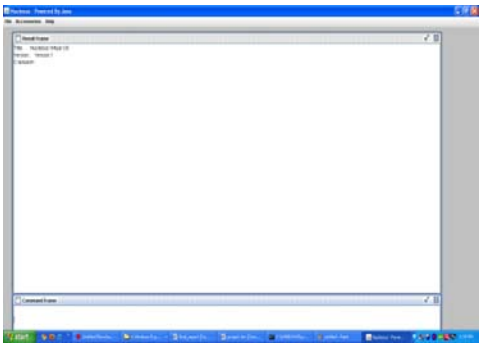

Fig: 3 GUI

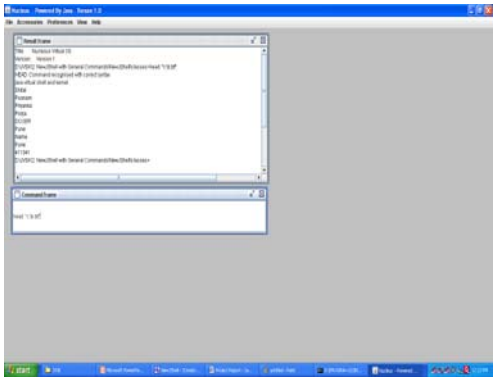

Fig: 4 General commands

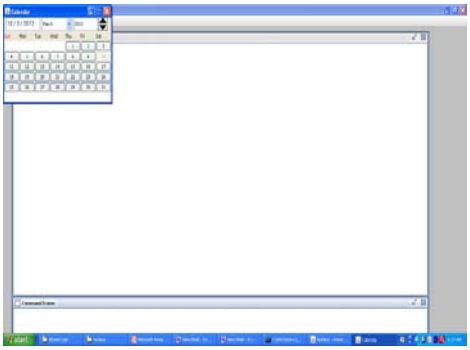

Fig: 5 Calculator

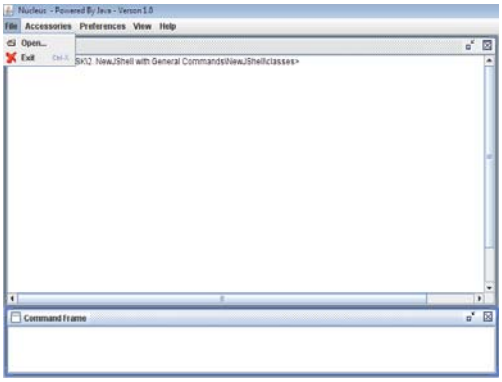

Fig: 6 File menu

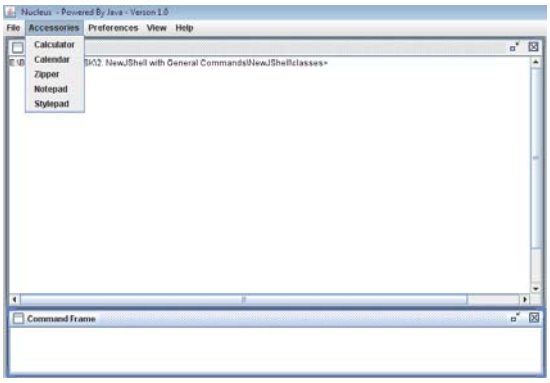

Fig: 7 Preferences menu

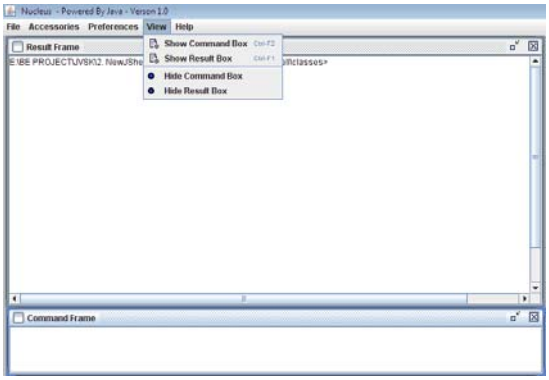

Fig: 8 View menu

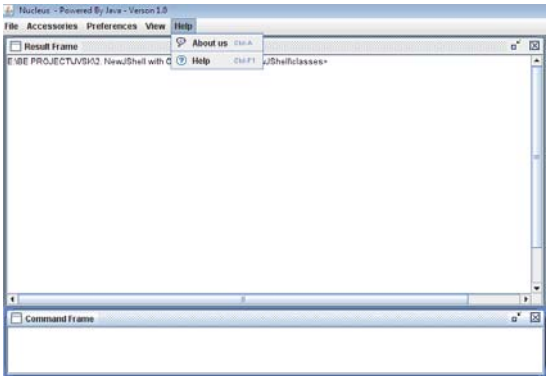

Fig: 9 Help Menu

6. Conclusion

Nucleus is a virtual machine implementation of a kernel and shell written in Java. Though we are calling Nucleus as a virtual operating system, only the shell and kernel are implemented. The main advantage of writing Nucleus in java is that it gives the power to so as to run the implementation on various platforms such as windows, UNIX, Linux or Solaris. Nucleus is written in Java, unlike other operating systems like windows or Linux. This makes Nucleus portable, secure, thread-safe, and robust and object oriented. In short all the features and advantages present in Java are present in Nucleus.

7. References

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