

Smart Programming : YouTube Channel

An investment in Knowledge pays the best interest....

**Smart Programming**
We Educate - We Develop

+91 62838-30308
Call us to Learn
Latest Technologies
City : Mohali (Punjab),
& Chandigarh
(India)

 **WEBSITE :** <http://www.smartprogramming.in>

 **BUY COURSES ON :** <https://courses.smartprogramming.in>

 **YOUTUBE CHANNEL :** Smart Programming (<https://www.youtube.com/c/SmartProgramming>)

 **ANDROID APP :** Smart Programming
(<https://play.google.com/store/apps/details?id=com.smartprogramming>)

 <https://www.facebook.com/smartprogramming.india>
 https://www.instagram.com/smart_programming



Multithreading Introduction in Java

=> Multitasking :-

➔ Performing multiple task at single time

➔ Examples :

- When we perform multiple task for example opening vlc, word, notepad, browser on single system etc

➔ Multitasking use the concept of context switching internally

➔ Multitasking can be achieved by 2 ways :-

1. Process based multitasking (Multiprocessing)
2. Thread based multitasking (Multithreading)

➔ Multitasking is used to reduce the ideal time of CPU.

=> Multiprocessing :-

- ➔ Multiprocessing is the part when one system is connected with multiple processor (CPU)
- ➔ Multiprocessing is best suitable at system level or OS level

=> Multithreading :-

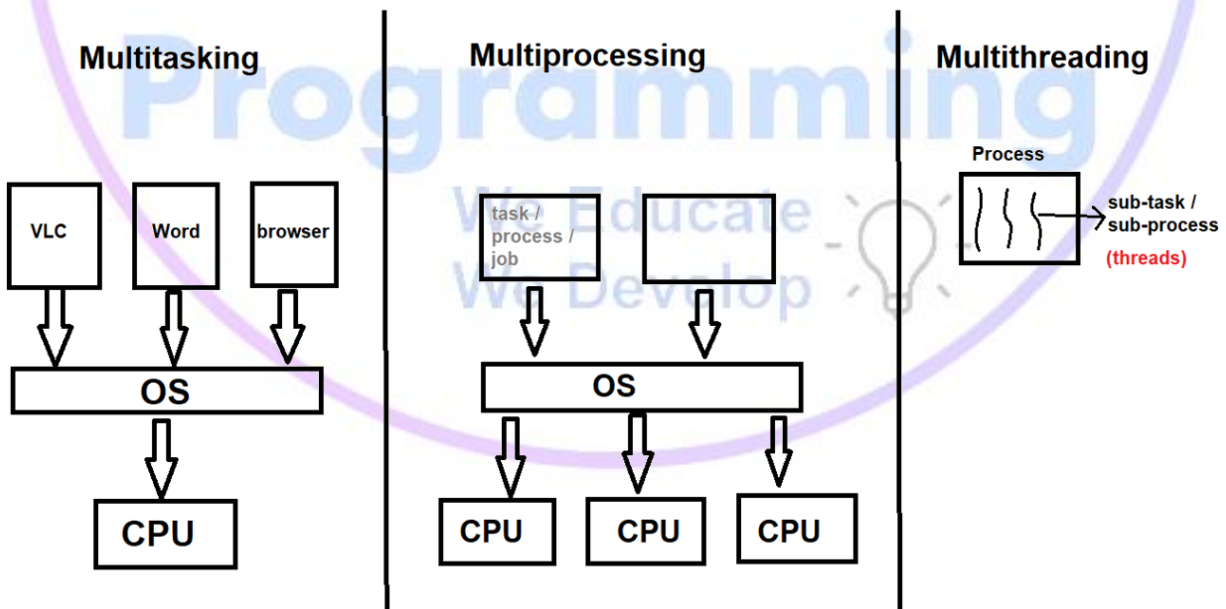
- ➔ Multithreading is the part which multiple threads (sub-process) are executed at single time
- ➔ Examples :
 1. Word
 2. VLC
 3. Games
 4. Animations
 5. Browser
 6. Web-servers

etc

➔ Multithreading is mostly implemented by java itself, we have to implement less part of multithreading.

➔ Java provides API for multithreading :-

1. Thread
2. Runnable
3. ThreadGroup
4. Concurency
5. ThreadPool
1. etc



=> What is difference between Process & Thread ?

1. Process is the heavy-weight task performing multiple tasks
Thread is the light-weight sub-process performing single task
2. Process does not depends on each other
Threads depends on each other
3. Context switching is difficult in process (takes more time)
Context switching is easy in threads (takes less time)
3. Process shares the different address space
Threads shares the same address space

- 4. Process does not require synchronization
Threads requires synchronization
-

=> How to create threads :

-> There are 2 ways to create threads :-

1. By using "Thread" class
 2. By using "Runnable" interface
-

=> What is "Thread" :-

➔ Thread is the pre-defined class which is present in java.lang package

→ Syntax :

class Thread implements Runnable

{

//constructors

//methods

run()

start()

etc

}

=> What is "Runnable" :-

→ Runnable is pre-defined interface present in java.lang package

➔ Syntax :

```
interface Runnable
{
    //method
    run()
}
```

=> Which is better way to create thread, Thread or Runnable ?

-> Runnable is better way to create threads in java because if we inherit Thread class then we were not able to inherit any other class as multiple inheritance is not supported in java but if we inherit Runnable interface then we can inherit more interfaces and can inherit the class also

Company Links & Contacts

Company Name: Smart Programming (+91 62838-30308)

Address : Chandigarh & Mohali (Punjab), India

Websites: <https://www.smartprogramming.in/>
<https://courses.smartprogramming.in>

Android App:

<https://play.google.com/store/apps/details?id=com.smartprogramming>

YouTube Channel:

<https://www.youtube.com/c/SmartProgramming>