**Thread**

#### 16.1 Introduction

Unlike most other computer languages, java provides built-in support for multithreaded programming. A multithreaded program conatins two or more parts that **can** **run concurrently**

Each part of such a program is called a **Thread**, the each thread defines a separate path of execution. Thus, multithreading is specialized form of multitasking.

However, there are two distinct types of multitasking: **process-based** and **thread-based**. **A process-based** multitasking is the feature that allow your computer to turn two or more programs concurrently.

**For example:** **process-based** multitasking enables you to run the java compiler at the same time that your are using a text editor(notepad)

A **thread-based** multitasking environment, the thread is the smallest unit of dispatchable code. This means that a single program can perform two or more tasks simultaneously.

**For example:** a text editor can format text at the same time that it is printing, these two actions are performed by two separate thread.

Processes are heavyweight task, where as thread are lightweight task

A thread is similar to a sequential program. Like sequential program,a thread also has a beginning , and an end. However a thread is not a program on its own. But runs within a program. Every program has at least one thread that is called primary thread. You can create more thread when necessary.

These are two types of threaded applications.

1. **Single threaded applications**
2. **Multi threaded applications.**

**16.2 Single Threaded Application :**

A process ie made up of only one thread is said to be single threaded. A single threaded application can perform only one task at a time. You have to wait for one task to be implemented before another can start.

16.3 Multi Threaded Applications :

A process having more than one thread is said to be multi threaded. A multi threaded program is one in which these are two parts of same program that can run concurrently.