

## 1. Main:

- a. The program includes a header file named "fat32Dir.h", contains declarations and definitions needed for working with FAT32 file systems.
- b. In the `main()` function:
  - i. It declares an array `sector` of size 512 bytes.
  - ii. Calls `ReadSector(L"\\\\.\\F:", 0, sector);`. This function seems to read the first sector of the disk represented by `\\\\.\\F:` and stores the data in the `sector` array.
- c. It checks if the disk is NTFS or FAT32 by calling the function `isNTFSorFAT32(sector)`. If the function returns 0, it indicates NTFS; if it returns 1, it indicates FAT32.
- d. If the disk is FAT32, it proceeds to do the following:
  - i. It declares an integer variable `option`.
  - ii. It declares an instance of the `FATbootSector` class named `disk1`.
  - iii. It calls `disk1.getInfo(L"\\\\.\\F:");`, which seems to retrieve information about the FAT32 volume.
  - iv. If the information retrieval is successful, it enters a loop where the user is presented with a menu of options:
    1. Option 1: Display volume information.
    2. Option 2: Display the root directory.
    3. Option -1: Exit the program.
  - v. Depending on the user's input, it either displays volume information, displays the root directory, or exits the loop.
- e. The program returns 0, indicating successful execution.
- f.

## 2. FATbootSector

- a. **ReadSector function:** This function reads a sector from a specified drive and stores the data in the provided buffer.
- b. **hexToString function:** Converts a byte array to a string
- c. **clearExcessSpace function:** Removes excess space characters from a string.
- d. **firstSectorofCluster function:** Calculates the first sector of a cluster based on the FAT32 boot sector information.
- e. **isNTFSorFAT32 function:** Determines whether the file system is NTFS or FAT32 by examining specific signatures in the boot sector.
- f. **getListClusters function:** Retrieves a list of cluster numbers starting from a given cluster in the FAT32 file system.
- g. **FATbootSector class:** This class represents the boot sector of a FAT32 file system. It contains methods for initializing the boot sector information, displaying information about the boot sector, and accessing specific parameters of the boot sector.
  - i. **getInfo method:** Reads the boot sector from the specified disk location and initializes the boot sector information.
  - ii. **showInfo method:** Displays information about the boot sector.

- iii. **getBytesPerSec, getSecPerClus, getBootSecSize, getFirstRootClus, getFirstDataSector methods:** Accessors for specific parameters of the boot sector.

### 3. fat32Dir

- a. **File class:** Represents a file in the FAT32 file system. It stores attributes such as file name, extension, attributes, first cluster, and file size.
- b. **Constructor:** Initializes a File object with default values.
- c. **getFiles function:** Retrieves information about files from a specified cluster in the FAT32 file system. It reads directory entries, parses them, and populates a vector of File objects.
- d. **convertAttrNumToAttrString function:** Converts file attributes from numeric representation to a human-readable string format.
- e. **interactFile function:** Interacts with a specific file. If the file is a text file (identified by its extension), it reads its content and prints it to the console.
- f. **Directory function:** Displays a list of files and subdirectories in a specified directory cluster. It allows the user to navigate through the directory structure, interact with files, or enter subdirectories recursively.