

## Real-Time Operating System:

- A Real Time Operating System (RTOS) is an operating system made for real-time operations. Such operating systems serve application requests nearly real-time.
- It offers programmers more control over process priorities. Priority of an application process is more than a system process.
- Real time OS minimize critical sections of system code.
- A key characteristic of a real time OS is the level of its consistency i.e., the amount of time it takes to accept & complete an application task. The variability in this is called jitter. A hard real-time OS has less jitter than a soft real-time OS.
- The main goal is not high throughput, but rather guarantee of a soft or hard performance category.
- A real time os has an advance algorithm for schelduling. Real time os is more frequently dedicated to a narrow set of application
- Key factors in a real time os are:- minimal interrupt latency and minimal thread switching latency

## Single user Single Task Operating System:

- Operating system is a software program or set of programs that that maintain access between physical devices (keyboards, mouse, monitor, disk drive and network connection) and application programs (word processor, mail client, web browser)
- Single user/ single task operating system is designed to manage the computer so that one user can effectively do one thing at a time.
- The Palm OS for Palm handled computers is a good example of a modern single user/ single task operating system.
- **Single user mode is a mode in which a multiuser computer operating system boots into a single superuser.** It is used for maintenance of multi-user environment such as network servers.
- This made may also be used for security purpose. Network services are not run, hence eliminating possibility of outside interference.
- On some system a lost superuser password can be changed by switching to single user mode, but under such circumstances not asking password can become threat to security.

## Describe Windows vs Linux

Linux	Windows
Open Source Operating System - People can change codes & add programs to Linux OS	Not an Open Source Operating System- People can't change any codes for windows OS.
Linux come from different companies like Lycoris, Red Hat, Mandrake, Knopping, LIndows, Slackware.	All the flavors of Windows come from Microsoft.
Linux separates the directories using normal slash (/)	Windows separates the directories using back slash (\)
Linux file names are case sensitive. Example- "abc" & "ABC" are two different files in Linux	Windows file names are are not case sensitive. Example- "abc" & "ABC" corresponds to the same file.
In Linux each user will have a home directory & all his files will be saved under it. This makes it easy to have backup.	In Windows the user saves his files anywhere in the drive. This makes it difficult to have backup for his content.

### Advantages of Linux (Write any five)

#### Low cost:

There is no need to spend time & huge amount of money to obtain licenses since Linux & much of its software come with the *General Public License (GNU)*.

#### Stability:

- High stability as compared to other operating systems. No need to reboot the Linux system to maintain performance levels.
- It rarely freezes up or slows down.

#### Performance:

- High performance on various networks.
- Able to handle large number of users simultaneously.

#### Networking:

- Strong support for network functionality. Client & server systems can be easily set up.
- Performs tasks like network backup faster than other operating systems.

#### Flexibility:

- Very flexible. Linux can be used for high performance server applications, desktop applications & embedded systems.
- You can install only the needed components. You can also restrict the use of specific computers.

#### Compatibility:

- It runs all common Unix software packages & can process all common file formats.

#### Wider Choice:

- Large number of Linux distributions gives us a wider choice.
- We can pick the one we feel the best. The core functions are the same.

#### Fast & easy installation:

- Linux distribution come with user friendly installation.

#### Multitasking:

- Linux is a multitasking OS.
- It can handle many things at a time.

#### Security:

- Linux is one of thee most secure operating system.
- File ownership & permission make Linux more secure.