Lesson 02:
Flynn Classification of parallel processing architectures
Objective

- Be familiar with *Flynn classification of parallel processing architectures*
- **SISD, SIMD, MISD, MIMD**
Basic multiprocessor architectures
Flynn Classification

- **SISD** (single instruction and single data stream)
- **SIMD** (single instruction and multiple data streams)
- **MISD** (Multiple instructions and single data stream)
- **MIMD** (Multiple instructions and multiple data streams)
SISD

- No instruction parallelism
- No data parallelism
- SISD processing architecture example—a personal computer processing instructions and data on single processor
SIMD

- Multiple data streams in parallel with a single instruction stream
- **SIMD** processing architecture example—a graphic processor processing instructions for translation or rotation or other operations are done on multiple data
- An array or matrix is also processed in **SIMD**
MISD

- Multiple instruction streams in parallel operating on single instruction stream
- Processing architecture example—processing for critical controls of missiles where single data stream processed on different processors to handle faults if any during processing
MIMD

- Multiple processing streams in parallel processing on parallel data streams
- MIMD processing architecture example is super computer or distributed computing systems with distributed or single shared memory
Summary
We Learnt

- SISD, SIMD, MISD, MIMD four classifications of parallel processing architectures
End of Lesson 02 on
Flynn Classification of parallel processing architectures