Operating System Project

Simple Shell & File system (FAT)

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Explain Our Code

First Class :- (Directory_Entry)

we define variables

1- **Array of char for file name**
2- **Byte to Know if user want file or directory**
3- **Array of byte for file empty**
4- **Integer number for the Cluster**
5- **Integer number for file size**

First we define an empty Constructor from Directory Entry for
Empty Directory.

Second we define a Constructor from Directory Entry to store the information of Directory by variables we define above.

Third we define a method that returns array of bytes to convert the information to bytes for store it in virtual disk

Fourth we define a method that returns Directory to convert the information that we stored in the virtual disk original value if we want to know this information

Second Class :- (directory)

This class inherited from Class Directory_Entry .
And list of Directory_Entry to create table of directory .

And we define directory for parent directory.

First we define an empty Constructor from Directory for Empty Directory.

Second we define a Constructor from Directory Entry to store the information of Directory by parent of this directory and variables we define in Directory Entry class .

Third we define a method to write directory table and store it.

Fourth we define a method to read the information of table directory.

Fifth we define a method to search directory in directory table .

Sixth we define a method to update directory information in directory table.

Seventh we define a method to delete directory in directory table .

Eighth we define a method to get information of directory in directory table.

Third Class :- (Fat_Table)

We define array of integer number for fat table

First we define a method to store the initial value of fat table.

Second we define a method for testing fat table.

Third we define a method to write the values of fat table.

Fourth we define a method that return array of integer numbers to read that stored in fat table

Fifth we define a method to get the free space of the virtual disk.

Sixth we define a method to set the next value of fat table.

Seventh we define a method to get the next value of fat table.

Eighth we define a method to get the Available Index of fat table.

Ninth we define a method to get the Available block of fat table.

Fourth Class :- (file_entry)

This class inherited from Directory_Entry
We define string content to store the content of the file .
And we define directory for parent directory.

First we define an empty Constructor from file_entry for Empty file.

Second we define a Constructor from file entry to store the information of file by parent of this directory and variables we define in Directory Entry class .

Third we define a method to write the information of the file .

Fourth we define a method to get the information of the file .

Fifth we define a method to delete the file from the virtual disk .

Fifth Class :- (virtual_disk)

First we define method to initialize the default directory and the default fat table .

Second we de define a method to write a blocks in virtual disk and write fat table.

Third we define a method to get the data of virtual disk .

Sixth Class :- (StreamRead)

Seventh Class :- (CMD)

First we define a directory to store the default directory and define string to store the current position .
And enter the main method in it :-
Define array of two string for the commands and description and list of arguments for the commands
And create a disk from virtual disk class and initialize it
And enter to the infinite loop to enter the command

Second we define a method to initialize the commands and description and list of arguments for the commands.

Third we define a method to initialize the help command.

Fourth we define a method to get the current directory.

Fifth we define a method use it in dir command .

Sixth we define a method use it in cd command .

Fifth we define a method use it to execute the commands :-

1- **cd - Change the current default directory to . If the argument is not present, report the current directory. If the directory does not exist an appropriate error should be reported.**

2- **cls - Clear the screen.**
3- **dir - List the contents of directory .**
4- **quit - Quit the shell.**
5- **copy - Copies one or more files to another location**
6- **del - Deletes one or more files.**
7- **help -Provides Help information for commands.**
8- **md - Creates a directory.**
9- **rd - Removes a directory.**
10- **rename - Renames a file.**
11- **type - Displays the contents of a text file.**
12- **import – import text file(s) from your computer**
13- **export – export text file(s) to your computer**