***DTL Assignments***

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***Shell Scripting***

*A shell script is a computer program designed to be run by the Unix/Linux shell which could be one of the following:*

* *The Bourne Shell*
* *The C Shell*
* *The Korn Shell*
* *The GNU Bourne-Again Shell*

*A shell is a command-line interpreter and typical operations performed by shell scripts include file manipulation, program execution, and printing text.*

*It has syntax just like any other programming language.*

***A shell script comprises following elements –***

* *Shell Keywords – if, else, break etc.*
* *Shell commands – cd, ls, echo, pwd, touch etc.*
* *Functions*
* *Control flow – if..then..else, case and shell loops etc.*

***Advantages of shell scripts -***

* *The command and syntax are exactly the same as those directly entered in command line, so programmer do not need to switch to entirely different syntax*
* *Writing shell scripts are much quicker*
* *Wildcard substitution in file names (pattern matching)*
* *Background processing*
* *Command aliasing*
* *Quick start*
* *Input and output redirection*
* *Piping*
* *Interactive debugging etc.*

***How shell scripting works:***

* *The basic steps involved with shell scripting are writing the script, making the script accessible to the shell and giving the shell execute permission.*
* *Shell scripts contain*[*ASCII*](https://whatis.techtarget.com/definition/ASCII-American-Standard-Code-for-Information-Interchange)*text and are written using a*[*text editor*](https://whatis.techtarget.com/definition/text-editor)*,*[*word processor*](https://searchwindowsserver.techtarget.com/definition/word-processor)*or graphical user interface (*[*GUI*](https://searchwindevelopment.techtarget.com/definition/GUI)*). The content of the script is a series of commands in a language that can be interpreted by the shell. Functions that shell scripts support include*[*loops*](https://whatis.techtarget.com/definition/loop)*, variables, if/then/else statements, arrays and shortcuts. Once complete, the file is saved typically with a .txt or .sh extension and in a location that the shell can access.*

***Examples of shell script applications:***

*Using a shell script is most useful for repetitive tasks that may be time consuming to execute by typing one line at a time. A few examples of applications shell scripts can be used for include:*

* *Automating the code compiling process.*
* *Running a program or creating a program environment.*
* *Completing*[*batch*](https://searchdatacenter.techtarget.com/definition/batch)
* *Manipulating files.*
* *Linking existing programs together.*
* *Executing routine backups.*
* *Monitoring a system.*

***There are 5 basic operators in bash/shell scripting:***

* *Arithmetic Operators*
* *Relational Operators*
* *Boolean Operators*
* *Bitwise Operators*
* *File Test Operators*

***Array in Shell Scripting****:*

*An array is a systematic arrangement of the same type of data. But in Shell script Array is a variable which contains multiple values may be of same type or different type since by default in shell script everything is treated as a string. An array is zero-based i.e indexing start with 0.*