# 42 Lecture - CS302

## Important Subjective

1. **What is a flash memory array?**
   Answer: A flash memory array is a type of non-volatile memory that uses EEPROM technology to store data. It consists of a large number of memory cells, which are arranged in a grid-like structure.

   **How does a flash memory array store data?**
   Answer: A flash memory array stores data by electronically programming and erasing each memory cell. Each cell can store one or more bits of data, which can be read, written or erased electronically.

   **What is the difference between a flash memory array and a hard disk drive?**
   Answer: The primary difference between a flash memory array and a hard disk drive is the access time. Flash memory arrays have faster access times than hard disk drives, but may have lower storage capacity and limited write cycles.

   **What are the advantages of a flash memory array?**
   Answer: Flash memory arrays have several advantages, including high storage density, fast access times, low power consumption, and reliability.

   **What are the disadvantages of a flash memory array?**
   Answer: The disadvantages of a flash memory array include limited write cycles, higher cost per GB than hard disk drives, and the potential for data loss if not properly managed.

   **What is wear leveling in a flash memory array?**
   Answer: Wear leveling is a technique used to extend the lifespan of a flash memory array. It ensures that each memory cell is used equally by distributing write cycles evenly across the memory array.

   **What is the difference between single-level cell (SLC) and multi-level cell (MLC) flash memory?**
   Answer: SLC flash memory stores one bit of data per memory cell, while MLC flash memory stores multiple bits of data per memory cell. SLC is faster and more durable, but also more expensive than MLC.

   **How is a flash memory array erased?**
   Answer: A flash memory array is electronically erased by applying a high voltage to each memory cell. This process removes the electrons that were trapped during the programming process and resets the memory cell to its default state.

   **What is the role of error correction codes (ECC) in a flash memory array?**
   Answer: ECC is used to detect and correct errors in a flash memory array. It helps to ensure data integrity and prevent data loss due to data corruption.

   **What are some common applications of a flash memory array?**
   Answer: Flash memory arrays are commonly used in a variety of applications, such as USB

drives, solid-state drives, memory cards, and mobile devices like smartphones and tablets.