***List of finished function modules:***

* Opening and loading the virtual disk
  + Using make\_fs and mount\_fs functions in my FAT File System
* Locating and retrieving superblock, FAT, and root directory
  + Using the meta-information that which I have saved in its FAT entry in my FAT File System
* Listing files under the root directory
  + ls command in linux in its command prompt on windows and in its terminal on the mac
  + No function for it in my FAT File System
* Retrieving the metadata of a specified file
* Creating and allocating a block for an empty file
  + Using find\_free\_blocks function in my FAT File System
* Opening a file and generating independent file descriptors for it
  + Opening a file: using fs\_open function in my FAT File System
  + Generating independent file descriptors for it: using find\_free\_file\_descriptor in my FAT File System
* Using the file descriptor to read the file and write to the file
  + Using get\_file\_descriptor function in my FAT File System to get the descriptor to the file
  + Using fs\_read to read x number of bytes from the file
  + Using fs\_write to write x number of bytes to the file
* Making all modifications persistent
  + Using mount\_fs in my FAT File System
* Retrieving previously saved content when reopening the virtual disk
  + Using mount\_fs in my FAT File System
* Deleting file
  + Using a fs\_delete function in my FAT File System
* Creating the subdirectory and deleting an empty directory
  + No function for deleting an empty directory
  + Using fs\_mkdir to create a subdirectory in my FAT File System

***Design descriptions:***

1. What kind of implementation are you using (FAT/Inode)?
   1. I am using FAT implementation for my File System
2. Are you using mmp() to access the virtual disk?
   1. Yes
3. What’s your partition of the virtual disk file?

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Description automatically generated

1. How and where do you store directory entries?
   1. Using char directories[MAXIMUM\_NUMBER\_OF\_DIRECTORIES] in its DIR typedef struct in my FAT File System and by increasing int num\_of\_directories\_contained by one in its DIR struct In my FAT File System
2. What’s the struct of the directory entry and file descriptor?
   1. DIR typedef struct for the directory in my FAT File System
   2. FILE\_ALLOCATION struct for the file descriptors in my FAT File System
3. How do you find the location to insert the new directory entry when you create a new file in a subdirectory?
   1. Using char directories[MAXIMUM\_NUMBER\_OF\_DIRECTORIES] in its DIR typedef struct in my FAT File System to help tell me what slots are filled and which ones are not filled
   2. And include the directory of the file in its entry in the FAT in my FAT File System
4. How do you find an available block when you’re creating a new file?
   1. Using a find\_free\_block function in my FAT File System
5. How do you reclaim the space when you delete a file?
   1. By freeing those blocks used by the file and setting to -1 again in my FAT File System