**DTL Assignments**

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**Batch: S1**

**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.