Supplement to Project 4

(1) Virtual disk
- (1.1) 64 blocks
- (1.2) 16 bytes/block
- (1.3) range of block numbers: 0..63
- (1.4) disk capacity: 64×16 = 1024 bytes
- (1.5) disk name: 4 lowercase or uppercase letters

(2) Directory
- (2.1) single root directory (up to 8 entries, see below)

(3) Files
- (3.1) up to 8 files
- (3.2) up to 32 blocks for data files (32..63)
- (3.3) other 32 blocks are for metadata (0..31)
- (3.4) maximum file size = 32×16 = 512 bytes
- (3.5) file name: 4 lowercase or uppercase letters
- (3.6) open file table (OFT): up to 4 opened files simultaneously (*i.e.* size of OFT = 4, 0..3)

(4) Functions you need to design and implement
- a. *make_fs*()
- b. *mount_fs*()
- c. *dismount_fs*()
- d. *fs_create*()
- e. *fs_open*()
- f. *fs_close*()
- g. *fs_delete*()
- h. *fs_read*()
- i. *fs_write*()
- j. *fs_get_filesize*()
- k. *fs_lseek*()
- l. *fs_truncate*()

(5) Functions provided to you

a. *make_disk*()
b. *open_disk*()
c. *close_disk*()
d. *block_read*()
e. *block_write*()

(6) How to design the *make_fs*() function?

a. Use *make_disk*() to initialize a new disk (*i.e.* stored 0 in each byte on the virtual disk)
b. Use *open_disk*() to make the virtual disk available
c. Initialize superblock, directory, and FAT on disk (see disk layout)
d. Use *close_disk*() to close the disk (*i.e.* make the virtual disk unavailable)

(7) How to design the *mount_fs*() function?

a. Use *open_disk*() to make the virtual disk available
b. Load directory and FAT into memory (use *block_read*() to do it)
c. Create an OFT in memory

(8) Disk layout