MultiThreading

Besant Technologies

Process & Thread:

- A process is an instance of program that is being executed.
- Have 2 basic components:
  - An executable program
  - Separate workspace

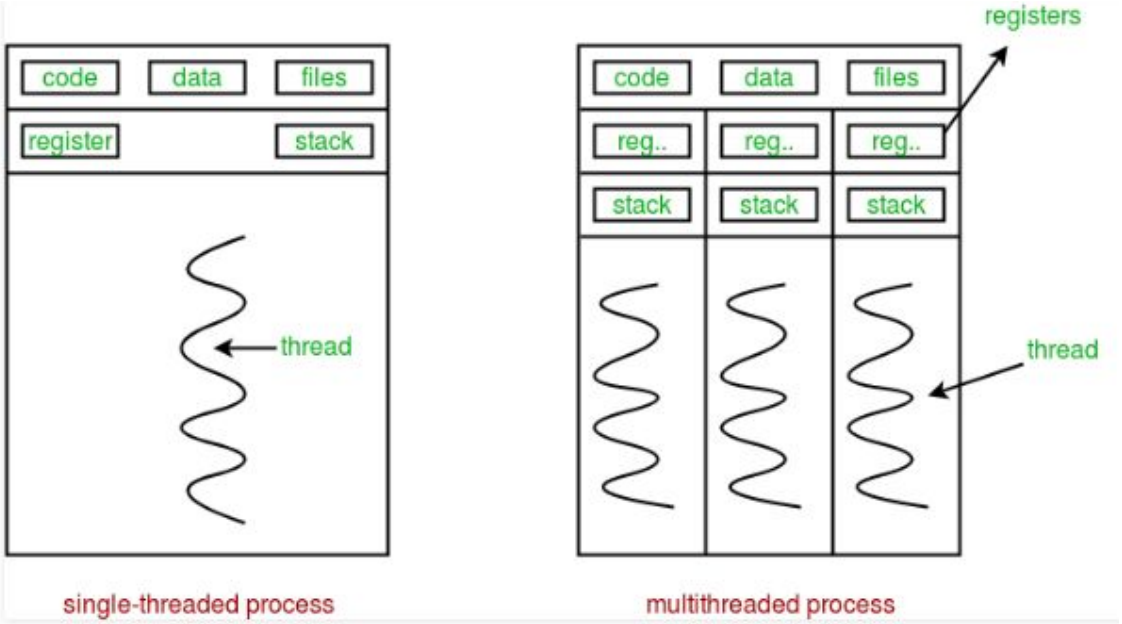
* A thread is an entity of a process.

* Thread is a subset of a process

* Thread won’t have separate workspace.

MultiThreading:

- Execute multiple threads simultaneously.
- Each thread has its own stack but shares the common global variables.



MultiProcessing:

- Execute multiple processes simultaneously.
- Multiprocessing requires:
  - Multiple processors (CPUs)
  - Single processor with multiple cores.
  - Separate memory space for each block
  - Data can be shared across processes using shared memory

Multithreading example:

- import threading
- Multithreading in class
- Multithreading in functions

Multiprocessing Ex:

- Multiprocessing uses different memory spaces for different processes.
- Sharing of data can be done by using shared memory.
- Ways of sharing data:
  - Multiprocessing array
  - Multiprocessing value
  - Multiprocessing queue

Pool & map:

- Pool is used for sharing task among CPU cores.
- map is used along with pool to split the data parallelly among the cores and collect back the results and combine.