**Multithreading – Part-01 - Introduction**

* Agenda
  + Introduction
  + The ways to define a thread.
    - By extending Thread class.
    - By extending Runnable interface.
  + Getting & Setting Name of the thread.
  + Thread priorities.
  + The methods to prevent Thread execution.
    - yield()
    - join()
    - sleep()
  + Synchronization.
  + Inter Thread communication.
  + Deadlock
  + Daemon Threads.
  + Multithreading enhancements.
* Introduction
  + Multitasking:

Executing several tasks simultaneously is the concept of multitasking, there are two types of multitasking.

* + - * Process based multitasking.
      * Thread based multitasking.
  + Process Based Multitasking:

Executing several tasks simultaneously where each task is a separate independent program (process) is called process based multitasking.

Example:

While type a Java program in the editor, we can listen audio songs from same system at the same time we can download a file from net. All these tasks will be executed simultaneously and independent of each other. Hence it is process based multitasking

Process based multitasking is best suitable at OS level.

* + Thread Based Multitasking:

Executing several tasks simultaneously where each task is a separate independent part of the same program is called thread based multitasking and each independent part is called a thread.

Thread based multitasking is best suitable at programmatic level.

* + Whether it is process based or thread based the main objective of multitasking is to reduce response time of the system and to improve performance.
* The main important application areas of multithreading are:
  + To develop multimedia graphics. (Recall balaih dancing story)
  + To develop animations.
  + To develop video games.
  + To develop web servers and application servers, etc.
* When compared with old languages, developing multithreaded applications in Java is very easy because, Java provides in-built support for multithreading with rich API [Thread, Runnable, ThreadGroup …]