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# UNIX

## **Lesson 01 : Introduction to UNIX Operating System and Basic UNIX Commands**

# Lesson Objectives

## ➤ In this lesson, you will learn:

- Operating System
  - Functions of Operating System
  - History of UNIX
  - Features of UNIX
  - UNIX System Architecture
- Basic UNIX Commands



# Overview

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- **An Operating System (OS) is the software that manages the sharing of the resources of a computer and provides programmers with an interface that is used to access those resources.**

# Functions of an Operating System

➤ **Following are some of the important functions of an OS:**

- Process Management
- Main-Memory Management
- Secondary-Storage Management
- I/O System Management
- File Management
- Protection System
- Networking
- Command-Interpreter System

# History

- **UNIX evolved at AT&T Bell Labs in the late sixties.**
- **The writers of Unix are Ken Thomson, Rudd Canaday, Doug Mclilroy, Joe Ossanna, and Dennis Ritchie.**
- **It was originally written as OS for PDP-7 and later for PDP-11.**
- **Liberal licensing: Various versions.**
- **System V in 1983 - Unification of all variants.**

# Features

- **UNIX OS exhibits the following features:**
  - It is a simple User Interface.
  - It is Multi-User and Multiprocessing System.
  - It is a Time Sharing Operating System.
  - It is written in “C” (HLL).
  - It has a consistent file format - the Byte Stream.
  - It is a hierarchical file system.
  - It supports Languages such as FORTRAN, BASIC, PASCAL, Ada, COBOL, LISP, PROLOG, C, C++, and so on.

# Services

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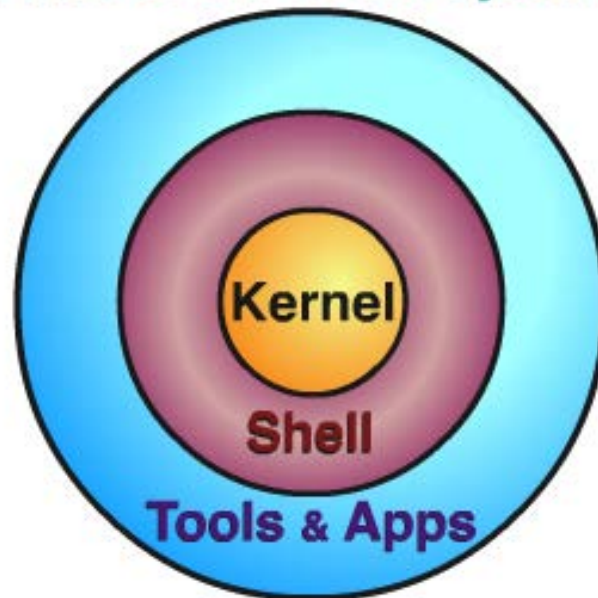
## ➤ **Services Provided by UNIX:**

- **Process Management:**
  - It involves Creation, Termination, Suspension, and Communication between processes.
- **File Management:**
  - It involves aspects related to files like creation and deletion, file security, and so on.

# UNIX System Architecture

- Following is a pictorial representation of the UNIX system:

Parts of the UNIX System





# Logging In and Out Commands

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- **Logging In and Out:**
  - Logon name and password are required.
  - Successful logon places user in home directory.

# man Command

## ➤ **man command:**

- The on line help provided by the **man** command includes brief description, options, and examples.
- Example:

```
$man <command>
```

# cal Command

## ➤ **cal command:**

- The **cal** command is used to display calendar from the year 1 to 9999.
- Example:

```
$cal 9 2001
```

- The above syntax can be used to print the calendar for the 9<sup>th</sup> month of the year 2001.

# date Command

## ➤ **date command:**

- The **date** command is used to see current date and time.
- Date can be displayed in different formats
- Example:

```
$ date
```

- **Output:** Fri Apr 6 11:14:46 IST 2001

```
$ date "+%T"           -- %t is used to display only time
```

- **Output:** 11:15:20

```
$ date "+ %d %h"       -- To display date and month name
```

- **Output:** 6 Apr

# lp Command

## ➤ **lp command:**

- The **lp** command is used for printing files.
  - Example:

```
$lp myfile.txt
```

```
$lp -n 10 myfile.txt
```

```
$lpq
```

```
$lprm -Pps99 11042
```

# nl Command

## ➤ nl command:

- The **nl** command is used to print file contents along with line numbers.
- Options:
  - -w : width of the number
  - -v : Indicate first line number
  - -i : increment line number by
- Example:

```
$ nl myfile.txt  
1 line one  
2 line two
```

# tty Command

## ➤ **tty Command:**

- Unix treats a terminal also as a file. In order to display the device name of a terminal, the **tty** (teletype) command is used.
- print the file name of the terminal connected to standard input
- Example: Using tty command

```
$ tty  
/dev/ttyp3
```

# who Command

## ➤ **who Command:**

- To list all users who are currently logged in
- Example:

```
$who
```

- **Output:**

```
user1  tty0  Mar 29 09:00
root   tty01  Mar 29 10:32
root   tty03  Mar 29 10:37
```

## ➤ **\$who am I Command:**

- To see the current user