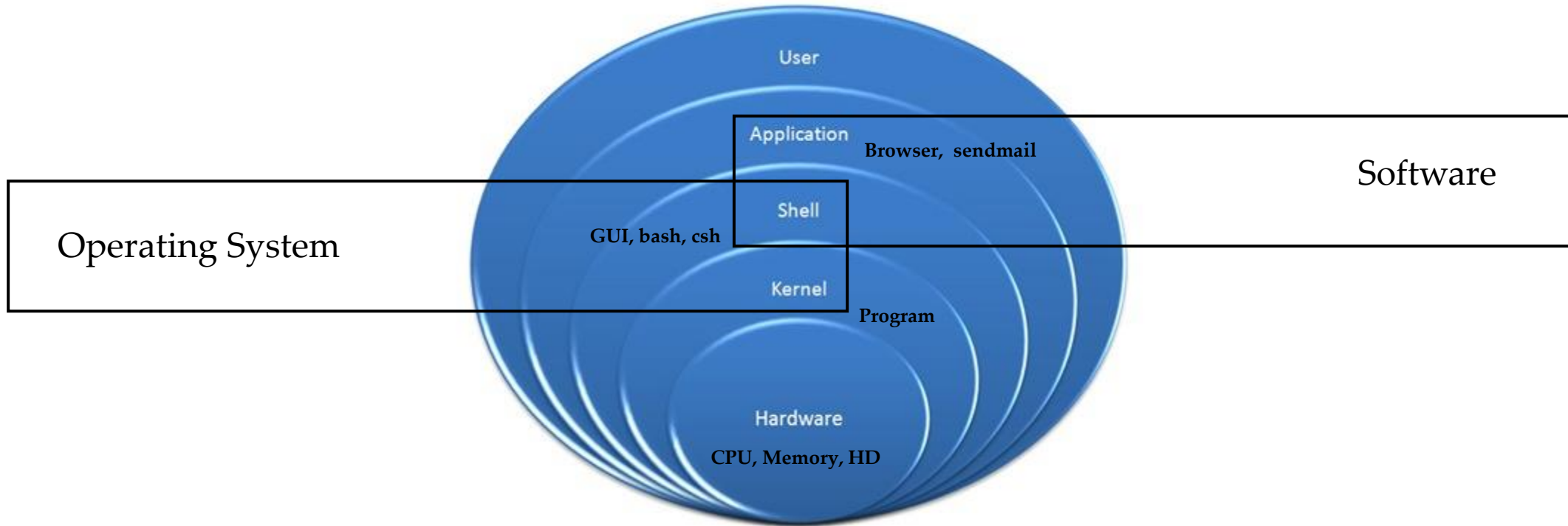# Welcome To:
Module 6

Shell Scripting

Linux Kernel

- What is a Kernel?
  - Interface between hardware and Software

Introduction to Shell

- What is a Shell?
  - Its like a container
  - Interface between users and Kernel/OS
  - CLI is a Shell

- Find your Shell
  - echo $0
  - Available Shells "cat /etc/shells"
  - Your Shell? /etc/passwd

- Windows GUI is a shell

- Linux KDE GUI is a shell

- Linux sh, bash etc. is a shell
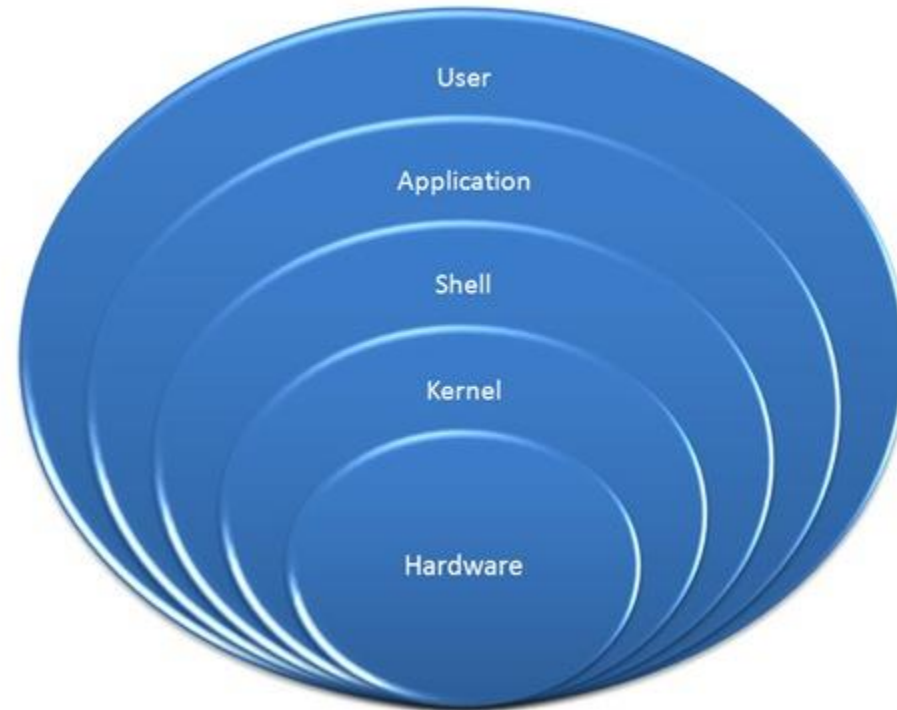
Types of Shell

- `sh`
- `bash`
- `ksh`
- `csh`

Starting a Shell

- `Type shell name e.g. csh`
- `Type exit to exit out of shell`

Shell Scripting

- What is a Shell Script?

    A shell script is an executable file containing multiple shell commands that are executed sequentially. The file can contain:

    - Shell (`#!/bin/bash`)
    - Comments (`# comments`)
    - Commands (`echo, cp, grep etc.`)
    - Statements (`if, while, for` etc.)

- Shell script should have executable permissions (e.g. `-rwx r-x r-x`)
- Shell script has to be called from absolute path (e.g `/home/userdir/script.bash`)
- If called from current location then `./script.bash`

Shell Script – Basic Scripts

- Output to screen using "echo"

- Creating tasks
  - Telling your id, current location, your files/directories, system info
  - Creating files or directories
  - Output to a file ">"

- Filters/Text processors through scripts (`cut, awk, grep, sort, uniq, wc)`

Input and Output of Script

- Create script to take input from the user

```
read
echo
```

if-then Scripts

- If then statement

```
If this happens      = do this
Otherwise            = do that
```

For Loop Scripts

- For loops

```
Keep running until specified number of variable
e.g: variable = 10 then run the script 10 times
OR
    variable = green, blue, red (then run the
    script 3 times for each color.
```

do-while Scripts

- do while

```
The while statement continually executes a block of statements while a
particular condition is true or met


e.g:    Run a script until 2pm



while [ condition ]

do

        command1

        command2

        commandN

done
```

Case Statement Scripts

- Case

```
If option a is selected  = do this
If option b is selected  = do this
If option c is selected  = do this.
```

Check Other Servers Connectivity

- A script to check the status of remote hosts

Aliases

- Aliases is a very popular command that is used to cut down on lengthy and repetitive commands

```
alias ls="ls -al"
alias pl="pwd; ls"
alias tell="whoami; hostname; pwd"
alias dir="ls -l | grep ^d"
alias lmar="ls -l | grep Mar"
alias wpa= "chmod a+w"
alias d="df -h | awk '{print \$6}' | cut -c1-4"
```

Creating User or Global Aliases

- User = Applies only to a specific user profile
- Global = Applies to everyone who has account on the system

- User = **/home/user/.bashrc**
- Global = **/etc/bashrc**

    alias hh="hostname"

Shell History

- Command "history"