2.2.3 compare the two types of RAM, i.e. Static RAM (SRAM) and Dynamic RAM (DRAM);

Here's a comparison between Static RAM (SRAM) and Dynamic RAM (DRAM):

Feature	Static RAM (SRAM)	Dynamic RAM (DRAM)
Data Storage	Stores data using flip-flops	Stores data in capacitors
Volatility	Volatile; loses data when power is off	Volatile; also loses data when power is off
Speed	Faster access time	Slower access time compared to SRAM
Power Consumption	Generally lower during access; no refresh needed	Higher due to constant refreshing needed
Complexity	More complex circuit design	Simpler circuit design
Cost	More expensive per bit	Less expensive per bit
Usage	Used for cache memory in CPUs and some high-speed applications	Used for main memory in computers and devices
Density	Lower density (less storage per chip)	Higher density (more storage per chip)

Key Differences:

1. **Data Storage Method**:
   - **SRAM**: Uses multiple transistors (typically 4-6) to store each bit, making it faster and more stable.
   - **DRAM**: Uses a single transistor and a capacitor for each bit, requiring periodic refreshing to maintain data.
2. **Speed**:
   - **SRAM**: Offers faster read and write times, making it suitable for cache memory.
   - **DRAM**: Slower than SRAM, which can impact performance in tasks that require frequent memory access.
3. **Power Consumption**:

- ○ **SRAM**: Consumes less power during operation as it doesn't need to refresh data.
- ○ **DRAM**: Consumes more power due to the need for constant refreshing of the stored data.
4. **Cost and Density**:
   - ○ **SRAM**: More expensive and takes up more physical space, resulting in lower storage density.
   - ○ **DRAM**: Cheaper and denser, allowing for larger amounts of memory to be built in a smaller space.

Summary:

- **SRAM** is faster, more reliable, and used in applications like CPU caches, while **DRAM** is more cost-effective and used as the main memory in computers and other devices. The choice between them depends on the specific needs of the application regarding speed, cost, and memory capacity.